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Relationship between Characteristics of Board of Directors and Excess Cash Holdings

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Abstract

This study analyzed the influence of the ratio of external to internal board of directors, the tenures and shareholdings of long-term directors, and outside director expertise on a firm's excess cash holdings. It utilized data from 2,133 Korean firms to estimate the corporate cash holdings model by Opler et al. (1999) [1].

According to the test results, the number of long-tenure outside directors had a significantly positive (+) influence on excess cash holdings, while shareholdings and outside director expertise had a negative (-) influence. Outside directors' tenure had a larger influence than the expertise. Finally, the effect of shareholding ratio of directors on excess cash holdings was larger in firms with owner-CEOs than those with professional CEOs.

Keywords: *board characteristics; excess cash holdings; agency problems; CEO type*

1. Introduction

Firms can utilize cash to access prospective growth creators, such as new investments or M&A. However, if this level of cash holdings exceeds an appropriate level, firm value may decrease as the management utilizes excess cash to maximize their private interests, rather than improving shareholder value.

The academic significance of analyzing a board of director's characteristics, which could influence a firm's excess cash holdings, lies in seeking the cause of excess cash holdings from the perspective of corporate governance (a board of directors to oversee the CEO, for example). This is much different from the current literature. Identifying these characteristics may have practical implications—they may be used to design control systems for excess cash holdings, providing the foundations for policies that improve corporate governance structures. However, current literature that empirically verifies the relationship between characteristics of boards of directors that could provide effective oversight for CEOs and the excess cash holdings of firms is still scarce. Our research thus rectifies this academic gap.[1]

We analyzed the influence of characteristics of boards of directors, such as the ratio of outside directors to internal directors in the board, long-term director tenures, shareholdings of directors and outside directors, and expertise on firms' excess cash holdings.

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2. Literature review and hypotheses

A higher ratio of the number of outside directors to internal directors indicates that the board of directors is more likely to properly monitor the CEO by representing shareholder interests. It also increases the board's independence, making oversight easier, which may then lead to higher firm value [2]. A higher number of outside directors may lead to reduced excess cash holdings by the CEO.

Current research also asserts that there is no significant correlation between outside directors and firm value [3]. An empirical analysis conducted by [4] with Korean firms also claimed no significant correlation. These mixed results may be due to the correlation testing between the ratio of the number of outside directors to internal directors and firm value is a joint test. This test verifies the effect of CEO monitoring and ratio appropriateness as a measurable indicator of the monitoring role of the outside director.

Given the above, we set the following hypothesis.

Hypothesis 1: The ratio of the number of outside directors to internal directors is related to excess cash holdings.

Outside directors have lower accessibility to information compared to internal directors [3]. However, their longer tenures lead to higher levels of understanding of the company and the structure of internal controls, as well as more monitoring experience and expertise. Thus, outside directors can effectively oversee CEOs [5].

Alternatively, there is the possibility of entrenchment associated with longer tenures by the outside directors, who, after serving for a long time, may find it difficult to present new perspectives. It may also lead to an increased tendency to agree with the CEO or a more laxed approach and leniency with the CEO [6].

Based on the mixed results from current literature on outside director tenure, we set the following hypothesis.

Hypothesis 2: The number of outside directors serving for more than 10 years is related to excess cash holdings.

Internal directors have more information on the firm's situation that outside ones and have higher accessibility to such information. However, internal directors may have higher expertise in investment decision-making [7], but reduced independence from the CEO compared to outside directors [8].

Nevertheless, higher shareholdings of internal directors may lead to an alignment of interests between the shareholders and internal directors, providing incentives to monitor and ultimately urge the CEO to conduct effective investments.

Considering the above, there may be a significant negative relationship between the shareholding of directors and excess cash holdings of the firm. Therefore, the following hypothesis is proposed.

Hypothesis 3: Higher shareholdings of directors lead to lower excess cash holdings.

As the outside directors belonging to the audit committee may be defined as experts in accounting and finance based on the Capital Markets Act, the expertise related to excess cash holdings can be determined according to accounting or tax accounting certifications, academic degrees, and positions held, such as executives from financial institutions and university professors of business administration- or finance-related subjects.

