

# **CRSP**

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# **CRSP/COMPUSTAT MERGED DATABASE GUIDE**

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## CHAPTER 1: INTRODUCTION

### 1.1 About CRSP

The Center for Research in Security Prices (Prof. Eugene F. Fama, Chairman) has been an integral part of the academic and commercial world of financial and economic research. Since its inception in 1960, CRSP has provided an unparalleled foundation as the leading source for the most comprehensive and accurate historical US databases available. CRSP is a research institute of the Graduate School of Business of the University of Chicago, which has a history of being a catalyst for innovation and progress, and has been a resource for other academic institutions and corporations alike.

In 1959, Louis Engel, vice president of Merrill Lynch, Pierce, Fenner & Smith, called Professor James H. Lorie (PhD 1947; Professor of Business Administration) with an inquiry which resulted in a grant from Merrill Lynch and the establishment of CRSP.

The inquiry developed into a project which involved compiling, cleaning and codifying the prices, dividends and rates of return of all stocks listed and trading on the NYSE since 1926. It resulted in an academic research-grade database that remains invaluable to empirical research due to its breadth, depth, and completeness, and includes CRSP's unique permanent identifiers, allowing for clean and accurate time-series research and event studies.

CRSP files continue to provide a strong foundation for economic forecasting, stock market research, and financial analyses by academic institutions, investment banks, brokerage firms, corporations, banks and government agencies. CRSP provides the following data files: common stocks on the NYSE, AMEX and NASDAQ; CRSP Indices; NASDAQ, and S&P 500 composite indices; NASDAQ and AMEX Industry Indices; US Treasury bonds; Survivor-Bias-Free Mutual Funds; market capitalization reports; proxy graphs for 10K SEC filings and custom datasets. Additionally, CRSP continues to develop new research resources such as the new CRSP/Ziman Real Estate Data Series.

### 1.2 CRSP/Compustat Merged Database

The CRSP/Compustat Merged Database (CCM) is comprised of CRSP and Compustat® data together with the link and link-history references between these two databases. It includes Standard & Poor's Compustat data, reformatted into CRSP's proprietary CRSPAccess database format. The CRSP Link® provides a peerless matching of CRSP historical price, distribution, and total return data with Compustat fundamental data by associating identifiers that are unique to each database.

Features include:

- ⊗ CRSP Link – an array of data, linking permanent unique identifiers: CRSP's PERMNO and PERMCO and Compustat's GVKEY.
- ⊗ A CRSP-provided name history record with historical Compustat identifying information. CRSP maintains the description history by linking successive iterations of Compustat data using the Compustat Status Reports.
- ⊗ Fortran and C random access programming support with a variety of identifiers as well as utility programs to access the data. CRSP programs can process both CRSP and Compustat data
- ⊗ Data organized by GVKEY, Compustat's permanent identifier, allowing consistent identification of companies as new records are added by Compustat.

### File Organization

Active and research universes are organized by file types to provide access convenience.

- ⊗ Industrial Annual and Quarterly
- ⊗ Bank Annual and Quarterly
- ⊗ Business Information Files
- ⊗ Prices, Dividends, and Earnings (PDE)
- ⊗ NAICS
- ⊗ SIC
- ⊗ S&P Index Fundamentals Annual and Quarterly

Compustat North American is a copyrighted computer-readable library of company financial, statistical, and market information provided by Standard & Poor's Institutional Market Services (S&P IMS), a division of The McGraw-Hill companies, Inc. Data ordered include key income statements, balance sheets, changes in financial position, and market items.

#### Document Notes

The CRSP/Compustat Merged Database is designed to work in conjunction with the CRSP US Stock & Indices Databases. This guide focuses on information directly related to the use of CCM. It is designed to be used in tandem with other CRSP guides where information resides with broader applications to the CRSP Stock and Indices databases. Guides and other documentation may be found online at [www.crsp.ChicagoBooth.edu](http://www.crsp.ChicagoBooth.edu).

- ⊗ *Data Description Guide* – variable definitions, coding schemes, data organization, data derivations and index methodologies.
- ⊗ *Utilities Guide* – non-programming access to CRSP Stock and Indices databases.
- ⊗ *Programmer's Guide* – information on using random access libraries and sample programs
- ⊗ *Migration Guide* – transition information for subscribers upgrading to Fortran-95 from Fortran-77

For data item descriptions and usage of the Compustat data files, variable names and codes, refer to the *Compustat® User's Guide* and the *Compustat® Technical Guide*, distributed exclusively by Standard & Poor's Institutional Market Services.

### CRSPAccess Description

CRSPAccess is a custom database format providing access to CRSP stock and indices data, and to the CRSP/Compustat Merged Database.

A CRSPAccess database has the following features:

- ⊗ Compact binary data, programming libraries, and utility programs provided for target machines
- ⊗ Utilities to dump data and perform `namelist` searches without programming
- ⊗ Support for C and FORTRAN-95: includes sample programs and libraries with direct or sequential access on various keys, with access to all Compustat and link data items and concurrent access to CRSP stock and indices data

## Notational Conventions

- ⊛ All names occurring within CRSP's sample programs and include files are printed using a constant-width, courier font. These names include variable names, parameter names, subroutine names, subprogram names, function names, library names, and keywords. For example, CUSIP refers to the CUSIP Agency identifier, while `CUSIP` refers to the variable which programs use to store this identifier. Variable mnemonics, used as names and in descriptions, are displayed in upper case using a CONSTANT-WIDTH font. C variables are typically lower case, excepting defined constants and structure names, which are UPPER CASE. FORTRAN variables are displayed in UPPER CASE.
- ⊛ All example commands are printed using a courier font.
- ⊛ All names referring to the data utilities, sample programs, and include-file titles are printed using an *italic helvetica* font.
- ⊛ In the variable definitions section, the variable `I` is sometimes used to reference a variable in a FORTRAN array. In this case, `I` refers to a possible range of valid data in this array for this company, where the valid range is determined by values of header variables.
- ⊛ All CRSP-defined data types have names in upper case beginning with `CRSP_`.
- ⊛ The term `CRSPDB` refers to a CRSPAccess format database.
- ⊛ `PERMNO`, Perm numbers (`PERMNOs` or `perm#s`) and like variations, refer to CRSP's Permanent identifier, `PERMNO`.

### 1.3 CRSP Link<sup>®</sup>

CRSP and Compustat data are commonly linked to match CRSP event and performance history with Compustat fundamental company data and supplemental market information. Because of different identification conventions, inverse, and available historical information between the two databases, linking is not a straightforward process. Additionally, Compustat often changes its header information for inactive companies when they are moved to the research file, making companies more difficult to link across files. CRSP provides CRSP Link, a data array which contains a history of links between each of CRSP's `PERMNO` and `PERMCO` references for each Compustat `GVKEY`.

CRSP and Compustat records have a many-to-many linking relationship. CRSP primarily tracks security data from a shareholder perspective, while Compustat typically tracks fundamental company data from a company perspective. The following issues are addressed in the construction of CRSP Link.

1. Compustat does not provide historical identifiers following name changes in the Full Coverage North American subscription. Prior information must be located from old data files, status reports, or supplemental research materials.
2. CRSP data contain historical changes to company names, ticker symbols, and CUSIPs, but track the company only while it has a security trading on NYSE, AMEX, or NASDAQ. It is possible for companies to continue to change header information and to report after the stock ceases to trade on a major exchange.
3. Compustat data usually contain one record for each company. Therefore, if a company issues multiple classes of common stocks, Compustat typically provides one company record, where only one of the issues is represented for market data items each period. CRSP maintains all classes in separate records identifiable by `PERMNO`.
4. CRSP and Compustat do not always agree on the survivor of some mergers, or when changes are sufficient to generate a new company record. As a result, one CRSP record can link to multiple Compustat records, and one Compustat record can link to multiple CRSP records, in one-to-one, one-to-many, or many-to-many relationships.

### CRSP and Compustat Linking Information

The following six data items comprise the primary identifiers used to create and maintain the CRSP link in the CRSP/Compustat Merged Database.

#### **GVKEY – Compustat’s Permanent Record Identifier**

GVKEY, the primary key in Compustat databases, is a permanent numeric identifier unique to all company or aggregate records in a database. GVKEY allows consistent identification of records when other descriptive information changes.

#### **CNUM – Compustat CUSIP Issuer Code**

CNUM is a six-character company identifier used by Compustat, usually based on the CUSIP number issued by the CUSIP Bureau to identify a company's publicly traded securities. If the fourth and fifth digits are "9", it is a dummy CNUM created by Compustat that has no connection with a CRSP dummy CUSIP or a CUSIP Bureau CUSIP. CNUMs are assigned so that CNUM order is roughly alphabetical, and can be changed when a company changes its name. Compustat sometimes modifies CNUM for issues on the research file or to avoid duplicate CNUM/CIC pairs, usually by replacing the 6th character with an X (or another character). Except for cases where Compustat created a dummy CNUM, the CNUM corresponds to the first six digits of the CRSP NCUSIP data item.

#### **CIC – Compustat CUSIP Issue Number and Check Digit**

CIC is a three-character field consisting of a two-character CUSIP issue number and an electronic check digit. It is used by the CUSIP Bureau to distinguish multiple issues of the same company. The first two characters of the CIC identify specific security issues (stocks, bonds, notes, etc.) and correspond to the last two digits of the CRSP NCUSIP in the link array. If the issue belongs to a subsidiary or never traded for some other reason, the first two digits are blank. The third digit is a check digit, derived from the CNUM and the first two characters of the CIC, assigned by Compustat to verify and distinguish records delivered in an electronic format.

#### **PERMNO<sup>®</sup> – CRSP Permanent Security Identifier**

PERMNO is the primary key for securities in the CRSP stock data. PERMNO is a unique 5-digit permanent issue identification number.

#### **PERMCO<sup>®</sup> – CRSP Permanent Company Identifier**

PERMCO is the primary key for companies in the CRSP stock data. PERMCO is a unique 5-digit permanent company identification number. If a company trades multiple issues, they all have different PERMNOs, but the same PERMCO.

#### **NCUSIP – CRSP Names CUSIP**

NCUSIP is the CUSIP in the CRSP names history data record. It is the 8-digit CUSIP number assigned by the CUSIP Bureau (without the electronic check digit). CRSP maintains a complete historical list of CUSIPs for each security with effective dates. CUSIP is present only in one security, and a security can be assigned multiple CUSIPs over time.

CRSP uses no dummy values in the name history array. CRSP does assign dummy CUSIPs in the header array to securities if they cease trading before 1968. It is unlikely that dummy CUSIPs assigned by CRSP match dummy CUSIPs assigned by Compustat, and there is no correlation between them if they do.



## Secondary Identification and Data Items

Secondary Compustat identifiers are Industry Classification Code (DNUM), Stock Ticker Symbol (SMBL), Company Name (CONAME), and Exchange Listing and S&P Major Index Code (ZLIST). Secondary CRSP identifiers are Company Name (COMNAM), Ticker Symbol (TICKER), and Share Class (SHRCLS). Secondary data items include annual and quarterly price data, common shares data, and delisting data. See [Linking Procedures \(page 10\)](#) for details on how the secondary items are compared.

## The Link Between CRSP and Compustat Data

The link between CRSP and Compustat data, CRSP Link, has a set of events for each Compustat record. The Compustat record is identified by GVKEY. Each event includes the first and last researched effective dates of its link and the effective CRSP PERMNO and PERMCO referencing the security data between those dates.

Two header variables with embedded CRSP PERMNO and PERMCO, IPERM and ICOMP, are included to simplify linking, but do not provide history. The Link Type field in the link-history array provides additional details, specifying the type of link.

### NPERMNO® – Historical CRSP PERMNO Link to Compustat Record

NPERMNO is the link to PERMNO, the primary security key in the CRSP stock databases, during the effective range of the link. If there is no link to CRSP, such as for a private company or a subsidiary that never traded on a major exchange, NPERMNO is set to zero.

It is possible to have more than one link event with multiple NPERMNOs effective at the same time if multiple classes of stock are represented by one Compustat record. It is possible to have a Compustat GVKEY linking to different non-zero NPERMNO and NPERMCO values over its history if Compustat company data history includes multiple CRSP issues. It is also possible to have one CRSP PERMNO appearing in NPERMNO in the link histories of multiple Compustat GVKEYs.

Only researched date ranges are included in the link-history. If the CRSP data extend before or after the Compustat data for a company, the most recently known PERMNO can be used to identify the issue. A researched disconnection between the CRSP and Compustat records is also indicated with a link event by a zero in the NPERMNO field. For additional detail on the reason there is no link, use the LINKTYPE code with NPERMNO.

### NPERMCO® – Historical CRSP PERMCO Link to Compustat Record

If NPERMNO is nonzero, NPERMCO is set to the CRSP PERMCO corresponding to that PERMNO. If NPERMNO is zero, NPERMCO is zero.

In most cases, Compustat has a single record for a company representing all the issues of the company. Market data items correspond to the issue considered the most active. In this case, all the issues in CRSP with the linked PERMCO match to the GVKEY. However, Compustat sometimes maintains separate records for different issues if they represent autonomous operating pieces of the company (e.g. GM, GME, GMH). In these cases, the PERMNO directly corresponds to GVKEY.

### IPERM – Header CRSP Permanent Issue Number

IPERM is a five or six-digit numerical identifier created and assigned by CRSP to each unique Compustat record. The last five digits of a six-digit IPERM, and all digits of a five-digit IPERM correspond to the CRSP PERMNO. If a Compustat record links to more than one CRSP record, IPERM is set to the primary link (PERMNO). If more than one Compustat record links to a CRSP record, a prefix is added to the IPERM of the extra Compustat records, making it a 6-digit number. If no link exists, a six-digit number is assigned to the record. The primary links can change per data period, therefore IPERM is not a permanent identifier. IPERM is the original PERMNO associated with the link.

### ICOMP - CRSP Permanent Company Number

ICOMP is an integer identifier assigned by CRSP, unique to a company. ICOMP corresponds to the CRSP stock file identifier, PERMCO. All issues of the same company have the same ICOMP. If IPERM corresponds to a PERMNO

of a security in a CRSP file, ICOMP is the PERMCO of that security. Otherwise ICOMP is assigned by CRSP to pair with the IPERM assigned. ICOMP is not permanent over time. ICOMP is the original PERMCO associated with the link.

### Linking Procedures

CRSP Link® was created and is maintained using the following steps:

1. First, a direct CUSIP match is made between Compustat's CUSIP Issuer Code (CNUM) combined with the first two digits of the CUSIP Issue Number and Check Digit (CIC) and the CRSP Name History CUSIP (NCUSIP). This compares the full Compustat CUSIP (less the electronic check digit) with the historical CRSP CUSIP.

Unresolved records are then further processed in the following steps to identify additional matches. Steps 2 - 4 match Compustat records to CRSP records, while 5 matches CRSP to Compustat.

2. The Compustat CUSIP Issuer Code, CNUM and the first six digits of CRSP Name History CUSIP, NCUSIP, are compared. The resulting potential matches are then researched using the company name, ticker symbol, and price data variables in both the CRSP and COMPUSTAT databases to confirm matches.
3. The remaining unmatched Compustat records are next processed by comparing the first five digits of CNUM against the first five digits of the CRSP Name History CUSIP (NCUSIP). The resulting potential matches are all verified manually. These are researched using the name, ticker, and price data variables in both the CRSP and Compustat databases to confirm the matches.
4. All remaining unmatched Compustat active records that could have a CRSP match are researched manually. For example, a common stock trading on NYSE, AMEX, or NASDAQ could be expected to have a CRSP match. In these cases, CUSIP Issue Number and Check Digit (CIC), Exchange Listing and S&P Major Index Code (ZLIST), and prices are used to identify which remaining unresolved records could have a match.
5. Historical research is done for CRSP issues that remain unmatched to Compustat. Issues considered likely to be on Compustat, such as those trading on NYSE or having the largest capitalization, are given the highest priority. Links are made and verified by researching possible company changes and comparing CRSP and Compustat price series. Many of the links made at this juncture are made to Compustat records which are already linked to other CRSP PERMNOs.

Each time the Compustat and CRSP databases are updated, the link is maintained. All added, changed, or newly inactive Compustat records are re-linked to CRSP using the procedures outlined above. If the Compustat record links to a new issue or no longer links to an active security, a new link record is added to the link-history array, recording the change.

### CRSP Modes for accessing Compustat Data

CRSP supports two modes for accessing Compustat data, Native and CRSP-Centric. Native Mode is organized by GVKEY, Compustat's primary company identifier. CRSP-Centric Mode is organized by one of CRSP's permanent identifiers, PERMNO or PERMCO. The data are stored in Native Mode, but CRSP provides access methods that present only the Compustat data that applies to a trading history according to the CRSP Link.

#### Native Mode

Native mode allows access of Compustat data as they are organized by Compustat. The primary key in Native Mode is GVKEY. All available data from all Compustat company records can be accessed in Native Mode. The CRSP Link data are attached to the records to facilitate linking to CRSP trading data and both Compustat identifiers and CRSP Link identifiers can be used to select data. However, due to the many-to-many nature of the link history, the user might be required to read multiple records and choose from among several possibilities of reported items when matching fundamental data to trading data. The user is given full control to use the available data and link history to select the data of interest.

### **CRSP-Centric Mode**

CRSP-Centric Mode presents Compustat data from the perspective of trading securities. The primary key in CRSP-Centric Mode is CRSP PERMNO or PERMCO. In CRSP-Centric mode, a composite record is built, using the CRSP Link. Reading one or more GVKEYs as necessary, and selects data from the best representative Compustat record for each time period. This allows seamless one-to-one access with the CRSP database. Compustat records not linked to CRSP and Compustat fiscal periods outside of the trading and linked history cannot be accessed in this mode.

When a CRSP-Centric composite record is created, the Link Used history is made available with all the link information used to generate that record. This Link Used history is not generated in Native Mode Compustat access. CRSP tools support combinations of Native Mode and CRSP-Centric Mode access. The `ts_print` utility always presents data in CRSP-Centric Mode. The `cst_print` utility and C and FORTRAN-95 programming libraries allow the user a choice of modes. FORTRAN-77 only allows Native Mode.



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## CHAPTER 2: DATA DEFINITIONS

### Data Definitions

This section describes the CRSP Link and Compustat variables and structures supported by the CRSP / Compustat Merged database. For complete definitions, codes, and formulas for Compustat items, see the *Compustat User's Guide* and the *Compustat Technical Guide*, issued by Compustat. For detailed programming access structures, variables, and functions, see the Programming Access Chapter (7) in this guide.

### Data Organization

Compustat data are organized by company around Compustat's Permanent SPC Identifier, `gvkey`. Secondary identifiers are available in the header and link history that can be used to cross-reference companies to `gvkeys`.

A defined structure for Compustat data is used to store all available Compustat and CRSP Link data for a `gvkey`. The Compustat structure is broken down into modules, which are the smallest sets of major data types that can be accessed separately. All modules are built from three basic data categories: headers, event data arrays, and time series.

- ⊗ **Headers** have no time component. They are a collection of data items with one instance for each `gvkey`. Examples of header data items are current identifiers and date ranges.
- ⊗ **Event data arrays** are collections of records, each describing a change in status or a new event. All data items describing the event type are included in each record. These always include one or more data items that describe the effective date range or the effective date of the event. A count of the number of events being referenced is available for each event data array.
- ⊗ **Time-series** is a collection of records tied to a specific calendar of time periods. Each time-series has a beginning and ending period and exactly one record of information for each period in that range. A time-series record can include one or more data items describing the period.

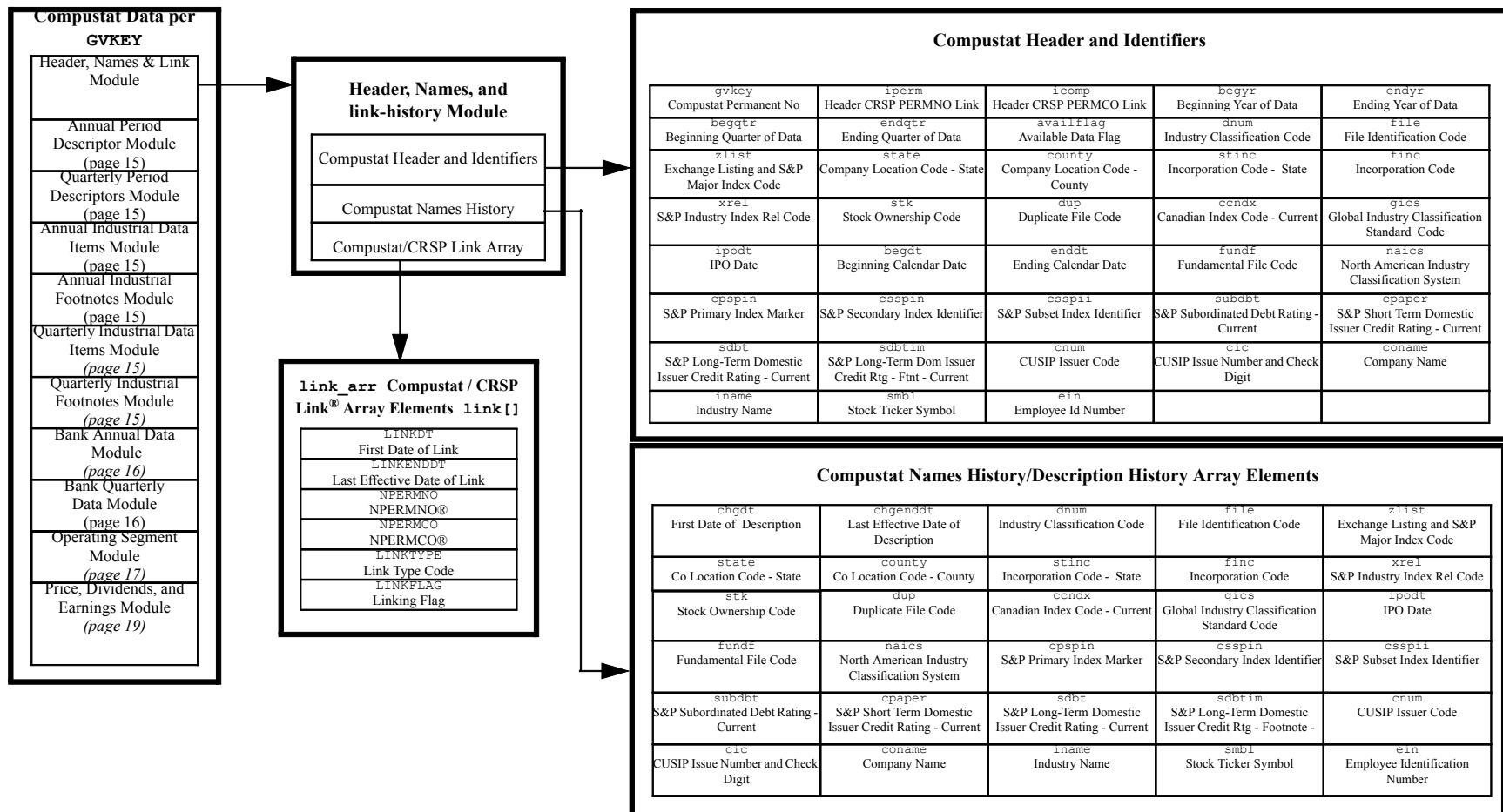
The data items defined within each data category are determined by the available Compustat or CRSP Link data for that data type.

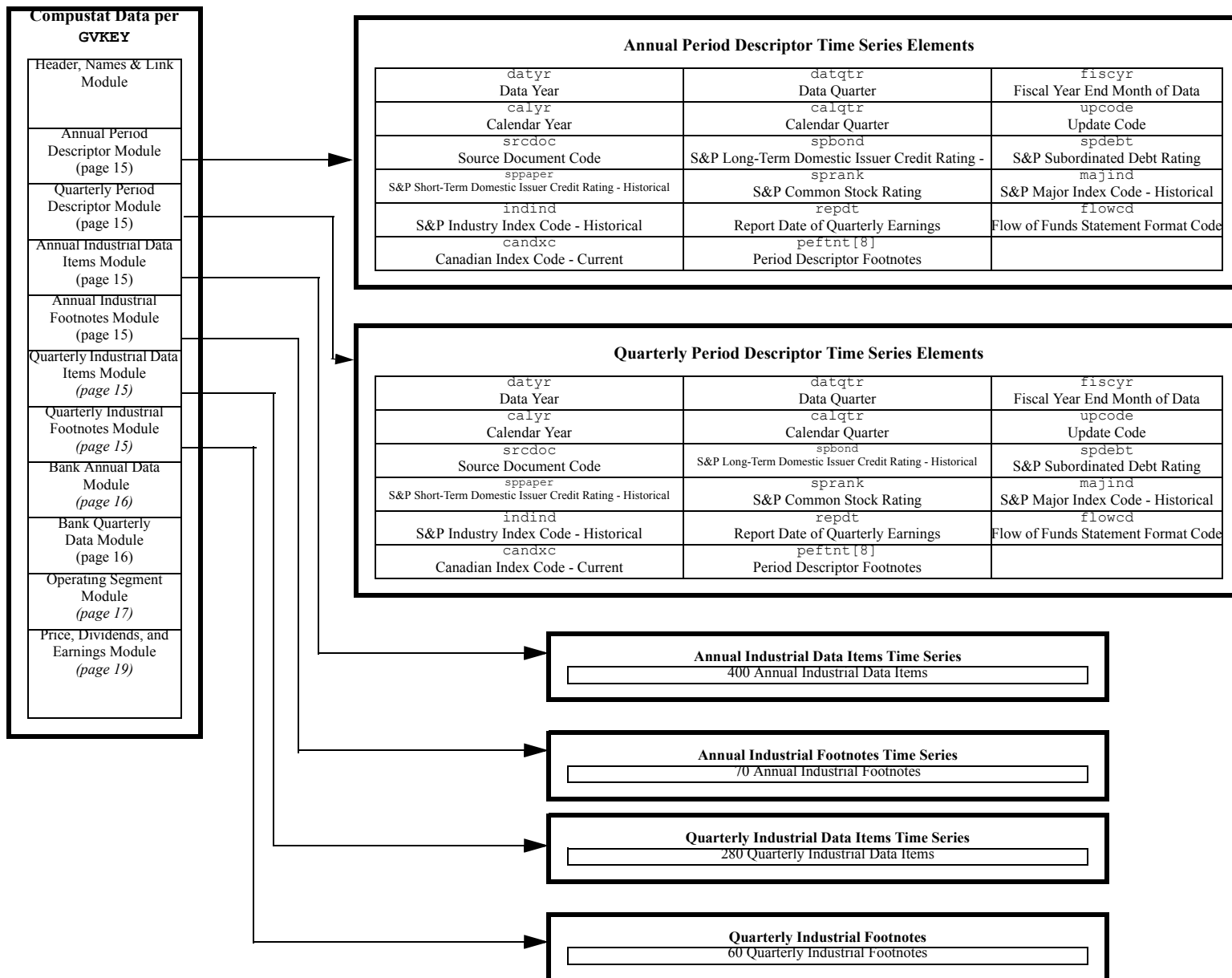
### Data Items

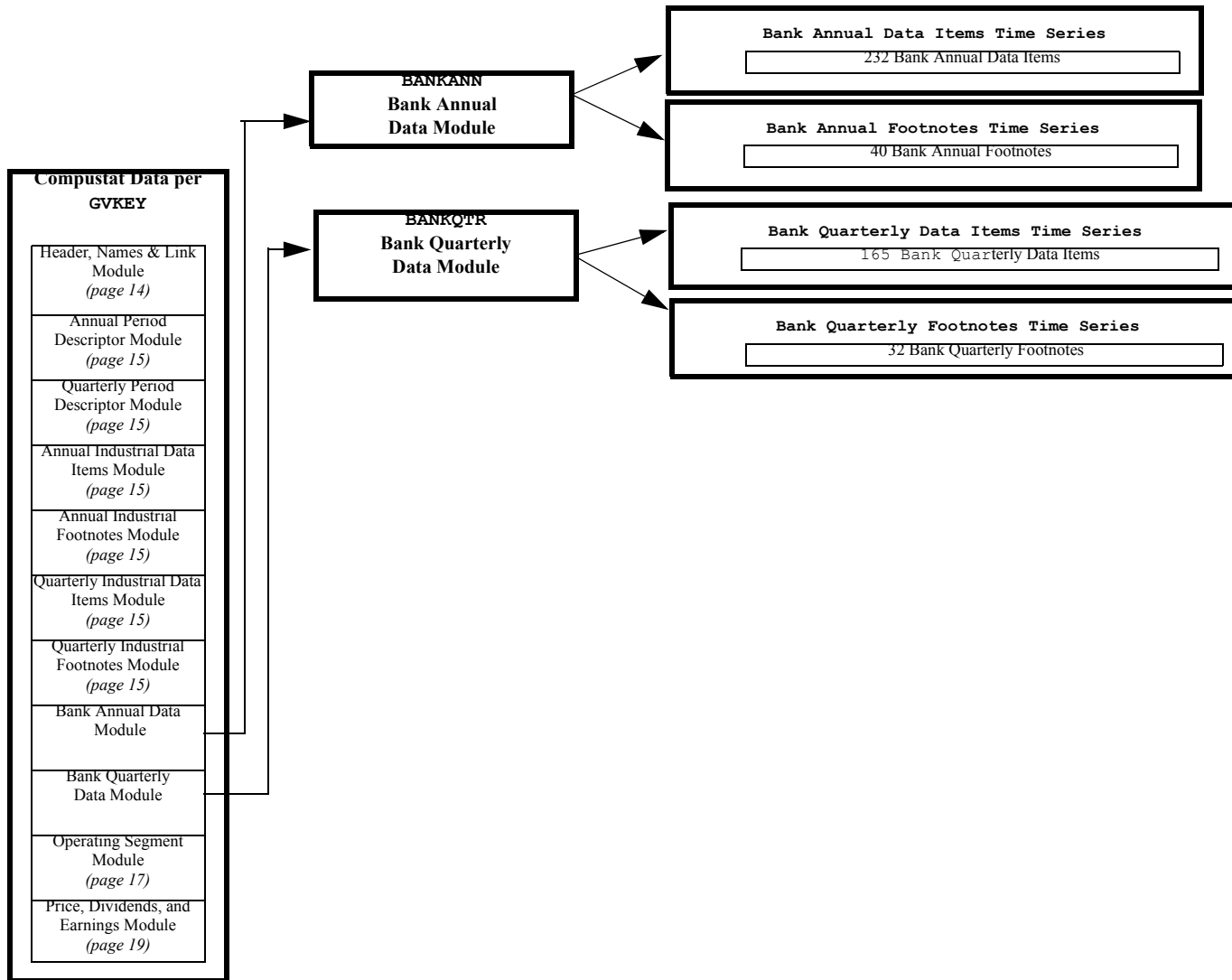
Diagrams and lists in this section are organized by structure and include all data items available for one company. Data definitions include data items provided by Compustat as well as structures and supplementary data items provided by CRSP. All data items include a mnemonic and data item name. Whenever possible, the mnemonic of a Compustat data item matches the name provided by Compustat in the *Compustat Technical Guide*. Variable names for data items provided by Compustat match the the data items names in the *Compustat User's Guide*, and can be found alphabetically in its Data Definitions chapter. No further definition is provided in this guide except clarification on mnemonics and usage for a data item that may be used differently by Compustat in different files. Supplementary CRSP items include complete definitions.

**Data Structure Diagrams**

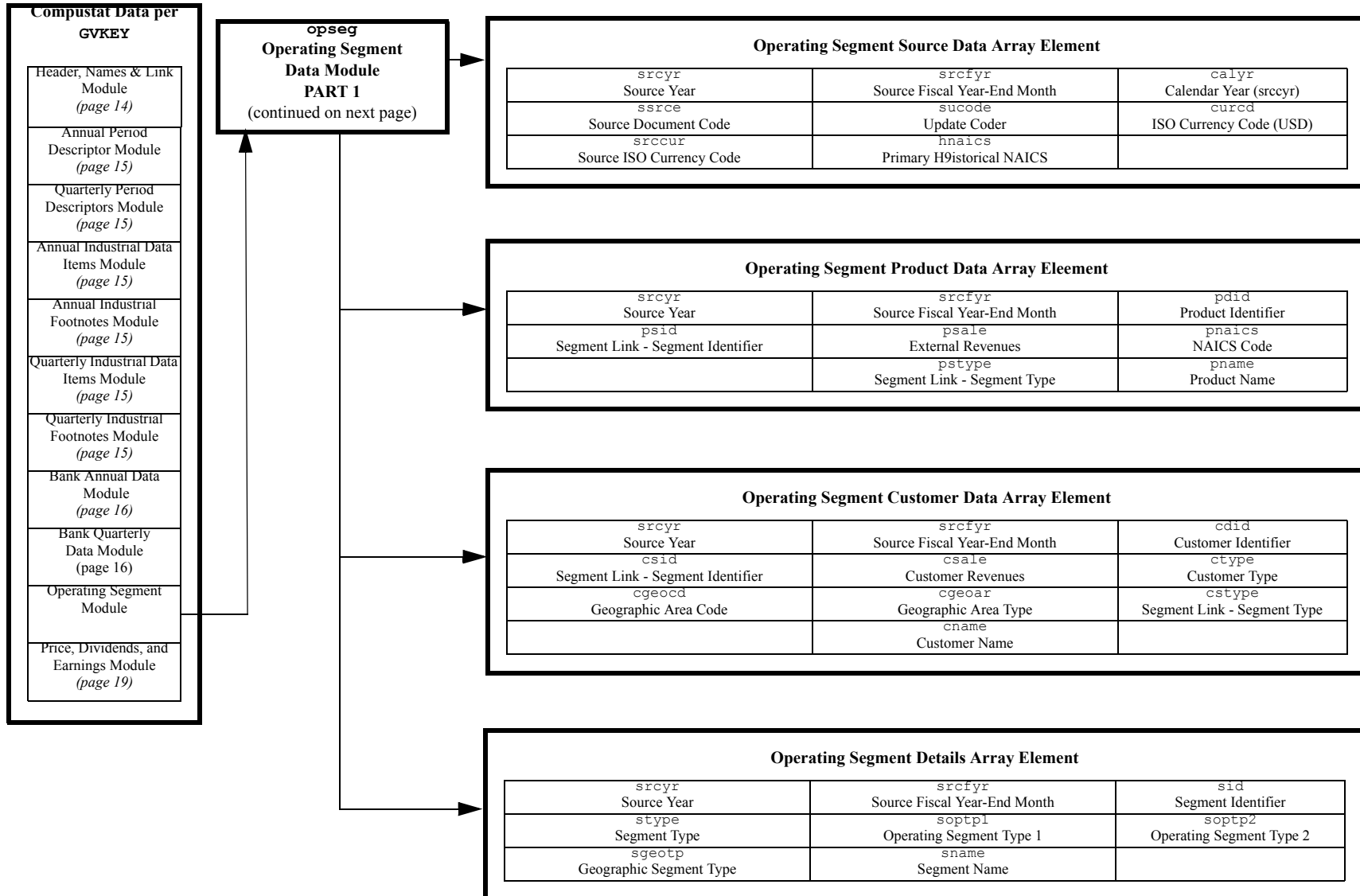
The following diagram shows the organization of Compustat data in the CRSP/Compustat Merged Database. It shows the data modules available, the data objects in each module, and the fields in each object. Row objects (`_row`) have one structure per `GVKEY`, Array objects (`_arr`) have a set of events with effective date information included in the fields of the array, and Time-series objects (`_ts`) have an observation for each period in a corresponding calendar.

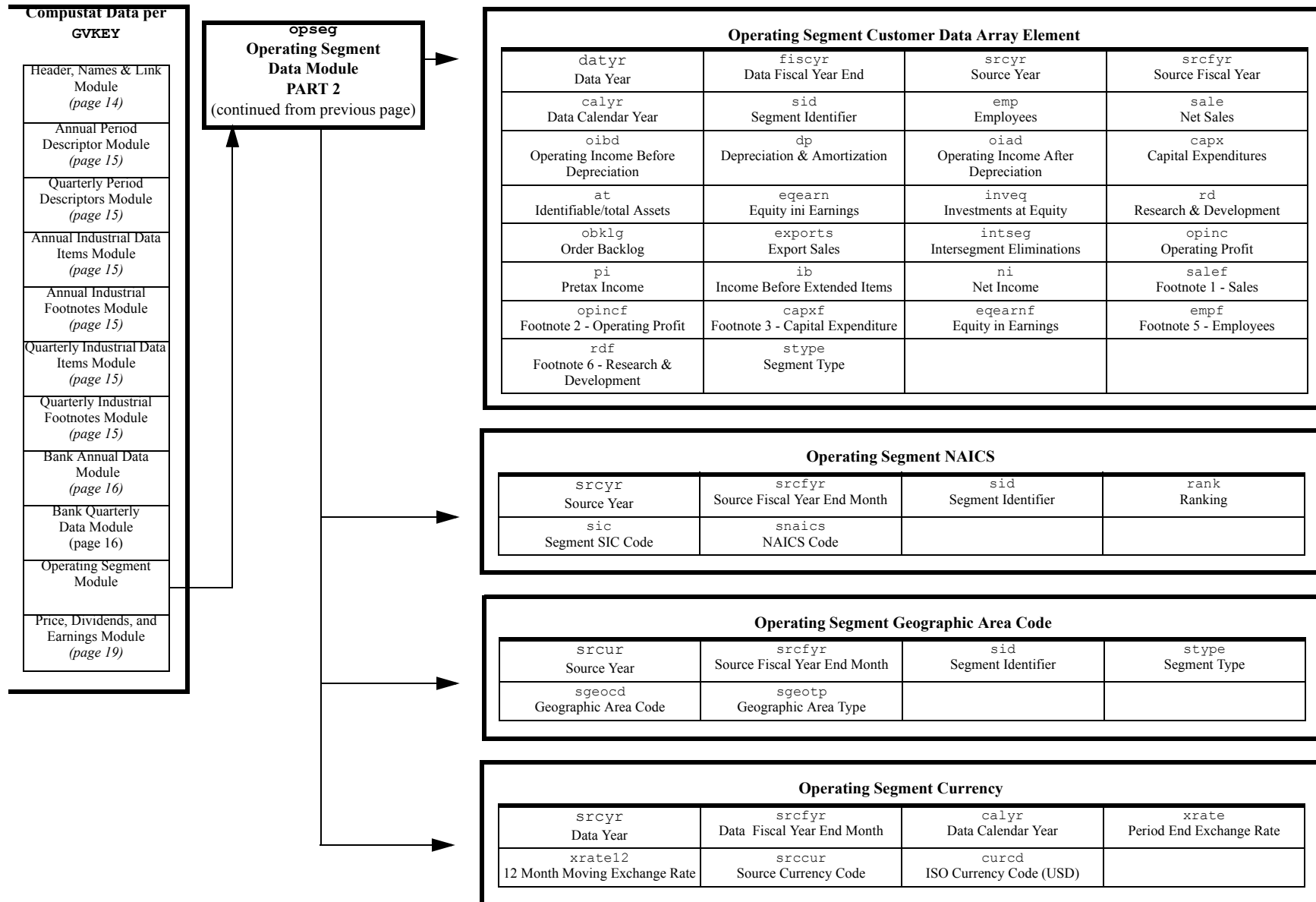












**Compustat Data per GVKEY**

Header, Names & Link Module <i>(page 14)</i>
Annual Period Descriptor Module <i>(page 15)</i>
Quarterly Period Descriptors Module <i>(page 15)</i>
Annual Industrial Data Items Module <i>(page 15)</i>
Annual Industrial Footnotes Module <i>(page 15)</i>
Quarterly Industrial Data Items Module <i>(page 15)</i>
Quarterly Industrial Footnotes Module <i>(page 15)</i>
Bank Annual Data Module <i>(page 16)</i>
Bank Quarterly Data Module <i>(page 16)</i>
Operating Segment Module <i>(page 17)</i>
Price, Dividends, and Earnings Module

**pde**  
**Price, Dividends, and Earnings Module**

**PDE - Price, Dividends, and Earnings Time Series Data Items**

Price - High	Check Equivalent Distributions per Share by Ex-Date
Price - Low	Common Shares Outstanding
Price - Close	Net Asset Value per Share
Dividends per Share by Ex-Date	Earnings per Share from Operations - 12 Months Moving
Earnings per Share - 12 Months Moving	Dividends per Share by Ex-Date Footnote
Common Shares Traded	Global Industry Classification Standard Code
Annualized Dividend Rate	S&P Primary Index Marker
Adjustment Factor (Raw) by Ex-Date	Adjustment Factor (Raw) by Ex-Date Footnote
Adjustment Factor (Cumulative by Ex-Date)	Comparability Status Footnote
Book Value per Share	Issue Status Alert Footnote

## CRSPAccess Compustat Data Items

### **descrip** Header, Descriptive History, and link-history Data

The `descrip` structure contains three groups of identification and summary data for Compustat records: headers, descriptive name history arrays, and the link between Compustat `gvkey` and CRSP data history.

### **header** Identification and Summary Data

**Defined Structure**

The `header` structure contains all the Compustat header variable definitions found on Industrial, PDE, and Industry Segment Files, plus the `gvkey`, Compustat's permanent and unique company identifier. Additional variables added by CRSP are fully described. If available in Compustat file formats, field names match the mnemonics given in the Compustat® Technical Guide, issued by Compustat, except where noted. The full variable descriptions can be found under the descriptive name in the alphabetic variable description section of Compustat's Technical Guide, issued by Compustat.

<b>gvkey</b>	<b>Standard and Poor's Identifier</b>	<b>integer</b>
--------------	---------------------------------------	----------------

`gvkey` is a unique permanent number assigned by Compustat, that can be used to identify a Compustat record in different updates if name or other identifying information changes. `gvkey` is the primary key in the CRSP/Compustat Merged Database. Data are sorted and organized by this field.

<b>iperms</b>	<b>Header CRSP PERMNO Link</b>	<b>integer</b>
---------------	--------------------------------	----------------

`iperms` is an integer identifier assigned by CRSP to each Compustat record, based on a link to a CRSP security. `iperms` are unique within each instance of the data, but unlike `gvkey` are subject to change over time. The link-history `npermno` variable gives a more complete and historically accurate representation than `iperms` of the linking between `gvkeys` and CRSP securities. We recommend that you use `npermno` to link between CRSP and Compustat data. `iperms` are assigned based on the link-history using the following rules:

The latest link-history record with a nonzero PERMNO or PERMCO link is identified. If this record has only a PERMCO link and there is a prior link-history record with the same PERMCO link and a nonzero PERMNO link the earlier link is used.

If the identified link-history record has a nonzero PERMNO link, `iperms` is set to that PERMNO. `iperms` set this way may be modified by a one-digit prefix that converts `iperms` to a six-digit number. If the `iperms` in a previous CRSP Compustat Merged database had a prefix of six for the `gvkey` but otherwise matches the PERMNO link found, the `iperms` is not changed. If, following the assignment of values to `iperms` for all `gvkeys`, there are duplicate assignments, duplication is resolved as follows: For each `iperms` assignment, consider the numeric sequence of `gvkey` values to which it has been assigned; for each sequential assignment following the first, prepend an additional sequential digit, starting with "1," to the assigned duplicate `iperms` values, thereby making their assignments unique across the entire collection of arrays.

Example: duplicates of `iperms` 45678 result in unique keys: 45678, 145678, 245678, etc.

If the identified link-history record has no PERMNO link, or no link-history record has a PERMNO link, CRSP assigns a dummy number to `iperms`. If a previous CRSP/Compustat Merged Database had a dummy number assigned to `iperms` for this `gvkey`, that value is retained. Otherwise a new value is assigned. Assigned numbers are in the range 800,000-950,000 for companies and 950,000-999,999 for aggregates or indices. A dummy `iperms` may be reassigned in subsequent files if valid link data appears in the link-history.

**iperms** Header CRSP PERMNO Link Cont.

The first digit of a six-digit `iperms` is assigned as follows:

Prefix	Description
0	The only or primary (most recent) Compustat record that matches this CRSP record. This security is known to CRSP, but may not be available on all CRSP files.
1,2	This Compustat record matches a CRSP record already matched to a “primary” Compustat record, but at a different time in its trading range. Most of these cases constitute CRSP name changes that Compustat considers unique records. A prefix of 2 is only used if another matching record was already assigned the 1 prefix.
6	These records do not fit any other category but relate to some CRSP issue. Pre-FASB and Consolidated Compustat records are assigned 6 prefixes.
8	NASDAQ Exchange Listing and Major S&P Index Code ( <code>ZLIST</code> ) but not on a CRSP file for one of three reasons. If the 3rd digit is 0-7, the record is not on CRSP because of CRSP share type conventions. If the 3rd digit is 8, the security is missing from the CRSP file. If the 3rd digit is 9, the security traded OTC before CRSP NASDAQ data begins in 1972.
9	Never traded on a major exchange, privately-owned company, or never-traded subsidiary.

**icomps** Header CRSP PERMCO Link

**integer**

`icomps` is an identifier assigned by CRSP to each Compustat record, based on a link to a CRSP company. `icomps` are subject to change over time, like `iperms`. The link-history `npermco` variable gives a more complete and historically accurate representation than `icomps` of the linking between `gvkeys` and CRSP companies. We recommend that you use `npermco` to link CRSP and Compustat data.

If `iperms` is a link to a CRSP PERMNO, `icomps` is the PERMCO of that issue. If there is no security link, `icomps` is assigned an integer unique to that company. If a record in the link-history contains a nonzero PERMCO link, that PERMCO is assigned to `icomps`. If the link-history contains no link and the previous version of the CRSP/Compustat Merged Database contains an `icomps` assignment for the `gvkey`, that value is retained. Otherwise CRSP assigns a new integer value that does not match any other assigned PERMCOs or `icomps`. If the `gvkey` represents an aggregate or index, `icomps` is set to zero.

**begyr** Beginning Year of Data

**integer**

`begyr` is the first fiscal year with available Compustat annual data, in YYYY format. `begyr` is derived by CRSP from the Compustat Update Code arrays in current, backdata, and wayback annual files. It is set to zero if there are no Compustat annual data.

**endyr** Ending Year of Data

**integer**

`endyr` is the last fiscal year with available Compustat annual data, in YYYY format. `endyr` is derived by CRSP from the Compustat Update Code arrays in current, backdata, and wayback annual files. It is set to zero if there are no Compustat annual data.

**begqtr** Beginning Quarter of Data

**integer**

`begqtr` is the first fiscal year and quarter with available Compustat quarterly data, in YYYYQ format. `begqtr` is derived by CRSP from the Compustat Period Descriptors in current and backdata, wayback, and way wayback quarterly files. It is set to zero if there are no Compustat quarterly data.

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**endqtr**      **Ending Quarter of Data**      **integer**

endqtr is the last fiscal year and quarter with available Compustat quarterly data, in YYYYQ format. endqtr is derived by CRSP from the Compustat Period Descriptors in current, backdata, wayback, and way wayback quarterly files. It is set to zero if there are no Compustat quarterly data.

**availflag**      **Available Data Flag**      **integer**

availflag is an integer code provided by CRSP to indicate the types of Compustat data files included in the record. The code is binary, so if a record contains data from multiple files, availflag will be the sum of multiple codes. The codes used are:

Data File	Code
Header	1
Annual Industrial Company Data	2
Quarterly Industrial Company Data	4
Price, Dividends, and Earnings Data	8
Industry Segment Data	16
Link Data	32
History/Header Name History	64
Annual Bank Data	128
Quarterly Bank Data	256
Geographic Segment Data	512
Operating Segment Data	1024
Index Fundamental Data	2048
SIC Data	4096
Operating Segment Geographic Area Code	8192
Operating Segment Product	16384
Operating Segment Customer	32768
Operating Segment NAICS	65536
Operating Segment Item	131072
Operating Segment Company	262144
Operating Segment Source	524288
Operating Segment Currency	1048576

**dnum**      **Industry Classification Code**      **integer**

**file**      **File Identification Code**      **integer**

**zlist**      **Exchange Listing and S&P Major Index Code**      **integer**

**state**      **Company Location – State**      **integer**

**county**      **Company Location – County**      **integer**

**stinc**      **Incorporation Code – State**      **integer**

stinc has the mnemonic INCORP in the Quarterly File.

**finc**      **Incorporation Code**      **integer**

Incorporation Code - Foreign and Incorporation Code - State. finc has the mnemonic FIC in the Quarterly File.

<b>xrel</b>	<b>S&amp;P Industry Index Relative Code</b>	<b>integer</b>
<b>stk</b>	<b>Stock Ownership Code</b>	<b>integer</b>
<b>dup</b>	<b>Duplicate File Code</b>	<b>integer</b>
<b>ccndx</b>	<b>Canadian Index Code – Current</b>	<b>integer</b>
	ccndx has the mnemonic CANDXC in the Quarterly File.	
<b>gics</b>	<b>Global Industry Classification Standard Code*</b>	<b>integer</b>
<b>ipodt</b>	<b>IPO Date</b>	<b>integer</b>
<b>begdt</b>	<b>Beginning Calendar Date</b>	<b>integer</b>
	The first calendar date in YYYYMMDD format covered by available Compustat data.	
<b>enddt</b>	<b>Ending Calendar Date</b>	<b>integer</b>
	The last calendar date in YYYYMMDD format covered by available Compustat data.	
<b>fundf</b>	<b>Fundamental File Code</b>	<b>integer</b>
	fundf contains one to three two-digit codes which can be used to determine on which fundamental Compustat file a company is included. fundf is available for gvkeys with data in the Industry Segment, Geographic Segment, or SIC files.	
<b>naics</b>	<b>North American Industry Classification System Code</b>	<b>character</b>
<b>cpspin</b>	<b>S&amp;P Primary Index Marker</b>	<b>character</b>
<b>csspin</b>	<b>S&amp;P Secondary Index Identifier</b>	<b>character</b>
<b>csspii</b>	<b>S&amp;P Subset Index Identifier</b>	<b>character</b>
<b>subdbt</b>	<b>S&amp;P Subordinated Debt Rating – Current</b>	<b>character</b>
<b>cpaper</b>	<b>S&amp;P Short-Term Domestic Issues Credit Rating - Current (spcprc)</b>	<b>character</b>
<b>sdbt</b>	<b>S&amp;P Long Term Domestic Issues Credit Rating – Current (spdrc)</b>	<b>character</b>
<b>sdbtim</b>	<b>S&amp;P Long-Term Domestic Issues Credit Rating – Footnote– Current (spdrctf)</b>	<b>character</b>
<b>cnum</b>	<b>CUSIP Issuer Code</b>	<b>character</b>
<b>cic</b>	<b>CUSIP Issue Number and Check Digit</b>	<b>character</b>
<b>coname</b>	<b>Company Name</b>	<b>character</b>
<b>iname</b>	<b>Industry Name</b>	<b>character</b>
<b>smb1</b>	<b>Stock Ticker Symbol</b>	<b>character</b>
<b>ein</b>	<b>Employer Identification Number</b>	<b>character</b>

\*For codes which apply to the S&P/Citigroup style indices, CRSP has removed the alpha characters from the codes that S&P has assigned to these indices, allowing them to populate the integer field. CRSP's handling of these codes is under review and subject to change.

**names**                      **Description History Array**                      **DEFINED STRUCTURE**

The `names` array contains snapshots of the Compustat `header` variables over time. The first effective dates available are September 22, 1994. Each array element contains beginning and ending dates and the header fields available from Compustat during that period. The `names` fields are identical to `header` fields except for the dates and available flag.

<b>chgdt</b>	<b>First Date of Description</b>	<b>integer</b>
	<p><code>chgdt</code> is a date in YYYYMMDD format attached to the name history. It is derived from comparisons of different data file iterations and Compustat Status Reports. If the change is derived from a weekly Status Report, <code>chgdt</code> is set to the date of the status report. If the change is derived from a data file, <code>chgdt</code> is set to the first day in the month of the updated file.</p>	
<b>chgenddt</b>	<b>Last Effective Date of Description</b>	<b>integer</b>
	<p><code>chgenddt</code> is a date in YYYYMMDD format marking the last date where the other name description fields are valid. If the name represents the current header information provided by Compustat, <code>chgenddt</code> is set to 99999999.</p>	
<b>dnum</b>	<b>Industry Classification Code</b>	<b>integer</b>
<b>file</b>	<b>File Identification Code</b>	<b>integer</b>
<b>zlist</b>	<b>Exchange Listing and S&amp;P Major Index Code</b>	<b>integer</b>
<b>state</b>	<b>Company Location – State</b>	<b>integer</b>
<b>county</b>	<b>Company Location – County</b>	<b>integer</b>
<b>stinc</b>	<b>Incorporation Code – State</b>	<b>integer</b>
	<p><code>stinc</code> has the mnemonic INCORP in the quarterly file.</p>	
<b>finc</b>	<b>Incorporation Code – Foreign</b>	<b>integer</b>
	<p><code>finc</code> has the mnemonic FIC in the quarterly file.</p>	
<b>xrel</b>	<b>S&amp;P Industry Index Relative Code</b>	<b>integer</b>
<b>stk</b>	<b>Stock Ownership Code</b>	<b>integer</b>
<b>dup</b>	<b>Duplicate File Code</b>	<b>integer</b>
<b>ccndx</b>	<b>Canadian Index Code – Current</b>	<b>integer</b>
	<p><code>ccndx</code> has the mnemonic CANDXC in the quarterly file.</p>	



<b>gics</b>	<b>Global Industry Classification Standard Code*</b>	<b>integer</b>
<b>ipodt</b>	<b>IPO Date</b>	<b>integer</b>
<b>fundf</b>	<b>Fundamental File Code</b>	<b>integer</b>
	<i>fundf</i> contains one to three two-digit codes which can be used to determine on which fundamental Compustat file a company is included. <i>fundf</i> is available in the Industry Segment Files.	
<b>naics</b>	<b>North American Industry Classification System Code</b>	<b>character</b>
<b>cpspin</b>	<b>S&amp;P Primary Index Marker</b>	<b>character</b>
<b>csspin</b>	<b>S&amp;P Secondary Index Identifier</b>	<b>character</b>
<b>csspii</b>	<b>S&amp;P Subset Index Identifier</b>	<b>character</b>
<b>subdbt</b>	<b>S&amp;P Subordinated Debt Rating – Current</b>	<b>character</b>
<b>cpaper</b>	<b>S&amp;P Short-Term Domestic Issues Credit Rating – Current</b>	<b>character</b>
<b>sdbt</b>	<b>S&amp;P Long-Term Domestic Issues Credit Rating – Current</b>	<b>character</b>
<b>sdbtim</b>	<b>S&amp;P Long-Term Domestic Issues Credit Rating – Footnote – Current</b>	<b>character</b>
<b>cnum</b>	<b>CUSIP Issuer Code</b>	<b>character</b>
<b>cic</b>	<b>CUSIP Issue Number and Check Digit</b>	<b>character</b>
<b>coname</b>	<b>Company Name</b>	<b>character</b>
<b>iname</b>	<b>Industry Name</b>	<b>character</b>
<b>smb1</b>	<b>Stock Ticker Symbol</b>	<b>character</b>
<b>ein</b>	<b>Employer Identification Number</b>	<b>character</b>

\*For codes which apply to the S&P/Citigroup style indices, CRSP has removed the alpha characters from the codes that S&P has assigned to these indices, allowing them to populate the integer field. CRSP's handling of these codes is under review and subject to change.

## **link**                      **Description History Array**                      **DEFINED STRUCTURE**

The **link** array contains a history of links from the Compustat record to the CRSP stock databases. Each link-array element contains beginning and ending effective dates and the CRSP PERMNO and PERMCO links valid between these dates. The link events are sorted by **linkdt**, **NPERMNO**, **NPERMCO**. A record can link to more than one CRSP PERMNO at the same time or at different times in its history. More than one Compustat record can link to the same PERMNO at different times in their history.

**linkdt**                      **First Effective Date of Link**                      **integer**

**linkdt** is a calendar date in YYYYMMDD format marking the first effective date of the current link. It is derived from the first or last date of a CRSP exchange listing, the date of a CRSP name change corresponding to the beginning or end of the link the rows of available Compustat data, or the date of a Compustat description change corresponding to the beginning or end of the link.

**linkenddt**                      **Last Effective Date of Link**                      **integer**

**linkenddt** is a calendar date in YYYYMMDD format marking the last date when the link is valid. If the name represents current link information, **linkenddt** is set to 99999999.

**npermno**                      **NPERMNO®**                      **integer**

**npermno** is the PERMNO of a CRSP security that contains market trading and event data for this Compustat record. It is set to zero if there no CRSP link during the range.

**npermco**                      **NPERMCO®**                      **integer**

**npermco** is the PERMCO of CRSP securities issued by the company represented by this Compustat record. It is set to zero if there is no CRSP company link during the range.

**linktype**                      **Link Type Code**                      **character**

Link Type Code is a 2-character code providing additional detail on the nature of the link data available. Link Type Codes include:

Linktype	Code Description
LU	Historical link. Unverified due to lack of additional information.
LC	Issue link that is a "standard" link. Company and price match.
LD	Duplicate link. A standard link already available between other Compustat GVKEYS and the CRSP data. Care must be taken to avoid double-counting if using a duplicate link.
LN	Has an issue-level link through CUSIP, but Compustat record has no prices.
LO	No link on issue level but company level link exists. Examples include Pre-FASB, Subsidiary, Consolidated, Combined, Pre-amend, Pro-Forma, or "-old".
LS	Secondary link. Used when the same permco is linked to multiple GVKEYS simultaneously. E.g. tracking stock, ETF, iShares, SPDR, etc. Care must be taken to avoid double-counting data if using a secondary link.
LX	Secondary link. Links to foreign company trading on a foreign exchange also with an issue trading on a US exchange. Care must be taken to avoid double-counting data if using a secondary link.
NU	No link. Research pending.
NR	No links on issue or company level (no CRSP data for date range of link record). Link has been researched.
NX	No link currently found but expected.
LF, NP, NE	no longer used.

**linkflag**      **Linking Flag**      **character**

Linking Flag is a 3-character flag, designed to provide additional detail on the source of the link information. Each character position in linking flag refers to the release of the CRSP databases where PERMNO is available. The first position refers to the last CRSP annual release. The second position refers to the last CRSP monthly release, and the third position refers to the last CRSP quarterly release.

linkflag Code	Description
B	PERMNO Resides on both CRSP Monthly and Daily Databases
D	PERMNO Resides on a CRSP Daily Database
M	PERMNO Resides on a CRSP Monthly Database
X	PERMNO Does Not Reside on a CRSP Subscriber Database

**linkused**      **Link Used Array**

The linkused array is a superset of the link array, and is loaded each time CRSP-Centric access C function or CRSP-Centric access FORTRAN function is run. The function builds a composite Compustat record from one or more Compustat gvkeys linked to a CRSP PERMNO or PERMCO. The linkused array contains information about what components were used to build that composite record. (See Page 114 for the function description.)

Compustat / CRSP Link Array Elements	
<small>lgvkey</small> Link Used Array gvkey	<small>usedflag</small> Flag for Data Used
<small>npermno</small> NPERMNO (CRSP PERMNO Link)	<small>npermco</small> NPERMCO (CRSP PERMCO Link)
<small>linkdt</small> First Effective Date of Link	<small>linkenddt</small> Last Effective Date of Link
<small>afylinkdt</small> First Annual Fiscal-Year Date	<small>afylinkenddt</small> Last Annual Fiscal-Year Date
<small>qfylinkdt</small> First Quarterly Fiscal-Year Date	<small>qfylinkenddt</small> Last Quarterly Fiscal-Year Date
<small>linktype</small> Link Type Code	<small>linkflag</small> Linking Flag
<small>gvkeyenddt</small> Last Link End Date for used gvkey	

In CRSP-Centric Mode a composite Compustat record is built from one or more Compustat GVKEYs linked to a CRSP PERMNO or PERMCO. Linking between CRSP and Compustat data is a many-to-many relationship between PERMNO or PERMCO and GVKEY. In addition, the time series ranges of CRSP and Compustat can disagree due to coverage issues and the availability of company filing data for entities that do not trade, have not started trading, or no longer trade. The purpose of CRSP-Centric access is to create a single or composite GVKEY record for each selected PERMNO or PERMCO, with data only for the intersection of CRSP and Compustat date ranges.

A Link Used history is built by reading link, header, and period descriptor data for all GVKEYs linking to the desired CRSP identifier. This is a superset of all possible link histories. The components to be used in the composite record are determined by processing this Link Used history and flagging the used and unused link segments from each GVKEY. Then the composite record is built by loading all the wanted data from used GVKEYs and copying only the data applicable to the used link segments, resulting in one set of series that can be read across time.

Secondary Link Type Codes excluded from the composite record in all cases are LX, LD, and LO. LS is excluded when using a PERMCO as the key, but not when using PERMNO. After using the Link Type Code field to screen out secondary links, ranges with multiple links are examined. In cases where multiple GVKEYs are simultaneously linked, a selection criterion identifies the most appropriate one. The records (or data) from distinct GVKEYs are not merged. Data for one GVKEY per date period are mapped to the PERMNO or PERMCO. The same process is used for either calendar or fiscal-year based data, depending on the date associated with the wanted data. The max rule is used as the selection criterion. The max rules states that the GVKEY with the more recent Link Ending Date is the

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GVKEY selected. This means that when two companies have overlapping data, the one with the most recent data is selected to represent the overlapping time period.

For example, PERMNO 10083 links to two gvkeys, 11947 and 15495, which have overlapping calendar year-end data from January to December in 1988. CRSP-Centric access will select only one gvkey for the overlapping range in the composite record, as follows:

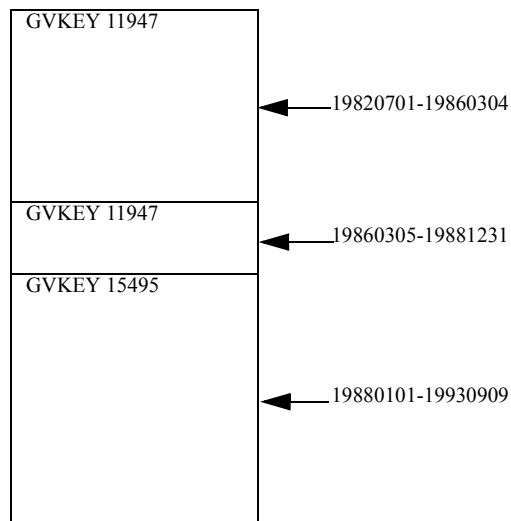
The link array contains two listings for gvkey 11947.

LNKBEGDT	LNKENDDT	PERMNO	PERMCO	LINKTYPE	LINKFLAG
19820701	19860304	0	0	NU	XXX
19860305	19881231	10083	8026	LU	BBB

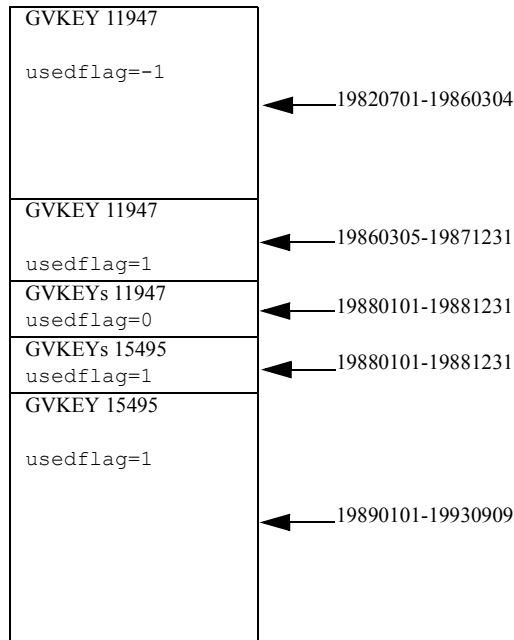
Extracted from *cstprint* with the /l option, the link array contains one listing for gvkey 15495.

LNKBEGDT	LNKENDDT	PERMNO	PERMCO	LINKTYPE	LINKFLAG
19880101	19930909	10083	8026	LU	BBB

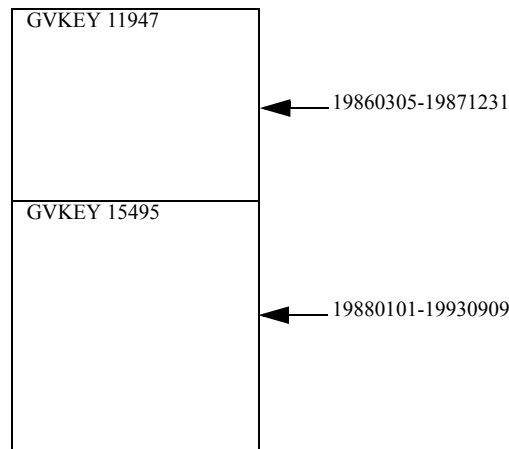
The following chart depicts the initial data layout.



Thus, as you can see, the data overlap for the entire year of 1988. When building the function CRSP-centric record, applying the max rule, the composite result for PERMNO 10083 creates a linkused row for each row in link, based on linkenddt, and splits out a new row where the data overlap in the following diagram. Note: linkused=1 means it will be included in the composite record. linkused=0 means the composite record will ignore data for the gvkey during the linkused=0 range.



The below outlines the linkused structure created. Once the max rule is applied, the composite for PERMNO 10083 looks like the following:



Each linkused structure contains a row for each time period where link information is available relating to the CRSP record. It is sorted by linkdt and lgvkey. Rows with linkused=1 are unique on linkdt.

**lgvkey**                      **linkused historical gvkey**                      **integer**

lgvkey is the gvkey associated with the linkused array. There is a lgvkey row included for each linkdate, and for each gvkey associated with the selected PERMNO/PERMCO.

