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경영학석사 학위논문

Audit Committee
Financial Expertise and
the Value of Cash Holdings

감사위원회의 재무전문성과 보유현금가치

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Audit Committee
Financial Expertise and
the Value of Cash Holdings

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Audit Committee Financial Expertise and the Value of Cash Holdings

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Abstract

Since 2000, the Korean government mandated the establishment of audit committees for large companies listed on the stock market to improve corporate governance. Also, since 2003, large companies are required to have at least one financial expert on the audit committees to enhance credibility of financial reporting. If the audit committee effectively improves corporate governance, then investors can feel more confident and secure; resulting in an increase in the value of cash holdings in the firm. I investigate how the audit committee's financial expertise impacts the value of cash holds in firms, specifically those listed on the Korean Stock Exchange. The results of this investigation show that the audit committee does not have an impact of the value of cash holdings. On the contrary, when a firm appoints a former high-ranking official

from government offices or financial institutions as an audit committee member, negative effects are found. Contrary to the regulator' s expectation, investors do not trust the monitoring and safeguarding role of the audit committee, and even regard the supervisory experts as deteriorating the corporate governance mechanism.

Keywords: audit committee, financial expertise, corporate governance, value of cash holdings, revolving door

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1. Introduction

The Korean ownership structure is characterized by the dominance of one largest shareholder who typically participates in the management of the firm, directly or indirectly, and influences most of the management decisions. More than 90% of public companies in Korea are managed by controlling shareholders. This unique ownership structure affects the transparency as well as the operating performance of a firm. The relationship between the management by controlling shareholder and the firm performance is positive, but the relationship between stock return is negative. (Shin & Park 2006). Under relatively higher influence of controlling shareholders, many Korean firms have high agency cost between controlling shareholders and outside shareholders, and this agency cost from the ownership structure negatively affects firm value (Shin & Kim, 2011).

To oversee the controlling shareholders and the management, Korean Commercial Law defines the responsibility of internal auditor as follows; the auditor audits the execution of the director's duties and may call the director for a briefing on the operation or investigate the company's business and property status at any time. However, under Korean circumstances it is difficult to rule out the influence of controlling shareholders or top executives in the selection and dismissal of the auditors. Therefore, most of the investors have questioned the effectiveness of monitoring role of the internal auditor and have demanded an increase in its monitoring power over the controlling shareholders and the management. In response to such demand, Korean government has continuously

amended Korean Commercial Law to improve corporate governance since 2000. Korean Commercial Law mandated the establishment of audit committees for large companies listed on the stock market from 2000. It also required at least one financial expert in their audit committees from 2003. The purposes of these requirements are, by enhancing independency and expertise of the audit committee, reducing the likelihood of corporate misconduct and fraud, and constraining corporate insiders' ability to extract private benefits.

There are long and growing literatures on the relationship between the audit committee' s financial expertise and attributes of financial reporting. Carcello et al. (2002b) find a significant positive relationship between audit fees and board independence, diligence, and expertise. Carcello & Neal (2003) suggest that audit committee with greater independence, greater expertise, and lower stockholdings are more effective in shielding auditors from dismissal after the issuance of new going-concern reports. Krishnan (2005), Zhang et al. (2007), and Hoitash et al. (2009) find that a lower likelihood of disclosing material weakness in internal control over financial reporting is associated with relatively more audit committee members having accounting and supervisory experience, as well as board strength. Krishnan (2005) and Zhang et al. (2007) also find negative relation between audit committee financial expertise and weakness in internal control over financial reporting. Xie et al. (2003) argue that board and audit committee activity and their members' financial sophistication are important factors in constraining the propensity of managers to engage in earnings management. These studies suggest that the expertise of the audit committee has a positive effect on the company's financial

reporting quality.

However, there has been little research examining the governance role of audit committee in protecting corporate assets. I attempt to fill this void in this paper. I examine whether audit committee serves as a governance mechanism to safeguard corporate cash assets. I focus on cash because liquid assets provide a tight and powerful setting to assess the implication. Cash is the most liquid asset and is at the most risk of being consumed, misappropriated, and misused (e.g., Myers & Rajan 1998; Pinkowitz, Stulz, & Williamson 2006; Dittmar & Mahrt-Smith 2007). In addition, cash resources are more often subject to unauthorized use compared to other types of assets in organizations. Hence, from stockholders' perspective, the safeguarding role of audit committee should be particularly relevant for liquid assets. With prevention and detection mechanisms, strong audit committee can restrict managers from exploiting those benefits.

