International Review of Economics and Finance 43 (2016) 344–353

Contents lists available at ScienceDirect

International Review of Economics and Finance

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

Do shareholders appreciate capital investment policies of corporations?☆

Jin-Ray Lu *, Chih-Chiang Hwang, Chien-Yi Lin

Department of Finance, National Dong Hwa University, 1, Section 2, University Rd., Shou-Feng, Hualien 974, Taiwan, ROC

ARTICLE INFO

Article history:
Received 28 March 2014
Received in revised form 2 November 2015
Accepted 31 December 2015
Available online 7 January 2016

JEL classification:
G11
G13
G31

Keywords:
Portfolio selection
Capital investment
Real options

ABSTRACT

When it comes to capital investment problems, shareholders have a desire to adjust their holdings of corporate stock in response to corporate investment decisions, such that the holding rate can be seen as favorable or unfavorable response to the firm's capital investment policy. By employing both real options and portfolio selections theories, we propose an optimal decision regarding shareholders' portfolio choices in order to identify their preferences in terms of corporate investment choices. Making decisions about stockholdings involves taking into account the risk–return characteristics of firm value, equity value, and project value. We find that shareholders prefer to keep more corporate stocks if the firm invests in a project with a high initial value, high growth rate, and low risk. Moreover, shareholders favor a corporate investment policy with low capital expenditures and a low debt-financing policy.

1. Introduction

It is well known that capital investment policies considerably affect firm value and market reactions of stock prices (McConnell & Muscarella, 1985; Chung, Wright, & Charoenwong, 1998; Burton, Lonie, & Power, 1999; Sarkar, 2000; Kin, Lyn, Park, & Zychowicz, 2005; and Chan, Chen, Hong, & Wang, 2015), such that the value of the firm and the price of the equity vary based on how the investment policy performs. As a result, changes in firm value and equity price motivate corporate shareholders to adjust their shareholdings based on an evaluation of the corporation's investment policy. Shareholders manage their asset allocations in response to relevant factors involving corporate investment decisions because a change occurring as a result of corporate policies can influence the firm value and equity price. If an investment project generates a high level of potential profit, shareholders may end up holding more corporate equity. On the other hand, if firm managers undertake a high-risk investment project, shareholders may reduce their holdings of corporate stock.

In this article, we examine the effect of corporate capital investments on the firm value and the portfolio selections of shareholders. Specifically, this study focuses on three questions. First, when corporate managers take on a high-risk or high-growth capital investment project, do the shareholders invest a smaller amount of their wealth capital in the corporate equity? Second, by examining a change in the holding weights of corporate stocks, we analyze the degree to which shareholders' appreciation of corporate investment decisions is sensitive to the project value. Third, we answer the question of whether shareholders prefer

☆ We thank the Ministry of Science and Technology of Taiwan for funding the study (MOST 103-2410-H-259-018).
* Corresponding author. Tel.: +886 3 8633140; fax: +886 3 8633130.
E-mail addresses: jinray@mail.ndhu.edu.tw (J.-R. Lu), david17hwang@gmail.com (C.-C. Hwang), cylin9@yahoo.com.tw (C.-Y. Lin).

http://dx.doi.org/10.1016/j.iref.2015.12.007
1059-0560/

to move more wealth capital to the corporate stock of a firm which exercises capital budgeting with high expenditures or one with high debt-financing policies.

We analyze these questions in the context of two traditional models of corporate finance: real options and portfolio selections. Real options theory has been employed extensively in the context of corporate investment policy (see, Majd & Pindyck, 1987; Stulz, 1982; Mayers & Majd, 1990; Trigeorgis, 1993; Berger, Ofek, & Swary, 1996; Botteron, Chesney, & Gibson-Asner, 2003; Bernardo, Chowdhry, & Goyal, 2012; Kamoto, 2015; Sarkar & Zhang, 2015a), reflecting the fact that corporate managers' investment decisions often involve a variety of choice possibilities. An analysis of real options has been shown to constitute an effective technique for capturing operational flexibility in corporate decisions. Option pricing theory is thus used to analyze the relationship between the capital investment value of a project and the firm's market value. Firm value varies with the project's value of corporate investment policy, whereby the firm value can be regarded as a derivative of the underlying value of the investment project.