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<b>usedflag</b>	<b>Used Flag</b>	<b>integer</b>
	<p>usedflag signifies if the composite link uses lgvkey. Each row forming the composite gvkey has a usedflag which identifies if the gvkey is the active company selected in the composite record. Usedflag is set to 1 if the link is used during the period, 0 if the link is not used during the period, and set to -1 if there is no link or only a secondary link during the period.</p>	
<b>linkdt</b>	<b>First Effective Date of Link</b>	<b>integer</b>
	<p>linkdt is a calendar date in YYYYMMDD format marking the first effective date of the current link. It is derived from the first or last date of a CRSP exchange listing, the date of a CRSP name change corresponding to the beginning or end of the link, the rows of available Compustat data, or the date of a Compustat description change corresponding to the beginning or end of the link.</p>	
<b>linkenddt</b>	<b>Last Effective Date of Link</b>	<b>integer</b>
	<p>linkenddt is a calendar date in YYYYMMDD format marking the last date where the link is valid. If the name represents the current link information, linkenddt is set to 99999999.</p>	
<b>npermno</b>	<b>NPERMNO®</b>	<b>integer</b>
	<p>npermno is the PERMNO of a CRSP security that contains market trading and event data for this Compustat record. It is set to zero if there no CRSP link during the range.</p>	
<b>npermco</b>	<b>NPERMCO®</b>	<b>integer</b>
	<p>npermco is the PERMCO of CRSP securities issued by the company represented by this Compustat record. It is set to zero if there is no CRSP company link during the range.</p>	
<b>afylinkdt</b>	<b>First Effective Date on a Fiscal Year Basis for Annual Data</b>	<b>integer</b>
<b>afylinkenddt</b>	<b>Last Effective Date on a Fiscal Year Basis for Annual Data</b>	<b>integer</b>
<b>qfylinkdt</b>	<b>First Effective Date on a Fiscal Year Basis for Quarterly Data</b>	<b>integer</b>
<b>qfylinkenddt</b>	<b>Last Effective Date on a Fiscal Year Basis for Quarterly Data</b>	<b>integer</b>
<b>linktype</b>	<b>Link Type Code, See page 26.</b>	<b>character</b>
<b>linkflag</b>	<b>Linking Flag, See page 26.</b>	<b>character</b>
<b>gvkeyenddt</b>	<b>Last Effective Date for Selected GVKEYS</b>	<b>integer</b>
	<p>All rows with data (usedflag=1) for a select gvkey are assigned the same calendar end date. This end date is the last available linkenddt in the date range. This field is used to apply the max rule in selecting the gvkey to use when there are overlaps.</p>	

Annual Period Descriptors

**aperdes**      **Annual Period Descriptor Array**      **DEFINED STRUCTURE**

The annual period descriptor array is a group of historical description time-series. This array contains a composite of all annual period descriptor information available in supported annual Compustat files. It contains the same fields as the Quarterly File Period Descriptors. Information in annual data items, annual period description time-series variables, and derived information are loaded to the structure.

<b>datyr</b>	<b>Data Year</b> – Compustat annual data mnemonic	<b>integer</b>
<b>datqtr</b>	<b>Data Quarter</b> – set to zero in annual files	<b>integer</b>
<b>fiscyr</b>	<b>Fiscal Year-End Month of Data</b> – Compustat annual data mnemonic = FYR	<b>integer</b>
<b>calyr</b>	<b>Calendar Year</b> – derived for annual data from YEARA and FYR	<b>integer</b>
<b>calqtr</b>	<b>Calendar Quarter</b> – set to zero in annual files	<b>integer</b>
<b>upcode</b>	<b>Update Code</b> – Compustat annual data mnemonic = UCODE	<b>integer</b>
<b>srcdoc</b>	<b>Source Document Code</b> – Compustat annual data mnemonic = SOURCE	<b>integer</b>
<b>spbond</b>	<b>S&amp;P Long-Term Domestic Issuer Credit Rating – Current</b> Copied from annual data item 280 (spdrc)	<b>integer</b>
<b>spdebt</b>	<b>S&amp;P Subordinated Debt Rating</b> – copied from annual data item 280 (subdbt)	<b>integer</b>
<b>sppaper</b>	<b>S&amp;P Short-Term Domestic Issuer Credit Rating – Historical</b> Copied from annual data item 283	<b>integer</b>
<b>sprank</b>	<b>S&amp;P Common Stock Ranking</b> – copied from annual data item 282	<b>integer</b>
<b>majind</b>	<b>S&amp;P Major Index Code – Historical</b> – copied from annual data item 276	<b>integer</b>
<b>indind</b>	<b>S&amp;P Industry Index Code – Historical</b> – copied from annual data item 277	<b>integer</b>
<b>repdt</b>	<b>Report Date of Quarterly Earnings</b> – set to zero in annual files	<b>integer</b>
<b>flowcd</b>	<b>Format Code (Statement of Cash Flows)</b> – copied from annual data item 318	<b>integer</b>
<b>candxc</b>	<b>Canadian Index Code – Current</b> – set to zero in annual files	<b>integer</b>
<b>peftnt</b>	<b>Period Descriptor Footnotes Array</b>	<b>character</b>

There are eight character strings available. Compustat footnotes are two characters strings. The annual footnotes not associated with specific data items, numbers 32-35, are copied to this structure:

Footnote Number	Period Footnote Description
1	Annual Footnote 32 – Source Document Code.
2	Annual Footnote 33- Month of Deletion (Industrial Annual Research File only – 2 character code).
3	Annual Footnote 34 – Year of Deletion (industrial Annual Research File only – 2-character code).
4	Annual Footnote 35 – Reason for Deletion Code (Industrial Annual Research File only).
5-8	Unused/Blank.

**Quarterly Period Descriptors**

**qperdes**      **Quarterly Period Descriptor Array**      **DEFINED STRUCTURE**

The quarterly period descriptor array is a group of historical description time-series provided on Compustat quarterly files.

<b>datyr</b>	<b>Data Year</b>	<b>integer</b>
<b>datqtr</b>	<b>Data Quarter</b>	<b>integer</b>
<b>fiscyr</b>	<b>Fiscal Yearend Month of Data</b>	<b>integer</b>
<b>calyr</b>	<b>SPC Calendar Year</b>	<b>integer</b>
<b>calqtr</b>	<b>SPC Calendar Quarter</b>	<b>integer</b>
<b>upcode</b>	<b>Update Code</b>	<b>integer</b>
<b>srcdoc</b>	<b>Source Document Code</b>	<b>integer</b>
<b>spbond</b>	<b>S&amp;P Long-Term Domestic Issuer Credit Rating – Current (spdrc)</b>	<b>integer</b>
<b>spdebt</b>	<b>S&amp;P Subordinated Debt Rating (subdbt)</b>	<b>integer</b>
<b>sppaper</b>	<b>S&amp;P Short-Term Domestic Issuer Credit Rating – Historical</b>	<b>integer</b>
<b>sprank</b>	<b>S&amp;P Common Stock Ranking</b>	<b>integer</b>
<b>majind</b>	<b>S&amp;P Major Index Code – Historical</b>	<b>integer</b>
<b>indind</b>	<b>S&amp;P Industry Index Code – Historical</b>	<b>integer</b>
<b>repdt</b>	<b>Report Date of Quarterly Earnings</b>	<b>integer</b>
<b>flowcd</b>	<b>Format Code (Statement of Cash Flows)</b>	<b>integer</b>
<b>candxc</b>	<b>Canadian Index Code – Current</b>	<b>integer</b>
<b>peftnt</b>	<b>Period Descriptor Footnotes Array</b>	<b>character</b>

There are eight character strings available. Compustat footnotes are two characters strings. There are three quarterly period footnotes currently used.

<b>Footnote Number</b>	<b>Period Footnote Description</b>
1	Comparability Status
2	Company Status Alert
3	S&P Senior Debt Rating
4-8	Unused



**Annual Data Items**

**iaitems**      **Annual Data Items**      **real or float**

There are 400 annual data item time-series. A list of their names is in the Data Items Table in [Appendix A](#). Each data item is a separate time-series. Each `iaitems` time-series object (`iaitems_ts`) contains information about the availability and range of dates for the time-series. Blank items always have time-series object fields `beg` and `end` set to 0. All non-blank items have the same date range.

**Annual Footnotes**

**iaftnts**      **Annual Footnotes**      **Defined Structure**

There are 70 annual footnote time-series. Each footnote is a separate time-series. Each `iaftnts` time-series object (`iaftnts_ts`) contains information about the availability and range of data for that time-series. Unused footnotes always have time-series object fields `beg` and `end` set to 0. All used footnotes have the same date range.

**Quarterly Data Items**

**iqitems**      **Quarterly Data Items**      **real or float**

There are 280 quarterly data item time-series. A list of their names is in the Data Items Table in [Appendix A](#). Each `iqitems` time-series object (`iqitems_ts`) contains information about the availability and range of dates for that time-series. Blank items always have time-series object fields `beg` and `end` set to 0. All non-blank items have the same date range.

**Quarterly Footnotes**

**iqftnts**      **Quarterly Footnotes**      **Defined Structure**

There are 60 quarterly footnote time-series. Each `iqftnts` time-series object (`iqftnts_ts`) contains information about the availability and range of data for that time-series. Unused footnotes always have time-series object fields `beg` and `end` set to 0. All used footnotes have the same date range.

### Bank Annual Data

**baitems**      **Annual Data Items**      **float or real**

There are 232 bank annual data item time-series. [A list of their names is in the Data Items Table in Appendix A.](#) Each bank annual time-series object (`baitems_ts`) contains information about the availability and range of dates for that time-series. Blank items always have time-series object fields `beg` and `end` set to 0. All non-blank items have the same daterange. Items are accessed using the item number. These items are included in the Bank Compustat® guide.

**baftnts**      **Annual Footnotes**      **DEFINED STRUCTURE**

There are 40 bank annual footnote time-series. Each bank annual time-series object (`baftnts_ts`) contains information about the availability and range of dates for that time-series. Unused footnotes always have time-series object fields `beg` and `end` set to 0. All used footnotes have the same date range.

### Bank Quarterly Data

**bqitems**      **Quarterly Data Items**      **float or real**

There are 165 bank quarterly data item time-series. [A list of their names is in the Data Items Table Appendix A.](#) Each bank quarterly time-series object (`bqitems_ts`) contains information about the availability and range of dates for that time-series. Blank items always have time-series object fields `beg` and `end` set to 0. All non-blank items have the same date range. Items are accessed using the item number. These items are included in the Bank Compustat® guide.

**bqftnts**      **Quarterly Footnotes**      **DEFINED STRUCTURE**

There are 32 bank quarterly footnote time-series. Each bank quarterly time-series object (`bqftnts_ts`) contains information about the availability and range of dates for that time-series. Unused footnotes always have time-series object fields `beg` and `end` set to 0. All used footnotes have the same date range.

**Operating Segment Data**

<b>Operating Segment Source Data Arrays</b>			<b>segsrc</b>
<b>srcyr</b>	<b>Source Year</b>		<b>integer</b>
<b>srcfyr</b>	<b>Source Fiscal Year End Month</b>		<b>integer</b>
<b>calyr</b>	<b>Calendar Year (srccyr)</b>		<b>integer</b>
<b>ssrce</b>	<b>Source Document Code</b>		<b>character</b>
<b>sucode</b>	<b>Update Code</b>		<b>character</b>
<b>curcd</b>	<b>ISO Currency Code</b>		<b>character</b>
<b>srccur</b>	<b>Source ISO Currency Code</b>		<b>character</b>
<b>hnaics</b>	<b>Primary Historical NAICS</b>		<b>character</b>
<b>Operating Segment Product Data Arrays</b>			<b>segprod</b>
<b>srcyr</b>	<b>Source Year</b>		<b>integer</b>
<b>srcfyr</b>	<b>Source Fiscal Year End Month</b>		<b>integer</b>
<b>pdid</b>	<b>Product Identifier</b>		<b>integer</b>
<b>psid</b>	<b>Segment Link - Segment Identifier</b>		<b>integer</b>
<b>psale</b>	<b>External Revenues</b>		<b>float or real</b>
<b>pnaics</b>	<b>NAICS Code</b>		<b>character</b>
<b>pstype</b>	<b>Segment Link - Segment Type</b>		<b>character</b>
<b>pname</b>	<b>Product Name</b>		<b>character</b>
<b>Operating Segment Customer Data Arrays</b>			<b>segcust</b>
<b>srcyr</b>	<b>Source Year</b>		<b>integer</b>
<b>srcfyr</b>	<b>Source Fiscal Year End Month</b>		<b>integer</b>
<b>cdid</b>	<b>Customer Identifier (cid)</b>		<b>integer</b>
<b>csid</b>	<b>Segment Link - Segment Identifier</b>		<b>integer</b>
<b>csale</b>	<b>Customer Revenues</b>		<b>float or real</b>
<b>ctype</b>	<b>Customer Type</b>		<b>character</b>
<b>cgeocd</b>	<b>Geographic Area Code</b>		<b>character</b>

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<b>cgeoar</b>	<b>Geographic Area Type</b>	<b>character</b>
<b>cstype</b>	<b>Segment Link - Segment Type</b>	<b>character</b>
<b>cname</b>	<b>Customer Name</b>	<b>character</b>

### Operating Segment Detail Arrays

		<b>segdt1</b>
<b>srcyr</b>	<b>Source Year</b>	<b>integer</b>
<b>srcfyr</b>	<b>Source Fiscal Year End Month</b>	<b>integer</b>
<b>sid</b>	<b>Segment Identifier</b>	<b>integer</b>
<b>stype</b>	<b>Segment Type</b>	<b>character</b>

Where Segment Type is one of the following:

Segment Type	Description
busseg	Business Segment
geoseg	Geographic Segment
opseg	Operating Segment
stseg	State Segment

<b>soptp1</b>	<b>Operating Segment Type 1</b>	<b>character</b>
---------------	---------------------------------	------------------

Where Operating Segment Types include:

Op Segment Type	Description
oper	Operating
div	Divisions
geo	Geographic
market	Market
PD_SRVC	Products & Services

<b>soptp2</b>	<b>Operating Segment Type 2</b>	<b>character</b>
---------------	---------------------------------	------------------

See Operating Segment Type 1 above for segment types.

<b>sgeotp</b>	<b>Geographic Segment Type</b>	<b>character</b>
---------------	--------------------------------	------------------

<b>sname</b>	<b>Segment Name</b>	<b>character</b>
--------------	---------------------	------------------

Geographic Segment Types include:

Geo Segment Type	Description
1	Total
2	Domestic
3	Nondomestic

<b>Operating Segment Item Arrays</b>		<b>segitm</b>
<b>datyr</b>	<b>Data Year (year)</b>	<b>integer</b>
<b>fiscyr</b>	<b>Data Fiscal Year End Month (fyr)</b>	<b>integer</b>
<b>srcyr</b>	<b>Source Year</b>	<b>integer</b>
<b>srcfyr</b>	<b>Source Fiscal Year End Month</b>	<b>integer</b>
<b>calyr</b>	<b>Data Calendar Year (cyr)</b>	<b>integer</b>
<b>sid</b>	<b>Segment Identifier</b>	<b>integer</b>

Segment Type	Description
busseg	Business Segment
geoseg	Geographic Segment
opseg	Operating Segment
stseg	State Segment

<b>emp</b>	<b>Employees</b>	<b>integer</b>
<b>sale</b>	<b>Net Sales</b>	<b>float or real</b>
<b>oibd</b>	<b>Operating Income Before Depreciation</b>	<b>float or real</b>
<b>dp</b>	<b>Depreciation and Amortization</b>	<b>float or real</b>
<b>oiad</b>	<b>Operating Income after Depreciation</b>	<b>float or real</b>
<b>capx</b>	<b>Capital Expenditures</b>	<b>float or real</b>
<b>at</b>	<b>Identifiable/Total Assets</b>	<b>float or real</b>
<b>equearn</b>	<b>Equity in Earnings</b>	<b>float or real</b>
<b>inveq</b>	<b>Investments at Equity</b>	<b>float or real</b>
<b>rd</b>	<b>Research and Development</b>	<b>float or real</b>
<b>obklg</b>	<b>Order Backlog</b>	<b>float or real</b>
<b>exports</b>	<b>Export Sales</b>	<b>float or real</b>
<b>intseg</b>	<b>Intersegment Eliminations</b>	<b>float or real</b>
<b>opinc</b>	<b>Operating Profit</b>	<b>float or real</b>
<b>pi</b>	<b>Pretax Income</b>	<b>float or real</b>
<b>ib</b>	<b>Income Before Extraordinary Items</b>	<b>float or real</b>

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<b>ni</b>	<b>Net Income (Loss)</b>	<b>float or real</b>
<b>salef</b>	<b>Footnote 1 - Sales</b>	<b>character</b>
<b>opincf</b>	<b>Footnote 2 - Operating Profit</b>	<b>character</b>
<b>capxf</b>	<b>Footnote 3 - Capital Expenditures</b>	<b>character</b>
<b>eqearnf</b>	<b>Footnote 4 - Equity in Earnings</b>	<b>character</b>
<b>empf</b>	<b>Footnote 5 - Employees</b>	<b>character</b>
<b>rdf</b>	<b>Footnote 6 - Research and Development</b>	<b>character</b>
<b>stype</b>	<b>Segment Type</b>	<b>character</b>

Where Segment Type is one of the following:

Segment Type	Description
busseg	Business Segment
geoseg	Geographic Segment
opseg	Operating Segment
stseg	State Segment

### Operating Segment NAICS Arrays

<b>srcyr</b>	<b>Source Year</b>	<b>integer</b>
<b>srcfy</b>	<b>Source Fiscal Year End Month</b>	<b>integer</b>
<b>sid</b>	<b>Segment Identifier</b>	<b>integer</b>
<b>rank</b>	<b>Ranking</b>	<b>integer</b>
<b>sic</b>	<b>Segment SIC Code (ssic)</b>	<b>integer</b>
<b>snaics</b>	<b>NAICS Code</b>	<b>character</b>
<b>stype</b>	<b>Segment Type</b>	<b>character</b>

Where Segment Type is one of the following:

Segment Type	Description
busseg	Business Segment
geoseg	Geographic Segment
opseg	Operating Segment
stseg	State Segment

Operating Segment Geographic Area Code Arrays

		seggeo
<b>srcyr</b>	<b>Source Year</b>	integer
<b>srcfyr</b>	<b>Source Fiscal Year End Month</b>	integer
<b>sid</b>	<b>Segment Identifier</b>	integer
<b>stype</b>	<b>Segment Type</b>	character

Where Segment Type is one of the following:

Segment Type	Description
busseg	Business Segment
geoseg	Geographic Segment
opseg	Operating Segment
stseg	State Segment

<b>sgeocd</b>	<b>Geographic Area Code</b>	character
<b>sgeotp</b>	<b>Geographic Area Type</b>	character

Operating Segment Currency Arrays

		segcur
<b>srcyr</b>	<b>Data Year (year)</b>	integer
<b>srcfyr</b>	<b>Data Fiscal Year End Month (fyr)</b>	integer
<b>calyr</b>	<b>Data Calendar Year (cyr)</b>	integer
<b>xrate</b>	<b>Period End Exchange Rate</b>	double
<b>xrate12</b>	<b>12 Month-Moving Exchange Rate</b>	double
<b>srccur</b>	<b>Source Currency Code</b>	character
<b>curcd</b>	<b>ISO Currency Code (USD)</b>	character

**pde Price, Dividends, and Earnings Data Items****DEFINED STRUCTURE**

The pde structure contains monthly time-series arrays for Compustat Price, Dividends, and Earnings Files. It contains all available data item and footnote time-series only available in U.S. and Canadian PDE Files.

<b>prch</b>	<b>Price – High</b>	<b>float or real</b>
<b>prcl</b>	<b>Price – Low</b>	<b>float or real</b>
<b>prcc</b>	<b>Price – Close</b>	<b>float or real</b>
<b>div</b>	<b>Dividends per Share by Ex-Date</b>	<b>float or real</b>
<b>ern</b>	<b>Earnings per Share –12 Months Moving</b>	<b>float or real</b>
<b>shstrd</b>	<b>Common Shares Traded</b>	<b>float or real</b>
<b>divrte</b>	<b>Annualized Dividend Rate</b>	<b>float or real</b>
<b>rawadj</b>	<b>Adjustment Factor (Raw) by Ex-Date</b>	<b>float or real</b>
<b>cumadj</b>	<b>Adjustment Factor (Cumulative) by Ex-Date</b>	<b>float or real</b>
<b>bkv</b>	<b>Book Value per Share</b>	<b>float or real</b>
<b>cheqvm</b>	<b>Cash Equivalent Distributions per Share by Ex-Date</b>	<b>float or real</b>
<b>cshoq</b>	<b>Common Shares Outstanding</b>	<b>float or real</b>
<b>navm</b>	<b>Net Asset Value per Share</b>	<b>float or real</b>
<b>oeps12</b>	<b>Earnings per Share from Operations – 12 Months Moving</b>	<b>float or real</b>
<b>gics</b>	<b>Global Industry Classification Standard</b>	<b>integer</b>
<b>cpspin</b>	<b>S&amp;P Index Primary Marker</b>	
<b>div_ftnt</b>	<b>Dividends per Share by Ex-Date Footnote (dvpsxf)</b>	
<b>rawadj_ftnt</b>	<b>Adjustment Factor (Raw) by Ex-Date Footnote (ratexmf)</b>	
<b>comsta_ftnt</b>	<b>Comparability Status Footnote (cstatf)</b>	
<b>isa_ftnt</b>	<b>Issue Status Alert Footnote (isalrtf)</b>	



### Notes on Missing Values

Compustat provides specific codes for data items which are:

- ☒ not available
- ☒ combined with other data items
- ☒ considered insignificant by the company
- ☒ available only on a semi-annual or annual basis

The data provided in the CRSPAccess format have constants representing each case. Missing value codes conform with Compustat's Strategic Insight and binary conventions for missing values.

### Compustat Missing Value Codes

Missing Value Code	C Constant	Numeric Value
No data for data item	CST_MISS_NA	.0001
Data has been combined into another item	CST_MISS_COMB	.0004
Data has been reported by the company as insignificant	CST_MISS_INSIG	.0008
Data is only reported on a semi-annual basis	CST_MISS_SEMI	.0002
Data is only reported on an annual basis	CST_MISS_ANN	.0003



## CHAPTER 3: TS\_PRINT TIME SERIES REPORT WRITER

*ts\_print*, CRSP's time series report writer, will generate output for securities in the Compustat universe which are linked to securities in the CRSP universe. CCM data can be accessed by both versions of *ts\_print*: the command-line executable program and the interface available through Windows.

### CRSP-Centric Mode

*ts\_print* allows users to access Compustat data by the CRSP-Centric mode. The primary access key in this mode is CRSP PERMNO or PERMCO. In CRSP-Centric mode a composite record is built using the CRSP Link reading one or more GVKEYs as necessary. This allows seamless one-to-one access with the CRSP database. See Link Used, pg 25.

The *Utilities Guide for the CRSP Stock and Indices Databases* contains detailed information and instructions for use of *ts\_print* and other CRSP utilities and should be the primary reference for general utility use. The utility section in this guide is a scaled down version provided principally to capture the information pertaining to usage with the CCM databases. Overlap between the two guides exist in order to provide context to the CCM specific information.

### 3.1 Sample Reports

**Sample** data request files are provided with the data in the CRSP\_SAMPLE directory. These can be run directly, or copied and used as templates for other reports. Sample request files, *ts\_samp1.rqt* through *ts\_samp4.rqt*, generate output from the CRSP US Stock and Indices databases. These files are fully described in the *Utilities Guide*. Sample request files, *ts\_samp5.rqt* through *ts\_samp8.rqt*, generate reports using Compustat data. The general syntax used to run *ts\_print* from the command line follows:

```
ts_print %crsp_sample%ts_samp5.rqt (Windows)
ts_print $CRSP_SAMPLE/ts_samp5.rqt (Unix)

# ts_samp5.rqt - sample for annual data for CRSP and Compustat on Fiscal Basis
#
# input is one permno
#
# output is annual results for selected Compustat and CRSP stock items (gvkey,
# daily CRSP stock item return, annual item #2 - receivable-total, annual
# item #12 - sales (net), annual fiscal year information, historical industry
# classification code, and CRSP permco link) for Microsoft from 1950 to 1999.
# the output is based on fiscal year. Since Microsoft has a fiscal year-end
# month of June, returns for annual output are compounded from July 1 to June30.
# -----
ENTITY
LIST|PERMNO 10107
END
ITEM
ITEMID lgvkey
ITEMID ret
ITEMID iaitem|SUBNO 2
ITEMID iaitem|SUBNO 12
ITEMID afiscyr
ITEMID ndnum
ITEMID npermco
END
DATE
CALNAME annual|ABSOLUTE 1950-1999|FISCAL|CALFORMAT 6
```

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```
END
OPTIONS
X ITEM|Y DATE|Z ENTITY,YES,3|OUTNAME ts_samp5.out|REPNAME stk_cst sample|NOFILL
END
```

### ts\_samp5.out

		lgvkey	Ret	Receivabl	SalesNet	afiscyr	ndnum	npermco
10107	1986	12141	0.098214	34.4990	197.5140	6	0	8048
10107	1987	12141	2.317073	55.1310	345.8900	6	0	8048
10107	1988	12141	0.313725	93.6020	590.8270	6	0	8048
10107	1989	12141	-0.208955	111.1800	803.5300	6	0	8048
10107	1990	12141	1.867925	180.9980	1183.4460	6	0	8048
10107	1991	12141	0.344572	243.3040	1843.4320	6	0	8048
10107	1992	12141	0.541284	270.2150	2758.7251	6	0	8048
10107	1993	12141	0.257143	338.0000	3753.0000	6	0	8048
10107	1994	12141	0.173295	475.0000	4649.0000	6	7372	8048
10107	1995	12141	0.750605	581.0000	5937.0000	6	7372	8048
10107	1996	12141	0.329184	639.0000	8671.0000	6	7372	8048
10107	1997	12141	1.104058	980.0000	11358.0000	6	7372	8048
10107	1998	12141	0.715134	1460.0000	14484.0000	6	7372	8048
10107	1999	12141	0.664360	2245.0000	19747.0000	6	7372	8048

### # ts\_samp6.rqt - sample for CRSP Daily and Compustat Quarterly Data

```
#
#           reported annually on a calendar basis
#
# input is one permno
#
# output is annual results for selected Compustat and CRSP stock items (gvkey,
# daily CRSP stock item prc, quarterly item #2 - sales (net), quarterly
# item #11 - earnings per share (basic), quarterly fiscal year information,
# historical cusip issuer code, and CRSP permco link) for Microsoft from 1950
# to 1999.
# the output is based on calendar year. Since Microsoft has a fiscal year-end
# month of June, the annual output for quarterly items and quarterly period
# descriptors at year end is from the 2nd fiscal quarter of the following
# fiscal year (19981231 reports 2nd quarter of 1999 quarterly items)
# -----
```

```
ENTITY
LIST|PERMNO 10107
END
ITEM
ITEMID lgvkey
ITEMID ret
ITEMID iqitem|SUBNO 2
ITEMID iqitem|SUBNO 11
ITEMID qfiscyr
ITEMID ncnum
ITEMID npermco
END
DATE
CALNAME annual|ABSOLUTE 1950-1999
END
```

OPTIONS

```
X  ITEM|Y  DATE|Z  ENTITY,YES,3|OUTNAME  ts_samp6.out|REPNAME  stk_cst  sam-
ple|NOFILL
END
```

**ts\_samp6.out**

		lgvkey	Ret	SalesNet	EPSPriInc	qfiscyr	ncnum	npermco
10107	19861231	12141	0.723214	80.9850	0.7100	6		8048
10107	19871231	12141	1.248705	155.8960	0.6300	6		8048
10107	19881230	12141	-0.018433	209.8820	0.8500	6		8048
10107	19891229	12141	0.633803	300.4310	1.2500	6		8048
10107	19901231	12141	0.729885	460.5000	0.9100	6		8048
10107	19911231	12141	1.217608	681.9000	0.9000	6		8048
10107	19921231	12141	0.151124	938.0000	0.7800	6		8048
10107	19931231	12141	-0.055637	1129.0000	0.9500	6		8048
10107	19941230	12141	0.516279	1482.0000	0.6000	6	594918	8048
10107	19951229	12141	0.435583	2195.0000	0.9000	6	594918	8048
10107	19961231	12141	0.883191	2680.0000	0.5700	6	594918	8048
10107	19971231	12141	0.564297	3585.0000	0.9400	6	594918	8048
10107	19981231	12141	1.146035	5195.0000	0.7900	6	594918	8048
10107	19991231	12141	0.683641	6112.0000	0.4700	6	594918	8048

**# ts\_samp7.rqt - sample for annual data for Compustat PDE on calendar Basis**

```
#
# input is one permno
#
# output is annual results for selected Compustat identifier and PDE items
# (gvkey, price-high, price-low, dividend per share, book value per share)
# for Microsoft from 1950 to 1999.
# the output is based on fiscal year. Since Microsoft has a fiscal year-end
# month of June, fiscal year end data in any year should be the data at the
# end of June in that year.
```

# -----

ENTITY

```
LIST|PERMNO 10107
```

END

ITEM

```
ITEMID lgvkey
```

```
ITEMID prch
```

```
ITEMID prcl
```

```
ITEMID div
```

```
ITEMID bkv
```

END

DATE

```
CALNAME annual|ABSOLUTE 1950-1999|FISCAL|CALFORMAT 6
```

END

OPTIONS

```
X  ITEM|Y  DATE|Z  ENTITY,YES,3|OUTNAME  ts_samp7.out|REPNAME  cst_pde  sam-
ple|NOFILL
END
```

## CRSP/COMPUSTAT MERGED DATABASE GUIDE

---

ts\_samp7.out

		lgvkey	PRCH	PRCL	DIV	BKV
10107	1986	12141	0.1215	0.1024	0.0000	0.00860
10107	1987	12141	0.4002	0.3342	0.0000	0.01900
10107	1988	12141	0.4688	0.4010	0.0000	0.03150
10107	1989	12141	0.4219	0.3559	0.0000	0.04860
10107	1990	12141	1.0799	0.9861	0.0000	0.07150
10107	1991	12141	1.5937	1.3542	0.0000	0.11220
10107	1992	12141	2.5938	2.0547	0.0000	0.16150
10107	1993	12141	3.0625	2.7109	0.0000	0.25180
10107	1994	12141	3.4141	3.0781	0.0000	0.35930
10107	1995	12141	5.7734	5.1094	0.0000	0.47870
10107	1996	12141	7.8672	7.2656	0.0000	0.60990
10107	1997	12141	16.8671	14.7813	0.0000	0.78970
10107	1998	12141	27.1406	20.7813	0.0000	1.01710
10107	1999	12141	45.1250	38.0625	0.0000	1.58370

# ts\_samp8.rqt - sample for annual data for Compustat bank items and footnotes  
# and industrial footnotes on fiscal Basis

#

# input is one permno

#

# output is annual results for Compustat identifier and selected bank items and  
# footnotes and industrial footnotes (lgvkey, bank annual item 34, bank  
# quarterly item 1, footnote 1 associated with bank annual item 36, footnote 2  
# associated with bank quarterly item 27, footnote 1 associated with industrial  
# quarterly item 19, footnote 2 associated with industrial annual item 233)  
# for Bank of America from 1950 to 1999.

# the output is based on fiscal year. Bank of America has a fiscal year-end  
# month of December.

# -----

ENTITY

LIST|PERMNO 59408

END

ITEM

ITEMID lgvkey

ITEMID baitem|SUBNO 34

ITEMID bqitem|SUBNO 1

ITEMID baftnt1|SUBNO 36

ITEMID bqftnt2|SUBNO 27

ITEMID iqftnt1|SUBNO 19

ITEMID iaftnt2|SUBNO 233

END

DATE

CALNAME annual|ABSOLUTE 1950-1999|FISCAL|CALFORMAT 6

END

OPTIONS

X ITEM|Y DATE|Z ENTITY,YES,3|OUTNAME ts\_samp8.out

REPNAME cst\_bifnt sample|NOFILL

END

---

ts\_samp8.out

lgvkey	IntanAst	BankCshDue	F1	F2	F1	F2
59408	1972	7647	0.0001	0.0001		
59408	1973	7647	0.0001	0.0001		
59408	1974	7647	0.0001	0.0001		
59408	1975	7647	0.0001	0.0001		
59408	1976	7647	0.0001	0.0001		
59408	1977	7647	0.0001	0.0001		
59408	1978	7647	0.0001	0.0001		
59408	1979	7647	0.0001	0.0001		
59408	1980	7647	0.0001	0.0001		
59408	1981	7647	0.0001	0.0001		
59408	1982	7647	0.0001	0.0001		NC
59408	1983	7647	0.0001	0.0001		NC
59408	1984	7647	0.0001	0.0001		NC
59408	1985	7647	0.0001	0.0001		NC
59408	1986	7647	444.1130	0.0001	AS	NC
59408	1987	7647	441.1060	0.0001	AA	NC
59408	1988	7647	407.2460	0.0001	BJ	NC
59408	1989	7647	590.8870	0.0001		NC
59408	1990	7647	819.6470	0.0001	AA	NC
59408	1991	7647	1085.0000	0.0001	AB	NC
59408	1992	7647	900.0000	0.0001		NC
59408	1993	7647	1367.0000	0.0001	AA	
59408	1994	7647	1712.0000	0.0001		NC
59408	1995	7647	2221.0000	9744.0000	AA	NC
59408	1996	7647	2976.0000	10776.0000	AA	NC
59408	1997	7647	10662.0000	12981.0000	AA	NC
59408	1998	7647	17084.0000	35027.0000	AA	
59408	1999	7647	18085.0000	31827.0000		

### 3.2 Creating the *ts\_print* Request File

The key to running *ts\_print* is the creation of a text output definition file, or request file. The request file contains specifications for the data and report format. Every request file contains four components: **ENTITY**, **ITEM**, **DATE**, and **OPTIONS**. The command-line version of *ts\_print* requires that a request file already exists. The Windows interface covered in Chapter 4, provides a menu-driven application that creates and runs a request file. Component options are available with Compustat data unless explicitly identified as unavailable.

**ENTITY** - One or more selected securities, a precalculated CRSP supported index, or a user-defined portfolio.

**ITEM** - One or more *ts\_print* supported CRSP data items or Compustat variables.

**DATE** - Dates can be a set of absolute date ranges or relative dates.

**OPTIONS** - Controls the appearance and name of the output file.

Each component entry consists of three parts:

- ⊛ A heading row which identifies the component,
- ⊛ The center row(s) which detail(s) the desired function(s) of the component, and
- ⊛ The END row, which closes the component input information. A basic example follows:

**sample.txt**

```
#Sample request file for price, volume, total return, shares outstanding for #a
security
ENTITY
LIST|PERMNO 12490|ENTFORMAT 3
END
ITEM
ITEMID prc
ITEMID vol
ITEMID ret
ITEMID shr
END
DATE
CALNAME weekly|RANGE 19950101-19950201|CALFORMAT 4
END
OPTIONS
X ITEM,YES|Y DATE,YES|Z ENTITY,YES,1|OUTNAME finsamp.out|REPNAME Sample One
END
```

In *ts\_print*, **ENTITY**, **ITEM**, and **DATE** identify what your report will contain, and **OPTIONS** determines how your report will appear. Comment lines in the request file beginning with a “#” and blank lines are ignored by the *ts\_print* program. Comments can be used to make the input file more readable or to make an input line temporarily inactive. Comments can appear anywhere in the request file.



## ENTITY Specification

There are three general ways to describe entities:

- ⊗ LIST
- ⊗ INDEX
- ⊗ PORTFOLIO

Index and Portfolio options are not available for use with the CCM database. For a full discussion of the Index and Portfolio options, please refer to the *Utilities Guide for CRSP US Stock and Indices Databases*. The following Entity discussion in this guide is limited to List options, which include individual Primary Identifiers or the use of Input Files.

## ENTITY List Options

### Primary Identifiers

Data for individual securities may be extracted by using any of the following keys to identify the securities:

- ⊗ PERMNO – CRSP 5-digit permanent issue identification number
- ⊗ PERMCO – CRSP 5-digit permanent company identification number
- ⊗ GVKEY – Compustat permanent identification number
- ⊗ CUSIP – Current or header CUSIP
- ⊗ HCUSIP – Historical CUSIP
- ⊗ TICKER – Ticker for active securities only
- ⊗ SICCD – Historical SIC Code
- ⊗ ALL – all PERMNOs in the relevant database are accessed

Example:

ENTITY

LIST|PERMNO 12490

LIST|PERMCO 20583

LIST|GVKEY 3955

LIST|TICKER MSFT

END

### Input Files

Input files may be called. The underlying input file is a text file that requires that the first column contain primary identifiers and allows for additional optional information, including dates and headers. The format of the input file must be specified as either fixed position, **F1**, or delimited with a one-character delimiter, **F2**.

#### Format options

- F1** Fixed Positions. A two-character code corresponds to the primary identifier used in the input file. Each code is followed by character positions in the form (begpos, endpos). begpos is the first character position in the input file that contains the data for that specification, endpos the last. Codes include:
- PE** PERMNO of the input security
  - PC** PERMCO
  - GV** GVKEY
  - CU** CUSIP
  - HC** CUSIP (header or current)
  - TI** Header Ticker (active companies only)
  - SI** Historical SIC Code
  - D1** Beginning date of a date range or a single event date, in YYYYMMDD format. If a relative calendar is used, D1 is the event date for the security. If an absolute calendar range is used, and D1 and D2 are specified, valid data output is the cross-section of the security's trading history, the DATE component date range, and the range set by D1 and D2.
  - D2** Ending date of a date range, in YYYYMMDD format.
  - SD** Short Description to supply header text for the security, up to 20 characters long.

For example, the following input file, `permin.txt` containing PERMNOs, beginning and end dates...

```
10107 19900101 19901231
12490 19700101 19701231
14593 19850101 19851231
43916 19800101 19801231
```

...would generate this ENTITY request:

```
ENTITY
LIST|FILE permin.txt,F1PE(1,5)D1(7,14)D2(16,23)
END
```

- F2** Character Delimited. The delimiting character is set with the DL code.
- e.g.** The same request file used in the F1 example, with fields delimited by spaces, would look like the following:
- ```
ENTITY
LIST|FILE permin.txt,F2DLSPED1D2
END
```
- DL** A delimiter character is used with F2. *ts\_print* supports special delimiters: P for pipe, S for space, C for comma (DLP, DLS, DLC) and any other character can be used by adding a character on after DL (DL; for semicolon delimited input).
- PE** PERMNO of the input security
- PC** PERMCO
- GV** GVKEY
- CU** Header CUSIP
- HC** Historical CUSIP
- TI** Header Ticker
- SI** Historical SIC Code
- D1** Beginning date of a date range or a single event date, in YYYYMMDD format. If a relative calendar is used, D1 is the event date for the security. If an absolute calendar range is used, and D1 and D2 are specified, valid data output is the cross-section of the security's trading history, the DATE component date range, and the range set by D1 and D2.
- D2** Ending date of a date range, in YYYYMMDD format.
- SD** Short Description to supply header text for the security, up to 20 characters long.

## CCM Data Items

### Item Identifiers

Data items are selected by using item identifiers. A complete listing of items and their identifiers for Compustat data items supported in *ts\_print* begins on page 157. The following item identifiers include:

- ☉ ITEMID – primary identification code
- ☉ GROUPLD – only Compustat data items that do not have item number – header, name, link, and period descriptors, are organized into groups.
- ☉ SUBNO – Serves to further define ITEMID. SUBNO is the item number for Compustat Industrial Annual and Quarterly data, Bank Annual and Quarterly data and associated footnotes for these data. For all other Compustat data, SUBNO = zero.
- ☉ INDNO – is not an option to use with Compustat data
- ☉ PORTTYPE – is not an option to use with Compustat data

Below is a complete listing of Compustat data items supported in *ts\_print*. The list is categorized and, where applicable, sorted by item number within each category in **Appendix B** in the back of this guide. For ease of lookup, **Appendix A** provides an alphabetical sort of the Annual and Quarterly Industrial Files and of the Annual and Quarterly Bank Files.

- ☉ CCM Header Array – p. 157
- ☉ CCM Name Array – p. 157
- ☉ CCM Link History Array – p. 158

- ⊗ Compustat Industrial Annual Company Descriptors – p. 158
- ⊗ Compustat Industrial Quarterly Period Descriptors – p. 159
- ⊗ Compustat Industrial Annual Data Items – p. 159
- ⊗ Compustat Industrial Quarterly Data Items – p. 167
- ⊗ Compustat Bank Annual Data Items – p. 176
- ⊗ Compustat Bank Quarterly Data Items – p. 176
- ⊗ CCM PDE Data – p. 179

### Item Qualifiers

ITEMLAG - allows for lagging or leading data items by numbers of periods in the same scale as selected in the output calendar. A monthly output calendar allows for leading and lagging by months, daily by days, and so on. This allows control on an item by item basis, providing the ability to line up items with different effective dates in a single report. The same items can be included multiple times in the same report with different lags.

ITEMLAG may be useful in avoiding look-ahead bias when accessing data items that are associated with a particular period, but are not available to the public immediately: Annual sales for the fiscal period ending December, 2005 may not be reported until February, 2006.

Example syntax to handle the above situation with a monthly output calendar follows:

```
ITEMID iaitem|SUBNO 12|ITEMLAG 2
```

The annual sales reported each month are from the fiscal year ending no later than two months earlier.

ITEMLAG can be specified as a negative number to generate leading data. This can be useful for creating scenarios for building a portfolio and lining up future returns to evaluate that portfolio.

### Date Specifications

Compustat data are grouped and restricted by Data Year, which is determined by where a company's fiscal year falls within the December calendar year. Compustat assigns Data Year to where most of company activity occurred. If a company's fiscal year ends between January and May, the Data Year is set to the calendar year preceding its fiscal year end. If a company's fiscal year ends between June and December, the Data Year is set to the same year in which the fiscal year ends. For example, data for a company whose fiscal year ends in May, 2004 will be associated with the Data Year 2003.

The default in *ts\_print* is report all Compustat items on a calendar basis. For a specified date, reported Compustat items contain the values for the last fiscal year completed by that specified date.

**Example: Default Calendar Year-End:**

```
# -----
# shows calendar year - all data as of the end of December, showing the last
# completed fiscal period, in this case for Oracle with May fiscal year, the
# items assigned to December 2004 were reported in May of 2004 (under Data
# Year 2003).
# Prices are for the last trading day of December.
# -----
ENTITY
LIST|PERMNO 10104
END
ITEM
ITEMID caldt
ITEMID prc
ITEMID iaitem|SUBNO 12
ITEMID afiscyr
END
DATE
CALNAME annual|ABSOLUTE 2000-2004
END
OPTIONS
X ITEM|Y DATE|Z ENTITY,YES,3|OUTNAME ts_samp6.out|NOFILL
END
```

**CALENDAR Example Output:**

|       |          | Caldt    | Prc      | SalesNet   | afiscyr |
|-------|----------|----------|----------|------------|---------|
| 10104 | 20001229 | 20001229 | 29.06250 | 10130.1279 | 5       |
| 10104 | 20011231 | 20011231 | 13.81000 | 10859.6719 | 5       |
| 10104 | 20021231 | 20021231 | 10.80000 | 9673.0000  | 5       |
| 10104 | 20031231 | 20031231 | 13.23000 | 9475.0000  | 5       |
| 10104 | 20041231 | 20041231 | 13.72000 | 10156.0000 | 5       |

**Fiscal Year Option**

The fiscal option, specified in the CALNAME line of the *ts\_print* request file, returns data items aligned in the year where most activity occurs.

### Example: Fiscal Year

```
# -----  
# based on Fiscal Year, as labeled by Compustat Data Year, where items are  
# aligned in the year where most activity occurs. In the case of Oracle  
# with a May fiscal year end, items labeled 2003 are those reported for the  
# fiscal year ending May 2004. Prices included for the year labeled 2003  
# are of the last trading day at the end of the fiscal year, May 31, 2004.  
# -----  
ENTITY  
LIST|PERMNO 10104  
END  
ITEM  
ITEMID caldt  
ITEMID prc  
ITEMID iaitem|SUBNO 12  
ITEMID afiscyr  
END  
DATE  
CALNAME annual|ABSOLUTE 2000-2004|FISCAL|CALFORMAT 6  
END  
OPTIONS  
X ITEM|Y DATE|Z ENTITY,YES,3|OUTNAME ts_samp6.out|NOFILL  
END
```

### FISCAL Example Output:

|       |      | Caldt    | Prc      | SalesNet   | afiscyr |
|-------|------|----------|----------|------------|---------|
| 10104 | 2000 | 20010531 | 15.30000 | 10859.6719 | 5       |
| 10104 | 2001 | 20020531 | 7.92000  | 9673.0000  | 5       |
| 10104 | 2002 | 20030530 | 13.01000 | 9475.0000  | 5       |
| 10104 | 2003 | 20040528 | 11.40000 | 10156.0000 | 5       |
| 10104 | 2004 | 20050531 | 12.80000 | 11799.0000 | 5       |

A full discussion of Date Specifications may be found in the [\*Utilities Guide for CRSP US Stock and Indices Databases\*](#).

### Report Format and Options

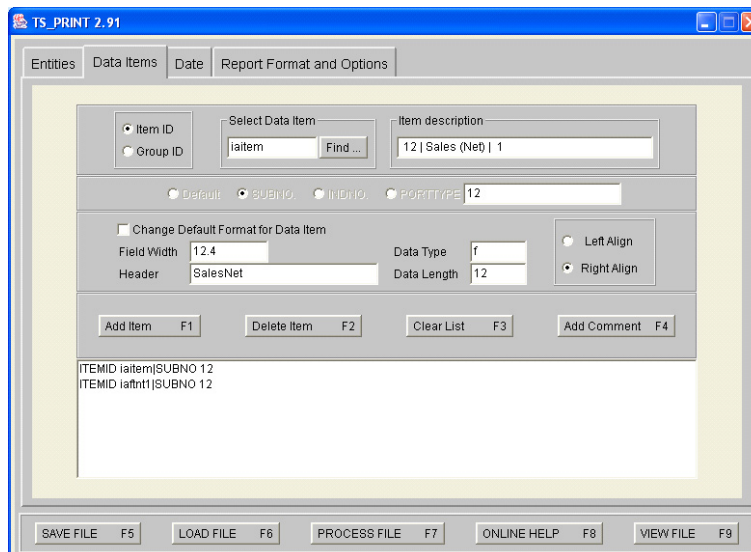
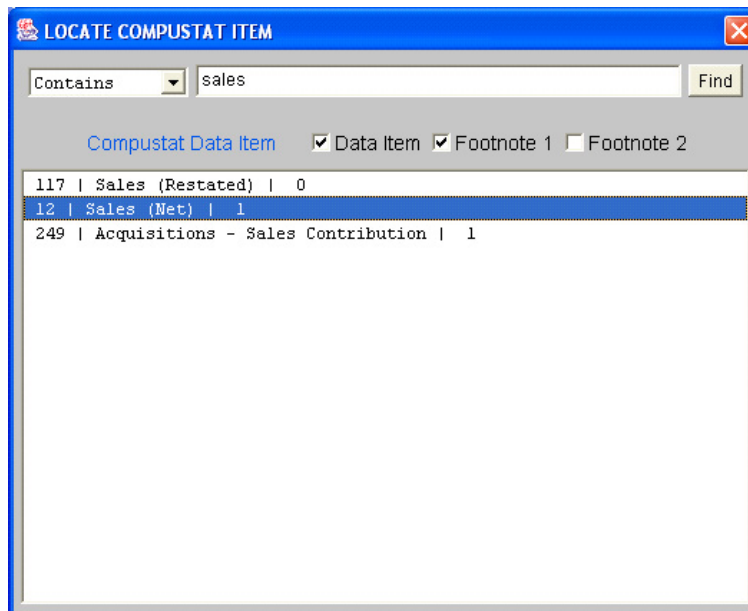
Report Format and Options has common functionality when used with either CRSP Stock and Indices databases or with the CCM database. A full discussion of Format Options may be found in the [\*Utilities Guide for CRSP US Stock and Indices Databases\*](#).

CHAPTER 4: *ts\_print* INTERFACE FOR WINDOWS

The *ts\_print* interface for Windows creates and processes a request file for output. Inputs for the interface are the same as those for the command line application. Files created in the interface may be subsequently run at the command line, and vice versa.

Accessing Compustat data through the interface differs most significantly from accessing CRSP US Stock and Indices data in the items selection process. For general usage of the *ts\_print* Interface for Windows, please refer to the *CRSP Utilities Guide for US Stock and Indices Databases*.

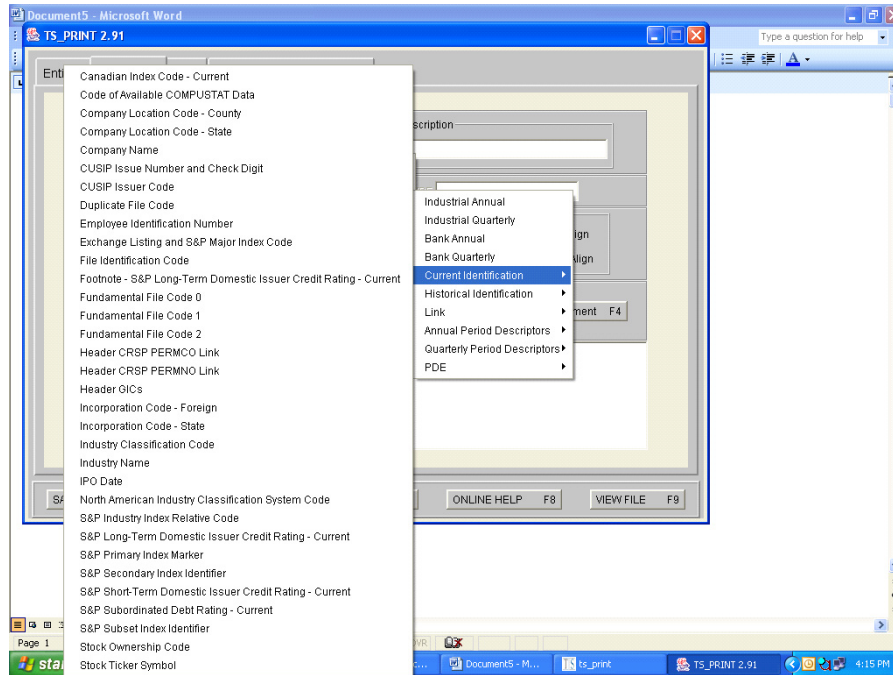
Compustat Annual and Quarterly Industrial data items and Annual and Quarterly Bank data items are not listed. For those items, search criteria are entered and items meeting the criteria are displayed. The display contains the item number, item name, and number of footnotes associated with the item. Footnotes may be selected for those items that have them. To select an item, double click on it to return to the screen, then select the Add Item (F1) button to add it to the request file. Any combination of items and footnotes may be added: item only, footnote only, item and footnote. Footnote codes are defined in the *Compustat User's Guide*.



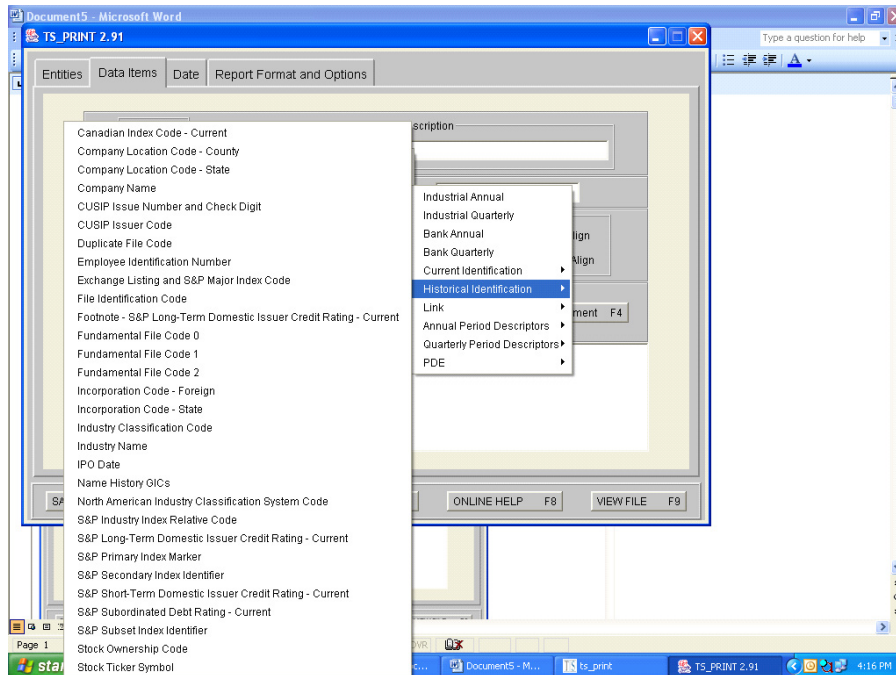
# CRSP/COMPUSTAT MERGED DATABASE GUIDE

Data items for all other Compustat categories are available directly through the menu.

## Current Identification Items

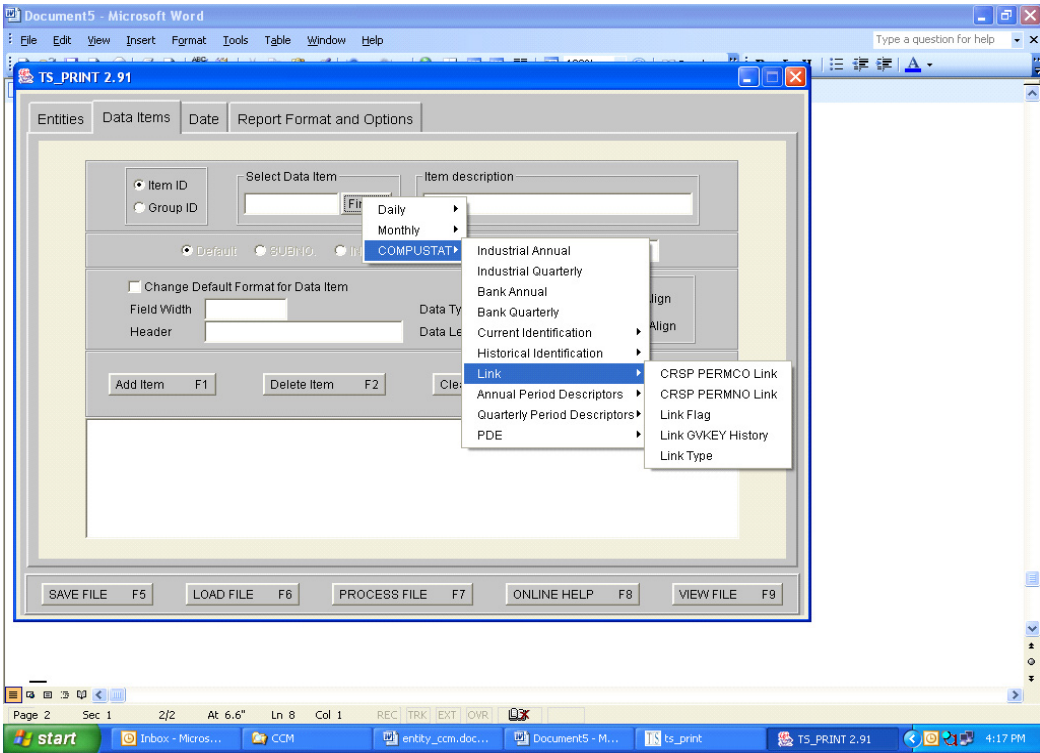


## Historic Identification Items

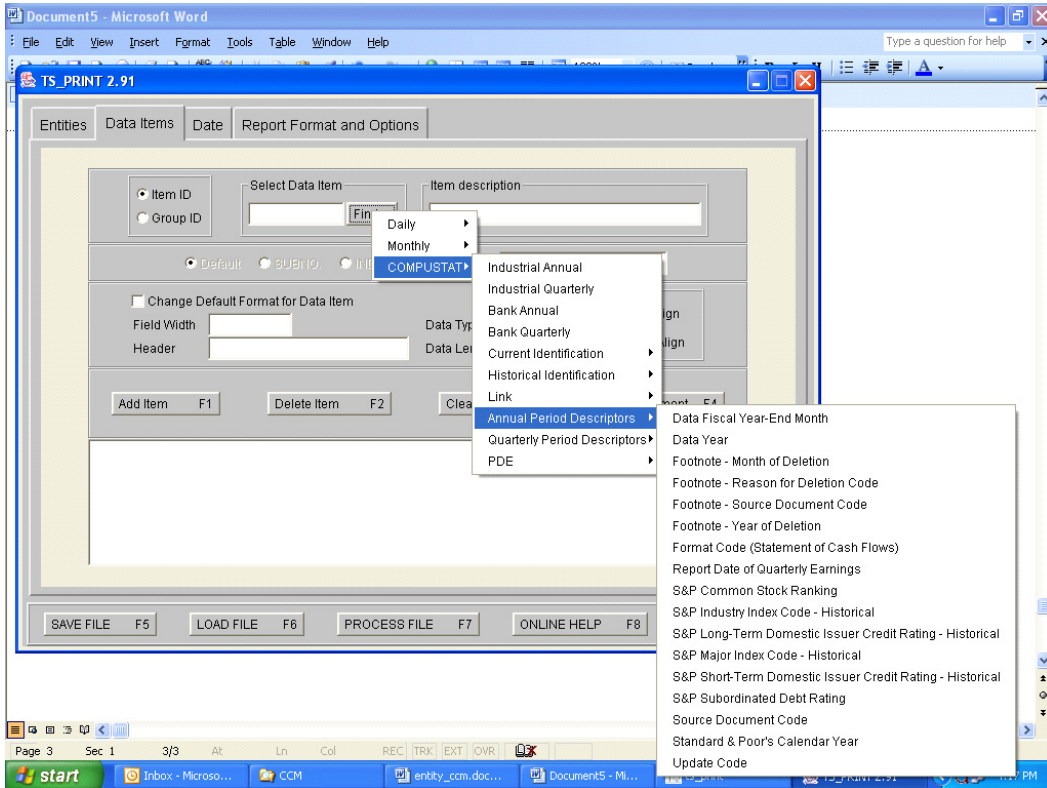




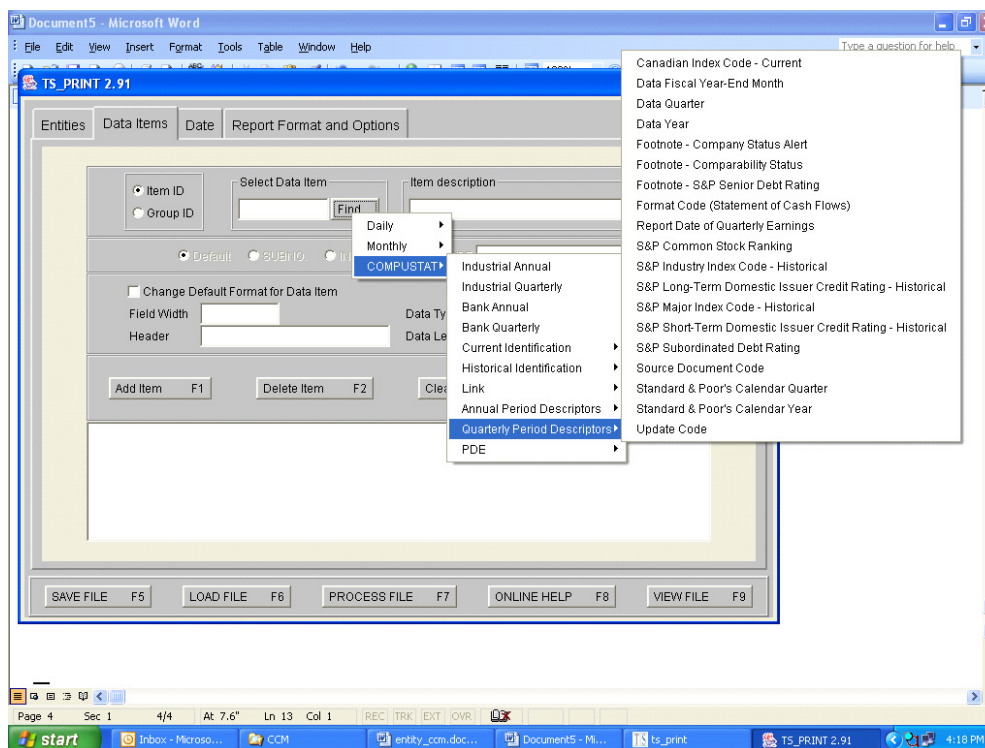
Link Items



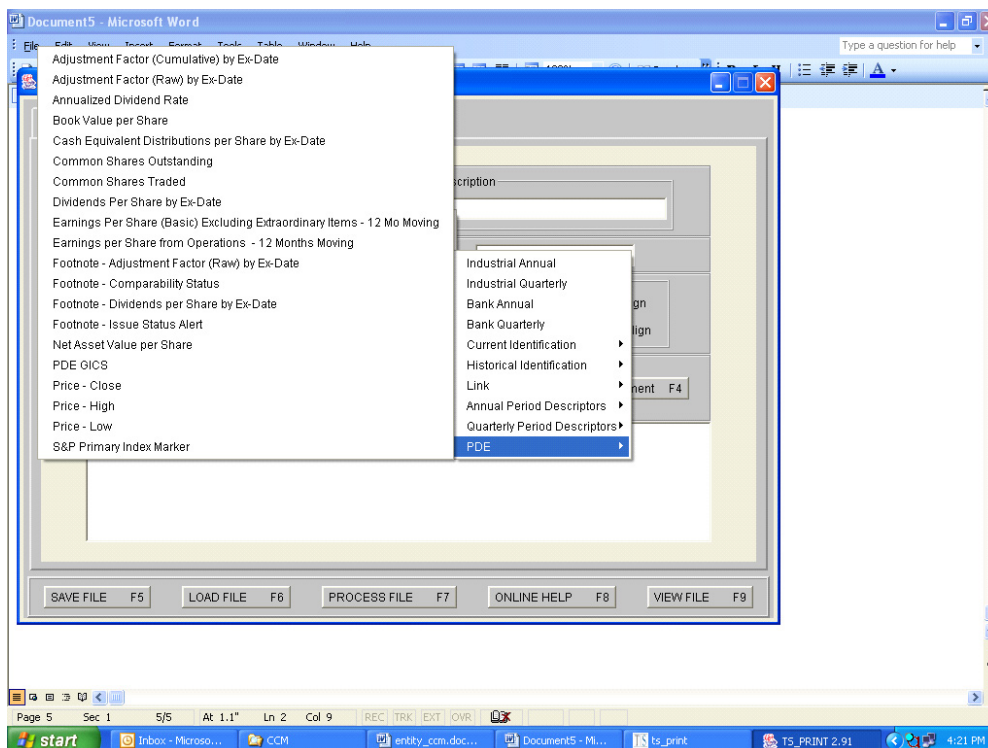
Annual Period Descriptors



## Quarterly Period Descriptors



## PDE - Prices, Dividends, and Earnings Items



CHAPTER 5: *CSTPRINT* COMPUSTAT & CRSP LINK DATA REPORT WRITER5.1 *cstprint* Introduction

*cstprint* is a command line report writer utility program that can be used to print data to the screen, or to create an output file containing CRSP Link, and Compustat data. It is useful for browsing data formatted for a terminal (80 character width with headers) or extracting data formatted for program input (delimited text output) for use as is, or for export into a spreadsheet or database program for further analysis.

*cstprint* supports identifiers including *gvkey*, the primary security identifier of the CRSP/Compustat Merged Database, and PERMNO, PERMCO, Ticker Symbol, CUSIP Issuer Code/CUSIP Issue Number and Check Digit (CNUM/CIC), Industry Classification Code/CUSIP Issuer Code/CUSIP Issue Number and Check Digit (DNUM/CNUM/CIC). Items separated by slashes (/) comprise keys which combine the identifiers.

*cstprint* supports Compustat header, description histories, period descriptor, and data items and can support input identifiers typed at a terminal, identifiers in an input file, or all records. The user selects input and output options on the command line. If the identifiers are typed at the terminal, input or output options can be switched between each entry. Output can be printed to a terminal or to a file with two choices of format. See the [Namelist Search Utilities, \*cstsearch\* and \*ncstsearch\*](#) (page 86), to look up *gvkeys* or other identifiers from partial names or tickers. See [Chapter 2: Data Definitions Guide](#) for descriptions of the data structures and a list of the variables within each. A complete list of Compustat data items, sorted alphabetically within each file, is available in [Appendix A](#).

Use the following commands in a terminal to run *cstprint*:

```
cstprint - to read Compustat data from the default CRSP/Compustat Merged Database. Note that to run the program and use the options within it, the underscore in the program name is not used.
```

```
cstprint /dl database_path - to read Compustat data from a specified CRSP/Compustat Merged Database (the /dl option is described in the cstprint Data Items and Options Section below).
```

Normal usage is to type identifiers at the command line once the program is started, although they can be run with the program call on the command line, as in the 2nd example above. The enter key registers the input and triggers the program to report the desired data. Entering a blank line at the prompt ends the program. Options can be added either at the initial command line, or after the program is started, to select different identifiers, data, date ranges, or output options. The program returns data on one issue a time, dumping the data to the terminal in the default settings. A database can also be processed sequentially or from an input file with *cstprint*, using the */sq* and */if* options respectively. The default data returned is the Identifiers, Company Descriptors and Data Ranges (*/h*) option. If no data is available, the field will be left blank or will have a missing value code.

***cstprint* Option Syntax**

Options are preceded with a forward slash. Multiple options can be placed on a single line. If an option does not require an additional description, another option can follow without a second slash and no space between selected options. If the option requires additional information, there must be a space and another slash before another option is described. For example, the bolded commands below will extract header, name history, and industrial annual data item number 1 in pipe delimited format over the default date range.