Based on these assumption, I posit audit committees with financial expertise increase value of cash holdings in firms. I investigate the relationship between audit committee financial expertise and value of cash holdings in firms listed on the Korean Stock Exchange. Following Faulkender & Wang (2006), I regress a stock' s excess return on changes in firm characteristics, focusing on the estimated coefficient of the interaction terms between the unexpected change in cash and the audit committee financial expertise dummies. The samples used in this study are 2,129 firm-year observations which establish audit committee from 2000 to 2015 and a total of 7,041 firm-year observations that did not establish audit committees.

The results of this regression are as follows. First, contrary to

my expectation, I do not find any significant relationship between the existence of audit committee and value of cash holdings. Second, I find that the audit committee's financial expertise has a weak but negative impact on the value of corporate cash holdings and find out that the negative impact is due to supervisory experts. The results imply that investors do not trust the monitoring and safeguarding role of audit committee and even negatively estimate the impact of supervisory experts on a corporate governance mechanism. I suggest that this impact is caused by “revolving door” effect, which is a subject mainly studied in the field of politics. The revolving door is the movement of high-level officials from public sector jobs to private sector jobs and vice versa. Korean supervisory authorities and the media are concerned about the side effects of revolving door. If outside directors are appointed not to oversee the management but to lobby the supervisory authorities, investors will regard that the supervisory experts will not play the role of safeguarding a firm's resources responsibly. As a result, the value of cash holdings in a firm with supervisory expert is low. Conclusively, these results suggest that the broad and ambiguous definition of the financial expert cannot earn investors' confidence of the audit committee's role as a corporate governance mechanism.

The results of my study contribute to the existing literature in a number of ways. First, to my best knowledge, this is the first paper investigate the relationship between audit committee financial expertise and value of cash holdings in a firm. Although many prior studies suggest that audit committees serve as a corporate governance to oversee management, there has been little research examining direct effects of audit committee financial expertise on

value of cash holdings. By measuring the effect of audit committee financial expertise on value of cash holding, my study suggests a way to evaluate the practical contribution on corporate governance of audit committee. Second, there is still controversy over the definition of a financial expert under amended Korean Commercial Law as well as SOX. By examining the audit committee's financial experts by type, my research specifically suggests which types of financial experts affect the value of the company. In particular, the negative effects of corporate cash are found only when there is a supervisory expert in the audit committee, and the finding is in line with the prior research suggesting that only accounting financial experts – not non-accounting financial expert – enhance accounting conservatism (Krishnan & Visvanathan, 2008). In that regards, my findings also suggest that broader and ambiguous definition of audit committee financial expertise cannot enhance the monitoring role of audit committee as a corporate governance mechanism. Third, there are little researches that investigate the impact of revolving doors on the “private” firm’ s value, because most of the studies in politics focus on the quality of supervision. By quantitatively estimating the impact of selection of former high-ranking officials on the firm value, my research contributes to the studies of the revolving door effect.

The remainder of the paper is organized as follows. Section 2 summarizes the previous literatures and presents hypothesis development. Section 3 presents the data, sample selection, descriptive statistics, and the main regression model used to test hypotheses. Section 4 reports the results of empirical analyses. Section 5 reports the results of additional analyses. Section 6 is the conclusion of this paper.

2. Literature Review and Hypotheses Development

2.1. Corporate governance and the value of cash holdings in a firm

Traditionally, the audit committee has oversight of financial reporting, including the annual and quarterly financial statements, disclosures in regulatory filings, earnings releases, pro forma information, and earnings guidance (Steinberg 2005). The Blue Ribbon Committee (1999) notes that the audit committee is the ultimate monitor of the financial reporting process. However, these findings underscore the significance of audit committees as a governance mechanism. Many audit committees also have oversight of regulatory compliance and risk management activities as well as oversight of the financial reporting and disclosure process as follows.

- Overseeing the financial reporting and disclosure process.
- Monitoring choice of accounting policies and principles.
- Overseeing hiring, performance and independence of the external auditors.
- Oversight of regulatory compliance, ethics, and whistleblower hotlines.
- Monitoring the internal control process.

- Overseeing the performance of the internal audit function.
- Discussing risk management policies and practices with management.

These roles of audit committee mean that the audit committee oversees much of the decisions of management as part of corporate governance.

To measure the impact of audit committee on the improvement of corporate governance, I investigate the relationship between audit committee and value of cash holdings in a firm. I focus on cash because liquid assets provide a tight and powerful setting to assess the implications of audit committee financial expertise in curbing managerial extraction of private benefits from corporate resources. Cash is the most liquid asset and is at the most risk of being consumed, misappropriated, and misused (e.g., Myers & Rajan 1998; Pinkowitz, Stulz, & Williamson 2006; Dittmar & Mahrt-Smith 2007). In addition, cash resources are more often subject to unauthorized use than other assets in organizations. Hence, from stockholders' perspective, the safeguarding role of audit committee should be particularly relevant for liquid assets. A number of theoretical studies have investigated economic determinants of cash management policy. The marginal value cash is at the core of these studies due to its pivotal role in shaping dividend payout, cash savings, and external financing choices. For instance, Bolton et al. (2011), and Hennessy & Whited (2005) theoretically argue that the lower bound of cash value is determined

by the margin between a firm's dividends payout and cash accumulation decisions. Gamba & Triantis (2008) also highlight the significance of external financing frictions on marginal cash value in their dynamic model of corporation.

