Available online at www.sciencedirect.com
ScienceDirect
J. of Multi. Fin. Manag. 18 (2008) 79–93
Journal of MULTINATIONAL FINANCIAL MANAGEMENT
www.elsevier.com/locate/econbase

R&D investments: The effects of different financial environments on firm profitability

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Received 21 April 2006; accepted 27 February 2007
Available online 12 March 2007

Abstract

This study investigates the effects of a country's financial system on current R&D investments and the future profitability of the firm. My paper explores the association between R&D investments and the firms' future profitability in different financial environments. Empirical results from 10 countries reveal that as the proportion of a country's bank-based financing relative to market-based financing increases, the relationship between the R&D investments and the level of future firm profitability increases. Moreover, I find that the effects of R&D investments on the uncertainty of future firm profitability are similar in both market-based and bank-based financial environments.

JEL classification: M41

Keywords: R&D; Future profitability; Financial system

1. Introduction

Since the beginning of the global economy's extensive technological development, financial accounting literature has taken an interest in the relationship between research and development (R&D) expenditures and the future performance of the firm. Both academics and practitioners agree that R&D investments will benefit a firm with positive operating performance and higher valuation responses of the stock market (Lev and Sougiannis, 1996; Eberhart et al., 2004; Chan et al., 2001). When examining a firm's activity in R&D and its link to the future profitabil-

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1042-444X/$ – see front matter
doi:10.1016/j.mulfin.2007.02.006

ity and valuation of the firm, it is also important to recognize the uncertainty involved in the future economic benefits associated with R&D investment. Kothari et al. (2002) and Amir et al. (2004) investigated the uncertainty of future economic benefits related to R&D expenditures and found that R&D expenditures increase future earnings variability significantly more than capital expenditures.

However, earlier research has devoted less attention to R&D investments and their consequences on the firm's future profitability and equity valuation in different financial environments. Booth et al. (2006) found that more R&D expenditures were valued by the stock market in a market-based financial system than a bank-based one. Moreover, Hall and Oriani (2006) found that R&D expenditures were positively related to a firm's current market value, but the strength of the association varied across countries and samples. Previous literature like Yosha (1995), Allen and Gale (1995, 1999), and Boot and Thakor (1997) suggest that there exist certain factors of financial systems, like efficient capital allocation and information disclosure, which are expected to be reflected in the relation between the R&D investments and future firm profitability.

This study investigates how a country's financial system affects the relationship between the current R&D investments and the firm's future profitability. Booth et al. (2006) examined the role of the financial environment in the stock market valuation of R&D spending and suggested that valuation differences between market-based and bank-based financial systems are based on the information asymmetry between a firm and its' investors. However, as a possible explanation of these valuation differences, they did not examine how R&D investments and future profitability are associated. This study examines the mediating effects of financial systems on the future profitability of the firm's R&D investments and thus tries to seek an explanation for the R&D valuation differences. Moreover, Kothari et al. (2002) found that future benefits from R&D expenditures were more uncertain than those from capital expenditures on US markets. However, the uncertainty of future benefits associated with R&D investments may depend on the financial environment of the country. First, equity and bank-based financing can differently impact the kind of investments that firms implement and how flexibly they are financed. Second, the availability of information between the firm and its financers depends on the financial system of the country. These issues together can influence the firm's R&D investments and how likely they are expected to materialize in the future. I expand the study of Kothari et al. (2002) by examining how multinational issues like a country's financial system can explain the relationship between R&D investments and the uncertainty of future firm profitability.

I divide the rest of the paper as following sections. The next section reviews the earlier literature and develops the hypotheses of the study. Section 3 describes the research design and data. In Section 4, I report the empirical results of the study. Finally, Section 5 concludes the paper.

2. Earlier literature and hypotheses

2.1. R&D investments and future profitability

Numerous studies in the financial accounting literature have demonstrated that R&D investments produce positive future operating performance for firms. Lev and Sougiannis (1996) reported that current R&D expenditures were positively associated with subsequent earnings. Eberhart et al. (2004) found that firms that increase their R&D expenditures report significantly positive future operating performance. Past and present empirical research has mainly concentrated on examining whether the stock market recognizes these future benefits associated with