```
C:\CMGS291\work>cstprint

C:\CMGS291\work>cst_print /d1 T:\ieeelit\cpz200508\

COMPUSTAT Databases creation date : 08/18/2005
Using default dates: 1961.1 - 2006.4 for quarterly data
Using default dates: 1950 - 2006 for annual data
Using default dates: 200412 - 200512 for monthly data

Enter identifier or new option beginning with a slash.
Type ? for help.
/hnial /fs
Keep previous data options? (y/n)
n
WARNING all options have been reset.

Enter identifier or new option beginning with a slash.
Type ? for help.
```

The following example will extract exactly the same data as the above example.

```
C:\CMGS291\work>cstprint /h /n /ial /fs

C:\CMGS291\work>cst_print /d1 T:\ieeelit\cpz200508\ /h /n /ial /fs

COMPUSTAT Databases creation date : 08/18/2005
Using default dates: 1961.1 - 2006.4 for quarterly data
Using default dates: 1950 - 2006 for annual data
Using default dates: 200412 - 200512 for monthly data

Enter identifier or new option beginning with a slash.
Type ? for help.
```

On-screen help is available. At the command line, type “?” to view options.

**cstprint Quick Reference**

*Usage Note:* The # can be a single number, a range of numbers separated by a dash, or a list of numbers or ranges separated by commas. There can be no spaces between the item number specifications. Insert the desired item number in place of the #. Optional items are in parenthesis. Use syntax, as displayed, for both mandatory and optional entries. See Appendix A for a list of data items and item numbers organized by file.

| <b>Header, Name, and Link Identification Data (includes all files included in the CRSP/COMPUSTAT Merged Database)</b>                     |                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| /h Header Data                                                                                                                            | /n Name History Data                                                      |
| /l Link-History Data                                                                                                                      | /ul Link Used Data (a one-to-one mapping between PERMNO/PERMCO and GVKEY) |
| <b>Industrial Annual and Quarterly Data</b>                                                                                               |                                                                           |
| /pa Annual Period Descriptor Histories                                                                                                    | /pq Quarterly Period Descriptor Histories                                 |
| /ia [f]#[, #-#] Industrial Annual Data Items [w/footnotes]                                                                                | /iq [f]#[, #-#] Industrial Quarterly Data Items [w/footnotes]             |
| <b>Bank Annual and Quarterly Data</b>                                                                                                     |                                                                           |
| /ba [f]#[, #-#] Bank Annual Data Items [w/footnotes]                                                                                      | /bq [f]#[, #-#] Bank Quarterly Data Items [w/footnotes]                   |
| <b>Business Information File/Operating Segment Data</b>                                                                                   |                                                                           |
| /sh Operation Segment Header (identification) Data                                                                                        | /sp Operation Segment Product Data                                        |
| /sc Operation Segment Customer Data                                                                                                       | /ss Operation Segment Source Data                                         |
| /sd Operation Segment Detail Data                                                                                                         | /sg Operation Segment Geographic Area Codes Data                          |
| /sr Operation Segment Currency Data                                                                                                       | /sn Operation Segment NAICS Data                                          |
| /s* All Operation Segment Data                                                                                                            |                                                                           |
| <b>SIC Data</b>                                                                                                                           |                                                                           |
| /is Industry Code Identifiers (SIC) Data                                                                                                  |                                                                           |
| <b>PDE Data</b>                                                                                                                           |                                                                           |
| /eh Price - High                                                                                                                          | /el Price - Low                                                           |
| /ec Price - Close                                                                                                                         | /ed Dividends per Share by Ex-Date                                        |
| /ee Earnings per Share (Basic) - Excluding Extraordinary Items- 12 Months Moving                                                          | /es Common Shares Traded                                                  |
| /ev Annualized Dividend Rate                                                                                                              | /er Adjustment Factor (Raw) by Ex-Date                                    |
| /ej Adjustment Factor (Cumulative) by Ex-Date                                                                                             | /eb Book Value per Share                                                  |
| /eq Cash Equivalent Distributions per Share by Ex-Date                                                                                    | /eo Common Shares Outstanding                                             |
| /en Net Asset Value per Share                                                                                                             | /ep Earnings per Share From Operations - 12 Months Moving                 |
| /ek Dividends per Share Footnotes                                                                                                         | /et Adjustment Factor Footnotes                                           |
| /eg Comparability Status Footnotes                                                                                                        | /ei Issue Status Alert Footnotes                                          |
| /ex S & P Primary Index Marker (CSPIN)                                                                                                    | /ez Global Industry Classification Standard                               |
| <b>Business Information (BIF) Operating Segment Data (Three sections; segment header data, segment qualifier data, and segment data.)</b> |                                                                           |
| /sh Segment Header Data. Identifies segments by available segment type and id.                                                            |                                                                           |

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|                                                                                                                                                                                                       |                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /sy FIRST LAST ALL Segment Year Flag. Qualifier option to be used with data in which there are cases of multiple source years for any given calendar data year. (Equivalently restated segment data.) | /si #[, #-#] Segment Item Identifier Restriction. Qualifier option to restrict available segment ids (identifiable from header /sh option). Possible values are 0-99. |
| /st type1[, type2...] Segment Type Restriction. Limits output to one or more of four segment types. Types include: GEOSEG, BUSSEG, OPSEG, and STSEG                                                   |                                                                                                                                                                       |
| /sp BIF Segment Product Data                                                                                                                                                                          | /sc BIF Segment Customer Data                                                                                                                                         |
| /ss BIF Segment Source Data                                                                                                                                                                           | /sd BIF Segment Detail Data                                                                                                                                           |
| /sg BIF Geographic Area Codes                                                                                                                                                                         | /sr BIF Segment Currency Data                                                                                                                                         |
| /sn BIF Segment NAICs Data                                                                                                                                                                            | /sm #[, #-#] BIF Item Value Data. Numbers between 1-21 (see chapter for items.)                                                                                       |
| <b>Index Fundamental Options</b>                                                                                                                                                                      |                                                                                                                                                                       |
| /fa#[, #-#] Annual Index Fundamental Data Items                                                                                                                                                       | /da Annual Index Fundamental Period Descriptors                                                                                                                       |
| <b>Set Date Range Options</b>                                                                                                                                                                         |                                                                                                                                                                       |
| /dt range1[-range2] Set Date Range (YYYY, YY, or YYYYMM)                                                                                                                                              |                                                                                                                                                                       |
| <b>Input File Option</b>                                                                                                                                                                              |                                                                                                                                                                       |
| /if filename.inp A Text File Containing Identifiers One per Line                                                                                                                                      |                                                                                                                                                                       |
| <b>Output File Option</b> if this option is not selected, data will dump to the screen.                                                                                                               |                                                                                                                                                                       |
| /of filename.out Output File. Full Path must be specified.                                                                                                                                            |                                                                                                                                                                       |
| <b>Select Database Option</b> selects an alternate CCM database.                                                                                                                                      |                                                                                                                                                                       |
| /dl Sets the Database Directory (This option is only permitted on the command line, before the utility is open)                                                                                       |                                                                                                                                                                       |
| <b>Report - Output Formatting Options</b>                                                                                                                                                             |                                                                                                                                                                       |
| /fs Generates Pipe Delimited Output with gvkey (or alternate database key) printed at the beginning of each line                                                                                      | /fr Generate Standard, Formatted Output for Terminal Windows                                                                                                          |
| <b>Set Alternate Database Keys</b> /ky gvkey is the default for use with individual company input and with the /if option.                                                                            |                                                                                                                                                                       |
| /ky permno Sets CRSP Historical PERMNO Link as the Database Key                                                                                                                                       | /ky permco Sets CRSP Historical PERMCO Link as Database Key                                                                                                           |
| /ky smbl Sets Compustat Ticker Symbol (Use CAPs) as the Database Key                                                                                                                                  | /ky dnum Sets Compustat Industry Code as Database Key                                                                                                                 |
| /ky cnum Sets Compustat CNUM/CIC (separate by space on input line) as the Database Key                                                                                                                | /ky cusipcic Sets Compustat CNUM/CIC/DNUM (separate by spaces on input) as Database Key                                                                               |
| /ky gvkey Sets Compustat Permanent Identifier GVKEY as the Database Key                                                                                                                               | /ky apermno Sets Link Used PERMNO as Database Key                                                                                                                     |
| /ky apermco Sets Link Used PERMCO as Database Key                                                                                                                                                     |                                                                                                                                                                       |
| <b>Identifier options; the numerical identifier (gvkey or alternate key) may be entered, or the following options may be used instead</b>                                                             |                                                                                                                                                                       |
| s Same Id Number                                                                                                                                                                                      | n Next Id Number                                                                                                                                                      |
| p Previous Id Number                                                                                                                                                                                  | f First Id Number in the File                                                                                                                                         |
| l Last Id Number in the File                                                                                                                                                                          |                                                                                                                                                                       |
| <b>Sequential Read of Database</b>                                                                                                                                                                    |                                                                                                                                                                       |
| /sq Sequentially reads entire database file in order of selected key. (gvkey is the default).                                                                                                         |                                                                                                                                                                       |
| <b>Online Help</b>                                                                                                                                                                                    |                                                                                                                                                                       |
| ? Access help commands at any time within the application                                                                                                                                             | <b>Exit</b><br>Return a blank row at any time, to exit the application.                                                                                               |

5.2 *cstprint* Data Items and Options

⊗ Header Data

All data files included in the CRSP/Compustat Merged Database have header data. Header data encompasses the /h Identifiers, Company Descriptors, and Data Ranges, /n Name Histories and Companies Descriptor Histories, and /l link-history options.

**/h Identifiers, Company Descriptors, and Data Ranges**

This option contains company identifiers, company descriptors, and data ranges. The Available Data field displayed pertains to the industrial annual and quarterly data.

e.g. /h for gvkey 6066

```

GVKEY DNUM  CNUM  CIC   IPERM  ICOMP  SYMBOL  NAME
6066 7370 459200 101  12490  20990  IBM     INTL BUSINESS MACHINES CORP

AVAILABLE DATA
ANNUAL      QUARTERLY  S&P_REL  STK_OWN  DUP  INDUSTRY NAME
1950-1999 1962.1-2000.1  903      0        0  CMP PROGRAMMING,DATA PROCESS

STATE COUNTY FOREIGN
FILE ZLIST CODE CODE CODE EMPLOYER ID CPSPIN CSSPIN CSSPII IPO-Date
11 1 36 119 0 13-0871985 1 10 1 0

SPDRC
/SDBT SDBTIM SUBDBT SPCPRC/
07 102 541519 1041519 0 19500101-20000630

--FUNDF-- CANDXC ISO COUNTRY
1 2 3 STINC /CCNDX /INCORP
0 0 0 36 0
    
```

**/n Name Histories and Company Descriptor Histories**

Name Histories contain all changes to the company identifiers and descriptors beginning in 1994, which allows for a seamless time series analysis.

e.g. /n for gvkey 6066

| DATE     | DNUM | CNUM   | CIC | SYMBOL | NAICS  | GIC | COMPANY NAME                |
|----------|------|--------|-----|--------|--------|-----|-----------------------------|
| 19940922 | 3570 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19960919 | 3570 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19960930 | 3570 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19961031 | 3570 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19970918 | 3570 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19980924 | 3570 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19990422 | 7370 | 459200 | 101 | IBM    |        | 0   | INTL BUSINESS MACHINES CORP |
| 19990520 | 7370 | 459200 | 101 | IBM    | 541519 | 0   | INTL BUSINESS MACHINES CORP |

| SPCPRC/ |       |       |         |     |     |        |            |                              |      |
|---------|-------|-------|---------|-----|-----|--------|------------|------------------------------|------|
| FILE    | ZLIST | STINC | S&P_REL | STK | DUP | CPAPER | EMPLOYERID | INDUSTRY                     | NAME |
| 11      | 1     | 36    | 3570    | 0   | 0   | 102    | 13-0871985 | COMPUTER & OFFICE EQUIPMENT  |      |
| 11      | 1     | 36    | 903     | 0   | 0   | 102    | 13-0871985 | COMPUTER & OFFICE EQUIPMENT  |      |
| 11      | 1     | 36    | 903     | 0   | 0   |        | 13-0871985 | COMPUTER & OFFICE EQUIPMENT  |      |
| 11      | 1     | 36    | 903     | 0   | 0   | 102    | 13-0871985 | COMPUTER & OFFICE EQUIPMENT  |      |
| 11      | 1     | 36    | 903     | 0   | 0   | 102    | 13-0871985 | COMPUTER & OFFICE EQUIPMENT  |      |
| 11      | 1     | 36    | 903     | 0   | 0   | 102    | 13-0871985 | COMPUTER & OFFICE EQUIPMENT  |      |
| 11      | 1     | 36    | 903     | 0   | 0   | 102    | 13-0871985 | CMP PROGRAMMING,DATA PROCESS |      |
| 11      | 1     | 36    | 903     | 0   | 0   | 102    | 13-0871985 | CMP PROGRAMMING,DATA PROCESS |      |

| STATE COUNTY FOREIGN CANADIAN |      |      |      | SPDRC/ |        |        |      |        |        |          |
|-------------------------------|------|------|------|--------|--------|--------|------|--------|--------|----------|
| CODE                          | CODE | CODE | CODE | CPSPIN | CSSPIN | CSSPII | SDBT | SDBTIM | SUBDBT | IPO-DATE |
| 36                            | 119  | 0    | 0    | 1      | 10     | 1      | 08   |        |        | 0        |
| 36                            | 119  | 0    | 0    | 1      | 10     | 1      | 08   |        |        | 0        |
| 36                            | 119  | 0    | 0    |        |        |        |      |        |        | 0        |
| 36                            | 119  | 0    | 0    |        | 10     |        | 08   |        |        | 0        |
| 36                            | 119  | 0    | 0    | 1      | 10     | 1      | 08   |        |        | 0        |
| 36                            | 119  | 0    | 0    | 1      | 10     | 1      | 07   |        |        | 0        |
| 36                            | 119  | 0    | 0    | 1      | 10     | 1      | 07   |        |        | 0        |
| 36                            | 119  | 0    | 0    | 1      | 10     | 1      | 07   |        |        | 0        |

| --FUNDF-- |   |   | ISO     | COUNTRY |
|-----------|---|---|---------|---------|
| 1         | 2 | 3 | /INCORP |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |
| 0         | 0 | 0 |         |         |

**/1 link-history**

Link History lists all changes to CRSP Link for the link array data items. This provides the necessary linking information to map a time series analysis between CRSP and Compustat data.

e.g. /1 for gvkey 6066

| LNKBEGDT | LNKENDDT | PERMNO | PERMCO | LINKTYPE | LINKFLAG |
|----------|----------|--------|--------|----------|----------|
| 19500101 | 99999999 | 12490  | 20990  | LU       | BBB      |

**/u1 Link Used Array**

The Link Used Array creates a one-to-one relationship between CRSP securities and Compustat companies. You must use the /ky apermno or /ky apermco alternate key options to extract Link Used Array data.



⊛ **Industrial Annual and Quarterly Data**

Industrial Annual and Quarterly Data encompasses the /pa Annual Period Descriptor Histories, /pq Quarterly Period Descriptor Histories, /ia Annual Data Items, and /iq Quarterly Data Items options.

**/pa Annual Period Descriptor Histories**

e.g. /pa for gvkey 6066

| DATA YEAR | FISCAL YEAR | CAL YEAR | UPDATE CODE | SOURCE CODE | S&P BOND | S&P DEBT | S&P PAPER | S&P RANK | MAJOR INDEX | S&P INDEX | RPT DATE | FORMAT /FLOWCD | CD |
|-----------|-------------|----------|-------------|-------------|----------|----------|-----------|----------|-------------|-----------|----------|----------------|----|
| 1950      | 12          | 1950     | 3           | 0           | 0        | 0        | 0         | 0        | 0           | 0         | 0        | 0              | 0  |
| 1951      | 12          | 1951     | 3           | 0           | 0        | 0        | 0         | 0        | 0           | 0         | 0        | 0              | 0  |
| ...       |             |          |             |             |          |          |           |          |             |           |          |                |    |
| 1998      | 12          | 1998     | 3           | 53          | 7        | 0        | 102       | 17       | 0           | 903       | 0        | 7              |    |
| 1999      | 12          | 1999     | 3           | 53          | 7        | 0        | 102       | 17       | 0           | 903       | 0        | 7              |    |

GENERAL FOOTNOTES

| DATA YEAR | FISCAL YEAR | CAL YEAR | SOURCE DOCUMENT | DELETE MONTH | DELETE YEAR | DELETE REASON |
|-----------|-------------|----------|-----------------|--------------|-------------|---------------|
| 1950      | 12          | 1950     |                 |              |             |               |
| 1951      | 12          | 1951     |                 |              |             |               |
| ...       |             |          |                 |              |             |               |
| 1998      | 12          | 1998     | 53              |              |             |               |
| 1999      | 12          | 1999     | 53              |              |             |               |

**/pq Quarterly Period Descriptor Histories**

In the standard format, the DATA YR.Q and CAL YR.Q columns are the combined data and calendar years and quarters.

e.g. /pq for gvkey 6066

| DATA YR.Q | FISCAL YEAR | CAL YR.Q | UPDT CODE | SRC DOC | S&P SUB | S&P SR. | S&P PAPER | S&P RANK | S&P MAJ | S&P IND | REPDT EARN | FLOW FORM | CAN IND | FTNT 1 | FTNT 2 |
|-----------|-------------|----------|-----------|---------|---------|---------|-----------|----------|---------|---------|------------|-----------|---------|--------|--------|
| 1962.1    | 12          | 1962.1   | 3         | 3       | 0       | 0       | 0         | 0        | 0       | 0       | 0          | 0         | 0       | 0      | 0      |
| 1962.2    | 12          | 1962.2   | 3         | 3       | 0       | 0       | 0         | 0        | 0       | 0       | 0          | 0         | 0       | 0      | 0      |
| 1962.3    | 12          | 1962.3   | 3         | 3       | 0       | 0       | 0         | 0        | 0       | 0       | 0          | 0         | 0       | 0      | 0      |
| 1962.4    | 12          | 1962.4   | 3         | 3       | 0       | 0       | 0         | 0        | 0       | 0       | 0          | 0         | 0       | 0      | 0      |
| ...       |             |          |           |         |         |         |           |          |         |         |            |           |         |        |        |
| 1999.2    | 12          | 1999.2   | 3         | 5       | 7       | 0       | 102       | 17       | 10      | 903     | 1999200    | 7         | 0       |        |        |
| 1999.3    | 12          | 1999.3   | 3         | 5       | 7       | 0       | 102       | 17       | 10      | 903     | 1999293    | 7         | 0       |        |        |
| 1999.4    | 12          | 1999.4   | 3         | 53      | 7       | 0       | 102       | 17       | 10      | 903     | 2000019    | 7         | 0       |        |        |
| 2000.1    | 12          | 2000.1   | 3         | 5       | 7       | 0       | 102       | 17       | 10      | 903     | 2000109    | 7         | 0       |        |        |

`/ia[f]#[, #-#]`

**Annual Data Items**

Data items are identified by the data item slot number. 400 annual data items are listed in Appendices A and B. Complete descriptions may be found in the *Compustat® User's Guide*.

The `/ia` option can specify more than one item. The `#` can be a single number, a range of numbers separated by a dash, or a list of numbers or ranges separated by commas. There can be no spaces between the item number specifications. For example, `/ia5,24-26` will produce data for data item numbers 5, 24, 25, and 26. Up to three items are printed across with the default output format. Additional items continue after the entire date range for the previous items are printed. There is no limit to the items on one line with the `/fs` option.

Annual footnotes can be printed alongside data items with the `/iaf#` option. Data items are associated with zero, one, or two footnote slots. Not all companies have footnote data. For those that do, there may be gaps (blanks) in footnote codes assigned.

In the default output format, a long description for the data item and applicable footnotes are printed at the beginning of the section, and a shorthand title and footnote slot number are printed at the top of each data item column. Data year and fiscal year-end are printed in the first two columns of every data item section.

e.g. `/iaf24,233,58-60` for gvkey 6066

Selected Data Items: 24,233,58-60

- 24 - Price - Close  
-no applicable footnotes
- 233 - Earnings per Share from Operations  
-applicable footnotes: 16 , 51
- 58 - Earnings Per Share (Basic) - Excluding Extraordinary Items  
-applicable footnotes: 12

| Data Year | Fiscal Yearend | Item 24 Close | Item 233 EPSOper | FTNTS 16, 51 | Item 58 EPSPExE | FTNTS 12 |
|-----------|----------------|---------------|------------------|--------------|-----------------|----------|
| 1950      | 12             | 216.0000      | 0.0001           |              | 12.0500         |          |
| 1951      | 12             | 218.6250      | 0.0001           |              | 9.6100          |          |
| ...       |                |               |                  |              |                 |          |
| 1998      | 12             | 184.3750      | 6.7500           |              | 6.7500          | BJ       |
| 1999      | 12             | 107.8750      | 3.8400           | NC           | 4.2500          | BJ       |

Selected Data Items: 24,233,58-60

- 59 - Inventory Valuation Method  
-no applicable footnotes
- 60 - Common Equity - Total  
-no applicable footnotes

| Data Year | Fiscal Yearend | Item 59 IVM | Item 60 ComEqTot |
|-----------|----------------|-------------|------------------|
| 1950      | 12             | 4.0000      | 0.0001           |
| 1951      | 12             | 4.0000      | 0.0001           |
| ...       |                |             |                  |
| 1998      | 12             | 4.0000      | 19186.0000       |
| 1999      | 12             | 4.0000      | 20264.0000       |

`/iq[f]#[, #-#]`

**Quarterly Data Items**

Data items are identified by the data item slot number. 280 quarterly data items are listed in Appendices A and B. Complete descriptions may be found in the *Compustat® User's Guide*.

See the description of `/ia` above for rules in selecting multiple items and associated footnotes, and output conventions. In the default output format for quarterly items, data year and quarter are combined and separated by a period, and only the last two digits of the year are printed.

In the following example, the first item has no associated footnotes, and the second item has an associated footnote, but not for the company selected during the range shown.

e.g. `/iqf13,19` for gvkey 6066

```
Selected Data Items: 13,19
 13 - Price - Close - 2nd Month of Quarter
      -no applicable footnotes
 19 - Earnings Per Share (Basic) - Excluding Extraordinary Items
      -applicable footnotes: 6
```

| Data   | Fiscal  | Item 13   | Item 19 | FTNTS |
|--------|---------|-----------|---------|-------|
| Qtr.   | Yearend | CloseMon2 | EPSPExE | 6     |
| 1962.1 | 12      | 536.4650  | 2.0400  |       |
| 1962.2 | 12      | 392.1200  | 2.1700  |       |
| 1962.3 | 12      | 395.8640  | 2.1400  |       |
| 1962.4 | 12      | 398.1110  | 2.3700  |       |
| ...    |         |           |         |       |
| 1999.3 | 12      | 124.5620  | 0.9700  |       |
| 1999.4 | 12      | 103.0620  | 1.1600  |       |
| 2000.1 | 12      | 102.7500  | 0.8500  |       |

⊗ **Bank Annual and Quarterly Data**

The bank data contains financial, statistical, and market information covering the largest and most important US banks.

`/ba[f]#[, #-#]`

**Bank Annual Data Items [with footnotes]**

There are 232 Bank Annual data items. These are numbered consecutively, and all non-blank items are included in Appendices A and B in this guide. Complete descriptions may be found in the *Bank Compustat® Guide*.

See the description of `/ia` above for rules in selecting multiple items and associated footnotes, and output conventions.

e.g. `/baf36,99` for gvkey 1998

```
Selected Data Items: 36,99
 36 - Total Assets (Gross)
      -applicable footnotes: 5
 99 - Total Book Value
      -no applicable footnotes
```

| Data | Fiscal  | Item 36     | FTNTS | Item 99    |
|------|---------|-------------|-------|------------|
| Year | Yearend | TotAstG     | 5     | TotBkVal   |
| 1980 | 12      | 2823.7280   | AA    | 202.8530   |
| ...  |         |             |       |            |
| 1998 | 12      | 261496.0000 | AA    | 20370.0000 |
| 1999 | 12      | 269425.0000 |       | 19900.0000 |

**/bq[f]#[, #-#]**

**Bank Quarterly Data Items [with footnotes]**

There are 165 Bank Quarterly data items. These are numbered consecutively, and are included in Appendices A and B of this guide. Complete descriptions may be found in the *Bank Compustat® Guide*.

See the description of /ia above for rules in selecting multiple items and associated footnotes, and output conventions.

e.g. /bqf8,27,32-34 for gvkey 1998

Selected Data Items: 8,27,32-34  
 8 - Total Investment Securities  
     -applicable footnotes: 2  
 27 - Total Assets (Gross)  
     -applicable footnotes: 5  
 32 - Average Loans (Gross)  
     -applicable footnotes: 6

| Data Qtr. | Fiscal Yearend | Item 8 TotInvSec | FTNTS 2 | Item 27 TotAssets | FTNTS 5 | Item 32 AvgLoanG | FTNTS 6 |
|-----------|----------------|------------------|---------|-------------------|---------|------------------|---------|
| 1989.1    | 12             | 4531.5112        |         | 25152.8047        |         | 17106.9023       | XR      |
| 1989.2    | 12             | 5500.7129        |         | 26667.7070        |         | 17500.6992       | VX      |
| 1989.3    | 12             | 6478.5430        |         | 27292.0078        |         | 17542.1016       | VX      |
| 1989.4    | 12             | 5133.2271        |         | 26552.2070        |         | 17640.8984       | VX      |
| ...       |                |                  |         |                   |         |                  |         |
| 1999.4    | 12             | 47912.0000       |         | 269425.0000       |         | 158300.0000      | VX      |
| 2000.1    | 12             | 47459.0000       |         | 273008.0000       |         | 165056.0000      | XR      |
| 2000.2    | 12             | 0.0001           |         | 0.0001            |         | 0.0001           |         |

Selected Data Items: 8,27,32-34  
 33 - Total Savings Deposits  
     -no applicable footnotes  
 34 - Average Assets (Gross)  
     -applicable footnotes: 22

| Data Qtr. | Fiscal Yearend | Item 33 TotSavDep | Item 34 AvgAstG | FTNTS 22 |
|-----------|----------------|-------------------|-----------------|----------|
| 1989.1    | 12             | 6984.0630         | 24706.0039      |          |
| 1989.2    | 12             | 6935.6411         | 25153.6992      |          |
| 1989.3    | 12             | 7100.5352         | 25828.3047      |          |
| 1989.4    | 12             | 7478.0161         | 26365.3984      |          |
| ...       |                |                   |                 |          |
| 1999.4    | 12             | 64435.0000        | 265025.0000     |          |
| 2000.1    | 12             | 65292.0000        | 268718.0000     |          |
| 2000.2    | 12             | 0.0001            | 0.0001          |          |

⊛ **Business Information Segment Data**

Segment data are split into four different segment types; Business Segment (BUSSEG), Operating Segment (OPSEG), Geographic Segment (GEOSEG) and State Segment (STSEG). Each segment type is divided into categories identified by the Segment ID (SID). The groups within each SID are allocated by each company in their reports, based on FASB (Financial Accounting Standards Board) statement of financial accounting standards No. 131. (Effective beginning December 15, 1998. Prior to December 15, 1998, results are based upon FASB standard No. 14.) The /sh option provides an overview of segment data available organized by Segment Type and ID. This information can then be used to extract data for each of the data files associated with the segments: Product Data, Customer Data, Source Data, Detail Data, Geographic Area Code Data, Currency Data, NAICS Data, and Item Value Data.

In the example below, you will notice that IBM only has two segment types identified, Business Segment and Geographic Segment. The Business Segment for IBM has 8 Segment IDs. The data for each of these can be extracted using the other segment options, by specifying the desired Segment Types and Segment IDs. Note that the Segments are determined by the companies, so the Segment ID number must be matched against the names and descriptions on a company and time period basis.

**/sh BIF Segment Header Data**

e.g. /sh for gvkey 6066

Operating Segment Header

BUSSEG

| SID  | FDTY.FY-LDTY.FY | #PD | #CT | #GE | SOPTP1 | SOPTP2 | SGTP | Segment-Name                 |
|------|-----------------|-----|-----|-----|--------|--------|------|------------------------------|
| 0005 | 1982.12-1997.12 | 000 | 002 | 000 |        |        |      | INFORMATION-HANDLING SYSTEMS |
| 0006 | 1998.12-2000.12 | 003 | 000 | 000 | PD_SRV |        |      | Technology                   |
| 0007 | 1998.12-2000.12 | 000 | 000 | 000 | PD_SRV |        |      | Personal Systems             |
| 0008 | 1998.12-2000.12 | 002 | 000 | 000 | PD_SRV |        |      | Enterprise system            |
| 0009 | 1998.12-2000.12 | 002 | 000 | 000 | PD_SRV |        |      | Global Services              |
| 0010 | 1998.12-2000.12 | 000 | 000 | 000 | PD_SRV |        |      | Software                     |
| 0011 | 1998.12-2000.12 | 000 | 000 | 000 | PD_SRV |        |      | Global Financing             |
| 0012 | 1998.12-2000.12 | 000 | 000 | 000 | PD_SRV |        |      | Enterprise Investments       |

GEOSEG

| SID  | FDTY.FY-LDTY.FY | #PD | #CT | #GE | SOPTP1 | SOPTP2 | SGTP | Segment-Name                 |
|------|-----------------|-----|-----|-----|--------|--------|------|------------------------------|
| 0001 | 1982.12-2000.12 | 000 | 000 | 001 | MARKET |        | 2    | United States                |
| 0002 | 1982.12-2000.12 | 000 | 000 | 006 | MARKET |        | 3    | Japan                        |
| 0003 | 1982.12-2000.12 | 000 | 000 | 006 | MARKET |        | 3    | Other Foreign                |
| 0004 | 1984.12-1997.12 | 000 | 000 | 002 |        |        | 3    | South America, North America |

**/sy FIRST|LAST|ALL**

**Segment Year Flag**

Segment Year Flag is a data qualifier. It is an option that can be used to restrict data in cases where there are multiple source years (restated segment data) for any given calendar data year. This option does not produce output by itself. It can be used in conjunction with any of the following options: /sp, /sc, /ss, /sd, /sg, /sr, /sn, and /sm.

**/si #[,#-#]**

**Segment Item Identifier Restriction**

Segment Item Identifier Restriction is a data qualifier. It is an option that can be used to restrict data output to select Segment IDs. Possible values are between 0 and 99. All available Segment IDs can be identified by using the Segment Header Data option (/sh). The /si # option does not produce output by itself. It can be used in conjunction with any of the following options: /sp, /sc, /ss, /sd, /sg, /sr, /sn, and /sm.

**/st type1[type2...]**

**Segment Type Restriction**

Segment Type Restriction limits the output to one or more of the four possible segment types. Types include GEOSEG, BUSSEG, OPSEG, and STSEG. This option does not produce output by itself. It can be used in conjunction with any of the following options: /sp, /sc, /ss, /sd, /sg, /sr, /sn, and /sm.

**/sp**

**BIF Segment Product Data**

e.g. /sp for gvkey 6066

Operating Segment Products

| PSTYPE | PSID | SRCYR | SRCFYR | PID  | PSALE      | NAICS  | PNAME:Product-Name |
|--------|------|-------|--------|------|------------|--------|--------------------|
| BUSSEG | 0006 | 2000  | 12     | 0001 | 8305.0000  | 334112 | OEM                |
| BUSSEG | 0006 | 2000  | 12     | 0003 | 1916.0000  | 334112 | Other Technology   |
| BUSSEG | 0008 | 2000  | 12     | 0002 | 2490.0000  | 334111 | Storage            |
| BUSSEG | 0008 | 2000  | 12     | 0006 | 8692.0000  | 334111 | Servers            |
| BUSSEG | 0009 | 2000  | 12     | 0004 | 28036.0000 | 541519 | Services           |
| BUSSEG | 0009 | 2000  | 12     | 0005 | 5116.0000  | 811212 | Maintenance        |

**/sc**

**BIF Segment Customer Data**

e.g. /sc for gvkey 6066

Operating Segment Customers

| CSTYPE | CSID | SRCYR | SRCFYR | CDID | CSALE     | CTYPE  | CGEOCD | CGEOAR | CNAME |
|--------|------|-------|--------|------|-----------|--------|--------|--------|-------|
| BUSSEG | 0005 | 1983  | 12     | 0001 | 1176.0000 | GOVDOM |        |        |       |
| BUSSEG | 0005 | 1984  | 12     | 0001 | 1645.0000 | GOVDOM |        |        |       |
| ...    |      |       |        |      |           |        |        |        |       |
| BUSSEG | 0005 | 1993  | 12     | 0002 | 0.0001    | GOVFRN |        |        |       |
| BUSSEG | 0005 | 1993  | 12     | 0002 | 0.0001    | GOVFRN |        |        |       |

**/ss**

**BIF Segment Source Data**

e.g. /ss for gvkey 6066

Operating Segment Sources

| SRCYR | SRCFYR | CALYR | SSRCE | SUCODE | CURCD | SRCCUR | HNAICS |
|-------|--------|-------|-------|--------|-------|--------|--------|
| 2000  | 12     | 2000  | 53    | 3      | USD   |        | 541519 |

**/sd**

**BIF Segment Detail Data**

e.g. /sd for gvkey 6066

Operating Segment Details

| STYPE  | SID  | SRCYR | SRCFYR | SOPTP1 | SOPTP2 | SGEOTP | SNAME:Segment-Name     |
|--------|------|-------|--------|--------|--------|--------|------------------------|
| BUSSEG | 0006 | 2000  | 12     | PD_SRV |        |        | Technology             |
| BUSSEG | 0007 | 2000  | 12     | PD_SRV |        |        | Personal Systems       |
| BUSSEG | 0008 | 2000  | 12     | PD_SRV |        |        | Enterprise system      |
| BUSSEG | 0009 | 2000  | 12     | PD_SRV |        |        | Global Services        |
| BUSSEG | 0010 | 2000  | 12     | PD_SRV |        |        | Software               |
| BUSSEG | 0011 | 2000  | 12     | PD_SRV |        |        | Global Financing       |
| BUSSEG | 0012 | 2000  | 12     | PD_SRV |        |        | Enterprise Investments |
| GEOSEG | 0001 | 2000  | 12     | MARKET |        | 2      | United States          |
| GEOSEG | 0002 | 2000  | 12     | MARKET |        | 3      | Japan                  |
| GEOSEG | 0003 | 2000  | 12     | MARKET |        | 3      | Other Foreign          |

**/sg BIF Segment Geographic Area Codes**

e.g. /sg for gvkey 6066

```
Operating Segment Geographic
STYPE  SID SRCYR SRCFYR SGEODD  SGEOTP
GEOSEG 0001 2000 12 USA      ISO
GEOSEG 0002 2000 12 JPN      ISO
GEOSEG 0003 2000 12 OTHER   REG
```

**/sr BIF Segment Currency Data**

e.g. /sr for gvkey 1238

```
Operating Segment Currency
SRCYR SRCFYR CALYR      XRATE      XRATE12 SRCUR CURCD
1999   12 1999          0.6925     0.6925 CAD  USD
```

**/sn BIF Segment NAICS Data**

e.g. /sn for gvkey 6066

```
Operating Segment NAICS
STYPE  SID SRCYR RANK SRCFYR  SIC  NAICS
BUSSEG 0006 2000 0001 12 3572 334112
BUSSEG 0006 2000 0002 12 3577 334119
...
BUSSEG 0011 2000 0002 12 6141 522220
BUSSEG 0012 2000 0001 12 7370 5415
```

**/sm # [, #-#] BIF Segment Item Value Data (All data items are reported) Values are as follows:**

| No. | Header  | Item Name                             |
|-----|---------|---------------------------------------|
| 1   | EMP     | Employees                             |
| 2   | SALE    | Net Sales                             |
| 3   | OIBD    | Operating Income Before Depreciation  |
| 4   | DP      | Depreciation and Amortization         |
| 5   | OIAD    | Operating Income After Depreciation   |
| 6   | CAPX    | Capital Expenditures                  |
| 7   | IAT     | Identifiable/Total Assets             |
| 8   | EQEARN  | Equity in Earnings                    |
| 9   | INVEQ   | Investments at Equity                 |
| 10  | RD      | Research and Development              |
| 11  | OBLKG   | Order Backlog                         |
| 12  | EXPORTS | Export Sales                          |
| 13  | INTSEG  | Intersegment Eliminations             |
| 14  | OPINC   | Operating Profit (OPS)                |
| 15  | PI      | Pretax Income                         |
| 16  | IB      | Income Before Extraordinary Items     |
| 17  | NI      | Net Income (Loss)                     |
| 18  | SALEF   | Footnote 1 - Sales                    |
| 19  | OPINCF  | Footnote 2 - Operating Profit         |
| 20  | CAPXF   | Footnote 3 - Capital Expenditures     |
| 21  | EQEARNF | Footnote 4 - Equity in Earnings       |
| 22  | EMPF    | Footnote 5 - Employees                |
| 23  | RDF     | Footnote 6 - Research and Development |

Note that command line usage, requires this option to be entered as "/sm#, #", in quotes. Within the program, usage is normal and does not require the quotes.

# CRSP/COMPUSTAT MERGED DATABASE GUIDE

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e.g. /sm1-21 for gvkey 6066 (Note /sm 1-21 also works.)

## Operating Segment Items

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item1<br>EMP | Item2<br>SALE | Item3<br>OIBD |
|--------|------|---------|---------|-------|--------------|---------------|---------------|
| BUSSEG | 0006 | 2000.12 | 2000.12 | 2000  | -2           | 10221.0000    | 0.0001        |
| ...    | ...  | ...     | ...     | ...   | ...          | ...           | ...           |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | -2           | 39052.0000    | 0.0001        |

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item4<br>DP | Item5<br>OIAD | Item6<br>CAPX |
|--------|------|---------|---------|-------|-------------|---------------|---------------|
| BUSSEG | 0007 | 2000.12 | 2000.12 | 2000  | 156.0000    | 0.0001        | 193.0000      |
| ...    | ...  | ...     | ...     | ...   | ...         | ...           | ...           |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | 0.0001      | 0.0001        | 0.0001        |

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item7<br>IAT | Item8<br>EQEARN | Item9<br>INVEQ |
|--------|------|---------|---------|-------|--------------|-----------------|----------------|
| BUSSEG | 0006 | 2000.12 | 2000.12 | 2000  | 9632.0000    | 0.0001          | 0.0001         |
| ...    | ...  | ...     | ...     | ...   | ...          | ...             | ...            |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | 0.0001       | 0.0001          | 0.0001         |

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item10<br>RD | Item11<br>OBKLG | Item12<br>EXPORTS |
|--------|------|---------|---------|-------|--------------|-----------------|-------------------|
| BUSSEG | 0006 | 2000.12 | 2000.12 | 2000  | 0.0001       | 0.0001          | 0.0001            |
| ...    | ...  | ...     | ...     | ...   | ...          | ...             | ...               |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | 0.0001       | 0.0001          | 0.0001            |

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item13<br>INTSEG | Item14<br>OPINC | Item15<br>PI |
|--------|------|---------|---------|-------|------------------|-----------------|--------------|
| BUSSEG | 0006 | 2000.12 | 2000.12 | 2000  | 3017.0000        | 0.0001          | 758.0000     |
| ...    | ...  | ...     | ...     | ...   | ...              | ...             | ...          |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | 0.0000           | 0.0001          | 0.0001       |

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item16<br>IB | Item17<br>NI | Item18<br>SALEF |
|--------|------|---------|---------|-------|--------------|--------------|-----------------|
| BUSSEG | 0006 | 2000.12 | 2000.12 | 2000  | 0.0001       | 0.0001       | ...             |
| ...    | ...  | ...     | ...     | ...   | ...          | ...          | ...             |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | 0.0001       | 0.0001       | ...             |

| STYPE  | SID  | DTYR.FY | SCYR.FY | CALYR | Item19<br>OPINCF | Item20<br>CAPXF | Item21<br>EQEARNF |
|--------|------|---------|---------|-------|------------------|-----------------|-------------------|
| BUSSEG | 0006 | 2000.12 | 2000.12 | 2000  | ...              | ...             | ...               |
| ...    | ...  | ...     | ...     | ...   | ...              | ...             | ...               |
| GEOSEG | 0003 | 2000.12 | 2000.12 | 2000  | ...              | ...             | ...               |



☉ **PDE Options**

The PDE file contains prices, dividends, and earnings data for active industrial companies. This file contains data beginning in 1962. The default output is for one year of data. The data range option, /dt, may be used as it is for `stkprint` to change the date range of the output. All output is listed with associated month end dates in YYYYMM format. Details for all PDE items may be found in the Compustat User's Guide.

- /eh Price – High**  
Highest price for each month for companies traded on major exchanges, highest bid for OTC issues.
- /el Price – Low**  
Lowest price for each month for companies traded on major exchanges, lowest bid for OTC issues.
- /ec Price – Close**  
Closing price for each month for companies traded on major exchanges, highest bid for OTC issues.
- /ed Dividends per Share by Ex-Date**  
Gross cash dividends per share in the months in which the ex-dates occurred.
- /ek Dividends per Share Footnotes**  
Footnote code indicating a PDE file handling exception to the Dividends per Share item.
- /ev Annualized Dividend Rate**  
Indicated annual dividend amount – most recent dividend multiplied by the number of times the dividend is expected to be paid in the year, most often four.
- /er Adjusted Factor (Raw) by Ex-Date**  
Adjustment factor for all stock splits or dividends that occur for each month. The ex-date determines in which month the adjustment factor falls.
- /ej Adjustment Factor (Cumulative) by Ex-Date**  
Ratio allowing for adjustment of price, dividend, earnings, and share data for all stock dividends and splits that have occurred subsequent to the end of a given period in time.
- /et Adjustment Factor Footnotes**  
Footnote code indicating a PDE file handling exception to the Adjustment Factor item
- /ee Earnings per Share (Basic) - Excluding Extraordinary Items – 12 Months Moving**  
Last four quarters income for common divided by the moving 12 months weighted average shares.
- /ep Earnings per share from Operations – 12 Months Moving**  
Last four quarter sum of basic earning per share adjusted for all nonrecurring events, divided by the moving 12 months weighted average shares.
- /eo Common Shares Outstanding**  
Net of all common shares outstanding at year end for annual item, or Balance sheet date for quarterly item.
- /es Common Shares Traded**  
Total number of common shares traded during the calendar year.
- /en Net Asset Value per Share**  
For closed-end funds, the net asset value: the market value of the fund's assets minus liabilities, all divided by shares outstanding.
- /eb Book Value per Share**  
Generally calculated as common equity less liquidation value, divided by common shares out, all adjusted for stock dividends and splits. Definitions differ between companies and indices.
- /eq Cash Equivalent Distributions**  
Per share stock distribution in stock of another company.
- /eq Comparability Status Footnotes**
- /ei Issue Status Alert Footnotes**

**PDE Sample Output: Closing, Monthly High and Monthly Low Prices**

For GVKEY 6066:

/ec /eh /el

| MONTH  | PRCC     | PRCH     | PRCL     |
|--------|----------|----------|----------|
| 200412 | 98.58000 | 99.00000 | 94.47000 |
| 200501 | 93.42000 | 99.10000 | 91.44000 |
| 200502 | 92.58000 | 94.97000 | 91.55000 |
| 200503 | 91.38000 | 93.73000 | 89.09000 |
| 200504 | 76.38000 | 91.76000 | 71.85000 |
| 200505 | 75.55000 | 78.11000 | 72.50000 |
| 200506 | 74.20000 | 77.73000 | 73.45000 |
| 200507 | 83.46000 | 85.11000 | 74.16000 |

**Basic EPS-Excluding Extraordinaries, 12 Month Moving, Book Value per Share, Common Shares Outstanding**

For GVKEY 6066:

/ee /eb /eo

| MONTH  | ERN    | BKV     | CSHOQ     |
|--------|--------|---------|-----------|
| 200412 | 5.0400 | 16.4437 | 1645.5920 |
| 200501 | 5.0400 | 18.0768 | 1645.5920 |
| 200502 | 5.0400 | 18.0768 | 1645.5920 |
| 200503 | 4.8100 | 18.0768 | 1613.3210 |
| 200504 | 4.8100 | 18.0768 | 1613.3210 |
| 200505 | 4.8100 | 18.0768 | 1613.3210 |
| 200506 | 4.9400 | 18.0768 | 1595.7910 |
| 200507 | 4.9400 | 18.0768 | 1595.7910 |
| 200508 | 4.9400 | 18.0768 | 1595.7910 |

**☛ Index Fundamental Options**

**/fa#[, #-#] Annual Index Fundamental Data Items**

This file supports 25 data items which can be accessed numerically based upon the [Annual File Index in Appendix A](#).

e.g. /fa1-3 (for the S&P 500 Constituency - gvkey 3)

Selected Data Items: 1-3

- 1 - Current Ratio
- 2 - Quick Ratio
- 3 - Debt to Total Assets (%)

| Data Year | Fiscal Yearend | Item 1 CurRatio | Item 2 QckRatio | Item 3 DbtTotAst |
|-----------|----------------|-----------------|-----------------|------------------|
| 0         | 0              | 1.4140          | 0.8610          | 26.9460          |
| 0         | 0              | 1.4530          | 0.8610          | 26.1310          |
| ...       | ...            | ...             | ...             | ...              |
| 0         | 0              | 1.3850          | 0.9170          | 24.3710          |
| 0         | 0              | 1.5220          | 1.0860          | 22.6990          |

**/da**

**Annual Fundamental Period Descriptors**

e.g. /da (for the S&P 500 Constituency - gvkey 3)

| DATA YEAR | DATA QTR | FISC YEAR | NUMBER COMPANIES | EQUITY PERCENT |
|-----------|----------|-----------|------------------|----------------|
| 1990      | 0        | 12        | 500              | 100            |
| 1991      | 0        | 12        | 500              | 100            |
| ...       | ...      | ...       | ...              | ...            |
| 1997      | 0        | 12        | 500              | 100            |
| 1998      | 0        | 12        | 500              | 98             |

⊗ **Set Date Ranges**

**/dt range1[-range2]**

**Set Date Ranges**

Date ranges will be applied to all data selections until the default is reset, or the date range option changed. If /dt is not used, the entire range of available dates is displayed as the default. In specifying the date, the user may enter the desired date range as YYYY, or YYYYMM. Ranges are interpreted as fiscal year or quarter ranges.

For quarterly data, if only range1 is specified, it is set to the first through last fiscal quarter of the year. If range1 and range2 are specified, the range is set to the first fiscal quarter indicated by range1 through the last fiscal quarter indicated by range2. If a month is specified, ranges are set to quarterly data, and are the last complete fiscal quarter up to the year and month specified. For example 199011-199502 will be read as the third fiscal quarter of 1990 through the last fiscal quarter of 1994.

e.g./dt 1990-1992

```
/dt1990-1992
Using 1990.1 - 1992.4 for quarterly data
Using 1990 - 1992 for annual data
```

```
/dt1990
Using 1990.1 - 1990.4 for quarterly data
Using 1990 - 1990 for annual data
```

```
/dt199001-199306
Using 1990.1 - 1993.2 for quarterly data
Using 1990 - 1993 for annual data
```

### **/dd**      **Toggle Dates**

Users may toggle between date restrictions set by calendar and Data Year frequencies using the **/dd** option.

Compustat data are grouped and restricted by Data Year. Compustat assigns Data Year to where most of company activity occurred. If a company's fiscal year ends between January and May, the Data Year is set to the calendar year preceding its fiscal year end. If a company's fiscal year ends between June and December, the Data Year is set to the same year in which the fiscal year ends. For example, data for a company whose fiscal year ends in May, 2004 will be associated with the data year 2003.

Oracle Corp has a May fiscal year end. Net Sales are reported for 2004 of \$10,156 million. CRSP default output will display this in the data year 2003.

| DATA<br>YEAR | FISCAL<br>YEAR | CAL<br>YEAR |
|--------------|----------------|-------------|
| 2000         | 5              | 2001        |
| 2001         | 5              | 2002        |
| 2002         | 5              | 2003        |
| 2003         | 5              | 2004        |

With a date restriction of 2001-2004, `cst_print` will report:

| DATA<br>YEAR | FISCAL<br>YEAR | ITEM 12<br>SALESNET |
|--------------|----------------|---------------------|
| 2001         | 5              | 9673.0000           |
| 2002         | 5              | 9475.0000           |
| <b>2003</b>  | <b>5</b>       | <b>10156.0000</b>   |
| 2004         | 5              | 11799.0000          |

Using the **/dd** option with the same restriction, `cst_print` will report:

| CAL<br>YEAR | FISCAL<br>YEAREND | ITEM 12<br>SALESNET |
|-------------|-------------------|---------------------|
| 2001        | 5                 | 10859.6719          |
| 2002        | 5                 | 9673.0000           |
| 2003        | 5                 | 9475.0000           |
| <b>2004</b> | <b>5</b>          | <b>10156.0000</b>   |

*See Compustat definitions for Data Year and Standard & Poors Calendar Year for more details.*

- ⊗ **Set Input Method.** The default is to allow the user to type in identifiers at the terminal. These alternate options are only supported at the command line and only one can be used at one time.

**/sq Reads All Records in Database Sequentially**

**/if filename.inp**

**Selects Data For All Identifiers in a User-Provided File**

The file must exist with one identifier per line. The identifiers must correspond to the /ky option that has been selected, where gvkey is the default.

- ⊗ **Set Output Method.** The default is for output to be printed on the terminal. This option is only supported at the command line.

**/of filename.out**

**Save Output to a File**

Data is placed in a user file instead of printed to the terminal.

- ⊗ **Set Output Format.** The default is for output formatted for readability on an 80-character terminal window.

**/fs Toggle For Pipe Delimited Output**

This output format is intended to be used as input to another program, so is typically used with an output file. This format has no headers. gvkey, date, and fiscal year-end month appear at the beginning of each line. All fields are pipe (|) delimited.

This format optimizes output. Output includes only values for the selected data items over the selected date range.

e.g. /ia24 /dt1990-1994 /fs for gvkey 6066

```
6066|1990|12| 113.00000
6066|1991|12| 89.00000
6066|1992|12| 50.37500
6066|1993|12| 56.50000
6066|1994|12| 73.50000
```

**/fr Toggle For Standard Output (default)**

Header information is printed and data is formatted for readability on an 80-character terminal or page. The same output produced using the /fs option is presented using the default /fr option.

e.g. /ia24 /dt1990-1994 /fr for gvkey 6066

```
Selected Data Items: 24
24 - Price - Close
Data Fiscal Item 24
Year Yearend Close
1990 12 113.0000
1991 12 89.0000
1992 12 50.3750
1993 12 56.5000
1994 12 73.5000
```

- ⊗ **Set Database.** This option is only supported on the command line and cannot be switched once *cstprint* is open until the application is closed.

### **/d1 dbdirectory**

**Select a Compustat Database Path.** (Note that this command is /d-one (/d1) not /d-L.) It is used to select a Compustat database that is not the default. If the *cstprint* command is used with no database specification, the default Compustat database is automatically selected. The typical user will only have one active Compustat database loaded.

Note this option may only be set on the command line prior to opening the program. The program requires the underscore in *cstprint* to be present when using this option. Therefore, if you are running *cstprint* on Windows from the start menu, you will not be able to use this option unless you open a DOS prompt.

e.g. *cstprint /d1 c:\crsroot\data\compustat\200007*

e.g. *cstprint /d1 \$CRSP\_CST* (default Unix database)

- ⊗ **Set Key.** The default is *gvkey*. All input in the input file or at the terminal will be interpreted as this identifier. Sequential access will be in the order of this key. If a key is not unique, such as *dnum*, direct access will always find the first company with the identifier. Securities can be found with alternate identifier options in relative position to any security being accessed, such as (n) next, (p) previous, and so on.

If the key is *apermno* or *apermco*, the output is in CRSP-Centric mode. With all other keys, including the default, data are presented in the Native mode.

### **/ky gvkey**

#### **Sets Input Key to gvkey**

This is the default if no */ky* option is used. *gvkey* is the unique S&P Identifier. It will find exactly zero or one record in the database.

e.g. *cstprint /ky gvkey for gvkey 6066*  
6066

| GVKEY | DNUM | CNUM   | CIC | IPERM | ICOMP | SYMBOL | NAME                        |
|-------|------|--------|-----|-------|-------|--------|-----------------------------|
| 6066  | 7370 | 459200 | 101 | 12490 | 20990 | IBM    | INTL BUSINESS MACHINES CORP |

AVAILABLE DATA

| ANNUAL    | QUARTERLY     | S&P_REL | STK_OWN | DUP | INDUSTRY | NAME                      |
|-----------|---------------|---------|---------|-----|----------|---------------------------|
| 1950-1999 | 1962.1-2000.1 | 903     | 0       | 0   | CMP      | PROGRAMMING, DATA PROCESS |

STATE COUNTY FOREIGN

| FILE | ZLIST | CODE | CODE | CODE | EMPLOYER   | ID | CPSPIN | CSSPIN | CSSPII | IPO-Date |
|------|-------|------|------|------|------------|----|--------|--------|--------|----------|
| 11   | 1     | 36   | 119  | 0    | 13-0871985 |    | 1      | 10     | 1      | 0        |

SPDRC

| /SDBT | SDBTIM | SUBDBT | CPAPER | NAICS  | AVAILF  | GICS | CALENDAR | RANGE             |
|-------|--------|--------|--------|--------|---------|------|----------|-------------------|
| 07    |        |        | 102    | 541519 | 1041519 |      | 0        | 19500101-20000630 |

--FUNDF--

| CANDXC | ISO   | COUNTRY |        |
|--------|-------|---------|--------|
| 1 2 3  | STINC | /CCNDX  | /INCRP |
| 0 0 0  | 36    |         | 0      |

### **/ky permno**

#### **Set Input Key to CRSP Historical PERMNO Link**

If a PERMNO links to more than one Compustat record, entering the PERMNO will always retrieve data for the first record.

e.g. *cstprint /ky permno* (for *gvkey* 6066 - PERMNO 12490)

### **/ky permco**

#### **Set Input Key to CRSP PERMCO From link-history**

If a PERMCO links to more than one Compustat record, entering the PERMCO will always retrieve data for the first record.

eg. `cstprint /ky permco` (for gvkey 6066 - PERMCO 20990)

### **/ky smbl**

#### **Set Input Key to CRSP Compustat Stock Ticker Symbol**

Symbol must be capitalized on case-sensitive systems.

eg. `cstprint /ky smbl` (for gvkey 6066 - Ticker IBM)

### **/ky cnum**

#### **Set Input Key to the Compustat cnum and cic**

cnum only can be entered, but if cnum and cic are entered they must be separated by spaces.

eg. `cstprint /ky cnum` (for gvkey 6066 - cnum and cic 459200 101)

### **/ky cusipsic**

#### **Set Input Key to Compustat's cnum, cic, and dnum (enter separated by spaces)**

eg. `cstprint /ky cusipsic` (for gvkey 6066 - cnum, cic and dnum 459200 101 3570)

### **/ky dnum**

#### **Set Input Key to Compustat Industry Code**

If a dnum links to more than one Compustat record, entering the dnum will always retrieve data for the first record.

eg. `cstprint /ky dnum` (for gvkey 6066 - dnum 3570)

### **/ky iperm**

#### **Set Input Key to CRSP iperm Number**

eg. `cstprint /ky iperm` (for gvkey 6066 - iperm 12490)

### **/ky icomp**

#### **Set Input Key to the CRSP icomp Number**

eg. `cstprint /ky icomp` (for gvkey 6066 - icomp 20990)

### **/ky apermno**

#### **Set Input Key to Link Used Array's PERMNO**

If this key is used with the `/fs otpion`, permno replaces gvkey in the output on each line.

eg. `cstprint /ky apermno` (for gvkey 6066 - permno 12490)

### **/ky apermco**

#### **Set Input Key to Link Used Array's PERMCO\**

If this key is used with the `/fs otpion`, permno replaces gvkey in the output on each line.

eg. `cstprint /ky apermno` (for gvkey 6066 - permco 20990)

## ⊗ Alternate Identifier Codes

The following codes can be used instead of a specified identifier at the command line or in an input file. These access securities by position relative to the current key set with the `/ky` option. These are considered input and not options and therefore do not require the forward slash line.

- s same identifier
- n next identifier
- p previous identifier
- f first identifier
- l last identifier

## 5.3 *cstprint* Usage and Examples

To select header, name history, and annual data item 24 (closing price) for all data years between 1995 and 1997. User will type in `gvkeys` and output will be printed on the screen in 80-character format.

```
CRSP1>cstprint
Using default dates: 1961.1 - 1997.4 for quarterly data
Using default dates: 1950 - 1997 for annual data

Enter identifier or new option beginning with a slash.
Type ? for help.
/hnia24 /dt1990-1995
Keep previous data options? (y/n)
n
Using 1990.1 - 1995.4 for quarterly data
Using 1990 - 1995 for annual data

WARNING all options have been reset.

Enter identifier or new option beginning with a slash.
Type ? for help.
6066

   GVKEY  DNUM  CNUM  CIC  PERM#  COMP#  SYMBOL  NAME
   6066  3570  459200  101  12490  20990  IBM      INTL BUSINESS MACHINES CORP

      AVAILABLE DATA
      ANNUAL      QUARTERLY      S&P_REL  STK_OWN  DUP  INDUSTRY NAME
1950-1995 1962.1-1996.3    903      0      0  COMPUTER & OFFICE EQUIPMENT

              COUNTY FOREIGN
FILE ZLIST STATE  CODE  CODE  EMPLOYER ID CPSPIN CSSPIN CSSPII
  11    1   36   119    0   13-0871985    1    10    1

SDBT  SDBTIM  SUBDBT  CPAPER  DTYPES
  08                102    1

   DATE  DNUM  CNUM  CIC  PERM#  COMP#  SYMBOL  COMPANY NAME
19940922 3570  459200  101  12490  20990  IBM      INTL BUSINESS MACHINES CORP
19960919 3570  459200  101  12490  20990  IBM      INTL BUSINESS MACHINES CORP

FILE ZLIST STATE S&P_REL STK DUP EMPLOYER ID  INDUSTRY NAME
  11    1   36   3570    0    0 13-0871985  COMPUTER & OFFICE EQUIPMENT
  11    1   36   903    0    0 13-0871985  COMPUTER & OFFICE EQUIPMENT

STATE COUNTY FOREIGN CANADIAN
CODE  CODE  CODE  CODE  CPSPIN CSSPIN CSSPII SDBT SDBTIM SUBDBT CPAPER
```



```

0 119 0 0 1 10 1 8 0 102
0 119 0 0 1 10 1 8 0 102

```

Selected Data Items: 24  
24 - Price - Close

```

Data Fiscal      Item 24
Year Yearend      Close
1990 12          113.000000
1991 12           89.000000
1992 12           50.375000
1993 12           56.500000
1994 12           73.500000
1995 12           91.375000

```

Enter identifier or new option beginning with a slash.  
Type ? for help.

Extract quarterly items 2(Sales), 5(Depreciation and Amortization) and 8(Income before Extraordinaries), using an input file, gvkey inp, and writing to a file, cst.out.

Input file, gvkey.inp is a text file that contains nothing more than of gvkeys for which data are extracted.

Answer no to the prompt to keep data options if header data is not desired, answer yes if it is desired.

Keep previous data options? (y/n) N

Items are written to the output file in the order in which they are requested.

```
/iq2,5,8 /fs /if gvkey.inp /of cst.out /dt2003-2004
```

```

2282| 2003.1| 4| 295.4720| 11.9470| 19.2460
2282| 2003.2| 4| 297.2600| 12.2290| 17.9000
...
2282| 2004.3| 4| 380.9760| 16.5300| 6.6360
2282| 2004.4| 4| 382.5840| 20.2800| 5.5270
24925| 2003.1|12| 149.4430| 3.8810| 13.2970
24925| 2003.2|12| 166.0550| 4.2080| 13.0820
...
24925| 2004.3|12| 240.1410| 4.5920| 27.3820
24925| 2004.4|12| 276.5490| 4.8230| 24.7860
7636| 2003.1|12| 163.2200| 9.2120| 7.1920
7636| 2003.2|12| 168.9640| 9.5390| 3.2760
...
7636| 2004.3|12| 199.3820| 10.1910| 3.8200
7636| 2004.4|12| 221.4150| 9.5570| 6.9310

```

Keep previous data option (y/n) Y

Returns the same data but includes header data as well:

```

2282|5812|096761|101| 18570| 595|BOBE |BOB EVANS FARMS |1962-2004|1981.1-2005.1|
445|0|96|EATING PLACES | 6|25|39| 49| 0|31-4421866|2 |91| | 0| | | |
|722110|3105903|25301040|19620501|20050831| 0| 0| 0|10| 0|
2282|2003.1| 4| 295.4720| 11.9470| 19.2460
2282|2003.2| 4| 297.2600| 12.2290| 17.9000
...
2282|2004.3| 4| 380.9760| 16.5300| 6.6360
2282|2004.4| 4| 382.5840| 20.2800| 5.5270
24925|3823|776696|106| 77338|11344|ROPER |ROPER INDUSTRIES INC/DE |1991-2004|1991.1-
2005.2| 213|0| 0|INDUSTRIAL MEASUREMENT INSTR| 1| 4|13|135| 0|51-0263969|3 |92| |19920212|13|
| | |334513|3138671|20104010|19901101|20050831| 0| 0| 0|10| 0|
24925|2003.1|12| 149.4430| 3.8810| 13.2970
24925|2003.2|12| 166.0550| 4.2080| 13.0820
...

```



**CHAPTER 6: SUPPLEMENTARY ACCESS AND DATABASE UTILITY PROGRAMS**

This section describes CRSP- provided supplemental utility programs for the CRSP/Compustat Merged Database. It is divided into two parts: a tool to access header identification data, *cstsearch*, and tools to manipulate the database.

These are command-line utilities and do not require programming although a comprehensive understanding of Compustat data and identifiers is necessary. All utilities are run on a terminal or command prompt window and are operated by entering instructions at a keyboard. Users can prepare input and in some cases must provide text files with security input and specifications.

**6.1 *cstsearch* - CRSP Browsing Utility**

*cstsearch* is a namelist search utility. It may be used to look up any of the following keys: *permno*, *permco*, *smb1*, *gvkey*, *cnum*, *cusip/sic*, *iperm*, and *icomp*, as well as the company name and beginning and ending dates of valid data in the file for each company. *cstsearch* searches for text strings in the header file.

See Section 2 and Appendix A of this guide, and chapters 5 and 8 of the COMPUSTAT® User's Guide, for item descriptions and codes.

**Namelist Data**

CRSP provides namelist files for the CRSP/Compustat Merged Database. Namelists are useful for finding identifiers and name histories of companies when only partial information is known.

The CRSP/Compustat Merged Database contain three *namelist* files:

1. *theadcst.dat* - current header list, one line per record. It contains the *gvkey*, *iperm*, *dnum*, *cnum*, *cic*, *smb1*, *coname*, *begyr*, *endyr*, *begqtr*, and *endqtr* data items. The *smb1* is truncated to 5 characters and only the last two digits of the years are displayed.
2. *headcst.dat* - historical header list, one line per historical name. It contains the *gvkey*, *NPERMNO*, *dnum*, *cnum*, *cic*, *smb1*, *coname*, *chgdt*, and *chgenddt* data items. The *smb1* is truncated to 5 characters and only the last two digits of the years are displayed.
3. *psortbyp.dat* - list of records containing sorted *gvkeys* in the database. There is one *gvkey* per line.

### Namelist Search Utilities

There are two Compustat header search utilities for searching the current and historical header lists. They are used differently on different computer systems.

- ⊗ *cstsearch* – searches `cheadcst.dat` for a string.
- ⊗ *ncstsearch* – searches `headcst.dat` for a string.

### Operating System-Specific Search Instructions and Examples

#### Windows

The string must be placed on the command line in quotes. For example,

```
>cstsearch "ibm"
>echo off

Compustat Headers
GVKEY PERMNO DNUM CNUM CIC SMBL Company Name ANN and QTR range
N:\DATA\IEEELIT\CS9612\CHEADCST.DAT
5822 901922 6172 449220 003 IBM1 IBM CREDIT CORP 82-95 82.1-96.3
6066 12490 3570 459200 101 IBM IBM INTL BUSINESS MACHINES CORP 50-95 62.1-96.3
```

#### Unix

The name of the search utility is entered at the prompt. The program will prompt for a search string.