Outside directors with expertise have incentives to prevent poor track records and maintain good reputation [9]. If outside directors have expertise related to finance, excess cash holdings may be reduced. Therefore, we set the following hypothesis on the relationship between the financial expertise of the outside directors and excess cash holdings.

Hypothesis 4-1: Excess cash holdings are reduced if the outside director is a practical expert, defined as being an accounting or tax accounting certification holder, an executive, or an employee of a financial institution.

Hypothesis 4-2: Excess cash holdings are reduced if the outside director holds a Ph.D. in business administration.

Hypothesis 4-3: Excess cash holdings are reduced if the outside director is a professor of business administration.

3. Materials and methods

3.1 Sample selection

We selected non-financial firms listed on the Korean KOSPI market between 2000 and 2014. The data on the characteristics of board of directors were collected by reviewing the annual reports of the firms on DART provided by the Financial Supervisory Service. Financial statement data were collected using databases from the Korea Listed Companies Association, Korea Investors Service (KIS), and FNGuide

3.2 Definitions and measurements of research models and variables

To identify the influence of the board of directors' characteristics on excess cash holdings, the analysis was conducted in three stages. In the first stage, we used the firm-year data of 2,133 firm-year datasets between 2000 and 2004 as an estimation sample, estimating the parameters of the corporate cash holdings model by [1]. In the second stage, we applied 4,829 firm-year datasets between 2005 and 2014 as holdout samples, measuring the estimated cash holding ratio. Then, the actual cash holding ratio was subtracted from the estimated cash holding ratio, thereby measuring the excess cash holding ratio. In the third stage, we used the 4,829 firm-year datasets between 2005 and 2014 to analyze the relationship between the characteristics of board of directors and excess cash holdings.

3.2.1 Parameter estimation for the cash holding model

<Model 1>

$$CASHit = \alpha + \beta1LEVit + \beta2MTBit + \beta3SIZEit + \beta4NWCit + \beta5CAPEXit + \beta6ROAit + \beta7INVCFit + \beta8FINCFit + \beta9DEFit + \eta i + \varepsilon it,$$

where

CASH: Cash and cashable assets / (Assets – Cash and cashable assets);
LEV: Liabilities / (Liabilities + Total market value);
MTB: (Liabilities + Total market value) / Assets;
SIZE: Ln(Assets);
NWC: (Current assets – Current liabilities) / Assets;
CAPEX: (Fixed assets – Prior year fixed assets + Depreciation cost) / Assets;
ROA: Earnings before interest and taxes / Assets;
INVCF: Cash flow from investing activities / Assets;
FINCF: Cash flow from financing activities / Assets;
DEF: [Cash flow from operating activities after interest and taxes – (Cash dividends + Net investment + Change in net working capital)] / Assets;
η: Firm characteristics;
ε: Error term.

3.2.2 Measuring excess cash holding ratio

<Model 2>

ECASHit = CASHit - [LEVit + MTBit + SIZEit + NWCit + CAPEXit + ROAit + INVCFit + FINCFit + DEFit],

where

ECASH: Excess cash holdings ratio, Actual cash holdings ratio – Estimated cash holdings ratio;

3.2.3 Model for testing research objective

<Model 3>

ECASHit = α + β1ODRit + β2ODTit + β3BDSit + β4ODEit + β5ODDit +β6ODFit +β7R&Dit + β8DIVit + β9VCFit + ηi +λi + εit,

where

ECASH: Excess cash holdings ratio, Actual cash holdings ratio – Estimated cash holdings ratio;

ODR: Ratio of outside directors, number of outside directors/Number of registered executives;

ODT: Number of long-serving outside directors with a tenure of over 10 years;

BDS: Ratio of share ownership of registered directors, Number of shares owned by registered directors/Total number of shares issued;

ODE: Indicates the financial expertise of outside directors;

ODD: Number of outside directors with doctorates in business administration;

ODF: Number of outside directors who are professors in business schools;

R&D: R&D expenses, the ratio of research and development expenses to sales;

DIV: Cash dividends, the ratio of cash dividends to net income;

VCF: Cash flow volatility, the value of the standard deviation of the cash flow from the past five years divided by cash from the current year;

λ: Time characteristics;

4. Empirical analysis

4.1 Descriptive statistics and correlation analysis

For the 2,133 firm-year samples from 2000 to 2004, descriptive statistics and Pearson correlation coefficients were used to estimate the parameters of the cash holding decision model presented in [1] The correlation coefficient did not exceed 0.5 and the maximum the variance inflation factors (VIFs) value was 2.12, indicating that multi-collinearity was not a concern.

