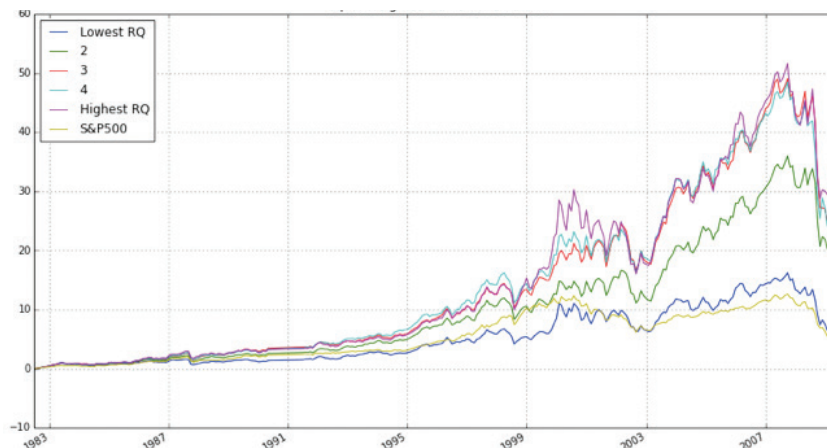


ANALYZE AND MEASURE THE EFFECTIVENESS OF A FIRM'S R&D

Equal Weighted Cumulative Return



WHAT IS RQ?

Research Quotient = percentage increase in revenue from a 1% increase in R&D. RQ is the output elasticity of R&D. RQ offers a universal, uniform, and reliable measure of a firm's R&D productivity.

WHY RQ?

- Link R&D spending to firm growth
- Link R&D spending to market value
- Derive a firm's optimal R&D spending
- Predicts monthly returns

HIGHLIGHTS

Universe

- Estimated for all firms conducting R&D
- Only 50% of firms patent their R&D

Uniform

- Essentially, the ratio of inputs to outputs—interpretation is the same across all firms
- Compare firms across industries

Reliable

Firm behavior and economic outcomes consistent with endogenous growth theory (and validated over 47 years):

- Optimal R&D increases in RQ
- Market value increases in RQ
- Firm growth increases in RQ

▲ Coverage from 1972-2010

RESEARCH WITH RQ

Measuring Innovation,
Cooper, Knott, Yang

R&D Returns Causality: Absorptive Capacity or Organizational IQ, Knott

The Puzzle of Market Value from R&D, Knott, Vieregger

Outsourced R&D and GDP Growth, Knott

Reconciling the Firm Size and Innovation Debate, Knott, Vieregger

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Wharton Research Data Services (WRDS) is the award-winning research platform and business intelligence tool for over 30,000 corporate, academic, government and nonprofit users at over 375 institutions in 33 countries. WRDS provides the user with one location to access over 200 terabytes of data across multiple disciplines including Accounting, Banking, Economics, ESG, Finance, Insurance, Marketing, and Statistics. Flexible data delivery options include a powerful web query method that reduces research time, the WRDS Cloud for executing research and strategy development, and the WRDS client server using PCSAS, Matlab, Python and R. Our Analytics team, doctoral-level support and rigorous data review and validation give clients the confidence to tailor research within complex databases and create a wide range of reliable data models.

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ABOUT PROFESSOR ANNE MARIE KNOTT

Professor of Strategy at Olin Business School

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Numerous articles on innovation and entrepreneurship

- Management Science, Organization Science, Strategic Management Journal, Small Business Economics, Research and Technology Management, Harvard Business Review

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- NSF Award 1246893: The Impact of R&D Practices on R&D Effectiveness
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