







Q

Home ► All Journals ► Economics, Finance & Business ► European Accounting Review ► List of Issues ► Volume 12, Issue 4 ► The economic value of the R&D intangible

European Accounting Review >

Volume 12, 2003 - <u>Issue 4: Intangibles and Intellectual Capital</u>

2,147 90 0
Views CrossRef citations to date Altmetric
Original Articles

The economic value of the R&D intangible asset

Marta Ballester ➡, Manuel Garcia-Ayuso & Joshua Livnat

Pages 605-633 | Published online: 17 May 2010









66 Citations

Metrics

Reprints & Permissions

Read this article

Share

Abstract

This study utilizes firm-specific time-series data to estimate the economic value of the research and development (R&D) expenditures that investors consider an asset to the firm. The study uses a modification of the Ohlson (1995) model to estimate the persistence of abnormal earnings, the proportion of current R&D expenditures that represents a source of future benefits to the firm and the amortization rate of that asset. The parameters are estimated from time-series data of market and book values of equity, earnings and R&D expenditures. The study further compares the firm-specific estimates with those resulting from an application of a cross-sectional estimation procedure based on all available companies in the sample and industry-specific subsamples. Results indicate the existence of significant differences in some two-digit SIC code industries between the time-series and the cross-sectional estimates of the parameters and the economic value of the R&D asset. Differences in the capitalization

parameter are associated with the growth in R&D, the profitability of the firm, R&D intensity and the concentration of the industry. Differences in the persistence of earnings are related to the concentration ratio. Finally, differences in the estimated economic value of the R&D asset are associated with the profitability of the company as measured by its return on assets. We further compare the associations between the three different estimates of the R&D asset and subsequent stock returns, as well as the contemporaneous difference between the market and book value of companies. Results indicate that the time-series estimates of the R&D asset show stronger associations with both variables, followed by the intra-industry and the cross-industry cross-sectional estimates. Overall, our results provide evidence that market participants behave as if R&D expenditures have significant future economic benefits to the firm, and show that the cross-sectional and time-series approaches followed when assessing its economic value provide significantly different estimates.

ACKNOWLEDGEMENTS

The authors thank Factset Information Services, Inc., for data and retrieval programs used in this study. The authors also thank seminar participants at New York University and University of Lancaster for their comments. Manuel Garcia-Ayuso acknowledges the funding provided by AECA to the Carlos Cubillo Chair, as well as funds received from the Spanish Ministry of Economy (Project No. PB98-0415).

Notes

¹The only exception in the US is software development costs.

²An exception is the study of Megna and Mueller (<u>1991</u>), where the firm-specific R&D stocks are estimated by regressing sales on previous advertising and R&D expenditures. However, they also include in the model the aggregate advertising and R&D outlays of the firm's competitors in the industry.

³The assumption about the constant rates α and β is made for simplification of estimation. In reality, both are likely to vary depending on the specific stage in the life

cycle of the firm. However, any non-constant series can be converted into a constant series as shown by certainty equivalent discount rates in finance.

⁴We thank an anonymous reviewer for drawing our attention to capital expenditures besides drilling expenses.

⁵The model in this paper assumes a world without taxes, just like the Ohlson (<u>1995</u>) model.

⁶In a prior version of this paper, we repeated the analysis with quarterly data. Parameter estimates and further analyses were very similar to those reported for the annual results.

⁷We also used market values three months after the fiscal year-end with very similar results to those reported in the text.

⁸One must bear in mind that the companies in Panel C are not representative of the entire Compustat population; they are selected to the sample if they disclose R&D expenditures for at least ten years between 1985 and 2001. Thus, R&D is likely to be an important concern for these firms which have also survived for a long time. Our sample selection criteria may have different implications for size and growth opportunities in these companies than in the rest of the population.

⁹A note of caution should be interjected here. The comparison above is necessarily based only on firms that have sufficient history data to estimate the time-series model. These firms may have been more successful at deploying their R&D expenditures, and more reliant on it. Thus, the impact of R&D on the difference between market and book value and future returns may be more closely estimated from the time-series model.

Related Research Data

Implementing Residual Income Valuation With Linear Information Dynamics

Source: The Accounting Review

Penetrating the Book-to-Market Black Box: The R&D Effect

Source: Journal of Business Finance & Accounting

COMPETITIVE DECLINE AND CORPORATE RESTRUCTURING: IS A MYOPIC STOCK

MARKET TO BLAME?

Source: Journal of Applied Corporate Finance

Uncertainty Resolution and the Theory of Depreciation Measurement

Source: Journal of Accounting Research

Intangible Capital Aspects of Advertising and R & D Expenditures

Source: Journal of Industrial Economics

The stock market's valuation of R&D spending and market concentration

Source: Journal of Economics and Business

A Consequential Approach to Accounting for R & D

Related research 1



People also read Recommended articles Cited by 90

Information for

Authors

R&D professionals

Editors

Librarians

Societies

Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

Open access

Overview

Open journals

Open Select

Dove Medical Press

F1000Research

Help and information

Help and contact

Newsroom

All journals

Books

Keep up to date

Register to receive personalised research and resources by email



Sign me up











Accessibility



Copyright © 2025 Informa UK Limited Privacy policy Cookies Terms & conditions



Registered in England & Wales No. 01072954 5 Howick Place | London | SW1P 1WG