```
% ncstsearch
Enter Search String: ibm

Compustat Names
GVKEY PERMNO DNUM CNUM CIC SMBL Company Name Name Range
5822 0 6172 449220 003 IBM1 IBM CREDIT CORP 940922-999999
6066 12490 3570 459200 101 IBM INTL BUSINESS MACHINES CORP 940922-960919
6066 12490 3570 459200 101 IBM INTL BUSINESS MACHINES CORP 960919-999999
Try another string [y] ? n
```

## 6.2 Database Utilities

CRSPAccess contains several tools that allow users to manipulate the database. These command line utilities require no programming, although they do require an understanding of the data.

The following CRSPAccess database utilities are available:

- ⊗ *cst\_partial* - Creates a subset database or appends data to an existing one.
- ⊗ *crsp\_cst\_headall* - Creates header and namelist files
- ⊗ *crsp\_cst\_scd\_load* - Creates alternative database keys, supporting identifiers in addition to `GVKEY`.

***cst\_partial***

This program creates new CRSP/Compustat Merged Database from an existing database or appends records from one database to another. It can use a `gvkey` list or a data type restriction to subset the original database. It takes parameters on input and output databases, input and output set types, data wanted in the new database, and optionally a file containing `GVKEYS` to copy to the new database.

**Usage (see examples on p. 89):**

```
cst_partial inpath outpath insetid outsetid setwanted datawanted [permfile]
```

| Parameter                        | Values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>inpath</code>              | Input CRSPDB directory path. The directory where the database is stored. Standard environment names can be used such as <code>\$CRSP_CST</code> on UNIX, <code>crsp_cst:</code> on OpenVMS, or <code>%crsp_cst%</code> for Windows.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>outpath</code>             | The directory where the new database will be stored. This can be an empty directory or an existing directory. If it is an empty directory, a new database will be created. If there is already a CRSPDB in that directory, the selected <code>GVKEYS</code> will be added to that database.                                                                                                                                                                                                                                                                                                                                                                        |
| <code>insetid</code>             | The database type. Use 200 for a Compustat database in CRSPAccess format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>outsetid</code>            | The database type. Input and output <code>setids</code> should be the same.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <code>setwanted</code>           | Set wanted. A binary flag to determine the modules that will be supported in the new database. Use 4095 to support all current modules. A module that is not loaded at this time cannot be added later to that database.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>datawanted</code>          | Data wanted. A binary flag to determine which modules will be copied to the new database. Use 4095 to copy all data to the new database. Data wanted must be a subset of set wanted. Individual wanted codes can be summed to load multiple modules. Individual modules codes are:<br><br>1 = headers, description history, link-history<br>2 = annual period descriptors<br>4 = quarterly period descriptors<br>8 = annual data items<br>16 = annual footnotes<br>32 = quarterly data items<br>64 = quarterly footnotes<br>128 = bank annual items<br>256 = bank quarterly items<br>512 = operating segments<br>1024 = Index Fundamental items<br>2048 = PDE data |
| <code>permfile (optional)</code> | Permlist file. The name of a file with a list of <code>GVKEYS</code> , one to a line. This parameter is optional. If it is used, only the <code>GVKEYS</code> in the input file will have data copied to the new database. If the parameter is not used, all <code>GVKEYS</code> in the input database will be copied.                                                                                                                                                                                                                                                                                                                                             |

If a new Compustat database is created using `cst_partial`, `crsp_cst_headall` should be run to create new header and `namelist` files that are associated with the new database, and `crsp_cst_scd_load` should be run so that alternate keys are supported in `cstprint`.

### *crsp\_cst\_headall*

This program creates header files for CRSP/Compustat Merged Database. It is useful primarily in conjunction with a subset database. If header is created with the filename, `cheadcst.dat`, in the `crsp_cst` database directory, the `cstsearch` function can be used to search the subset database.

Parameters are an input database, `setid`, and four output files. The output files include header information, and name and link-history information.

#### Usage (see examples on p. 89):

```
crsp_cst_headall inpath insetid histfile headerfile
```

| Parameter               | Values                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>inpath</code>     | Input CRSPDB directory path. The directory where the database is stored. Standard environment names can be used such as <code>\$CRSP_CST</code> on UNIX, <code>crsp_cst:</code> on OpenVMS, or <code>%crsp_cst%</code> for Windows.                                                                                                                                                                     |
| <code>insetid</code>    | The database type. Use one of 200 for Compustat databases                                                                                                                                                                                                                                                                                                                                               |
| <code>histfile</code>   | A file name for the name history header file. A file with this name will be created with one line per name or link-history event for each <code>GVKEY</code> . Each line contains <code>GVKEY</code> , <code>NPERMNO</code> , name <code>CUSIP</code> , company name, symbol, <code>dnum</code> , and effective range of that name information.<br><br>If the file is named <code>cheadcst.dat</code> . |
| <code>headerfile</code> | A file name for the header file. A file with this name will be created with one line per <code>GVKEY</code> . Each line contains <code>GVKEY</code> , header <code>IPERM</code> , current <code>DNUM</code> , <code>CNUM</code> , <code>CIC</code> , symbol, company name, and annual and quarterly data ranges.                                                                                        |

**crsp\_cst\_scd\_load**

This program creates secondary indices for a database. It should be used any time a new subset database is created or edits are made to an existing database. The program can create indices on multiple keys. The program automatically erases any keys previously stored in the database.

Parameters are an input database and `setid` and a code representing the keys wanted.

**Usage (see examples below):**

```
crsp_cst_scd_load inpath insetid inputwanted indexwanted [permfile]
```

| Parameter                        | Values                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>inpath</code>              | Input CRSPDB directory path. The directory where the database is stored. Standard environment names can be used such as <code>\$CRSP_CST</code> on UNIX, <code>crsp_cst:</code> on OpenVMS, or <code>%crsp_cst%</code> for Windows.                                                                                                                                                                         |
| <code>insetid</code>             | Input <code>Setid</code> . The database type. Use 200 for Compustat databases                                                                                                                                                                                                                                                                                                                               |
| <code>inputwanted</code>         | Input wanted. The data required to build the index. Use 1 for Compustat headers and description history                                                                                                                                                                                                                                                                                                     |
| <code>indexwanted</code>         | Index wanted. A binary flag to select the indices to build.<br><br>1 = NPERMCO from link-history<br>2 = CNUM and CIC<br>4 = DNUM, CNUM, CIC<br>8 = DNUM<br>16 = SMBL<br>32 = NPERMNO from link-history<br>64 = IPERM header PERMNO link<br>128 = ICOMP header PERMCO link<br><br>Use 255 to build all secondary indices or add the flags for one or more types.                                             |
| <code>permfile (optional)</code> | Permlist file. If this parameter is supplied, it must be the name of a text file containing GVKEYS, one per line. If the parameter is not used, all securities in the database will be used to create the secondary indices. If the parameter is supplied, the indices will only be based on the securities in the permlist and other securities will be unavailable using a secondary index read function. |

**Database Utility Examples**

On **Windows**, the following commands can create personal subset CRSP/Compustat Merged Database with only headers and annual data for the GVKEYS in a file `keys.txt`, then create header files and secondary indices for the database. The output directory must exist and the `keys.txt` file must exist.

```
cst_partial %crsp_cst% c:\mydir\ 200 4095 4095 keys.txt
crsp_cst_headall c:\mydir\ 200 c:\mydir\headcst.dat c:\mydir\headcst.dat
crsp_cst_scd_load c:\mydir\ 200 1 255
```

If the environment variable `CRSP_CST` is set to `c:\mydir\` the standard utilities will use the new subset database as the standard CRSP/Compustat Merged Database. To edit your environment variables on NT, go to Settings/Control Panel/System Windows and select the Environment tab and modify the `CRSP_CST` user variable with the value `c:\mydir`. To modify the environment variables on Windows 95/98 edit the `C:\crsp_env.bat` file by changing `SET CRSP_CST=X:\x\` to `SET CRSP_CST=C:\mydir\`.

On **UNIX**, the following commands provide the same result:

```
cst_partial $CRSP_CST /mydisk/mydir/ 200 4095 4095 keys.txt
crsp_cst_headall /mydisk/mydir/ 200 /mydisk/mydir/headcst.dat
```

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---

```
/mydisk/mydir/cheadcst.dat  
crsp_cst_scd_load /mydisk/mydir 200 1 255  
setenv CRSP_CST /mydisk/mydir      (csh)  
  
