WRDS Credit Rating Data Overview

Qingyi (Freda) Song Drechsler

WRDS Research Team

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Overview

There are four main sources for credit rating related data on WRDS platform:

- Company S&P Credit Ratings (Comp.adsprate) data
- Legacy Compustat RatingsXpress
- Capital IQ S&P Credit Ratings
- Mergent FISD Bond Ratings

This document reviews the data offerings from these sources, compares their coverage and provides usage case study. The table below is a high-level summary of the data comparison.

Category	Comp.adsprate	Legacy RatingsXpress	S&P Credit Ratings	Mergent
Time series	1978-2017	1923-2012	1923-present	1960* - present
Rating Objects	- Company (Entity)	- Entity - Instrument - Issue/maturity	- Entity - Instrument - Security	- Issue
Geographic Coverage	US	Global	Global	US
Rating Provider	S&P	S&P	S&P	S&P, Moody's, Fitch, Duff and Phelps Rating

* Mergent reports data as early as 1894 but earlier records are sparse and possibly data error.

We will go over in the rest of the document the detailed comparison across different data sources, as well as a case study showing how to gather rating related information from each source.

Option 1: Company S&P Credit Ratings (comp.adsprate)

Easiest to use: rating data that's part of Compustat – comp.adsprate

Location:
The dataset is referred to as "Company S&P Credit Ratings", and resides on WRDS server inside the Compustat data tree as *comp.adsprate*:
/wrds/comp/sasdata/d_na/rating

There is also a web query built for this data:
https://wrds-www.wharton.upenn.edu/pages/get-data/compustat-capital-iq-standard-poors/compustat/north-america-daily/ratings/

Coverage:
Comp.adsprate data is organized in *monthly frequency*, reporting S&P Long Term and Short Term Issuer Credit Rating as well as Subordinated Debt Rating. It focuses on **US companies**' ratings.

Below is a fragment of Apple's rating record from this dataset (GVKEY = 001690)

ABLE: Comp.Adsprate (Company S&P Credit Ratings) WHERE(gvkey='001690')

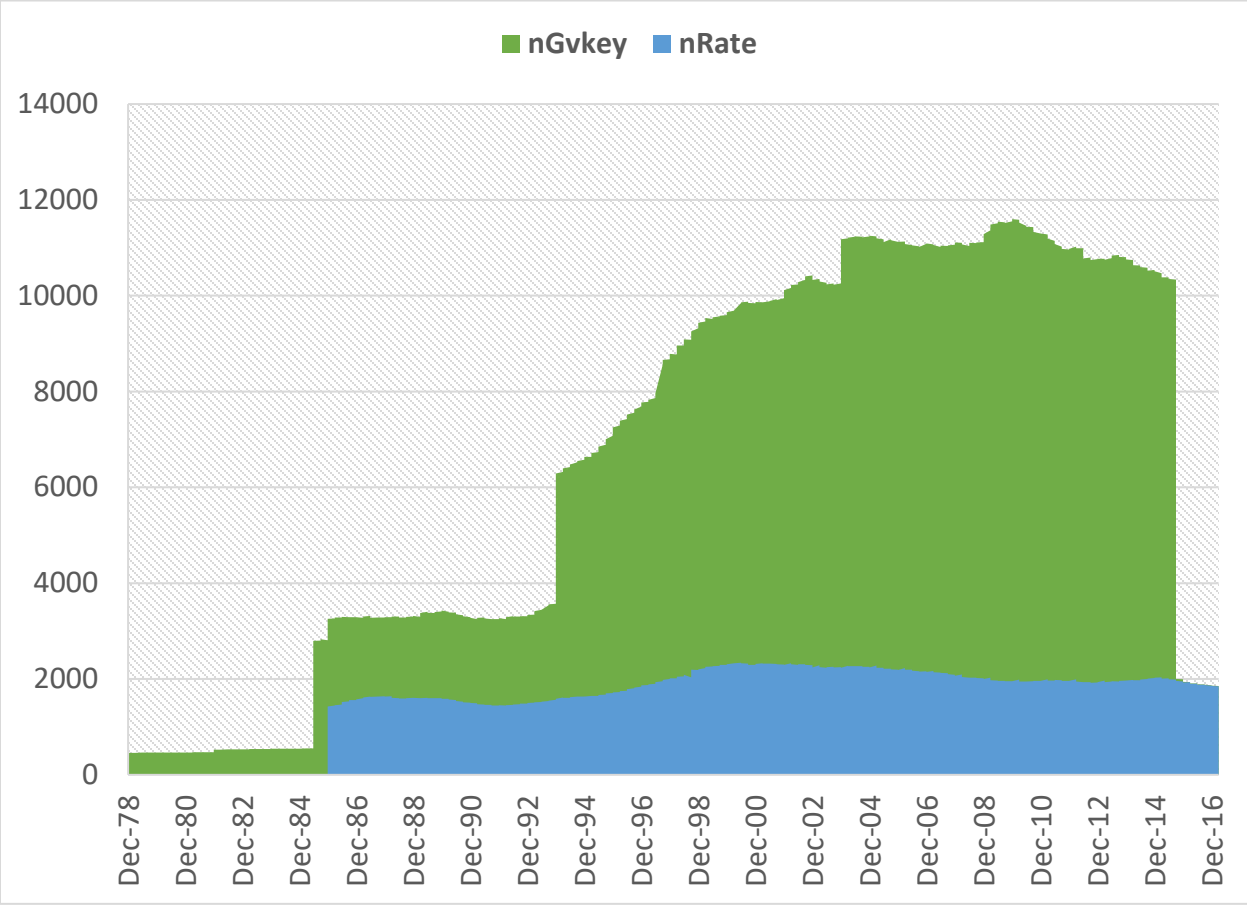
Global Company Key	S&P Domestic Long Term Issuer Credit Rating	S&P Subordinated Debt Rating	S&P Domestic Short Term Issuer Credit Rating	Data Date
001690	A-		A-2	19931130
001690	A-		A-2	19931231
001690	A-		A-2	19940131
001690	A-		A-2	19940228
001690	A-		A-2	19940331
001690	A-		A-2	19940430
001690	A-		A-2	19940531
001690	A-		A-2	19940630
001690	A-		A-2	19940731
001690	BBB		A-2	19940831
001690	BBB		A-2	19940930
001690	BBB		A-2	19941031
001690	BBB		A-2	19941130
001690	BBB		A-2	19941231

