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Stock market valuation of R&D expenditures—The role of corporate governance ☆

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ABSTRACT

This paper examines whether firms with greater research and development (R&D) expenditures earn higher stock returns when they have good corporate governance. After controlling for size, book-to-market ratio, momentum, asset growth, accruals, and abnormal capital expenditures, we determine that R&D-intensive firms indeed earn higher stock returns when they have well-established corporate governance. Our results are robust to a variety of industry fixed-effect controls, governance proxies, model specifications, and panel regression with standard errors adjusted for year clustering. Therefore, our results are not endogenously driven by inherent characteristics. These results suggest that good governance is able to prevent potential overinvestment in R&D spending, thereby increasing the rate of return for R&D spending firms.

1. Introduction

This paper investigates the external corporate governance and stock valuation associated with research and development (R&D). We are interested in determining whether the stock returns associated with R&D investments are improved by reductions in the potential for overinvestment in R&D projects (Jensen, 1986,

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1993). Specifically, we examine whether R&D-intensive firms can improve their stock returns when external corporate governance is strong.

There has been a long debate in the finance literature about the positive relation between the level of R&D expenditures and future stock returns (i.e., R&D premium). A number of studies argue that the R&D premium is driven by mispricing (Chan et al., 2001; Eberhart et al., 2004; Lev et al., 2005). Others, such as Chambers et al. (2002), Bens et al. (2004), and Chu (2007), contend that the R&D premium results from the failure to control for systemic risk, concluding that risk compensation is the explanation. Yet these studies all suggest that the R&D level is positively associated with future stock returns.

Because of the conflict of interest between managers and shareholders as described by Jensen and Meckling (1976), R&D investment is not necessarily beneficial in terms of enhancing shareholder value. Jensen (1986) proposes that managers may spend free cash flow on negative NPV projects, including physical investments, acquisitions, and R&D projects. The free-cash-flow scenario also implies possible overinvestment in R&D. Thus, an R&D-intensive firm does not necessarily improve shareholder value. Jensen (1993) gives the example of General Motors, which had an opportunity loss of over $100 billion in its R&D and capital expenditures program during the 1980s, indicating that R&D investments may be unprofitable. The productivity of R&D spending may be inefficient, especially when internal control systems fail (Jensen, 1993). Grullon and Michaely (2004) further argue that repurchasing firms may cut R&D and capital expenditures to avoid overinvestment problems, confirming Jensen's (1986) idea that R&D investments are not always beneficial in terms of building wealth for shareholders.

In this paper, we use the "governance index" (Henceforth G-index) developed by Gompers et al. (2003) to measure the strength of external corporate governance.[1] The G-index is a proxy for the level of shareholder rights. A firm with a low G-index is regarded as being well governed, having strong shareholder rights, and offering managers fewer incentives to waste resources on low-return projects. By contrast, a firm with a high G-index is regarded as poorly governed, displaying a preference for strong management power, and offering managers more incentives to invest in negative NPV projects or pursue personal interests.

We begin our investigation by examining whether R&D-intensive firms earn higher stock returns when they experience good corporate governance. We conjecture that when corporate governance is good, firms with high R&D expenditures are able to mitigate potential overinvestment by management. Hence, firms with high R&D expenditures should benefit more from reducing agency costs than firms with low R&D expenditures. If investors systematically underestimate the benefits from reducing agency costs, firms' stock returns would exceed expectations. Similarly, when corporate governance is poor, firms with high R&D expenditures will tend to overinvest, leading to more severe agency problems than firms with low R&D expenditures. If investors overlook these additional agency costs, then a firm's stock returns will be worse than expected. Thus, we expect that for firms with a low G-index, the impact of R&D on stock returns will be positive, while for firms with a high G-index, the impact of R&D on stock returns will be negative.

To examine the valuation effect of corporate governance on R&D-intensive firms, we collect 25,941 firm-year observations in the U.S. during the period 1990 to 2007. We employ Fama and MacBeth (1973) return regressions that take into account a broad array of asset pricing factors in the existing literature. The Fama–MacBeth regressions confirm that firms with greater R&D expenditures earn relatively higher stock returns when they are well governed. By contrast, R&D-intensive firms earn relatively lower returns when they have poor corporate governance. In sum, our main result suggests that under good corporate governance the R&D level has a positive impact on stock returns while poor corporate governance means that the R&D level has no effect on stock returns.

We obtain similar results for a subsample that excludes low price and small firms, and from another subsample that removes the observations with firm size at the bottom decile. The former result indicates that our results are not driven by the small firm effect documented by Chan et al. (2001). While small firms are more likely to be low priced (Loughran and Ritter, 1996), the latter result shows that our finding is not affected by small firm and low-price effects.

[1] Discipline from the market for corporate control, generally interpreted as a corporate governance mechanism (Jensen, 1993; Shleifer and Vishny, 1997), helps to alleviate the manager-shareholder conflict of interest, forcing managers to avoid potential overinvestment problems. While managers may protect themselves against the threat of a takeover by adopting anti-takeover provisions, the disciplinary effect on management depends on the specific rules of governance (Gompers et al., 2003).