or  
CRSP_CST=/mydisk/mydir  
export CRSP_CST      (ksh)
```



## CHAPTER 7: PROGRAMMING ACCESS – C AND FORTRAN-95

The CRSP/Compustat Merged Database (CCM) contains Compustat data put into CRSPAccess format. It is designed to be used in conjunction with CRSP stock and indices databases and all variables in both CRSP and Compustat data sets are supported.

This format supports direct access via multiple key identifiers, including `gykey` and other Compustat header variables, and allows selective access into available data items. Programs can be linked to CRSP library functions and structures defined in CRSP header files. Sample programs for both C and FORTRAN-95 are provided as examples for accessing and processing CRSP data.

### Data Organization for Programming

The basic levels of a CRSPAccess database are the database, set type, set identifier, modules, objects, and arrays.

- ⊗ **Database (CRSPDB)** is the directory containing the database files. A CRSPDBD is identified by its database path.
- ⊗ **Set Type** is a predefined type of financial data. Each set type has its own defined set of data structures, specialized access functions, and keys. The CCM database supports the Compustat (CST) set type. Multiple CRSPAccess databases can support simultaneously multiple set types.
- ⊗ **Set Identifier** (`setid` for stock and indices, `cstid` for Compustat ) is a defined subset of a set type. SETIDs/CSTIDs of the same set type use the same access functions, structures, and keys, but have different characteristics within those structures. Only one `cstid` for Compustat is defined; `cstid = 200`.
- ⊗ **Modules** are the groupings of data found in the data files in a CRSPDB. Multiple data items can be present in a module. Data are retrieved at the module level, and access functions retrieve data items for keys based on selected modules. Modules correspond to physical data files.
- ⊗ **Objects** are the fundamental data types defined for each set type. There are three fundamental object types: time-series (CRSP\_TIMESERIES), event arrays (CRSP\_ARRAY), and headers (CRSP\_ROW). Objects contain header information such as counts, ranges, or associated calendars. (CRSP\_CAL) together with arrays of data for zero or more observations. Some set types support arrays of objects of a single type. In this case, the number of available objects is determined by the SETID/CSTID, and each of the objects in the list has independent counts, ranges, or associated calendars.
- ⊗ **Arrays** are attached to each object. An array contains its set of observations and is the basic level of programming access. An observation can be a simple data type such as a float, for an array of one data item, or a complex structure such as for a period descriptor array. When there is an array of objects, such as with the set of annual data items, there is a corresponding array of arrays containing the data.

### CRSPAccess Data Objects

Four basic types of information are stored in CRSPAccess databases. Each is associated with a CRSP object structure.

1. **Header Information (CRSP\_ROW)** Identifiers with no implied time component.
2. **Event Arrays (CRSP\_ARRAY)** Represent status changes, events, or observations. The time of the event and relevant information is stored for each observation. Each type of event data contains a count for the number of observations.
3. **Time-series Arrays (CRSP\_TIMESERIES)** An observation is available for each period in an associated calendar. Beginning and ending points of valid data are available for each type of time-series data. Data are stored for each period in the ranges, including missing values where information is not available for a period within a time-series.
4. **Calendar Arrays (CRSP\_CAL)** Each time-series associates with an array of relevant time periods. Calendars are used in conjunction with time-series arrays to attach dates to the observations.

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An observation may be a simple value or may contain multiple components such as codes and amounts. Annual data items and Industry Segment data items are associated with an annual calendar, quarterly data items are associated with a quarterly calendar, and PDE items are associated with a monthly calendar. All calendars are associated automatically to each wanted time-series object when the database is opened.

### Object Structures

| CRSP OBJECT            | COMPONENT           | USAGE                                                                                                                                                                                                  | DATA TYPE      |
|------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>CRSP_ARRAY</b>      |                     | <b>Structure for storing event data</b>                                                                                                                                                                |                |
|                        | objtype             | Identifies structure as a CRSP_ARRAY. Always = 3.                                                                                                                                                      | integer        |
|                        | arrtype             | Defines structure in the array. Scalar data types and CRSP-defined structures have associated codes defined in the constants header file.                                                              | integer        |
|                        | subtype             | Defines a subcategory of the array data. Differentiate arrays with common array-type fields.                                                                                                           | integer        |
|                        | size_of_array-width | Element size, in bytes.                                                                                                                                                                                | integer        |
|                        | maxarr              | Number of elements allocated in the array                                                                                                                                                              | integer        |
|                        | num                 | Number of elements in the array having data for the current record.                                                                                                                                    | integer        |
|                        | dummy               | Reserved.                                                                                                                                                                                              | integer        |
|                        | arr                 | Pointer to the array containing data. Array can be an intrinsic data type or a CRSP-defined structure. Size and type are determined by arrtype, array_element_size, and maxarr.                        | data array     |
| <b>CRSP_ROW</b>        |                     | <b>Structure for storing header data.</b>                                                                                                                                                              |                |
|                        | objtype             | Identifies structure as a CRSP_ROW. Always = 5.                                                                                                                                                        | integer        |
|                        | arrtype             | Defines structure in the array. Intrinsic data types or CRSP-defined structures have associated codes defined in the constants header file.                                                            | integer        |
|                        | subtype             | Defines a subcategory of the array data. Differentiate arrays with common array-type fields.                                                                                                           | integer        |
|                        | array_element_size  | Element size, in bytes.                                                                                                                                                                                | integer        |
|                        | arr                 | Pointer to the array containing data. Array can be an intrinsic data type or a CRSP-defined structure. Size and type are determined by arrtype and array_element_size. Maximum array size is always 1. | void*          |
| <b>CRSP_TIMESERIES</b> |                     | <b>Structure for storing time-series data.</b>                                                                                                                                                         |                |
|                        | objtype             | Identifies structure as a CRSP_TIMESERIES. Always = 2.                                                                                                                                                 | integer        |
|                        | arrtype             | Defines structure in the array. Scalar C data types or CRSP-defined structures have associated codes defined in the constants header file.                                                             | integer        |
|                        | subtype             | Defines a subcategory of the array data. Further differentiate arrays with common array type fields.                                                                                                   | integer        |
|                        | array_element_size  | Element size, in bytes.                                                                                                                                                                                | integer        |
|                        | maxarr              | Maximum elements allocated in the array                                                                                                                                                                | integer        |
|                        | beg                 | First index having valid data for the current record, or 0 if no valid range.                                                                                                                          | integer        |
|                        | end                 | Last index having valid data for the current record, or 0 if no valid range.                                                                                                                           | integer        |
|                        | caltype             | Code describing the type of time periods. caltype is always 2, indicating time periods described by the last trading date in the period.                                                               | integer        |
|                        | cal                 | Pointer to the calendar associated with the time-series array. The calendar includes the corresponding period ending dates for each array index.                                                       | CRSP_CAL array |

| CRSP OBJECT     | COMPONENT | USAGE                                                                                                                                                                                                                     | DATA TYPE                 |
|-----------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
|                 | arr       | Pointer to the array containing data. Array can be an intrinsic data type or a CRSP-defined structure. Size and type are determined by <code>arrtype</code> , <code>array_element_size</code> , and <code>maxarr</code> . | data array                |
| <b>CRSP_CAL</b> |           | <b>Structure for storing calendar period data.</b>                                                                                                                                                                        |                           |
|                 | objtype   | Identifies structure as a CRSP_ROW. Always = 1.                                                                                                                                                                           | integer                   |
|                 | calid     | Identifier assigned to each specific calendar by CRSP.                                                                                                                                                                    | integer                   |
|                 | type      | Generic group code of calendar; daily, weekly, monthly, quarterly, annual.                                                                                                                                                | integer                   |
|                 | loadflag  | Code indicating the types of calendar arrays loaded. Currently = 2 for caldt only.                                                                                                                                        | integer                   |
|                 | ndays     | Index of last valid calendar period.                                                                                                                                                                                      | integer                   |
|                 | name      | Text name of the calendar.                                                                                                                                                                                                | character                 |
|                 | callist   | Reserved for array of alternate grouping identifiers for calendar periods.                                                                                                                                                | integer                   |
|                 | caldt     | Array of calendar period ending dates, stored in YYYYMMDD format. Calendars have valid data from element 1 through element <code>ndays</code> .                                                                           | integer                   |
|                 | daterng   | Reserved for array of periods described by the range of dates                                                                                                                                                             | CRSP_CAL_DATE_RANGE array |
|                 | time      | Reserved for array of periods described by range of date and time.                                                                                                                                                        | CRSP_CAL_TIME_RANGE array |
|                 | calmap    | Used to store array of first and last calendar period array elements in a calendar linked to elements in another calendar.                                                                                                | CRSP_CAL MAP array        |
|                 | basecal   | Used to reference a calendar linked via <code>calmap</code> .                                                                                                                                                             | CRSP_CAL array            |

### Set Structures and Usage

Top-level structures exist for each programming set type. These top level structures are built from general object and array structure definitions. Access functions for each set type identify a CRSPDB with a directory path and set identifier from a known set of numerical identifiers for the set available in the CRSPDB, and load data to a user-declared top-level structure of that type. Top level structures contain object and array pointers that have memory allocated to them by open functions.

One set type and one set identifier (200) are currently supported for a CRSP/Compustat Merged Database. This identifier must be specified when opening or accessing data from the set.

#### Data Set Types and Identifiers

| Data                             | Set Type | Set Identifier | Defined Constant |
|----------------------------------|----------|----------------|------------------|
| Standard & Poor's Compustat Data | CST      | 200            | CSTID            |

Each set structure has three types of pointer definitions:

- ☉ Module pointers point to CRSP\_OBJECT\_ELEMENT linked lists and are needed only internally to keep track of the objects in the module. These have the suffix `_obj` and may be ignored by ordinary programming.
- ☉ Object pointers define a CRSP\_ARRAY, CRSP\_ROW, or CRSP\_TIMESERIES object type. A suffix, `_arr`, `_ts` or `_row` is appended to the variable name. Date range fields (`num`, `beg`, and `end`) are accessed from these variables.
- ☉ Array pointers define the data-item array. The second object pointer is a pointer to the array element of the object and is used for general access of the data item.

If a module has multiple types of objects, a group structure is created with definitions for those objects and is included in the main structure.

If a module has a variable number of objects of one type, an integer variable keeps track of the actual number. These variables end with the suffix, `types`, and are based on the set type.

Each of the top-level structures contains three standard elements:

- ☉ `gvkey` - the actual key loaded
- ☉ `loadflag` - a binary flag matching the set wanted parameter indicating which pointers have been allocated.
- ☉ `setcode` - a constant identifying the type of set (CST=2)

See the following sections for data objects and data items in the CRSP/Compustat Merged Database set structure.

### Programming Language Data Objects for Compustat Data

Each Compustat data structure in CRSPAccess format is comprised of a fixed set of objects. Objects contain the header information required to use the data structures and the data arrays. The objects are organized by the modules to which they belong. The modules are labeled by the defined constant that must be included in wanted parameters to load data for that module. Data elements are described in the Data Structure Table under the array name.

Time-series *beg* and *end* specifiers for valid data range are both 0 if there are no data. Otherwise *beg* > 0, *beg* <= *end*, and *end* <= *maxarr*. The 0th position of a time-series array is reserved for the missing value of the underlying datatype of the time-series.

Annual and quarterly data items and footnotes and industry segment data are organized as arrays of objects. Each object in the array has its own object header information. For each array of objects, there is a variable of the form, *xxxtypes*, containing the number of objects in the array.

Compustat Modules and Objects Table

| Module                                 | Object         | Name                                                     | OBJTYPE         | Range Elements on a Company Basis | Data Set Name |
|----------------------------------------|----------------|----------------------------------------------------------|-----------------|-----------------------------------|---------------|
| CST_HEAD                               | header_row     | Compustat Header and Identifiers                         | CRSP_ROW        | none                              | header        |
| Header, Names, and link-history Module | names_arr      | Compustat Names History Array                            | CRSP_ARRAY      | num                               | names         |
| cst.descrip.(C)<br>cst % descrip(F95)  | link_arr       | Compustat/CRSP Link Array                                | CRSP_ARRAY      | num                               | link          |
| CST_PDES                               | prch_ts        | High Price time-series                                   | CRSP_TIMESERIES | beg and end                       | prch          |
| Price, Dividends, and Earnings         | prcl_ts        | Low Price time-series                                    | CRSP_TIMESERIES | beg and end                       | prcl          |
| cst.pde.(C)<br>cst % pde(F95)          | prcc_ts        | Closing Price time-series                                | CRSP_TIMESERIES | beg and end                       | prcc          |
|                                        | div_ts         | Dividends per Share time-series                          | CRSP_TIMESERIES | beg and end                       | div           |
|                                        | ern_ts         | Earnings per Share time-series                           | CRSP_TIMESERIES | beg and end                       | ern           |
|                                        | shstrd_ts      | Shares Traded time-series                                | CRSP_TIMESERIES | beg and end                       | shstrd        |
|                                        | divrte_ts      | Annualized Dividend Rate time-series                     | CRSP_TIMESERIES | beg and end                       | divrte        |
|                                        | rawadj_ts      | Cumulative Adjustment Factor time-series                 | CRSP_TIMESERIES | beg and end                       | rawadj        |
|                                        | cumadj_ts      | Raw Adjustment Factor time-series                        | CRSP_TIMESERIES | beg and end                       | cumadj        |
|                                        | bkv_ts         | Book Value per Share time-series                         | CRSP_TIMESERIES | beg and end                       | bkv           |
|                                        | cheqvm_ts      | Cash Equivalent Distributions time-series                | CRSP_TIMESERIES | beg and end                       | cheqvm        |
|                                        | cshoq_ts       | Common Shares Outstanding time-series                    | CRSP_TIMESERIES | beg and end                       | cshoq         |
|                                        | navm_ts        | Net Asset Value time-series                              | CRSP_TIMESERIES | beg and end                       | navm          |
|                                        | oepls12_ts     | Earnings per Share from Operations time-series           | CRSP_TIMESERIES | beg and end                       | oepls12       |
|                                        | epsh12_ts      | Historical Earnings per Share time-series                | CRSP_TIMESERIES | beg and end                       | epsh12        |
|                                        | csfsm_ts       | Common Stock Float Shares time-series                    | CRSP_TIMESERIES | beg and end                       | csfsm         |
|                                        | div_ftnt_ts    | Dividends per Share Footnote time-series                 | CRSP_TIMESERIES | beg and end                       | div_ftnt      |
|                                        | gic_ts         | Global Industry Classification Standard Code time-series | CRSP_TIMESERIES | beg and end                       | gics          |
|                                        | cpspin_ts      | Monthly S & P Primary Index Marker time-series           | CRSP_TIMESERIES | beg and end                       | cpspin        |
|                                        | rawadj_ftnt_ts | Raw Adjustment Factor Footnote time-series               | CRSP_TIMESERIES | beg and end                       | rawadj_ftnt   |
|                                        | comsta_ftnt_ts | Comparability Status Footnote time-series                | CRSP_TIMESERIES | beg and end                       | comsta_ftnt   |
|                                        | isa_ftnt_ts    | Issue Status Alert Footnote time-series                  | CRSP_TIMESERIES | beg and end                       | isa_ftnt      |
| CST_OPSEG                              | segcur_arr     | Array of Segment Currency Rate File                      | CRSP_ARRAY      | 1 to num                          | segcur        |
| Operating Segment                      | segsrc_arr     | Array of Segment Source File                             | CRSP_ARRAY      | 1 to num                          | segsrc        |
| cst.opseg.(C)<br>cst % opseg(F95)      | segprod_arr    | Array of Segment Products File                           | CRSP_ARRAY      | 1 to num                          | segprod       |
|                                        | segcust_arr    | Array of Segment Customer File                           | CRSP_ARRAY      | 1 to num                          | segcust       |
|                                        | segdtl_arr     | Array of Segment Detail File                             | CRSP_ARRAY      | 1 to num                          | segdtl        |
|                                        | setitm_arr     | Array of Segment Item Value File                         | CRSP_ARRAY      | 1 to num                          | setitm        |
|                                        | segnaics_arr   | Array of Segment NAICS File                              | CRSP_ARRAY      | 1 to num                          | segnaics      |
|                                        | seggeo_arr     | Array of Geographic Area Codes File                      | CRSP_ARRAY      | 1 to num                          | seggeo        |

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## Compustat Modules and Objects Table

| Module                                                                                       | Object        | Name                                                | OBJTYPE         | Range Elements on a Company Basis | Data Set Name                                 |
|----------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------|-----------------|-----------------------------------|-----------------------------------------------|
| CST_INDFUND<br>Index Fundamentals<br>cst.indfund. (C)<br>cst % indfund (F95)                 | indfund       | Array of Index Fundamentals                         | CRSP_ARRAY      | 1 to num                          | indfund                                       |
| CST_BANKANN<br>Bank Annual Items and Footnotes<br>cst.bankann. (C)<br>cst % bankann (F95)    | baitems_ts[ ] | Array of Bank Annual Data Item time-series          | CRSP_TIMESERIES | beg and end                       | baitems[j], j<br>from 0 to<br>baitemtypes - 1 |
|                                                                                              | baftnts_ts[ ] | Array of Bank Annual Footnote time-series           | CRSP_TIMESERIES | beg and end                       | baftnts[j], j<br>from 0 to<br>baftnttypes - 1 |
| CST_BANKQTR<br>Bank Quarterly Items and Footnotes<br>cst.bankqtr. (C)<br>cst % bankqtr (F95) | bqitems_ts[ ] | Array of Bank Quarterly Data Item time-series       | CRSP_TIMESERIES | beg and end                       | bqitems[j], j<br>from 0 to<br>bqitemtypes - 1 |
|                                                                                              | bqftnts_ts[ ] | Array of Bank Quarterly Footnote time-series        | CRSP_TIMESERIES | beg and end                       | bqftnts[j], j<br>from 0 to<br>baftnttypes - 1 |
| CST_APERDES<br>Annual Period Descriptors<br>cst.aperdes. (C)<br>cst % aperdes_ts (F95)       | aperdes_ts    | Annual Period Descriptors time-series               | CRSP_TIMESERIES | beg and end                       | aperdes                                       |
| CST_QPERDES<br>Quarterly Period Descriptors<br>cst.qperdes. (C)<br>cst % qperdes_ts (F95)    | qperdes_ts    | Quarterly Period Descriptors time-series            | CRSP_TIMESERIES | beg and end                       | qperdes                                       |
| CST_IAITEMS<br>Annual Data Items<br>cst.iaitems. (C)<br>cst % iaitems_ts (F95)               | iaitems_ts[ ] | Array of Industrial Annual Data Item time-series    | CRSP_TIMESERIES | beg and end                       | iaitems[j], j<br>from 0 to<br>iaitemtypes     |
| CST_IAFTNTS<br>Annual Footnotes<br>cst.iaftnts. (C)<br>cst % iaftnts (F95)                   | iaftnts_ts[ ] | Array of Industrial Annual Footnote time-series     | CRSP_TIMESERIES | beg and end                       | iaftnts[j], j<br>from 0 to<br>iaftnttypes     |
| CST_IQITEMS<br>Quarterly Data Items<br>cst.iqitems. (C)<br>cst % iqitems_ts (F95)            | iqitems_ts[ ] | Array of Industrial Quarterly Data Item time-series | CRSP_TIMESERIES | beg and end                       | iqitems[j], j<br>from 0 to<br>iqitemtypes     |
| CST_IQFTNTS<br>Quarterly Footnotes<br>cst.iqftnts. (C)<br>cst % iqftnts_ts (F95)             | iqftnts_ts[ ] | Array of Industrial Quarterly Footnote time-series  | CRSP_TIMESERIES | beg and end                       | iqftnts[j], j<br>from 0 to<br>iqftnttypes     |

## Language Data Structure for Compustat Data

All CRSP-defined CRSPAccess data types have names in all capitals beginning with CRSP\_. The following tables show an explanation of the Compustat structure for CRSPAccess C usage.

Index and Date Ranges for all elements in a structure are the same as for the structure itself. There are four structure levels indicated by the indentation in the mnemonic field. Pointers at any level can be used in a program. The top level contains all other items and is used in all access functions. The second level indicates data grouped in modules. See the [Compustat's User's Guide](#), issued by Compustat, for data item definitions.

All character strings, indicated by `char[#]`, are NULL terminated. The number of characters less one is the maximum string length allowed. Actual maximums may be lower. The top level `cst` structure is an example used by CRSP/Compustat Merged Database sample programs. Other names can be used, and multiple `CRSP_CST_STRUCTs` can be declared in a program.

### Compustat File Variable Usage Table

| Mnemonic               | Name                                        | Data Type                        | C Name                          | FORTRAN-95 Name                     | Index Range       | Date Usage |
|------------------------|---------------------------------------------|----------------------------------|---------------------------------|-------------------------------------|-------------------|------------|
| <code>cst</code>       | Master Compustat structure                  | <code>CRSP_CST_STRUCT</code>     | <code>cst</code>                | <code>cst</code>                    |                   |            |
| <code>descrip</code>   | Compustat Headers and Linking History       | <code>CRSP_CSTDESC_STRUCT</code> | <code>cst.descrip</code>        | <code>cst % descrip</code>          |                   |            |
| <code>header</code>    | Compustat Headers                           | <code>CRSP_CST_HEADER</code>     | <code>cst.descrip.header</code> | <code>cst % descrip % header</code> |                   |            |
| <code>availflag</code> | Code of Available Compustat Data            | integer                          | <code>-&gt;availflag</code>     | <code>% availflag</code>            |                   |            |
| <code>begdt</code>     | Beginning Calendar Date                     | integer                          | <code>-&gt;begdt</code>         | <code>% begdt</code>                |                   |            |
| <code>begqtr</code>    | First Quarter with Compustat Quarterly Data | integer                          | <code>-&gt;begqtr</code>        | <code>% begqtr</code>               |                   |            |
| <code>begyr</code>     | First Year with Compustat Annual Data       | integer                          | <code>-&gt;begyr</code>         | <code>% begyr</code>                |                   |            |
| <code>ccndx</code>     | Canadian Index Code – Current               | integer                          | <code>-&gt;ccndx</code>         | <code>% ccndx</code>                |                   |            |
| <code>cic</code>       | CUSIP Issue Number and Check Digit          | character[4]                     | <code>-&gt;cic</code>           | <code>% cic</code>                  |                   |            |
| <code>cnum</code>      | CUSIP Issuer Code                           | character[16]                    | <code>-&gt;cnum</code>          | <code>% cnum</code>                 |                   |            |
| <code>coname</code>    | Company Name                                | character[64]                    | <code>-&gt;coname</code>        | <code>% coname</code>               |                   |            |
| <code>county</code>    | Company Location Code – County              | integer                          | <code>-&gt;county</code>        | <code>% county</code>               |                   |            |
| <code>cpaper</code>    | S&P Commercial Paper Rating                 | character[4]                     | <code>-&gt;cpaper</code>        | <code>% cpaper</code>               |                   |            |
| <code>cpspin</code>    | S&P Index Primary Marker                    | character[4]                     | <code>-&gt;cpspin</code>        | <code>% cpspin</code>               |                   |            |
| <code>csspii</code>    | S&P Index Subset Identifier                 | character[4]                     | <code>-&gt;csspii</code>        | <code>% csspii</code>               |                   |            |
| <code>csspin</code>    | S&P Index Secondary Identifier              | character[4]                     | <code>-&gt;csspin</code>        | <code>% csspin</code>               |                   |            |
| <code>dnum</code>      | Industry Classification Code                | integer                          | <code>-&gt;dnum</code>          | <code>% dnum</code>                 |                   |            |
| <code>dup</code>       | Duplicate File Code                         | integer                          | <code>-&gt;dup</code>           | <code>% dup</code>                  |                   |            |
| <code>ein</code>       | Employer Identification Number              | character[16]                    | <code>-&gt;ein</code>           | <code>% ein</code>                  |                   |            |
| <code>enddt</code>     | Ending Calendar Date                        | integer                          | <code>-&gt;enddt</code>         | <code>% enddt</code>                |                   |            |
| <code>endqtr</code>    | Last Quarter with Compustat Quarterly Data  | integer                          | <code>-&gt;endqtr</code>        | <code>% endqtr</code>               |                   |            |
| <code>endyr</code>     | Last Year with Compustat Annual Data        | integer                          | <code>-&gt;endyr</code>         | <code>% endyr</code>                |                   |            |
| <code>file</code>      | File Identification Code                    | integer                          | <code>-&gt;file</code>          | <code>% file</code>                 |                   |            |
| <code>finc</code>      | Incorporation Code – Foreign                | integer                          | <code>-&gt;finc</code>          | <code>% finc</code>                 |                   |            |
| <code>fundf</code>     | Fundamental File Codes                      | integer[3]                       | <code>-&gt;fundf[j]</code>      | <code>% fundf[j]</code>             | j between 0 and 2 |            |
| <code>gics</code>      | Global Industry Classification Standard     | integer                          | <code>-&gt;gics</code>          | <code>% gics</code>                 |                   |            |
| <code>gvkey</code>     | Compustat Permanent Identifier              | integer                          | <code>-&gt;gvkey</code>         | <code>% gvkey</code>                |                   |            |
| <code>icomp</code>     | Header CRSP PERMCO link                     | integer                          | <code>-&gt;icomp</code>         | <code>% icomp</code>                |                   |            |
| <code>iname</code>     | Industry Name                               | character[64]                    | <code>-&gt;iname</code>         | <code>% iname</code>                |                   |            |
| <code>incorp</code>    | Incorporation Country Code                  | character[4]                     | <code>-&gt;incorp</code>        | <code>% incorp</code>               |                   |            |
| <code>iperm</code>     | Header CRSP PERMNO link                     | integer                          | <code>-&gt;iperm</code>         | <code>% iperm</code>                |                   |            |

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## Compustat File Variable Usage Table

| Mnemonic     | Name                                        | Data Type            | C Name                                    | FORTRAN-95 Name                               | Index Range                                                                                                            | Date Usage                                                                                                                                                                                                                       |
|--------------|---------------------------------------------|----------------------|-------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ipodt        | IPO Date                                    | integer              | ->ipodt                                   | % ipodt                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| naics        | North American Industry Classification      | character[8]         | ->naics                                   | % naics                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| sdbt         | S&P Senior Debt Rating – Current            | character[4]         | ->sdbt                                    | % sdbt                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| sdbtim       | Footnote – S&P Senior Debt Rating – Current | character[4]         | ->sdbtim                                  | % sdbtim                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| smb1         | Stock Ticker Symbol                         | character[16]        | ->smb1                                    | % smb1                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| state        | Company Location Code – State               | integer              | ->state                                   | % state                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| stinc        | Incorporation Code – State                  | integer              | ->stinc                                   | % stinc                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| stk          | Stock Ownership Code                        | integer              | ->stk                                     | % stk                                         |                                                                                                                        |                                                                                                                                                                                                                                  |
| subdbt       | S&P Subordinated Debt Rating - Current      | character[4]         | ->subdbt                                  | % subdbt                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| xrel         | S&P Industry Index Relative Code            | integer              | ->xrel                                    | % xrel                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| zlist        | Exchange Listing and S&P Major Index        | integer              | ->zlist                                   | % zlist                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| <b>names</b> | <b>Compustat Name History</b>               | <b>CRSP_CST_NAME</b> | <b>cst.descrip.names[i] for one event</b> | <b>cst % descrip % names(i) for one event</b> | <b>0 &lt;= i &lt; cst.descrip.names_arr-&gt;num (C)<br/>1 &lt;= i &lt;= cst % descrip &amp; names_arr % num (F-95)</b> | <b>i<sup>th</sup> record valid from cst.descrip.names[i].chgdt to cst.descrip.names[i].chgenddt (C)<br/><br/>i<sup>th</sup> record valid from cst % descrip % names[i] % chgdt to cst % descrip % names[i] % chgenddt (F-95)</b> |
| ccndx        | Canadian Index Code – Current               | integer              | .ccndx                                    | % ccndx                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| chgdt        | First Effective Date of Names Data          | integer              | .chgdt                                    | % chgdt                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| chgenddt     | Last Effective Date of Names Data           | integer              | .chgenddt                                 | % chgenddt                                    |                                                                                                                        |                                                                                                                                                                                                                                  |
| cic          | CUSIP Issue Number and Check Digit          | character[4]         | .cic                                      | % cic                                         |                                                                                                                        |                                                                                                                                                                                                                                  |
| cnum         | CUSIP Issuer Code                           | character[16]        | .cnum                                     | % cnum                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| coname       | Company Name                                | character[64]        | .coname                                   | % coname                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| county       | Company Location Code – County              | integer              | .county                                   | % county                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| cpaper       | S&P Commercial Paper Rating                 | character[4]         | .cpaper                                   | % cpaper                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| cpspin       | S&P Index Primary Marker                    | character[4]         | .cpspin                                   | % cpspin                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| csspii       | S&P Index Subset Identifier                 | character[4]         | .csspii                                   | % csspii                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| csspin       | S&P Index Secondary Identifier              | character[4]         | .csspin                                   | % csspin                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| dnum         | Industry Classification Code                | integer              | .dnum                                     | % dnum                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| dup          | Duplicate File Code                         | integer              | .dup                                      | % dup                                         |                                                                                                                        |                                                                                                                                                                                                                                  |
| ein          | Employer Identification Number              | character[16]        | .ein                                      | % ein                                         |                                                                                                                        |                                                                                                                                                                                                                                  |
| file         | File Identification Code                    | integer              | .file                                     | % file                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| finc         | Incorporation Code – Foreign                | integer              | .finc                                     | % finc                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| fundf        | Fundamental File Codes                      | integer[3]           | .fundf[j]                                 | % fundf[j]                                    | j between 0 and 2                                                                                                      |                                                                                                                                                                                                                                  |
| gics         | Global Industry Classification System       | integer              | .gics                                     | % gics                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| iname        | Industry Name                               | character[64]        | .iname                                    | % iname                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| ipodt        | IPO Date                                    | integer              | .ipodt                                    | % ipodt                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| naics        | North American Industry Code                | character[8]         | .naics                                    | % naics                                       |                                                                                                                        |                                                                                                                                                                                                                                  |
| sdbt         | S&P Senior Debt Rating – Current            | character[4]         | .sdbt                                     | % sdbt                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| sdbtim       | Footnote - S&P Senior Debt Rating – Current | character[4]         | .sdbtim                                   | % sdbtim                                      |                                                                                                                        |                                                                                                                                                                                                                                  |
| smb1         | Stock Ticker Symbol                         | character[16]        | .smb1                                     | % smb1                                        |                                                                                                                        |                                                                                                                                                                                                                                  |
| state        | Company Location Code – State               | integer              | .state                                    | % state                                       |                                                                                                                        |                                                                                                                                                                                                                                  |



Compustat File Variable Usage Table

| Mnemonic  | Name                                      | Data Type         | C Name                            | FORTRAN-95 Name                 | Index Range                                                                                              | Date Usage                                                                                                                                                                                                                                                                                                                                                                  |
|-----------|-------------------------------------------|-------------------|-----------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| stinc     | Incorporation Code – State                | integer           | .stinc                            | % stinc                         |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| stk       | Stock Ownership Code                      | integer           | .stk                              | % stk                           |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| subdbt    | S&P Subordinated Dept Rating – Current    | character[4]      | .subdbt                           | % subdbt                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| xrel      | S&P Industry Index Relative Code          | integer           | .xrel                             | % xrel                          |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| zlist     | Exchange Listing and S&P Major Index Code | integer           | .zlist                            | % zlist                         |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| link      | link-history                              | CRSP_CST_LINK     | cst.descrip.link[i] for one event | cst % descrip % link(i)         | 0 <= i < cst.descrip.link_arr->num (C)<br>1 <= i <= cst % descrip % num_links (F-95)                     | i <sup>th</sup> link valid from cst.descrip.link[i].linkdt through cst.descrip.link[i].linkenddt (C)<br>i <sup>th</sup> link valid from cst % descrip % link(i) % linkdt through cst % descrip % link(i) % linkenddt (F-95)                                                                                                                                                 |
| linkdt    | First Effective Date of Linking Data      | integer           | .linkdt                           | % linkdt                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| linkenddt | Last Effective Date of Linking Data       | integer           | .linkenddt                        | % linkenddt                     |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| linkflag  | CRSP Link Flag                            | character[4]      | .linkflag                         | % linkflag                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| linktype  | CRSP Link Type Flag                       | character[4]      | .linktype                         | % linktype                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| npermco   | CRSP PERMCO link                          | integer           | .npermco                          | % npermco                       |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| npermno   | CRSP PERMNO link                          | integer           | .npermno                          | % npermno                       |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| aperdes   | Annual Period Descriptors                 | CRSP_CST_PERDES * | cst.aperdes[i]                    | cst % aperdes_ts (i)            | cst.aperdes ->beg <=i <= cst.aperdes ->end (C)<br>cst % aperdes % beg <= i <+ cst % aperdes % end (F-95) | i <sup>th</sup> fiscal year ending: cst.aperdes->cal ->caldt[i].<br>i <sup>th</sup> data year: cst.aperdes[i].datyr.<br>i <sup>th</sup> calendar year: cst.aperdes[i].calyr (C)<br>i <sup>th</sup> fiscal year ending: cst % aperdes % cal % caldt(i)<br>i <sup>th</sup> data year: cst % aperdes(i) % datyr<br>i <sup>th</sup> calendar year: cst % aperdes % calyr (F-95) |
| calqtr    | SPC Calendar Quarter                      | integer           | .calqtr                           | % calqtr                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| calyr     | SPC Calendar Year                         | integer           | .calyr                            | % calyr                         |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| candxc    | Canadian Index Code - Current             | integer           | .candxc                           | % candxc                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| datqtr    | Data Quarter                              | integer           | .datqtr                           | % datqtr                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| datyr     | Data Year                                 | integer           | .datyr                            | % datyr                         |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| fiscyr    | Fiscal Yearend Month of Data              | integer           | .fiscyr                           | % fiscyr                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| flowcd    | Format Code (Statement of Cash Flows)     | integer           | .flowcd                           | % flowcd                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| indind    | S&P Industry Index Code - Historical      | integer           | .indind                           | % indind                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| majind    | S&P Major Index Code - Historical         | integer           | .majind                           | % majind                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| peftnt    | Period Descriptor Footnotes               | character[8][4]   | cst.aperdes[i].peftnt[k]          | cst % aperdes_ts (i) % pafnt(k) | k between 0 and 7, 0 to 3 are copies of annual footnote numbers 32 to 35.                                |                                                                                                                                                                                                                                                                                                                                                                             |
| repdt     | Report Date of Quarterly Earnings         | integer           | .repdt                            | % repdt                         |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| spbond    | S&P Senior Debt Rating                    | integer           | .spbond                           | % spbond                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |
| spdebt    | S&P Subordinated Dept Rating              | integer           | .spdebt                           | % spdebt                        |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             |

# CRSP/COMPSTAT MERGED DATABASE GUIDE

## Compustat File Variable Usage Table

| Mnemonic       | Name                                  | Data Type                | C Name                          | FORTRAN-95 Name                        | Index Range                                                                                                                                                                                            | Date Usage                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|---------------------------------------|--------------------------|---------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sppaper        | S&P Commercial Paper Rating           | integer                  | .sppaper                        | % sppaper                              |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| sprank         | S&P Common Stock Ranking              | integer                  | .sprank                         | % sprank                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| srcdoc         | Source Document Code                  | integer                  | .srcdoc                         | % srcdoc                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| upcode         | Update Code                           | integer                  | .upcode                         | % upcode                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>qperdes</b> | <b>Quarterly Period Descriptors</b>   | <b>CRSP_CST_PERDES *</b> | <b>cst.qperdes[i]</b>           | <b>cst % qperdes(i)</b>                | <b>cst.qperdes -&gt;beg &lt;= i &lt;= cst.qperdes -&gt;end (C)<br/>cst % qperdes % beg &lt;= i &lt;+ cst % qperdes % end (F-95)</b>                                                                    | <b>i<sup>th</sup> fiscal year ending: cst.qperdes-&gt;cal -&gt;caldt[i].<br/>i<sup>th</sup> data year: cst.qperdes[i].datyr.<br/>i<sup>th</sup> calendar year: cst.qperdes[i].calyr (C)<br/>i<sup>th</sup> fiscal year ending: cst % qperdes % cal % caldt(i)<br/>i<sup>th</sup> data year: cst % qperdes(i) % datyr<br/>i<sup>th</sup> calendar year: cst % qperdes % calyr (F-95)</b> |
| calqtr         | SPC Calendar Quarter                  | integer                  | .calqtr                         | % calqtr                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| calyr          | SPC Calendar Year                     | integer                  | .calyr                          | % calyr                                |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| candxc         | Canadian Index Code - Current         | integer                  | .candxc                         | % candxc                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| datqtr         | Data Quarter                          | integer                  | .datqtr                         | % datqtr                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| datyr          | Data Year                             | integer                  | .datyr                          | % datyr                                |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| fiscyr         | Fiscal Yearend Month of Data          | integer                  | .fiscyr                         | % fiscyr                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| flowcd         | Format Code (Statement of Cash Flows) | integer                  | .flowcd                         | % flowcd                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| indind         | S&P Industry Index code - Historical  | integer                  | .indind                         | % indind                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| majind         | S&P Major Index Code - Historical     | integer                  | .majind                         | % majind                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>peftnt</b>  | <b>Period Descriptor Footnotes</b>    | <b>character[8][4]</b>   | <b>cst.qperdes[i].peftnt[k]</b> | <b>cst % qperdes_ts(i) % peftnt(k)</b> | <b>0 &lt;= i &lt; 3, 0 &lt;= k &lt;= 8 are in use (C)<br/>1 &lt;= i &lt;= 3, 1 &lt;= k &lt;= 8 are in use (F-95)</b>                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                         |
| repdt          | Report Date of Quarterly Earnings     | integer                  | .repdt                          | % repdt                                |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| spbond         | S&P Senior Debt Rating                | integer                  | .spbond                         | % spbond                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| spdebt         | S&P Subordinated Debt Rating          | integer                  | .spdebt                         | % spdebt                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| sppaper        | S&P Commercial Paper Rating           | integer                  | .sppaper                        | % sppaper                              |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| sprank         | S&P Common Stock Ranking              | integer                  | .sprank                         | % sprank                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| srcdoc         | Source Document Code                  | integer                  | .srcdoc                         | % srcdoc                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| upcode         | Update Code                           | integer                  | .upcode                         | % upcode                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>iaitems</b> | <b>Annual Data Items</b>              | <b>float or real</b>     | <b>cst.iaitems[j][i]</b>        | <b>cst % iaitems_ts(j)(i)</b>          | <b>0 &lt;= j &lt; cst.iaitemtypes, cst.iaitems_ts[beg] &lt;= i &lt;= cst.iaitems_ts[end] (C)<br/>1 &lt;= j &lt;= cst % itemtypes, cst % iaitems_ts(beg) &lt;= i &lt;= cst % iaitems_ts(end) (F-95)</b> | <b>data year ending cst.iaitems_ts[j]-&gt;cal -&gt;caldt[i] (C)<br/>data year ending cst % iaitems_ts(j) % cal % caldt(i) (F-95)</b>                                                                                                                                                                                                                                                    |

Compustat File Variable Usage Table

| Mnemonic | Name                   | Data Type           | C Name                         | FORTRAN-95 Name                         | Index Range                                                                                                                                                                                                                              | Date Usage                                                                                                                              |
|----------|------------------------|---------------------|--------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| iaftnts  | Annual Footnotes       | CRSP_CST_FTNT **    | cst.iaftnts[j][i].ftnt         | cst % iaftnts_ts(j)(i) % ftnt           | 0 <= j <= cst.iaftnttypes, cst.iaftnts_ts[j]->beg <= i <= cst.iaftnts_ts[j]->end (C)<br>1 <= j <= cst % iaftnttypes, cst % iaftnt_ts(j) % beg <= i <= cst % iaftnt_ts(j) % end (F-95)                                                    | data year ending cst.iaftnts_ts[j]->cal->caldt[i] (C)<br>data year ending cst % iaftnts_ts(j) % cal % caldt(i) (F-95)                   |
| iqitems  | Quarterly Data Items   | float or real       | cst.iqitems[j][i]              | cst % iqitems_ts(j)(i)                  | 0 <= j <= cst.iqitemtypes, cst.iqitems_ts[beg] <= i <= cst.iqitems_ts[end] (C)<br>1 <+ j <= cst % itemtypes, cst % iqitems_ts(beg) <= i <= cst % iqitems_ts(end) (F-95)                                                                  | data year ending cst.iqitems_ts[j]->cal->caldt[i] (C)<br>data year ending cst % iqitems_ts(j) % cal % caldt(i) (F-95)                   |
| iqftnts  | Quarterly Footnotes    | CRSP_CST_FTNT **    | cst.iqftnts[j][i].ftnt         | cst % iqftnts_ts(j)(i) % ftnt           | 0 <= j <= cst.iqftnttypes, cst.iqftnts_ts[j]->beg <= i <= cst.iqftnts_ts[j]->end (C)<br>1 <= j <= cst % iqftnttypes, cst % iqftnt_ts(j) % beg <= i <= cst % iqftnt_ts(j) % end (F-95)                                                    | data year ending cst.iqftnts_ts[j]->cal->caldt[i] (C)<br>data year ending cst % iqftnts_ts(j) % cal % caldt(i) (F-95)                   |
| bankann  | Bank Annual Data       | CRSP_BANKANN_STRUCT | cst.bankann                    | cst % bankann                           |                                                                                                                                                                                                                                          |                                                                                                                                         |
| baftnts  | Bank Annual Footnotes  | CRSP_CST_FTNT **    | cst.bankann.baftnts[j][i].ftnt | cst % bankann % baftnts_ts(j)(i) % ftnt | 0 <= j <= baftnttypes, cst.bankann.baftnts_ts[j]->beg <= i <= cst.bankann.baftnts_ts[j] -> end (C)<br>1 <= j <= cst % bankann % baftnttypes, cst % bankann % baftnts_ts(j) % beg <= i <= cst % baftnts_ts(j) % end (F-95)                | data year ending cst.bankann.baftnts_ts[j]->cal->caldt[i] (C)<br>data year ending cst % bankann % baftnts_ts(j) % cal % caldt(i) (F-95) |
| baitems  | Bank Annual Data Items | float or real       | cst.bankann.baitems[j][i]      | cst % bankann % baitems_ts(j)(i)        | 0 <= cst.bankann.baitemtypes, cst.bankann.baitems_ts[j]->beg <= i <= cst.bankann.baitems_ts[j] -> end (C)<br>1 <= cst % bankann % bankitemstypes, cst % bankann % baitems_ts(j) % beg <= i <= cst % bankann % baitems_ts(j) % end (F-95) | data year ending cst.bankann.baitems_ts[j]->cal->caldt[i] (C)<br>data year ending cst % bankqtr % bqitems_ts(j) % cal % caldt(i) (F-95) |
| bankqtr  | Bank Quarterly Data    | CRSP_BANKQTR_STRUCT | cst.bankqtr                    | cst % bankqtr                           |                                                                                                                                                                                                                                          |                                                                                                                                         |

# CRSP/COMPSTAT MERGED DATABASE GUIDE

## Compustat File Variable Usage Table

| Mnemonic       | Name                              | Data Type            | C Name                               | FORTRAN-95 Name                              | Index Range                                                                                                                                                                                                                                                                    | Date Usage                                                                                                                                                                                             |
|----------------|-----------------------------------|----------------------|--------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>bqftnts</b> | Bank Quarterly Footnotes          | CRSP_CST_FTNT **     | cst.bankqtr.bqftnts[j]<br>[i].ftnt   | cst % bankqtr %<br>bqftnts_ts (j) (i) % ftnt | 0 <= j < bqftnttypes,<br>cst.bankqtr.baftnts_ts[j]-<br>>beg <= i <=<br>cst.bankqtr.bqftnts_ts[j]->end<br>(C)<br><br>1 <= j < cst % bankqtr %<br>bqftnttypes, cst %<br>bankqtr % bqftnts_ts(j) %<br>beg <= i <= cst %<br>bqftnts_ts(j) % end<br>(F-95)                          | data year ending<br>cst.bankqtr.bqftnts_ts[j]-<br>>cal->caldt[i] (C)<br><br>data year ending cst % bankqtr %<br>bqftnts_ts(j) % cal %<br>caldt(i) (F-95)                                               |
| <b>bqitems</b> | Bank Quarterly Data Items         | float or real        | cst.bankqtr.bqitems[j]<br>[i]        | cst % bankqtr %<br>bqitems_ts (j) (i)        | 0 <=<br>cst.bankqtr.bqitemtypes,<br>cst.bankqtr.bqitems_ts[j]<br>]->beg <= i <=<br>cst.bankqtr,bqitems_ts<br>[j] -> end (C)<br><br>1 <= cst % bankqtr %<br>bankitemstypes, cst %<br>bankqtr % bqitems_ts(j) %<br>beg <= i <= cst % bankqtr<br>% bqitems_ts(j) % end (F-<br>95) | data year ending<br>cst.bankqtr.bqitems_ts[j]-<br>>cal->caldt[i] (C)<br><br>data year ending cst % bankqtr %<br>bqitems_ts(j) % cal %<br>caldt(i) (F-95)                                               |
| <b>opseg</b>   | Operating Segment Data            | CRSP_CSTOPSEG_STRUCT | cst.opseg.segcur[i].srcy<br>r.srcfyr | cst % opseg % segcur(i) %<br>srcyr % srcfyr  |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>segsrc</b>  | Segment Source Data               | CRSP_CST_SEGSRC      | cst.opseg.segsrc[i]                  | cst % opseg % segsrc (i)                     | 0 <= i <<br>cst.opseg.segsrc_arr<br>->num (C)<br><br>1 <= i <= cst % opseg %<br>segsrc_arr % num (F-95)                                                                                                                                                                        | source data year in<br>cst.opseg.segsrc.srcyr for<br>product cst.opseg.segsrc.pdid (C)<br><br>source data year in cst % opseg %<br>segsrc % srcyr for product<br>cst % opseg % segsrc % pdid<br>(F-95) |
| <b>calyr</b>   | Calendar Year (srcfyr)            | integer              | .calyr                               | % calyr                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>curcd</b>   | ISO Currency Code (USD)           | character[4]         | .curcd                               | % curcd                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>hnaics</b>  | Primary Historical NAICS          | character[8]         | .hnaics                              | % hnaics                                     |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>srccur</b>  | Source ISO Currency Code          | character[4]         | .srccur                              | % srccur                                     |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>srcfyr</b>  | Source Fiscal Year-End Month      | integer              | .srcfyr                              | % srcfyr                                     |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>srcyr</b>   | Source Year                       | integer              | .srcyr                               | % srcyr                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>ssrce</b>   | Source Document Code              | character[4]         | .ssrce                               | % ssrce                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>sucode</b>  | Update Code                       | character[4]         | .sucode                              | % sucode                                     |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>segprod</b> | Segment Product Data              | CRSP_CST_SEGPROD     | cst.opseg.segprod[i]                 | cst % opseg % segprod (i)                    | 0 <= i <<br>cst.opseg.segsrc_arr<br>->num (C)<br><br>1 <= i <= cst % opseg %<br>segsrc_arr % num (F-95)                                                                                                                                                                        | source data year in<br>cst.opseg.segsrc.srcyr for<br>product cst.opseg.segsrc.pdid (C)<br><br>source data year in cst % opseg %<br>segsrc % srcyr for product<br>cst % opseg % segsrc % pdid<br>(F-95) |
| <b>pdid</b>    | Product Identifier                | integer              | .pdid                                | % pdid                                       |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>pnaics</b>  | NAICS Code                        | character[8]         | .pnaics                              | % pnaics                                     |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>pname</b>   | Product Name                      | character[64]        | .pname                               | % pname                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>psale</b>   | External Revenues                 | float or real        | .psale                               | % psale                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |
| <b>psid</b>    | Segment Link – Segment Identifier | integer              | .psid                                | % psid                                       |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |

Compustat File Variable Usage Table

| Mnemonic       | Name                                         | Data Type               | C Name                      | FORTRAN-95 Name                  | Index Range                                                                                                         | Date Usage                                                                                                                                                                                     |
|----------------|----------------------------------------------|-------------------------|-----------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pstype         | Segment Link – Segment Type                  | character[16]           | .pstype                     | % pstype                         |                                                                                                                     |                                                                                                                                                                                                |
| srcfyr         | Source Fiscal Year-End Month                 | integer                 | .srcfyr                     | % srcfyr                         |                                                                                                                     |                                                                                                                                                                                                |
| srcyr          | Source Year                                  | integer                 | .srcyr                      | % srcyr                          |                                                                                                                     |                                                                                                                                                                                                |
| <b>segcust</b> | <b>Segment Customer Data</b>                 | <b>CRSP_CST_SEGCUST</b> | <b>cst.opseg.segcust[i]</b> | <b>cst % opseg % segcust (i)</b> | <b>0 &lt;= i &lt; cst.opseg.segcust_arr -&gt;num (C)<br/>1 &lt;= i &lt;= cst % opseg % segcust_arr % num (F-95)</b> | <b>source data year in cst.opseg.segcust.srcyr for product cst.opseg.segsrc.pdid (C)<br/>source data year in cst % opseg % segcust % srcyr for product cst % opseg % segcust % pdid (F-95)</b> |
| cdid           | Customer Identifier                          | integer                 | .cdid                       | % cdid                           |                                                                                                                     |                                                                                                                                                                                                |
| cgeoar         | Geographic Area Type                         | character[16]           | .cgeoar                     | % cgeoar                         |                                                                                                                     |                                                                                                                                                                                                |
| cgeocd         | Geographic Area Code                         | character[16]           | .cgeocd                     | % cgeocd                         |                                                                                                                     |                                                                                                                                                                                                |
| cname          | Customer Name                                | character[64]           | .cname                      | % cname                          |                                                                                                                     |                                                                                                                                                                                                |
| csale          | Customer Revenues                            | float or real           | .csale                      | % csale                          |                                                                                                                     |                                                                                                                                                                                                |
| csid           | Segment Link – Segment Identifier            | integer                 | .csid                       | % csid                           |                                                                                                                     |                                                                                                                                                                                                |
| cstype         | Segment Link – Segment Type                  | character[16]           | .cstype                     | % cstype                         |                                                                                                                     |                                                                                                                                                                                                |
| ctype          | Customer Type                                | character[16]           | .ctype                      | % ctype                          |                                                                                                                     |                                                                                                                                                                                                |
| srcfyr         | Source Fiscal Year-End Month                 | integer                 | .srcfyr                     | % srcfyr                         |                                                                                                                     |                                                                                                                                                                                                |
| srcyr          | Source Year                                  | integer                 | .srcyr                      | % srcyr                          |                                                                                                                     |                                                                                                                                                                                                |
| <b>segdtl</b>  | <b>Operating Segment Details</b>             | <b>CRSP_CST_SEGDTL</b>  | <b>cst.opseg.segdtl[i]</b>  | <b>cst % opseg % segdtl (i)</b>  | <b>0 &lt;= i &lt; cst.opseg.segdtl_arr -&gt;num (C)<br/>1 &lt;= i &lt;= cst % opseg % segdtl_arr % num (F-95)</b>   | <b>source data year in cst.opseg.segdtl.srcyr for product cst.opseg.segdtl.pdid (C)<br/>source data year in cst % opseg % segdtl % srcyr for product cst % opseg % segdtl % pdid (F-95)</b>    |
| sgeotp         | Geographic Segment Type                      | character[16]           | .sgeotp                     | % sgeotp                         |                                                                                                                     |                                                                                                                                                                                                |
| sid            | Segment Identifier                           | integer                 | .sid                        | % sid                            |                                                                                                                     |                                                                                                                                                                                                |
| sname          | Segment Name                                 | character[256]          | .sname                      | % sname                          |                                                                                                                     |                                                                                                                                                                                                |
| soptp1         | Operating Segment Type 1                     | character[16]           | .soptp1                     | % soptp1                         |                                                                                                                     |                                                                                                                                                                                                |
| soptp2         | Operating Segment Type 2                     | character[16]           | .soptp2                     | % soptp2                         |                                                                                                                     |                                                                                                                                                                                                |
| srcfyr         | Source Fiscal Year-End Month                 | integer                 | .srcfyr                     | % srcfyr                         |                                                                                                                     |                                                                                                                                                                                                |
| srcyr          | Source Year                                  | integer                 | .srcyr                      | % srcyr                          |                                                                                                                     |                                                                                                                                                                                                |
| stype          | Segment Type                                 | character[16]           | .stype                      | % stype                          |                                                                                                                     |                                                                                                                                                                                                |
| <b>segitm</b>  | <b>Operating Segment Variable Data Items</b> | <b>CRSP_CST_SEGITM</b>  | <b>cst.opseg.segitm[i]</b>  | <b>cst % opseg % segitm (i)</b>  | <b>0 &lt;= i &lt; cst.opseg.segitm_arr -&gt;num (C)<br/>1 &lt;= i &lt;= cst % opseg % segitm_arr % num (F-95)</b>   | <b>source data year in cst.opseg.segitm.srcyr for product cst.opseg.segitm.pdid (C)<br/>source data year in cst % opseg % segitm % srcyr for product cst % opseg % segitm % pdid (F-95)</b>    |
| at             | Identifiable/Total Assets                    | float or real           | .at                         | % at                             |                                                                                                                     |                                                                                                                                                                                                |
| calyr          | Data Calendar Year (cyr)                     | integer                 | .calyr                      | % calyr                          |                                                                                                                     |                                                                                                                                                                                                |
| capx           | Capital Expenditures                         | float or real           | .capx                       | % capx                           |                                                                                                                     |                                                                                                                                                                                                |
| capxf          | Footnote 3 – Capital Expenditures            | character[16]           | .capxf                      | % capxf                          |                                                                                                                     |                                                                                                                                                                                                |
| datyr          | Data Year (year)                             | integer                 | .datyr                      | % datyr                          |                                                                                                                     |                                                                                                                                                                                                |
| dp             | Depreciation and Amortization                | float or real           | .dp                         | % dp                             |                                                                                                                     |                                                                                                                                                                                                |

# CRSP/COMPSTAT MERGED DATABASE GUIDE

## Compustat File Variable Usage Table

| Mnemonic        | Name                                  | Data Type                | C Name                        | FORTRAN-95 Name                   | Index Range                                                                                                           | Date Usage                                                                                                                                                                                          |
|-----------------|---------------------------------------|--------------------------|-------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emp             | Employees                             | integer                  | .emp                          | % emp                             |                                                                                                                       |                                                                                                                                                                                                     |
| empf            | Footnote 5 – Employees                | character[16]            | .empf                         | % empf                            |                                                                                                                       |                                                                                                                                                                                                     |
| eqearn          | Equity in Earnings                    | float or real            | .eqearn                       | % eqearn                          |                                                                                                                       |                                                                                                                                                                                                     |
| eqearnf         | Footnote 4 – Equity in Earnings       | character[16]            | .eqearnf                      | % eqearnf                         |                                                                                                                       |                                                                                                                                                                                                     |
| exports         | Export Sales                          | float or real            | .exports                      | % exports                         |                                                                                                                       |                                                                                                                                                                                                     |
| fiscyr          | Data Fiscal Year-End Month (fyr)      | integer                  | .fiscyr                       | % fiscyr                          |                                                                                                                       |                                                                                                                                                                                                     |
| ib              | Income Before Extraordinary Items     | float or real            | .ib                           | % ib                              |                                                                                                                       |                                                                                                                                                                                                     |
| intseg          | Integersegment Eliminations           | float or real            | .intseg                       | % intseg                          |                                                                                                                       |                                                                                                                                                                                                     |
| inveq           | Investments at Equity                 | float or real            | .inveq                        | % inveq                           |                                                                                                                       |                                                                                                                                                                                                     |
| ni              | Net Income (Loss)                     | float or real            | .ni                           | % ni                              |                                                                                                                       |                                                                                                                                                                                                     |
| obklg           | Order Backlog                         | float or real            | .obklg                        | % obklg                           |                                                                                                                       |                                                                                                                                                                                                     |
| oiad            | Operating Income After Depreciation   | float or real            | .oiad                         | % oiad                            |                                                                                                                       |                                                                                                                                                                                                     |
| oibd            | Operating Income Before Depreciation  | float or real            | .oibd                         | % oibd                            |                                                                                                                       |                                                                                                                                                                                                     |
| opinc           | Operating Profit (ops)                | float or real            | .opinc                        | % opinc                           |                                                                                                                       |                                                                                                                                                                                                     |
| opincf          | Footnote 2 – Operating Profit         | character[16]            | .opincf                       | % opincf                          |                                                                                                                       |                                                                                                                                                                                                     |
| pi              | Pretax Income                         | float or real            | .pi                           | % pi                              |                                                                                                                       |                                                                                                                                                                                                     |
| rd              | Research and Development              | float or real            | .rd                           | % rd                              |                                                                                                                       |                                                                                                                                                                                                     |
| rdf             | Footnote 6 – Research and Development | character[16]            | .rdf                          | % rdf                             |                                                                                                                       |                                                                                                                                                                                                     |
| sale            | Net Sales                             | float or real            | .sale                         | % sale                            |                                                                                                                       |                                                                                                                                                                                                     |
| salef           | Footnote 1 – Sales                    | character[16]            | .salef                        | % salef                           |                                                                                                                       |                                                                                                                                                                                                     |
| sid             | Segment Identifier                    | integer                  | .sid                          | % sid                             |                                                                                                                       |                                                                                                                                                                                                     |
| srcfyr          | Source Fiscal Year-End Month          | integer                  | .srcfyr                       | % srcfyr                          |                                                                                                                       |                                                                                                                                                                                                     |
| srcyr           | Source Year                           | integer                  | .srcyr                        | % srcyr                           |                                                                                                                       |                                                                                                                                                                                                     |
| stype           | Segment Type                          | character[16]            | .stype                        | % stype                           |                                                                                                                       |                                                                                                                                                                                                     |
| <b>seгнаics</b> | <b>Operating Segment NAICS Data</b>   | <b>CRSP_CST_SEGNAICS</b> | <b>cst.opseg.seгнаics [i]</b> | <b>cst % opseg % seгнаics (i)</b> | <b>0 &lt;= i &lt; cst.opseg.seгнаics_arr -&gt;num (C)<br/>1 &lt;= i &lt;= cst % opseg % seгнаics_arr % num (F-95)</b> | <b>source data year in cst.opseg.seгнаics.srcyr for product cst.opseg.seгнаics.pdid (C)<br/>source data year in cst % opseg % seгнаics % srcyr for product cst % opseg % seгнаics % pdid (F-95)</b> |
| rank            | Ranking                               | integer                  | .rank                         | % rank                            |                                                                                                                       |                                                                                                                                                                                                     |
| sic             | Segment SIC Code (ssic)               | integer                  | .sic                          | % sic                             |                                                                                                                       |                                                                                                                                                                                                     |
| sid             | Segment Identifier                    | integer                  | .sid                          | % sid                             |                                                                                                                       |                                                                                                                                                                                                     |
| snaics          | NAICS Code                            | character[8]             | .snaics                       | % snaics                          |                                                                                                                       |                                                                                                                                                                                                     |
| srcfyr          | Source Fiscal Year-End Month          | integer                  | .srcfyr                       | % srcfyr                          |                                                                                                                       |                                                                                                                                                                                                     |
| srcyr           | Source Year                           | integer                  | .srcyr                        | % srcyr                           |                                                                                                                       |                                                                                                                                                                                                     |
| stype           | Segment Type                          | character[16]            | .stype                        | % stype                           |                                                                                                                       |                                                                                                                                                                                                     |
| <b>seggeo</b>   | <b>Segment Geographic Area Codes</b>  | <b>CRSP_CST_SEGGEO</b>   | <b>cst.opseg.seggeo [i]</b>   | <b>cst % opseg % seggeo (i)</b>   | <b>0 &lt;= i &lt; cst.opseg.seggeo_arr -&gt;num (C)<br/>1 &lt;= i &lt;= cst % opseg % seggeo_arr % num (F-95)</b>     | <b>source data year in cst.opseg.seggeo.srcyr for product cst.opseg.seggeo.pdid (C)<br/>source data year in cst % opseg % seggeo % srcyr for product cst % opseg % seggeo % pdid (F-95)</b>         |
| sgeocd          | Geographic Area Code                  | character[16]            | .sgeocd                       | % sgeocd                          |                                                                                                                       |                                                                                                                                                                                                     |

Compustat File Variable Usage Table

| Mnemonic        | Name                                           | Data Type                  | C Name                         | FORTRAN-95 Name                 | Index Range                                                                                                                                                                                                 | Date Usage                                                                                                                                                                                                            |
|-----------------|------------------------------------------------|----------------------------|--------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sgeotp          | Geographic Area Type                           | character[16]              | .sgeotp                        | % sgeotp                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| sid             | Segment Identifier                             | integer                    | .sid                           | % sid                           |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| srcfyr          | Source Fiscal Year-End Month                   | integer                    | .srcfyr                        | % srcfyr                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| srcyr           | Source Year                                    | integer                    | .srcyr                         | % srcyr                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| stype           | Segment Type                                   | character[16]              | .stype                         | % stype                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| <b>segcur</b>   | <b>Segment Currency Rate Data</b>              | <b>CRSP_CST_SEGCUR</b>     | <b>cst.opseg.segcur[i]</b>     | <b>cst % opseg % segcur (i)</b> | <b>0 &lt;= i &lt;<br/>cst.opseg.segcur_arr<br/>-&gt;num (C)<br/><br/>1 &lt;= i &lt;= cst % opseg %<br/>segcur_arr % num (F-95)</b>                                                                          | <b>source data year in<br/>cst.opseg.segcur.srcyr for<br/>product cst.opseg.segcur.pdid (C)<br/><br/>source data year in cst % opseg %<br/>segcur % srcyr for propduct<br/>cst % opseg % segcur % pdid<br/>(F-95)</b> |
| calyr           | Data Calendar Year (cyr)                       | integer                    | .calyr                         | % calyr                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| curcd           | ISO currency code (USD)                        | character[4]               | .curcd                         | % curcd                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| srccur          | Source Currency Code                           | character[4]               | .srccur                        | % srccur                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| srcfyr          | Data Fiscal Year-End Month (fyr)               | integer                    | .srcfyr                        | % srcfyr                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| srcyr           | Data Year (year)                               | integer                    | .srcyr                         | % srcyr                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| xrate           | Period-End Exchange Rate                       | double                     | .xrate                         | % xrate                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| xrate12         | 12-month Moving Exchange Rate                  | double                     | .xrate12                       | % xrate12                       |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| <b>indfund</b>  | <b>Index Fundamental Data</b>                  | <b>CRSP_CSTFUND_STRUCT</b> | <b>cst.indfund</b>             | <b>cst % indfund</b>            |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| <b>faperdes</b> | <b>Index Fundamental Annual Period Details</b> | <b>CRSP_CST_FUNDPER*</b>   | <b>cst.indfund.faperdes[i]</b> | <b>cst % indfund % faperdes</b> | <b>cst.indfund.faperdes_ts<br/>&lt;= i &lt;=<br/>cst.indfund.faperdes_ts-<br/>&gt; end (C)<br/><br/>cst % indfund %<br/>faperdes_ts % beg &lt;= i &lt;=<br/>cst % indfund %<br/>faperdes_ts % end (F95)</b> | <b>calendar year ending<br/>cst.indfund.faperdes_ts<br/>-&gt;cal-&gt;caldt[i] (C)<br/><br/>calendar year ending cst %<br/>indfund % faperdes_ts % cal<br/>% caldt(i) (F-95)</b>                                       |
| datqtr          | Data Quarter                                   | integer                    | .datqtr                        | % datqtr                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| datyr           | Data Year                                      | integer                    | .datyr                         | % datyr                         |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| fiscyr          | Fiscal Year End Month                          | integer                    | .fiscyr                        | % fiscyr                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| numcomp         | Number of Companies                            | integer                    | .numcomp                       | % numcomp                       |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| pctrep          | Percent of Equity Reporting                    | integer                    | .pctrep                        | % pctrep                        |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| <b>pde</b>      | <b>Price Dividends and Earnings Data</b>       | <b>CRSP_CSTPDE_STRUCT</b>  | <b>cst.pde</b>                 | <b>cst % pde</b>                |                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| compsta_ftnt    | Comparability Status Footnote                  | CRSP_CST_FTNT              | .compsta_ftnt[i].ftnt          | .compsta_ftnt[i].ftnt_ts        | cst.pde.comsta_ftnt_ts<br>->beg <= i <=<br>cst.pde.comsta_ftnt_ts<br>->end (C)<br><br>cst % pde %<br>compsta_ftnt_ts % beg <= i<br><= cst % pde %<br>compsta_ftnt_ts % end<br>(F-95)                        | month ending<br>cst.pde.comsta_ftnt_ts<br>->cal->caldt[i] (C)<br><br>month ending cst % pde %<br>compsta_ftnt_ts % cal %<br>caldt[i] (F-95)                                                                           |

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## Compustat File Variable Usage Table

| Mnemonic | Name                                                  | Data Type     | C Name            | FORTRAN-95 Name      | Index Range                                                                                                                                                         | Date Usage                                                                                                                           |
|----------|-------------------------------------------------------|---------------|-------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| isa_ftnt | Issue Status Alert Footnote                           | CRSP_CST_FTNT | .isa_ftnt[i].ftnt | .isa_ftnt[i].ftnt_ts | cst.pde.isa_ftnt_ts<br>->beg <= i <=<br>cst.pde.isa_ftnt_ts<br>->end (C)<br><br>cst % pde % isa_ftnt_ts %<br>beg <= i <= cst % pde %<br>isa_ftnt_ts % end<br>(F-95) | month ending<br>cst.pde.isa_ftnt_ts->cal<br>->caldt[i] (C)<br><br>month ending cst % pde %<br>isa_ftnt_ts % cal %<br>caldt[i] (F-95) |
| bkv      | Book Value per Share                                  | float or real | .bkv[i]           | % bkv_ts[i]          | cst.pde.bkv_ts->beg <=i<=<br>cst.pde.bkv_ts->end (C)<br><br>cst % pde % bkv_ts % beg<br><=i<= cst % pde % bkv_ts<br>% end (F-95)                                    | month ending cst.pde.bkv_ts<br>->cal->caldt[i] (C)<br><br>month ending cst % pde %<br>bkv_ts % cal % caldt[i]<br>(F-95)              |
| cheqvm   | Cash Equivalent Distributions<br>per Share by Ex-Date | float or real | .cheqvm[i]        | % cheqvm_ts[i]       | cst.pde.cheqvm_ts->beg <=<br>i <= cst.pde.cheqvm_ts->end (C)<br><br>cst % pde % cheqvm_ts %<br>beg <=i <= cst % pde %<br>cheqvm_ts % end (F-95)                     | month ending<br>cst.pde.cheqvm_ts->cal<br>->caldt[i] (C)<br><br>month ending cst % pde %<br>cheqvm_ts % cal % caldt[i]<br>(F-95)     |
| csfsm    | Common Stock Float Shares                             | float or real | .csfsm[i]         | % csfsm_ts[i]        | cst.pde.csfsm_ts->beg <=i<br><= cst.pde.csfsm_ts->end (C)<br><br>cst % pde % csfsm_ts %<br>beg <=i <= cst % pde %<br>csfsm_ts % end (F-95)                          | month ending<br>cst.pde.csfsm_ts->cal<br>->caldt[i] (C)<br><br>month ending cst % pde %<br>csfsm_ts % cal % caldt[i]<br>(F-95)       |
| cshoq    | Common Shares Outstanding                             | float or real | .cshoq[i]         | % cshoq_ts[i]        | cst.pde.cshoq_ts->beg <=i<br><= cst.pde.cshoq_ts->end (C)<br><br>cst % pde % cshoq_ts %<br>beg <=i <= cst % pde %<br>cshoq_ts % end (F-95)                          | month ending<br>cst.pde.cshoq_ts->cal<br>->caldt[i] (C)<br><br>month ending cst % pde %<br>cshoq_ts % cal % caldt[i]<br>(F-95)       |
| cumadj   | Adjustment Factor (Cumulative)<br>by Ex-Date          | float or real | .cumadj[i]        | % cumadj_ts[i]       | cst.pde.cumadj_ts->beg <=<br>i <= cst.pde.cumadj_ts->end (C)<br><br>cst % pde % cumadj_ts %<br>beg <=i <= cst % pde %<br>cumadj_ts % end (F-95)                     | month ending<br>cst.pde.cumadj_ts->cal<br>->caldt[i] (C)<br><br>month ending cst % pde %<br>cumadj_ts % cal % caldt[i]<br>(F-95)     |
| div      | Dividends per Share                                   | float or real | .div[i]           | % div_ts[i]          | cst.pde.div_ts->beg <=i<=<br>cst.pde.div_ts->end (C)<br><br>cst % pde % div_ts % beg<br><= i <= cst % pde %<br>div_ts % end (F-95)                                  | month ending cst.pde.div_ts<br>->cal->caldt[i] (C)<br><br>month ending cst % pde %<br>div_ts % cal % caldt[i]<br>(F-95)              |



Compustat File Variable Usage Table

| Mnemonic | Name                                  | Data Type     | C Name            | FORTRAN-95 Name          | Index Range                                                                                                                                             | Date Usage                                                                                                                       |
|----------|---------------------------------------|---------------|-------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| div_ftnt | Dividends per Share Footnote          | CRSP_CST_FTNT | .div_ftnt[i].ftnt | % div_ftnt_ts (i) % ftnt | cst.pde.div_ftnt_ts<br>->beg <=i<=cst.pde.<br>div_ftnt_ts-> end (C)<br>cst % pde % div_ftnt_ts %<br>beg <= i <= cst % pde %<br>div_ftnt_ts % end (F-95) | month ending<br>cst.pde.div_ftnt_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde %<br>div_ftnt_ts % cal %<br>caldt[i] (F-95) |
| divrte   | Annualized Dividend Rate              | float or real | .divrte[i]        | % divrte_ts[i]           | cst.pde.divrte_ts->beg <=<br>i<=cst.pde.divrte_ts-> end (C)<br>cst % pde % divrte_ts %<br>beg <= i <= cst % pde %<br>divrte_ts % end (F-95)             | month ending<br>cst.pde.divrte_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde %<br>divrte_ts % cal % caldt[i]<br>(F-95)     |
| epsh12   | Historical Earning per Share          | float or real | .epsh12[i]        | % epsh12_ts[i]           | cst.epsh12.divrte_ts->beg <=<br>i<=cst.pde.epsd12_ts-><br>end (C)<br>cst % pde % epsh12_ts %<br>beg <= i <= cst % pde %<br>epsh12_ts % end (F-95)       | month ending<br>cst.pde.epsh12_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde %<br>epsh12_ts % cal % caldt[i]<br>(F-95)     |
| ern      | Earnings per Share - 12 Months Moving | float or real | .ern[i]           | % ern_ts[i]              | cst.pde.ern_ts->beg <=i<=<br>cst.pde.ern_ts-> end (C)<br>cst % pde % ern_ts % beg<br><= i <= cst % pde %<br>ern_ts % end (F-95)                         | month ending cst.pde.ern_ts<br>->cal->caldt[i] (C)<br>month ending cst % pde %<br>ern_ts % cal % caldt[i]<br>(F-95)              |
| gics     | Global Industry Classification System | integer       | .gics[i]          | % gics_ts[i]             | cst.pde.gics_ts->beg <=i<br><=cst.gics_ts-> end (C)<br>cst % pde % gics_ts % beg<br><= i <= cst % pde %<br>gics_ts % end (F-95)                         | month ending cst.pde.gics_ts-><br>cal<br>->caldt[i] (C)<br>month ending cst % pde %<br>gics_ts % cal % caldt[i]<br>(F-95)        |
| ipodt    | IPO Date                              | integer       | .ipodt[i]         | % ipodt_ts[i]            | cst.pde.ipodt_ts->beg <=i<br><=cst.ipodt_ts-> end (C)<br>cst % pde % ipodt_ts %<br>beg <= i <= cst % pde %<br>ipodt_ts % end (F-95)                     | month ending<br>cst.pde.ipodt_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde %<br>ipodt_ts % cal % caldt[i]<br>(F-95)       |
| navm     | Net Asset Value per Share             | float or real | .navm[i]          | % navm_ts[i]             | cst.pde.navm_ts->beg <=i<br><=cst.navm_ts-> end (C)<br>cst % pde % navm_ts % beg<br><= i <= cst % pde %<br>navm_ts % end (F-95)                         | month ending cst.pde.navm_ts-><br>cal<br>->caldt[i] (C)<br>month ending cst % pde %<br>navm_ts % cal % caldt[i]<br>(F-95)        |

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## Compustat File Variable Usage Table

| Mnemonic    | Name                                                 | Data Type     | C Name               | FORTRAN-95 Name             | Index Range                                                                                                                                         | Date Usage                                                                                                                   |
|-------------|------------------------------------------------------|---------------|----------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| oepls12     | Earning per share from Operations - 12 Months Moving | float or real | .oepls12[i]          | % oepls12_ts[i]             | cst.pde.oepls12_ts->beg <= i <= cst.oepls12_ts->end (C)<br>cst % pde % oepls12_ts % beg <= i <= cst % pde % oepls12_ts % end (F-95)                 | month ending<br>cst.pde.oepls12_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde % oepls12_ts % cal % caldt[i] (F-95)     |
| prcc        | Price - Close                                        | float or real | .prcc[i]             | % prcc_ts[i]                | cst.pde.prcc_ts->beg <= i <= cst.prcc_ts->end (C)<br>cst % pde % prcc_ts % beg <= i <= cst % pde % prcc_ts % end (F-95)                             | month ending cst.pde.prcc_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde % prcc_ts % cal % caldt[i] (F-95)              |
| prch        | Price - High                                         | float or real | .prch[i]             | % prch_ts[i]                | cst.pde.prch_ts->beg <= i <= cst.prch_ts->end (C)<br>cst % pde % prch_ts % beg <= i <= cst % pde % prch_ts % end (F-95)                             | month ending cst.pde.prch_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde % prch_ts % cal % caldt[i] (F-95)              |
| prcl        | Price - Low                                          | float or real | .prcl[i]             | % prcl_ts[i]                | cst.pde.prcl_ts->beg <= i <= cst.prcl_ts->end (C)<br>cst % pde % prcl_ts % beg <= i <= cst % pde % prcl_ts % end (F-95)                             | month ending cst.pde.prcl_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde % prcl_ts % cal % caldt[i] (F-95)              |
| rawadj      | Adjustment Factor (Raw) by Ex-Date                   | float or real | .rawadj[i]           | % rawadj_ts[i]              | cst.pde.rawadj_ts->beg <= i <= cst.rawadj_ts->end (C)<br>cst % pde % rawadj_ts % beg <= i <= cst % pde % rawadj_ts % end (F-95)                     | month ending<br>cst.pde.rawadj_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde % rawadj_ts % cal % caldt[i] (F-95)       |
| rawadj_ftnt | Adjustment Factor (Raw) by Ex-Date Footnote          | CRSP_CST_FTNT | .rawadj_ftnt[i].ftnt | % rawadj_ftnt_ts [i] % ftnt | cst.pde.rawadj_ftnt_ts->beg <= i <= cst.rawadj_ftnt_ts->end (C)<br>cst % pde % rawadj_ftnt_ts % beg <= i <= cst % pde % rawadj_ftnt_ts % end (F-95) | month ending<br>cst.pde.rawadj_ftnt_ts->cal->caldt[i] (C)<br>month ending cst % pde % rawadj_ftnt_ts % cal % caldt[i] (F-95) |
| shstrd      | Common Shares Traded                                 | float or real | .shstrd[i]           | % shstrd_ts [i]             | cst.pde.shstrd_ts->beg <= i <= cst.shstrd_ts->end (C)<br>cst % pde % shstrd_ts % beg <= i <= cst % pde % shstrd_ts % end (F-95)                     | month ending<br>cst.pde.shstrd_ts->cal<br>->caldt[i] (C)<br>month ending cst % pde % shstrd_ts % cal % caldt[i] (F-95)       |

## 7.2 C Sample Programs

CRSP provides four sample programs that can process the CRSP/Compustat Merged Database using C. These programs can load the CRSP stock and indices data structures for processing. The sample program code contains additional comment information. See [system-dependent C programming instructions at the end of this section for instructions to run sample programs on supported systems](#). See [usage tables and data item descriptions in the Compustat's User's Guide, issued by Compustat, for possible data usage](#).

CRSP/Compustat Merged Database and CRSPAccess stock and indices access and utility functions can be used in the same programs for processing. [CRSP stock and indices functions are in the CRSPAccess Programmers Guide](#).

- cst\_samp1.c** *cst\_samp1.c* creates a namelist file containing *gvkey*, *iperm*, *dnum*, *cnum*, *cic*, *smb1*, *comname*, *begyr* and *endyr*, by reading a Compustat database sequentially in *gvkey* order. Output is one line of header information per record. *cst\_samp1.c* accepts parameters for database directory, Compustat set identifier (200), and a user declared output file name.
- cst\_samp2.c** *cst\_samp2.c* reads the CRSP/Compustat Merged Database using a user created input file, *gvkey.dat*. Output is one line of header information per record, identical to *cst\_samp1.c* for each of the *gvkeys* in the input file, plus annual, quarterly, and operating segment sales data. *cst\_samp2.c* accepts parameters for database directory, Compustat set identifier, input file name, and output file name. This program uses functions which convert a fiscal year end calendar to calendar year end calendar.
- cst\_samp3.c** *cst\_samp3.c* reads both CRSP stock data and Compustat fundamental file data, mapping CRSP daily data to Compustat annual data, outputting CRSP price, share, and return data with PERMNO/PERMCO, ticker, and company name with Compustat's annual sales (item no. 12), data year, fiscal year end month, *gvkey*, link type and company name.
- cst\_samp4.c** *cst\_samp4.c* demonstrates the use of the `crsp_cst_read_all` function, by reading available Compustat data for all CRSP PERMNOs and printing the link used array data for all used links.

## 7.3 FORTRAN-95 Sample Programs

CRSP provides three sample programs: *cst\_samp1.f90*, *cst\_fsamp4.f90*, and *cst\_fsamp5.f90*. These programs provide examples for accessing data from the CRSP/Compustat Merged Database using FORTRAN-95. *cst\_fsamp1.f90* and *cst\_fsamp4.f90* are named to correspond with C sample programs of comparable functionality. *cst\_fsamp5.f90* is a new program and presently does not have a corresponding program in C.

*Note that the CRSP/Compustat Merged Database and the CRSP Stock and Indices databases can be used together in the sample programs for processing. Refer to the [CRSP Programmer's Guide](#) for specific information about the CRSP stock and indices functions.*

**cst\_fsamp1.f90** – creates a namelist file containing header information: *gvkey*, *iperm*, *dnum*, *cnum*, *cic*, *smb1*, *comname*, *begyr*, and *endyr*, by reading the CCM database sequentially in *gvkey* order. Output is one line per record.

**cst\_fsamp4.f90** – demonstrates the use of the `cst_read_all` function, by reading available Compustat data sequentially in CRSP PERMNO order for all CRSP PERMNOs and printing the *link-used array* data for all used links. `cst_read_all` serves to read all relevant records for the key in question, collecting as much data for that key as is available in the Compustat.

**cst\_fsamp5.f90** – demonstrates the use of the available access keys. The same data may be retrieved for one security irrespective of the key by which it is accessed. Available access keys include: *gvkey*, *permco*, *dnum*, *cnum*, *cic*, *permno*, *iperm*, *icomp*, and *smb1*.

### 7.4 C Header Files and FORTRAN-95 Include Files

A collection of \*.h files (supporting C programming), and \*.INC files (supporting FORTRAN-95 programming) is included in the CRSPAccess version 2.92 software. These files contain the definitions of all data items and their dependencies which are required to use the CA 2.92 software library. The C and FORTRAN-95 sample programs, included with the software in the Sample folder, provide an introduction to the use of the \*.h and \*.INC files. Using the sample programs as guides, it is possible to develop large-scale software which uses CRSP data and the CRSPAccess environment to perform analyses. Such actions as screening, computation of derived data types, and statistical analysis are supportable through appropriate use of the CRSPAccess databases and the CRSPAccess software library.

The following lists contain summaries of the C Header files and the FORTRAN Include files:

#### C Access

| Header File               | Description                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------|
| <i>crsp_cst.h</i>         | Top level Compustat header file includes all needed header files for CRSPAccess Compustat access |
| <i>crsp_cst_objects.h</i> | Defines top level CRSP_CST_STRUCT structure for Compustat data                                   |
| <i>crsp_objects.h</i>     | Defines all object structures and data array structures for all supported types                  |
| <i>crsp_cst_const.h</i>   | Defines Compustat constants and wanted parameters                                                |
| <i>crsp_const.h</i>       | Defines generic CRSP constants                                                                   |
| <i>crsp_access_cst.h</i>  | Defines Compustat access function prototypes                                                     |
| <i>crsp_util_cst.h</i>    | Defines Compustat utility function prototypes                                                    |
| <i>crsp_cst_sysio.h</i>   | Defines system-specific constraints                                                              |
| <i>crsp_sysio.h</i>       | Defines system-specific constants                                                                |
| <i>crsp_maint.h</i>       | Defines internal data structures                                                                 |

#### Fortran-95

| Header File                    | Description                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------------------|
| <i>all_cst_inc</i>             | Top level Compustat file containing all needed include files for CRSPAccess Compustat Access. |
| <i>crsp_cal.inc</i>            | Defines CRSP calendar structures needed for proper Compustat access                           |
| <i>crsp_cst.inc</i>            | Defines object structures and data array structures for all supported types                   |
| <i>crsp_cst_data_types.inc</i> | Defines Compustat variables                                                                   |
| <i>crsp_cst_params.inc</i>     | Defines Compustat constants and wanted parameters                                             |
| <i>crsp_data_types.inc</i>     | Defines CRSP object structures                                                                |
| <i>crsp_for_unit.inc</i>       | Data structure for managing FORTRAN unit numbers                                              |

## 7.5 CRSP/Compustat Merged Database Access Functions

The following tables list the available C and FORTRAN-95 functions to access the CRSP/Compustat Merged Database. Standard usage is to use an open function, followed by successive reads and a close. Different databases and sets can be processed simultaneously if there is a matching structure defined for each one. [The CRSPAccess Programmers Guide contains functions for the CRSP Stock and Indices data.](#)

### C CRSP/Compustat Merged Database Access Functions

| Function Name                      | Description                                                                   | Page No.   |
|------------------------------------|-------------------------------------------------------------------------------|------------|
| <code>crsp_cst_close</code>        | Closes a CRSP/Compustat Merged Database.                                      | (page 111) |
| <code>crsp_cst_free</code>         | Frees Memory for Allocated Compustat Structures.                              | (page 112) |
| <code>crsp_cst_init</code>         | Initializes Internals for CRSP/Compustat Merged Database.                     | (page 112) |
| <code>crsp_cst_null</code>         | Zeros Out the CST Structure Before its Used.                                  | (page 112) |
| <code>crsp_cst_open</code>         | Opens the CRSP/Compustat Merged Database.                                     | (page 113) |
| <code>crsp_cst_read</code>         | Reads the CRSP/COMPSTAT Merged Database by <code>gvkey</code> .               | (page 114) |
| <code>crsp_cst_read_permco</code>  | Reads COMPSTAT Records for one <code>gvkey</code> by PERMCO.                  | (page 114) |
| <code>crsp_cst_read_dnum</code>    | Reads COMPSTAT Records for one <code>gvkey</code> by <code>dnum</code> .      | (page 115) |
| <code>crsp_cst_read_cnumcic</code> | Reads COMPSTAT Records for one <code>gvkey</code> by <code>cnum cic</code> .  | (page 115) |
| <code>crsp_cst_read_cussic</code>  | Reads COMPSTAT Records for one <code>gvkey</code> by <code>cusip sic</code> . | (page 116) |
| <code>crsp_cst_read_permno</code>  | Reads COMPSTAT Records for one <code>gvkey</code> by PERMNO.                  | (page 116) |
| <code>crsp_cst_read_iperm</code>   | Reads COMPSTAT Records for one <code>gvkey</code> by <code>iperm</code> .     | (page 117) |
| <code>crsp_cst_read_icomp</code>   | Reads COMPSTAT Records for one <code>gvkey</code> by <code>icomp</code> .     | (page 117) |
| <code>crsp_cst_read_smb1</code>    | Reads COMPSTAT Records for one <code>gvkey</code> by <code>smb1</code> .      | (page 118) |
| <code>crsp_cst_read_key</code>     | Reads Compustat Data Using any Supported Secondary Key.                       | (page 119) |
| <code>crsp_cst_read_all</code>     | Reads Composite COMPSTAT Data Based on CRSP Identifiers.                      | (page 120) |

#### `crsp_cst_close` Closes CRSP/Compustat Merged Database

|                       |                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cst_close (int crspnum, int setid, CRSP_CST_STRUCT *cstptr)</code>                                                                                                                                                                                                                                                                              |
| <b>Description:</b>   | Closes a Compustat database previously opened with <code>crsp_cst_open</code> . Closes all files and if opened for write saves new index file and free list.                                                                                                                                                                                                   |
| <b>Arguments:</b>     | <code>crspnum</code> - identifier of CRSP database as returned by <code>open</code><br><code>setid</code> - identifier of Compustat set code, to close<br><code>CRSP_CST_STRUCT *cstptr</code> - pointer to Compustat structure                                                                                                                                |
| <b>Return Values:</b> | CRSP_SUCCESS - If the Compustat database is successfully closed<br>CRSP_FAIL - If there is an error in the parameters, closing files, or it had not been previously opened.                                                                                                                                                                                    |
| <b>Side Effects:</b>  | All set modules are closed, and memory allocated by them are freed. If these are the last modules open in the database, the root is also closed.                                                                                                                                                                                                               |
| <b>Preconditions</b>  | The <code>crspnum</code> must be taken from a previous <code>crsp_cst_open</code> call. The <code>cstnum</code> is defined either as an installation parameter known through the initialization file or a user-defined number assigned when the Compustat set was created. <code>cstnum</code> must have been used in a prior <code>crsp_cst_open</code> call. |
| <b>Call Sequence:</b> | Called by external program. <code>cst_close</code> must be preceded by call to <code>crsp_cst_open</code> .                                                                                                                                                                                                                                                    |

### **crsp\_cst\_free** Frees Memory for Allocated Compustat Structures

|                       |                                                                                                                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cst_free (int crspnum, int setid, CRSP_CST_STRUCT *cst)</code>                                                                                                                                                            |
| <b>Description:</b>   | Deallocates memory and reinitializes a Compustat set structure                                                                                                                                                                           |
| <b>Arguments:</b>     | <code>int crspnum</code> - identifier of crsp database, as returned by <code>open</code><br><code>int setid</code> - identifier of the Compustat set code to close<br><code>CRSP_CST_STRUCT *cst</code> - pointer to Compustat structure |
| <b>Return Values:</b> | <code>CRSP_SUCCESS</code> - if successfully deallocated and reset Compustat structure<br><code>CRSP_FAIL</code> - if error deallocating memory, error in parameters                                                                      |
| <b>Side Effects:</b>  | The Compustat structures are reset so all pointers are null and all settings are 0. All memory allocated to existing object element lists is freed.                                                                                      |
| <b>Preconditions</b>  | The <code>crspnum</code> must be known from a previous <code>crsp_cst_open</code> or <code>crsp_openroot</code> call. The <code>setcode</code> is an installation-defined code for the set.                                              |
| <b>Call Sequence:</b> | Called by external programs or by <code>crsp_cst_close</code> . Must be preceded by call to <code>crsp_cst_open</code> .                                                                                                                 |

### **crsp\_cst\_init** Initializes Internals for CRSP/Compustat Merged Database

|                       |                                                                                                                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cst_init(CRSP_CST_STRUCT*cst)</code>                                                                                                                                                                             |
| <b>Description:</b>   | Initializes Compustat structure. Calls <code>crsp_init</code> to initialize internal structures if needed. It sets all pointers to <code>NULL</code> and <code>loadflag</code> , counts, etc. to 0.                             |
| <b>Arguments:</b>     | <code>cst</code> - A pointer to a Compustat structure if <code>cst</code> is <code>NULL</code> , the function will not do anything.                                                                                             |
| <b>Return Values:</b> | <code>CRSP_SUCCESS</code> - If initialized successfully<br><code>CRSP_FAIL</code> - If there is an error in the parameter, or if an error occurs opening or loading initialization files.                                       |
| <b>Side Effects:</b>  | <code>crsp_init</code> is called if the CRSP database has not already been initialized. Any previously allocated space will be lost. Use <code>crsp_cst_free</code> before calling this function if reinitializing a structure. |
| <b>Preconditions</b>  | None.                                                                                                                                                                                                                           |

### **crsp\_cst\_null** Zeros Out the CST Structure Before it is Used

|                       |                                                                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cst_null (CRSP_CST_STRUCT *cstptr )</code>                                                                                           |
| <b>Description:</b>   | Initializes the <code>cst</code> structure before its used                                                                                          |
| <b>Arguments:</b>     | <code>CRSP_CST_STRUCT *cstptr</code> - pointer to <code>cst</code> structure                                                                        |
| <b>Return Values:</b> | <code>CRSP_SUCCESS</code> - if stock internals successfully initialized<br><code>CRSP_FAIL</code> - if error opening or reading initialization file |
| <b>Side Effects:</b>  | The <code>cst</code> structure will be set to zero according to the <code>loadflag</code> .                                                         |

**crsp\_cst\_open** Opens the CRSP/Compustat Merged Database

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---|-------------------------------------------|-------------|---|---------------------------|-------------|---|------------------------------|------------|---|------------------------------|-------------|----|-----------------------------|-------------|----|---------------------------------|-------------|----|--------------------------------|-------------|-----|-------------------|-------------|-----|----------------------|------------|-----|--------------------|-------------|------|-------------------------|----------|------|-----------------------------------|----------|-----|--------------------------------------------------------------------|---------|------|--------------------------------------------------------------------------------------------------------------|---------|---|-------------------------------|---------|----|------------------------|---------|-----|---------------------------|---------|-----|-------------------------------------------------|
| <b>Prototype:</b>     | int crsp_cst_open (char *root, int setid, CRSP_CST_STRUCT *cstptr, int wanted, char *mode, int bufferflag)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| <b>Description:</b>   | Opens an existing Compustat set in an existing crspdb.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| <b>Arguments:</b>     | <p>CRSP_CST_STRUCT *cstptr – pointer to Compustat structure to be associated with the database. If wanted objects in stkpt are NULL, then space is allocated by this function.</p> <p>char *root - path of root directory of Compustat database</p> <p>int setid - the set identifier of the database. Only one Compustat setid is available, 200.</p> <p>int wanted - a mask indicating which modules will be used. The list below shows the wanted values for the Compustat modules. The wanted values can be summed or summary wanted values can be used to open multiple modules. Only modules that are selected in the wanted parameter have memory allocated in the Compustat structure and only those modules can be accessed in further access functions to the database.</p> <p>Individual modules:</p> <table border="0"> <tr><td>CST_HEAD</td><td>1</td><td>header structures and company descriptors</td></tr> <tr><td>CST_APERDES</td><td>2</td><td>annual period descriptors</td></tr> <tr><td>CST_QPERDES</td><td>4</td><td>quarterly period descriptors</td></tr> <tr><td>CST_IATEMS</td><td>8</td><td>industrial annual data items</td></tr> <tr><td>CST_IAFTNTS</td><td>16</td><td>industrial annual footnotes</td></tr> <tr><td>CST_IQITEMS</td><td>32</td><td>industrial quarterly data items</td></tr> <tr><td>CST_IQFTNTS</td><td>64</td><td>industrial quarterly footnotes</td></tr> <tr><td>CST_BANKANN</td><td>128</td><td>bank annual items</td></tr> <tr><td>CST_BANKQTR</td><td>256</td><td>bank quarterly items</td></tr> <tr><td>CST_OPSEGS</td><td>512</td><td>operating segments</td></tr> <tr><td>CST_INDFUND</td><td>1024</td><td>index fundamental items</td></tr> <tr><td>CST_PDES</td><td>2048</td><td>price dividends and earnings data</td></tr> <tr><td>CST_BANK</td><td>391</td><td>quarterly and annual bank data, plus header and period descriptors</td></tr> <tr><td>CST_ALL</td><td>4096</td><td>all industrial, price, dividend and earnings data, operating segments, all bank and index fundamental items.</td></tr> </table> <p>Group modules:</p> <table border="0"> <tr><td>CST_HDR</td><td>7</td><td>header and period descriptors</td></tr> <tr><td>CST_ANN</td><td>27</td><td>header and annual data</td></tr> <tr><td>CST_QTR</td><td>101</td><td>header and quarterly data</td></tr> <tr><td>CST_IND</td><td>135</td><td>header and industrial annual and quarterly data</td></tr> </table> <p>mode - r, rw, read only, or read/write to an existing Compustat database</p> <p>bufferflag - level of buffering: 0: no buffering, 1: use default, n: use factor of default.</p> | CST_HEAD                                                                                                     | 1 | header structures and company descriptors | CST_APERDES | 2 | annual period descriptors | CST_QPERDES | 4 | quarterly period descriptors | CST_IATEMS | 8 | industrial annual data items | CST_IAFTNTS | 16 | industrial annual footnotes | CST_IQITEMS | 32 | industrial quarterly data items | CST_IQFTNTS | 64 | industrial quarterly footnotes | CST_BANKANN | 128 | bank annual items | CST_BANKQTR | 256 | bank quarterly items | CST_OPSEGS | 512 | operating segments | CST_INDFUND | 1024 | index fundamental items | CST_PDES | 2048 | price dividends and earnings data | CST_BANK | 391 | quarterly and annual bank data, plus header and period descriptors | CST_ALL | 4096 | all industrial, price, dividend and earnings data, operating segments, all bank and index fundamental items. | CST_HDR | 7 | header and period descriptors | CST_ANN | 27 | header and annual data | CST_QTR | 101 | header and quarterly data | CST_IND | 135 | header and industrial annual and quarterly data |
| CST_HEAD              | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | header structures and company descriptors                                                                    |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_APERDES           | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | annual period descriptors                                                                                    |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_QPERDES           | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | quarterly period descriptors                                                                                 |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_IATEMS            | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | industrial annual data items                                                                                 |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_IAFTNTS           | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | industrial annual footnotes                                                                                  |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_IQITEMS           | 32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | industrial quarterly data items                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_IQFTNTS           | 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | industrial quarterly footnotes                                                                               |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_BANKANN           | 128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | bank annual items                                                                                            |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_BANKQTR           | 256                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | bank quarterly items                                                                                         |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_OPSEGS            | 512                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | operating segments                                                                                           |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_INDFUND           | 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | index fundamental items                                                                                      |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_PDES              | 2048                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | price dividends and earnings data                                                                            |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_BANK              | 391                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | quarterly and annual bank data, plus header and period descriptors                                           |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_ALL               | 4096                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | all industrial, price, dividend and earnings data, operating segments, all bank and index fundamental items. |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_HDR               | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | header and period descriptors                                                                                |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_ANN               | 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | header and annual data                                                                                       |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_QTR               | 101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | header and quarterly data                                                                                    |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| CST_IND               | 135                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | header and industrial annual and quarterly data                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| <b>Return Values:</b> | <p>crspnum: (integer) if opened successfully. This crspnum is used in farther access functions to the database.</p> <p>CRSP_FAIL: (integer) if error opening or loading files, if bad parameters, root already opened exclusively, stock set already opened rw, wanted not a subset of set's modules, set does not exist in root, set already opened and structure allocated, error allocating memory for internal or stock structures.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| <b>Side Effects:</b>  | This will load root and stock initialization files if needed, open the root including loading the configuration structure and index structures to memory, opening the address file, and if necessary allocating memory to file buffers, loading the free list, and logging information to the log file. Files will be opened for all wanted modules. Associated calendars will be loaded if necessary. Wanted stock structures will be allocated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |
| <b>Preconditions</b>  | None. The root may already be open under a different set in r mode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                              |   |                                           |             |   |                           |             |   |                              |            |   |                              |             |    |                             |             |    |                                 |             |    |                                |             |     |                   |             |     |                      |            |     |                    |             |      |                         |          |      |                                   |          |     |                                                                    |         |      |                                                                                                              |         |   |                               |         |    |                        |         |     |                           |         |     |                                                 |

## CRSP/COMPSTAT MERGED DATABASE GUIDE

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### **crsp\_cst\_read** Reads the CRSP/Compustat Merged Database by **GVKEY**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cst_read (int crspnum, int setid, int *key, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Description:</b>   | Loads wanted Compustat data for a <code>gvkey</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Arguments:</b>     | <code>int crspnum</code> - crspdb root identifier returned by <code>crsp_cst_open</code><br><code>int setid</code> - the set identifier used in <code>crsp_cst_open</code><br><code>int *key</code> - specific <code>gvkey</code> of data to load, or pointer to integer that will be loaded with the key found if a positional <code>keyflag</code> is used.<br><code>int keyflag</code> - constant to search for the <code>gvkey</code> in <code>*key</code> , or positional constant:<br>CRSP_FIRST - the first key in the database<br>CRSP_PREV - the previous key<br>CRSP_LAST - the last key in the database<br>CRSP_SAME - the same key<br>CRSP_NEXT - the next key<br>CRSP_EXACT - the exact match of the <code>gvkey</code> is being requested<br>CRSP_FORWARD - if specified key does not exist, use next available<br>CRSP_BACK - if specified key does not exist, use previous available<br>CRSP_CST_STRUCT *cstptr - structure to load data<br><code>int wanted</code> - mask of flags indicating which module data to load. See <code>crsp_cst_open</code> for module codes. |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if key not found in root<br>CRSP_FAIL - if error with bad parameters, invalid or unopened <code>crspnum</code> and <code>cstnum</code> , error in <code>read</code> , impossible <code>wanted</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed. If <code>keyflag</code> is a positional qualifier, the actual <code>gvkey</code> found is loaded to <code>*key</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The <code>cstnum</code> and <code>crspnum</code> and <code>cstptr</code> are the same as opened and the wanted must be a subset of or equal to the wanted open.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### **crsp\_cst\_read\_permco** Reads Compustat Records for one **GVKEY** by **PERMCO**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cst_read_permco (int crspnum, int setid, int *permco, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)</code>                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Description:</b>   | Loads wanted Compustat data for a <code>gvkey</code> using <code>PERMCO</code> as the key                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Arguments:</b>     | <code>int crspnum</code> - crspdb root identifier returned by <code>crsp_cst_open</code><br><code>int setid</code> - the set identifier used in <code>crsp_cst_open</code><br><code>int PERMCO</code> - <code>PERMCO</code> to load<br><code>int keyflag</code> - positional qualifier or no match qualifier. See <code>crsp_cst_read</code> for options.<br>CRSP_CST_STRUCT *cstptr - structure to load data<br><code>int wanted</code> - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if <code>PERMCO</code> not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened <code>crspnum</code> and <code>cstnum</code> , error in <code>read</code> , impossible <code>wanted</code> , invalid <code>CUSIP index</code>                                                                                  |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                                                                                                                                                    |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The <code>cstnum</code> and <code>crspnum</code> and <code>cstptr</code> are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                                                                                                              |



**crsp\_cst\_read\_dnum Reads Compustat Records for one GVKEY by DNUM**

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| <b>Prototype:</b>     | int crsp_cst_read_dnum (int crspnum, int setid, int *dnum, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using dnum as the key                                                                                                                                                                                                                                                                                                        |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>int *dnum - dnum to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if dnum not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid CUSIP index                                            |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                           |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                            |

**crsp\_cst\_read\_cnumcic Reads Compustat Records for One GVKEY by CNUM CIC**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | int crsp_cst_read_cnumcic (int crspnum, int setid, char *cnum, char *cic, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                                                  |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using header cnum and cic as the key                                                                                                                                                                                                                                                                                                                                 |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>char cnum - header cnum to load<br>char cic - header cic to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if cnum/cic not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid cnum index                                                                                 |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                                                                   |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                                                                    |

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### **crsp\_cst\_read\_cussic** Reads Compustat Records for One GVKEY by CUSIP SIC

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| <b>Prototype:</b>     | int crsp_cst_read_cussic (int crspnum, int setid, char *cnum, char *cic, int *dnum, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                                                                             |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using header cusipsic as the key                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>char *cnum - header cnum to load<br>char *cic - header cic to load<br>int *dnum - header dnum to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if cnum/cic/dnum not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid cnum index                                                                                                                 |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                                                                                                        |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                                                                                                         |

### **crsp\_cst\_read\_permno** Reads Compustat Records for One GVKEY by PERMNO

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| <b>Prototype:</b>     | int crsp_cst_read_permno (int crspnum, int setid, int *permno, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using PERMNO as the key                                                                                                                                                                                                                                                                                                          |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>int *permno - PERMNO to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if PERMNO not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid CUSIP index                                              |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                               |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                                |

**crsp\_cst\_read\_iperm Reads Compustat Records for One GVKEY by IPERM**

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| <b>Prototype:</b>     | int crsp_cst_read_iperm (int crspnum, int setid, int *iperms, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted data for a gvkey using iperm as the key                                                                                                                                                                                                                                                                                                                    |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>int *iperms - iperm to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if iperm not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid CUSIP index                                              |
| <b>Side Effects:</b>  | Data from the wanted modules is loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                                   |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                               |

**crsp\_cst\_read\_icom Reads Compustat Records for One GVKEY by ICOMP**

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| <b>Prototype:</b>     | int crsp_cst_read_icom (int crspnum, int setid, int *icomps, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                          |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using icomp as the key                                                                                                                                                                                                                                                                                                          |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>int *icomps - icomp to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if icomp not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid CUSIP index                                              |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed                                                                                                                                                                                                                               |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                               |

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### **crsp\_cst\_read\_smb1** Reads Compustat Records for One GVKEY by smb1

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| <b>Prototype:</b>     | int crsp_cst_read_smb1 (int crspnum, int setid, char *smb1, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)                                                                                                                                                                                                                                                                |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using header smb1 as the key                                                                                                                                                                                                                                                                                                         |
| <b>Arguments:</b>     | int crspnum - crspdb root identifier returned by crsp_cst_open<br>int setid - the set identifier used in crsp_cst_open<br>char *smb1 - header smb1 to load<br>int keyflag - positional qualifier or no match qualifier. See crsp_cst_read for options<br>CRSP_CST_STRUCT *cstptr - structure to load data<br>int wanted - mask of flags indicating which module data to load |
| <b>Return Values:</b> | CRSP_SUCCESS - if data loaded successfully<br>CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br>CRSP_NOT_FOUND - if smb1 not found<br>CRSP_FAIL - if error with bad parameters, invalid or unopened crspnum and cstnum, error in read, impossible wanted, invalid smb1 index                                                     |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the structure. The data loaded in the module buffers may be changed.                                                                                                                                                                                                                                   |
| <b>Preconditions</b>  | The Compustat set must be previously opened. The cstnum and crspnum and cstptr are the same as opened and the wanted must be a subset of the wanted open.                                                                                                                                                                                                                    |

**crsp\_cst\_read\_key Reads Compustat Data Using Any Supported Key**

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| <b>Prototype:</b>     | <code>int crsp_cst_read_key (int crspnum, int setid, void *key, int keytype, int keyflag, CRSP_CST_STRUCT *cstptr, int wanted)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Description:</b>   | Reads Compustat data for any supported key.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Arguments:</b>     | <p><code>int setid</code> – the set identifier used in call to <code>crsp_cst_open</code>.</p> <p><code>void *key</code> – pointer to a structure with information about the desired key to load. <code>key</code> must point to a structure compatible with the <code>keytype</code> and <code>keyflag</code> parameters. If <code>keyflag</code> is a key search, the structure must be loaded with information about the key to load. If <code>keyflag</code> is a positional search the <code>key</code> structure will be loaded with the identifier information found.</p> <p>The list below contains the structures used for each of the <code>keytypes</code>. See <code>crsp_const.h</code> for structure definitions.</p> <p><code>int if keytype == CRSP_SCD_NUM</code></p> <p><code>CRSP_SCD_CNUMCIC</code> if <code>keytype == CRSP_SCD_CNUM</code><br/> <code>CRSP_SCD_CST</code> if <code>keytype == CRSP_SCD_CUSIPSIC</code><br/> <code>CRSP_SCD_INT</code> if <code>keytype == CRSP_SCD_PERMNO, CRSP_SCD_PERMCO, CRSP_SCD_IPERM,</code><br/> <code>CRSP_SCD_ICOMP, or CRSP_SCD_SICCD</code><br/> <code>CRSP_SCD_CUS</code> if <code>keytype == CRSP_SCD_TICKER</code></p> <p><code>int crspnum</code> – handle to a CRSPAccess database returned by <code>crsp_cst_open</code>.</p> <p><code>int keytype</code> – code indicating the type of key used to identify the security to read. See the <code>key</code> parameter for structures used to pass <code>key</code> information for each <code>keytype</code>. Possible <code>keyflag</code> codes are:</p> <p><code>CRSP_SCD_NUM</code> – read Compustat data by GVKEY, the primary key<br/> <code>CRSP_SCD_PERMNO</code> – read by link-history PERMNO<br/> <code>CRSP_SCD_PERMCO</code> – read by link-history PERMCO<br/> <code>CRSP_SCD_CNUM</code> – read by CNUM and CIC<br/> <code>CRSP_SCD_CUSIPSIC</code> – read by CNUM, CIC, and DNUM<br/> <code>CRSP_SCD_IPERM</code> – read by header PERMNO IPERM<br/> <code>CRSP_SCD_ICOMP</code> – read by header PERMCO ICOMP<br/> <code>CRSP_SCD_SICCD</code> – read by DNUM<br/> <code>CRSP_SCD_TICKER</code> – read by SMBL</p> <p><code>int keyflag</code> – qualifier for the <code>key</code> searches. <code>keyflag</code> can indicate a search for the identifier specified in <code>key</code>, or can indicate a read based on the current position within the database. Key search qualifiers are:</p> <p><code>CRSP_EXACT</code> - accept only an exact match to user specified key value<br/> <code>CRSP_BACK</code> - accept the sequentially previous key if the specified key does not exist<br/> <code>CRSP_FORWARD</code> - accept the sequentially subsequent key if the specified key does not exist</p> <p>Key positional qualifiers are:</p> <p><code>CRSP_FIRST</code> - the key sequentially first in the database<br/> <code>CRSP_PREV</code> - the key sequentially prior in the database<br/> <code>CRSP_LAST</code> - the key sequentially last in the database<br/> <code>CRSP_SAME</code> - the same key<br/> <code>CRSP_NEXT</code> - the key sequentially subsequent to the current key in the database</p> |
| <b>Arguments:</b>     | <p><code>CRSP_CST_STRUCT *cstptr</code> – Compustat structure to be loaded</p> <p><code>int wanted</code> – mask of flags indicating which module data to load. See <code>crsp_cst_open</code> for module codes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Return Values:</b> | <p><code>CRSP_SUCCESS</code>: if data loaded successfully</p> <p><code>CRSP_EOF</code> - if next or previous key at end or beginning of data, relative to the key in use</p> <p><code>CRSP_NOT_FOUND</code>: if key not found</p> <p><code>CRSP_FOUND_OTHER</code>: if key found but in database but in other <code>setid</code></p> <p><code>CRSP_FAIL</code>: if error in parameters or processing</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Side Effects:</b>  | Data from the wanted modules will be loaded to the proper location in the Compustat structure. The position for the next positional read for the <code>key</code> type is reset based on the key found. If <code>keyflag</code> is a positional qualifier, the actual <code>key</code> found is loaded into the <code>key</code> structure passed. Data is only loaded to wanted data structures within the range of valid data for the company. Use Compustat clear functions to erase previously loaded data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Preconditions:</b> | The Compustat set must be previously opened. The <code>crspnum</code> must be returned from a previous <code>crsp_cst_open</code> call. <code>cstptr</code> must have been passed to a previous <code>crsp_cst_open</code> call. <code>wanted</code> must be a subset of the <code>wanted</code> parameter passed to the <code>crsp_cst_open</code> function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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### crsp\_cst\_read\_all Reads Compustat Records for One GVKEY by smb1

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| <b>Prototype:</b>   | <pre>int crsp_cst_read_all (int crspnum, int setid, int *key, int keytype, int keyflag, CRSP_CST_STRUCT *cst1, CRSP_CST_STRUCT *cst2, int wanted, int overlapflag, CRSP_CAL *mcal)</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Description:</b> | <p>Reads Compustat data based on a CRSP identifier and builds one composite Compustat record from all linking <code>gkveys</code> that corresponds to the CRSP data for seamless processing. The function uses the CRSP Compustat link-history to find all <code>gkveys</code> linked to a CRSP PERMNO or PERMCO. It builds <code>linkused</code> structure built from link records of all <code>gkveys</code> that match the CRSP data. When a composite GVKEY record is generated, the only data included are from the original Compustat records that are applicable to the time ranges used in the link. Fiscal data are included if the fiscal period end is within the calendar link range of the used link. Fiscal data are also included if the fiscal period immediately precedes the calendar link range and the fiscal period end is not attached to another PERMNO in the <code>linkused</code> history. The <code>linkused</code> array is attached to the Compustat record as a reference to which <code>gkveys</code> were used to build the composite record. The <code>linkused</code> array is a <code>CRSP_ARRAY</code> attached to the <code>descrip</code> structure of <code>CRSP_CST_STRUCT</code>. The array structure is a <code>CRSP_CST_LINKS_USED</code> structure defined in <code>crsp_objects.h</code>. The structure is a superset of fields contained in the <code>CRSP_CST_LINK</code> structure. It contains the following fields.</p> <pre>int lgvkey; linkused gvkey int usedflag; 1 = used 0 = not used int npermno; CRSP PERMNO link during this period int npermco; CRSP PERMCO link during this period int linkdt; effective date of this description int linkenddt; last effective date of this description int afylinkdt; fiscal-year based first effective date of this description by passing the annual period descriptors (aperdes) int afylinkenddt; fiscal-year based last effective date of this description by passing the annual period descriptors (aperdes) int qfylinkdt; fiscal-year based first effective date of this description by passing the quarterly period descriptors (qperdes) int qfylinkenddt; fiscal-year based last effective date of this description by passing the quarterly period descriptors (qperdes) char linktype[CRSP_CST_CODE_LEN]; link type char linkflag[CRSP_CST_CODE_LEN]; linking flag int gvkeyenddt; all rows with the same gvkey will be assigned the same gvkeyenddt as the largest linkenddt among those rows with the appropriate gvkey and usedflag = 1</pre> <p>Links are calendar based. For data items based on fiscal year, the function takes fiscal year into account when determining whether a fiscal period has a valid link.</p> <p>This function excludes non-primary links with <code>linktype</code> of LD, LX, LO, or LN. LS <code>linktypes</code> are ignored when using a PERMCO as the <code>keytype</code>, but not when using a PERMNO as the <code>keytype</code>. If the function finds two or more remaining links with the data at the same time, it chooses one based on the <code>overlapflag</code> parameter.</p> |
| <b>Arguments:</b>   | <pre>int crspnum - handle to a CRSPAccess database returned by crsp_cst_open. int setid - the set identifier used in call to crsp_cst_open. int *key - pointer to an integer field with information about the desired key to load. If keyflag is a key search, key must point to the integer key. If keyflag is a positional search the key will be loaded with the identifier information found. The keytype parameter determines whether the key is a CRSP PERMNO or PERMCO. int keytype - code indicating the type of key used to identify the security to read. Possible keyflag codes are: CRSP_SCD_PERMNO - read by link-history PERMNO CRSP_SCD_PERMCO - read by link-history PERMCO</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**crsp\_cst\_read\_all** Reads Compustat Records for One GVKEY by smb1

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <p>int keyflag - qualifier for the key searches. Keyflag can indicate a search for the identifier specified in key, or can indicate a read based on the current position within the database. Key search qualifiers are:</p> <p>CRSP_EXACT - accept only an exact match to user specified key value<br/> CRSP_BACK - accept the sequentially previous key if the specified key does not exist<br/> CRSP_FORWARD - accept the sequentially subsequent key if the specified key does not exist</p> <p>Key positional qualifiers are:</p> <p>CRSP_FIRST - the key sequentially first in the database<br/> CRSP_PREV - the key sequentially prior in the database<br/> CRSP_LAST - the key sequentially last in the database<br/> CRSP_SAME - the same key<br/> CRSP_NEXT - the key sequentially subsequent to the current key in the database<br/> CRSP_CST_STRUCT *cst1 - Compustat structure to be loaded<br/> CRSP_CST_STRUCT *cst2 - Compustat structure to be used as a buffer.</p> <p>int wanted - mask of flags indicating which module data to load. See crsp_cst_open for module codes.</p> |
|                       | <p>int overlapflag n code determining the procedure for handling any periods with overlapping linked data. Possible codes are:</p> <p>CRSP_CST_LINKENDDT (=1) - keep the data for the gvkey with the most recent data linkenddt for an overlapping period<br/> CRSP_CST_LINKDT (=0) - keep the data for the gvkey with the earliest data linkdt for an overlapping period</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                       | <p>CRSP_CAL *mcal - pointer to a monthly calendar to be used for adjusting data</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Return Values:</b> | <p>CRSP_SUCCESS: if data loaded successfully<br/> CRSP_EOF - if next or previous key at end or beginning of data, relative to the key in use<br/> CRSP_NOT_FOUND: if key not found<br/> CRSP_FAIL: if error in parameters or processing</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Side Effects:</b>  | <p>Data from the wanted modules will be loaded to the proper location in the Compustat structure. The position for the next positional read for the key type is reset based on the key found. If keyflag is a positional qualifier, the actual key found is loaded into the key structure passed. Data is only loaded to wanted data structures within the range of valid data for the company. Use Compustat clear functions to erase previously loaded data.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Preconditions</b>  | <p>The Compustat set must be previously opened with at least header and period descriptor modules. The crspnum must be returned from a previous crsp_cst_open call. Both cst1 and cst2 must have been passed to a previous crsp_cst_open call. Wanted must be a subset of the wanted parameter passed to the crsp_cst_open function. The database must have the secondary index for the keytype loaded.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## CRSPAccess Calendar Access Functions

| Function                   | Description                                        | Page       |
|----------------------------|----------------------------------------------------|------------|
| <code>crsp_cal_load</code> | Load a calendar available in a CRSPAccess database | (page 122) |

### `crsp_cal_load` Loads an Existing Calendar

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>CRSP_CAL * crsp_cst_open crspnum, int calid, int loadflag)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Description:</b>   | Returns a pointer to a CRSPAccess calendar available in a database. The database must be previously opened with one of the <code>crsp_stk_open</code> , <code>crsp_ind_open</code> , <code>crsp_cst_open</code> functions. All time-series accessed in a set automatically have their matching calendars loaded, so this function is only needed to access a calendar not already available in the set.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Arguments:</b>     | <p><code>int crspnum</code> – database handle returned by a CRSPAccess open function</p> <p><code>int calid</code> – identifier of the calendar. Currently available calendars are:</p> <p>100 (CRSP_CALID_DAILY) = CRSP Daily Stock Calendar<br/>           101 (CRSP_CALID_MONTHLY) = CRSP Monthly Stock Calendar<br/>           300 (CRSP_CALID_ANNUAL) = CRSP Annual Stock Calendar<br/>           310 (CRSP_CALID_QUARTERLY) = CRSP Quarterly Stock Calendar<br/>           500 (CRSP_CALID_WEEKLY) = CRSP Weekly Stock Calendar</p> <p><code>int loadflag</code> – the types of calendar period data to load. Values can be added to load multiple types:</p> <p>1 (CAL_TYPE_ID) = Calendar ID Lists<br/>           2 (CAL_TYPE_DATE) = Calendar Dates (yyyymmdd)<br/>           4 (CAL_TYPE_DATERNG) = Calendar Date Ranges<br/>           8 (CAL_TYPE_TIME) = Calendar Date and Time<br/>           16 (CAL_TYPE_TIMERNG) = Calendar Date and Time Ranges</p> |
| <b>Return Values:</b> | <p>A pointer to a loaded calendar: if successful. The calendar found is shared by all time-series of that frequency in the database. If changing values in the calendar, use <code>crsp_obj_init_cal</code> and <code>crsp_obj_copy_cal</code> to make a local copy.</p> <p>NULL: if bad parameter, unopened database, or unknown <code>calid</code></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Side Effects:</b>  | The calendar header data and requested calendar period arrays are allocated and loaded only if the calendar is not loaded already. <code>Loadflag</code> in the calendar structure is changed if additional data is loaded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Preconditions:</b> | The database must be opened with a CRSPAccess open function and the <code>calid</code> must be present in the database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |



**Compustat Utility Functions**

The following tables list the available utility functions to manipulate the CRSP/Compustat Merged Database.

**C CRSP/Compustat Merged Database Utility Functions**

| Function Name  | Description                                        | Page No.   |
|----------------|----------------------------------------------------|------------|
| crsp_cst_fyrng | Finds Calendar Ranges for a Fiscal Year or Quarter | (page 123) |
| crsp_cst_fycal | Load a Fiscal Year-End Calendar Array              | (page 123) |

**crsp\_cst\_fyrng Finds Calendar Ranges for a Fiscal Year or Quarter**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | int crsp_cst_fyrng (CRSP_TIMESERIES *perdes_ts, int dindex, int *bdate, int *edate)                                                                                                                                                                                                                                                                                                                       |
| <b>Description:</b>   | Finds and returns the fiscal date range in YYYYMMDD format, for a date index.                                                                                                                                                                                                                                                                                                                             |
| <b>Arguments:</b>     | CRSP_TIMESERIES *perdes_ts - pointer to period descriptor time-series to use to find fiscal year-ends. Annual or quarterly period descriptors can be used<br>int dindex - index into the period descriptor array of the fiscal year<br>int *bdate - pointer to be loaded with calendar date of beginning of fiscal period<br>int *edate - pointer to be loaded with calendar date of end of fiscal period |
| <b>Return Values:</b> | CRSP_SUCCESS - dates successfully set<br>CRSP_FAIL - error in compatibility between calendars or bad parameter                                                                                                                                                                                                                                                                                            |
| <b>Side Effects:</b>  | bdate and edate are loaded with the first and last calendar dates in YYYYMMDD format of the fiscal year or quarter given by the index. They are both set to 0 if the index is out of range of the period descriptor data.                                                                                                                                                                                 |
| <b>Preconditions</b>  | Period descriptors must be loaded for the gvkey within a Compustat crsp_cst_read_* access function.                                                                                                                                                                                                                                                                                                       |
| <b>Call Sequence:</b> |                                                                                                                                                                                                                                                                                                                                                                                                           |

**crsp\_cst\_fycal Loads a Fiscal Year-End Calendar Array**

|                       |                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | int crsp_cst_fycal (CRSP_TIMESERIES *perdes_ts, CRSP_CAL *fycal)                                                                                                                                                                                                                                                                             |
| <b>Description:</b>   | Loads a calendar with dates relative to a company's fiscal year. Used to find fiscal year-ends. Currently only supports annual or quarterly and target calendar must be the same frequency as the period descriptor calendar. For each calendar period, the caldt is set to the calendar date at the end of the corresponding fiscal period. |
| <b>Arguments:</b>     | CRSP_TIMESERIES *perdes_ts - pointer to the period descriptor time-series. Annual or quarterly period descriptors can be used<br>CRSP_CAL *fycal - pointer to the fiscal year calendar to be loaded                                                                                                                                          |
| <b>Return Values:</b> | CRSP_SUCCESS -Calendar successfully loaded<br>CRSP_FAIL - Error in parameters                                                                                                                                                                                                                                                                |
| <b>Side Effects:</b>  | The caldt array of fycal is loaded with the dates relative to the fiscal year for each period                                                                                                                                                                                                                                                |
| <b>Preconditions</b>  | Period descriptor must be loaded for the gvkey with a Compustat crsp_cst_read_* function. fycal must be initialized with an available calendar or crsp_obj_init_cal SO CAL_TYPE_DATE is available.                                                                                                                                           |
| <b>Call Sequence:</b> |                                                                                                                                                                                                                                                                                                                                              |

## CRSPAccess Compustat Fiscal Year Translation Functions

The `crsp_cal_shift` function can be used to convert calendars from fiscal year basis to calendar year basis.

### `crsp_cal_shift` Converts a Fiscal Year Calendar to a Calendar Year

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_cal_shift (CRSP_CAL *cal, CRSP_TIMESERIES *perdes_ts, CRSP_CAL *srccal, CRSP_CAL *trgcal)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Description:</b>   | <p>Copies a fiscal year calendar to a second calendar, using the fiscal year end month in the period descriptor array to convert dates to a calendar basis. Note that When converting fiscal years to dates, <code>crsp_cal_shift</code> further adjusts the calendar date for unused fiscal periods. These are identified by an update code of 0, a source document of 99, or a calendar ending date earlier than a preceding fiscal period. The adjustment resets the calendar period end date to that of the next unaffected period. Calendar linking functions will ignore these adjusted periods by linking only to the last matching period.</p> <p>For annual, quarterly, or monthly calendars, the target is shifted on a monthly basis according to fiscal year end month. Outputs are the last trading date of the month, quarter, or year.</p> <p>For weekly calendars, we find the index for the last trading date in the first week of the fiscal year to which the date belongs. We then try to find the number of trading weeks (the increment of the index) between that calendar date and the last trading day in the first week of the year to which the date belongs. The index for the <code>caldt</code> after the shift = index for the last trading date in the first week of the fiscal year + the increment of index. Lastly, we find the <code>caldt</code> after the shift = <code>caldt[index for the caldt after the shift]</code>.</p> <p>For daily calendars, we first find the index for the first trading date in the fiscal year to which <code>caldt</code> belongs. We then try to find the number of trading days (the increment of the index) between <code>caldt</code> and the first trading day of the year to which <code>caldt</code> belongs. The index for the <code>caldt</code> after the shift = index for the first trading date in the fiscal year + the increment of index. Lastly, we find the <code>caldt</code> after the shift.</p> |
| <b>Arguments:</b>     | <p><code>CRSP_CAL *cal</code> – pointer to a monthly calendar, used to find the trading dates at the end of each month when shifting annual, quarterly, or monthly calendars.</p> <p><code>CRSP_TIMESERIES *perdes_ts</code> – pointer to a Compustat period descriptor time-series. This is used to find the fiscal year-end months needed to convert the dates. It can be either the annual or quarterly period descriptors.</p> <p><code>CRSP_CAL *srccal</code> – pointer to the source calendar. Calendar dates in this calendar are interpreted as fiscal period dates</p> <p><code>CRSP_CAL *trgcal</code> – pointer to the target calendar to load.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Return Values:</b> | <p><code>CRSP_SUCCESS</code>: if data loaded successfully</p> <p><code>CRSP_FAIL</code>: if error in parameters or processing</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Side Effects:</b>  | <code>trgcal</code> is loaded with the shifted calendar data in the <code>caldt</code> array. The target calendar is freed and reinitialized if <code>loadflag</code> or <code>ndays</code> differs from the source calendar. Any existing calendar data is overwritten. The <code>calid</code> of the target calendar is set to the source calendar <code>calid + 1000</code> . The first valid range of the period descriptor array is copied backward to the beginning of the calendar and the last valid range of the period descriptor array is copied forward to the end of the calendar.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Preconditions:</b> | <code>cal</code> , <code>perdes_ts</code> , and <code>srccal</code> must be allocated and loaded with valid data. <code>cal</code> must be a monthly calendar. The period descriptor array can be either annual or quarterly, but the results can differ if the fiscal year end changes for a company. The target calendar structure must be initialized. Use the <code>crsp_obj_init_cal</code> function to initialize a local calendar and the <code>crsp_obj_free_cal</code> function to free the calendar once it is no longer used. The monthly calendar can be a calendar from one of the PDE time-series, if that data is included in the <code>crsp_cst_open</code> , or can be set by calling <code>crsp_cal_load</code> with a <code>calid</code> of <code>CRSP_CALID_MONTHLY</code> and a <code>caltype</code> of <code>CAL_TYPE_DATE</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## CRSPAccess C Compustat Access Functions

### CRSP Calendar Utility Functions

These functions can be used to load stock data with additional options.

#### C Calendar Utility Functions

| Function                       | Description                                           | Page       |
|--------------------------------|-------------------------------------------------------|------------|
| <code>crsp_obj_copy_cal</code> | Copy data from one CRSP calendar structure to another | (page 125) |
| <code>crsp_obj_free_cal</code> | Free memory allocated for a CRSP calendar structure   | (page 127) |
| <code>crsp_obj_init_cal</code> | Initialize and allocate a CRSP calendar structure     | (page 127) |

#### `crsp_obj_copy_cal` Copies a CRSP Calendar Structure

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>int crsp_obj_copy_cal (CRSP_CAL *trgcal, CRSP_CAL *srccal, int caltype, int appendflag, int begind, int endind)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Description:</b>   | Copies a CRSP calendar structure. Can be used to copy all calendar fields or just selected period arrays over a selected range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Arguments:</b>     | <p><code>CRSP_CAL *trgcal</code> – pointer to target calendar structure to load.<br/> <code>CRSP_CAL *srccal</code> – pointer to source calendar structure.</p> <p><code>int caltype</code> – integer binary code indicating which calendar types to copy. The sum of codes can be used to all copy multiple types. The codes are:</p> <p><code>CRSP_CAL_ID (=1)</code> – calendar list<br/> <code>CRSP_CAL_DATE (=2)</code> – calendar dates<br/> <code>CRSP_CAL_DATERANGE (=4)</code> – calendar range<br/> <code>CRSP_CAL_TIME(=8)</code> – times<br/> <code>CRSP_CAL_TIMERANGE (=16)</code> – time range</p> <p><code>int appendflag</code> – integer code determining whether to overlay new data or copy the entire structure. Valid code values are:</p> <p><code>CRSP_COPY_RESET</code> -The source calendar is copied entirely to the target. All header fields are copied directly and all calendar types selected are copied directly.<br/> <code>CRSP_COPY_OVERLAY</code> – Only the period arrays selected are copied to the target calendar.</p> <p><code>int begind</code> – index of first calendar period to copy<br/> <code>int endind</code> – index of second calendar period to copy</p> |
| <b>Return Values:</b> | <p><code>CRSP_SUCCESS</code>: if the target calendar is loaded successfully.<br/> <code>CRSP_FAIL</code>: if bad parameters on incompatible calendars.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Side Effects:</b>  | Data is copied to the target calendar according to parameters. No memory is allocated. Calmap and callink data are not copied.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Preconditions:</b> | Memory must be allocated for all selected <code>caltype</code> fields in the target calendar. The target <code>maxarr</code> must be greater than or equal the source <code>maxarr</code> . If <code>CRSP_COPY_OVERLAY</code> is used and the <code>loadflag</code> is not 0, the <code>ndays</code> must agree.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



**crsp\_obj\_free\_cal** Frees a CRSP Calendar Structure

|                       |                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | int crsp_obj_free_cal (CRSP_CAL **calptr, int free_flag)                                                                                                                                                                                                                                                                            |
| <b>Description:</b>   | Frees memory allocated for a CRSP calendar structure. Can be used to free memory allocated to period arrays or the entire structure.                                                                                                                                                                                                |
| <b>Arguments:</b>     | CRSP_CAL **calptr – pointer to pointer to calendar pointer to free.<br>int free_flag – integer code indicating which parts of the structure to free. Valid code values are:<br>CRSP_FREE_ARR_ONLY (=1) – frees only period arrays in the calendar structure.<br>CRSP_FREE_OBJ_ALL (=0) – frees all periods and the structure itself |
| <b>Return Values:</b> | CRSP_SUCCESS: if the desired arrays are freed successfully.<br>CRSP_FAIL: if wrong structure type, error freeing memory, or invalid flags                                                                                                                                                                                           |
| <b>Side Effects:</b>  | All calendar period types allocated are freed, and loadtype and maxarr are set to 0. If the calmap pointer is not NULL it is also freed. If free_flag is CRSP_OBJ_FREE_ALL, the structure itself is freed. All freed pointers are set to NULL. If calptr is initially NULL the function does nothing and returns CRSP_SUCCESS.      |
| <b>Preconditions:</b> | calptr must be either NULL or point to a pointer to a calendar structure with accurate loadflag settings. The calmap pointer must be NULL if never allocated. Never use this function on a calendar allocated directly with a CRSPAccess open function.                                                                             |

**crsp\_obj\_init\_cal** Initializes a CRSP Calendar Structure

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | int crsp_obj_init_cal (CRSP_CAL **calptr, int maxarr, int caltype, int initflag)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Description:</b>   | Initializes a CRSP calendar structure. Can be used to allocate the structure itself, allocate calendar period type arrays, and initialize values within the structure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Arguments:</b>     | CRSP_CAL **calptr – pointer to pointer to calendar structure pointer to initialize.<br>int maxarr – number of periods to allocate in each calendar type array.<br>int caltype – integer binary code indicating which calendar types to allocate. The sum of codes can be used to allocate multiple types. The codes are<br>CRSP_CAL_ID (=1) – calendar list<br>CRSP_CAL_DATE (=2) – calendar dates<br>CRSP_CAL_DATERANGE (=4) – calendar range<br>CRSP_CAL_TIME (=8) – times<br>CRSP_CAL_TIMERANGE (=16) – time range<br>int initflag – integer code determining the type of initialization. Valid code values are:<br>CRSP_CLEAR_INIT (=1) – initialize all fields in the structure<br>CRSP_CLEAR_RANGE (=2) – add additional calendar types to the loaded structures only |
| <b>Return Values:</b> | CRSP_SUCCESS: if the structure is initialized and desired arrays are allocated successfully.<br>CRSP_FAIL: if bad parameters, error allocating memory, or inconsistent maxarr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Side Effects:</b>  | If calptr is initially NULL it is allocated for maxarr periods with all wanted caltypes. If calptr is already allocated the behavior is determined by initflag. If initflag is CRSP_CLEAR_INIT, all fields are initialized and wanted caltypes are allocated. Any previous information is overwritten. If initflag is CRSP_CLEAR_RANGE, only wanted caltypes not already loaded are allocated. Loadflag is set to reflect the allocated period types.                                                                                                                                                                                                                                                                                                                       |
| <b>Preconditions:</b> | calptr must be either NULL or point to a pointer to a calendar structure with accurate loadflag settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**CRSPAccess C Compustat Utility and General Access Functions**

The CRSP utility library contains several groups of CRSPAccess functions. These are described in the [General Utility and General Access function sections of the CRSPAccess Stock and Indices \*Programmers Guide\*](#).

## FORTRAN-95 CRSP/Compustat Merged Database Access Functions

| Function                      | Description                                                    | Page No.   |
|-------------------------------|----------------------------------------------------------------|------------|
| <code>cst_close</code>        | Closes a CRSP/Compustat Merged Database                        | (page 128) |
| <code>cst_open</code>         | Opens the CRSP/Compustat Merged Database                       | (page 129) |
| <code>cst_read_all</code>     | Reads composite Compustat data based on CRSP permno            | (page 130) |
| <code>cst_read_cnumcic</code> | Reads Compustat records for one gvkey by <code>cnumcic</code>  | (page 130) |
| <code>cst_read_cussic</code>  | Reads Compustat records for one gvkey by <code>cusip</code>    | (page 131) |
| <code>cst_read_dnum</code>    | Reads Compustat records for one gvkey by <code>dnum</code>     | (page 131) |
| <code>cst_read_gvkey</code>   | Reads the CRSP/Compustat Merged Database by <code>gvkey</code> | (page 132) |
| <code>cst_read_icom</code>    | Reads Compustat records for one gvkey by <code>icom</code>     | (page 132) |
| <code>cst_read_iperm</code>   | Reads Compustat records for one gvkey by <code>iperm</code>    | (page 133) |
| <code>cst_read_permco</code>  | Reads Compustat records for one gvkey by <code>permco</code>   | (page 134) |
| <code>cst_read_permno</code>  | Reads Compustat records for one gvkey by <code>permno</code>   | (page 134) |
| <code>csst_read_smb1</code>   | Reads Compustat records for one gvkey by <code>smb1</code>     | (page 135) |

### `cst_close` Closes a CRSP/Compustat Merged Database

|                       |                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_close (cstcrspnum, cstid)</code>                                                                                                                                                                |
| <b>Description:</b>   | Closes a data set in the CRSP/Compustat Merged Database                                                                                                                                                   |
| <b>Arguments:</b>     | <code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code><br><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200) |
| <b>Side Effects:</b>  | All Compustat module files are closed and memory allocated by them is freed.                                                                                                                              |
| <b>Preconditions:</b> | The <code>cstcrspnum</code> and <code>cstid</code> must be taken from a previous invocation of <code>cst_open</code> .                                                                                    |
| <b>Call Sequence:</b> | Called by external programs, must be preceded by invocation of <code>cst_open()</code> .                                                                                                                  |

**cst\_open** Opens the CRSP \ Compustat Merged Database

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
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| <b>Prototype:</b>        | <code>cst_open(cst, cst_path, cstcrspnum, cstid, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <b>Description:</b>      | Opens an existing Compustat data set                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <b>Arguments:</b>        | <p><code>cst</code> – data object to be allocated and loaded<br/> <code>cst_path</code> – location of Compustat data<br/> <code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code><br/> <code>cstid</code> – the set identifier (valid <code>cstid</code> = 200)<br/> <code>cst_wanted</code> – mask of flags indicating which data modules to load<br/> <code>cst_status</code> – returned value indicating success/failure of <code>cst_open()</code></p> <p>Only modules that are specified by the <code>wanted</code> parameter have memory allocated in <code>cst</code>, and only those modules can be accessed in further data retrieval functions from the database. Note that header data is the default value for <code>wanted</code>, and it is included with all other options.</p> <p><b>Individual Modules:</b></p> <table border="0"> <tr><td><code>CST_HEAD</code></td><td>header structure and company descriptors</td></tr> <tr><td><code>CST_APERDES</code></td><td>annual period descriptors</td></tr> <tr><td><code>CST_QPERDES</code></td><td>quarterly period descriptors</td></tr> <tr><td><code>CST_IAITEMS</code></td><td>industrial annual data items</td></tr> <tr><td><code>CST_IAFTNTS</code></td><td>industrial annual footnotes</td></tr> <tr><td><code>CST_IQITEMS</code></td><td>industrial quarterly data items</td></tr> <tr><td><code>CST_IQFTNTS</code></td><td>industrial quarterly footnotes</td></tr> <tr><td><code>CST_BANKANN</code></td><td>bank annual items</td></tr> <tr><td><code>CST_BANKQTR</code></td><td>bank quarterly items</td></tr> <tr><td><code>CST_OPSEGS</code></td><td>operating segments</td></tr> <tr><td><code>CST_INDFUND</code></td><td>index fundamental items</td></tr> <tr><td><code>CST_PDES</code></td><td>prices, dividends, and earnings data</td></tr> <tr><td><code>CST_INDSEGS</code></td><td>industry segment data</td></tr> <tr><td><code>CST_GEOSEGS</code></td><td>geographic segment data</td></tr> <tr><td><code>CST_SIC</code></td><td>SIC data</td></tr> </table> <p><b>Group Modules:</b></p> <table border="0"> <tr><td><code>CST_HDR</code></td><td>header and period descriptors</td></tr> <tr><td><code>CST_ANN</code></td><td>header and annual data</td></tr> <tr><td><code>CST_QTR</code></td><td>header and quarterly data</td></tr> <tr><td><code>CST_IND</code></td><td>header plus industrial annual and industrial quarterly data</td></tr> <tr><td><code>CST_SEG</code></td><td>industry and geographic segments, SIC data</td></tr> <tr><td><code>CST_BANK</code></td><td>quarterly and annual bank data, plus header and period descriptors</td></tr> <tr><td><code>CST_ALL</code></td><td>all industrial, prices, dividends, and earnings data, operating segments, all bank and index fundamental items.</td></tr> </table> | <code>CST_HEAD</code> | header structure and company descriptors | <code>CST_APERDES</code> | annual period descriptors | <code>CST_QPERDES</code> | quarterly period descriptors | <code>CST_IAITEMS</code> | industrial annual data items | <code>CST_IAFTNTS</code> | industrial annual footnotes | <code>CST_IQITEMS</code> | industrial quarterly data items | <code>CST_IQFTNTS</code> | industrial quarterly footnotes | <code>CST_BANKANN</code> | bank annual items | <code>CST_BANKQTR</code> | bank quarterly items | <code>CST_OPSEGS</code> | operating segments | <code>CST_INDFUND</code> | index fundamental items | <code>CST_PDES</code> | prices, dividends, and earnings data | <code>CST_INDSEGS</code> | industry segment data | <code>CST_GEOSEGS</code> | geographic segment data | <code>CST_SIC</code> | SIC data | <code>CST_HDR</code> | header and period descriptors | <code>CST_ANN</code> | header and annual data | <code>CST_QTR</code> | header and quarterly data | <code>CST_IND</code> | header plus industrial annual and industrial quarterly data | <code>CST_SEG</code> | industry and geographic segments, SIC data | <code>CST_BANK</code> | quarterly and annual bank data, plus header and period descriptors | <code>CST_ALL</code> | all industrial, prices, dividends, and earnings data, operating segments, all bank and index fundamental items. |
| <code>CST_HEAD</code>    | header structure and company descriptors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_APERDES</code> | annual period descriptors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_QPERDES</code> | quarterly period descriptors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_IAITEMS</code> | industrial annual data items                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_IAFTNTS</code> | industrial annual footnotes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_IQITEMS</code> | industrial quarterly data items                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_IQFTNTS</code> | industrial quarterly footnotes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_BANKANN</code> | bank annual items                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_BANKQTR</code> | bank quarterly items                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_OPSEGS</code>  | operating segments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_INDFUND</code> | index fundamental items                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_PDES</code>    | prices, dividends, and earnings data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_INDSEGS</code> | industry segment data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_GEOSEGS</code> | geographic segment data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_SIC</code>     | SIC data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_HDR</code>     | header and period descriptors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_ANN</code>     | header and annual data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_QTR</code>     | header and quarterly data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_IND</code>     | header plus industrial annual and industrial quarterly data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_SEG</code>     | industry and geographic segments, SIC data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_BANK</code>    | quarterly and annual bank data, plus header and period descriptors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <code>CST_ALL</code>     | all industrial, prices, dividends, and earnings data, operating segments, all bank and index fundamental items.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <b>Return Values:</b>    | <p><code>CRSP_SUCCESS</code>: if data opened successfully</p> <p><code>CRSP_FAIL</code>: if error with bad parameters (e.g. invalid <code>cst_path</code>, <code>cstid</code>, or <code>cst_wanted</code>)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <b>Side Effects:</b>     | This will open the CRSP database of Compustat data. Files will be opened for all <code>wanted</code> modules. Associated calendars will be loaded if necessary. <code>wanted</code> stock structures will be allocated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |
| <b>Preconditions:</b>    | None. The root may already be open via a previous invocation of <code>cst_open()</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                          |                          |                           |                          |                              |                          |                              |                          |                             |                          |                                 |                          |                                |                          |                   |                          |                      |                         |                    |                          |                         |                       |                                      |                          |                       |                          |                         |                      |          |                      |                               |                      |                        |                      |                           |                      |                                                             |                      |                                            |                       |                                                                    |                      |                                                                                                                 |

## CRSP/COMPSTAT MERGED DATABASE GUIDE

**cst\_read\_all** Reads All Compustat Records for one CRSP permno, creating a composite Compustat record based on all data retrieved

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| <b>Prototype:</b>     | cst_read_all (cstcrspnum, cst, cstid, key, CRSP_SCD_PERMNO, CRSP_NEXT, cst_wanted, CRSP_CST_LINKENDDT, cst_status)                                                                                                                                                                                                                                                                           |
| <b>Description:</b>   | Reads Compustat data for one CRSP permno, accumulating all available Compustat data for that permno via all links for that permno to various Compustat records                                                                                                                                                                                                                               |
| <b>Arguments:</b>     | cstcrspnum - crspdb root identifier returned by cst_open<br>cst - data object to be allocated and loaded<br>cstid - the set identifier used in cst_open (valid cstid = 200)<br>key - CRSP permno<br>cst_wanted - mask of flags indicating which data modules to load<br>cst_status - returned value indicating success/failure of cst_read_all                                               |
| <b>Return Values:</b> | CRSP_NOT_FOUND: if all not found<br>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)<br>CRSP_FAIL: if error with bad parameters, invalid or unopened cstcrspnum, error in read, invalid wanted, invalid permno                                                                                                                                                       |
| <b>Side Effects:</b>  | Data from the cst_wanted modules will be loaded to the proper locations in cst. The position to be used for the next positional read is reset based on the key value found for a successful read. If key_match is a positional qualifier, the actual permno found is loaded to key (permno). Data are loaded only to wanted data structures within the range of valid data for the security. |
| <b>Preconditions:</b> | The set must have been opened previously. cstcrspnum must have been returned from a previous cst_open() invocation. cst must have been passed to a previous cst_open() invocation. cst_wanted must be a subset of the cst_wanted parameter passed to the cst_open() function.                                                                                                                |

**cst\_read\_cnumcic** Reads Compustat Records for one gvkey by CNUM CIC

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | cst_read_cnumcic (cstcrspnum, cst, cstid, cnumcic, key_match, cst_wanted, cst_status)                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using header CNUM and CIC as the key                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Arguments:</b>     | cstcrspnum - crspdb root identifier returned by cst_open<br>cst - data object to be allocated and loaded<br>cstid - the set identifier used in cst_open (valid cstid = 200)<br>cnumcic - CNUMCIC to load<br>key_match - constant to search for cnumcic in key, or positional specification. See cst_read_gvkey for options.<br>cst_wanted - mask of flags indicating which data modules to load<br>cst_status - returned value indicating success/failure of cst_read_cnumcic |
| <b>Return Values:</b> | CRSP_SUCCESS: if data loaded successfully<br>CRSP_NOT_FOUND: if explicit key value not found<br>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)<br>CRSP_FAIL: if error with bad parameters, invalid or unopened cstcrspnum, error in read, invalid wanted, invalid cnum                                                                                                                                                                              |
| <b>Side Effects:</b>  | Data from the cst_wanted modules will be loaded to the proper locations in cst. The position to be used for the next positional read is reset based on the key value found for a successful read. If key_match is a positional qualifier, the actual CNUMCIC found is loaded to cnumcic. Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                      |
| <b>Preconditions:</b> | The set must have been opened previously. cstcrspnum must have been returned from a previous cst_open() invocation. cst must have been passed to a previous cst_open() invocation. cst_wanted must be a subset of the cst_wanted parameter passed to the cst_open() function.                                                                                                                                                                                                 |



**cst\_read\_cussic Reads Compustat Records for one gvkey by CUSSIC**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <b>Prototype:</b>     | <code>cst_read_cussic (cstcrspnum, cst, cstid, cussic, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted Compustat data for a <i>gvkey</i> using header <i>cussic</i> as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>cussic</code> – CUSSIC to load</p> <p><code>key_match</code> – constant to search for <i>cussic</i> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_cussic</code></p> |
| <b>Return Values:</b> | <p>CRSP_SUCCESS: if data loaded successfully</p> <p>CRSP_NOT_FOUND: if explicit key value not found</p> <p>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)</p> <p>CRSP_FAIL: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>cnum</code></p>                                                                                                                                                                                                                                                                                                                                            |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual CUSSIC found is loaded to <code>cussic</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                             |
| <b>Preconditions:</b> | The set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                                 |

**cst\_read\_dnum Reads Compustat Records for one gvkey by DNUM**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_dnum (cstcrspnum, cst, cstid, dnum, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted Compustat data for a <i>gvkey</i> using <i>DNUM</i> as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>dnum</code> – DNUM to load</p> <p><code>key_match</code> – constant to search for the <i>dnum</i> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_dnum</code></p> |
| <b>Return Values:</b> | <p>CRSP_SUCCESS: if data loaded successfully</p> <p>CRSP_NOT_FOUND: if explicit key value is not found</p> <p>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)</p> <p>CRSP_FAIL: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>dnum</code></p>                                                                                                                                                                                                                                                                                                                                     |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual DNUM found is loaded to <code>dnum</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                             |
| <b>Preconditions:</b> | The set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                             |

## **cst\_read\_gvkey** Reads the GCM database by gvkey

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_gvkey(cstcrspnum, cst, cstid, gvkey, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Description:</b>   | :Loads wanted Compustat data for a <code>gvkey</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>gvkey</code> – <code>gvkey</code> of data to load</p> <p><code>key_match</code> – constant to search for the specified <code>gvkey</code> in the <code>gvkey</code> index, or positional constant:</p> <p><code>CRSP_EXACT</code> – match the specified key value exactly</p> <p><code>CRSP_FIRST</code> – read the record of the first key in the database</p> <p><code>CRSP_PREV</code> – read the record of the previous key</p> <p><code>CRSP_LAST</code> – read the record of the last key in the database</p> <p><code>CRSP_SAME</code> – read the record of the most recently read key</p> <p><code>CRSP_NEXT</code> – the next key</p> <p><code>CRSP_FORWARD</code> – if specified key does not exist, use the next available key value</p> <p><code>CRSP_BACK</code> – if specified key does not exist, use the immediately prior key value</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_gvkey</code></p> |
| <b>Return Values:</b> | <p><code>CRSP_SUCCESS</code>: if data loaded successfully</p> <p><code>CRSP_NOT_FOUND</code>: if explicit key value is not found</p> <p><code>CRSP_EOF</code>: if end-of-file/end-of-data is encountered (in sequential read)</p> <p><code>CRSP_FAIL</code>: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>gvkey</code></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual <code>GVKEY</code> read is loaded to <code>gvkey</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Preconditions:</b> | The data set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## **cst\_read\_icom** Reads Compustat Records for one gvkey by ICOMP

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_icom(cstcrspnum, cst, cstid, icom, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Description:</b>   | Loads wanted Compustat data for a <code>gvkey</code> using <code>icom</code> as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>icom</code> – value for which to load Compustat data</p> <p><code>key_match</code> – constant to search for the <code>icom</code> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_icom</code></p> |
| <b>Return Values:</b> | <p><code>CRSP_SUCCESS</code>: if data loaded successfully</p> <p><code>CRSP_NOT_FOUND</code>: if <code>icom</code> not found</p> <p><code>CRSP_EOF</code>: if end-of-file/end-of-data is encountered (in sequential read)</p> <p><code>CRSP_FAIL</code>: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>CUSIP</code></p>                                                                                                                                                                                                                                                                                                                    |

**cst\_read\_icom** Reads Compustat Records for one gvkey by ICOMP

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual ICOMP found is loaded to <code>icom</code> . Data are loaded only to wanted data structures within the range of valid data for the security. |
| <b>Preconditions:</b> | The set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                  |

**cst\_read\_iperm** Reads Compustat Records for one gvkey by IPERM

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_iperm (cstcrspnum, cst, cstid, iperm, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Description:</b>   | Loads wanted Compustat data for a <code>gvkey</code> using <code>iperm</code> as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>iperm</code> – value for which to load Compustat data</p> <p><code>key_match</code> – constant to search for the <code>iperm</code> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_iperm</code></p> |
| <b>Return Values:</b> | <p>CRSP_SUCCESS: if data loaded successfully</p> <p>CRSP_NOT_FOUND: if <code>iperm</code> not found</p> <p>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)</p> <p>CRSP_FAIL: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid CUSIP</p>                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual IPERM found is loaded to <code>iperm</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                                                              |
| <b>Preconditions:</b> | The set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                                                                |

## **cst\_read\_permco** Reads Compustat Records for one gvkey by PERMCO

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_permco (cstcrspnum, cst, cstid, permco, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Description:</b>   | :Loads wanted Compustat data for a gvkey using PERMCO as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – crspdb root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>permco</code> – value for which to load Compustat data</p> <p><code>key_match</code> – constant to search for the <code>permco</code> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_permco</code></p> |
| <b>Return Values:</b> | <p>CRSP_SUCCESS: if data loaded successfully</p> <p>CRSP_NOT_FOUND: if explicit key value is not found</p> <p>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)</p> <p>CRSP_FAIL: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>permco</code></p>                                                                                                                                                                                                                                                                                                                                                            |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual PERMCO found is loaded to <code>permco</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                                                  |
| <b>Preconditions:</b> | The set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                                                      |

## **cst\_read\_permno** Reads Compustat Records for one gvkey by PERMNO

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_permno (cstcrspnum, cst, cstid, permno, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Description:</b>   | Loads wanted Compustat data for a gvkey using PERMNO as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – crspdb root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>permno</code> – value for which to load Compustat data</p> <p><code>key_match</code> – constant to search for the <code>permno</code> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_permno</code></p> |
| <b>Return Values:</b> | <p>CRSP_SUCCESS: if data loaded successfully</p> <p>CRSP_NOT_FOUND: if explicit key value is not found</p> <p>CRSP_EOF: if end-of-file/end-of-data is encountered (in sequential read)</p> <p>CRSP_FAIL: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>permno</code></p>                                                                                                                                                                                                                                                                                                                                                            |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual PERMNO found is loaded to <code>permno</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                                                  |
| <b>Preconditions:</b> | The data set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                                                 |

**cst\_read\_smb1 Reads Compustat Records for one gvkey by SMBL**

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype:</b>     | <code>cst_read_smb1 (cstcrspnum, cst, cstid, smb1, key_match, cst_wanted, cst_status)</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Description:</b>   | Loads wanted Compustat data for a <code>gvkey</code> using <code>smb1</code> as the key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Arguments:</b>     | <p><code>cstcrspnum</code> – <code>crspdb</code> root identifier returned by <code>cst_open</code></p> <p><code>cst</code> – data object to be allocated and loaded</p> <p><code>cstid</code> – the set identifier used in <code>cst_open</code> (valid <code>cstid</code> = 200)</p> <p><code>smb1</code> – value for which to load Compustat data</p> <p><code>key_match</code> – constant to search for the <code>smb1</code> in key, or positional specification. See <code>cst_read_gvkey</code> for options.</p> <p><code>cst_wanted</code> – mask of flags indicating which data modules to load</p> <p><code>cst_status</code> – returned value indicating success/failure of <code>cst_read_smb1</code></p> |
| <b>Return Values:</b> | <p><code>CRSP_SUCCESS</code>: if data loaded successfully</p> <p><code>CRSP_NOT_FOUND</code>: if <code>smb1</code> not found</p> <p><code>CRSP_EOF</code>: if end-of-file/end-of-data is encountered (in sequential read)</p> <p><code>CRSP_FAIL</code>: if error with bad parameters, invalid or unopened <code>cstcrspnum</code>, error in read, invalid wanted, invalid <code>smb1</code></p>                                                                                                                                                                                                                                                                                                                     |
| <b>Side Effects:</b>  | Data from the <code>cst_wanted</code> modules will be loaded to the proper locations in <code>cst</code> . The position to be used for the next positional read is reset based on the key value found for a successful read. If <code>key_match</code> is a positional qualifier, the actual SMBL found is loaded to <code>smb1</code> . Data are loaded only to wanted data structures within the range of valid data for the security.                                                                                                                                                                                                                                                                             |
| <b>Preconditions:</b> | The set must have been opened previously. <code>cstcrspnum</code> must have been returned from a previous <code>cst_open()</code> invocation. <code>cst</code> must have been passed to a previous <code>cst_open()</code> invocation. <code>cst_wanted</code> must be a subset of the <code>cst_wanted</code> parameter passed to the <code>cst_open()</code> function.                                                                                                                                                                                                                                                                                                                                             |

**CRSPAccess FORTRAN Compustat Utility and General Access Functions**

The CRSP utility library contains several groups of CRSPAccess functions. [These are described in the General Utility and General Access function sections of the CRSPAccess Stock and Indices \*Programmers Guide\*.](#)

### 7.6 Programming Notes

#### Using Compustat Dates

Compustat data are grouped by fiscal year, and a data year or quarter is determined by the month in which a company's fiscal year ends. If the fiscal year-end month is May or earlier, data for that year actually applies up to that month of the following year. If the fiscal year-end month is June or later, the data applies to the year ending that month and year. For example, data year 1980 and fiscal year-end month 3 refers to a date range of April 1980, through March 1981, while data year 1980 and fiscal year-end month 8 refers to a date range of September 1979, through August 1980.

The Compustat date translation functions, `crsp_cst_fyrng` and `crsp_cst_fycal`, can be used to translate between fiscal years and quarters in period descriptors to calendar dates. These functions are applicable to annual and quarterly data.

#### Linking CRSP and Compustat Data in Programs

The CRSP Link contains a history of CRSP PERMNO and PERMCO links for each Compustat record. There are several ways the link can be used, but a program should take into account different characteristics of the link data based on the usage. The following paragraphs describe different strategies that can be used.

#### Finding Compustat Data for a CRSP PERMNO

Accessing Compustat using PERMNO can be accomplished in either of two methods:

```
"crsp_cst_read_permno()" (C)
```

```
"cst_read_permno()" (FORTRAN-95)
```

If a CRSP PERMNO is known, the CRSP Link can be used to find any Compustat data corresponding to the PERMNO, which may span multiple `gvkeys`. Use the `*_read_permno` function to find a Compustat `gvkey` containing the PERMNO in its link-history and then check the return value to confirm that the expected PERMNO was found.

Continue using this function with `keyflag (C)` or `key_match (FORTRAN-95)` set to `CRSP_NEXT` until either the key becomes different from the original PERMNO, or the end of the file is reached to retrieve all Compustat `gvkeys` that match the PERMNO

```
"crsp_cst_)read_all()" (C)
```

```
"cst_read_all()" (FORTRAN-95)
```

This function reads Compustat data for one CRSP PERMNO, accumulating all available Compustat data for that PERMNO via all links for that PERMNO to various Compustat records.

**Finding Compustat Data for a CRSP PERMCO**

```
"crsp_cst_read_permco()" (C)
```

```
"cst_read_permco()" (FORTRAN-95)
```

If a CRSP PERMCO is known, the CRSP Link can be used to find any Compustat data corresponding to the company, which may span multiple *gvkeys*. The *gvkey* often only links to a primary security. In these cases, the PERMCO can be used to link by company instead of by security to match additional issues.

Use the `*_read_permco` function to find a Compustat *gvkey* containing the PERMCO in its link-history. Check the return value to confirm that the expected PERMCO was found.

Continue using this function with the `keyflag` (C) or `key_match` (FORTRAN-95) set to `CRSP_NEXT` until either the key becomes different from the original PERMCO, or the end of the file is reached to retrieve all Compustat *gvkeys* that match the PERMCO.

The sample programs, `cst_samp3.c` and `cst_fsamp5.f90` demonstrate usage of PERMCO as an access key.

**Finding CRSP Security Data for a Compustat GVKEY**

```
"crsp_cst_read_gvkey()" (C)
```

```
"cst_read_gvkey()" (FORTRAN-95)
```

If the Compustat *GVKEY* is known, the link-history can be used to find CRSP security data for the company. Use the `*_read_gvkey` function to read the Compustat data. Loop through the link-history array and for each non-zero `npermno` with desired `linktype` call `*_stk_read_permno` with `npermno` as the key to output wanted CRSP data via the PERMNO.

**Finding CRSP Company Data for a Compustat GVKEY**