Historical data for *comp.adsprate* started in November 1978, but real meaningful coverage only started in December 1985. Data series ended in 2017. Compustat converted the event-style credit rating data to a "filled" time series data series, i.e., carrying most recent credit rating event forward to fill in the time in between, until next credit rating event occurred.

The chart below illustrates the coverage of *comp.adsprate* data. The green area represents the number of unique *GVKEY*s reported in the data each month, and the blue area represents the number of unique

*GVKEY*s with any non-missing rating variable (either long term, short term or subordinated debt rating). Although the *datadate* variable in this dataset started in 1978/11, the rating data are mostly missing in the earlier years, and the coverage started to populate in 1985/12. And on average, for a typical month, there are around 1650 GVKEYs reporting valid rating data.

Time Series Coverage of *comp.adsprate*



If a research project's time span happens to be a subset of the Company S&P Credit Ratings (*comp.adsprate*) coverage, then this is a very easy dataset to incorporate into the research data structure as *GVKEY* is already pre-linked as primary identifier.

Option 2: Legacy Compustat RatingsXpress

Used to be the main source for credit rating data, but S&P sunset the data in 2012.

Location:

This data is part of the S&P data tree, and the component datasets are stored on WRDS server at:
/wrds/comp/sasdata/sprat

There are also web queries based on this set of data:
https://wrds-www.wharton.upenn.edu/pages/get-data/compustat-capital-iq-standard-poors/legacy-compustat/ratingsxpress/

Coverage:

Rating Types

There are three types of credit ratings included in the legacy RatingsXpress: at Entity level, at Issue/Maturity level and at Instrument level.

- The Entity level credit rating is straightforward: one can roughly translate it as issuer level rating.
    - For instance, company AMR Corp (entity_id = 100004) reported long-term rating of A- in 1985.

- The Issue/Maturity level credit rating is also easy to understand: it covers issue-level rating information, and as it's specific to a fixed income security which comes with a maturity date, and hence the dataset name Issue/Maturity.
    - For instance, company AMR Corp (entity_id = 100004) has one outstanding issue "US$100 mil 9.75% nts due 03/15/2000" (instr_id = 77614) reported long term rating of A in 1990.
- The Instrument level rating is related to the Issue/Maturity level rating but slightly different. An instrument can act as either the umbrella for securities or stand on its own as a rated program. As such it has no maturity date. When acted as an umbrella for securities, an instrument is associated with one-to-many securities that have specific maturity dates. When as rated programs, instruments include bank note programs, shelf registrations, medium-term notes, and etc.
    - For instance, company AMR Corp (entity_id = 100004) has one instrument "US$400 mil shelf-sr reg 05/01/86: sr unsecd (prelim)" (instr_id = 20104) rated A- in the long term category in 1986.

Cross Sectional Coverage

Legacy RatingsXpress' coverage is broader than that of the *comp.adsprate* data: it covers not only company (sector = GLOBISS), but also Structured Finance (sector = STRUC).

Entity Sector	Number of Entities
GLOBISS	40160
STRUC	24893
PUBFIN	6649
UNMAPPED	9
MGDFUNDS	6

For instance, below are records for randomly selected entities of the Structured Finance category:

Entity ID	Entity Legal Name	Entity Sector
104050	PNC Mortgage Securities Corp.	STRUC
107639	Morgan Stanley Capital I Inc.	STRUC
110529	CitiMortgage Inc.	STRUC

And below are some examples of PUBFIN sector entities:

Entity ID	Entity Legal Name	Entity Sector
10259	Connecticut Dev Auth	PUBFIN
10322	New Jersey Hlth Care Facs Fincg Auth	PUBFIN
11093	District of Columbia	PUBFIN

