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경영학석사학위논문

**Control-Ownership Wedge  
and the Value of Cash Holdings:  
Evidence from East Asian Corporations**

지배주주의 소유-지배 괴리도와 현금의 시장가치

2017 년 8 월

서울대학교 대학원  
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조 재 령

Control-Ownership Wedge  
and the Value of Cash Holdings:  
Evidence from East Asian Corporations

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이 논문을 경영학석사 학위논문으로 제출함

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# **Control-Ownership Wedge and the Value of Cash: Evidence from East Asian Corporations**

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## **ABSTRACT**

This study investigates the effect of the divergence between the cash flow rights and voting rights of controlling shareholders (henceforth the control-ownership wedge) on the value of cash holdings of corporations in nine East Asian countries. An agency framework implies that investors are more likely to discount the value of cash holdings of firms with a higher risk of an agency problem. Consistent with the predictions of this agency argument, a wider control-ownership wedge is found to be associated with a lower value for cash holdings. That is, corporate cash holdings contribute less to firm value when minority shareholders are more likely to be expropriated by controlling shareholders. An additional finding is that investors in countries with a stronger legal regime are more concerned about the rent extraction of controlling shareholders, resulting in greater discount in the value of cash holdings as the control-ownership wedge widens. The results suggest that investors under a strong legal regime are more sensitive to the possible rent-seeking behaviors of controlling shareholders.

**Keywords:** Corporate governance, value of cash, control-ownership wedge, legal environment

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# **I. Introduction**

Corporate cash holdings are regarded as a typical channel for extracting the private benefits of controlling shareholders. An agency framework suggests that when a firm possesses an abundance of cash, it is more exposed to risks from the inefficient use of cash, such as empire building, perks, fringe benefits, or negative net present value projects that can destroy firm value (Dittmar and Mahrt-Smith, 2007; Harford, 1999). In this study, I focus on the agency problem between controlling shareholders and minority shareholders, which, for any given firm, is proxied by the divergence between the cash flow rights and voting rights of controlling shareholders. Following Lin, Ma, Malatesta, and Xuan (2012), I refer to this divergence as the control-ownership wedge. As this control-ownership wedge increases, controlling shareholders have greater incentives to expropriate minority shareholders by tunneling, aggravating agency problems (Wang and Xiao, 2011). Specifically, I examine two interrelated issues with respect to the effect of agency conflicts: (1) Does the ownership wedge lead to a lower value of corporate cash holdings? (2) Does the strength of the country-level legal regime influence the wedge/cash-value relation?

The value of cash holdings of a firm indicates how investors assign value to corporate cash holdings. An increase of \$1 in the cash holdings may not result in an increase of \$1 in firm value (Pinkowitz and Williamson, 2002). Faulkender and Wang (2006) examine the marginal value of cash, and show that the value of a dollar of cash is often less than one (\$0.94 for the average firm). Furthermore, Dittmar and Mahrt-Smith (2007) investigate how corporate governance affects firm value, and find that \$1 of cash in a poorly governed firm is valued at only \$0.42 to \$0.88, and that firms with good corporate governance have double the value. Other recent literature also suggests that the value of firms' cash holdings is closely related with corporate governance (Belkhir, Boubaker, and

Derouiche 2014; Dittmar and Mahrt-Smith 2007; Pinkowitz, Stulz, and Williamson 2006).

The above-mentioned studies have mostly focused on firms located in the U.S. and large U.S. firms are mostly widely held, so these studies often focus on the conflicts between managers and shareholders. In other countries, however, for example in East Asia or Europe, corporate ownership is typically concentrated within families or dominated by the state (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1999). In such situations, the agency conflicts between controlling and minority shareholders are more significant than those between managers and shareholders, as suggested by Berle and Means (1932) and Jensen and Meckling (1976).<sup>1</sup>

Prior literature has described how the control rights of the controlling shareholders often exceed their cash flow rights: via pyramid structures, the use of dual-class shares, and of multiple control chains (Claessens, Djankov, and Lang, 2000; Gompers, Ishii, and Metrick, 2010; La Porta et al., 1999; Laeven and Levine, 2008, 2009; Villalonga and Amit, 2009). Controlling shareholders of such firms have a strong incentive to engage in moral hazard activities such as tunneling, since they can divert corporate wealth for their own benefit without bearing the full financial consequences (Lin et al., 2012). If investors perceive that a greater wedge may lead to expropriation by controlling shareholders (Fan and Wong, 2002), then they are more likely to discount the value of cash in their assessment of the firm value. Thus, this study investigates the relation between ownership wedge and cash holdings, which are expected to be most vulnerable to expropriation by

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<sup>1</sup> The agency conflict existing between shareholders and managers is typically called a type 1 agency problem, while that between controlling and minority shareholders is known as a type 2 agency problem. Outside the U.S., in East Asia and in many other countries, it is well established that type 2 agency problems are more severe than type 1 agency problems (Claessens, Djankov, Fan, and Lang, 2002).

controlling shareholders (Belkir et al., 2014; Dittmar, Mahrt-Smith, and Servaes, 2003).<sup>2</sup>

As a second research topic, the role of country-level legal regime on the wedge/cash-value relation is examined. The legal environment can affect the valuation of cash holdings by investors in two opposing ways. On the one hand, investors may react less to poorer corporate governance under a stronger legal regime, resulting in a lesser discount in value of cash in response to a control-ownership wedge. When a country has strong investor protection, investors may be less concerned about the possibility of controlling shareholders expropriating minority shareholders, since the strong legal environment protects their rights better and restricts the opportunistic behavior by the controlling shareholders. When investors experience weaker standards of protection, however, controlling shareholders may be more likely to use excess cash for their own benefit, since they are less exposed to regulatory scrutiny. Consistent with this view, extensive prior literature has shown that opportunistic behaviors by insiders (managers or controlling shareholders) decrease in stronger investor protection environments (Claessens, Djankov, Fan, and Lang, 2002; Gopalan and Jayaraman, 2012; Haw, Hu, Hwang, and Wu, 2004; Kalcheva and Lins 2007; Leuz, Nanada, and Wysocki 2003). According to this logic, therefore, investors should penalize firms with weak governance more in countries with a weak legal regime, implying a weaker relation between a corporate control-ownership

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<sup>2</sup> Note that the results of Belkir et al. (2014) are consistent with the first research question, they document a negative relation between the control-ownership wedge and the value of excess cash, by using data from publicly listed French firms. They find that investors are concerned about the use of excess cash holdings, leading to a discount in firm value as levels of cash holdings increase. Furthermore, these authors suggest that the discount in the value of excess cash for firms with a wide control-ownership wedge is less pronounced when boards are more independent. Thus, board independence seems to effectively mitigate investors' concerns about possible expropriation of excess cash by controlling shareholders. The present study extends the findings of Belkir et al. (2014) to East Asian countries, where corporate ownership is typically concentrated within families or dominated by the state (La Porta et al., 1999). Moreover, it also investigates differences in investor reaction across countries, and the effect of legal regime in a cross-country analysis. This study therefore expands and complements the study of Belkir et al. (2014) and provides a broader picture in an international setting.

wedge and the value of cash holdings in countries with strong investor protection, since a strong legal regime helps to reduce opportunism by controlling shareholders.

On the other hand, it is also possible that investors may react *more* strongly to poorer corporate governance under a stronger legal regime, resulting in a greater discount in the value of cash in response to a control-ownership wedge. Many prior studies report differences in investor reaction or investor sophistication across countries (Ali and Hwang, 2000; Ferreira, Keswani, Miguel, and Ramos, 2012; Haw, Hu, Lee, and Wu, 2012; Hung 2001; Jacobs, 2016). Investors in countries with stronger investor protection are expected to be more sophisticated in securing their rights, and thus they may penalize firms with a wider control-ownership wedge (Hung, 2001). Conversely, in a weaker investor protection environment investors may be less aware of the importance of corporate governance, and thus firm values may not incorporate information related to the possibilities for rent extraction by controlling shareholders, resulting in a smaller discount of cash holdings in proportion to the corporate control-ownership wedge. In summary, given these two conflicting predictions, it is an interesting empirical question to examine the effect of country-level legal regime upon the wedge/cash-value relation.

In this study the corporate ownership data of East Asia's largest companies, as compiled by Carney and Child (2013), is used to empirically test the relation between corporate control-ownership wedge and the value of cash holdings. The countries used in the analyses are Hong Kong, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. The samples are collected from 2008 to 2015. The empirical analysis shows, firstly, that a wider corporate control-ownership wedge is associated with a lower valuation of corporate cash holdings, consistent with the agency perspective. This result implies that investors discount the value of cash more steeply in

response to higher possibilities of expropriation by the controlling shareholders. The second finding is that the negative relation between a corporate control-ownership wedge and the value of cash holdings is more pronounced when countries provide a stronger degree of investor protection. This result suggests that investors in countries with a strong legal regime are more concerned about the possibility of expropriation by controlling shareholders, despite the greater protection they experience compared with investors in countries with a weak legal regime.