Real options theory has attracted considerable interest in the analysis of investment decisions and corporate policy and was pioneered by McDonald and Siegel (1985), Dixit (1989), and Pindyck (1988), and further assessed by Dixit and Pindyck (1994), Wong (2009), Sarkar (2000), Da, Guo, and Jagannathan (2012), Bernardo et al. (2012), and Lyandres and Zhdanov (2014). In the context of the financial options and real options literature, it has been suggested that a higher risk level in underlying assets promotes option values. Bernardo et al. (2012) suggest that the equity returns of a corporation are risky not only because of their investment projects, but also because real options are embedded within their growth opportunities. In short, previous studies have suggested that real options theory is applicable for assessing investment projects, or capital budgeting, in the context of corporate investment policy.

Responses to corporate investment policy can cause a change of market value or stock returns for firms. Numerous studies have discussed how corporate investment decisions influence firm value in a real options framework (Berger et al., 1996; Chung et al., 1998; Kin et al., 2005; Saad & Zantout, 2009; Sarkar & Zhang, 2015b). A discussion of valuation for an abandonment option from a study by Berger et al. (1996) suggests that a significant positive relationship exists between market value and estimated exit value. Saad and Zantout (2009) indicate that firms that disclose the discontinuation of some of their R&D programs experience a negative stock price response. Through appropriate valuation with a capital budgeting process, an investment project has the opportunity to promote the firm's value, which means the corporation invests financial capital in feasible projects for pursuing potential returns that will enhance firm value or shareholder value. McConnell and Muscarella (1985) provide evidence that corporate capital investment decisions can significantly affect the firm value and stock returns. We analyze shareholders' stock holding decisions in response to the stock returns and firm value, both of which reflect the corporate capital investment decisions.

Portfolio selection theory, a prominent issue in financial economics, is a critical principle for investors who seek to maximize the lifetime utility of their wealth capital (Branger, Larsen, & Munk, 2013; Escobar, Ferrando, & Rubtsov, 2015; Jin & Zhang, 2013; Liu, Longstaff, & Pan, 2003; Merton, 1971; Tourin & Yan, 2013). Upon consideration of the expected returns and risks associated with assets, investors allocate their wealth capital into investable assets. Investors prefer to invest more wealth capital in stocks that have higher return rates and lower volatility rates. Thus, based on logical inference, corporate shareholders or market investors tend to increase their holding rate of corporate stocks if they appreciate the corporate policy adopted by the firm because the policy has the opportunity to promote the firm's value and thereby provide benefits to the shareholders.

Although many studies have analyzed how market investors make portfolio selection decisions composed of risky assets and a risk-free bond, these studies only focus on the return–risk characteristics of the risky assets as they pertain to the choices for asset allocations. Specifically, they examine how stock return or volatility rates change the stock holdings of market investors. These studies have not examined the effect of corporate policy on the portfolio selections of market investors, focusing on the impacts of return–risk of stock prices on portfolio selection while ignoring the effects of return–risk of firm value or capital investments on asset allocations. That is to say, previous studies of portfolio selections have failed to explore how market investors or shareholders change their stock holdings in response to corporate policies, such as a firm's capital investment policy.

Our study is motivated by an analysis of investment policy, capital budgeting, and capital expenditure, which has focused on the market responses of stock prices to unexpected changes in capital expenditure budgets (McConnell & Nantell, 1985; Burton et al., 1999; and Chan et al., 2015). The majority of these studies suggest that a positive stock return occurs following the announcement of asset purchases, product innovations, R&D spending, and other investment projects (see, Burton et al., 1999; McConnell & Nantell, 1985). Chan et al. (2015) support that firms with greater research and development expenditures earn higher stock returns. These studies find that corporate capital investment policy is correlated to the stakeholders', executives', investors', and shareholders' incentives, actions, and interests in terms of stock returns. In contrast, our study examines the relationship between a corporate investment project and the shareholders' response in terms of their stock holdings.

Using the framework of portfolio selection and real options theory, our study analyzes how shareholders determine their holding rules for corporate stock as corporate managers implement a specific capital investment decision. Specifically, we investigate whether shareholders tend to decrease or increase their holdings of corporate stock if the corporation takes on a high-risk policy or a high-growth policy of capital investment. Being averse to the impact of project risk associated with capital investments, rational shareholders have a willingness to move their wealth capital to the cash asset, rather than leave it in the corporate equity. In terms of portfolio choice, shareholders express their attitude (favorable or unfavorable) regarding the corporate investment policy by adjusting the holding rates of corporate stocks in their portfolios. In addition, we also analyze how capital expenditures and debt financing change the stock holdings of the shareholders. We hope to contribute to the financial literature by highlighting an innovative means of examining the linkage between corporate investment policy and shareholders' asset allocations.