Geographically, the Legacy RatingsXpress data has a global coverage and the top 10 countries as measured by number of unique entity ids are:

Country	Number of Entities
USA	34111
CYM	5806
DEU	3298
SUP	2443
GBR	2394
AUS	1722
NLD	1563
MEX	1479
CAN	1402
BRA	1244

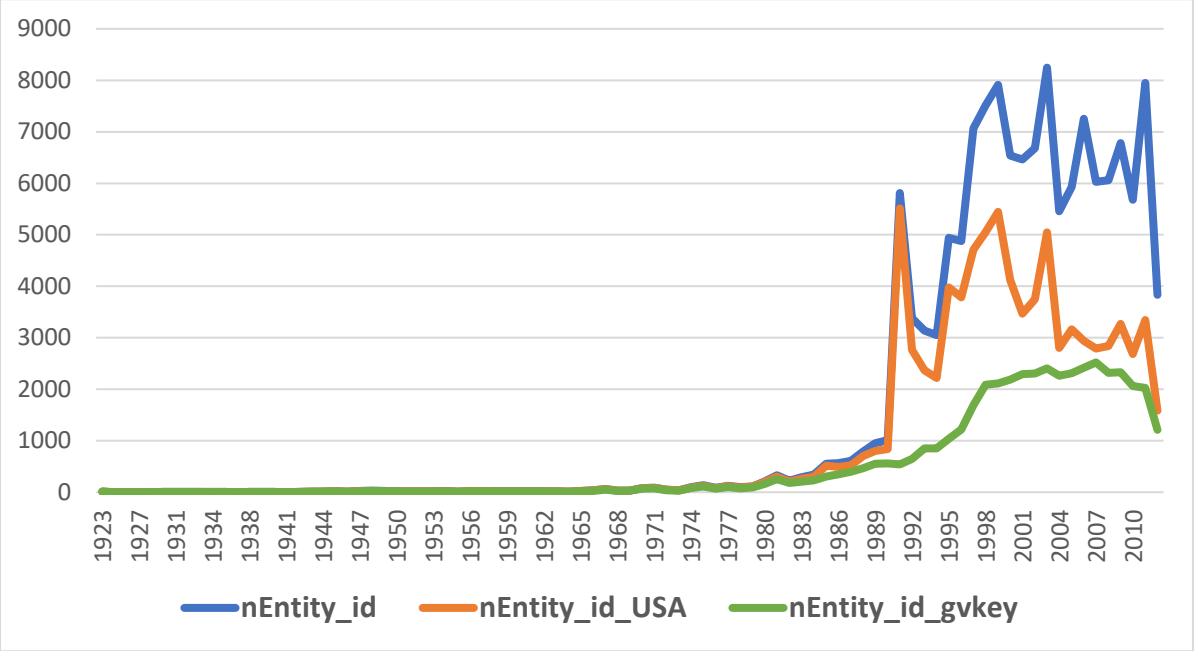
Time Series Coverage

The time series of the Legacy RatingsXpress data is a lot longer compared to the *comp.adsprate* option – the data series starts in 1923. However, the data series also ends earlier in 2012, and based on the coverage drop, it's suspected that the last complete year of coverage was in 2011.

The blue line below reports the number of unique Entity IDs with entity level credit rating in a given year, and the orange line reports the same number for the smaller universe of US corporations. Using the pre-

linked table that contains Entity ID and GVKEY pairs, we also count the number of entities with non-missing GVKEYs in a given year, and the time series is reported in the chart below in solid green line.

Number of Entities Legacy RatingsXpress



Identifiers:

Entity ID (*entity_id*) is the primary identifier in the Legacy RatingsXpress database for entity level rating data. Instrument ID (*instr_id*) is identifier variable used by both Issue/Maturity and Instrument to identify a particular bond or instrument. This convention might first appear to be somewhat confusing. For instance, if researchers are looking for rating for a particular instrument, they need to rely on *entity_id + instr_id* combination using the *IRATING* dataset for instrument rating. Same applies when looking for issue/maturity level rating, one need to use again *entity_id + instr_id* combination using the *IMRATING* dataset for issue/maturity rating.

Beyond the internal permanent identifier Entity ID (*entity_id*), the Legacy RatingsXpress data also provides several other common identifiers: *GVKEY* if exists, *CIK*, *Ticker, CUSIP* (6-digit at entity level and 9-digit at instrument level). It is therefore fairly straightforward to link to Compustat related data using *GVKEY*, and other data sources through *CUSIP*.

Option 3: Capital IQ S&P Credit Ratings

Current flagship credit rating data on WRDS.

Locations:
The datasets are stored on WRDS server at:
/wrds/capitaliq/sasdata/ratings

And the data is also accessible through web query at https://wrds-www.wharton.upenn.edu/pages/get-data/compustat-capital-iq-standard-poors/capital-iq/sp-credit-ratings/

Coverage:
This is the flagship credit rating database on WRDS server, it covers global rating information on issuers, financial institutions, and insurance companies, as well as government entities and structured finance transactions. In terms of rating objects covered, the new Capital IQ S&P Credit Ratings data provides the same coverage as the legacy RatingsXpress data: it covers three types of rating objects: Entity, Instrument, and Security level, corresponding to the legacy RatingsXpress' Entity, Instrument, and Issue/Maturity level respectively. In other words, security and issue/maturity refer to the same type of rating in Capital IQ S&P Credit Ratings and the Legacy RatingsXpress data respectively.