This study contributes to the existing literature in several ways. First, it provides evidence that a control-ownership wedge leads to lower valuation of corporate cash holdings by investors, indicating that separation of ownership and control is punished by investors. This finding generalizes the results of Belkhir et al. (2014), which uses French data, and extends our knowledge about the effects of agency problems to a more general setting. Second, this study contributes to the ongoing debate on the role of the legal environment in influencing cash valuation (Bottazzi, Rin, and Hellmann, 2009; Durnev and Kim, 2005; Pinkowitz et al., 2006). For example, Durnev and Kim (2005) document a negative relation between corporate governance and the strength of investor protection, implying that governance mechanisms supplement investor protection; whereas Pinkowitz et al. (2006) observe a higher value of cash in countries with stronger investor protection, and in the same vein, Bottazzi et al. (2009) find that better legal systems are correlated with more investor involvement. The empirical results presented in this paper suggest that the negative relation between the extent of a corporate control-ownership wedge and the value of cash holdings is strengthened for firms in countries with stronger investor protection, implying that investors are more sensitive to the risks of the potential expropriation by controlling shareholders in such countries. This finding provides some

clear and interesting insights into controlling shareholders which are significant for regulators: maintaining good governance mechanisms in countries with strong legal regimes is all the more imperative, because firm value is influenced more dramatically by the quality of governance in these countries.

This paper proceeds as follows: section 2 discusses the findings in prior literature and develops the research hypotheses, section 3 describes the research variables and specifies the empirical models used, section 4 presents the empirical results, section 5 reports the results of some additional relevant analyses, and section 6 is the conclusion.

## **II. Prior Literature and Hypothesis Development**

### ***2.1. Corporate Control-Ownership Wedges and the Value of Cash Holdings***

The likelihood of expropriation by controlling shareholders increases with the extent of the control-ownership wedge, since dominant shareholders of firms with larger wedge do not bear the full financial consequences of their rent extraction activities (Lin et al., 2012). Relatedly, La Porta et al. (2000) suggest that higher cash flow ownership leads to a lower expropriation by controlling shareholders since they find it costly to extract cash from such firms. Consistent with these predictions, both Haw et al. (2004) and Gopalan and Jayaraman (2012) document that opportunistic earnings management grows more severe as the control-ownership wedge widens. Managers engage in more such earnings management when the wedge is greater, to hide their rent-seeking behaviors from outside monitoring. Relatedly, Fan and Wong (2002) and Francis, Schipper, and Vincent (2005) report that earnings are less value-relevant for the firms with a control-ownership wedge. This implies that investors are aware of the risk, and therefore discount the information

contained in accounting earnings.

As well as discounting the value of accounting information, investors could also discount other value metrics when the risk of expropriation by managers is higher. Thus, since liquid assets, such as cash, can be turned into private benefits at a lower cost than other assets (Myers and Rajan, 1998), investigating the relation between corporate cash holdings and control-ownership wedges can provide an important test of agency theory. Consistent with this view, Belkhir et al. (2014) examine publicly traded French companies, finding that investors are more likely to discount the value of excess cash held by firms with a greater separation of control and ownership. This suggests that investors penalize those firms perceived as exposed to a higher chance of exploitation by controlling shareholders.

Relatedly, recent literature also suggests that the value of cash held by firms is closely related with other proxies for corporate governance quality (Belkhir et al., 2014; Dhaliwal, Huang, Moser, and Pereira, 2012; Dittmar and Mahrt-Smith, 2007; Pinkowitz et al., 2006). For example, Dittmar and Mahrt-Smith (2007) show that the value of cash is substantially less in firms with poor corporate governance; and Dhaliwal et al. (2012) find that tax avoidance is negatively related with the level of cash holdings as well as with the valuation of cash holdings, which is consistent with the agency view of tax avoidance. However, this relation is attenuated in well-governed firms, for which investors have less concern about rent extraction by managers.

In summary: reducing the extent of the control-ownership wedge should deter the expropriation of excess cash by controlling shareholders. Since corporate cash holdings are a typical channel through which private benefits are extracted by controlling shareholders, it is conjectured that a wider corporate control-ownership wedge will be associated with a

lower value being placed upon cash. Hence, the first hypothesis:

**H1:** *Ceteris paribus*, the value of cash holdings decreases as the control-ownership wedge increases.

## ***2.2. The Role of the Legal Environment***

The legal environment can affect the valuation of cash holdings by investors in two opposing ways. On the one hand, investors may react less to poorer corporate governance under a stronger legal regime, resulting in less discounting of the value of cash in response to a control-ownership wedge. When a country has strong investor protection, investors may be less concerned about expropriation of minority shareholders by the controlling shareholders, since they believe that the strong legal environment will protect their rights better. Extensive prior literature shows that opportunistic behaviors by insiders (managers or controlling shareholders) decrease in stronger investor protection environments (Claessens et al., 2002; Gopalan and Jayaraman, 2012; Haw et al., 2004; Kalcheva and Lins 2007; Leuz et al., 2003). Also, Leuz et al. (2003), Haw et al. (2004), and Gopalan and Jayaraman (2012) demonstrate that earnings management decreases with strong investor protection. In a weaker investor protection environment, however, investors may penalize weak governance firms more, since they are more exposed to the risk of expropriation by controlling shareholders. Accordingly, controlling shareholders may be more willing to use excess cash for their own benefit in such an environment, since they are less exposed to regulatory scrutiny. Claessens et al. (2002) show that the limited protection of minority rights in Asia allows controlling shareholders to more readily expropriate minority shareholders. In addition, Kalcheva and Lins (2007) find that when external shareholder protection is weak at the country level, investors discount firm value

more when controlling shareholders hold more cash.<sup>3</sup> Following this logic, one would expect a weaker relation between the extent of the corporate control-ownership wedge and the value of cash holdings when investor protection is stronger. That is, strong investor protection is expected to mitigate the negative effect of a wider control-ownership wedge on the value of cash.

On the other hand, the above argument assumes that investors react similarly and possess a similar degree of sophistication across different countries, but many studies report differences in these two variables across countries (Ali and Hwang, 2000; Ferreira et al., 2012; Haw et al., 2012; Hung, 2001; Jacobs, 2016). For example, Ali and Hwang (2000) report a lower value relevance of accounting data in bank-oriented countries when compared with market-oriented countries. Similarly, Haw et al. (2012) find that prices are a better predictor of future earnings in countries with strong investor protection. These studies suggest that investors respond differently in different environments, and this implies that in countries with stronger investor protection investors might penalize firms with wider control-ownership wedges *more*, since they are likely to be more sensitive to protecting their rights. Conversely, in a weaker investor protection environment investors may be less aware of the importance of corporate governance, and thus firm values may not incorporate information related to rent extraction possibilities by controlling shareholders.<sup>4</sup> In this vein, La Porta et al. (1997) report that investor protection is a major

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<sup>3</sup> In a similar vein, Fan and Wong (2005) suggest that in emerging markets there is a greater demand for a high quality auditor in countries with a larger divergence between the cash flow rights and voting rights of the ultimate shareholders, implying that investors seek out alternative devices to mitigate agency problems in such countries.

<sup>4</sup> This argument is consistent with prior literature which finds investor protection level to be a major determinant of the value relevance of accounting information. For example, DeFond, Hung, and Trezevant (2007) state that earnings announcements are more informative in countries with strong investor protection institutions, and Hung (2001) shows that shareholder protection enhances the effectiveness of accrual accounting, implying a positive relation between investor protection and the value relevance of accounting information. Such studies imply that investors in countries with a strong legal regime more fully reflect

determinant of financial development, and Ferreira et al. (2012) document that investor sophistication increases with economic development. Thus, investors operating in a weaker investor protection environment may be less sophisticated, and therefore less sensitive to information about corporate governance. In line with this, Pinkowitz et al. (2006) document a weaker relation between corporate cash holdings and firm value in countries with weaker investor protection,.

Under a strong legal regime, investors can force managers to distribute excess cash holdings, which results in lower level of cash holdings for firms in such countries (Dittmar et al., 2003). Firms can be prompted to distribute cash by discounting the value of any cash exceeding the optimal level appropriate for the firm. Where investors face more severe risks from agency problems, they should discount cash more steeply (Belkhir et al., 2014), which in turn forces managers to react more sensitively. From this perspective, a stronger relation between the extent of the control-ownership wedge and the value of cash is expected in countries with stronger investor protection. That is, investors in stronger legal regimes will take the risk of expropriation by controlling shareholders more seriously than investors in weaker legal regimes, and will discount the value of firms' cash holdings more severely.

In sum, the effect of the legal environment upon the valuation of cash holdings when there is a divergence between control and ownership is an empirical question. To test which of the two competing theories outlined above is more salient in determining the influence of the legal regime upon the relation between the corporate-ownership wedge and the value of cash, the second hypothesis is stated in a null form.

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value-relevant information in their decision-making processes.

**H2:** *Ceteris paribus*, the negative effect of the control-ownership wedge on the value of cash holdings is unrelated to the level of legal regime.

