



Contents lists available at ScienceDirect

Journal of Business Research

journal homepage: www.elsevier.com/locate/jbusres

Strength of the association between R&D volatility and firm growth: The roles of corporate governance and tangible asset volatility[☆]

Pankaj C. Patel^{a,1}, Maria João Guedes^{b,*}, Nuno Soares^{c,2}, Vítor da Conceição Gonçalves^{b,3}

^a Villanova University, USA

^b ISEG, Universidade de Lisboa, Portugal

^c Faculdade de Engenharia and CEF.UP, Universidade do Porto, Portugal

ARTICLE INFO

Keywords:

R&D volatility

PPE asset volatility

Corporate governance

Firm growth

ABSTRACT

We investigate the complementary roles of corporate governance; property, plant, and equipment (PPE) volatility; and intangible asset volatility in improving the returns from R&D volatility. With increasing R&D volatility, corporate governance can help align divergent goals and heterogeneous resources both internally and externally. PPE volatility or intangible asset volatility could help synchronize asset turnover with R&D volatility. The findings show that corporate governance and PPE volatility complement R&D volatility in improving a firm's performance.

1. Introduction

The literature on innovation views increasing R&D investments as beneficial to the long-term performance of a firm (Saunila & Ukko, 2014). Some recent works challenge this long-standing view by calling for proactive R&D management through greater R&D volatility (Mudambi & Swift, 2011; Mudambi & Swift, 2014; Swift, 2013). The volatility of R&D induces discipline by discontinuing less valuable R&D projects, increasing internal competition for the R&D budget, and allowing firms to change their foci from exploration to exploitation (Mudambi & Swift, 2014). Indeed, Mudambi and Swift (2014:127) conclude that “persistent, relatively routine changes in R&D expenditure are associated with higher firm growth.”

In this paper, we investigate two research questions: (i) Can returns from R&D volatility be improved through better corporate governance? (ii) Does R&D volatility need to be complemented with volatility in property, plant, and equipment (PPE) or intangible asset investments? Both questions are salient in developing an understanding of how firms can further improve their returns from R&D volatility. Related to the first research question, we ask whether the quality of corporate governance could improve the returns from R&D volatility. Board members fulfilling both monitoring and resource provision roles could complement both internal and external resource realignments that result from

R&D volatility. Related to the second research question, volatility in R&D investments must also be accompanied by a corresponding volatility in assets. As such, we posit that tangible and intangible asset volatilities could also complement the association between R&D volatility and a firm's performance.

Corporate governance can help improve the returns from R&D volatility for the following reasons. First, corporate governance allows for a smoother internal alignment of goals and resources in managing the effects of R&D volatility. Second, changing R&D volatility also means ensuring the availability of resources to meet varying R&D investments. While corporate governance helps improve internal resource stocks for investments (Zahra & Pearce, 1989), it also plays a critical boundary spanning role in managing relationships in the capital markets (Healy & Palepu, 2001). Third, corporate governance plays a pivotal role in innovation and technological change by priming efforts toward punctuated equilibrium (Mudambi & Swift, 2011) and can help manage competing innovation goals (Mudambi & Swift, 2014), both of which are outcomes related to R&D volatility.

PPE volatility can help improve the returns from R&D volatility. The products that result from R&D volatility might require retooling to manage costs, adapt quality, and tailor delivery criteria (Almeida & Campello, 2007). Lower PPE volatility could constrain the gains from R&D volatility as operations might not have the requisite

[☆] The authors acknowledge the financial support from FCT (Fundação para a Ciência e a Tecnologia, Portugal) through the Advance Research Centre (project UID/SOC/04521/2013) and CEF.UP (project UID/ECO/04105/2013).

* Corresponding author at: ISEG, Rua Miguel Lupi, 20, gab. 612, 1249-078 Lisboa, Portugal.

E-mail addresses: pankaj.patel@villanova.edu (P.C. Patel), mjguedes@iseg.ulisboa.pt (M.J. Guedes), ndsoares@fe.up.pt (N. Soares), vcg@iseg.ulisboa.pt (V. da Conceição Gonçalves).

¹ Villanova University, Bartley Hall Rm 2067, 800 Lancaster Avenue, Villanova, PA 19085, USA

² Universidade Porto, FEUP, Rua Roberto Frias, 4200-465 Porto, Portugal

³ Rua Miguel Lupi, 20, 1249-078, Lisboa, Portugal

<https://doi.org/10.1016/j.jbusres.2017.12.033>

Received 18 June 2017; Received in revised form 15 December 2017; Accepted 18 December 2017

0148-2963/© 2017 Elsevier Inc. All rights reserved.

complementary resources to meet the production needs of new products. The innovation that results from R&D volatility might also require firms to proactively manage their intangible assets, such as brand equity, goodwill, and intellectual property (Villalonga, 2004). Complementing R&D volatility with intangible asset volatility could further improve performance.

This paper's findings make the following contributions to the literature. First, the paper complements the literature on R&D volatility because we explain how firms can manage R&D volatility to improve their performance. Second, the paper highlights the salient role of corporate governance in facilitating growth by increasing R&D volatility. Third, we find that PPE volatility is an important complement to R&D volatility. This finding indicates that firms that aim to leverage R&D volatility could increase PPE volatility in tandem. Overall, our research contributes toward explaining how firms can improve the returns from R&D volatility. Managing R&D volatility is important as it may be a double-edged sword, and by providing a more comprehensive picture of moderators that enhance the returns from R&D volatility, we aim to complement the research on R&D volatility in the accounting and management literature.