In terms of time series coverage, it also has the longest time series coverage, starting in 1923 and continues to present.

For the overlapping time between the legacy RatingsXpress data and the Capital IQ S&P Credit Ratings data, the rating content should match exactly. So, from a research continuation point of view, researchers should have no concern of seeing a structural change when switching from the legacy RatingsXpress data to the new S&P Credit Ratings data.

Identifiers:
The primary identifiers for the S&P Credit Ratings data are *entity_id, instrument_id* and *security_id*, and the new *entity_id* is mapped exactly to the *entity_id* from the legacy RatingsXpress data. In addition, the *instrument_id* variable is mapped to *instr_id* from legacy RatingsXpress' *Irating* table, and *security_id* is mapped to the *instr_id* from legacy RatingsXpress' *Imrating* table respectively.

Please note that it is indeed somewhat confusing that in the Legacy RatingsXpress data the instrument level and issue/maturity level share the same variable name, *instr_id*, though of different datasets, IRATING and IMRATING. This confusion is largely eliminated in the new S&P Credit Ratings data, as issue/maturity level data is now pinpointed by ID variable *security_id*, and the instrument level data through ID variable *instrument_id*.

In addition to the internal identifiers, there are a whole bunch of additional identifiers included in the data package. All ID variables, including *GVKEY, companyID, CUSIP* and etc can be found in the large dataset Ratings_ids on the server.

Option 4: Mergent FISD's Rating Data

Issue level credit ratings data for US bonds

Mergent FISD data contains a vast amount of information on US bonds, such as issuer and issue level characteristics. In addition, there's also a large coverage on bond issue level credit rating, spanning not only the S&P credit rating (SPR), as is available in the previously discussed data options, but also other major credit rating agencies data, including Moody's (MR), Fitch (FR), and Duff and Phelps Rating (DPR).

Locations:
The datasets are stored on WRDS server at:
/wrds/mergent/sasdata/fisd

And the data is also accessible through web query at https://wrds-www.wharton.upenn.edu/pages/get-data/mergent-fixed-income-securities-database-fisd/bond-ratings/

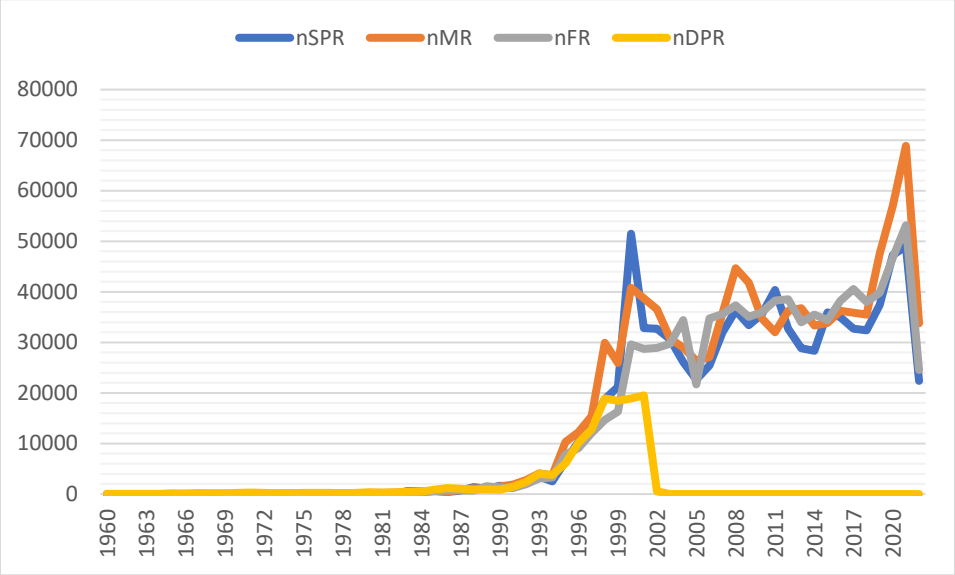
Coverage:
The Mergent FISD data covers over 560,000 unique bond issues, with the top five most common bond types as the followings:

Bond Type	Description	Number of Issues
CMTN	US Corporate Medium Term Notes (MTN)	149,975
ADEB	US Agency Debenture	147,844
CMTZ	US Corporate MTN Zero	82,068
CDEB	US Corporate Debentures	58,930
AMTN	US Agency MTN	37,516

In terms of time series of the credit rating coverage, DPR (yellow line) as a rating source stopped to present data starting in 2003[1], while the other three rating agencies continue to have comparable presence till now.

[1] 2002 is also just partial coverage.

Number of Issues Rated by Year



Identifiers:

The primary identifiers used in the Mergent FISD Rating Data is its unique *issue_id*. In addition, Mergent also provides a complete 9-digit CUSIP at each issue level, and researchers can use this information to link the ratings data from Mergent to other data sources, such as TRACE, for fixed income studies.

