The Information Effect of Discretionary R&D Investment on Accounting-based Valuation and Long Term Stock Returns: Signaling vs Managerial Over-optimism*

(First Author) Kyung Soon Kim**  
(Co-Author) Jin Hwon Lee***  
(Corresponding Author) Seun Young Park****

ABSTRACT: This paper aims to investigate the impact of discretionary R&D expenditure (R&D expenditure higher than market expectation) on the value relevance of the accounting information at the earnings announcement date and long-term stock performance after earnings announcement. Qian et al. (2012) argue that the positive discretionary R&D may be due either to signaling motivation or just an inefficient investment made by overconfident and overoptimistic managers.

We analyze the information content of discretionary R&D expenditure particularly in high-tech industries where information asymmetry is high to see if it is a manager's signal or managerial over-optimism in the form of overinvestment in Korean market. In order to do so, we investigate the relationship with market response using two different methods. First, we investigate the association between discretionary R&D and value relevance of accounting information at the time of announcement of annual financial

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** Assistant Professor, Division of Business Administration College of Business, Chosun University (E-mail kskim66@chosun.ac.kr)
*** Assistant Professor, Business Management, Osan University (E-mail jinhwon@osan.ac.kr)
**** Ph.D., College of Business Administration, Ewha Womans University (E-mail sypark13@yahoo.co.kr)
statements. And we find that the firms with positive discretionary R&D decrease (increase) the risk of pricing error (value relevance) by the accounting-based pricing model. Second, we verify whether a difference in discretionary R&D expenditure leads to the difference in long-term abnormal stock returns after the announcement of financial statements. Our analysis indicates that there is a positive and significant association between discretionary R&D and long term abnormal returns in high-tech firms. This result implies that the Korean market construes the positive R&D spending as a signal of investment prospects in high-tech firms. However, further analysis reveals that the signaling effect of discretionary R&D in high-tech firms has diminished as the level of insider ownership increases.

Keywords: discretionary R&D, value relevance, long term abnormal return, signaling, managerial over-optimism

I. Introduction

This paper studies the effect of R&D investment among high-tech firms whose information asymmetry is high. Particularly, we aim to verify whether there is a difference between the market responses to the firms with higher and lower R&D expenditures than the industry expectation in a given year. Prior studies suggest conflicting arguments about the effect of abnormal R&D investment. Some argue that, under the circumstances of information asymmetry, an abnormal R&D investment signals the manager's prospects about future performance while others contend that it is a managerial over-optimism in the form of over-investment. Therefore, we try to investigate the market response to see if investors believe the discretionary (abnormal) R&D investment as a manager's signal about investment prospects so as to reduce the information asymmetry or as a managerial over-optimism about future returns of R&D investments in the Korean stock market.

The rationale between two competing views above (signaling vs. managerial over-optimism) about the effect of R&D investment is as follows. Some prior