### III. Research Design

#### 3.1. Measures of the Corporate Control-Ownership Wedge

The corporate control-ownership wedge indicates the degree of separation between ownership and control. Ownership data from the largest companies in nine East Asian countries was used, collected from Carney and Child (2013), to derive two measures of the corporate control-ownership wedge. The first of these, *Wedge1*, is calculated as the ratio of ultimate control rights (*UCO*) and ultimate cash flow rights (*UCF*), using decile ranks scaled so that the values lie between 0 and 1.<sup>5</sup> *UCO* is the ultimate control rights of the largest controlling shareholder, and *UCF* is the ultimate cash flow rights of the largest controlling shareholder. Following Carney and Child (2013), a 10% control threshold was used in identifying the ultimate controlling shareholders.

An alternative measure, *Wedge2*, is computed as the difference between ultimate control rights and ultimate cash flow rights. As with *Wedge1*, scaled decile ranks are employed.

$$Wedge1 = UCO/UCF \quad (1)$$

$$Wedge2 = UCO - UCF \quad (2)$$

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<sup>5</sup> Use of ranked values has the advantage of being robust: Guay et al. (2016) use decile ranks of voluntary disclosure measure in their analyses, suggesting that this approach mitigates concerns about extreme outliers and nonlinearities. In the present study, analyses were also conducted using raw value measures of the control-ownership wedge, which gave qualitatively similar results.

Equations (1) and (2) present the two ownership wedge variables used in this paper. Higher values of the two variables indicate a larger divergence of control rights and cash flow rights of the ultimate shareholder, indicating more severe agency conflicts between controlling shareholders and minority shareholders.

### ***3.2. Measures of the Strength of Legal Regime***

Three variables are used to measure the strength of legal regime. Following La Porta et al. (1998), two measures of investor protection levels are used: an index of anti-director rights (*AntiDirector*) and the law origin (*LawOrigin*). And following Ferreira et al. (2012), gross domestic products per capita (*GDPC*) is used to measure investor sophistication.

The anti-director rights index aggregates elements of minority shareholder rights, such as the ability to vote by mail, the ability to retain control of shares during the shareholders meeting, the possibility of cumulative voting for directors, the ease of calling an extraordinary shareholders meeting, and the availability of class action suits (La Porta et al., 1998). The index ranges from 0 to 6, with higher values indicating a stronger level of investor protection.<sup>6</sup>

Prior literature also establishes that common-law countries appear to have better legal protections for minority shareholders than civil-law countries (Klapper and Love,

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<sup>6</sup> The index is formed by accumulating one for each of the following conditions: (1) The country allows shareholders to mail their proxy vote, (2) shareholders are not required to deposit their shares prior to the General Shareholders Meeting, (3) cumulative voting or proportional representation of minorities on the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent, and (6) shareholders have preemptive rights that can only be waived by a shareholders meeting.

2004; La Porta et al., 1997, 1998, 2000). Thus, an indicator variable is included which is set to one if the country's company law or commercial code is of common-law origin, and is set to zero otherwise.

### 3.3. Model Specification

To test H1, following prior studies on the value of cash holdings (Belkhir et al., 2014; Dittmar and Mahrt-Smith, 2007; Gao and Jia, 2015; Pinkowitz et al., 2006), A modified version of Fama and French (1998) was employed. Thus, the following pooled regression model was estimated:

$$\begin{aligned}
MV_{i,t} = & \beta_0 + \beta_1 * \Delta Cash_{i,t} + \beta_2 * \Delta Cash_{i,t} * Wedge_{i,t} + \beta_3 * Wedge_{i,t} \\
& + \beta_4 * Earnings_{i,t} + \beta_5 * \Delta Earnings_{i,t} + \beta_6 * \Delta Earnings_{i,t+1} \\
& + \beta_7 * R\&D_{i,t} + \beta_8 * \Delta R\&D_{i,t} + \beta_9 * \Delta R\&D_{i,t+1} + \beta_{10} * Dividends_{i,t} \\
& + \beta_{11} * \Delta Dividends_{i,t} + \beta_{12} * \Delta Dividends_{i,t+1} + \beta_{13} * Interest_{i,t} \\
& + \beta_{14} * \Delta Interest_{i,t} + \beta_{15} * \Delta Interest_{i,t+1} + \beta_{16} * \Delta NetAssets_{i,t} \\
& + \beta_{17} * \Delta NetAssets_{i,t+1} + FixedEffects + \varepsilon_{i,t}
\end{aligned} \tag{3}$$

In Equation (3), market firm value is regressed on change of cash and other control variables that capture sources of value for the firm. The coefficient of  $\Delta Cash$  (i.e.,  $\beta_1$ ) indicates how the market value changes for a \$1 increase in cash holdings. The interaction term,  $\Delta Cash_{i,t} * Wedge_{i,t}$ , is the variable of interest, for which a negative sign is expected: with a negative coefficient,  $\beta_2$ , is consistent with the argument that a wider control-ownership wedge adversely affects investors' valuation of cash holdings. The dependent variable,  $MV$ , is the market value of the firm, which is computed as the market value of equity plus the book value of total debt.

Following prior literature (Belkhir et al. 2014; Dittmar and Mahrt-Smith, 2007;

Faulkender and Wang, 2006), various control variables are included in Equation (3). The control-ownership wedge is measured by two variables, *Wedge1* and *Wedge2*, following Belkhir et al. (2014).  $\Delta Cash$  is the change in a firm's cash and short-term investments over the fiscal year, which thus measures unexpected change, since the firm's cash position at the beginning of the year is assumed to be the expected level of cash at the end of the year. The regression was also controlled for the firm's earnings (*Earnings*), and to ensure the robustness of these tests three earnings measures are included: earnings before interest and taxes (*EBIT*), earnings before interest, taxes, depreciation, and amortization (*EBITDA*), and lastly, pretax income (*PI*). *R&D* is research and development expenses, *Dividends* is common dividends, and *Interest* is interest expense.  $\Delta X_{i,t}$  is the change in variable *X* from year t-1 to year t, and  $\Delta X_{i,t+1}$  is the change in variable *X* from year t to year t+1. All the variables except *Wedge* are scaled by lagged *NetAssets*, where *NetAssets* presents total assets net of cash and short-term investments. The regression was also controlled for the effects of fixed country, fixed firm, and fixed industry. The detailed definitions of the variables are presented in Table 1.

For the test of H2, Equation (3) is modified to include legal regime measures using the following regression model:

$$\begin{aligned}
MV_{i,t} = & \beta_0 + \beta_1 * \Delta Cash_{i,t} + \beta_2 * \Delta Cash_{i,t} * Wedge_{i,t} + \beta_3 * Wedge_{i,t} \\
& + \beta_4 * \Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t} + \beta_5 * \Delta Cash_{i,t} * Law_{i,t} \\
& + \beta_6 * Wedge_{i,t} * Law_{i,t} + \beta_7 * Earnings_{i,t} + \beta_8 * \Delta Earnings_{i,t} \\
& + \beta_9 * \Delta Earnings_{i,t+1} + \beta_{10} * R\&D_{i,t} + \beta_{11} * \Delta R\&D_{i,t} \\
& + \beta_{12} * \Delta R\&D_{i,t+1} + \beta_{13} * Dividends_{i,t} + \beta_{14} * \Delta Dividends_{i,t} \\
& + \beta_{15} * \Delta Dividends_{i,t+1} + \beta_{16} * Interest_{i,t} + \beta_{17} * \Delta Interest_{i,t} \\
& + \beta_{18} * \Delta Interest_{i,t+1} + \beta_{19} * \Delta NetAssets_{i,t} + \beta_{20} * \Delta NetAssets_{i,t+1} \\
& + \beta_{21} * Law_{i,t} + FixedEffects + \varepsilon_{i,t}
\end{aligned} \tag{4}$$

In Equation (4), a variable is included to represent the investor protection level (*Law*), in order to examine the effect of legal regime upon the valuation of corporate cash holdings by investors. This variable, *Law*, is *AntiDirector*, *LawOrigin*, or *GDPC*. Compared with Equation (3), three interaction terms are added ( $\Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t}$ ,  $Wedge_{i,t} * Law_{i,t}$ , and  $\Delta Cash_{i,t} * Law_{i,t}$ ) as well as the  $Law_{i,t}$  variable. Equation (4) uses the same control variables, and was also controlled for the effects of firm and industry effects. All the variables except *Wedge* and *Law* are scaled by lagged *NetAssets*, where *NetAssets* presents total assets net of cash and short-term investments. The detailed definitions of the variables are presented in Table 1.

The variable of interest is the interaction term  $\Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t}$ . A positive coefficient,  $\beta_4$ , implies that stronger legal regime mitigates investors' concerns about the use of cash holdings, resulting in less discounting of the value of corporate cash holdings in response to poorer corporate governance. On the other hand, a negative coefficient,  $\beta_4$ , implies that investors in a stronger legal environment discount the value of cash more steeply in response to poorer corporate governance. However, in the absence of any wedge effect, stronger legal regime is expected to increase the value of cash holdings (Pinkowitz et al., 2006), so that the coefficient of  $\Delta Cash_{i,t} * Law_{i,t}$ ,  $\beta_5$ , should be positive.