Case Study Using Apple

In this section we use one single company, Apple, as an example to compare all levels of credit rating data from the four data sources covered in this document. We aim to show how to reconcile the data from the four credit rating sources discussed above at entity level, and at more refined issue/maturity/security level, as well as instrument level (if available).

Entity Level Rating

Entity level credit rating data is available from three of the four data sources: *comp.adsprate*, legacy RatingsXpress and Capital IQ's S&P credit rating. Mergent FISD only carries rating information at issue level, so it's not included in this part of comparison.

The company credit rating reported in *comp.adsprate* covers both long term and short term rating of issuers, so it maps exactly to the entity credit rating from the RatingsXpress and S&P Credit Ratings. The only difference is that the rating data in *comp.adsprate* is filled in between rating dates into monthly frequency, in other words, prior ratings are carried forward in between rating events. This is why the data from *comp.adsprate* appears to be much "longer" than the other two sources.

For illustration purpose, we "collapse" the monthly observation of the *comp.adsprate* data to only reflect credit events. Below is the collapsed Apple credit rating record from *comp.adsprate*, where the *datadate* column reports the month end date during which a credit event occurred. Note that the *comp.asprate* data ends in 2017.

Code for extracting rating from comp.adsprate:

```
libname legrate '/PROD/wrds/comp/sasdata/sprat';
libname ciqrate '/PROD/wrds/capitaliq/sasdata/ratings';


%let entityid = '112354';
%let gvkeyid = '001690';

data aaplAdsprate;
set comp.adsprate;
where gvkey = &gvkeyid;
run;
```

Apple from *comp.adsprate collapsed* record

gvkey	Splticrm S&P Domestic Long Term Issuer Credit Rating	Spsdrm S&P Subordinated Debt Rating	Spsticrm S&P Domestic Short Term Issuer Credit Rating	datadate
001690				19861031
001690			A-1	19890228
001690	A		A-1	19930531
001690	A-		A-2	19930831
001690	BBB		A-2	19940831
001690	BB-		B	19960131
001690	B+		C	19960430
001690	B+	B-	C	19960630
001690	B	CCC+	C	19970131
001690	B-	CCC	C	19971031
001690	B-			19980930
001690	B+			19981130
001690	BB-			19990831
001690	BB			20000630
001690				20040430
001690	AA+			20130430
001690	AA+		A-1+	20140430

The table below reports the similar information of Apple, taken from legacy RatingsXpress' Entity Ratings History data (*etraing*). Note that legacy RatingsXpress data ends in 2012.

We keep only the relevant columns for comparison purpose. As one can see, the information on credit rating as well the dates matches the month end dates reported in the *comp.adsprate* table above. For instance, Apple got its first short term issuer credit rating of A-1 on 1989/02/02 (column *sdate*), and this translates to the *datadate* record of 1989/02/28, and got its first long term issuer rating of A on 1993/05/13 (column *ldate*), which matches to the 1993/05/31 *datadate,* so on and so forth.

Code for extracting the records from legacy RatingsXpress:

```
data aaplLeg;
set legrate.erating;
where entity_id = &entityid and type='LOCAL CURRENCY';
run;
```

Apple from RatingsXrpess Entity Ratings History (Erating)

entity_id	entity_name	date	rating	ldate	lrating	lodate	loutlook	lcwatch	sdate	srating
112354	Apple Inc.	19890202	--/--/A-1	.		.			19890202	A-1
112354	Apple Inc.	19930514	A/Stable/A-1	19930513	A	19930514	STABLE		19890202	A-1
112354	Apple Inc.	19930819	A/Negative/A-1	19930513	A	19930819	NEGATIVE		19890202	A-1
112354	Apple Inc.	19930820	A-/Watch Neg/A-2	19930819	A-	19930820	NM	NEG	19930819	A-2
112354	Apple Inc.	19940816	BBB/Stable/A-2	19940815	BBB	19940816	STABLE	NM	19930819	A-2
112354	Apple Inc.	19951019	BBB/Negative/A-2	19940815	BBB	19951019	NEGATIVE		19930819	A-2
112354	Apple Inc.	19951218	BBB/Watch Neg/A-2	19940815	BBB	19951218	NM	NEG	19930819	A-2
112354	Apple Inc.	19960129	BB-/Watch Dev/B	19960129	BB-	19960129	NM	DEV	19960129	B
112354	Apple Inc.	19960327	BB-/Watch Neg/B	19960129	BB-	19960129	NM	NEG	19960129	B
112354	Apple Inc.	19960423	B+/Watch Neg/C	19960423	B+	19960423	NM	NEG	19960423	C
112354	Apple Inc.	19960604	B+/Negative/C	19960423	B+	19960604	NEGATIVE	NM	19960423	C
112354	Apple Inc.	19970116	B/Negative/C	19970116	B	19970116	NEGATIVE		19960423	C
112354	Apple Inc.	19970224	B/Negative/NR	19970116	B	19970116	NEGATIVE		19970224	NR
112354	Apple Inc.	19971017	B-/Negative/NR	19971017	B-	19971017	NEGATIVE		19970224	NR
112354	Apple Inc.	19980609	B-/Positive/NR	19971017	B-	19980609	POSITIVE		19970224	NR
112354	Apple Inc.	19981109	B+/Stable/NR	19981109	B+	19981109	STABLE		19970224	NR
112354	Apple Inc.	19990415	B+/Positive/NR	19981109	B+	19990415	POSITIVE		19970224	NR
112354	Apple Inc.	19990826	BB-/Stable/NR	19990826	BB-	19990826	STABLE		19970224	NR
112354	Apple Inc.	20000504	BB-/Watch Pos/NR	19990826	BB-	20000504	NM	POS	19970224	NR
112354	Apple Inc.	20000606	BB/Stable/NR	20000606	BB	20000606	STABLE	NM	19970224	NR
112354	Apple Inc.	20040416	NR/--/NR	20040416	NR	20040416	NR		19970224	NR