There are two mainstream empirical studies on the determination of marginal cash values. The first strand of literature confirms the implications of external financing frictions on the marginal value of cash. The representative study is Faulkender & Wang (2006). They predict that the marginal value of cash will be higher for a financially constrained firm than for a financially unconstrained one. Their empirical study, in fact, confirms this empirical prediction in the sample of publicly traded U.S. corporations. The other strand of literature emphasizes the implications of conflicts between a manager and shareholders in deciding marginal cash values. In this strand of literature, the marginal shareholder value of cash may be significantly low due to the agency conflicts. The managerial resource diversion as emphasized in Nikolov & Whited (2014) is a representative economic reason behind such low shareholder value of cash. For the U.S. firms, Dittmar & Mahrt-Smith (2006) investigate how corporate governance impacts firm value by comparing the value and use of cash holdings in poorly and well-governed firms. They show that the marginal cash value of good governance firms is almost as twice large as that of weak governance firms: \$1.00 of cash in a poorly governed firm is valued at only \$0.42 to \$0.88. Pinkowitz et al. (2006) investigate the marginal value of cash across markets by using country-level

corporate governance indices. They find that investors highly value one dollar of cash stocks in a country with greater corporate governance scores.

My research is also closely related to the empirical studies on Korean corporations. With respect to agency conflicts between manager and shareholders, Bae et al. (2002) and Baek et al. (2006) provide empirical evidence supporting significant resource diversion problems in Korean corporations. Gong (2006) examines the cross-sectional determinants of cash holdings in Korean firms. Park & Yon (2009) find that Korean firms with weaker governance structure retain more cashes, based on their empirical models by employing corporate governance scores published by Korean Corporate Governance Service. Kim & Lee (2016) find a higher marginal value of cash for the good governance firms measured by the total governance score.

According to these prior researches, audit committee may show a relationship with value of cash holdings, if audit committee plays an effective role as a corporate governance mechanism.

2.2. Roles of audit committee financial expertise as a corporate governance

In a U.S. publicly traded company, an audit committee is an operating committee of the board of directors. It is charged with the oversight of financial reporting and disclosure. Committee members are drawn from members of the company's board of directors, with

a Chairperson selected from among the committee members. A qualifying audit committee is required for a U.S. publicly traded company to be listed on a stock exchange. The role of audit committees continues to evolve as a result of the passage of the Sarbanes–Oxley Act (SOX) (U.S. Congress 2002). Many audit committees also have oversight of regulatory compliance and risk management activities. To conduct these monitoring roles effectively, the accounting and financial expertise of audit committee is essential. The Treadway Commission (1987) concluded that the experience and expertise of the members of an audit committee are an important dimension of an audit committee's effectiveness. Furthermore, SOX mandates the disclosure of whether the audit committee includes a financial expert. Badolato et al. (2014) find that audit committees with both financial expertise and high relative status are associated with lower levels of earnings management, as measured by accounting irregularities and abnormal accruals. Hoitash et al. (2009) show that a lower likelihood of disclosing material weakness in internal control over financial reporting is associated with relatively more audit committee members having accounting and supervisory experience, as well as board strength. Krishnan (2005) and Zhang et al. (2007) also find negative relationship between audit committee financial expertise and weakness in internal control over financial reporting. Feng et al. (2015) find that both the existence and remediation of all material weaknesses in internal control over financial reporting are related to firms' returns on assets, which

supports the general hypothesis that internal control over financial reporting has an economically significant effect on firm operations. Krishnan and Visvanathan (2008) address the concerns about the SOX definition of an accounting expert. They investigate whether non-accounting experts are just as competent as the accounting experts in enhancing the quality of financial reporting and find that only accounting financial experts – not non-accounting financial expert – enhance accounting conservatism through their knowledge base, job expectations and economic incentives to mitigate the risk of litigation and protect their reputational capital.

Collectively, prior research implies that audit committee affects a firm' s substantial value in several ways – enhancing financial reporting quality, effectiveness of internal control, and conservatism – and moreover its financial expertise is essential for such positive effects. This implication is supported to some extent by Defond et al. (2004). They find a positive market reaction to the appointment of accounting financial experts assigned to audit committees but no reaction to non-accounting financial experts assigned to audit committees.