Likewise, the correlation coefficient between the characteristics of the board of directors and the excess cash holding ratio for the sample of 4,829 firms from 2005 to 2014 was less than 0.36 and the VIFs were not more than 2, so multi-collinearity was not an issue.

4.2 Parameter estimation of cash holdings model

To consider the firm characteristic effects in parameter estimation, fixed and random effects models are used. Both the fixed and random effects models were found to be significant at a 1% significance level; the Hausman test indicated that the fixed effects model is more suitable than the random effects model in parameter estimation at a 1% significance level.

4.3 Parameter estimation of cash holdings model

4.3.1 The influence of characteristics of board of directors on excess cash holdings of firms: Individual model

The number of outside directors serving for more than 10 years (ODT) is found to have a significantly positive (+) influence on the excess cash holdings ratio (ECASH). This indicates that longer tenures for outside directors lead to the formation of a comfortable relationship with the CEO, weakening the monitoring effects of outside directors.

The shareholding ratio of directors on the board has a significantly negative (-) ratio on the excess cash holdings ratio (ECASH). These results can be interpreted as the reduction of agency costs, such as private spending or fraud by the management, as the board of directors develops an incentive to effectively monitor the CEO through their shareholdings [10].

There is no significant correlation between the financial expertise of outside directors and excess cash holdings. Moreover, tests were conducted after further categorizing the financial expertise of outside directors into outside directors with a Ph.D. in business administration and those with related professorships. The results indicate that, if outside directors have a Ph.D. or professorship in business administration, it led to a significantly negative (-) influence on excess cash holdings.

Among the independent variables, the ratio of outside directors does not have a significant influence on the dependent variable of excess cash holdings ratio (ECASH). These results may have arisen since independent outside directors were not separately classified. To raise the normality of the distribution of independent variables, tests were conducted with log values of the independent variables. The results are consistent with previous results.

4.3.2 The influence of characteristics of board of directors on excess cash holdings of firms: Combined method

Section 4.3.2 merges the characteristics of boards of directors in one model to engage in a panel regression analysis, to compare the influence of the independent variables of characteristics of boards of directors on the dependent variable of excess cash holdings. The results are consistent with those of the individual models. Moreover, the influence of long-serving directors (that is, with a tenure of over 10 years) and shareholdings of directors on excess cash holdings of firms is larger than when the outside directors held a Ph.D. or professorship in business administration.

4.4 Difference in CEO types impacting influence of board of directors on excess cash holdings

This chapter tests whether the relationship between the characteristics of boards of directors and excess cash holdings depends on the presence of an owner-CEO. The correlation item of shareholdings of directors and presence of owner-CEO was found to have a significant negative influence on the excess cash holdings ratio. This indicates that the shareholding ratio of directors has a greater influence on the excess cash holdings in firms with owner-CEOs than those with professional CEOs.

To improve the robustness of the results, the log values of the independent variables were used. The results are consistent with those without log values.

5. Conclusions

Our study expands the discussions on the factors influencing excess cash holdings into the realms of corporate governance, such as the board of directors for CEO oversight. Academically, it provides the basis for utilizing the characteristics of boards of directors in future studies. Additionally, our results may be used to design control systems for excess cash holdings, and provide the foundations for policies to improve corporate governance structures. There was no strong relationship between the ratios of the number of outside directors to internal directors on excess cash holdings. Thus, future studies should differentiate between independent outside directors and affiliated outside directors to test for their independent influence on excess cash holdings.

"We have confirmed that this paper has not been published or submitted to other journals or publications"

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