Similarity, we extract the entity rating information from the Capital IQ S&P Credit Ratings data (*spRatingData* table). We focus on records with *objectTypeId* = 2 for entity level rating information.

Code for extracting records from CIQ S&P Credit Ratings:

If user wants to read in data directly from the original datasets provide by CIQ:

```
* Reading directly from CIQ raw data;
data aaplCiq;
set ciqrate.spratingdata;
where entitySymbolvalue = &entityid and objecttypeid=2 and substr(ratingtypecode, 1, 3) = 'STD';
run;
```

Alternatively, one can read in data from the set of WRDS constructed datasets that already piece various pieces of information back into one place.

```
* Reading from WRDS generated consolidated data;
data aaplCiqWrds;
set ciqrate.wrds_erating;
where entity_id = &entityid and substr(ratingtypecode, 1, 3) = 'STD';
run;
```

Apple Rating from Capital IQ S&P Creting Ratings (spRatingData)

entitysymbolvalue	ratingtypecode	ratingsymbol	creditwatch	outlook	ratingDate	creditwatchDate	outlookDate
112354	STDSHORT	A-1			19890202	.	.
112354	STDLONG	A		Stable	19930513	.	19930514
112354	STDLONG	A		Negative	19930513	.	19930819
112354	STDLONG	A-	Watch Neg	NM	19930819	19930820	19930820
112354	STDSHORT	A-2	Watch Neg		19930819	19951218	.
112354	STDSHORT	A-2			19930819	.	.
112354	STDLONG	BBB	Watch Neg	NM	19940815	19951218	19951218
112354	STDLONG	BBB		Negative	19940815	.	19951019
112354	STDLONG	BBB	NM	Stable	19940815	19940816	19940816
112354	STDLONG	BB-	Watch Neg	NM	19960129	19960327	19960129
112354	STDLONG	BB-	Watch Dev	NM	19960129	19960129	19960129
112354	STDSHORT	B	Watch Neg		19960129	19960327	.

112354	STDSHORT	B	Watch Dev		19960129	19960129	.
112354	STDLONG	B+	NM	Negative	19960423	19960604	19960604
112354	STDLONG	B+	Watch Neg	NM	19960423	19960423	19960423
112354	STDSHORT	C	NM		19960423	19960604	.
112354	STDSHORT	C	Watch Neg		19960423	19960423	.
112354	STDLONG	B		Negative	19970116	.	19970116
112354	STDSHORT	NR			19970224	.	.
112354	STDLONG	B-		Positive	19971017	.	19980609
112354	STDLONG	B-		Negative	19971017	.	19971017
112354	STDLONG	B+		Stable	19981109	.	19981109
112354	STDLONG	B+		Positive	19981109	.	19990415
112354	STDLONG	BB-		Stable	19990826	.	19990826
112354	STDLONG	BB-	Watch Pos	NM	19990826	20000504	20000504
112354	STDLONG	BB	NM	Stable	20000606	20000606	20000606
112354	STDLONG	NR		NR	20040416	.	20040416
112354	STDLONG	AA+		Stable	20130423	.	20130423
112354	STDSHORT	A-1+			20140424	.	.

Issue Level Credit Rating

As Company S&P Credit Ratings (*comp.adsprate*) data only carries credit rating information at company level, we focus only on the other three data sources, namely legacy RatingsXpress, Capital IQ S&P Credit Ratings and Mergent FISD, when comparing issue level credit ratings.

Within the legacy RatingsXpress data universe, for the company Apple, there are four unique CUSIPs. For the sake of space, we present the relevant variables for one CUSIP (037833AA8) below, where the variable *maturtdate* corresponds to the rating date.

