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

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

FREE TO ALL ACADEMIC WRDS USERS
ABOUT WRDS

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.

From partnerships with data vendors to our own tools, including the WRDS SEC Analytics Suite and the Wharton School's OTIS, WRDS is the global gold standard in data management and research, all backed by the credibility and leadership of the Wharton School.

ABOUT THE WHARTON SCHOOL

Founded in 1881 as the first collegiate business school, the Wharton School of the University of Pennsylvania is recognized globally for intellectual leadership and ongoing innovation across every major discipline of business education. With a broad global community and one of the most published business school faculties, Wharton creates economic and social value around the world. The Wharton School has 5,000 undergraduate, MBA, executive MBA, and doctoral students; more than 9,000 participants in executive education programs annually and a powerful alumni network of 94,000 graduates.

ABOUT PROFESSOR ANNE MARIE KNOTT

Professor of Strategy at Olin Business School

- Research area: innovation—both entrepreneurship and large scale R&D
- Formerly Assistant Professor at Wharton

Numerous articles on innovation and entrepreneurship


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- NSF Award 0965147: Firm IQ: A Universal, Uniform and Reliable Measure of R&D Effectiveness
- NSF Award 1246893: The Impact of R&D Practices on R&D Effectiveness

BS, Math University of Utah; MBA and Ph.D. from UCLA

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