Table 1 presents the detailed definitions of the variables used in the regression models. All the variables except *Wedge* and *Law* are scaled by lagged *NetAssets*, where *NetAssets* presents total assets net of cash. Corporate control-ownership wedge variables use ranked decile values, scaled to vary between 0 and 1, to reduce problems related to outliers (Guay et al., 2016).

**[Insert Table 1 here]**

## IV. Results

### 4.1. Sample and Data

The sample period for the study spans 2008-2015. Financial statement data were collected from the *Compustat Global* database, and corporate ownership data was used from nine East Asian countries, provided by Carney and Child (2013)<sup>7</sup>. In addition, two investor protection measures were used, *AntiDirector* and *LawOrigin*, provided by La Porta et al. (1998), and GDP per capita data was collected from the World Development Indicators (WDI) database. GDP per capita is commonly used as an indicator of investor sophistication or economic development (Ferreira et al., 2012). Firms in the financial industries (with Standard Industrial Classification, or SIC, codes 6000 to 6999) were excluded from the sample, since their cash holdings are not suitable for comparison to those in other industries. Regulated utilities (SIC codes 4900 to 4999) were also excluded, because their liquid assets are subject to regulatory requirements. Observations for which corporate ownership data or financial data are missing were also deleted. The final sample consists of 4,501 firm-year observations<sup>8</sup> from nine countries covering the period 2008-2015. The sample period starts from 2008 because this is when the corporate ownership data from Carney and Child (2013) starts. The countries studied are Hong Kong, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. All of the variables used in the analysis are winsorized at the 1% and 99% levels in order to minimize the impact of outliers.

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<sup>7</sup> Carney and Child (2013) investigate the separation of ownership and control for East Asia's largest companies in 1996 and 2008, and compile data on nine East Asian countries' largest publicly traded companies.

<sup>8</sup> When using *EBIT* or *EBITDA* as a measure for earnings. This increases to 4,503 firm-year observations when using *PI* as the measure for earnings, and decreases to 3,074 observations when using *GDPC* as legal regime measure.

Table 2 reports the descriptive statistics on the variables used for the main regression model. Although the variables are scaled by lagged *NetAssets*, all the financial data is also converted into USD for comparability.

**[Insert Table 2 here]**

Table 3 reports the Pearson (Spearman) correlations of the variables in the analysis. The two measures of control-ownership wedge (*Wedge1* and *Wedge2*) are significantly positively correlated, and the three different earnings measures used in the various regression models (*EBIT*, *EBITDA*, and *PI*) are highly correlated to each other. Recall that all the variables except control-ownership wedge measures and the investor protection measures are scaled by lagged *NetAssets*, which is computed as total assets net of cash.

**[Insert Table 3 here]**

#### ***4.2. The Association between the Control-Ownership Wedge and the Value of Cash Holdings***

Table 4 indicates the results for the test of H1 which examines the association between the control-ownership wedge and the value of cash holdings. The coefficient on the interaction term between the control-ownership wedge and the change of cash ( $\Delta Cash * Wedge$ ) is negative and significant using both measures of control-ownership

wedge, *Wedge1* and *Wedge2*, consistent the conjecture made in this study. Columns (1) and (2) present the regression results using *Wedge1* and *Wedge2* respectively. The coefficients on the interaction term between the ownership wedge and the change of cash ( $\Delta Cash * Wedge$ ) is consistently negative and significant across both measures of control-ownership wedge.<sup>9</sup> This result implies that the contribution of cash holdings to firm value declines as the control-ownership wedge widens.

**[Insert Table 4 here]**

#### ***4.3. Legal Regime, Control-Ownership Wedge, and the Value of Cash***

Table 5 examines the results of testing H2 which investigates the effect of legal regime on cash valuation. Column (1) of Table 5 gives regression results using the anti-director index devised by La Porta et al. (1998) as the legal regime measure. The coefficient on the interaction term  $\Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t}$  is negative and significant at the 1% level, indicating that the negative effect of the control-ownership wedge on cash valuation by investors is more severe under stronger legal environment. Likewise, Column (2) of Table 5 presents the regression results using law origin dummy variable as utilized by La Porta et al. (1998) to measure the strength of legal regime. Consistent with anti-director index, the coefficient on the interaction term  $\Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t}$  using the law origin dummy variable is negative and significant at the 1% level. Lastly, Column (3) presents the results using gross domestic products per capita (*GDPC*) as the legal regime

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<sup>9</sup> Use of different earnings measures (*EBITDA* and *PI*) does not change the results. For brevity, results using *EBITDA* and *PI* are not tabulated.

variable. The coefficient of interest,  $\Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t}$ , is also negative and significant at the 1% level. Note that sample size for the results in Table 5 differs for *GDPC* because of data availability. *EBIT* is used as the earnings measure, and *Wedge1* as the control-ownership wedge variable in this analysis.<sup>10</sup> In sum, the results imply that under a stronger legal environment, concerns about agency conflicts between controlling shareholders and minority shareholders are stronger, which is reflected in a lower value of cash holdings for firms with a wider ownership wedge.

However, taken alone, the effect of legal regime on cash valuation is positive. The coefficients on  $\Delta Cash_{i,t} * Law_{i,t}$  are positive across all models, and significant at the 1% level except when using *GDPC* as the legal regime measure. This finding suggests when the control-ownership wedge is narrow, stronger legal environment actually enhances the value of cash holdings.

[Insert Table 5 here]

## V. Additional Analyses

In order to examine the robustness of the results, Tables 4 and 5 were re-estimated with country-weighted regressions. Since the sample data used for the analyses consisted of firms in nine East Asian countries, in varying proportions, this could be driving the results. Analyses were therefore conducted after controlling for the country

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<sup>10</sup> Using other earnings measures (*EBITDA*, *PI*) and using the alternative measure of the control-ownership wedge (*Wedge2*) gives qualitatively similar results. For brevity, results using *EBITDA* and *PI* as earnings and results using *Wedge2* are not tabulated.

proportion. The results are presented in Table 6, in which Panel A reports the country-weighted regression of Equation (3). Consistent with prior results, the coefficient on  $\Delta Cash * Wedge$  is negative and significant at the 5% level, suggesting that after controlling for the country factor, the control-ownership wedge negatively affects the value of cash holdings.

Panel B of Table 6 shows the results of the country-weighted regression of Equation (4). Columns (1), (2), and (3) report respectively the results using *AntiDirector*, *LawOrigin*, and *GDPC* for the legal regime measure. The coefficients on  $\Delta Cash_{i,t} * Wedge_{i,t} * Law_{i,t}$  are negative across all models, and significant for *AntiDirector* and *LawOrigin*. After considering the sample composition, then, this result implies that investors in stronger legal regimes are more sensitive about the possibility of entrenchment by controlling shareholders. In addition, the coefficients on  $\Delta Cash_{i,t} * Law_{i,t}$  are positive and significant for *AntiDirector* and *LawOrigin*, suggesting that stronger investor protection levels contributes to the value of cash holdings.

**[Insert Table 6 here]**

In the primary analyses, decile ranks were used for the control-ownership wedge variables instead of raw value measures, this was done to avoid distortion of the empirical results due to noisy outliers (Guay et al., 2016). In additional analyses (not tabulated for brevity), regression tests were performed using raw value-based measures of the control-ownership wedge. The results were largely consistent with the earlier analyses.

In the earlier analyses, I used the firm's cash position at the beginning of the year

as the expected level of cash at the end of the year. However, literature methods of measuring the optimal levels of corporate cash holdings (Harford, 1999; Opler, Pinkowitz, Stulz, and Williamson, 1999). I follow Opler et al. (1999)'s estimation of the optimal level of cash holdings for a firm, and using the unexpected cash holdings from this estimation, I conducted the regression tests.<sup>11</sup> Using this alternative unexpected level of corporate cash holdings, the results (not tabulated for brevity) are consistent with the earlier analyses.

## **VI. Conclusion**

Using control-ownership wedge data for companies from nine East Asian countries from Carney and Child (2013), I find a negative and significant relation between the extent of the corporate control-ownership wedge and the value of cash holdings, and this is consistent with the agency view. Separation of control and ownership indicates agency conflict between the controlling shareholders and minority shareholders (Claessens et al., 2000, 2002; Faccio and Lang, 2002) which, in the case of East Asian companies, is more widespread than agency conflict between managers and shareholders. The wider the control-ownership wedge is, the more likely are the controlling shareholders to expropriate minority shareholders. Thus, a wider control-ownership wedge increases the concerns of minority shareholders about efficient use of corporate cash holdings, which is a typical channel through which the controlling shareholders seek to extract private benefits.