Legacy RatingsXpress Issue/Maturity Rating Example

Legacy RatingsXpress								
entity_id	**entity_name**	**instr_id**	**maturityid**	**cusip**	**matudate**	**maturtdate**	**maturttime**	**maturating**
112354	Apple Inc.	129332	205331	037833AA8	20040215	19940201	0:00:00	A-
112354	Apple Inc.	129332	205331	037833AA8	20040215	19940815	0:00:00	BBB
112354	Apple Inc.	129332	205331	037833AA8	20040215	19951218	16:13:17	BBB/Watch Neg
112354	Apple Inc.	129332	205331	037833AA8	20040215	19960129	16:23:03	BB-/Watch Dev
112354	Apple Inc.	129332	205331	037833AA8	20040215	19960327	12:54:03	BB-/Watch Neg
112354	Apple Inc.	129332	205331	037833AA8	20040215	19960423	16:47:07	B+/Watch Neg
112354	Apple Inc.	129332	205331	037833AA8	20040215	19960604	16:12:48	B+
112354	Apple Inc.	129332	205331	037833AA8	20040215	19970116	14:45:04	B
112354	Apple Inc.	129332	205331	037833AA8	20040215	19971017	12:36:42	B-
112354	Apple Inc.	129332	205331	037833AA8	20040215	19981109	17:09:38	B+
112354	Apple Inc.	129332	205331	037833AA8	20040215	19990826	13:33:57	BB-
112354	Apple Inc.	129332	205331	037833AA8	20040215	20000504	15:10:23	BB-/Watch Pos
112354	Apple Inc.	129332	205331	037833AA8	20040215	20000606	16:59:54	BB
112354	Apple Inc.	129332	205331	037833AA8	20040215	20040215	23:59:59	NR

Capital IQ S&P Credit Ratings database has a more cumbersome structure to extract all security level credit rating. While the database is structured to extract all entity level or instrument level credit rating (through *spInstrumentToEntity* table) for a given company easily, extracting security (issue/maturity) level data requires a roundabout, as for reasons unknown to us, a direct "*spSecurityToEntity"* mapping table is not created by the data vendor.

To do so, users need to first find all the instruments that are associated with a particular entity (through the *spInstrumentToEntity* table). Then, to find all the CUSIP information of the securities/issues that are part of the instrument umbrella. Lastly, as some securities/issues can be part of

multiple instruments, depending on how the instruments are packaged in the first place, then one might need to remove the duplicated records of securities appearing in different instruments, assuming instrument information is not what researchers need in this particular exercise.

Here's a caution on the underlying data: given the way the new Capital IQ S&P Credit Rating data is structured, researchers need to link multiple datasets in order to get a complete picture of the data. The following SQL code is a succinct representation of the linking logic, however, it takes fairly long time to run (over 20 minutes) due to IO bottle neck. I would recommend researchers breaking down the code to smaller pieces, as shown in the next block, which reduces the running time by over 75%.

Compact SQL Code that Runs for a Long Time (Provided by S&P Support):

```
proc sql;
 create table aaplSecCiq as
 select distinct a.*, b.*, c.*, d.*, f.*
 from ciqrate.spRatingData as a /* main data containing time series rating records */

 join ciqrate.spSecurityLevelData as b /* descriptive data on individual security */
   on a.securitySymbolValue=b.securitySymbolValue

 join ciqrate.spRatingIdentifier as c /* cross reference table
                                         symbolTypeID = 73 for Entity,
                                         symbolTypeID = 7352 for Security,
                                         symbolTypeID = 7353 for Instrument*/
   on c.symbolvalue=b.securitySymbolValue
   and c.symbolTypeID=7352

join ciqrate.spRatingDataItemType as d /* data that stores various rating data item description */
   on b.ratingDataItemId=d.ratingDataItemId
   and d.ratingDataItemId=9 /*9--CUSIP9 10--ISIN */

 join ciqrate.spInstrumentToEntity as e /* data linking instrument to its entity */
   on a.instrumentSymbolValue= e.instrumentSymbolValue

 join ciqrate.spEntityLevelData as f /* descriptive data on entity level */
   on e.entitySymbolValue= f.entitySymbolValue
   where f.entitySymbolValue= '112354' AND f.ratingDataItemId=1; /* ratingDataItemId = 1 for Entity Name */
quit;
```

Alternative Data Step Code that Runs Somewhat Faster:

```
data instrList;
 set ciqrate.spInstrumentToEntity; /* List of all instruments that are tied to an entity */;
 where entitySymbolValue = '112354';
run;

proc sql;
 create table instrRating as select distinct a.*
 from ciqrate.spRatingData as a /* Main db with all time series rating data */
 inner join
 instrList as b
 on a.instrumentSymbolValue = b.instrumentSymbolValue;
quit; /* Rating of all instruments that are tied to an entity */;

* Get cusip9 info;
data securCusip;
 set ciqrate.spSecurityLevelData; /* Security Identifiers & Descriptors */
 where ratingdataitemid = 9;      /* 4--CUSIP4, 9--CUSIP9, 10--ISIN */
run;

proc sql;
 create table instrCusip as select distinct
 a.*, b.*
 from InstrRating as a
 inner join
 securCusip as b
 on a.securitySymbolValue=b.securitySymbolValue;
quit; /* Link the instrument rating with security CUSIP9 */;

proc sql;
 create table securRating as select distinct
 a.*, b.*
 from instrCusip as a
 left join
 ciqrate.spratingidentifier as b /* cross reference table for identifiers */
 on a.securitySymbolValue = b.symbolvalue
 having b.symboltypeid = 7352 /* 73--Entity, 7352--Security, 7353--Instrument */
 ;
quit;
```

