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ORIGINAL ARTICLE

Impact of Corporate Governance on Research and Development Investment in the Pharmaceutical Industry in South Korea

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Abstract

Objectives: The purpose of this study is to analyze the influence of the corporate governance of pharmaceutical companies on research and development (R&D) investment.

Methods: The period of the empirical analysis is from 2000 to 2012. Financial statements and comments in general, and internal transactions were extracted from TS-2000 of the Korea Listed Company Association. Sample firms were those that belong to the medical substance and drug manufacturing industries. Ultimately, 786 firm-year data of 81 firms were included in the sample (unbalanced panel data).

Results: The shareholding ratio of major shareholders and foreigners turned out to have a statistically significant influence on R&D investment ($p < 0.05$). No statistical significance was found in the shareholding ratio of institutional investors and the ratio of outside directors.

Conclusion: The higher the shareholding ratio of the major shareholders, the greater the R&D investment. There will be a need to establish (or switch to) a holding company structure. Holding companies can directly manage R&D in fields with high initial risks, and they can diversify these risks. The larger the number of foreign investors, the greater the R&D investment, indicating that foreigners directly or indirectly impose pressure on a manager to make R&D investments that bring long-term benefits.

1. Introduction

The pharmaceutical industry is expected to achieve a continuous growth due to an aging population, an extension of the average lifespan, transformation of the disease structure to chronic diseases, increased interest in health and quality of life, and active promotion and investment by the government and the private sector to fuel such a high value-added business.

Research and development (R&D) investment has been relatively insufficient despite constant industry growth, whereas the percentage of selling, general, and administrative expenses (SG&A), including sales promotion costs, has been high. Going forward, government's reform

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policies will kick into high gear in the pharmaceutical industry. These policies have established in the domestic market relatively high costs of generic medicines compared with those of advanced countries and unfair competition such as negative rebates. It can be said that a bond of sympathy has developed between the pharmaceutical industry and the government around the need to support R&D investment to promote the industry as a future growth engine.

Deciding a firm's R&D investment scale is both a strategic investment decision related to the firm's long-term value creation and an extremely important decision because it accompanies a certain degree of risk [1]. A firm's corporate governance differs according to its ownership structure, and corporate governance influences decision making. Therefore, a change in the ownership structure influences an enterprise value through discretionary investments such as R&D [2]. A considerable number of studies analyzed the influence of ownership structure on a firm's R&D investment, with a variety of results. Here, previous studies will be examined regarding the relationship between R&D investment and ownership structures such as manager shareholding ratios, foreigner shareholding ratios, institutional investor shareholding ratios, and ratios of outside directors.

The separation between ownership and management expanded information asymmetry between shareholders and managers [3,4]. However, if shares are focused among a minority of shareholders, they tend to have greater ability to monitor the manager's decision-making behavior [1]. Moreover, as they take up a considerable amount of profits from monitoring and controlling the manager, they actively participate in the firm's decision-making processes to reflect their interests and, in some cases, even collaborate with other powers to seize the management right from the manager (or the largest shareholder). The ownership concentration of shares creates interdependence between shareholders and the manager, which can reduce information asymmetry between the manager and major shareholders [5,6]. This interdependent understanding is a factor that reduces information asymmetry between the manager and major shareholders, consequently promoting R&D investment [7]. In an empirical study on North America, Hansen and Hill [8] reported that there is a positive relevance between share ownership intensity and R&D investment.

Generally, foreign investors suppress the manager's opportunistic actions while also relaxing the manager's risk awareness. The fact that quota investment of foreigners relaxes the manager's risk awareness can be explained with the following elements. First, the manager can use the supplementary knowledge of foreign investors. As mentioned above, foreigners have a great deal of professional knowledge about the firms they invest in [9], and tend to actively share such knowledge [10]. Therefore, the manager can use their knowledge to reduce the uncertainty of R&D investment. Secondly, risk awareness can be relaxed by improved transparency. Foreigners have increased motivation to monitor the manager and tend to have a great monitoring ability [11].

One of the recent changes in the capital market is that the proportion of institutional investors has increased greatly. Institutional investors receive a mission from depositors to maximize long-term profits [1,8]. To accomplish this mission, the firm in which they invest must have a stable flow of current profits, while also ensuring future profitability with appropriate long-term investments such as R&D. Generally, fund managers who are evaluated quarterly or semiannually for operating profits cannot wait for investments with a long gestation period of capital. Therefore, they tend to adjust the portfolio according to short-term market conditions rather than investments with high uncertainty and long gestation periods of capital such as R&D [12]. The other view regards institutional investors as rational investors. Because institutional investors have "the economy of scale" in collecting and evaluating information, they put more emphasis on long-term value change than responding to short-term stock price fluctuations [13]. Therefore, institutional investors have the incentive to promote the firm's long-term value increase by actively monitoring the manager's behavior and participating in decision making. Hansen and Hill [8] determined that there is a positive relationship between the shareholding ratio of institutional investors and R&D investment, and David et al [1] argued that the role of institutional investors based on shareholder activism increases R&D investment for both short- and long-term periods.

Previous studies on the influence of the ratio of outside directors mostly focused on the replacement of the top management team and appropriation of wages that are relatively easy to observe directly; however, studies on a firm's strategic decision making such as their R&D investment are very scarce [14]. A typical strategic decision of a firm is R&D investment. However, as mentioned above, shareholders prefer R&D investment with high profits and high risks, whereas the manager may be passive regarding R&D investment to reduce his own employment risk; thus, shareholders and the manager may have conflicting positions on R&D investment [15,16]. Therefore, in the legal and institutional view that shareholders' profits are protected by securing independence from the board of directors (BOD), it can be expected that if the BOD comprises outside directors, it may protect the interests of shareholders who prefer high-profit and high-risk investments, thereby increasing R&D investment. Empirical studies on the relationship between the ratio of outside directors and R&D investment are very scarce, and it is impossible to confirm the relationship; thus, there is a need for additional empirical studies.