As the first study to directly examine the effect of the control-ownership wedge on

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<sup>11</sup> Opler et al. (1999) empirically estimate the optimal level of cash holdings for a firm as a function of firm size, cash flows, net working capital, cash flow volatility, market-to-book ratio, research and development expenses, capital expenditures, leverage, and dividend payout. Unexpected cash holdings, or excess cash holdings, are calculated as the residual term in the model.

the value of cash holdings in an international setting, this study contributes to the literature by generalizing the findings of prior research on French firms (Belkhir et al., 2014). Using extensive ownership data from nine countries I show that discounting corporate cash holdings in response to a wider control-ownership wedge is a widespread investor behavior.

Moreover, my study also contributes to the ongoing debate about the role of the legal environment in influencing cash valuation. The empirical results presented in this paper suggest that the negative relation between the extent of the control-ownership wedge and the value of cash holdings is strengthened for firms in countries with stronger legal regime, implying that investors are more sensitive to the risks of the potential expropriation by controlling shareholders in such countries. This finding provides some clear and interesting insights into controlling shareholders which are significant for regulators: maintaining good governance mechanisms in countries with strong legal regime is all the more imperative, because firm value is influenced more dramatically by the quality of governance in these countries.

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**TABLE 1**  
**Definition of Variables**

Variables	Definition
<i>MV</i>	Total market value of the firm at year t, calculated as MVE plus book value of total liabilities, where MVE is computed as the product of total shares outstanding and share price at the end of the fiscal year. <i>MV</i> is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta Cash$	Change of cash and short term investments from year t-1 to year t. $\Delta Cash$ is scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
<i>EBIT</i>	Earnings before interest and taxes for year t, scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
<i>EBITDA</i>	Earnings before interest, taxes, depreciation, and amortization for year t, scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
<i>PI</i>	Pretax income for year t, scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta PI_t$	Change in pretax income from year t-1 to year t. $\Delta PI_t$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta EBIT_t$	Change in earnings before interest and taxes from year t-1 to year t. $\Delta EBIT_t$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta EBITDA_t$	Change in earnings before interest, taxes, depreciation, and amortization from year t-1 to year t. $\Delta EBITDA_t$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta PI_{t+1}$	Change in pretax income from year t to year t+1. $\Delta PI_{t+1}$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta EBIT_{t+1}$	Change in earnings before interest and taxes from year t to year t+1. $\Delta EBIT_{t+1}$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta EBITDA_{t+1}$	Change in earnings before interest, taxes, depreciation, and amortization from year t to year t+1. $\Delta EBITDA_{t+1}$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
<i>R&amp;D</i>	Research and development expense of year t, scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta R\&D_t$	Change in research and development expense from year t-1 to year t. $\Delta R\&D_t$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta R\&D_{t+1}$	Change in research and development expense from year t to year t+1. $\Delta R\&D_{t+1}$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
<i>Dividends</i>	Dividends common/ordinary for year t, scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta Dividends_t$	Change in dividends from year t-1 to year t. $\Delta Dividends_t$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta Dividends_{t+1}$	Change of dividends from year t to year t+1. $\Delta Dividends_{t+1}$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
<i>Interest</i>	Total interest and related expense for year t, scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta Interest_t$	Change in interest expense from year t-1 to year t. $\Delta Interest_t$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta Interest_{t+1}$	Change in interest expense from year t to year t+1. $\Delta Interest_{t+1}$ is then scaled by lagged <i>NetAssets</i> , which is total assets net of cash.
$\Delta NetAssets_t$	Change in <i>NetAssets</i> from year t-1 to year t, where <i>NetAssets</i> is computed as total assets net of cash. $\Delta NetAssets_t$ is then scaled by lagged <i>NetAssets</i> .
$\Delta NetAssets_{t+1}$	Change in <i>NetAssets</i> from year t to year t+1, where <i>NetAssets</i> is computed as total assets net of cash. $\Delta NetAssets_{t+1}$ is then scaled by lagged <i>NetAssets</i> .
<i>Wedge1</i>	Measure of the control-ownership wedge, computed as the ultimate control rights divided by the ultimate cash flow rights. Decile ranks are used, scaled to range from 0 to 1, which is robust to both outliers and nonlinearities (Guay et al., 2016).
<i>Wedge2</i>	Measure of the control-ownership wedge, computed as the ultimate control rights minus ultimate cash flow rights. Decile ranks are used, scaled to range from 0 to 1, which is robust to both outliers and nonlinearities (Guay et al., 2016).
<i>AntiDirector</i>	Anti-director rights index provided by La Porta et al. (1998). The index ranges from 0 to 6, in which higher values indicate stronger investor protection. The index is formed by

accumulating one for each of the following conditions : (1) The country allows shareholders to mail their proxy vote, (2) shareholders are not required to deposit their shares prior to the General Shareholders Meeting, (3) cumulative voting or proportional representation of minorities on the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders Meeting is less than or equal to 10 percent, and (6) shareholders have preemptive rights that can only be waived by a shareholders meeting.

***LawOrigin***

Dummy variable set to one if the law origin of the country derives from common law, and zero otherwise. Source: La Porta et al. (1998).

***GDP***

Gross domestic product per capita, converted into USD. *GDP* is used to measure investor sophistication (Ferreira et al., 2012).

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**TABLE 2**  
**Descriptive Statistics**

<b>Variable</b>	<b>N</b>	<b>Std. Dev</b>	<b>Mean</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>
<i>MV</i>	4503	0.233291	0.605242	0.322325	0.771438	0.800171
<i>ΔCash</i>	4503	0.024252	0.001722	0	0	0
<i>Wedge1</i>	4503	1.046188	1.478213	1	1	1.512
<i>Wedge</i>	4503	11.61409	4.184604	0	0	8.391572
<i>EBIT</i>	4503	0.038839	0.032985	-0.00364	0.042849	0.045965
<i>EBITDA</i>	4503	0.042349	0.072243	0.03953	0.079734	0.081776
<i>PI</i>	4503	0.052173	0.035294	-0.00829	0.034855	0.041004
<i>ΔEBIT<sub>t</sub></i>	4501	0.013985	0.000295	0	0	0
<i>ΔEBITDA<sub>t</sub></i>	4501	0.015152	0.000373	0	0	0
<i>ΔPI<sub>t</sub></i>	4503	0.019633	0.000383	0	0	0
<i>ΔEBIT<sub>t+1</sub></i>	4501	0.015298	0.000346	0	0	0
<i>ΔEBITDA<sub>t+1</sub></i>	4501	0.016277	0.000632	0	0	0
<i>ΔPI<sub>t+1</sub></i>	4503	0.022403	0.000423	0	0	0
<i>R&amp;D</i>	4503	0.003817	0.00236	0	0	0.005209
<i>ΔR&amp;D<sub>t</sub></i>	4503	2.87E-05	3.98E-06	0	0	0
<i>ΔR&amp;D<sub>t+1</sub></i>	4503	1.92E-05	2.66E-06	0	0	0
<i>Dividends</i>	4503	0.010491	0.003797	0	0.001891	0.002214
<i>ΔDividends<sub>t</sub></i>	4503	0.002042	5.9E-05	0	0	0
<i>ΔDividends<sub>t+1</sub></i>	4503	0.002183	7.16E-06	0	0	0
<i>Interest</i>	4503	0.003837	0.006729	0.006418	0.006497	0.006951
<i>ΔInterest<sub>t</sub></i>	4503	0.00102	4.31E-05	0	0	0
<i>ΔInterest<sub>t+1</sub></i>	4503	0.001219	7.54E-05	0	0	0
<i>ΔNetAssets<sub>t</sub></i>	4503	0.060244	0.008988	0	0	0
<i>ΔNetAssets<sub>t+1</sub></i>	4503	0.069668	0.010688	0	0	0
<i>AntiDirector</i>	4503	1.011096	3.264712	2	4	4
<i>LawOrigin</i>	4503	0.443569	0.269154	0	0	1
<i>GDP</i>	3074	19329.43	20871.73	5915.22	10834.66	38352.53

Table 2 presents the descriptive statistics for the variables used in the regression model. All the variables are winsorized at 1% and 99% levels. The sample period used for the study spans 2008-2015. The descriptive statistics for all variables are based on the largest sample, when *Earnings* is measured by *PI*. Refer to Table 1 for the detailed definitions of the variables.