We organize the paper as follows. We start by reviewing the relevant literature on R&D volatility. We then propose our moderation hypotheses for corporate governance, PPE volatility, and intangible asset volatility. Following this, we introduce our model and discuss our data and methods. We then present our results. We close with the discussion of theoretical and managerial implications of our findings, along with the limitations of our study and provide directions for future research.

2. Enablers of R&D volatility and performance relationship

R&D investments are associated with sales, profitability, and employment growth, but studies have also showed that this association is also contingent on industry, country, and period effects (Brynjolfsson & Yang, 1996). While Coad and Rao (2008) find that the association between growth and innovation is industry-specific, they also find that growth is generally related to innovation. Studies with samples from the US (Hall, 1987), Italy (Del Monte & Papagni, 2003), UK (Geroski & Machin, 1992), European countries (García-Manjón & Romero-Merino, 2012), and Japan (Yasuda, 2005) find a positive association between R&D related innovation and growth.

The proposition of R&D volatility is counter to the generally accepted idea of increasing R&D investments. Mudambi and Swift (2011: 431) define R&D volatility as “an indication that the firm is pursuing both exploration and exploitation; however, successful firms pursue these dissimilar processes sequentially over time,” and R&D volatility is “positively related to firm growth.” The volatility in R&D expenditure allows firms to overcome bureaucratic inertia to motivate R&D scientists who are difficult to monitor due to high information asymmetry (Mudambi & Swift, 2011). This volatility is also central to inducing the necessary discipline in innovation efforts by discontinuing projects, limiting slack available for R&D activities, and revitalizing R&D efforts (Mudambi & Swift, 2011). Continuing from Mudambi and Swift (2011), we use a firm's performance as the outcome variable.

Stronger corporate governance could be salient to improving the returns from R&D volatility for the following reasons. First, strong corporate governance ensures that the firm upholds the shareholders' interests. The monitoring, in turn, increases the pressure on managers to be proactive in meeting earnings expectations (Cheng, 2004; Chung, Wright, & Kedia, 2003). Mudambi and Swift (2011) propose that R&D investment volatility sequentially induces exploration and exploitation efforts to improve performance. Indeed, stronger corporate governance could increase the pressure to maximize value under increasing R&D volatility.

Second, R&D investments have uncertain returns, and scientists that pursue innovation focus on secrecy and primacy that might not fully

help firms improve the efficiency of R&D (Mudambi & Swift, 2011). Boards allow firms to manage these competing foci in investments (Adams, Hermalin, & Weisbach, 2010). Therefore, stronger corporate governance could help manage the search scope of innovation under increasing R&D volatility. Monitoring helps acquire information about innovation activities and further helps incentivize managers to improve the returns from R&D volatility.

Third, under varying R&D expenditures, stronger corporate governance could improve internal capital allocation (Heidenberger, Schillinger, & Stummer, 2003) which further increases managerial discipline. The better budgeting from corporate governance (Dalziel, Gentry, & Bowerman, 2011; Osmo, 2008) causes less valuable R&D projects to be discontinued and primes the pursuit of newer projects. Corporate governance reduces “real earnings manipulation,” which refers to the “purposeful intervention in the external financial reporting process with the intent of obtaining some personal gain” (Schipper, 1989: 92). The resulting budgetary discipline helps allocate managerial attention toward viable innovation projects that improve performance. Although R&D volatility is generally beneficial, managers can take a short-term view and cut R&D expenditures to artificially increase R&D volatility. However, effective corporate governance reduces such myopic investment behavior (Bushee, 1998; Stein, 1989), and aligns managers' interests toward leveraging R&D volatility to improve long-term performance.

Fourth, corporate governance plays an important role in varying R&D investments (Driver & Guedes, 2012). Good governance reduces information asymmetry and increases the supply of funds when the returns from R&D increase that result in increasing R&D investment. Conversely, as the returns for the per unit cost of R&D funds decline, poor corporate governance reduces the supply of R&D funds. We posit that corporate governance better induces these oscillations because the board plays an important role in allocating investments. The proposed hypothesis is motivated by the question—who governs R&D volatility?:

H1. The relation between R&D volatility and a firm's growth is stronger with a higher level of corporate governance.

2.1. PPE volatility and R&D volatility

The theory behind PPE volatility has a basis in the concept of temporal orientation in asset investments (Souder & Bromiley, 2012). Similar to R&D volatility, PPE volatility induces the changes in the temporal orientations of tangible asset investments. Managers must consider both short-term and long-term operational needs and maintain a flexible temporal orientation to meet changing production needs that result from R&D volatility. They can do so by maintaining operating assets with varying time horizons. Complementing PPE variability is desirable, because uncertainty in R&D returns is three times higher than that of capital expenditures (Kothari, Laguerre, & Leone, 2002). As such, complementing the gains from R&D with varying capital expenditures could further improve performance. The mismatch between R&D volatility and PPE volatility could lead to lower gains from R&D volatility as the resource profiles of these two types of investments might not be fully compatible. Higher R&D and PPE volatilities could help fill strategic gaps that would improve performance. The reasoning behind R&D volatility is the renewal of knowledge, whereas the reasoning behind PPE volatility is that the firms have a commitment to reducing the erosion of tangible assets.

PPE volatility helps upgrade the operational infrastructure to further improve the gains from R&D volatility. Despite higher R&D volatility, lower PPE volatility could limit the operational renewal of the capabilities that the firm needs to manage its materials, manufacturing, planning, and supply chain. Higher PPE volatility enhances the knowledge from R&D and the operations' ability to meet quality, cost, and reliability standards. Lower PPE volatility also reflects lower manufacturing flexibility because firms do not retire operational assets

Download English Version:

<https://daneshyari.com/en/article/7424944>

Download Persian Version:

<https://daneshyari.com/article/7424944>

[Daneshyari.com](https://daneshyari.com)