```
"crsp_cst_read_gvkey()" (C)
```

```
"cst_read_gvkey()" (FORTRAN-95)
```

S&P IMS in most cases chooses a primary security at any given time for a company with multiple classes of stock. To retrieve CRSP data for all available classes, the company link of the link-history should be used.

If the Compustat *gvkey* is known, the link-history can be used to find CRSP company data for the company. Use the `*_read_gvkey` function to read the Compustat data. Loop through the link-history array, and for each non zero `npermco` with desired `linktype`, call with `*_stk_read_permco` with `npermno` as the output wanted CRSP data via the PERMCO. Continue using `*_stk_read_permco` with `keyflag` set to `CRSP_NEXT` until the key becomes different from the original `npermco` or the end of the file is reached to retrieve all securities of the company.

**Linking with IPERM or ICOMP**

We do not recommend using the `iper` and `icom` variables to link with CRSP data. While they are simpler to use than the link-history, historical links may be missed and the `iper`/`icom` identifiers may change as the data gets updated.





## APPENDIX A

## Compustat Data Item Tables

Appendix A contains the Compustat data item numbers, names and footnotes for the Industrial Annual and Quarterly data, the Bank Annual and Quarterly data, and the Annual Index File data items. Descriptions are provided in the [Compustat User's Guide](#) and the Bank Compustat guide.

## Industrial Annual Data Items

| Item Name                                                               | Item Number | Annual Footnote Slot |
|-------------------------------------------------------------------------|-------------|----------------------|
| Accounting Changes - Cumulative Effect                                  | 183         | 49                   |
| Accounts Payable                                                        | 70          | 16                   |
| Accounts Payable & Accrued Liabilities - Inc (Decrease) (St Cash Flows) | 304         |                      |
| Accounts Receivable - Decrease (Increase) (Statement of Cash Flows)     | 302         |                      |
| Accrued Expense                                                         | 153         |                      |
| Accumulated Depreciation of Real Estate Property                        | 390         |                      |
| Accumulated Other Comprehensive Income (Loss)                           | 357         |                      |
| Acquisition - Income Contribution                                       | 248         |                      |
| Acquisition/Merger After-Tax                                            | 361         |                      |
| Acquisition/Merger Basic EPS Effect                                     | 362         |                      |
| Acquisition/Merger Diluted EPS Effect                                   | 363         |                      |
| Acquisition/Merger Pretax                                               | 360         |                      |
| Acquisitions - Sales Contribution                                       | 249         | 37                   |
| Acquisitions (Statement of Cash Flows)                                  | 129         |                      |
| Adjustment Factor (Cumulative) by Ex-Date                               | 27          |                      |
| Adjustment Factor (Cumulative) by Payable Date                          | 202         |                      |
| ADR Ratio                                                               | 234         |                      |
| Advertising Expense                                                     | 45          |                      |
| Amortization of Intangibles                                             | 65          |                      |
| Assets - Other                                                          | 69          |                      |
| Assets - Other - Excluding Deferred Charges                             | 205         |                      |
| Assets - Total (Restated)                                               | 120         |                      |
| Assets - Total/Liabilities and Stockholders' Equity - Total             | 6           | 27                   |
| Assets and Liabilities - Other (Net Change) (Statement of Cash Flows)   | 307         |                      |
| Assets Excluding Discontinued Operations - Other                        | 355         |                      |
| Auditor/Auditor's Opinion                                               | 149         |                      |
| Capital Expenditures (Restated)                                         | 145         |                      |
| Capital Expenditures (Statement of Cash Flows)                          | 128         | 13                   |
| Capital Surplus                                                         | 210         | 40                   |
| Cash                                                                    | 162         |                      |
| Cash & Cash Equivalents - Increase (Decrease) (Statement of Cash Flows) | 274         |                      |
| Cash and Short-Term Investments                                         | 1           |                      |
| Cash Dividends (Statement of Cash Flows)                                | 127         |                      |
| Changes in Current Debt (Statement of Cash Flows)                       | 301         |                      |
| Common Equity - Liquidation Value                                       | 235         |                      |
| Common Equity - Tangible                                                | 11          |                      |
| Common Equity - Total                                                   | 60          |                      |
| Common Shareholders                                                     | 100         |                      |
| Common Shares Issued                                                    | 396         |                      |
| Common Shares Outstanding                                               | 25          |                      |
| Common Shares Reserved for Conversion - Convertible Debt                | 200         |                      |
| Common Shares Reserved for Conversion - Preferred Stock                 | 203         |                      |

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### Industrial Annual Data Items

| Item Name                                                             | Item Number | Annual Footnote Slot |
|-----------------------------------------------------------------------|-------------|----------------------|
| Common Shares Reserved for Conversion - Stock Options                 | 215         |                      |
| Common Shares Reserved for Conversion - Total                         | 40          |                      |
| Common Shares Reserved for Conversion - Warrants and Other            | 229         |                      |
| Common Shares Traded                                                  | 28          |                      |
| Common Shares Used to Calculate Earnings Per Share (Basic)            | 54          |                      |
| Common Shares Used To Calculate Earnings Per Share (Basic) (Restated) | 138         |                      |
| Common Shares Used to Calculate Earnings Per Share (Diluted)          | 171         |                      |
| Common Stock                                                          | 85          | 28                   |
| Common Stock - Per Share Carrying Value                               | 232         |                      |
| Common Stock Equivalents - Dollar Savings                             | 191         |                      |
| Compensating Balance                                                  | 168         |                      |
| Contingent Liabilities - Guarantees                                   | 327         | 48                   |
| Convertible Debt and Preferred Stock                                  | 39          |                      |
| Cost of Goods Sold                                                    | 41          | 2                    |
| Cost of Goods Sold (Restated)                                         | 131         |                      |
| Currency Translation Rate                                             | 228         |                      |
| Current Assets - Discontinued Operations                              | 351         |                      |
| Current Assets - Other                                                | 68          |                      |
| Current Assets - Other - Excluding Prepaid Expenses                   | 195         |                      |
| Current Assets - Total                                                | 4           |                      |
| Current Assets Excluding Discontinued Operations - Other              | 354         |                      |
| Current Liabilities - Other                                           | 72          |                      |
| Current Liabilities - Other - Excluding Accrued Expenses              | 207         |                      |
| Current Liabilities - Total                                           | 5           |                      |
| Debt - Capitalized Lease Obligations                                  | 84          | 19                   |
| Debt - Consolidated Subsidiary                                        | 329         | 46                   |
| Debt - Convertible                                                    | 79          | 19                   |
| Debt - Debentures                                                     | 82          | 19                   |
| Debt - Due in One Year                                                | 44          |                      |
| Debt - Finance Subsidiary                                             | 328         |                      |
| Debt - Maturing In Fifth Year                                         | 94          | 24                   |
| Debt - Maturing In Fourth Year                                        | 93          | 24                   |
| Debt - Maturing In Second Year                                        | 91          | 24                   |
| Debt - Maturing In Third Year                                         | 92          | 24                   |
| Debt - Mortgages and Other Secured                                    | 241         |                      |
| Debt - Notes                                                          | 81          | 19                   |
| Debt - Senior Convertible                                             | 188         | 38                   |
| Debt - Subordinated                                                   | 80          | 19                   |
| Debt - Subordinated Convertible                                       | 154         | 19                   |
| Debt - Unamortized Debt Discount and Other                            | 268         |                      |
| Debt in Current Liabilities                                           | 34          |                      |
| Deferred Charges                                                      | 152         |                      |
| Deferred Compensation                                                 | 358         |                      |
| Deferred Revenue - Current                                            | 356         |                      |
| Deferred Revenue - Long-Term                                          | 397         |                      |
| Deferred Taxes - Federal                                              | 269         |                      |
| Deferred Taxes - Foreign                                              | 270         |                      |
| Deferred Taxes - State                                                | 271         |                      |
| Deferred Taxes (Balance Sheet)                                        | 74          |                      |
| Deferred Taxes (Income Account)                                       | 50          |                      |
| Deferred Taxes (Statement of Cash Flows)                              | 126         |                      |

## Industrial Annual Data Items

| Item Name                                                               | Item Number | Annual Footnote Slot |
|-------------------------------------------------------------------------|-------------|----------------------|
| Deferred Taxes and Investment Tax Credit (Balance Sheet)                | 35          |                      |
| Depletion Expense (Schedule VI)                                         | 174         |                      |
| Depreciation (Accumulated) - Beginning Balance (Schedule VI)            | 220         |                      |
| Depreciation (Accumulated) - Buildings                                  | 253         |                      |
| Depreciation (Accumulated) - Construction in Progress                   | 256         |                      |
| Depreciation (Accumulated) - Ending Balance (Schedule VI)               | 223         |                      |
| Depreciation (Accumulated) - Land and Improvements                      | 251         |                      |
| Depreciation (Accumulated) - Leases                                     | 255         |                      |
| Depreciation (Accumulated) - Machinery and Equipment                    | 254         |                      |
| Depreciation (Accumulated) - Natural Resources                          | 252         |                      |
| Depreciation (Accumulated) - Other                                      | 257         |                      |
| Depreciation (Accumulated) - Other Changes (Schedule VI)                | 222         |                      |
| Depreciation (Accumulated) - Retirements (Schedule VI)                  | 221         |                      |
| Depreciation and Amortization (Income Statement)                        | 14          | 5                    |
| Depreciation and Amortization (Restated)                                | 133         |                      |
| Depreciation and Amortization (Statement of Cash Flows)                 | 125         |                      |
| Depreciation and Amortization of Property                               | 393         |                      |
| Depreciation Expense (Schedule VI)                                      | 103         |                      |
| Depreciation, Depletion and Amortization (Accumulated) (Balance Sheet)  | 196         | 15, 39               |
| Dilution Adjustment                                                     | 319         |                      |
| Dilution Available - Excluding                                          | 322         |                      |
| Discontinued Operations                                                 | 66          |                      |
| Dividends - Common                                                      | 21          |                      |
| Dividends - Preferred                                                   | 19          |                      |
| Dividends - Preferred - In Arrears                                      | 242         |                      |
| Dividends Per Share by Ex-Date                                          | 26          |                      |
| Dividends Per Share by Payable Date                                     | 201         |                      |
| Earnings Per Share (Basic) - Excluding Extraordinary Items              | 58          | 12                   |
| Earnings Per Share (Basic) - Excluding Extraordinary Items (Restated)   | 119         |                      |
| Earnings Per Share (Basic) - Including Extraordinary Items              | 53          | 12                   |
| Earnings Per Share (Basic) - Including Extraordinary Items (Restated)   | 137         |                      |
| Earnings Per Share (Diluted) - Excluding Extraordinary Items            | 57          |                      |
| Earnings Per Share (Diluted) - Excluding Extraordinary Items (Restated) | 139         |                      |
| Earnings Per Share (Diluted) - Including Extraordinary Items            | 169         |                      |
| Earnings Per Share (Diluted) - Including Extraordinary Items (Restated) | 140         |                      |
| Earnings per Share from Operations                                      | 233         | 51                   |
| Earnings per Share from Operations (Diluted)                            | 323         |                      |
| Employees                                                               | 29          | 25                   |
| Employees (Restated)                                                    | 146         |                      |
| Equity in Earnings                                                      | 55          | 18                   |
| Equity In Net Loss (Earnings) (Statement of Cash Flows)                 | 106         |                      |
| Exchange Rate Effect (Statement of Cash Flows)                          | 314         |                      |
| Excise Taxes                                                            | 102         |                      |
| Extraordinary Items                                                     | 192         |                      |
| Extraordinary Items & Discontinued Operations (Statement of Cash Flows) | 124         |                      |
| Extraordinary Items and Discontinued Operations                         | 48          |                      |
| Extraordinary Items and Discontinued Operations (Restated)              | 136         |                      |
| Financing Activities - Net Cash Flow (Statement of Cash Flows)          | 313         |                      |
| Financing Activities - Other (Statement of Cash Flows)                  | 312         |                      |
| Foreign Currency Adjustment (Income Account)                            | 150         | 30                   |
| Format Code (Statement of Cash Flows)                                   | 318         |                      |

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### Industrial Annual Data Items

| Item Name                                                              | Item Number | Annual Footnote Slot |
|------------------------------------------------------------------------|-------------|----------------------|
| Fortune Industry Code - Historical                                     | 278         |                      |
| Fortune Rank                                                           | 279         |                      |
| Funds from Operations - Other (Statement of Cash Flows)                | 217         |                      |
| Funds from Operations - Total (Statement of Changes)                   | 110         |                      |
| Gain/Loss After-Tax                                                    | 365         |                      |
| Gain/Loss Basic EPS Effect                                             | 366         |                      |
| Gain/Loss Diluted EPS Effect                                           | 367         |                      |
| Gain/Loss on Sale of Property                                          | 392         |                      |
| Gain/Loss Pretax                                                       | 364         |                      |
| Goodwill                                                               | 204         |                      |
| Goodwill Amortization                                                  | 394         | 70                   |
| Historical SIC Code                                                    | 324         |                      |
| Impairments of Goodwill After-Tax                                      | 369         |                      |
| Impairments of Goodwill Basic EPS Effect                               | 370         |                      |
| Impairments of Goodwill Diluted EPS Effect                             | 371         |                      |
| Impairments of Goodwill Pretax                                         | 368         |                      |
| Implied Option Expense                                                 | 399         |                      |
| In Process Research & Development                                      | 388         |                      |
| Income Before Extraordinary Items                                      | 18          | 10                   |
| Income Before Extraordinary Items - Adj for Com Stk Equiv - \$ Savings | 20          | 11                   |
| Income Before Extraordinary Items - Available for Common               | 237         |                      |
| Income Before Extraordinary Items (Restated)                           | 118         |                      |
| Income Before Extraordinary Items (Statement of Cash Flows)            | 123         |                      |
| Income Tax Refund                                                      | 161         |                      |
| Income Taxes - Accrued - Increase (Decrease) (Statement of Cash Flows) | 305         |                      |
| Income Taxes - Federal                                                 | 63          | 7                    |
| Income Taxes - Foreign                                                 | 64          | 7                    |
| Income Taxes - Other                                                   | 211         | 7                    |
| Income Taxes - State                                                   | 173         | 7                    |
| Income Taxes - Total                                                   | 16          | 9                    |
| Income Taxes - Total (Restated)                                        | 135         |                      |
| Income Taxes Paid (Statement of Cash Flows)                            | 317         |                      |
| Income Taxes Payable                                                   | 71          | 19                   |
| Increase in Investments (Statement of Cash Flows)                      | 113         |                      |
| Intangibles                                                            | 33          |                      |
| Intangibles - Other                                                    | 352         |                      |
| Interest Capitalized                                                   | 147         |                      |
| Interest Capitalized - Net Income Effect                               | 239         |                      |
| Interest Expense                                                       | 15          | 6                    |
| Interest Expense - Total (Financial Services)                          | 339         |                      |
| Interest Expense on Long-Term Debt                                     | 101         |                      |
| Interest Expenses (Restated)                                           | 134         |                      |
| Interest Income                                                        | 62          |                      |
| Interest Income - Total (Financial Services)                           | 321         |                      |
| Interest Paid - Net (Statement of Cash Flows)                          | 315         |                      |
| Inventories - Finished Goods                                           | 78          |                      |
| Inventories - LIFO Reserve                                             | 240         |                      |
| Inventories - Other                                                    | 186         |                      |
| Inventories - Raw Materials                                            | 76          |                      |
| Inventories - Total                                                    | 3           |                      |
| Inventories - Work in Progress                                         | 77          |                      |

## Industrial Annual Data Items

| Item Name                                                      | Item Number | Annual Footnote Slot |
|----------------------------------------------------------------|-------------|----------------------|
| Inventory - Decrease (Increase) (Statement of Cash Flows)      | 303         |                      |
| Inventory Valuation Method                                     | 59          |                      |
| Invested Capital - Total                                       | 37          |                      |
| Investing Activities - Net Cash Flow (Statement of Cash Flows) | 311         |                      |
| Investing Activities - Other (Statement of Cash Flows)         | 310         | 8                    |
| Investment Tax Credit (Balance Sheet)                          | 208         |                      |
| Investment Tax Credit (Income Account)                         | 51          |                      |
| Investments and Advances - Equity Method                       | 31          |                      |
| Investments and Advances - Other                               | 32          |                      |
| Labor and Related Expense                                      | 42          | 22                   |
| Liabilities - Other                                            | 75          |                      |
| Liabilities - Total                                            | 181         |                      |
| Long - Term Debt - Other                                       | 83          | 19                   |
| Long-Term Assets of Discontinued Operations                    | 353         |                      |
| Long-Term Debt - Issuance (Statement of Cash Flows)            | 111         |                      |
| Long-Term Debt - Reduction (Statement of Cash Flows)           | 114         |                      |
| Long-Term Debt - Tied to Prime                                 | 148         | 19                   |
| Long-Term Debt - Total                                         | 9           | 20                   |
| Long-Term Debt - Total (Restated)                              | 142         |                      |
| Marketable Securities Adjustment (Balance Sheet)               | 238         |                      |
| Minority Interest (Balance Sheet)                              | 38          |                      |
| Minority Interest (Income Account)                             | 49          |                      |
| Minority Interest (Restated)                                   | 225         |                      |
| Net Charge-Offs                                                | 349         |                      |
| Net Income (Loss)                                              | 172         | 10                   |
| Net Income (Loss) (Restated)                                   | 177         |                      |
| Net Income Adjusted for Common Stock Equivalents               | 258         |                      |
| Net Interest Income (Tax Equivalent)                           | 340         |                      |
| Net Interest Margin                                            | 344         |                      |
| Net Operating Loss Carry Forward - Unused Portion              | 52          |                      |
| Non-Operating Income (Expense)                                 | 61          |                      |
| Non-Operating Income (Expense) - Excluding Interest Income     | 190         |                      |
| Non-Operating Income (Expense) (Restated)                      | 224         |                      |
| Non-performing Assets - Total                                  | 341         |                      |
| Notes Payable                                                  | 206         |                      |
| Operating Activities - Net Cash Flow (Statement of Cash Flows) | 308         |                      |
| Operating Income After Depreciation                            | 178         | 36                   |
| Operating Income Before Depreciation                           | 13          |                      |
| Order Backlog                                                  | 98          |                      |
| Pension - Accumulated Benefit Obligation (Overfunded)          | 285         |                      |
| Pension - Accumulated Benefit Obligation (Underfunded)         | 293         |                      |
| Pension - Additional Minimum Liability (Underfunded)           | 298         |                      |
| Pension - Other Adjustments (Overfunded)                       | 289         |                      |
| Pension - Other Adjustments (Underfunded)                      | 299         |                      |
| Pension - Prepaid/Accrued Cost (Overfunded)                    | 290         | 43                   |
| Pension - Prepaid/Accrued Cost (Underfunded)                   | 300         | 44                   |
| Pension - Projected Benefit Obligation (Overfunded)            | 286         |                      |
| Pension - Projected Benefit Obligation (Underfunded)           | 294         |                      |
| Pension - Unrecognized Prior Service Cost (Overfunded)         | 288         |                      |
| Pension - Unrecognized Prior Service Cost (Underfunded)        | 297         |                      |
| Pension - Vested Benefit Obligation (Overfunded)               | 284         |                      |

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### Industrial Annual Data Items

| Item Name                                                           | Item Number | Annual Footnote Slot |
|---------------------------------------------------------------------|-------------|----------------------|
| Pension - Vested Benefit Obligation (Underfunded)                   | 291         |                      |
| Pension and Retirement Expense                                      | 43          |                      |
| Pension Benefits - Information Date                                 | 247         |                      |
| Pension Benefits - Net Assets                                       | 245         |                      |
| Pension Benefits - Present Value of Nonvested                       | 244         |                      |
| Pension Benefits - Present Value of Vested                          | 243         |                      |
| Pension Costs - Unfunded Past or Prior Service                      | 90          |                      |
| Pension Costs - Unfunded Vested Benefits                            | 89          |                      |
| Pension Discount Rate (Assumed Rate of Return)                      | 246         |                      |
| Pension Plan Assets (Overfunded)                                    | 287         |                      |
| Pension Plan Assets (Underfunded)                                   | 296         |                      |
| Pension Plans - Anticipated Long-Term Rate of Return on Plan Assets | 336         |                      |
| Pension Plans - Interest Cost                                       | 332         |                      |
| Pension Plans - Other Periodic Cost Components (Net)                | 334         |                      |
| Pension Plans - Rate of Compensation Increase                       | 335         |                      |
| Pension Plans - Return on Plan Assets (Actual)                      | 333         |                      |
| Pension Plans - Service Cost                                        | 331         |                      |
| Periodic Pension Cost (Net)                                         | 295         |                      |
| Periodic Postretirement Benefit Cost (Net)                          | 292         |                      |
| Postretirement Benefit Asset (Liability) (Net)                      | 330         |                      |
| Preferred Stock - Carrying Value                                    | 130         |                      |
| Preferred Stock - Convertible                                       | 214         |                      |
| Preferred Stock - Liquidating Value                                 | 10          | 26                   |
| Preferred Stock - Nonredeemable                                     | 209         |                      |
| Preferred Stock - Redeemable                                        | 175         |                      |
| Preferred Stock - Redemption Value                                  | 56          | 26                   |
| Prepaid Expense                                                     | 160         |                      |
| Pretax Income                                                       | 170         |                      |
| Pretax Income - Domestic                                            | 272         | 42                   |
| Pretax Income - Foreign                                             | 273         | 42                   |
| Pretax Income (Restated)                                            | 122         |                      |
| Price - Fiscal Year - Low                                           | 198         |                      |
| Price - Close                                                       | 24          |                      |
| Price - Fiscal Year - Close                                         | 199         |                      |
| Price - Fiscal Year - High                                          | 197         |                      |
| Price - High                                                        | 22          |                      |
| Price - Low                                                         | 23          |                      |
| Property, Plant, and Equipment - Beginning Balance (Schedule V)     | 182         |                      |
| Property, Plant, and Equipment - Buildings (Net)                    | 155         |                      |
| Property, Plant, and Equipment - Buildings at Cost                  | 263         |                      |
| Property, Plant, and Equipment - Capital Expenditures (Schedule V)  | 30          |                      |
| Property, Plant, and Equipment - Construction in Progress (Net)     | 73          |                      |
| Property, Plant, and Equipment - Construction in Progress at Cost   | 266         |                      |
| Property, Plant, and Equipment - Ending Balance (Schedule V)        | 187         |                      |
| Property, Plant, and Equipment - Land and Improvements (Net)        | 158         |                      |
| Property, Plant, and Equipment - Land and Improvements at Cost      | 260         |                      |
| Property, Plant, and Equipment - Leases (Net)                       | 159         |                      |
| Property, Plant, and Equipment - Leases at Cost                     | 265         |                      |
| Property, Plant, and Equipment - Machinery and Equipment (Net)      | 156         |                      |
| Property, Plant, and Equipment - Machinery and Equipment at Cost    | 264         |                      |
| Property, Plant, and Equipment - Natural Resources (Net)            | 157         |                      |

## Industrial Annual Data Items

| Item Name                                                                | Item Number | Annual Footnote Slot |
|--------------------------------------------------------------------------|-------------|----------------------|
| Property, Plant, and Equipment - Natural Resources at Cost               | 261         |                      |
| Property, Plant, and Equipment - Other (Net)                             | 250         |                      |
| Property, Plant, and Equipment - Other at Cost                           | 267         |                      |
| Property, Plant, and Equipment - Other Changes (Schedule V)              | 185         |                      |
| Property, Plant, and Equipment - Retirements (Schedule V)                | 184         |                      |
| Property, Plant, and Equipment - Total (Gross)                           | 7           | 15                   |
| Property, Plant, and Equipment - Total (Net)                             | 8           | 15, 31               |
| Property, Plant, and Equipment - Total (Net) (Restated)                  | 141         |                      |
| Provision for Loan/Asset Losses                                          | 342         |                      |
| Purchase of Common and Preferred Stock (Statement of Cash Flows)         | 115         |                      |
| Real Estate Property - Total                                             | 391         |                      |
| Receivables - Current - Other                                            | 194         |                      |
| Receivables - Estimated Doubtful                                         | 67          |                      |
| Receivables - Total                                                      | 2           |                      |
| Receivables - Trade                                                      | 151         |                      |
| Rental Commitments - Minimum - Fifth Year                                | 167         | 14                   |
| Rental Commitments - Minimum - First Year                                | 96          | 14                   |
| Rental Commitments - Minimum - Five Years Total                          | 95          |                      |
| Rental Commitments - Minimum - Fourth Year                               | 166         | 14                   |
| Rental Commitments - Minimum - Second Year                               | 164         | 14                   |
| Rental Commitments - Minimum - Third Year                                | 165         | 14                   |
| Rental Expense                                                           | 47          | 4                    |
| Rental Income                                                            | 163         |                      |
| Research and Development Expense                                         | 46          | 3                    |
| Reserve for Loan/Asset Losses                                            | 343         |                      |
| Restructuring Costs Aftertax                                             | 377         |                      |
| Restructuring Costs Basic EPS Effect                                     | 378         |                      |
| Restructuring Costs Diluted EPS Effect                                   | 379         |                      |
| Restructuring Costs Pretax                                               | 376         |                      |
| Retained Earnings                                                        | 36          | 29                   |
| Retained Earnings - Cumulative Translation Adjustment                    | 230         |                      |
| Retained Earnings - Other Adjustments                                    | 231         |                      |
| Retained Earnings - Unadjusted                                           | 259         |                      |
| Retained Earnings - Unrestricted                                         | 97          |                      |
| Retained Earnings (Restated)                                             | 143         |                      |
| Retained Earnings Restatement                                            | 99          |                      |
| Risk-Adjusted Capital Ratio - Tier 1                                     | 337         |                      |
| Risk-Adjusted Capital Ratio - Total                                      | 348         |                      |
| S&P Common Stock Ranking                                                 | 282         |                      |
| S&P Industry Index Code - Historical                                     | 277         |                      |
| S&P Long-Term Domestic Issuer Credit Rating - Historical                 | 280         | 50                   |
| S&P Major Index Code - Historical                                        | 276         |                      |
| S&P Short-Term Domestic Issuer Credit Rating - Historical                | 283         |                      |
| S&P Subordinated Debt Rating                                             | 320         |                      |
| Sale of Common and Preferred Stock (Statement of Cash Flows)             | 108         |                      |
| Sale of Investments (Statement of Cash Flows)                            | 109         |                      |
| Sale of Prop, Plnt, & Equip & Sale of Invs - Loss(Gain)(Stmt of Csh Flo) | 213         |                      |
| Sale of Property, Plant, and Equipment (Statement of Cash Flows)         | 107         |                      |
| Sales (Net)                                                              | 12          | 1                    |
| Sales (Restated)                                                         | 117         |                      |
| Selling, General, and Administrative Expense                             | 189         | 41                   |

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### Industrial Annual Data Items

| Item Name                                                               | Item Number | Annual Footnote Slot |
|-------------------------------------------------------------------------|-------------|----------------------|
| Selling, General, and Administrative Expenses (Restated)                | 132         |                      |
| Settlement (Litigation/Insurance) After-tax                             | 373         |                      |
| Settlement (Litigation/Insurance) Basic EPS Effect                      | 374         |                      |
| Settlement (Litigation/Insurance) Diluted EPS Effect                    | 375         |                      |
| Settlement (Litigation/Insurance) Pretax                                | 372         |                      |
| Short-Term Borrowing - Average                                          | 104         |                      |
| Short-Term Borrowings - Average Interest Rate                           | 105         |                      |
| Short-Term Investments                                                  | 193         |                      |
| Short-Term Investments - Change (Statement of Cash Flows)               | 309         |                      |
| Sources of Funds - Other (Statement of Changes)                         | 218         |                      |
| Sources of Funds - Total (Statement of Changes)                         | 112         |                      |
| Special Items                                                           | 17          |                      |
| Special Items Aftertax - Other                                          | 385         |                      |
| Special Items Basic EPS Effect - Other                                  | 386         |                      |
| Special Items Diluted EPS Effect - Other                                | 387         |                      |
| Special Items Pretax - Other                                            | 384         |                      |
| Stock Compensation Expense                                              | 398         |                      |
| Stockholders' Equity - Total                                            | 216         |                      |
| Stockholders' Equity (Restated)                                         | 144         |                      |
| Stockholders' Equity Adjustments - Other                                | 359         |                      |
| Tax Benefit of Stock Options                                            | 400         |                      |
| Thereafter Rent Commitments                                             | 389         |                      |
| Treasury Stock - Memo Entry                                             | 86          |                      |
| Treasury Stock - Number of Common Shares                                | 87          |                      |
| Treasury Stock - Total Dollar Amount                                    | 88          |                      |
| Treasury Stock (Dollar Amount) - Common                                 | 226         | 45                   |
| Treasury Stock (Dollar Amount) - Preferred                              | 227         |                      |
| Uses of Funds - Other (Statement of Changes)                            | 219         |                      |
| Uses of Funds - Total (Statement of Changes)                            | 116         |                      |
| Working Capital (Balance Sheet)                                         | 179         |                      |
| Working Capital (Restated)                                              | 121         |                      |
| Working Capital Change - Other - Increase (Decrease) (Stmnt of Changes) | 236         |                      |
| Working Capital Change - Total (Statement of Changes)                   | 180         |                      |
| Writedowns After-Tax                                                    | 381         |                      |
| Writedowns Basic EPS Effect                                             | 382         |                      |
| Writedowns Diluted EPS Effect                                           | 383         |                      |
| Writedowns Pretax                                                       | 380         |                      |

### Industrial Quarterly Data Items

| Item Name                                                               | Item # | Quarterly Footnote Slot |
|-------------------------------------------------------------------------|--------|-------------------------|
| Accounting Changes - Cumulative Effect                                  | 117    | 23                      |
| Accounts Payable                                                        | 46     | 12                      |
| Accounts Payable & Accrued Liabilities - Inc (Decrease) (St Cash Flows) | 105    |                         |
| Accounts Receivable - Decrease (Increase) (Statement of Cash Flows)     | 103    |                         |
| Accumulated Depreciation of Real Estate Property                        | 269    |                         |
| Accumulated Other Comprehensive Income (Loss)                           | 238    |                         |
| Acquisition/Merger After-Tax                                            | 242    |                         |
| Acquisition/Merger Basic EPS Effect                                     | 243    |                         |
| Acquisition/Merger Diluted EPS Effect                                   | 244    |                         |
| Acquisition/Merger Pretax                                               | 241    |                         |



## Industrial Quarterly Data Items (Continued)

| Item Name                                                                | Item # | Quarterly Footnote Slot |
|--------------------------------------------------------------------------|--------|-------------------------|
| Acquisitions (Statement of Cash Flows)                                   | 94     |                         |
| Adjustment Factor (Cumulative) by Ex-Date                                | 17     |                         |
| Adjustment Factor (Cumulative) by Payable Date                           | 100    |                         |
| ADR Ratio                                                                | 273    |                         |
| Assets - Other                                                           | 43     |                         |
| Assets - Total/Liabilities and Stockholders' Equity - Total              | 44     | 9                       |
| Assets and Liabilities - Other (Net Change) (Statement of Cash Flows)    | 107    |                         |
| Capital Expenditures (Statement of Cash Flows)                           | 90     | 21                      |
| Capital Surplus                                                          | 57     | 15                      |
| Cash & Cash Equivalents - Increase (Decrease) (Statement of Cash Flows)  | 74     |                         |
| Cash and Short-Term Investments                                          | 36     |                         |
| Cash Dividends (Statement of Cash Flows)                                 | 89     |                         |
| Changes in Current Debt (Statement of Cash Flows)                        | 75     |                         |
| Common Equity - Total                                                    | 59     |                         |
| Common Shares Issued                                                     | 277    |                         |
| Common Shares Outstanding                                                | 61     | 19                      |
| Common Shares Traded                                                     | 18     |                         |
| Common Shares Used to Calculate Earnings Per Share - 12 Months Moving    | 28     |                         |
| Common Shares Used to Calculate Earnings Per Share (Basic)               | 15     |                         |
| Common Shares Used to Calculate Earnings Per Share (Diluted)             | 124    |                         |
| Common Stock                                                             | 56     | 14                      |
| Common Stock Equivalents - Dollar Savings                                | 120    |                         |
| Cost of Goods Sold                                                       | 30     | 8                       |
| Currency Translation Rate                                                | 121    |                         |
| Current Assets - Other                                                   | 39     |                         |
| Current Assets - Total                                                   | 40     |                         |
| Current Liabilities - Other                                              | 48     |                         |
| Current Liabilities - Total                                              | 49     |                         |
| Debt in Current Liabilities                                              | 45     | 10                      |
| Deferred Compensation                                                    | 239    |                         |
| Deferred Taxes (Income Account)                                          | 35     |                         |
| Deferred Taxes (Statement of Cash Flows)                                 | 79     |                         |
| Deferred Taxes and Investment Tax Credit (Balance Sheet)                 | 52     |                         |
| Depreciation and Amortization (Income Statement)                         | 5      | 2                       |
| Depreciation and Amortization (Statement of Cash Flows)                  | 77     |                         |
| Depreciation and Amortization of Property                                | 272    |                         |
| Depreciation, Depletion and Amortization (Accumulated) (Balance Sheet)   | 41     | 22                      |
| Dilution Adjustment                                                      | 125    |                         |
| Dilution Available - Excluding                                           | 126    |                         |
| Discontinued Operations                                                  | 33     |                         |
| Dividends - Common - Indicated Annual                                    | 20     |                         |
| Dividends - Preferred                                                    | 24     |                         |
| Dividends Per Share by Ex-Date                                           | 16     |                         |
| Dividends Per Share by Payable Date                                      | 72     |                         |
| Earnings Per Share (Basic) - Excluding Extraordinary Items               | 19     | 6                       |
| Earnings Per Share (Basic) - Including Extraordinary Items               | 11     | 6                       |
| Earnings Per Share (Basic) Excluding Extraordinary Items - 12 Mo Moving  | 27     |                         |
| Earnings Per Share (Diluted) - Excluding Extraordinary Items             | 9      |                         |
| Earnings per Share (Diluted) - Excluding Extraordinary Items - 12 Mo Mov | 179    |                         |
| Earnings Per Share (Diluted) - Including Extraordinary Items             | 7      |                         |
| Earnings per Share from Operations                                       | 177    | 24                      |

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### Industrial Quarterly Data Items (Continued)

| Item Name                                                               | Item # | Quarterly Footnote Slot |
|-------------------------------------------------------------------------|--------|-------------------------|
| Earnings per Share from Operations - 12 Months Moving                   | 178    |                         |
| Earnings per Share from Operations (Diluted)                            | 181    |                         |
| Earnings per Share from Operations (Diluted) - 12 Months Moving         | 180    |                         |
| Equity In Net Loss (Earnings) (Statement of Cash Flows)                 | 80     |                         |
| Exchange Rate Effect (Statement of Cash Flows)                          | 114    |                         |
| Extraordinary Items                                                     | 119    |                         |
| Extraordinary Items & Discontinued Operations (Statement of Cash Flows) | 78     |                         |
| Extraordinary Items and Discontinued Operations                         | 26     |                         |
| Financing Activities - Net Cash Flow (Statement of Cash Flows)          | 113    |                         |
| Financing Activities - Other (Statement of Cash Flows)                  | 112    |                         |
| Foreign Currency Adjustment (Income Account)                            | 34     | 17                      |
| Funds from Operations - Other (Statement of Cash Flows)                 | 81     |                         |
| Funds from Operations - Total (Statement of Changes)                    | 82     |                         |
| Gain/Loss After-Tax                                                     | 246    |                         |
| Gain/Loss Basic EPS Effect                                              | 247    |                         |
| Gain/Loss Diluted EPS Effect                                            | 248    |                         |
| Gain/Loss on Sale of Property                                           | 271    |                         |
| Gain/Loss Pretax                                                        | 245    |                         |
| Goodwill                                                                | 234    |                         |
| Goodwill Amortization                                                   | 275    | 70                      |
| Impairments of Goodwill After-Tax                                       | 250    |                         |
| Impairments of Goodwill Basic EPS Effect                                | 251    |                         |
| Impairments of Goodwill Diluted EPS Effect                              | 252    |                         |
| Impairments of Goodwill Pretax                                          | 249    |                         |
| In Process Research & Development                                       | 274    |                         |
| Income Before Extraordinary Items                                       | 8      | 4                       |
| Income Before Extraordinary Items - Adj for Com Stk Equiv - \$ Savings  | 10     | 5                       |
| Income Before Extraordinary Items - Available for Common                | 25     |                         |
| Income Before Extraordinary Items (Statement of Cash Flows)             | 76     |                         |
| Income Taxes - Accrued - Increase (Decrease) (Statement of Cash Flows)  | 106    |                         |
| Income Taxes - Total                                                    | 6      | 3                       |
| Income Taxes Paid (Statement of Cash Flows)                             | 116    |                         |
| Income Taxes Payable                                                    | 47     | 12                      |
| Increase in Investments (Statement of Cash Flows)                       | 91     |                         |
| Intangibles - Other                                                     | 235    |                         |
| Interest Expense                                                        | 22     | 7                       |
| Interest Expense - Total (Financial Services)                           | 70     |                         |
| Interest Income - Total (Financial Services)                            | 29     |                         |
| Interest Paid - Net (Statement of Cash Flows)                           | 115    |                         |
| Inventories - Total                                                     | 38     |                         |
| Inventory - Decrease (Increase) (Statement of Cash Flows)               | 104    |                         |
| Invested Capital - Total                                                | 62     |                         |
| Investing Activities - Net Cash Flow (Statement of Cash Flows)          | 111    |                         |
| Investing Activities - Other (Statement of Cash Flows)                  | 110    |                         |
| Liabilities - Other                                                     | 50     |                         |
| Liabilities - Total                                                     | 54     |                         |
| Long-Term Assets - Other                                                | 236    |                         |
| Long-Term Debt - Issuance (Statement of Cash Flows)                     | 86     |                         |
| Long-Term Debt - Reduction (Statement of Cash Flows)                    | 92     |                         |
| Long-Term Debt - Total                                                  | 51     | 13                      |
| Minority Interest (Balance Sheet)                                       | 53     |                         |

## Industrial Quarterly Data Items (Continued)

| Item Name                                                                | Item # | Quarterly Footnote Slot |
|--------------------------------------------------------------------------|--------|-------------------------|
| Minority Interest (Income Account)                                       | 3      |                         |
| Net Charge-Offs                                                          | 176    |                         |
| Net Income (Loss)                                                        | 69     | 4                       |
| Net Interest Income (Tax Equivalent)                                     | 97     |                         |
| Net Interest Margin                                                      | 173    |                         |
| Non-Operating Income (Expense)                                           | 31     |                         |
| Non-performing Assets - Total                                            | 99     |                         |
| Operating Activities - Net Cash Flow (Statement of Cash Flows)           | 108    |                         |
| Operating Income Before Depreciation                                     | 21     |                         |
| Preferred Stock - Carrying Value                                         | 55     |                         |
| Preferred Stock - Redeemable                                             | 71     |                         |
| Pretax Income                                                            | 23     |                         |
| Price - Close First Month of Quarter                                     | 12     |                         |
| Price - Close Second Month of Quarter                                    | 13     |                         |
| Price - Close Third Month of Quarter                                     | 14     |                         |
| Price - High First Month of Quarter                                      | 63     |                         |
| Price - High Second Month of Quarter                                     | 64     |                         |
| Price - High Third Month of Quarter                                      | 65     |                         |
| Price - Low First Month of Quarter                                       | 66     |                         |
| Price - Low Second Month of Quarter                                      | 67     |                         |
| Price - Low Third Month of Quarter                                       | 68     |                         |
| Property, Plant, and Equipment - Total (Gross)                           | 118    |                         |
| Property, Plant, and Equipment - Total (Net)                             | 42     |                         |
| Provision for Loan/Asset Losses                                          | 171    |                         |
| Purchase of Common and Preferred Stock (Statement of Cash Flows)         | 93     |                         |
| Receivables - Total                                                      | 37     |                         |
| Research and Development Expense                                         | 4      | 18                      |
| Reserve for Loan/Asset Losses                                            | 172    |                         |
| Restructuring Costs Aftertax                                             | 258    |                         |
| Restructuring Costs Basic EPS Effect                                     | 259    |                         |
| Restructuring Costs Diluted EPS Effect                                   | 260    |                         |
| Restructuring Costs Pretax                                               | 257    |                         |
| Retained Earnings                                                        | 58     | 16                      |
| Risk-Adjusted Capital Ratio - Tier 1                                     | 174    |                         |
| Risk-Adjusted Capital Ratio - Total                                      | 175    |                         |
| Sale of Common and Preferred Stock (Statement of Cash Flows)             | 84     |                         |
| Sale of Investments (Statement of Cash Flows)                            | 85     |                         |
| Sale of Prop, Plnt, & Equip & Sale of Invs - Loss(Gain)(Stmt of Csh Flo) | 102    |                         |
| Sale of Property, Plant, and Equipment (Statement of Cash Flows)         | 83     |                         |
| Sales (Net)                                                              | 2      | 1                       |
| Selling, General, and Administrative Expense                             | 1      | 20                      |
| Settlement (Litigation/Insurance) Aftertax                               | 254    |                         |
| Settlement (Litigation/Insurance) Basic EPS Effect                       | 255    |                         |
| Settlement (Litigation/Insurance) Diluted EPS Effect                     | 256    |                         |
| Settlement (Litigation/Insurance) Pretax                                 | 253    |                         |
| Short-Term Investments - Change (Statement of Cash Flows)                | 109    |                         |
| Sources of Funds - Other (Statement of Changes)                          | 87     |                         |
| Sources of Funds - Total (Statement of Changes)                          | 88     |                         |
| Special Items                                                            | 32     |                         |
| Special Items Aftertax - Other                                           | 266    |                         |
| Special Items Basic EPS Effect - Other                                   | 267    |                         |

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### Industrial Quarterly Data Items (Continued)

| Item Name                                                               | Item # | Quarterly Footnote Slot |
|-------------------------------------------------------------------------|--------|-------------------------|
| Special Items Diluted EPS Effect - Other                                | 268    |                         |
| Special Items Pretax - Other                                            | 265    |                         |
| Stock Compensation Expense                                              | 278    |                         |
| Stockholders' Equity - Total                                            | 60     |                         |
| Stockholders' Equity Adjustments - Other                                | 240    |                         |
| Tax Benefit of Stock Options                                            | 279    |                         |
| Total Long-Term Investments                                             | 233    |                         |
| Total Real Estate Property                                              | 270    |                         |
| Treasury Stock - Total Dollar Amount                                    | 98     |                         |
| Unadjusted Retained Earnings                                            | 237    |                         |
| Uses of Funds - Other (Statement of Changes)                            | 95     |                         |
| Uses of Funds - Total (Statement of Changes)                            | 96     |                         |
| Working Capital Change - Other - Increase (Decrease) (Stmnt of Changes) | 73     |                         |
| Working Capital Change - Total (Statement of Changes)                   | 101    |                         |
| Writedowns After-Tax                                                    | 262    |                         |
| Writedowns Basic EPS Effect                                             | 263    |                         |
| Writedowns Diluted EPS Effect                                           | 264    |                         |
| Writedowns Pretax                                                       | 261    |                         |

### Bank Annual and Quarterly Data Items

| Variable Name                                                              | Annual Item No | Annual Footnote Slot | Quarterly Item No | Quarterly Footnote Slot |
|----------------------------------------------------------------------------|----------------|----------------------|-------------------|-------------------------|
| Acceptances Executed by or for the Account of this Bank and Outstanding    | 72             |                      | 53                |                         |
| Additions to Reserves for Bad Debts Due to Mergers and Absorptions         | 187            |                      |                   |                         |
| Additions to Reserves for Bad Debts Due to Recoveries Credited to Reserves | 188            |                      |                   |                         |
| Adjustment Factor - Cumulative by Ex-Date                                  | 232            |                      | 165               |                         |
| Adjustment Factor - Cumulative by Payable Date                             |                |                      | 136               |                         |
| Aggregate Loan and Investment Revenue                                      | 116            |                      |                   |                         |
| Aggregate Miscellaneous Assets                                             | 35             |                      | 26                |                         |
| Aggregate Other Current Operating Expense                                  | 143            | 18                   | 111               | 18                      |
| Aggregate Other Current Operating Revenue                                  | 123            |                      | 95                |                         |
| All Other Time Deposits                                                    | 46             |                      |                   |                         |
| Annualized Dividend Rate                                                   | 202            |                      | 163               |                         |
| Assets Held for Sale                                                       | 40             |                      | 18                |                         |
| Average Assets (Gross)                                                     | 211            |                      | 34                | 22                      |
| Average Assets (Restated)                                                  | 225            | 34                   |                   |                         |
| Average Book Value                                                         | 221            |                      |                   |                         |
| Average Book Value (Restated)                                              | 231            | 36                   |                   |                         |
| Average Borrowings                                                         | 219            |                      | 40                |                         |
| Average Borrowings (Restated)                                              | 229            |                      |                   |                         |
| Average Cash and Due from Banks                                            | 213            |                      |                   |                         |
| Average Cash and Due from Banks (Restated)                                 | 150            |                      |                   |                         |
| Average Deposits                                                           | 216            |                      | 38                |                         |
| Average Deposits - Demand                                                  | 218            |                      | 35                |                         |
| Average Deposits - Demand (Restated)                                       | 227            |                      |                   |                         |
| Average Deposits - Foreign                                                 |                |                      | 39                |                         |
| Average Deposits - Foreign (Restated)                                      | 228            |                      |                   |                         |
| Average Deposits - Time and Savings                                        | 217            |                      | 37                |                         |
| Average Deposits - Time and Savings (Restated)                             | 226            | 35                   |                   |                         |
| Average Deposits (Restated)                                                | 156            |                      |                   |                         |

## Bank Annual and Quarterly Data Items (Continued)

| Variable Name                                                                   | Annual Item No | Annual Footnote Slot | Quarterly Item No | Quarterly Footnote Slot |
|---------------------------------------------------------------------------------|----------------|----------------------|-------------------|-------------------------|
| Average Fed Funds Purchased & Securities Sold under Agreements to Repurchase    | 128            |                      |                   |                         |
| Average Fed Funds Purchased & Securities Sold under Agreements to Repurchase    | 222            |                      |                   |                         |
| Average Fed Funds Sold & Securities Purchased under Agreements to Resell        | 220            |                      |                   |                         |
| Average Fed Funds Sold & Securities Purchased under Agreements to Resell (Rest) | 154            | 40                   |                   |                         |
| Average Investments                                                             |                |                      | 31                |                         |
| Average Loans - Domestic (Restated)                                             | 151            |                      |                   |                         |
| Average Loans - Foreign (Restated)                                              | 152            | 39                   |                   |                         |
| Average Loans (Gross)                                                           | 212            |                      | 32                | 6                       |
| Average Loans (Restated)                                                        | 210            | 33                   |                   |                         |
| Average Long-Term Debt (Restated)                                               | 230            |                      |                   |                         |
| Average Non-Taxable Investments                                                 | 215            |                      |                   |                         |
| Average Non-Taxable Investments                                                 | 224            |                      |                   |                         |
| Average Preferred Stock - Par Value (Restated)                                  | 192            |                      |                   |                         |
| Average Reserve for Bad Debt Losses on Loans (Restated)                         | 207            | 37                   |                   |                         |
| Average Taxable Investments                                                     | 214            |                      |                   |                         |
| Average Taxable Investments (Restated)                                          | 223            |                      |                   |                         |
| Average Total Stockholders' Equity                                              |                |                      | 41                |                         |
| Average Trading Account Securities (Restated)                                   | 155            |                      |                   |                         |
| Bank Premises, Furniture, and Fixtures                                          | 28             |                      | 19                |                         |
| Capital Notes and Debentures                                                    | 84             |                      | 64                |                         |
| Cash and Due from Banks                                                         | 1              | 1                    | 1                 | 1                       |
| Cash Dividends Declared on Common Stock                                         | 177            |                      | 129               |                         |
| Cash Dividends Declared on Preferred Stock                                      | 178            |                      | 130               |                         |
| Certified and Officers' Checks                                                  | 62             |                      |                   |                         |
| Commercial or Industrial Loans                                                  | 20             |                      |                   |                         |
| Commercial Paper                                                                | 66             |                      | 47                |                         |
| Common Dividends Paid per Share by Ex-Date                                      | 201            |                      | 162               |                         |
| Common Dividends Paid per Share by Payable Date                                 |                |                      | 135               |                         |
| Common Shares Traded                                                            | 206            |                      |                   |                         |
| Common Shares Traded (Quarterly)                                                |                |                      | 164               |                         |
| Common Shares Used in Calc 12 Mo Moving Fully Diluted Earnings per Share        |                |                      | 152               |                         |
| Common Shares Used in Calculating 12-Mo Moving Earnings per Share               |                |                      | 144               |                         |
| Common Shares Used in Calculating Earnings per Share                            | 196            | 25                   |                   |                         |
| Common Shares Used in Calculating Earnings Per Shares (Restated)                | 186            | 32                   |                   |                         |
| Common Shares Used in Calculating Fully Diluted Earnings per Share              | 200            | 19                   |                   |                         |
| Common Shares Used in Calculating Quarterly Earnings per Share                  |                |                      | 140               | 24                      |
| Common Shares Used in Calculating Quarterly Fully Diluted Earnings per Share    |                |                      | 148               | 28                      |
| Common Stock - Par Value                                                        | 88             |                      | 67                |                         |
| Consumer Type Time Deposits                                                     | 43             |                      |                   |                         |
| Contingency Portion of Reserve for Loan Losses                                  | 75             |                      | 62                |                         |
| Current Operating Earnings before Income Tax                                    | 145            |                      | 113               |                         |
| Current Operating Earnings before Income Tax (Restated)                         | 180            |                      |                   |                         |
| Customers' Liability to this Bank on Acceptances Outstanding                    | 32             |                      | 23                |                         |
| Deductions from Reserves for Bad Debts Due to Losses Charged to Reserves        | 189            |                      |                   |                         |
| Deferred Portion of Reserve for Loan Losses                                     | 74             |                      | 61                |                         |
| Demand Deposits of IPC                                                          | 56             |                      |                   |                         |
| Deposits of Commercial Banks                                                    | 61             |                      |                   |                         |
| Deposits of Foreign Governments                                                 | 60             |                      |                   |                         |
| Deposits of States and Political Subdivisions                                   | 59             |                      |                   |                         |
| Deposits of U.S. Government                                                     | 58             |                      |                   |                         |

## CRSP/COMPUSTAT MERGED DATABASE GUIDE

### Bank Annual and Quarterly Data Items (Continued)

| Variable Name                                                                             | Annual Item No | Annual Footnote Slot | Quarterly Item No | Quarterly Footnote Slot |
|-------------------------------------------------------------------------------------------|----------------|----------------------|-------------------|-------------------------|
| Depreciation and Amortization                                                             | 79             |                      | 51                |                         |
| Direct Lease Financing                                                                    | 31             |                      | 22                |                         |
| Due from Banks (Memorandum Entry)                                                         | 4              |                      | 4                 |                         |
| Federal Funds Purchased & Securities Sold under Agreements to Repurchase                  | 65             |                      | 46                |                         |
| Federal Funds Sold and Securities Purchased under Agreements to Resell                    | 11             | 11                   | 11                | 4                       |
| Fixed Expense (Occupancy and Equipment - Net) (Restated)                                  | 82             |                      |                   |                         |
| Foreign Exchange Gains and Losses                                                         | 104            |                      | 86                |                         |
| Foreign Loans                                                                             | 13             | 16                   |                   |                         |
| Furniture and Equipment: Depreciation, Rental Cost, Servicing, Etc.                       | 139            |                      | 108               |                         |
| Geographic Designation Code                                                               | 9              |                      | 9                 |                         |
| Income Taxes Applicable to Current Operating Earnings                                     | 146            | 20                   | 114               | 20                      |
| Income Taxes Applicable to Current Operating Earnings (Restated)                          | 181            | 29, 30               |                   |                         |
| Intangible Assets                                                                         | 34             |                      | 25                |                         |
| Interest and Discount on U.S. Treasury Securities                                         | 108            |                      | 81                |                         |
| Interest and Dividends on Other Taxable Securities                                        | 110            |                      | 83                |                         |
| Interest and Fees on Loans                                                                | 105            | 10                   | 78                |                         |
| Interest and Fees on Loans (Restated)                                                     | 166            | 12                   |                   | 12                      |
| Interest Exp on Fed Funds Purchased & Securities Sold under Agreements to Repurchased     | 130            |                      |                   |                         |
| Interest Expense on Fed Funds Purchased & Securities Sold under Agreements to Repurchase  | 39             |                      | 101               |                         |
| Interest Inc on Fed Funds Sold & Securities Purchased under Agreements to Resell          |                |                      | 79                | 21                      |
| Interest Income - Total (Financial Services)                                              | 19             |                      | 17                |                         |
| Interest Income on Fed Funds Sold & Securities Purchased under Agreement to Resell        | 26             | 38                   |                   |                         |
| Interest Increase on Federal Funds Sold & Securities Purchased Under Agreements to Resell | 106            | 22                   |                   |                         |
| Interest on Borrowed Money                                                                | 131            |                      |                   |                         |
| Interest on Capital Notes and Debentures                                                  | 134            |                      | 105               |                         |
| Interest on Capital Notes and Debentures (Restated)                                       | 174            |                      |                   |                         |
| Interest on Deposits                                                                      | 129            |                      | 100               |                         |
| Interest on Deposits (Restated)                                                           | 172            |                      |                   |                         |
| Interest on Due from Banks                                                                | 122            |                      | 94                |                         |
| Interest on Due from Banks (Restated)                                                     | 25             |                      |                   |                         |
| Interest on Long-Term Debt - Not Classified as Capital                                    | 132            |                      | 103               |                         |
| Interest on Long-Term Debt and Not Classified as Capital (Restated)                       | 49             |                      |                   |                         |
| interest on Obligations of States and Political Subdivisions                              | 112            |                      | 85                |                         |
| Interest on Other Borrowed Money (Restated)                                               | 50             |                      |                   |                         |
| Interest on Securities of U.S. Government Agencies and Corporation                        |                |                      | 82                |                         |
| Interest on Securities of U.S. Government Agencies and Corporations                       | 109            |                      | 82                |                         |
| Investments in Nonconsolidated Subsidiaries                                               | 30             |                      | 21                |                         |
| Loans (Gross)                                                                             | 23             | 3                    | 14                | 3                       |
| Loans for Purchasing or Carrying Securities                                               | 18             |                      |                   |                         |
| Loans to Financial Institutions                                                           | 17             |                      |                   |                         |
| Loans to Individuals for Household, Family, & Other Consumer Expenditures                 | 21             |                      |                   |                         |
| Long-Term Debt Not Classified as Capital                                                  | 67             |                      | 48                |                         |
| Market Price - 1st Month of Quarter - Close                                               |                |                      | 155               |                         |
| Market Price - 1st Month of Quarter - High                                                |                |                      | 153               |                         |
| Market Price - 1st Month of Quarter - Low                                                 |                |                      | 154               |                         |
| Market Price - 2nd Month of Quarter - Close                                               |                |                      | 158               |                         |

## Bank Annual and Quarterly Data Items (Continued)

| Variable Name                                                                                    | Annual Item No | Annual Footnote Slot | Quarterly Item No | Quarterly Footnote Slot |
|--------------------------------------------------------------------------------------------------|----------------|----------------------|-------------------|-------------------------|
| Market Price - 2nd Month of quarter - High                                                       |                |                      | 156               |                         |
| Market Price - 2nd Month of Quarter - Low                                                        |                |                      | 157               |                         |
| Market Price - 3rd Month of Quarter - Close                                                      |                |                      | 161               |                         |
| Market Price - 3rd Month of quarter - High                                                       |                |                      | 159               |                         |
| Market Price - 3rd Month of Quarter - Low                                                        |                |                      | 160               |                         |
| Market Price - Close                                                                             | 205            |                      |                   |                         |
| Market Price - High                                                                              | 203            |                      |                   |                         |
| Market Price - Low                                                                               | 204            |                      |                   |                         |
| Minority Interest (Income Account)                                                               | 148            |                      | 116               |                         |
| Minority Interest (Income Account) (Restated)                                                    | 85             |                      |                   |                         |
| Minority Interest in Aft-Tax Profit/Loss on Securities Sold or Redeemed                          | 159            |                      | 122               |                         |
| Minority Interest in Consolidated Subsidiaries                                                   | 77             |                      | 58                |                         |
| Money Market Certificates of Deposit                                                             | 45             |                      |                   |                         |
| Mortgage Indebtedness                                                                            | 71             |                      | 52                |                         |
| Net After-Tax & Aft-Min Interest Profit/Loss on Securities Redeemed/Redeemed (Rest)              | 182            |                      |                   |                         |
| Net After-Tax & Aft-Min Interest Profit/Loss on Securities Sold or Redeemed                      | 160            |                      | 123               |                         |
| Net After-Tax Profit/Loss on Securities Sold or Redeemed Prior to Effective of Minority Interest | 158            |                      |                   |                         |
| Net After-Tax Transfers bet Undivided Profits & Valuation Reserves                               |                |                      | 131               |                         |
| Net Credit/Charge to Reserves for Bad Debts from Loan Records or Chg-offs                        | 190            |                      | 133               |                         |
| Net Cur Op Earnings per Share - Excluding Extraordinary Items - 12 Mo Moving                     |                |                      | 141               |                         |
| Net Cur Op Earnings per Shares - Excluding Extraordinary Items & Fully Diluted                   | 197            | 26                   | 145               | 27                      |
| Net Cur Op Earnings/Share - Ex Extraordinary Items - Fully Diluted - 12 Mo Moving                |                |                      | 149               |                         |
| Net Current Op Earnings Per Share - Excluding Extraordinary Items - Fully                        | 103            |                      |                   |                         |
| Net Current Operating Earnings                                                                   | 147            |                      | 115               |                         |
| Net Current Operating Earnings after Minority Interest                                           | 149            |                      | 117               |                         |
| Net Current Operating Earnings Available for Common                                              | 165            |                      | 128               |                         |
| Net Current Operating Earnings Per Share - Excluding Extraordinary Items                         | 193            | 24                   | 137               | 15, 23                  |
| Net Current Operating Earnings Per Share (Restated)                                              | 184            | 31                   |                   |                         |
| Net Inc per Share - Inc Extraordinary Items - Fully Diluted - 12 Mo Moving                       |                |                      | 151               |                         |
| Net Inc/Share - Excluding Extraordinary Items - Fully Diluted - 12 Mo moving                     |                |                      | 150               |                         |
| Net Income                                                                                       | 161            |                      |                   |                         |
| Net Income (Restated)                                                                            | 183            |                      |                   |                         |
| Net Income Available for Common                                                                  | 164            |                      | 127               |                         |
| Net Income per Share - Excluding Extraordinary Items                                             | 194            |                      | 138               |                         |
| Net Income per Share - Excluding extraordinary Items - 12 Mo Moving                              |                |                      | 142               |                         |
| Net Income per Share - Excluding Extraordinary Items - Fully Diluted                             | 198            |                      | 146               |                         |
| Net Income Per Share - Excluding Extraordinary Items (Restated)                                  | 100            |                      |                   |                         |
| Net Income per Share - Including Extraordinary Items                                             | 195            |                      | 139               |                         |
| Net Income per Share - Including Extraordinary Items - 12 Mo Moving                              |                |                      | 143               |                         |
| Net Income per Share - Including Extraordinary Items - Fully Diluted                             | 199            |                      | 147               |                         |
| Net Interest Margin                                                                              | 42             |                      | 28                |                         |
| Net Pre-Tax Profit or Loss on Securities Sold or Redeemed                                        |                |                      | 118               |                         |
| Net Pre-Tax Profit or Loss on Securities Sold or Redeemed                                        | 153            |                      |                   |                         |
| Non-Taxable Investment Income (Restated)                                                         | 168            |                      |                   |                         |
| Number of Domestic Officers (Restated)                                                           | 141            |                      |                   |                         |
| Number of Domestic Offices                                                                       | 208            |                      |                   |                         |
| Number of Employees                                                                              | 125            |                      |                   |                         |
| Number of Employees (Restated)                                                                   | 140            |                      |                   |                         |

## CRSP/COMPUSTAT MERGED DATABASE GUIDE

### Bank Annual and Quarterly Data Items (Continued)

| Variable Name                                                      | Annual Item No | Annual Footnote Slot | Quarterly Item No | Quarterly Footnote Slot |
|--------------------------------------------------------------------|----------------|----------------------|-------------------|-------------------------|
| Number of Foreign Offices                                          | 209            |                      |                   |                         |
| Number of Shares Authorized                                        | 89             |                      |                   |                         |
| Number of Shares of Preferred Stock Outstanding                    | 87             |                      |                   |                         |
| Number of Shares Outstanding                                       | 90             |                      | 68                | 32                      |
| Number of Shares Reserved for Conversion                           | 91             |                      |                   |                         |
| Number of Treasury Shares Held                                     | 93             |                      |                   |                         |
| Obligations of States and Political Subdivisions                   | 7              |                      | 7                 |                         |
| Occupancy Expense of Bank Premises - Net                           | 136            |                      | 107               |                         |
| Other Assets                                                       | 33             |                      | 24                |                         |
| Other Current Operating Expense                                    | 142            |                      | 110               |                         |
| Other Current Operating Expense (Restated)                         | 83             |                      |                   |                         |
| Other Current Operating Revenue                                    | 121            |                      | 93                |                         |
| Other Current Operating Revenue (Restated)                         | 38             |                      |                   |                         |
| Other Deposits                                                     | 63             | 4                    |                   |                         |
| Other Interest Expense (Restated)                                  | 51             |                      |                   |                         |
| Other Interest Income                                              | 113            |                      | 88                |                         |
| Other Interest Income (Restated)                                   | 27             |                      |                   |                         |
| Other Liabilities (Excluding Valuation Reserves)                   |                |                      | 54                |                         |
| Other Liabilities (Excluding Valuation Reserves)                   | 73             |                      |                   |                         |
| Other Liabilities for Borrowed Money                               | 68             |                      | 49                |                         |
| Other Loans                                                        | 22             |                      |                   |                         |
| Other Securities (Taxable)                                         | 5              |                      | 5                 |                         |
| Other Service Charges, Collection & Exchange Charges, Comms & Fees | 119            |                      | 91                |                         |
| Pension and Employee Benefits                                      | 127            |                      | 98                |                         |
| Preferred Dividend Deductions                                      | 162            |                      | 125               |                         |
| Preferred Stock - Par Value                                        | 86             |                      | 66                |                         |
| Provision for Loan Losses                                          | 135            |                      | 106               |                         |
| Provision for Loan Losses (Restated)                               | 176            |                      |                   |                         |
| Real Estate Loans - Insured or Guaranteed by U.S. Government       | 15             |                      |                   |                         |
| Real Estate Loans - Total                                          | 14             |                      |                   |                         |
| Real Estate Other than Bank Premises                               | 29             |                      | 20                |                         |
| Rental Income                                                      | 138            |                      |                   |                         |
| Report Date of Quarterly Earnings Per Share                        |                |                      | 77                |                         |
| Reserve(s) for Bad Debt Losses on Loans                            | 78             | 9                    | 59                |                         |
| Reserves for Contingencies and Other Capital Reserves              | 97             |                      | 71                |                         |
| Reserves on Securities                                             | 80             |                      |                   |                         |
| Risk-Adjusted Capital Ratio - Tier 1                               | 48             |                      | 29                |                         |
| Risk-Adjusted Capital Ratio - Total                                | 64             |                      | 45                |                         |
| S&P Senior Debt Rating                                             |                |                      | 12                |                         |
| Salaries and Related Expenses (Restated)                           | 52             |                      |                   |                         |
| Salaries and Wages of Officers and Employees                       | 126            |                      | 97                |                         |
| Savings Due to Common Stock Equivalents                            | 163            |                      | 126               |                         |
| Securities of Other U.S. Government Agencies and Corporations      | 3              |                      | 3                 |                         |
| Service Charges on Deposit Accounts                                | 118            |                      | 90                |                         |
| Special Items                                                      | 94             |                      | 55                |                         |
| Surplus                                                            | 95             |                      | 69                |                         |
| Tax Effect on Profit or Loss on Securities Sold or Redeemed        | 157            |                      | 121               |                         |
| Taxable Investment Income (Restated)                               | 167            |                      |                   |                         |
| Time and Savings Deposits of IPC                                   | 57             |                      |                   |                         |
| Total Assets (Gross)                                               | 36             | 5                    | 27                | 5                       |



## Bank Annual and Quarterly Data Items (Continued)

| Variable Name                                                             | Annual Item No | Annual Footnote Slot | Quarterly Item No | Quarterly Footnote Slot |
|---------------------------------------------------------------------------|----------------|----------------------|-------------------|-------------------------|
| Total Book Value                                                          | 99             |                      | 73                |                         |
| Total Borrowings                                                          | 69             | 8                    | 50                | 8                       |
| Total Capital Accounts and Minority Interest (Invested Capital)           | 102            |                      | 76                |                         |
| Total Current Operating Expense                                           | 144            | 18                   | 112               | 18                      |
| Total Current Operating Expense (Restated)                                | 179            | 28                   |                   |                         |
| Total Current Operating Revenue                                           | 124            | 15                   | 96                |                         |
| Total Current Operating Revenue (Restated)                                | 171            | 21                   |                   | 15                      |
| Total Demand Deposits                                                     | 41             |                      | 30                |                         |
| Total Deposits - Worldwide                                                | 53             | 7                    | 42                | 7                       |
| Total Domestic Deposits                                                   | 54             |                      | 43                |                         |
| Total Extraordinary Items - Net of Taxes (Restated)                       | 98             |                      |                   |                         |
| Total Extraordinary Items Net of Taxes                                    | 185            |                      | 132               |                         |
| Total Foreign Deposits                                                    | 55             |                      | 44                |                         |
| Total Interest and Dividends on Investments                               | 115            | 13                   | 87                | 13                      |
| Total Interest Expense                                                    | 137            | 14                   | 104               | 17                      |
| Total Interest Expense (Restated)                                         | 175            | 27                   |                   |                         |
| Total Interest Income (Restated)                                          | 169            |                      |                   |                         |
| Total Interest on Deposits and Borrowings                                 | 133            |                      |                   |                         |
| Total Interest on Deposits and Borrowings (Restated)                      | 173            | 23                   |                   |                         |
| Total Investment Securities                                               | 8              | 2                    | 8                 | 2                       |
| Total Liabilities (Excluding Valuation Reserves)                          | 76             |                      | 57                | 10                      |
| Total Liabilities, Reserves and Capital Accounts                          | 101            |                      | 75                |                         |
| Total Reserves on Loans and Securities                                    | 81             |                      |                   |                         |
| Total Savings Deposits                                                    | 44             |                      | 33                |                         |
| Total Taxable Investment Revenue                                          | 111            |                      | 84                |                         |
| Total Taxable Investment Securities                                       | 6              |                      | 6                 |                         |
| Total Time Deposits (Other than Savings)                                  | 47             | 6                    | 36                | 11                      |
| Trading Account Income                                                    | 120            |                      | 92                |                         |
| Trading Account Income (Restated)                                         | 37             |                      |                   |                         |
| Trading Account Interest (Memorandum Entry)                               | 114            |                      |                   |                         |
| Trading Account Securities                                                | 10             |                      | 10                |                         |
| Transfers to Reserves for Bad Debts from Inc and/or to/from Undiv Profits | 191            |                      |                   |                         |
| Treasury Stock - Cost                                                     | 92             |                      |                   |                         |
| Treasury Stock - Dollar Amount - Common                                   | 12             |                      | 15                |                         |
| Treasury Stock - Dollar Amount - Preferred                                | 16             |                      | 16                |                         |
| Trust Department Income                                                   | 117            |                      | 89                |                         |
| Trust Department Income (Restated)                                        | 170            |                      |                   |                         |
| U.S. Treasury Securities                                                  | 2              |                      | 2                 |                         |
| Undivided Profits                                                         | 96             |                      | 70                |                         |
| Unearned Discount/Income                                                  | 24             | 17                   | 13                | 9                       |
| Valuation Portion of Reserve for Loan Losses                              | 70             |                      | 60                |                         |



## APPENDIX B

*ts\_print* Data Items Table

Appendix B contains Compustat items found in *ts\_print*. Descriptions and full details are provided in the *Compustat User's Guide* and the *Bank Compustat Guide*.

## CCM Header Array

| SUBNO | Item Name                                                        | Itemid    | Format   |
|-------|------------------------------------------------------------------|-----------|----------|
| 0     | Canadian Index Code - Current                                    | ccndx     | %8d      |
| 0     | Code of Available Compustat Data                                 | availflag | %8d      |
| 0     | Company Location Code - County                                   | county    | %8d      |
| 0     | Company Location Code - State                                    | state     | %8d      |
| 0     | Company Name                                                     | coname    | %-32.32s |
| 0     | Current GICS                                                     | gics      | %8d      |
| 0     | CUSIP Issue Number and Check Digit                               | cic       | %-4.4s   |
| 0     | CUSIP Issuer Code                                                | cnum      | %-9.9s   |
| 0     | Duplicate File Code                                              | dup       | %8d      |
| 0     | Employee Identification Number                                   | ein       | %-11.11s |
| 0     | Exchange Listing and S&P Major Index Code                        | zlist     | %8d      |
| 0     | File Identification Code                                         | file      | %8d      |
| 0     | Footnote - S&P Long-Term Domestic Issuer Credit Rating - Current | sdbtim    | %-4.4s   |
| 0     | Fundamental File Code 0                                          | fundf0    | %12d     |
| 0     | Fundamental File Code 1                                          | fundf1    | %12d     |
| 0     | Fundamental File Code 2                                          | fundf2    | %12d     |
| 0     | Header CRSP PERMCO Link                                          | icom      | %8d      |
| 0     | Header CRSP PERMNO Link                                          | iper      | %8d      |
| 0     | Incorporation Code - Foreign                                     | finc      | %8d      |
| 0     | Incorporation Code - State                                       | stinc     | %8d      |
| 0     | Industry Classification Code                                     | dnum      | %8d      |
| 0     | Industry Name                                                    | iname     | %-32.32s |
| 0     | IPO Date                                                         | ipodt     | %8d      |
| 0     | North American Industry Classification System Code               | naics     | %-8.8s   |
| 0     | S&P Industry Index Relative Code                                 | xrel      | %8d      |
| 0     | S&P Long-Term Domestic Issuer Credit Rating - Current            | sdbt      | %-4.4s   |
| 0     | S&P Primary Index Marker                                         | cpspin    | %-4.4s   |
| 0     | S&P Secondary Index Identifier                                   | csspin    | %-4.4s   |
| 0     | S&P Short-Term Domestic Issuer Credit Rating - Current           | cpaper    | %-4.4s   |
| 0     | S&P Subordinated Debt Rating - Current                           | subdbt    | %-4.4s   |
| 0     | S&P Subset Index Identifier                                      | csspii    | %-4.4s   |
| 0     | Stock Ownership Code                                             | stk       | %8d      |
| 0     | Stock Ticker Symbol                                              | smb1      | %-8.8s   |

## CCM Name Array

| SUBNO | Item Name                      | Itemid  | Format   |
|-------|--------------------------------|---------|----------|
| 0     | Canadian Index Code - Current  | nccndx  | %8d      |
| 0     | Company Location Code - County | ncounty | %8d      |
| 0     | Company Location Code - State  | nstate  | %8d      |
| 0     | Company Name                   | nconame | %-32.32s |
| 0     | Current GICS                   | ngics   | %8d      |

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### CCM Name Array

| SUBNO | Item Name                                                        | Itemid  | Format   |
|-------|------------------------------------------------------------------|---------|----------|
| 0     | CUSIP Issue Number and Check Digit                               | ncic    | %-4.4s   |
| 0     | CUSIP Issuer Code                                                | ncnum   | %-9.9s   |
| 0     | Duplicate File Code                                              | ndup    | %8d      |
| 0     | Employee Identification Number                                   | nein    | %-11.11s |
| 0     | Exchange Listing and S&P Major Index Code                        | nzlist  | %8d      |
| 0     | File Identification Code                                         | nfile   | %8d      |
| 0     | Footnote - S&P Long-Term Domestic Issuer Credit Rating - Current | nsdbtim | %-4.4s   |
| 0     | Fundamental File Code 0                                          | nfundf0 | %12d     |
| 0     | Fundamental File Code 1                                          | nfundf1 | %12d     |
| 0     | Fundamental File Code 2                                          | nfundf2 | %12d     |
| 0     | Incorporation Code - Foreign                                     | nfinc   | %8d      |
| 0     | Incorporation Code - State                                       | nstinc  | %8d      |
| 0     | Industry Classification Code                                     | ndnum   | %8d      |
| 0     | Industry Name                                                    | niname  | %-32.32s |
| 0     | IPO Date                                                         | nipodt  | %8d      |
| 0     | North American Industry Classification System Code               | nnaics  | %-8.8s   |
| 0     | S&P Industry Index Relative Code                                 | nxrel   | %8d      |
| 0     | S&P Long-Term Domestic Issuer Credit Rating - Current            | nsdbt   | %-4.4s   |
| 0     | S&P Primary Index Marker                                         | ncpspin | %-4.4s   |
| 0     | S&P Secondary Index Identifier                                   | ncsspin | %-4.4s   |
| 0     | S&P Short-Term Domestic Issuer Credit Rating - Current           | ncpaper | %-4.4s   |
| 0     | S&P Subordinated Debt Rating - Current                           | nsubdbt | %-4.4s   |
| 0     | S&P Subset Index Identifier                                      | ncsspii | %-4.4s   |
| 0     | Stock Ownership Code                                             | nstk    | %8d      |
| 0     | Stock Ticker Symbol                                              | nsmb1   | %-8.8s   |

### CCM link-history Array

| SUBNO | Item Name          | Itemid   | Format |
|-------|--------------------|----------|--------|
| 0     | CRSP Link Flag     | linkflag | %-3.3s |
| 0     | CRSP Link Type     | linktype | %-3.3s |
| 0     | CRSP PERMCO Link   | npermco  | %8d    |
| 0     | CRSP PERMNO Link   | npermno  | %8d    |
| 0     | GVKEY link-history | lgvkey   | %8d    |

### Compustat Industrial Annual Company Descriptors

| SUBNO | Item Name                             | Itemid   | Format |
|-------|---------------------------------------|----------|--------|
| 0     | Data Year                             | adatyr   | %5d    |
| 0     | Fiscal Year-End Month of Data         | afiscyr  | %12d   |
| 0     | Format Code (Statement of Cash Flows) | aflowcd  | %12d   |
| 0     | Period Descriptor Footnotes           | aspeftnt | %3.2s  |
| 0     | Period Descriptor Footnotes 1         | qspeftnt | %3.2s  |
| 0     | Period Descriptor Footnotes 1         | aspeftnt | %3.2s  |
| 0     | Period Descriptor Footnotes 2         | aspeftnt | %3.2s  |
| 0     | Period Descriptor Footnotes 2         | qspeftnt | %3.2s  |
| 0     | Period Descriptor Footnotes 3         | qspeftnt | %3.2s  |
| 0     | Period Descriptor Footnotes 3         | aspeftnt | %3.2s  |
| 0     | Report Date of Quarterly Earnings     | arepdt   | %12d   |
| 0     | S&P Common Stock Ranking              | asprank  | %12d   |

## Compustat Industrial Annual Company Descriptors

| SUBNO | Item Name                                                 | Itemid   | Format |
|-------|-----------------------------------------------------------|----------|--------|
| 0     | S&P Industry Index Code - Historical                      | aindind  | %12d   |
| 0     | S&P Long-Term Domestic Issuer Credit Rating - Historical  | aspbond  | %12.4f |
| 0     | S&P Major Index Code - Historical                         | amajind  | %12d   |