Calling Directly on WRDS Created Joint Dataset:

```
* Parse out all security_ids associated with Apple;
data aaplids;
set ciqrate.ratings_ids;
where entity_id = '112354' and roletypecode = 'ISSUER';
run;

*Extract security level credit rating;
proc sql;
 create table aaplSecCiqWrds as select distinct
 a.*
 from ciqrate.wrds_srating as a
 inner join aaplids as b
 on a.security_id = b.security_id
 order by security_id, ratingDate, ratingTime;
quit;
```

The table below reports partial columns for the security level credit rating data for one security (CUSIP = 037833AA8) for Apple. And one can match the exact *ratingDate* and *maturtdate* for the rating events for this bond.

CIQ S&P Credit Ratings Example

Capital IQ S&P Credit Ratings								
instrumentsymbolvalue	**securitysymbolvalue**	**objecttypeid**	**ratingsymbol**	**creditwatch**	**ratingactionword**	**ratingDate**	**maturityDate**	**datavalue**
3060	4895	21	BBB		Downgrade	19940815	20040215	037833AA8
3060	4895	21	A-		New Rating	19940201	20040215	037833AA8
3060	4895	21	BBB	Watch Neg		19940815	20040215	037833AA8
3060	4895	21	BB-	Watch Dev	Downgrade	19960129	20040215	037833AA8
3060	4895	21	BB-	Watch Neg		19960129	20040215	037833AA8
3060	4895	21	B+	Watch Neg	Downgrade	19960423	20040215	037833AA8
3060	4895	21	B+	NM		19960423	20040215	037833AA8
3060	4895	21	B-		Downgrade	19971017	20040215	037833AA8
3060	4895	21	B		Downgrade	19970116	20040215	037833AA8
3060	4895	21	B+		Upgrade	19981109	20040215	037833AA8
3060	4895	21	BB-		Upgrade	19990826	20040215	037833AA8
3060	4895	21	BB-	Watch Pos		19990826	20040215	037833AA8
3060	4895	21	BB	NM	Upgrade	20000606	20040215	037833AA8
3060	4895	21	NR		Not Rated	20040215	20040215	037833AA8

Lastly, we turn to Mergent FISD to extract historical rating information at Security or Issue/Maturity level.

```
proc sql;
 create table aaplMergeIss as select distinct
 a.issue_id, a.issuer_id, a.prospectus_issuer_name,
 a.issuer_cusip, a.issue_cusip, a.complete_cusip, a.maturity,
 b.*
 from fisd.fisd_mergedIssue(where=(issuer_id = 263)) as a
 inner join
 fisd.fisd_ratings as b
 on a.issue_id = b.issue_id;
quit;
```

Please note that the Mergent output contains many more records than that of the Capital IQ S&P Credit Ratings output. The reason is that Mergent FISD data carries rating information from not only S&P, but also three other rating entities (Moody's, Fitch, and Duff and Phelps).

For comparison purpose, we filter the Mergent output by focusing on only S&P rating records. The table below reports a subset of rating from Mergent by focusing on S&P Ratings only (*Rating_Type* = SPR) on one CUSIP, and we compare the rating records from Mergent FISD and Capital IQ S&P Credit Ratings.

The rating records are largely identical across two databases as one expects. Mergent FISD also reports records where ratings are "affirmed" while Capital IQ S&P Credit Ratings data does not include these rows. And there is occasional one day lag in terms of respective rating related dates.

Mergent FISD vs Capital IQ S&P Credit Ratings

Capital IQ S&P Credit Ratings					Mergent FISD Ratings					
datavalue	ratingDate	ratingsymbol	creditwatch	outlook	ISSUE_ID	ISSUER_ID	COMPLETE_CUSIP	RATING_DATE	RATING	REASON
037833AA8	19940201	A-		New Rating						
037833AA8	19940815	BBB		Downgrade						
037833AA8	19940815	BBB	Watch Neg							
037833AA8	19960129	BB-	Watch Dev	Downgrade	1183	263	037833AA8	19960129	BB-	IL
037833AA8	19960129	BB-	Watch Neg							
037833AA8	19960423	B+	Watch Neg	Downgrade	1183	263	037833AA8	19960423	B+	CP
037833AA8	19960423	B+	NM							
					1183	263	037833AA8	19960604	B+	AFRM
037833AA8	19970116	B		Downgrade	1183	263	037833AA8	19970115	B	DNG
037833AA8	19971017	B-		Downgrade	1183	263	037833AA8	19971017	B-	DNG
037833AA8	19981109	B+		Upgrade	1183	263	037833AA8	19981109	B+	UPG
					1183	263	037833AA8	19990415	B+	AFRM
037833AA8	19990826	BB-		Upgrade	1183	263	037833AA8	19990827	BB-	UPG
037833AA8	19990826	BB-	Watch Pos							
037833AA8	20000606	BB	NM	Upgrade	1183	263	037833AA8	20000606	BB	UPG
037833AA8	20040215	NR		Not Rated						