**TABLE 3**  
**Pearson (Spearman) Correlation Matrix Above (Below) the Main Diagonal**

	<i>MV</i>	$\Delta$ <i>Cash</i>	<i>Wedge1</i>	<i>Wedge2</i>	<i>EBIT</i>	<i>EBITDA</i>	<i>PI</i>	$\Delta$ <i>EBIT</i> <sub><i>t</i></sub>	$\Delta$ <i>EBITDA</i> <sub><i>t</i></sub>	$\Delta$ <i>PI</i> <sub><i>t</i></sub>	$\Delta$ <i>EBIT</i> <sub><i>t+1</i></sub>	$\Delta$ <i>EBITDA</i> <sub><i>t+1</i></sub>	$\Delta$ <i>PI</i> <sub><i>t+1</i></sub>	<i>R&amp;D</i>	$\Delta$ <i>R&amp;D</i> <sub><i>t</i></sub>	$\Delta$ <i>R&amp;D</i> <sub><i>t+1</i></sub>	<i>Dividends</i>	$\Delta$ <i>Dividends</i> <sub><i>t</i></sub>	$\Delta$ <i>Dividends</i> <sub><i>t+1</i></sub>	<i>Interest</i>	$\Delta$ <i>Interest</i> <sub><i>t</i></sub>	$\Delta$ <i>Interest</i> <sub><i>t+1</i></sub>	<i>NetAssets<sub>t</sub></i>	$\Delta$ <i>NetAssets</i> <sub><i>t+1</i></sub>
<i>MV</i>	1.00	-0.02	-0.02	0.00	<b>0.62</b>	<b>0.61</b>	<b>0.56</b>	0.01	0.02	0.00	0.00	0.00	-0.01	<b>0.16</b>	-0.02	-0.03	<b>0.49</b>	0.00	0.00	<b>-0.36</b>	<b>0.04</b>	0.01	-0.01	-0.03
$\Delta$ <i>Cash</i>	-0.02	1.00	0.00	0.00	<b>0.10</b>	<b>0.13</b>	<b>0.12</b>	<b>0.27</b>	<b>0.28</b>	<b>0.30</b>	0.02	0.00	-0.03	0.01	<b>0.06</b>	<b>0.06</b>	<b>0.07</b>	<b>0.20</b>	0.03	0.01	<b>0.12</b>	0.01	<b>0.16</b>	<b>0.08</b>
<i>Wedge1</i>	-0.01	-0.03	1.00	<b>0.51</b>	0.02	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	-0.02	-0.01	-0.02	0.01	0.02	0.00	0.01
<i>Wedge2</i>	-0.02	-0.01	<b>0.33</b>	1.00	0.02	0.01	0.02	0.00	-0.01	-0.01	0.00	-0.01	-0.01	0.01	0.00	0.01	0.00	-0.02	-0.01	-0.01	-0.02	-0.01	0.00	0.00
<i>EBIT</i>	<b>0.52</b>	<b>0.25</b>	-0.01	0.04	1.00	<b>0.97</b>	<b>0.95</b>	<b>0.13</b>	<b>0.13</b>	<b>0.12</b>	<b>-0.07</b>	<b>-0.05</b>	<b>-0.04</b>	<b>0.41</b>	<b>0.11</b>	<b>0.12</b>	<b>0.81</b>	<b>0.09</b>	0.01	<b>-0.54</b>	<b>0.05</b>	0.02	<b>0.16</b>	<b>0.10</b>
<i>EBITDA</i>	<b>0.42</b>	<b>0.28</b>	0.01	0.04	<b>0.96</b>	1.00	<b>0.93</b>	<b>0.14</b>	<b>0.15</b>	<b>0.14</b>	<b>-0.08</b>	<b>-0.07</b>	<b>-0.04</b>	<b>0.40</b>	<b>0.10</b>	<b>0.11</b>	<b>0.78</b>	<b>0.09</b>	0.00	<b>-0.52</b>	<b>0.05</b>	0.04	<b>0.17</b>	<b>0.10</b>
<i>PI</i>	<b>0.34</b>	<b>0.28</b>	-0.02	0.02	<b>0.87</b>	<b>0.84</b>	1.00	<b>0.12</b>	<b>0.13</b>	<b>0.15</b>	-0.03	-0.01	<b>-0.05</b>	<b>0.39</b>	<b>0.12</b>	<b>0.12</b>	<b>0.82</b>	<b>0.09</b>	0.01	<b>-0.56</b>	<b>0.06</b>	<b>0.04</b>	<b>0.20</b>	<b>0.14</b>
$\Delta$ <i>EBIT</i> <sub><i>t</i></sub>	0.01	<b>0.36</b>	-0.01	-0.02	<b>0.26</b>	<b>0.28</b>	<b>0.22</b>	1.00	<b>0.91</b>	<b>0.69</b>	-0.03	0.00	-0.01	0.02	<b>0.07</b>	<b>0.09</b>	<b>0.06</b>	<b>0.31</b>	<b>0.09</b>	0.04	<b>0.15</b>	0.02	<b>0.18</b>	<b>0.12</b>
$\Delta$ <i>EBITDA</i> <sub><i>t</i></sub>	0.02	<b>0.36</b>	-0.02	-0.02	<b>0.27</b>	<b>0.30</b>	<b>0.24</b>	<b>0.96</b>	1.00	<b>0.68</b>	-0.01	0.00	0.00	0.02	<b>0.08</b>	<b>0.09</b>	<b>0.07</b>	<b>0.30</b>	<b>0.08</b>	0.03	<b>0.20</b>	<b>0.06</b>	<b>0.21</b>	<b>0.18</b>
$\Delta$ <i>PI</i> <sub><i>t</i></sub>	-0.01	<b>0.37</b>	-0.01	-0.02	<b>0.23</b>	<b>0.25</b>	<b>0.28</b>	<b>0.80</b>	<b>0.78</b>	1.00	-0.04	-0.03	<b>-0.12</b>	0.01	<b>0.07</b>	<b>0.06</b>	<b>0.07</b>	<b>0.34</b>	0.04	<b>0.04</b>	<b>0.17</b>	0.00	<b>0.21</b>	<b>0.13</b>
$\Delta$ <i>EBIT</i> <sub><i>t+1</i></sub>	0.02	0.01	0.01	-0.01	<b>-0.12</b>	<b>-0.13</b>	<b>-0.07</b>	<b>-0.11</b>	<b>-0.10</b>	<b>-0.10</b>	1.00	<b>0.89</b>	<b>0.68</b>	0.00	0.04	<b>0.08</b>	0.00	<b>0.08</b>	<b>0.29</b>	-0.01	0.02	<b>0.10</b>	0.02	<b>0.16</b>
$\Delta$ <i>EBITDA</i> <sub><i>t+1</i></sub>	0.01	0.02	0.00	0.00	<b>-0.09</b>	<b>-0.11</b>	<b>-0.04</b>	<b>-0.10</b>	<b>-0.09</b>	<b>-0.07</b>	<b>0.95</b>	1.00	<b>0.65</b>	-0.01	0.03	<b>0.08</b>	0.02	<b>0.08</b>	<b>0.29</b>	-0.02	0.02	<b>0.17</b>	<b>0.08</b>	<b>0.21</b>
$\Delta$ <i>PI</i> <sub><i>t+1</i></sub>	0.01	<b>-0.05</b>	0.00	-0.01	<b>-0.09</b>	<b>-0.10</b>	<b>-0.14</b>	<b>-0.08</b>	<b>-0.08</b>	<b>-0.19</b>	<b>0.77</b>	<b>0.73</b>	1.00	-0.01	0.02	<b>0.07</b>	0.00	<b>0.04</b>	<b>0.31</b>	-0.01	0.00	<b>0.12</b>	0.03	<b>0.19</b>
<i>R&amp;D</i>	<b>0.36</b>	0.03	-0.01	0.00	<b>0.40</b>	<b>0.39</b>	<b>0.43</b>	<b>0.06</b>	<b>0.06</b>	<b>0.05</b>	0.02	0.01	0.00	1.00	<b>0.21</b>	<b>0.16</b>	<b>0.23</b>	0.02	0.01	<b>-0.31</b>	0.01	-0.01	0.01	-0.02
$\Delta$ <i>R&amp;D</i> <sub><i>t</i></sub>	-0.01	<b>0.11</b>	-0.04	0.02	<b>0.19</b>	<b>0.20</b>	<b>0.18</b>	<b>0.11</b>	<b>0.13</b>	<b>0.09</b>	0.02	0.03	-0.01	<b>0.34</b>	1.00	<b>0.62</b>	<b>0.09</b>	<b>0.12</b>	0.02	<b>0.06</b>	<b>0.05</b>	0.03	<b>0.22</b>	<b>0.15</b>
$\Delta$ <i>R&amp;D</i> <sub><i>t+1</i></sub>	-0.02	<b>0.08</b>	-0.02	0.02	<b>0.17</b>	<b>0.18</b>	<b>0.16</b>	<b>0.07</b>	<b>0.09</b>	<b>0.06</b>	<b>0.10</b>	<b>0.13</b>	<b>0.08</b>	<b>0.26</b>	<b>0.60</b>	1.00	<b>0.08</b>	<b>0.11</b>	<b>0.09</b>	<b>0.05</b>	<b>0.04</b>	<b>0.06</b>	<b>0.20</b>	<b>0.20</b>
<i>Dividends</i>	-0.02	<b>0.24</b>	-0.01	0.01	<b>0.62</b>	<b>0.63</b>	<b>0.62</b>	<b>0.15</b>	<b>0.17</b>	<b>0.16</b>	<b>-0.04</b>	0.00	-0.03	<b>0.07</b>	<b>0.16</b>	<b>0.15</b>	1.00	<b>0.15</b>	<b>-0.06</b>	<b>-0.60</b>	<b>0.05</b>	0.03	<b>0.14</b>	<b>0.09</b>
$\Delta$ <i>Dividends</i> <sub><i>t</i></sub>	0.00	<b>0.25</b>	-0.02	-0.03	<b>0.21</b>	<b>0.22</b>	<b>0.21</b>	<b>0.41</b>	<b>0.40</b>	<b>0.39</b>	-0.01	0.01	-0.01	<b>0.05</b>	<b>0.13</b>	<b>0.10</b>	<b>0.32</b>	1.00	<b>-0.06</b>	0.02	<b>0.11</b>	0.00	<b>0.18</b>	<b>0.10</b>
$\Delta$ <i>Dividends</i> <sub><i>t+1</i></sub>	0.00	<b>0.06</b>	-0.01	-0.01	0.00	0.01	0.00	<b>0.09</b>	<b>0.09</b>	<b>0.06</b>	<b>0.38</b>	<b>0.39</b>	<b>0.35</b>	0.03	0.02	<b>0.09</b>	<b>-0.11</b>	<b>-0.07</b>	1.00	-0.02	<b>-0.04</b>	<b>0.07</b>	<b>0.04</b>	<b>0.15</b>
<i>Interest</i>	0.03	<b>0.16</b>	-0.04	-0.01	<b>0.06</b>	<b>0.10</b>	-0.02	<b>0.19</b>	<b>0.20</b>	<b>0.17</b>	0.01	0.03	0.01	<b>-0.18</b>	<b>0.17</b>	<b>0.13</b>	<b>0.08</b>	<b>0.13</b>	0.01	1.00	<b>0.12</b>	-0.02	<b>0.08</b>	0.00
$\Delta$ <i>Interest</i> <sub><i>t</i></sub>	<b>0.05</b>	<b>0.24</b>	-0.03	-0.01	<b>0.14</b>	<b>0.14</b>	<b>0.13</b>	<b>0.19</b>	<b>0.22</b>	<b>0.20</b>	<b>-0.05</b>	<b>-0.05</b>	-0.03	0.01	<b>0.13</b>	<b>0.08</b>	<b>0.14</b>	<b>0.13</b>	<b>-0.06</b>	<b>0.41</b>	1.00	<b>0.13</b>	<b>0.25</b>	<b>0.06</b>
$\Delta$ <i>Interest</i> <sub><i>t+1</i></sub>	-0.02	<b>0.13</b>	0.00	-0.01	<b>0.09</b>	<b>0.11</b>	<b>0.09</b>	0.03	0.03	0.02	<b>0.16</b>	<b>0.22</b>	<b>0.16</b>	-0.02	<b>0.08</b>	<b>0.17</b>	<b>0.11</b>	0.01	<b>0.11</b>	<b>0.04</b>	<b>0.18</b>	1.00	<b>0.25</b>	<b>0.29</b>
$\Delta$ <i>NetAssets</i> <sub><i>t</i></sub>	-0.01	<b>0.25</b>	-0.03	-0.01	<b>0.32</b>	<b>0.34</b>	<b>0.35</b>	<b>0.28</b>	<b>0.31</b>	<b>0.28</b>	0.01	<b>0.06</b>	-0.02	<b>0.07</b>	<b>0.29</b>	<b>0.27</b>	<b>0.32</b>	<b>0.25</b>	0.03	<b>0.32</b>	<b>0.42</b>	<b>0.33</b>	1.00	<b>0.25</b>
$\Delta$ <i>NetAssets</i> <sub><i>t+1</i></sub>	<b>-0.04</b>	<b>0.21</b>	-0.01	0.00	<b>0.20</b>	<b>0.20</b>	<b>0.22</b>	<b>0.11</b>	<b>0.13</b>	<b>0.12</b>	<b>0.21</b>	<b>0.29</b>	<b>0.25</b>	0.03	<b>0.22</b>	<b>0.30</b>	<b>0.23</b>	<b>0.10</b>	<b>0.16</b>	<b>0.12</b>	<b>0.13</b>	<b>0.51</b>	<b>0.42</b>	1.00