| 0     | S&P Short-Term Domestic Issuer Credit Rating - Historical | asppaper | %12d   |
| 0     | S&P Subordinated Debt Rating                              | aspdebt  | %12d   |
| 0     | Source Document Code                                      | asrcdoc  | %12d   |
| 0     | Standard & Poor's Calendar Year                           | acalyr   | %12d   |
| 0     | Update Code                                               | aupcode  | %12d   |

## Compustat Industrial Quarterly Period Descriptors

| SUBNO | Item Name                                                 | Itemid   | Format |
|-------|-----------------------------------------------------------|----------|--------|
| 0     | Canadian Index Code - Current                             | qcandxc  | %8d    |
| 0     | Data Quarter                                              | qdatqtr  | %12d   |
| 0     | Data Year                                                 | qdatyr   | %5d    |
| 0     | Fiscal Year-End Month of Data                             | qfiscyr  | %12d   |
| 0     | Format Code (Statement of Cash Flows)                     | qflowcd  | %12d   |
| 0     | Period Descriptor Footnotes                               | qspeftnt | %3.2s  |
| 0     | Report Date of Quarterly Earnings                         | qrepdt   | %12d   |
| 0     | S&P Common Stock Ranking                                  | qsprank  | %12d   |
| 0     | S&P Industry Index Code - Historical                      | qindind  | %12d   |
| 0     | S&P Long-Term Domestic Issuer Credit Rating - Historical  | qspbond  | %12.4f |
| 0     | S&P Major Index Code - Historical                         | qmajind  | %12d   |
| 0     | S&P Short-Term Domestic Issuer Credit Rating - Historical | qsppaper | %12d   |
| 0     | S&P Subordinated Debt Rating                              | qspdebt  | %12d   |
| 0     | Source Document Code                                      | qsrcdoc  | %12d   |
| 0     | Standard & Poor's Calendar Quarter                        | qcalqtr  | %12d   |
| 0     | Standard & Poor's Calendar Year                           | qcalyr   | %12d   |
| 0     | Update Code                                               | qupcode  | %12d   |

## Compustat Industrial Annual Data Items (Itemid = iaitem#)

| SUBNO | Item Name                                                   | Format | Footnote Annual Slot |
|-------|-------------------------------------------------------------|--------|----------------------|
| 1     | Cash and Short-Term Investments                             | %12.4f |                      |
| 2     | Receivables - Total                                         | %12.4f |                      |
| 3     | Inventories - Total                                         | %12.4f |                      |
| 4     | Current Assets - Total                                      | %12.4f |                      |
| 5     | Current Liabilities - Total                                 | %12.4f |                      |
| 6     | Assets - Total/Liabilities and Stockholders' Equity - Total | %12.4f | 27                   |
| 7     | Property, Plant, and Equipment - Total (Gross)              | %12.4f | 15                   |
| 8     | Property, Plant, and Equipment - Total (Net)                | %12.4f | 15, 31               |
| 9     | Long-Term Debt - Total                                      | %12.4f | 20                   |
| 10    | Preferred Stock - Liquidating Value                         | %12.4f | 26                   |
| 11    | Common Equity - Tangible                                    | %12.4f |                      |
| 12    | Sales (Net)                                                 | %12.4f | 1                    |
| 13    | Operating Income Before Depreciation                        | %12.4f |                      |
| 14    | Depreciation and Amortization (Income Statement)            | %12.4f | 5                    |
| 15    | Interest Expense                                            | %12.4f | 6                    |
| 16    | Income Taxes - Total                                        | %10.4f | 9                    |

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### Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                                              | Format | Footnote Annual Slot |
|-------|------------------------------------------------------------------------|--------|----------------------|
| 17    | Special Items                                                          | %12.4F |                      |
| 18    | Income Before Extraordinary Items                                      | %12.4F | 10                   |
| 19    | Dividends - Preferred                                                  | %12.4F |                      |
| 20    | Income Before Extraordinary Items - Adj for Com Stk Equiv - \$ Savings | %12.4F | 11                   |
| 21    | Dividends - Common                                                     | %12.4F |                      |
| 22    | Price - High                                                           | %10.4F |                      |
| 23    | Price - Low                                                            | %10.4F |                      |
| 24    | Price - Close                                                          | %10.4F |                      |
| 25    | Common Shares Outstanding                                              | %12.4F |                      |
| 26    | Dividends Per Share by Ex-Date                                         | %10.4F |                      |
| 27    | Adjustment Factor (Cumulative) by Ex-Date                              | %11.4F |                      |
| 28    | Common Shares Traded                                                   | %12.4F |                      |
| 29    | Employees                                                              | %10.4F | 25                   |
| 30    | Property, Plant, and Equipment - Capital Expenditures (Schedule V)     | %12.4F |                      |
| 31    | Investments and Advances - Equity Method                               | %12.4F |                      |
| 32    | Investments and Advances - Other                                       | %12.4F |                      |
| 33    | Intangibles                                                            | %10.4F |                      |
| 34    | Debt in Current Liabilities                                            | %12.4F |                      |
| 35    | Deferred Taxes and Investment Tax Credit (Balance Sheet)               | %10.4F |                      |
| 36    | Retained Earnings                                                      | %12.4F | 29                   |
| 37    | Invested Capital - Total                                               | %12.4F |                      |
| 38    | Minority Interest (Balance Sheet)                                      | %10.4F |                      |
| 39    | Convertible Debt and Preferred Stock                                   | %10.4F |                      |
| 40    | Common Shares Reserved for Conversion - Total                          | %12.4F |                      |
| 41    | Cost of Goods Sold                                                     | %12.4F | 2                    |
| 42    | Labor and Related Expense                                              | %12.4F | 22                   |
| 43    | Pension and Retirement Expense                                         | %12.4F |                      |
| 44    | Debt - Due in One Year                                                 | %12.4F |                      |
| 45    | Advertising Expense                                                    | %12.4F |                      |
| 46    | Research and Development Expense                                       | %10.4F | 3                    |
| 47    | Rental Expense                                                         | %12.4F | 4                    |
| 48    | Extraordinary Items and Discontinued Operations                        | %12.4F |                      |
| 49    | Minority Interest (Income Account)                                     | %12.4F |                      |
| 50    | Deferred Taxes (Income Account)                                        | %10.4F |                      |
| 51    | Investment Tax Credit (Income Account)                                 | %10.4F | 8                    |
| 52    | Net Operating Loss Carry Forward - Unused Portion                      | %10.4F |                      |
| 53    | Earnings Per Share (Basic) - Including Extraordinary Items             | %10.4F | 12                   |
| 54    | Common Shares Used to Calculate Earnings Per Share (Basic)             | %10.4F |                      |
| 55    | Equity in Earnings                                                     | %10.4F | 18                   |
| 56    | Preferred Stock - Redemption Value                                     | %10.4F | 26                   |
| 57    | Earnings Per Share (Diluted) - Excluding Extraordinary Items           | %10.4F |                      |
| 58    | Earnings Per Share (Basic) - Excluding Extraordinary Items             | %10.4F | 12                   |
| 59    | Inventory Valuation Method                                             | %10.4F |                      |
| 60    | Common Equity - Total                                                  | %12.4F |                      |
| 61    | Non-Operating Income (Expense)                                         | %12.4F |                      |
| 62    | Interest Income                                                        | %12.4F |                      |
| 63    | Income Taxes - Federal Current                                         | %10.4F | 7                    |
| 64    | Income Taxes - Foreign Current                                         | %10.4F | 7                    |
| 65    | Amortization of Intangibles                                            | %10.4F |                      |
| 66    | Discontinued Operations                                                | %12.4F |                      |

## Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                                        | Format | Footnote Annual Slot |
|-------|------------------------------------------------------------------|--------|----------------------|
| 67    | Receivables - Estimated Doubtful                                 | 10.4F  |                      |
| 68    | Current Assets - Other                                           | 12.4F  |                      |
| 69    | Assets - Other                                                   | 12.4F  |                      |
| 70    | Accounts Payable                                                 | 12.4F  | 16                   |
| 71    | Income Taxes Payable                                             | 10.4F  | 17                   |
| 72    | Current Liabilities - Other                                      | 12.4F  |                      |
| 73    | Property, Plant, and Equipment - Construction in Progress (Net)  | 10.4F  |                      |
| 74    | Deferred Taxes (Balance Sheet)                                   | 10.4F  |                      |
| 75    | Liabilities - Other                                              | 12.4F  |                      |
| 76    | Inventories - Raw Materials                                      | 10.4F  |                      |
| 77    | Inventories - Work in Progress                                   | 10.4F  |                      |
| 78    | Inventories - Finished Goods                                     | 10.4F  |                      |
| 79    | Debt - Convertible                                               | 10.4F  | 19                   |
| 80    | Debt - Subordinated                                              | 10.4F  | 19                   |
| 81    | Debt - Notes                                                     | 10.4F  | 19                   |
| 82    | Debt - Debentures                                                | 12.4F  | 19                   |
| 83    | Long - Term Debt - Other                                         | 12.4F  | 19                   |
| 84    | Debt - Capitalized Lease Obligations                             | 12.4F  | 19                   |
| 85    | Common Stock                                                     | 10.4F  | 28                   |
| 86    | Treasury Stock - Memo Entry                                      | 10.4F  |                      |
| 87    | Treasury Stock - Number of Common Shares                         | 12.4F  |                      |
| 88    | Treasury Stock - Total Dollar Amount                             | 10.4F  |                      |
| 89    | Pension Costs - Unfunded Vested Benefits                         | 10.4F  |                      |
| 90    | Pension Costs - Unfunded Past or Prior Service                   | 10.4F  |                      |
| 91    | Debt - Maturing In Second Year                                   | 10.4F  | 24                   |
| 92    | Debt - Maturing In Third Year                                    | 12.4F  | 24                   |
| 93    | Debt - Maturing In Fourth Year                                   | 10.4F  | 24                   |
| 94    | Debt - Maturing In Fifth Year                                    | 10.4F  | 24                   |
| 95    | Rental Commitments - Minimum - Five Years Total                  | 10.4F  |                      |
| 96    | Rental Commitments - Minimum - First Year                        | 10.4F  | 14                   |
| 97    | Retained Earnings - Unrestricted                                 | 12.4F  |                      |
| 98    | Order Backlog                                                    | 12.4F  |                      |
| 99    | Retained Earnings Restatement                                    | 12.4F  |                      |
| 100   | Common Shareholders                                              | 12.4F  |                      |
| 101   | Interest Expense on Long-Term Debt                               | 10.4F  |                      |
| 102   | Excise Taxes                                                     | 10.4F  |                      |
| 103   | Depreciation Expense (Schedule VI)                               | 10.4F  |                      |
| 104   | Short-Term Borrowing - Average                                   | 10.4F  |                      |
| 105   | Short-Term Borrowings - Average Interest Rate                    | 10.4F  |                      |
| 106   | Equity In Net Loss (Earnings) (Statement of Cash Flows)          | 10.4F  |                      |
| 107   | Sale of Property, Plant, and Equipment (Statement of Cash Flows) | 10.4F  |                      |
| 108   | Sale of Common and Preferred Stock (Statement of Cash Flows)     | 10.4F  |                      |
| 109   | Sale of Investments (Statement of Cash Flows)                    | 12.4F  |                      |
| 110   | Funds from Operations - Total (Statement of Changes)             | 12.4F  |                      |
| 111   | Long-Term Debt - Issuance (Statement of Cash Flows)              | 10.4F  |                      |
| 112   | Sources of Funds - Total (Statement of Changes)                  | 12.4F  |                      |
| 113   | Increase in Investments (Statement of Cash Flows)                | 12.4F  |                      |
| 114   | Long-Term Debt - Reduction (Statement of Cash Flows)             | 12.4F  |                      |
| 115   | Purchase of Common and Preferred Stock (Statement of Cash Flows) | 12.4F  |                      |
| 116   | Uses of Funds - Total (Statement of Changes)                     | 12.4F  |                      |

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### Compustat Industrial Annual Data Items (Itemid = iaitem#)

| SUBNO | Item Name                                                               | Format | Footnote Annual Slot |
|-------|-------------------------------------------------------------------------|--------|----------------------|
| 117   | Sales (Restated)                                                        | 12.4F  |                      |
| 118   | Income Before Extraordinary Items (Restated)                            | 12.4F  |                      |
| 119   | Earnings Per Share (Basic) - Excluding Extraordinary Items (Restated)   | 10.4F  |                      |
| 120   | Assets - Total (Restated)                                               | 12.4F  |                      |
| 121   | Working Capital (Restated)                                              | 12.4F  |                      |
| 122   | Pretax Income (Restated)                                                | 12.4F  |                      |
| 123   | Income Before Extraordinary Items (Statement of Cash Flows)             | 12.4F  |                      |
| 124   | Extraordinary Items & Discontinued Operations (Statement of Cash Flows) | 12.4F  |                      |
| 125   | Depreciation and Amortization (Statement of Cash Flows)                 | 12.4F  |                      |
| 126   | Deferred Taxes (Statement of Cash Flows)                                | 10.4F  |                      |
| 127   | Cash Dividends (Statement of Cash Flows)                                | 10.4F  |                      |
| 128   | Capital Expenditures (Statement of Cash Flows)                          | 10.4F  | 13                   |
| 129   | Acquisitions (Statement of Cash Flows)                                  | 10.4F  |                      |
| 130   | Preferred Stock - Carrying Value                                        | 10.4F  |                      |
| 131   | Cost of Goods Sold (Restated)                                           | 12.4F  |                      |
| 132   | Selling, General, and Administrative Expenses (Restated)                | 12.4F  |                      |
| 133   | Depreciation and Amortization (Restated)                                | 12.4F  |                      |
| 134   | Interest Expenses (Restated)                                            | 10.4F  |                      |
| 135   | Income Taxes - Total (Restated)                                         | 12.4F  |                      |
| 136   | Extraordinary Items and Discontinued Operations (Restated)              | 12.4F  |                      |
| 137   | Earnings Per Share (Basic) - Including Extraordinary Items (Restated)   | 12.4F  |                      |
| 138   | Common Shares Used To Calculate Earnings Per Share (Basic) (Restated)   | 12.4F  |                      |
| 139   | Earnings Per Share (Diluted) - Excluding Extraordinary Items (Restated) | 12.4F  |                      |
| 140   | Earnings Per Share (Diluted) - Including Extraordinary Items (Restated) | 10.4F  |                      |
| 141   | Property, Plant, and Equipment - Total (Net) (Restated)                 | 12.4F  |                      |
| 142   | Long-Term Debt - Total (Restated)                                       | 12.4F  |                      |
| 143   | Retained Earnings (Restated)                                            | 12.4F  |                      |
| 144   | Stockholders' Equity (Restated)                                         | 12.4F  |                      |
| 145   | Capital Expenditures (Restated)                                         | 10.4F  |                      |
| 146   | Employees (Restated)                                                    | 10.4F  |                      |
| 147   | Interest Capitalized                                                    | 12.4F  |                      |
| 148   | Long-Term Debt - Tied to Prime                                          | 10.4F  | 19                   |
| 149   | Auditor/Auditor's Opinion                                               | 10.4F  |                      |
| 150   | Foreign Currency Adjustment (Income Account)                            | 10.4F  | 30                   |
| 151   | Receivables - Trade                                                     | 12.4F  |                      |
| 152   | Deferred Charges                                                        | 10.4F  |                      |
| 153   | Accrued Expense                                                         | 10.4F  |                      |
| 154   | Debt - Subordinated Convertible                                         | 10.4F  | 19                   |
| 155   | Property, Plant, and Equipment - Buildings (Net)                        | 10.4F  |                      |
| 156   | Property, Plant, and Equipment - Machinery and Equipment (Net)          | 10.4F  |                      |
| 157   | Property, Plant, and Equipment - Natural Resources (Net)                | 10.4F  |                      |
| 158   | Property, Plant, and Equipment - Land and Improvements (Net)            | 10.4F  |                      |
| 159   | Property, Plant, and Equipment - Leases (Net)                           | 10.4F  |                      |
| 160   | Prepaid Expense                                                         | 10.4F  |                      |
| 161   | Income Tax Refund                                                       | 10.4F  |                      |
| 162   | Cash                                                                    | 10.4F  |                      |
| 163   | Rental Income                                                           | 12.4F  |                      |
| 164   | Rental Commitments - Minimum - Second Year                              | 10.4F  | 14                   |
| 165   | Rental Commitments - Minimum - Third Year                               | 10.4F  | 14                   |
| 166   | Rental Commitments - Minimum - Fourth Year                              | 10.4F  | 14                   |



## Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                                                | Format | Footnote Annual Slot |
|-------|--------------------------------------------------------------------------|--------|----------------------|
| 167   | Rental Commitments - Minimum - Fifth Year                                | 10.4F  | 14                   |
| 168   | Compensating Balance                                                     | 10.4F  |                      |
| 169   | Earnings Per Share (Diluted) - Including Extraordinary Items             | 10.4F  |                      |
| 170   | Pretax Income                                                            | 10.4F  |                      |
| 171   | Common Shares Used to Calculate Earnings Per Share (Diluted)             | 12.4F  |                      |
| 172   | Net Income (Loss)                                                        | 10.4F  | 10                   |
| 173   | Income Taxes - State Current                                             | 12.4F  | 7                    |
| 174   | Depletion Expense (Schedule VI)                                          | 10.4F  |                      |
| 175   | Preferred Stock - Redeemable                                             | 12.4F  |                      |
| 177   | Net Income (Loss) (Restated)                                             | 12.4F  |                      |
| 178   | Operating Income After Depreciation                                      | 12.4F  | 36                   |
| 179   | Working Capital (Balance Sheet)                                          | 12.4F  |                      |
| 180   | Working Capital Change - Total (Statement of Changes)                    | 12.4F  |                      |
| 181   | Liabilities - Total                                                      | 12.4F  |                      |
| 182   | Property, Plant, and Equipment - Beginning Balance (Schedule V)          | 12.4F  |                      |
| 183   | Accounting Changes - Cumulative Effect                                   | 12.4F  | 49                   |
| 184   | Property, Plant, and Equipment - Retirements (Schedule V)                | 12.4F  |                      |
| 185   | Property, Plant, and Equipment - Other Changes (Schedule V)              | 12.4F  |                      |
| 186   | Inventories - Other                                                      | 12.4F  |                      |
| 187   | Property, Plant, and Equipment - Ending Balance (Schedule V)             | 12.4F  |                      |
| 188   | Debt - Senior Convertible                                                | 12.4F  | 38                   |
| 189   | Selling, General, and Administrative Expense                             | 10.4F  | 41                   |
| 190   | Non-Operating Income (Expense) - Excluding Interest Income               | 12.4F  |                      |
| 191   | Common Stock Equivalents - Dollar Savings                                | 10.4F  |                      |
| 192   | Extraordinary Items                                                      | 12.4F  |                      |
| 193   | Short-Term Investments                                                   | 12.4F  |                      |
| 194   | Receivables - Current - Other                                            | 12.4F  |                      |
| 195   | Current Assets - Other - Excluding Prepaid Expenses                      | 12.4F  |                      |
| 196   | Depreciation, Depletion and Amortization (Accumulated) (Balance Sheet)   | 12.4F  | 15, 39               |
| 197   | Price - Fiscal Year - High                                               | 10.4F  |                      |
| 198   | Price - Fiscal Year - Low                                                | 10.4F  |                      |
| 199   | Price - Fiscal Year - Close                                              | 10.4F  |                      |
| 200   | Common Shares Reserved for Conversion - Convertible Debt                 | 12.4F  |                      |
| 201   | Dividends Per Share by Payable Date                                      | 10.4F  |                      |
| 202   | Adjustment Factor (Cumulative) by Payable Date                           | 11.6F  |                      |
| 203   | Common Shares Reserved for Conversion - Preferred Stock                  | 12.4F  |                      |
| 204   | Goodwill                                                                 | 10.4F  |                      |
| 205   | Assets - Other - Excluding Deferred Charges                              | 12.4F  |                      |
| 206   | Notes Payable                                                            | 12.4F  |                      |
| 207   | Current Liabilities - Other - Excluding Accrued Expenses                 | 12.4F  |                      |
| 208   | Investment Tax Credit (Balance Sheet)                                    | 10.4F  |                      |
| 209   | Preferred Stock - Nonredeemable                                          | 12.4F  |                      |
| 210   | Capital Surplus                                                          | 10.4F  | 40                   |
| 211   | Income Taxes - Other                                                     | 12.4F  | 7                    |
| 213   | Sale of Prop, Plnt, & Equip & Sale of Invs - Loss(Gain)(Stmt of Csh Flo) | 10.4F  |                      |
| 214   | Preferred Stock - Convertible                                            | 10.4F  |                      |
| 215   | Common Shares Reserved for Conversion - Stock Options                    | 12.4F  |                      |
| 216   | Stockholders' Equity - Total                                             | 12.4F  |                      |
| 217   | Funds from Operations - Other (Statement of Cash Flows)                  | 12.4F  |                      |
| 218   | Sources of Funds - Other (Statement of Changes)                          | 12.4F  |                      |

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### Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                                               | Format | Footnote Annual Slot |
|-------|-------------------------------------------------------------------------|--------|----------------------|
| 219   | Uses of Funds - Other (Statement of Changes)                            | 12.4F  |                      |
| 220   | Depreciation (Accumulated) - Beginning Balance (Schedule VI)            | 12.4F  |                      |
| 221   | Depreciation (Accumulated) - Retirements (Schedule VI)                  | 10.4F  |                      |
| 222   | Depreciation (Accumulated) - Other Changes (Schedule VI)                | 12.4F  |                      |
| 223   | Depreciation (Accumulated) - Ending Balance (Schedule VI)               | 12.4F  |                      |
| 224   | Non-Operating Income (Expense) (Restated)                               | 12.4F  |                      |
| 225   | Minority Interest (Restated)                                            | 10.4F  |                      |
| 226   | Treasury Stock (Dollar Amount) - Common                                 | 10.4F  | 45                   |
| 227   | Treasury Stock (Dollar Amount) - Preferred                              | 10.4F  |                      |
| 228   | Currency Translation Rate                                               | 10.4F  |                      |
| 229   | Common Shares Reserved for Conversion - Warrants and Other              | 10.4F  |                      |
| 230   | Retained Earnings - Cumulative Translation Adjustment                   | 10.4F  |                      |
| 231   | Retained Earnings - Other Adjustments                                   | 10.4F  |                      |
| 232   | Common Stock - Per Share Carrying Value                                 | 10.4F  |                      |
| 233   | Earnings per Share from Operations                                      | 10.4F  | 51                   |
| 234   | ADR Ratio                                                               | 10.4F  |                      |
| 235   | Common Equity - Liquidation Value                                       | 12.4F  |                      |
| 236   | Working Capital Change - Other - Increase (Decrease) (Stmnt of Changes) | 12.4F  |                      |
| 237   | Income Before Extraordinary Items - Available for Common                | 12.4F  |                      |
| 238   | Marketable Securities Adjustment (Balance Sheet)                        | 12.4F  |                      |
| 239   | Interest Capitalized - Net Income Effect                                | 10.4F  |                      |
| 240   | Inventories - LIFO Reserve                                              | 10.4F  |                      |
| 241   | Debt - Mortgages and Other Secured                                      | 12.4F  |                      |
| 242   | Dividends - Preferred - In Arrears                                      | 10.4F  |                      |
| 243   | Pension Benefits - Present Value of Vested                              | 12.4F  |                      |
| 244   | Pension Benefits - Present Value of Nonvested                           | 12.4F  |                      |
| 245   | Pension Benefits - Net Assets                                           | 12.4F  |                      |
| 246   | Pension Discount Rate (Assumed Rate of Return)                          | 10.4F  |                      |
| 247   | Pension Benefits - Information Date                                     | 12.4F  |                      |
| 248   | Acquisition - Income Contribution                                       | 10.4F  |                      |
| 249   | Acquisitions - Sales Contribution                                       | 10.4F  | 37                   |
| 250   | Property, Plant, and Equipment - Other (Net)                            | 12.4F  |                      |
| 251   | Depreciation (Accumulated) - Land and Improvements                      | 10.4F  |                      |
| 252   | Depreciation (Accumulated) - Natural Resources                          | 10.4F  |                      |
| 253   | Depreciation (Accumulated) - Buildings                                  | 10.4F  |                      |
| 254   | Depreciation (Accumulated) - Machinery and Equipment                    | 10.4F  |                      |
| 255   | Depreciation (Accumulated) - Leases                                     | 10.4F  |                      |
| 256   | Depreciation (Accumulated) - Construction in Progress                   | 10.4F  |                      |
| 257   | Depreciation (Accumulated) - Other                                      | 12.4F  |                      |
| 258   | Net Income Adjusted for Common Stock Equivalents                        | 12.4F  |                      |
| 259   | Retained Earnings - Unadjusted                                          | 12.4F  |                      |
| 260   | Property, Plant, and Equipment - Land and Improvements at Cost          | 10.4F  |                      |
| 261   | Property, Plant, and Equipment - Natural Resources at Cost              | 10.4F  |                      |
| 263   | Property, Plant, and Equipment - Buildings at Cost                      | 10.4F  |                      |
| 264   | Property, Plant, and Equipment - Machinery and Equipment at Cost        | 10.4F  |                      |
| 265   | Property, Plant, and Equipment - Leases at Cost                         | 10.4F  |                      |
| 266   | Property, Plant, and Equipment - Construction in Progress at Cost       | 10.4F  |                      |
| 267   | Property, Plant, and Equipment - Other at Cost                          | 12.4F  |                      |
| 268   | Debt - Unamortized Debt Discount and Other                              | 10.4F  |                      |
| 269   | Deferred Taxes - Federal                                                | 10.4F  |                      |

## Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                                               | Format | Footnote Annual Slot |
|-------|-------------------------------------------------------------------------|--------|----------------------|
| 270   | Deferred Taxes - Foreign                                                | 10.4F  |                      |
| 271   | Deferred Taxes - State                                                  | 10.4F  |                      |
| 272   | Pretax Income - Domestic                                                | 12.4F  | 42                   |
| 273   | Pretax Income - Foreign                                                 | 12.4F  | 42                   |
| 274   | Cash & Cash Equivalents - Increase (Decrease) (Statement of Cash Flows) | 10.4F  |                      |
| 276   | S&P Major Index Code - Historical                                       | 10.4F  |                      |
| 277   | S&P Industry Index Code - Historical                                    | 12.4F  |                      |
| 278   | Fortune Industry Code                                                   | 10.4F  |                      |
| 279   | Fortune Rank                                                            | 10.4F  |                      |
| 280   | S&P Long-Term Domestic Issuer Credit Rating - Historical                | 10.4F  | 50                   |
| 282   | S&P Quality Rank                                                        | 10.4F  |                      |
| 283   | S&P Short-Term Domestic Issuer Credit Rating - Historical               | 10.4F  |                      |
| 284   | Pension - Vested Benefit Obligation (Overfunded)                        | 12.4F  |                      |
| 285   | Pension - Accumulated Benefit Obligation (Overfunded)                   | 12.4F  |                      |
| 286   | Pension - Projected Benefit Obligation (Overfunded)                     | 10.4F  |                      |
| 287   | Pension Plan Assets (Overfunded)                                        | 12.4F  |                      |
| 288   | Pension - Unrecognized Prior Service Cost (Overfunded)                  | 12.4F  |                      |
| 289   | Pension - Other Adjustments (Overfunded)                                | 12.4F  |                      |
| 290   | Pension - Prepaid/Accrued Cost (Overfunded)                             | 12.4F  | 43                   |
| 291   | Pension - Vested Benefit Obligation (Underfunded)                       | 12.4F  |                      |
| 292   | Periodic Postretirement Benefit Cost (Net)                              | 12.4F  |                      |
| 293   | Pension - Accumulated Benefit Obligation (Underfunded)                  | 12.4F  |                      |
| 294   | Pension - Projected Benefit Obligation (Underfunded)                    | 10.4F  |                      |
| 295   | Periodic Pension Cost (Net)                                             | 12.4F  |                      |
| 296   | Pension Plan Assets (Underfunded)                                       | 12.4F  |                      |
| 297   | Pension - Unrecognized Prior Service Cost (Underfunded)                 | 12.4F  |                      |
| 298   | Pension - Additional Minimum Liability (Underfunded)                    | 12.4F  |                      |
| 299   | Pension - Other Adjustments (Underfunded)                               | 12.4F  |                      |
| 300   | Pension - Prepaid/Accrued Cost (Underfunded)                            | 12.4F  | 44                   |
| 301   | Changes in Current Debt (Statement of Cash Flows)                       | 10.4F  |                      |
| 302   | Accounts Receivable - Decrease (Increase) (Statement of Cash Flows)     | 10.4F  |                      |
| 303   | Inventory - Decrease (Increase) (Statement of Cash Flows)               | 10.4F  |                      |
| 304   | Accounts Payable & Accrued Liabilities - Inc (Decrease) (St Cash Flows) | 10.4F  |                      |
| 305   | Income Taxes - Accrued - Increase (Decrease) (Statement of Cash Flows)  | 10.4F  |                      |
| 307   | Assets and Liabilities - Other (Net Change) (Statement of Cash Flows)   | 12.4F  |                      |
| 308   | Operating Activities - Net Cash Flow (Statement of Cash Flows)          | 12.4F  |                      |
| 309   | Short-Term Investments - Change (Statement of Cash Flows)               | 10.4F  |                      |
| 310   | Investing Activities - Other (Statement of Cash Flows)                  | 12.4F  |                      |
| 311   | Investing Activities - Net Cash Flow (Statement of Cash Flows)          | 12.4F  |                      |
| 312   | Financing Activities - Other (Statement of Cash Flows)                  | 12.4F  |                      |
| 313   | Financing Activities - Net Cash Flow (Statement of Cash Flows)          | 12.4F  |                      |
| 314   | Exchange Rate Effect (Statement of Cash Flows)                          | 12.4F  |                      |
| 315   | Interest Paid - Net (Statement of Cash Flows)                           | 10.4F  |                      |
| 317   | Income Taxes Paid (Statement of Cash Flows)                             | 12.4F  |                      |
| 318   | Format Code (Statement of Cash Flows)                                   | 12.4F  |                      |
| 319   | Dilution Adjustment                                                     | 12.4F  |                      |
| 320   | S&P Subordinated Debt Rating                                            | 10.4F  |                      |
| 321   | Interest Income - Total (Financial Services)                            | 10.4F  |                      |
| 322   | Dilution Available - Excluding                                          | 12.4F  |                      |
| 323   | Earnings per Share from Operations (Diluted)                            | 10.4F  |                      |

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### Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                                           | Format | Footnote Annual Slot |
|-------|---------------------------------------------------------------------|--------|----------------------|
| 324   | Historical SIC Code                                                 | %12.4F |                      |
| 327   | Contingent Liabilities - Guarantees                                 | %10.4F | 48                   |
| 328   | Debt - Finance Subsidiary                                           | %10.4F | 47                   |
| 329   | Debt - Consolidated Subsidiary                                      | %10.4F | 46                   |
| 330   | Postretirement Benefit Asset (Liability) (Net)                      | %10.4F |                      |
| 331   | Pension Plans - Service Cost                                        | %10.4F |                      |
| 332   | Pension Plans - Interest Cost                                       | %10.4F |                      |
| 333   | Pension Plans - Return on Plan Assets (Actual)                      | %12.4F |                      |
| 334   | Pension Plans - Other Periodic Cost Components (Net)                | %10.4F |                      |
| 335   | Pension Plans - Rate of Compensation Increase                       | %10.4F |                      |
| 336   | Pension Plans - Anticipated Long-Term Rate of Return on Plan Assets | %10.4F |                      |
| 337   | Risk-Adjusted Capital Ratio - Tier 1                                | %10.4F |                      |
| 339   | Interest Expense - Total (Financial Services)                       | %10.4F |                      |
| 340   | Net Interest Income (Tax Equivalent)                                | %10.4F |                      |
| 341   | Non-performing Assets - Total                                       | %10.4F |                      |
| 342   | Provision for Loan/Asset Losses                                     | %10.4F |                      |
| 343   | Reserve for Loan/Asset Losses                                       | %10.4F |                      |
| 344   | Net Interest Margin                                                 | %10.4F |                      |
| 348   | Risk-Adjusted Capital Ratio - Total                                 | %10.4F |                      |
| 349   | Net Charge-Offs                                                     | %10.4F |                      |
| 351   | Current Assets - Discontinued Operations                            | %12.4F |                      |
| 352   | Intangibles - Other                                                 | %12.4F |                      |
| 353   | Long-Term Assets of Discontinued Operations                         | %12.4F |                      |
| 354   | Current Assets Excluding Discontinued Operations - Other            | %12.4F |                      |
| 355   | Assets Excluding Discontinued Operations - Other                    | %12.4F |                      |
| 356   | Deferred Revenue - Current                                          | %12.4F |                      |
| 357   | Accumulated Other Comprehensive Income (Loss)                       | %12.4F |                      |
| 358   | Deferred Compensation                                               | %12.4F |                      |
| 359   | Stockholders' Equity Adjustments - Other                            | %12.4F |                      |
| 360   | Acquisition/Merger Pretax                                           | %12.4F |                      |
| 361   | Acquisition/Merger After-Tax                                        | %12.4F |                      |
| 362   | Acquisition/Merger Basic EPS Effect                                 | %12.4F |                      |
| 363   | Acquisition/Merger Diluted EPS Effect                               | %12.4F |                      |
| 364   | Gain/Loss Pretax                                                    | %12.4F |                      |
| 365   | Gain/Loss After-Tax                                                 | %12.4F |                      |
| 366   | Gain/Loss Basic EPS Effect                                          | %12.4F |                      |
| 367   | Gain/Loss Diluted EPS Effect                                        | %12.4F |                      |
| 368   | Impairments of Goodwill Pretax                                      | %12.4F |                      |
| 369   | Impairments of Goodwill After-Tax                                   | %12.4F |                      |
| 370   | Impairments of Goodwill Basic EPS Effect                            | %12.4F |                      |
| 371   | Impairments of Goodwill Diluted EPS Effect                          | %12.4F |                      |
| 372   | Settlement (Litigation/Insurance) Pretax                            | %12.4F |                      |
| 373   | Settlement (Litigation/Insurance) After-tax                         | %12.4F |                      |
| 374   | Settlement (Litigation/Insurance) Basic EPS Effect                  | %12.4F |                      |
| 375   | Settlement (Litigation/Insurance) Diluted EPS Effect                | %12.4F |                      |
| 376   | Restructuring Costs Pretax                                          | %12.4F |                      |
| 377   | Restructuring Costs After-tax                                       | %12.4F |                      |
| 378   | Restructuring Costs Basic EPS Effect                                | %12.4F |                      |
| 379   | Restructuring Costs Diluted EPS Effect                              | %12.4F |                      |
| 380   | Writedowns Pretax                                                   | %12.4F |                      |

## Compustat Industrial Annual Data Items (Itemid = iitem#)

| SUBNO | Item Name                                        | Format | Footnote Annual Slot |
|-------|--------------------------------------------------|--------|----------------------|
| 381   | Writedowns After-Tax                             | %12.4F |                      |
| 382   | Writedowns Basic EPS Effect                      | %12.4F |                      |
| 383   | Writedowns Diluted EPS Effect                    | %12.4F |                      |
| 384   | Special Items Pretax - Other                     | %12.4F |                      |
| 385   | Special Items Aftertax - Other                   | %12.4F |                      |
| 386   | Special Items Basic EPS Effect - Other           | %12.4F |                      |
| 387   | Special Items Diluted EPS Effect - Other         | %12.4F |                      |
| 388   | In Process Research & Development                | %12.4F |                      |
| 389   | Rent Commitments - Thereafter                    | %12.4F |                      |
| 390   | Accumulated Depreciation of Real Estate Property | %12.4F |                      |
| 391   | Real Estate Property - Total                     | %12.4F |                      |
| 392   | Gain/Loss on Sale of Property                    | %12.4F |                      |
| 393   | Depreciation and Amortization of Property        | %12.4F |                      |
| 394   | Goodwill Amortization                            | %12.4F | 70                   |
| 395   | Goodwill Amortization Footnote                   |        |                      |
| 396   | Common Shares Issued                             | %12.4F |                      |
| 397   | Deferred Revenue - Long-Term                     | %12.4F |                      |
| 398   | Stock Compensation Expense                       | %12.4F |                      |
| 399   | Implied Option Expense                           | %12.4F |                      |
| 400   | Tax Benefit of Stock Options                     | %12.4F |                      |

## Compustat Industrial Quarterly Data Items (Itemid = iqitem#)

| SUBNO | Item Name                                                              | Format | Footnote Quarterly Slot |
|-------|------------------------------------------------------------------------|--------|-------------------------|
| 1     | Selling, General, and Administrative Expense                           | %10.4F | 20                      |
| 2     | Sales (Net)                                                            | %12.4F | 1                       |
| 3     | Minority Interest (Income Account)                                     | %12.4F |                         |
| 4     | Research and Development Expense                                       | %10.4F | 18                      |
| 5     | Depreciation and Amortization (Income Statement)                       | %10.4F | 2                       |
| 6     | Income Taxes - Total                                                   | %10.4F | 3                       |
| 7     | Earnings Per Share (Diluted) - Including Extraordinary Items           | %10.4F |                         |
| 8     | Income Before Extraordinary Items                                      | %12.4F | 4                       |
| 9     | Earnings Per Share (Diluted) - Excluding Extraordinary Items           | %10.4F |                         |
| 10    | Income Before Extraordinary Items - Adj for Com Stk Equiv - \$ Savings | %12.4F | 5                       |
| 11    | Earnings Per Share (Basic) - Including Extraordinary Items             | %10.4F | 6                       |
| 12    | Price - Close                                                          | %10.4F |                         |
| 13    | Price - Close                                                          | %10.4F |                         |
| 14    | Price - Close                                                          | %10.4F |                         |
| 15    | Common Shares Used to Calculate Earnings Per Share (Basic)             | %10.4F |                         |
| 16    | Dividends Per Share by Ex-Date                                         | %10.4F |                         |
| 17    | Adjustment Factor (Cumulative) by Ex-Date                              | %11.6F |                         |
| 18    | Common Shares Traded                                                   | %10.4F |                         |
| 19    | Earnings Per Share (Basic) - Excluding Extraordinary Items             | %10.4F | 6                       |
| 20    | Dividends - Common - Indicated Annual                                  | %10.4F |                         |
| 21    | Operating Income Before Depreciation                                   | %12.4F |                         |
| 22    | Interest Expense                                                       | %12.4F | 7                       |
| 23    | Pretax Income                                                          | %12.4F |                         |
| 24    | Dividends - Preferred                                                  | %12.4F |                         |
| 25    | Income Before Extraordinary Items - Available for Common               | %12.4F |                         |

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### Compustat Industrial Quarterly Data Items (Itemid = iqitem#)

| SUBNO | Item Name                                                               | Format | Footnote<br>Quarterly Slot |
|-------|-------------------------------------------------------------------------|--------|----------------------------|
| 26    | Extraordinary Items and Discontinued Operations                         | %12.4f |                            |
| 27    | Earnings Per Share (Basic) Excluding Extraordinary Items - 12 Mo Moving | %10.4f |                            |
| 28    | Common Shares Used to Calculate Earnings Per Share - 12 Months Moving   | %10.4f |                            |
| 29    | Interest Income - Total (Financial Services)                            | %10.4f |                            |
| 30    | Cost of Goods Sold                                                      | %12.4f | 8                          |
| 31    | Non-Operating Income (Expense)                                          | %12.4f |                            |
| 32    | Special Items                                                           | %12.4f |                            |
| 33    | Discontinued Operations                                                 | %12.4f |                            |
| 34    | Foreign Currency Adjustment (Income Account)                            | %10.4f | 17                         |
| 35    | Deferred Taxes (Income Account)                                         | %10.4f |                            |
| 36    | Cash and Short-Term Investments                                         | %12.4f |                            |
| 37    | Receivables - Total                                                     | %12.4f |                            |
| 38    | Inventories - Total                                                     | %12.4f |                            |
| 39    | Current Assets - Other                                                  | %12.4f |                            |
| 40    | Current Assets - Total                                                  | %12.4f |                            |
| 41    | Depreciation, Depletion and Amortization (Accumulated) (Balance Sheet)  | %12.4f | 22                         |
| 42    | Property, Plant, and Equipment - Total (Net)                            | %12.4f |                            |
| 43    | Assets - Other                                                          | %12.4f |                            |
| 44    | Assets - Total/Liabilities and Stockholders' Equity - Total             | %12.4f | 9                          |
| 45    | Debt in Current Liabilities                                             | %12.4f | 10                         |
| 46    | Accounts Payable                                                        | %12.4f | 11                         |
| 47    | Income Taxes Payable                                                    | %10.4f | 12                         |
| 48    | Current Liabilities - Other                                             | %12.4f |                            |
| 49    | Current Liabilities - Total                                             | %12.4f |                            |
| 50    | Liabilities - Other                                                     | %12.4f |                            |
| 51    | Long-Term Debt - Total                                                  | %12.4f | 13                         |
| 52    | Deferred Taxes and Investment Tax Credit (Balance Sheet)                | %10.4f |                            |
| 53    | Minority Interest (Balance Sheet)                                       | %10.4f |                            |
| 54    | Liabilities - Total                                                     | %12.4f |                            |
| 55    | Preferred Stock - Carrying Value                                        | %10.4f |                            |
| 56    | Common Stock                                                            | %10.4f | 14                         |
| 57    | Capital Surplus                                                         | %10.4f | 15                         |
| 58    | Retained Earnings                                                       | %12.4f | 16                         |
| 59    | Common Equity - Total                                                   | %12.4f |                            |
| 60    | Stockholders' Equity - Total                                            | %12.4f |                            |
| 61    | Common Shares Outstanding                                               | %12.4f | 19                         |
| 62    | Invested Capital - Total                                                | %12.4f |                            |
| 63    | Price - High - First Month of Quarter                                   | %10.4f |                            |
| 64    | Price - High - Second Month of Quarter                                  | %10.4f |                            |
| 65    | Price - High - Third Month of Quarter                                   | %10.4f |                            |
| 66    | Price - Low - First Month of Quarter                                    | %10.4f |                            |
| 67    | Price - Low - Second Month of Quarter                                   | %10.4f |                            |
| 68    | Price - Low - Third Month of Quarter                                    | %10.4f |                            |
| 69    | Net Income (Loss)                                                       | %12.4f | 4                          |
| 70    | Interest Expense - Total (Financial Services)                           | %10.4f |                            |
| 71    | Preferred Stock - Redeemable                                            | %12.4f |                            |
| 72    | Dividends Per Share by Payable Date                                     | %10.4f |                            |
| 73    | Working Capital Change - Other - Increase (Decrease) (Stmnt of Changes) | %12.4f |                            |
| 74    | Cash & Cash Equivalents - Increase (Decrease) (Statement of Cash Flows) | %12.4f |                            |
| 75    | Changes in Current Debt (Statement of Cash Flows)                       | %10.4f |                            |

## Compustat Industrial Quarterly Data Items (Itemid = iqitem#)

| SUBNO | Item Name                                                                | Format | Footnote<br>Quarterly Slot |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 76    | Income Before Extraordinary Items (Statement of Cash Flows)              | %12.4f |                            |
| 77    | Depreciation and Amortization (Statement of Cash Flows)                  | %12.4f |                            |
| 78    | Extraordinary Items & Discontinued Operations (Statement of Cash Flows)  | %12.4f |                            |
| 79    | Deferred Taxes (Statement of Cash Flows)                                 | %10.4f |                            |
| 80    | Equity In Net Loss (Earnings) (Statement of Cash Flows)                  | %10.4f |                            |
| 81    | Funds from Operations - Other (Statement of Cash Flows)                  | %12.4f |                            |
| 82    | Funds from Operations - Total (Statement of Changes)                     | %12.4f |                            |
| 83    | Sale of Property, Plant, and Equipment (Statement of Cash Flows)         | %10.4f |                            |
| 84    | Sale of Common and Preferred Stock (Statement of Cash Flows)             | %10.4f |                            |
| 85    | Sale of Investments (Statement of Cash Flows)                            | %12.4f |                            |
| 86    | Long-Term Debt - Issuance (Statement of Cash Flows)                      | %10.4f |                            |
| 87    | Sources of Funds - Other (Statement of Changes)                          | %12.4f |                            |
| 88    | Sources of Funds - Total (Statement of Changes)                          | %12.4f |                            |
| 89    | Cash Dividends (Statement of Cash Flows)                                 | %10.4f |                            |
| 90    | Capital Expenditures (Statement of Cash Flows)                           | %10.4f | 21                         |
| 91    | Increase in Investments (Statement of Cash Flows)                        | %12.4f |                            |
| 92    | Long-Term Debt - Reduction (Statement of Cash Flows)                     | %12.4f |                            |
| 93    | Purchase of Common and Preferred Stock (Statement of Cash Flows)         | %12.4f |                            |
| 94    | Acquisitions (Statement of Cash Flows)                                   | %10.4f |                            |
| 95    | Uses of Funds - Other (Statement of Changes)                             | %12.4f |                            |
| 96    | Uses of Funds - Total (Statement of Changes)                             | %12.4f |                            |
| 97    | Net Interest Income (Tax Equivalent)                                     | %10.4f |                            |
| 98    | Treasury Stock - Total Dollar Amount                                     | %10.4f |                            |
| 99    | Non-performing Assets - Total                                            | %10.4f |                            |
| 100   | Adjustment Factor (Cumulative) by Payable Date                           | %10.4f |                            |
| 101   | Working Capital Change - Total (Statement of Changes)                    | %12.4f |                            |
| 102   | Sale of Prop, Plnt, & Equip & Sale of Invs - Loss(Gain)(Stmt of Csh Flo) | %10.4f |                            |
| 103   | Accounts Receivable - Decrease (Increase) (Statement of Cash Flows)      | %10.4f |                            |
| 104   | Inventory - Decrease (Increase) (Statement of Cash Flows)                | %10.4f |                            |
| 105   | Accounts Payable & Accrued Liabilities - Inc (Decrease) (St Cash Flows)  | %10.4f |                            |
| 106   | Income Taxes - Accrued - Increase (Decrease) (Statement of Cash Flows)   | %12.4f |                            |
| 107   | Assets and Liabilities - Other (Net Change) (Statement of Cash Flows)    | %12.4f |                            |
| 108   | Operating Activities - Net Cash Flow (Statement of Cash Flows)           | %12.4f |                            |
| 109   | Short-Term Investments - Change (Statement of Cash Flows)                | %10.4f |                            |
| 110   | Investing Activities - Other (Statement of Cash Flows)                   | %12.4f |                            |
| 111   | Investing Activities - Net Cash Flow (Statement of Cash Flows)           | %12.4f |                            |
| 112   | Financing Activities - Other (Statement of Cash Flows)                   | %12.4f |                            |
| 113   | Financing Activities - Net Cash Flow (Statement of Cash Flows)           | %12.4f |                            |
| 114   | Exchange Rate Effect (Statement of Cash Flows)                           | %12.4f |                            |
| 115   | Interest Paid - Net (Statement of Cash Flows)                            | %10.4f |                            |
| 116   | Income Taxes Paid (Statement of Cash Flows)                              | %12.4f |                            |
| 117   | Accounting Changes - Cumulative Effect                                   | %12.4f | 23                         |
| 118   | Property, Plant, and Equipment - Total (Gross)                           | %12.4f |                            |
| 119   | Extraordinary Items                                                      | %12.4f |                            |
| 120   | Common Stock Equivalents - Dollar Savings                                | %10.4f |                            |
| 121   | Currency Translation Rate                                                | %10.4f |                            |
| 122   | Accounts Payable - Expanded                                              | %10.4f |                            |
| 124   | Common Shares Used to Calculate Earnings Per Share (Diluted)             | %10.4f |                            |
| 125   | Dilution Adjustment                                                      | %12.4f |                            |
| 126   | Dilution Available - Excluding                                           | %12.4f |                            |

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### Compustat Industrial Quarterly Data Items (Itemid = iqitem#)

| SUBNO | Item Name                                                                | Format | Footnote<br>Quarterly Slot |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 171   | Provision for Loan/Asset Losses                                          | %10.4f |                            |
| 172   | Reserve for Loan/Asset Losses                                            | %10.4f |                            |
| 173   | Net Interest Margin                                                      | %10.4f |                            |
| 174   | Risk-Adjusted Capital Ratio - Tier 1                                     | %10.4f |                            |
| 175   | Risk-Adjusted Capital Ratio - Total                                      | %10.4f |                            |
| 176   | Net Charge-Offs                                                          | %10.4f |                            |
| 177   | Earnings per Share from Operations                                       | %10.4f | 24                         |
| 178   | Earnings per Share from Operations - 12 Months Moving                    | %10.4f |                            |
| 179   | Earnings per Share (Diluted) - Excluding Extraordinary Items - 12 Mo Mov | %10.4f |                            |
| 180   | Earnings per Share from Operations (Diluted) - 12 Months Moving          | %10.4f |                            |
| 181   | Earnings Per Share from Operations - Diluted                             | %10.4f |                            |
| 233   | Long-Term Investments - Total                                            | %12.4f |                            |
| 234   | Goodwill                                                                 | %12.4f |                            |
| 235   | Intangibles - Other                                                      | %12.4f |                            |
| 236   | Long-Term Assets - Other                                                 | %12.4f |                            |
| 237   | Retained Earnings - Unadjusted                                           | %12.4f |                            |
| 238   | Accumulated Other Comprehensive Income                                   | %12.4f |                            |
| 239   | Deferred Compensation                                                    | %12.4f |                            |
| 240   | Stockholders' Equity Adjustments - Other                                 | %12.4f |                            |
| 241   | Acquisition/Merger Pretax                                                | %12.4f |                            |
| 242   | Acquisition/Merger After-Tax                                             | %12.4f |                            |
| 243   | Acquisition/Merger Basic EPS Effect                                      | %12.4f |                            |
| 244   | Acquisition/Merger Diluted EPS Effect                                    | %12.4f |                            |
| 245   | Gain/Loss Pretax                                                         | %12.4f |                            |
| 246   | Gain/Loss After-Tax                                                      | %12.4f |                            |
| 247   | Gain/Loss Diluted EPS Effect                                             | %12.4f |                            |
| 248   | Gain/Loss Basic EPS Effect                                               | %12.4f |                            |
| 249   | Impairments of Goodwill Pretax                                           | %12.4f |                            |
| 250   | Impairments of Goodwill After-Tax                                        | %12.4f |                            |
| 251   | Impairments of Goodwill Basic EPS Effect                                 | %12.4f |                            |
| 252   | Impairments of Goodwill Diluted EPS Effect                               | %12.4f |                            |
| 253   | Settlement (Litigation/Insurance) Pretax                                 | %12.4f |                            |
| 254   | Settlement (Litigation/Insurance) Aftertax                               | %12.4f |                            |
| 255   | Settlement (Litigation/Insurance) Basic EPS Effect                       | %12.4f |                            |
| 256   | Settlement (Litigation/Insurance) Diluted EPS Effect                     | %12.4f |                            |
| 257   | Restructuring Costs Pretax                                               | %12.4f |                            |
| 258   | Restructuring Costs After-tax                                            | %12.4f |                            |
| 259   | Restructuring Costs Basic EPS Effect                                     | %12.4f |                            |
| 260   | Restructuring Costs Diluted EPS Effect                                   | %12.4f |                            |
| 261   | Writedowns Pretax                                                        | %12.4f |                            |
| 262   | Writedowns After-Tax                                                     | %12.4f |                            |
| 263   | Writedowns Basic EPS Effect                                              | %12.4f |                            |
| 264   | Writedowns Diluted EPS Effect                                            | %12.4f |                            |
| 265   | Special Items Pretax - Other                                             | %12.4f |                            |
| 266   | Special Items Aftertax - Other                                           | %12.4f |                            |
| 267   | Special Items Basic EPS Effect - Other                                   | %12.4f |                            |
| 268   | Special Items Diluted EPS Effect - Other                                 | %12.4f |                            |
| 269   | Accumulated Depreciation of Real Estate Property                         | %12.4f |                            |
| 270   | Real Estate Property - Total                                             | %12.4f |                            |
| 271   | Gain/Loss on Sale of Property                                            | %12.4f |                            |



## Compustat Industrial Quarterly Data Items (Itemid = iqitem#)

| SUBNO | Item Name                                 | Format | Footnote Quarterly Slot |
|-------|-------------------------------------------|--------|-------------------------|
| 272   | Depreciation and Amortization of Property | %12.4f |                         |
| 273   | ADR Ratio                                 | %12.4f |                         |
| 274   | In Process Research & Development         | %12.4f |                         |
| 275   | Goodwill Amortization                     | %12.4f | 70                      |
| 276   | Goodwill Amortization Footnote            |        |                         |
| 277   | Common Shares Issued                      | %12.4f |                         |
| 278   | Stock Compensation Expense                | %12.4f |                         |
| 279   | Tax Benefit of Stock Options              | %12.4f |                         |

## Compustat Bank Annual Data Items (Itemid = baitem#)

| SUBNO | Item Name                                                                | Itemid | Footnote Slot Availability |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 1     | Cash and Due from Banks                                                  | %10.4f | 1                          |
| 2     | U.S. Treasury Securities                                                 | %10.4f |                            |
| 3     | Securities of Other U.S. Government Agencies and Corporations            | %10.4f |                            |
| 4     | Due from Banks (Memorandum Entry)                                        | %10.4f |                            |
| 5     | Other Securities (Taxable)                                               | %10.4f |                            |
| 6     | Total Taxable Investment Securities                                      | %10.4f |                            |
| 7     | Obligations of States and Political Subdivisions                         | %10.4f |                            |
| 8     | Total Investment Securities                                              | %10.4f | 2                          |
| 9     | Geographic Designation Code                                              | %10.4f |                            |
| 10    | Trading Account Securities                                               | %10.4f |                            |
| 11    | Federal Funds Sold and Securities Purchased under Agreement to Resell    | %10.4f | 11                         |
| 12    | Treasury Stock - Dollar Amount - Common                                  | %10.4f |                            |
| 13    | Foreign Loans                                                            | %10.4f | 16                         |
| 14    | Real Estate Loans - Total                                                | %10.4f |                            |
| 15    | Real Estate Loans - Insured or Guaranteed by U.S. Government             | %10.4f |                            |
| 16    | Treasury Stock - Dollar Amount - Preferred                               | %10.4f |                            |
| 17    | Loans to Financial Institutions                                          | %10.4f |                            |
| 18    | Loans for Purchasing or Carrying Securities                              | %10.4f |                            |
| 19    | Interest Income - Total (Financial Services)                             | %10.4f |                            |
| 20    | Commercial or Industrial Loans                                           | %10.4f |                            |
| 21    | Loans to Individuals for Household, Family, & Oth Consumer Expenditures  | %10.4f |                            |
| 22    | Other Loans                                                              | %12.4f | 3                          |
| 23    | Loans (Gross)                                                            | %10.4f | 17                         |
| 24    | Unearned Discount/Income                                                 | %10.4f |                            |
| 25    | Interest on Due from Banks (Restated)                                    | %10.4f | 38                         |
| 26    | Interest Income on Fed Funds Sold & Secs Purchased under Agmnt to Resell | %10.4f |                            |
| 27    | Other Interest Income (Restated)                                         | %10.4f |                            |
| 28    | Bank Premises, Furniture, and Fixtures                                   | %10.4f |                            |
| 29    | Real Estate Other than Bank Premises                                     | %10.4f |                            |
| 30    | Investments in Nonconsolidated Subsidiaries                              | %10.4f |                            |
| 31    | Direct Lease Financing                                                   | %12.4f |                            |
| 32    | Customers' Liability to this Bank on Acceptances Outstanding             | %10.4f |                            |
| 33    | Other Assets                                                             | %10.4f |                            |
| 34    | Intangible Assets                                                        | %10.4f |                            |
| 35    | Aggregate Miscellaneous Assets                                           | %10.4f |                            |
| 36    | Total Assets (Gross)                                                     | %12.4f | 5                          |
| 37    | Trading Account Income (Restated)                                        | %10.4f |                            |

## CRSP/COMPUSTAT MERGED DATABASE GUIDE

### Compustat Bank Annual Data Items (Itemid = baitem#)

| SUBNO | Item Name                                                                | Itemid | Footnote Slot Availability |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 38    | Other Current Operating Revenue (Restated)                               | 10.4f  |                            |
| 39    | Interest Expense on Fed Funds Purch'd & Secs Sold under Agmnts to Repur  | 10.4f  |                            |
| 40    | Assets Held for Sale                                                     | 10.4f  |                            |
| 41    | Total Demand Deposits                                                    | 10.4f  |                            |
| 42    | Net Interest Margin                                                      | 10.4f  |                            |
| 43    | Consumer Type Time Deposits                                              | 10.4f  |                            |
| 44    | Total Savings Deposits                                                   | 10.4f  |                            |
| 45    | Money Market Certificates of Deposit                                     | 10.4f  |                            |
| 46    | All Other Time Deposits                                                  | 12.4f  |                            |
| 47    | Total Time Deposits (Other than Savings)                                 | 12.4f  | 6                          |
| 48    | Risk-Adjusted Capital Ratio - Tier 1                                     | 10.4f  |                            |
| 49    | Interest on Long-Term Debt and Not Classified as Capital (Restated)      | 10.4f  |                            |
| 50    | Interest on Other Borrowed Money (Restated)                              | 10.4f  |                            |
| 51    | Other Interest Expense (Restated)                                        | 10.4f  |                            |
| 52    | Salaries and Related Expenses (Restated)                                 | 10.4f  |                            |
| 53    | Total Deposits - Worldwide                                               | 12.4f  | 7                          |
| 54    | Total Domestic Deposits                                                  | 10.4f  |                            |
| 55    | Total Foreign Deposits                                                   | 10.4f  |                            |
| 56    | Demand Deposits of IPC                                                   | 10.4f  |                            |
| 57    | Time and Savings Deposits of IPC                                         | 10.4f  |                            |
| 58    | Deposits of U.S. Government                                              | 10.4f  |                            |
| 59    | Deposits of States and Political Subdivisions                            | 10.4f  |                            |
| 60    | Deposits of Foreign Governments                                          | 10.4f  |                            |
| 61    | Deposits of Commercial Banks                                             | 10.4f  |                            |
| 62    | Certified and Officers' Checks                                           | 10.4f  |                            |
| 63    | Other Deposits                                                           | 10.4f  | 4                          |
| 64    | Risk-Adjusted Capital Ratio - Total                                      | 10.4f  |                            |
| 65    | Federal Funds Purchased & Securities Sold under Agreements to Repurchase | 10.4f  |                            |
| 66    | Commercial Paper                                                         | 10.4f  |                            |
| 67    | Long-Term Debt Not Classified as Capital                                 | 10.4f  |                            |
| 68    | Other Liabilities for Borrowed Money                                     | 10.4f  |                            |
| 69    | Total Borrowings                                                         | 10.4f  | 8                          |
| 70    | Valuation Portion of Reserve for Loan Losses                             | 10.4f  |                            |
| 71    | Mortgage Indebtedness                                                    | 10.4f  |                            |
| 72    | Acceptances Executed by or for the Account of this Bank and Outstanding  | 10.4f  |                            |
| 73    | Other Liabilities (Excluding Valuation Reserves)                         | 10.4f  |                            |
| 74    | Deferred Portion of Reserve for Loan Losses                              | 10.4f  |                            |
| 75    | Contingency Portion of Reserve for Loan Losses                           | 10.4f  |                            |
| 76    | Total Liabilities (Excluding Valuation Reserves)                         | 12.4f  |                            |
| 77    | Minority Interest in Consolidated Subsidiaries                           | 10.4f  |                            |
| 78    | Reserve(s) for Bad Debt Losses on Loans                                  | 10.4f  | 9                          |
| 79    | Depreciation and Amortization                                            | 10.4f  |                            |
| 80    | Reserves on Securities                                                   | 10.4f  |                            |
| 81    | Total Reserves on Loans and Securities                                   | 10.4f  |                            |
| 82    | Fixed Expense (Occupancy and Equipment - Net)(Restated)                  | 10.4f  |                            |
| 83    | Other Current Operating Expense (Restated)                               | 10.4f  |                            |
| 84    | Capital Notes and Debentures                                             | 10.4f  |                            |
| 85    | Minority Interest (Income Account) (Restated)                            | 10.4f  |                            |
| 86    | Preferred Stock - Par Value                                              | 10.4f  |                            |
| 87    | Number of Shares of Preferred Stock Outstanding                          | 10.4f  |                            |

## Compustat Bank Annual Data Items (Itemid = baitem#)

| SUBNO | Item Name                                                                | Itemid | Footnote Slot Availability |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 88    | Common Stock - Par Value                                                 | %10.4f |                            |
| 89    | Number of Shares Authorized                                              | %10.4f |                            |
| 90    | Number of Shares Outstanding                                             | %10.4f |                            |
| 91    | Number of Shares Reserved for Conversion                                 | %10.4f |                            |
| 92    | Treasury Stock - Cost                                                    | %10.4f |                            |
| 93    | Number of Treasury Shares Held                                           | %10.4f |                            |
| 94    | Special Items                                                            | %10.4f |                            |
| 95    | Surplus                                                                  | %10.4f |                            |
| 96    | Undivided Profits                                                        | %10.4f |                            |
| 97    | Reserves for Contingencies and Other Capital Reserves                    | %10.4f |                            |
| 98    | Total Extraordinary Items - Net of Taxes (Restated)                      | %10.4f |                            |
| 99    | Total Book Value                                                         | %10.4f |                            |
| 100   | Net Income Per Share - Excluding Extraordinary Items(Restated)           | %10.4f |                            |
| 101   | Total Liabilities, Reserves and Capital Accounts                         | %12.4f |                            |
| 102   | Total Capital Accounts and Minority Interest (Invested Capital)          | %10.4f |                            |
| 103   | Net Current Op Erngs Per Share – Excluding Extraordinary Items - Fully   | %10.4f |                            |
| 104   | Foreign Exchange Gains and Losses                                        | %10.4f |                            |
| 105   | Interest and Fees on Loans                                               | %10.4f | 10                         |
| 106   | Interest Inc on Fed Funds Sld & Secs Purchased under Agrmnts to Resell   | %10.4f | 22                         |
| 108   | Interest and Discount on U.S. Treasury Securities                        | %10.4f |                            |
| 109   | Interest on Securities of U.S. Government Agencies and Corporations      | %10.4f |                            |
| 110   | Interest and Dividends on Other Taxable Securities                       | %10.4f |                            |
| 111   | Total Taxable Investment Revenue                                         | %10.4f |                            |
| 112   | Interest on Obligations of States and Political Subdivisions             | %10.4f |                            |
| 113   | Other Interest Income                                                    | %10.4f |                            |
| 114   | Trading Account Interest (Memorandum Entry)                              | %10.4f |                            |
| 115   | Total Interest and Dividends on Investments                              | %10.4f | 13                         |
| 116   | Aggregate Loan and Investment Revenue                                    | %10.4f |                            |
| 117   | Trust Department Income                                                  | %10.4f |                            |
| 118   | Service Charges on Deposit Accounts                                      | %10.4f |                            |
| 119   | Other Svce Charges, Collection & Exchange Charges,Comms & Fees           | %10.4f |                            |
| 120   | Trading Account Income                                                   | %10.4f |                            |
| 121   | Other Current Operating Revenue                                          | %10.4f |                            |
| 122   | Interest on Due from Banks                                               | %10.4f |                            |
| 123   | Aggregate Other Current Operating Revenue                                | %10.4f |                            |
| 124   | Total Current Operating Revenue                                          | %10.4f | 15                         |
| 125   | Number of Employees                                                      | %10.4f |                            |
| 126   | Salaries and Wages of Officers and Employees                             | %10.4f |                            |
| 127   | Pension and Employee Benefits                                            | %10.4f |                            |
| 128   | Average Fed Funds Purch'd & Securities Sold under Agmnts to Repurchase   | %10.4f |                            |
| 129   | Interest on Deposits                                                     | %10.4f |                            |
| 130   | Interest Exp on Fed Fnds Purch'd & Securities Sold under Agmnts to Repur | %10.4f |                            |
| 131   | Interest on Other Borrowed Money                                         | %10.4f |                            |
| 132   | Interest on Long-Term Debt - Not Classified as Capital                   | %10.4f |                            |
| 133   | Total Interest on Deposits and Borrowings                                | %10.4f |                            |
| 134   | Interest on Capital Notes and Debentures                                 | %10.4f |                            |
| 135   | Provision for Loan Losses                                                | %10.4f |                            |
| 136   | Occupancy Expense of Bank Premises - Net                                 | %10.4f |                            |
| 137   | Total Interest Expense                                                   | %10.4f | 14                         |
| 138   | Rental Income                                                            | %10.4f |                            |

## CRSP/COMPUSTAT MERGED DATABASE GUIDE

### Compustat Bank Annual Data Items (Itemid = baitem#)

| SUBNO | Item Name                                                               | Itemid | Footnote Slot Availability |
|-------|-------------------------------------------------------------------------|--------|----------------------------|
| 139   | Furniture and Equipment: Depreciation, Rental Cost, Servicing, Etc.     | %10.4f |                            |
| 140   | Number of Employees (Restated)                                          | %10.4f |                            |
| 141   | Number of Domestic Officers (Restated)                                  | %10.4f |                            |
| 142   | Other Current Operating Expense                                         | %10.4f |                            |
| 143   | Aggregate Other Current Operating Expense                               | %10.4f | 18                         |
| 144   | Total Current Operating Expense                                         | %10.4f | 18                         |
| 145   | Current Operating Earnings before Income Tax                            | %10.4f |                            |
| 146   | Income Taxes Applicable to Current Operating Earnings                   | %10.4f | 20                         |
| 147   | Net Current Operating Earnings                                          | %10.4f |                            |
| 148   | Minority Interest (Income Account)                                      | %10.4f |                            |
| 149   | Net Current Operating Earnings after Minority Interest                  | %10.4f |                            |
| 150   | Average Cash and Due from Banks (Restated)                              | %10.4f |                            |
| 151   | Average Loans - Domestic (Restated)                                     | %10.4f |                            |
| 152   | Average Loans - Foreign (Restated)                                      | %10.4f | 39                         |
| 153   | Net Pre-Tax Profit or Loss on Securities Sold or Redeemed               | %10.4f |                            |
| 154   | Average Fed Fnds Sold & Secs Purchased under Agmnts to Resell (Rest)    | %10.4f | 40                         |
| 155   | Average Trading Account Securities (Restated)                           | %10.4f |                            |
| 156   | Average Deposits (Restated)                                             | %12.4f |                            |
| 157   | Tax Effect on Profit or Loss on Securities Sold or Redeemed             | %10.4f |                            |
| 158   | Net Aft-Tax Profit/Loss on Secs Sld or Redmd Prior to Eff of Min Int    | %10.4f |                            |
| 159   | Minority Interest in Aft-Tax Profit/Loss on Securities Sold or Redeemed | %10.4f |                            |
| 160   | Net After-Tax & Aft-Min Int Profit/Loss on Secs Sld or Redeemed         | %10.4f |                            |
| 161   | Net Income                                                              | %10.4f |                            |
| 162   | Preferred Dividend Deductions                                           | %10.4f |                            |
| 163   | Savings Due to Common Stock Equivalents                                 | %10.4f |                            |
| 164   | Net Income Available for Common                                         | %10.4f |                            |
| 165   | Net Current Operating Earnings Available for Common                     | %10.4f |                            |
| 166   | Interest and Fees on Loans (Restated)                                   | %10.4f | 12                         |
| 167   | Taxable Investment Income (Restated)                                    | %10.4f |                            |
| 168   | Non-Taxable Investment Income (Restated)                                | %10.4f |                            |
| 169   | Total Interest Income (Restated)                                        | %10.4f |                            |
| 170   | Trust Department Income (Restated)                                      | %10.4f |                            |
| 171   | Total Current Operating Revenue (Restated)                              | %10.4f | 21                         |
| 172   | Interest on Deposits (Restated)                                         | %10.4f |                            |
| 173   | Total Interest on Deposits and Borrowings (Restated)                    | %10.4f | 23                         |
| 174   | Interest on Capital Notes and Debentures (Restated)                     | %10.4f |                            |
| 175   | Total Interest Expense (Restated)                                       | %10.4f | 27                         |
| 176   | Provision for Loan Losses (Restated)                                    | %10.4f |                            |
| 177   | Cash Dividends Declared on Common Stock                                 | %10.4f |                            |
| 178   | Cash Dividends Declared on Preferred Stock                              | %10.4f |                            |
| 179   | Total Current Operating Expense (Restated)                              | %10.4f | 28                         |
| 180   | Current Operating Earnings before Income Tax (Restated)                 | %10.4f |                            |
| 181   | Income Taxes Applicable to Current Operating Earnings (Restated)        | %10.4f | 29, 30                     |
| 182   | Net After-Tax & Aft-Min Int Profit/Loss on Secs Sld/Redeemed (Rest)     | %10.4f |                            |
| 183   | Net Income (Restated)                                                   | %10.4f |                            |
| 184   | Net Current Operating Earnings Per Share (Restated)                     | %10.4f | 31                         |
| 185   | Total Extraordinary Items Net of Taxes                                  | %10.4f |                            |
| 186   | Common Shares Used in Calculating Earnings Per Share (Restated)         | %10.4f | 32                         |
| 187   | Additions to Reserves for Bad Debts Due to Mergers and Absorptions      | %10.4f |                            |
| 188   | Additions to Reserves for Bad Debts Due to Recoveries Credit'd to Rsrvs | %10.4f |                            |

## Compustat Bank Annual Data Items (Itemid = baitem#)

| SUBNO | Item Name                                                                | Itemid | Footnote Slot Availability |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 189   | Deductions from Reserves for Bad Debts Due to Losses Charged to Reserves | 10.4f  |                            |
| 190   | Net Credit/Charge to Reserves for Bad Debts from Loan Recs or Chg-offs   | 10.4f  |                            |
| 191   | Transfers to Reserves for Bad Debts from Inc and/or to/from Undiv Prfts  | 10.4f  |                            |
| 192   | Average Preferred Stock - Par Value (Restated)                           | 10.4f  |                            |
| 193   | Net Current Operating Earnings Per Share – Excluding Extraordinary Items | 10.4f  | 24                         |
| 194   | Net Income per Share - Excluding Extraordinary Items                     | 10.4f  |                            |
| 195   | Net Income per Share - Including Extraordinary Items                     | 10.4f  |                            |
| 196   | Common Shares Used in Calculating Earnings per Share                     | 10.4f  | 25                         |
| 197   | Net Cur Op Earnings per Shares - Exc Extraordinary Items & Fully Diluted | 10.4f  | 26                         |
| 198   | Net Income per Share - Excluding Extraordinary Items - Fully Diluted     | 10.4f  |                            |
| 199   | Net Income per Share - Including Extraordinary Items - Fully Diluted     | 10.4f  |                            |
| 200   | Common Shares Used in Calculating Fully Diluted Earnings per Share       | 10.4f  | 19                         |
| 201   | Common Dividends Paid per Share by Ex-Date                               | 10.4f  |                            |
| 202   | Annualized Dividend Rate                                                 | 10.4f  |                            |
| 203   | Market Price - High                                                      | 10.4f  |                            |
| 204   | Market Price - Low                                                       | 10.4f  |                            |
| 205   | Market Price - Close                                                     | 10.4f  |                            |
| 206   | Common Shares Traded                                                     | 10.4f  |                            |
| 207   | Average Reserve for Bad Debt Losses on Loans (Restated)                  | 10.4f  | 37                         |
| 208   | Number of Domestic Offices                                               | 10.4f  |                            |
| 209   | Number of Foreign Offices                                                | 10.4f  |                            |
| 210   | Average Loans (Restated)                                                 | 12.4f  | 33                         |
| 211   | Average Assets (Gross)                                                   | 12.4f  |                            |
| 212   | Average Loans (Gross)                                                    | 12.4f  |                            |
| 213   | Average Cash and Due from Banks                                          | 10.4f  |                            |
| 214   | Average Taxable Investments                                              | 10.4f  |                            |
| 215   | Average Non-Taxable Investments                                          | 10.4f  |                            |
| 216   | Average Deposits                                                         | 10.4f  |                            |
| 217   | Average Deposits - Time and Savings                                      | 10.4f  |                            |
| 218   | Average Deposits - Demand                                                | 10.4f  |                            |
| 219   | Average Borrowings                                                       | 10.4f  |                            |
| 220   | Average Fed Funds Sold & Secs Purchased under Agrmnts to Resell          | 10.4f  |                            |
| 221   | Average Book Value                                                       | 10.4f  |                            |
| 222   | Average Fed Funds Purch'd & Secs Sold under Agrmnts to Repurchase        | 10.4f  |                            |
| 223   | Average Taxable Investments (Restated)                                   | 10.4f  |                            |
| 224   | Average Non-Taxable Investments (Restated)                               | 10.4f  |                            |
| 225   | Average Assets (Restated)                                                | 12.4f  | 34                         |
| 226   | Average Deposits - Time and Savings (Restated)                           | 12.4f  | 35                         |
| 227   | Average Deposits - Demand (Restated)                                     | 10.4f  |                            |
| 228   | Average Deposits - Foreign (Restated)                                    | 12.4f  |                            |
| 229   | Average Borrowings (Restated)                                            | 10.4f  |                            |
| 230   | Average Long-Term Debt (Restated)                                        | 10.4f  |                            |
| 231   | Average Book Value (Restated)                                            | 10.4f  | 36                         |
| 232   | Adjustment Factor - Cumulative by Ex-Date                                | 10.4f  |                            |

## CRSP/COMPUSTAT MERGED DATABASE GUIDE

### Compustat Bank Quarterly Data Items (Itemid = bqitem#)

| SUBNO | Item Name                                                                | Format | Footnote<br>Quarterly Slot |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 1     | Cash and Due from Banks                                                  | %10.4f | 1                          |
| 2     | U.S. Treasury Securities                                                 | %10.4f |                            |
| 3     | Securities of Other U.S. Government Agencies and Corporations            | %10.4f |                            |
| 4     | Due from Banks (Memorandum Entry)                                        | %10.4f |                            |
| 5     | Other Securities (Taxable)                                               | %10.4f |                            |
| 6     | Total Taxable Investment Securities                                      | %10.4f |                            |
| 7     | Obligations of States and Political Subdivisions                         | %10.4f |                            |
| 8     | Total Investment Securities                                              | %10.4f | 2                          |
| 9     | Geographic Designation Code                                              | %10.4f |                            |
| 10    | Trading Account Securities                                               | %10.4f |                            |
| 11    | Federal Funds Sold and Securities Purchased under Agreement to Resell    | %10.4f | 4                          |
| 12    | S&P Senior Debt Rating                                                   | %10.4f |                            |
| 13    | Unearned Discount/Income                                                 | %10.4f | 9                          |
| 14    | Loans (Gross)                                                            | %12.4f | 3                          |
| 15    | Treasury Stock - Dollar Amount - Common                                  | %10.4f |                            |
| 16    | Treasury Stock - Dollar Amount - Preferred                               | %10.4f |                            |
| 17    | Interest Income - Total (Financial Services)                             | %10.4f |                            |
| 18    | Assets Held for Sale                                                     | %10.4f |                            |
| 19    | Bank Premises, Furniture, and Fixtures                                   | %10.4f |                            |
| 20    | Real Estate Other than Bank Premises                                     | %10.4f |                            |
| 21    | Investments in Nonconsolidated Subsidiaries                              | %10.4f |                            |
| 22    | Direct Lease Financing                                                   | %12.4f |                            |
| 23    | Customers' Liability to this Bank on Acceptances Outstanding             | %10.4f |                            |
| 24    | Other Assets                                                             | %10.4f |                            |
| 25    | Intangible Assets                                                        | %10.4f |                            |
| 26    | Aggregate Miscellaneous Assets                                           | %10.4f |                            |
| 27    | Total Assets (Gross)                                                     | %12.4f | 5                          |
| 28    | Net Interest Margin                                                      | %10.4f |                            |
| 29    | Risk-Adjusted Capital Ratio - Tier 1                                     | %10.4f |                            |
| 30    | Total Demand Deposits                                                    | %10.4f |                            |
| 31    | Average Investments                                                      | %10.4f |                            |
| 32    | Average Loans (Gross)                                                    | %12.4f | 6                          |
| 33    | Total Savings Deposits                                                   | %10.4f |                            |
| 34    | Average Assets (Gross)                                                   | %12.4f | 22                         |
| 35    | Average Deposits - Demand                                                | %10.4f |                            |
| 36    | Total Time Deposits (Other than Savings)                                 | %12.4f | 11                         |
| 37    | Average Deposits - Time and Savings                                      | %12.4f |                            |
| 38    | Average Deposits                                                         | %12.4f |                            |
| 39    | Average Deposits - Foreign                                               | %12.4f |                            |
| 40    | Average Borrowings                                                       | %10.4f |                            |
| 41    | Average Total Stockholders' Equity                                       | %10.4f |                            |
| 42    | Total Deposits - Worldwide                                               | %12.4f | 7                          |
| 43    | Total Domestic Deposits                                                  | %10.4f |                            |
| 44    | Total Foreign Deposits                                                   | %10.4f |                            |
| 45    | Risk-Adjusted Capital Ratio - Total                                      | %10.4f |                            |
| 46    | Federal Funds Purchased & Securities Sold under Agreements to Repurchase | %10.4f |                            |
| 47    | Commercial Paper                                                         | %10.4f |                            |
| 48    | Long-Term Debt Not Classified as Capital                                 | %10.4f |                            |
| 49    | Other Liabilities for Borrowed Money                                     | %10.4f |                            |

## Compustat Bank Quarterly Data Items (Itemid = bqitem#)

| SUBNO | Item Name                                                               | Format | Footnote<br>Quarterly Slot |
|-------|-------------------------------------------------------------------------|--------|----------------------------|
| 50    | Total Borrowings                                                        | %10.4f | 8                          |
| 51    | Depreciation and Amortization                                           | %10.4f |                            |
| 52    | Mortgage Indebtedness                                                   | %10.4f |                            |
| 53    | Acceptances Executed by or for the Account of this Bank and Outstanding | %10.4f |                            |
| 54    | Other Liabilities (Excluding Valuation Reserves)                        | %10.4f |                            |
| 55    | Special Items                                                           | %10.4f |                            |
| 57    | Total Liabilities (Excluding Valuation Reserves)                        | %12.4f | 10                         |
| 58    | Minority Interest in Consolidated Subsidiaries                          | %10.4f |                            |
| 59    | Reserve(s) for Bad Debt Losses on Loans                                 | %10.4f |                            |
| 60    | Valuation Portion of Reserve for Loan Losses                            | %10.4f |                            |
| 61    | Deferred Portion of Reserve for Loan Losses                             | %10.4f |                            |
| 62    | Contingency Portion of Reserve for Loan Losses                          | %10.4f |                            |
| 64    | Capital Notes and Debentures                                            | %10.4f |                            |
| 66    | Preferred Stock - Par Value                                             | %10.4f |                            |
| 67    | Common Stock - Par Value                                                | %10.4f |                            |
| 68    | Number of Shares Outstanding                                            | %10.4f | 32                         |
| 69    | Surplus                                                                 | %10.4f |                            |
| 70    | Undivided Profits                                                       | %10.4f |                            |
| 71    | Reserves for Contingencies and Other Capital Reserves                   | %10.4f |                            |
| 73    | Total Book Value                                                        | %10.4f |                            |
| 75    | Total Liabilities, Reserves and Capital Accounts                        | %12.4f |                            |
| 76    | Total Capital Accounts and Minority Interest (Invested Capital)         | %10.4f |                            |
| 77    | Report Date of Quarterly Earnings Per Share                             | %10.4f | 12                         |
| 78    | Interest and Fees on Loans                                              | %10.4f | 21                         |
| 79    | Interest Inc on Fed Funds Sld & Secs Purchased under Agrmnts to Resell  | %10.4f |                            |
| 81    | Interest and Discount on U.S. Treasury Securities                       | %10.4f |                            |
| 82    | Interest on Securities of U.S. Government Agencies and Corporations     | %10.4f |                            |
| 83    | Interest and Dividends on Other Taxable Securities                      | %10.4f |                            |
| 84    | Total Taxable Investment Revenue                                        | %10.4f |                            |
| 85    | Interest on Obligations of States and Political Subdivisions            | %10.4f |                            |
| 86    | Foreign Exchange Gains and Losses                                       | %10.4f |                            |
| 87    | Total Interest and Dividends on Investments                             | %10.4f | 13                         |
| 88    | Other Interest Income                                                   | %10.4f |                            |
| 89    | Trust Department Income                                                 | %10.4f |                            |
| 90    | Service Charges on Deposit Accounts                                     | %10.4f |                            |
| 91    | Other Svce Charges, Collection & Exchange Charges, Comms & Fees         | %10.4f |                            |
| 92    | Trading Account Income                                                  | %10.4f |                            |
| 93    | Other Current Operating Revenue                                         | %10.4f |                            |
| 94    | Interest on Due from Banks                                              | %10.4f |                            |
| 95    | Aggregate Other Current Operating Revenue                               | %10.4f |                            |
| 96    | Total Current Operating Revenue                                         | %10.4f | 15                         |
| 97    | Salaries and Wages of Officers and Employees                            | %10.4f |                            |
| 98    | Pension and Employee Benefits                                           | %10.4f |                            |
| 100   | Interest on Deposits                                                    | %10.4f |                            |
| 101   | Interest Expense on Fed Funds Purch'd & Secs Sold under Agmnts to Repur | %10.4f |                            |
| 102   | Interest on Other Borrowed Money                                        | %10.4f |                            |
| 103   | Interest on Long-Term Debt - Not Classified as Capital                  | %10.4f |                            |
| 104   | Total Interest Expense                                                  | %10.4f | 17                         |
| 105   | Interest on Capital Notes and Debentures                                | %10.4f |                            |
| 106   | Provision for Loan Losses                                               | %10.4f |                            |

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### Compustat Bank Quarterly Data Items (Itemid = bqitem#)

| SUBNO | Item Name                                                                | Format | Footnote<br>Quarterly Slot |
|-------|--------------------------------------------------------------------------|--------|----------------------------|
| 107   | Occupancy Expense of Bank Premises - Net                                 | %10.4f |                            |
| 108   | Furniture and Equipment: Depreciation, Rental Cost, Servicing, Etc.      | %10.4f |                            |
| 110   | Other Current Operating Expense                                          | %10.4f |                            |
| 111   | Aggregate Other Current Operating Expense                                | %10.4f | 18                         |
| 112   | Total Current Operating Expense                                          | %10.4f | 18                         |
| 113   | Current Operating Earnings before Income Tax                             | %10.4f |                            |
| 114   | Income Taxes Applicable to Current Operating Earnings                    | %10.4f | 20                         |
| 115   | Net Current Operating Earnings                                           | %10.4f |                            |
| 116   | Minority Interest (Income Account)                                       | %10.4f |                            |
| 117   | Net Current Operating Earnings after Minority Interest                   | %10.4f |                            |
| 118   | Net Pre-Tax Profit or Loss on Securities Sold or Redeemed                | %10.4f |                            |
| 121   | Tax Effect on Profit or Loss on Securities Sold or Redeemed              | %10.4f |                            |
| 122   | Minority Interest in Aft-Tax Profit/Loss on Securities Sold or Redeemed  | %10.4f |                            |
| 123   | Net After-Tax & Aft-Min Int Profit/Loss on Secs Sld or Redeemed          | %10.4f |                            |
| 124   | Net Income                                                               | %10.4f |                            |
| 125   | Preferred Dividend Deductions                                            | %10.4f |                            |
| 126   | Savings Due to Common Stock Equivalents                                  | %10.4f |                            |
| 127   | Net Income Available for Common                                          | %10.4f |                            |
| 128   | Net Current Operating Earnings Available for Common                      | %10.4f |                            |
| 129   | Cash Dividends Declared on Common Stock                                  | %10.4f |                            |
| 130   | Cash Dividends Declared on Preferred Stock                               | %10.4f |                            |
| 131   | Net After-Tax Transfers bet Undivided Profits & Valuation Reserves       | %10.4f |                            |
| 132   | Total Extraordinary Items Net of Taxes                                   | %10.4f |                            |
| 133   | Net Credit/Charge to Reserves for Bad Debts from Loan Recs or Chg-offs   | %10.4f |                            |
| 135   | Common Dividends Paid per Share by Payable Date                          | %10.4f |                            |
| 136   | Adjustment Factor - Cumulative by Payable Date                           | %10.4f |                            |
| 137   | Net Current Operating Earnings Per Share - Excluding Extraordinary Items | %10.4f | 15, 23                     |
| 138   | Net Income per Share - Excluding Extraordinary Items                     | %10.4f |                            |
| 139   | Net Income per Share - Including Extraordinary Items                     | %10.4f |                            |
| 140   | Common Shares Used in Calculating Quarterly Earnings per Share           | %10.4f | 24                         |
| 141   | Net Cur Op Erns per Share - Excluding Extraordinary Items - 12 Mo Moving | %10.4f |                            |
| 142   | Net Income per Share - Excluding Extraordinary Items - 12 Mo Moving      | %10.4f |                            |
| 143   | Net Income per Share - Including Extraordinary Items - 12 Mo Moving      | %10.4f |                            |
| 144   | Common Shares Used in Calculating 12-Mo Moving Earnings per Share        | %10.4f |                            |
| 145   | Net Cur Op Earnings per Shares - Exc Extraordinary Items & Fully Diluted | %10.4f | 27                         |
| 146   | Net Income per Share - Excluding Extraordinary Items - Fully Diluted     | %10.4f |                            |
| 147   | Net Income per Share - Including Extraordinary Items - Fully Diluted     | %10.4f |                            |
| 148   | Common Shares Used in Calculating Quartly Fully Diluted Earnings per Shr | %10.4f | 28                         |
| 149   | Net Cur Op Erngs/Share - Ex Extrd Items - Fully Diluted - 12 Mo Mov      | %10.4f |                            |
| 150   | Net Inc/Share - Exclgd Extraordinary Items - Fully Diluted - 12 Mo Mov   | %10.4f |                            |
| 151   | Net Inc per Share - Inc Extraordinary Items - Fully Diluted - 12 Mo Mov  | %10.4f |                            |
| 152   | Common Shrs Used in Calc 12 Mo Moving Fully Diluted Earnings per Share   | %10.4f |                            |
| 153   | Market Price - 1st Month of Quarter - High                               | %10.4f |                            |
| 154   | Market Price - 1st Month of Quarter - Low                                | %10.4f |                            |
| 155   | Market Price - 1st Month of Quarter - Close                              | %10.4f |                            |
| 156   | Market Price - 2nd Month of quarter - High                               | %10.4f |                            |
| 157   | Market Price - 2nd Month of Quarter - Low                                | %10.4f |                            |
| 158   | Market Price - 2nd Month of Quarter - Close                              | %10.4f |                            |
| 159   | Market Price - 3rd Month of quarter - High                               | %10.4f |                            |
| 160   | Market Price - 3rd Month of Quarter - Low                                | %10.4f |                            |



## Compustat Bank Quarterly Data Items (Itemid = bqitem#)

| SUBNO | Item Name                                   | Format | Footnote<br>Quarterly Slot |
|-------|---------------------------------------------|--------|----------------------------|
| 161   | Market Price - 3rd Month of Quarter - Close | %10.4f |                            |
| 162   | Common Dividends Paid per Share by Ex-Date  | %10.4f |                            |
| 163   | Annualized Dividend Rate                    | %10.4f |                            |
| 164   | Common Shares Traded (Quarterly)            | %10.4f |                            |
| 165   | Adjustment Factor - Cumulative by Ex-Date   | %10.4f |                            |

## CCM PDE Data

| SUBNO <sup>1</sup> | Item Name                                                               | Itemid     | Format |
|--------------------|-------------------------------------------------------------------------|------------|--------|
| 0                  | Adjustment Factor (Cumulative) by Ex-Date                               | cumadj     | %11.6f |
| 0                  | Adjustment Factor (Raw) by Ex-Date                                      | rawadj     | %13.4f |
| 0                  | Annualized Dividend Rate                                                | divrte     | %13.4f |
| 0                  | Book Value per Share                                                    | bkv        | %13.4f |
| 0                  | Cash Equivalent Distributions per Share by Ex-Date                      | cheqvm     | %13.4f |
| 0                  | Common Shares Outstanding                                               | cshoq      | %12.4f |
| 0                  | Common Shares Traded                                                    | shstrd     | %12.4f |
| 0                  | Dividends Per Share by Ex-Date                                          | div        | %10.4f |
| 0                  | Earnings Per Share (Basic) Excluding Extraordinary Items - 12 Mo Moving | ern        | %10.4f |
| 0                  | Earnings per Share from Operations - 12 Months Moving                   | oeeps12    | %10.4f |
| 0                  | Footnote - Adjustment Factor (Raw) by Ex-Date                           | rawadjftnt | %-4.4s |
| 0                  | Footnote - Comparability Status                                         | comstafnt  | %-4.4s |
| 0                  | Footnote - Dividends per Share by Ex-Date                               | divftnt    | %-4.4s |
| 0                  | Footnote - Issue Status Alert                                           | isafnt     | %-4.4s |
| 0                  | Monthly GICs                                                            | gicm       | %8d    |
| 0                  | Monthly S&P Primary Index Marker                                        | cpspinm    | %-4.4s |
| 0                  | Net Asset Value per Share                                               | navm       | %13.4f |
| 0                  | Price - Close                                                           | prcc       | %10.4f |
| 0                  | Price - High                                                            | prch       | %10.4f |
| 0                  | Price - Low                                                             | prcl       | %10.4f |

<sup>1</sup>The *cstprint /s\** option can be used to identify which segment id (SID), if any is assigned to the desired item during the specified date range



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