Table 3 presents Pearson (Spearman) correlation coefficient among the variables used in the main regression model. All bolded correlations are statistically significant at the 0.01 level or better (two-tailed). Refer to Table 1 for the detailed variable definitions.

**TABLE 4**  
**Effect of Control-Ownership Wedge on the Value of Cash Holdings**

Dependent Variable=MV				
	(1) <i>Wedge1</i>		(2) <i>Wedge2</i>	
	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.623***	85.47	0.623***	90.68
$\Delta$ Cash	0.543*	1.65	-0.385***	-4.28
$\Delta$ Cash* <i>Wedge</i>	<b>-0.816***</b>	<b>-3.04</b>	<b>-0.142***</b>	<b>-2.81</b>
<i>Wedge</i>	-0.009	-1.26	-0.009	-1.62
<i>Earnings</i>	1.958***	19.28	1.969***	19.35
$\Delta$ <i>Earnings</i> <sub>t</sub>	-1.093***	-6.63	-1.11***	-6.74
$\Delta$ <i>Earnings</i> <sub>t+1</sub>	0.81***	5.61	0.776***	5.39
<i>R&amp;D</i>	39.488***	43.65	39.395***	43.49
$\Delta$ <i>R&amp;D</i> <sub>t</sub>	-1582.4***	-17.76	-1575.8***	-17.66
$\Delta$ <i>R&amp;D</i> <sub>t+1</sub>	-1084.7***	-8.55	-1057***	-8.34
<i>Dividends</i>	-3.936***	-12.97	-3.935***	-12.97
$\Delta$ <i>Dividends</i> <sub>t</sub>	0.695	0.65	0.735	0.68
$\Delta$ <i>Dividends</i> <sub>t+1</sub>	-5.082	-5.24	-5.093***	-5.25
<i>Interest</i>	14.131***	23.3	14.089***	23.22
$\Delta$ <i>Interest</i> <sub>t</sub>	2.697	1.21	2.662	1.2
$\Delta$ <i>Interest</i> <sub>t+1</sub>	5.527***	2.96	5.418***	2.9
$\Delta$ <i>NetAssets</i> <sub>t</sub>	-0.139***	-3.34	-0.142***	-3.4
$\Delta$ <i>NetAssets</i> <sub>t+1</sub>	0.037	1.02	0.034	0.96
Year Fixed Effect	Yes		Yes	
Industry Fixed Effect	Yes		Yes	
Country fixed effect	Yes		Yes	
No. Observations	4501		4501	
Adjusted R <sup>2</sup>	0.712		0.7119	

This table reports the pooled OLS regression results of the relation between control-ownership wedge and the value of cash holdings. Models (1) and (2) use *Wedge1* and *Wedge2* for the control-ownership wedge measure, respectively. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests. *Wedge1* is calculated as the ratio of ultimate control rights and ultimate cash flow rights, and *Wedge2* is calculated as ultimate control rights minus ultimate cash flow rights. Decile ranks of control-ownership wedge scaled to range from 0 to 1 are used, which is robust to both outliers and nonlinearities (Guay et al., 2016). All the variables used in the analysis are winsorized at the 1% and 99% levels. Refer to Table 1 for the detailed variable definitions

**TABLE 5**  
**Effect of Legal Regime on Control-Ownership Wedge and the Value of Cash Holdings**

	Dependent Variable=MV					
	(1) <i>AntiDirector</i>		(2) <i>LawOrigin</i>		(3) <i>GDPC</i>	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.596***	39.21	0.625***	61.9	0.317***	29.58
$\Delta Cash$	-1.358**	-2.52	-0.471	-1.17	-0.20	-0.45
$\Delta Cash * Wedge$	-0.068	-0.23	-0.233	-0.78	-0.055	-0.17
<i>Wedge</i>	0.015	0.66	0.007	0.42	-0.016	-1.15
<b><math>\Delta Cash * Law * Wedge</math></b>	<b>-0.488***</b>	<b>-4.97</b>	<b>-2.041***</b>	<b>-4.69</b>	<b>-4.4E-05***</b>	<b>-2.96</b>
<b><math>\Delta Cash * Law</math></b>	<b>0.458***</b>	<b>4.62</b>	<b>1.328***</b>	<b>4.55</b>	<b>1.1E-05</b>	<b>1.3</b>
<i>Wedge * Law</i>	-0.008	-1.09	-0.016	-0.92	2.95E-07	0.6
<i>Earnings</i>	2.026***	19.77	1.98***	19.54	1.885***	15.83
$\Delta Earnings_t$	-0.995***	-6.01	-1.02***	-6.17	-1.079***	-5.53
$\Delta Earnings_{t+1}$	0.864***	5.98	0.845***	5.84	0.879***	5.11
<i>R&amp;D</i>	39.198***	43.26	39.437***	43.7	40.298***	38.18
$\Delta R\&D_t$	-1558.2***	-17.5	-1568.3***	-17.65	-1387.15***	-13.14
$\Delta R\&D_{t+1}$	-1099.8***	-8.68	-1050.1***	-8.26	-1360.38***	-8.86
<i>Dividends</i>	-4.113***	-13.35	-3.926***	-12.96	-3.408***	-9.5
$\Delta Dividends_t$	0.701	0.65	0.594	0.55	0.251	0.2
$\Delta Dividends_{t+1}$	-5.149***	-5.33	-4.946***	-5.11	-3.689***	-3.2
<i>Interest</i>	14.181***	23.38	14.111***	23.26	15.217***	21.56
$\Delta Interest_t$	2.799	1.26	3.017	1.36	-3.77	-1.44
$\Delta Interest_{t+1}$	5.6***	3	5.37657	2.86	10.317***	4.6
$\Delta NetAssets_t$	-0.155***	-3.72	-0.153***	-3.67	-0.155***	-3.2
$\Delta NetAssets_{t+1}$	0.018	0.51	0.025	0.7	0.117***	2.7
<i>Law</i>	0.007*	1.82	-0.006	-0.62	6.36E-08	0.22
Year Fixed Effect	Yes		Yes		Yes	
Industry Fixed Effect	Yes		Yes		Yes	
Country fixed effect	No		No		No	
Nb. Observations	4,501		4,501		3,074	
Adjusted R <sup>2</sup>	0.7141		0.71		0.6442	

## TABLE 5 (Continued)

Table 5 reports the impact of legal regime upon the relation between the control-ownership wedge and the value of cash holdings. Decile ranks of control-ownership wedge are used, scaled to range from 0 to 1, which is robust to both outliers and nonlinearities (Guay et al., 2016). Column (1) shows the results from the pooled OLS regression including the anti-director rights index (*AntiDirector*), and Column (2) shows the results including the law origin dummy variable (*LawOrigin*), both of which are investor protection measures by La Porta et al. (1998). Column (3) shows the results including GDP per capita index (Ferreira et al., 2012), *GDPC*. *EBIT* is used for *Earnings*, and *Wedge1* is used for the control-ownership wedge measure in this analysis. Using other earnings measures (*EBITDA*, *PI*), and using the alternative measure of control-ownership wedge (*Wedge2*) give qualitatively similar results. For brevity, the results using *EBITDA* and *PI* and those using *Wedge2* are not tabulated. All the variables used in the analysis are winsorized at the 1% and 99% levels. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests. Refer to Table 1 for the detailed variable definitions.

**TABLE 6**  
**Country-Weighted Regression**

Panel A: H1

Panel B: H2

Dependent Variable=MV			Dependent Variable=MV							
	Coeff.	t-stat	(1) <i>AntiDirector</i>		(2) <i>LawOrigin</i>		(3) <i>GDPC</i>			
			Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat		
Intercept	0.334***	4.44								
$\Delta Cash$	0.438	0.64	Intercept	0.351***	5.87	0.282***	4.31	0.255***	4.26	
$\Delta Cash * Wedge1$	<b>-0.867**</b>	<b>-2.07</b>	$\Delta Cash$	-1.144	-1.09	-0.933	-1.01	-0.253	-0.41	
$Wedge1$	-0.012	-0.88	$\Delta Cash * Wedge$	-0.237	-0.41	-0.166	-0.35	-0.09	-0.22	
$Earnings$	1.067***	2.6	$Wedge$	-0.012	-0.74	-0.005	-0.28	-0.015	-1.36	
$\Delta Earnings_t$	-0.119	-0.29	$\Delta Cash * Law * Wedge$	<b>-2.341**</b>	<b>-2.12</b>	<b>-0.424*</b>	<b>-1.72</b>	<b>-4.4E-05</b>	<b>-1.24</b>	
$\Delta Earnings_{t+1}$	0.819**	2	$\Delta Cash * Law$	<b>2.204**</b>	<b>2.52</b>	<b>0.387**</b>	<b>1.96</b>	<b>1.62E-05</b>	<b>0.9</b>	
$R\&D$	40.981***	5.61	$Wedge * Law$	-0.01	-0.54	0.001	0.12	4.94E-07	1.2	
$\Delta R\&D_t$	-1543.98***	-3.43	$Earnings$	1.131***	4.76	0.674***	3.27	0.747***	4.04	
$\Delta R\&D_{t+1}$	-1124.62**	-2.55	$\Delta Earnings_t$	0.129	0.19	-0.689*	-1.84	-0.684	-1.79	
$Dividends$	-2.896**	-2.28	$\Delta Earnings_{t+1}$	1.034**	1.98	0.178	0.52	0.489	1.46	
$\Delta Dividends_t$	-2.037	-0.88	$R\&D$	35.771***	14.09	53.389***	31.39	51.052***	31.38	
$\Delta Dividends_{t+1}$	-6.147***	-2.75	$\Delta R\&D_t$	-1280.73***	-3.4	-2048.25***	-6.06	-1777.16***	-6.04	
$Interest$	12.052***	3.51	$\Delta R\&D_{t+1}$	-860.203*	-1.77	-887.039**	-2.32	-1293.11***	-3.27	
$\Delta Interest_t$	6.155	1	$Dividends$	-3.51***	-4.97	-0.97	-1.55	-0.898	-1.62	
$\Delta Interest_{t+1}$	6.914*	1.68	$\Delta Dividends_t$	-4.582	-1.36	0.263	0.1	-1.109	-0.49	
$\Delta NetAssets_t$	-0.107	-0.71	$\Delta Dividends_{t+1}$	-7.047***	-2.6	-2.236	-0.99	-1.66	-0.8	
$\Delta NetAssets_{t+1}$	0.077	0.73	$Interest$	10.468***	5.22	16.762***	13.53	17.359***	14	
Year Fixed Effect	Yes		$\Delta Interest_t$	8.695	1.41	-1.28	-0.28	-6.019	-1.36	
Industry Fixed Effect	Yes		$\Delta Interest_{t+1}$	2.548	0.47	6.751	1.54	10.304**	2.5	
Country fixed effect	Yes		$\Delta NetAssets_t$	-0.019	-0.12	-0.102	-1.04	-0.132	-1.38	
Nb. Observations	4501		$\Delta NetAssets_{t+1}$	0.098	0.78	-0.07	-0.79	0.127	1.56	
Adjusted R <sup>2</sup>	0.6537		$Law$	-0.004	-0.32	0.002	0.69	-8.9E-09	-0.04	
			Year Fixed Effect	Yes		Yes		Yes		
			Industry Fixed Effect	Yes		Yes		Yes		
			Country fixed effect	No		No		No		
			Nb. Observations	4,501		4,501		3,074		
			Adjusted R <sup>2</sup>	0.5865		0.7768		0.6863		

## TABLE 6 (Continued)

Table 6 reports the results of H1 and H2 using a country-weighted pooled OLS regression. Panel A shows the results for H1, and Panel B shows the results for H2. Columns (1), (2), (3) of Panel B present, respectively, the results using the anti-director rights index (*AntiDirector*), the law origin dummy variable (*LawOrigin*), and GDP per capita index (*GDPC*). *EBITDA* is used for *Earnings*, and *Wedge1* is used for the control-ownership wedge measure in this analysis. Decile ranks of control-ownership wedge are used, scaled to range from 0 to 1, which is robust to both outliers and nonlinearities (Guay et al., 2016). Using other earnings measures (*EBIT*, *PI*), and using the alternative measure of control-ownership wedge (*Wedge2*) gives qualitatively similar results. For brevity, these results using *EBIT* and *PI* and *Wedge2* are not tabulated. All the variables used in the analysis are winsorized at the 1% and 99% levels. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests. Refer to Table 1 for the detailed variable definitions.

# 국문초록

## 지배주주의 소유-지배 괴리도와 현금의 시장가치

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본 논문은 지배주주의 소유-지배 괴리도와 현금의 시장가치의 관계에 대하여 동아시아 9 개 국가들의 기업 자료를 이용하여 연구하였다. 대리인 이론에 따르면 투자자들은 높은 대리인 비용이 예상되는 경우 기업의 보유 현금에 대하여 더 낮은 가치를 부여한다. 본 연구는 이러한 예측과 일관되는 결과를 보여준다. 지배주주의 소유-지배 괴리도가 커질수록, 현금의 시장가치는 낮아진다. 이러한 결과는 지배주주가 소수주주의 권리를 침해할 위험이 클수록, 기업의 보유 현금은 기업의 시장가치에 기여하는 정도가 낮아진다는 것을 암시한다. 두 번째로, 법적 환경이 강한 나라의 투자자들은 지배주주의 권리 남용에 대해 더 민감하다는 점이 나타났다. 이러한 나라에서는 지배주주의 소유-지배 괴리도가 커짐에 따라 현금의 시장가치가 낮아지는 정도가 더 심하였다. 이와 같은 결과는 법적 환경이 강한 나라의 투자자들은 지배주주의 권리 침해 행위에 대해 더 민감하게 반응한다는 점을 시사한다.

**주요어:** 기업지배구조, 현금의 시장가치, 지배주주의 소유-지배 괴리도, 법적 환경

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