2.3. the “Revolving Door” effect

On the other hand, when I look at the biographies of the supervisory experts in audit committees, they were mostly former high-ranking officials of government and regulatory agencies, which can be considered as “revolving doors” .

The revolving door effect is a subject that is mainly studied in the field of politics. The revolving door is the movement of high-level employees from public sector jobs to private sector jobs and vice versa. The idea is that there is a revolving door between the two sectors as many legislators and regulators become lobbyists and consultants for the industries they once regulated; conversely, and some private industry heads or lobbyists receive government appointments that relate to their former private posts. Korea has a similar phenomenon called “Jeon-gwan ye-u” . “Jeon-gwan ye-u” originally refers to an informal arrangement in the South Korean legal system whereby retired judges and public prosecutors who go on to become lawyers in private practice receive special treatment from their incumbent former colleagues. A paper (Jang et al., 2007) from the Korea Institute of Public Administration describes it as one of the four major problems caused by the way in which South Korea appoints judicial officers. The term may also be used more broadly to refer to preferential treatment for retired regulators who go on to take private-sector jobs in the industries which they were previously responsible for regulating, a form of regulatory capture. The article in the Seoul Economic Daily^① is an anecdote that shows how widely the revolving door phenomenon spreads in Korea. It reports that as many as 35 percent of outside directors in large Korean conglomerates (Chaebols) are the formal

^① The Seoul Economic Daily, ‘What is the problems with reform of the governance structure in Korea?’ . April 17th 2018.
<http://www.sedaily.com/NewsView/1RYAIVBYI0>

high-ranking officials of the Public Prosecutors' Office, National Tax Service, and Financial Supervisory Service. It also criticizes that low independence and lack expertise of these outside directors can deteriorate the firm value.

With this point of view, I look for relevant research results about the effect of "revolving doors". Interestingly, results of the researches about the effect of "revolving doors" is quite controversial. Two opposing views of the effect of revolving doors are the "human capital" hypothesis and "rent-seeking" hypothesis.

The arguments of those supporting the "human capital" hypothesis suggest that if future job opportunities motivate a public official to develop and/or showcase their enforcement expertise, then the revolving door phenomenon will promote more aggressive regulatory activity. Jabotinsky (2017) suggests that revolving doors do incur some costs, they also offer certain positive aspects, and might, if designed correctly, increase the quality of supervision. deHaan et al. (2015) find some evidence supporting "human capital" hypothesis when they investigate the career path of SEC lawyers that span SEC civil cases against accounting misrepresentation. Geiger et al. (2005) examines a sample of firms where financial reporting executives such as the CFO, VP-Finance, or Controller were hired by a public company directly from their external audit firm and find that earnings management, in the form of increased accounting accruals, is no greater immediately before or after hiring in the companies engaging in this hiring practice.

However, the arguments of those supporting the “rent-seeking” hypothesis suggest that a public official can relax enforcement efforts in order to develop networking skills and/or curry favor with prospective employers at private firms. Kowalewski et al. (1991) suggest that “revolving doors” distort economic and political marketplaces. With an examination of the revolving doors (RDs) of 3,815 officers of the top 200 U.S. firms, they find little evidence for the argument for improved performance and some evidence for the market distortion view. They argue that High-RD corporations cluster in concentrated markets, forge more connections with economic elites, and engage in monopolistic or monopsonistic practices. They are also more involved in questionable political activities, especially bribery of foreign governments.

As 46 percent of the observations in audit committee sample have supervisory experts, I expect the revolving door effect will affect the effectiveness of the audit committee’s monitoring role.

2.4. Korean researches about the effects of audit committee

Korean Commercial Law mandated the establishment of audit committees for large companies listed on the stock market and required to have at least one financial expert in their audit committees from 2003 to increase monitoring role over the management and alleviate the agency problem. In accordance with

the amendment of Korean Commercial Law, the Korea listed Company Association announced the standard job regulations of the audit committee. The duties and authorities of audit committee are as follows.

- Demand to report on the business operating activities of directors and investigate the business and financial status of the company
- Demand to report on the business operating activities and investigate the business and financial status of its subsidiaries
- Request for extraordinary shareholders meeting
- Authority to obtain expert assistance at the expense of the company
- Statement of opinion on the dismissal of a member of audit committee
- Receiving a director's report
- Claim against a director's misconduct
- The representative of the company in lawsuits between the company and its directors
- Checking the facts, action details, confidentiality and adverse treatment of the whistle-blower when there is an internal report or notice of an accounting fraud
- Agreement on approval of the board of directors of financial

statements

These regulations show that the role of the Audit Committee is not limited to financial reporting quality control but also to the oversight of the entire business activities. After the implementation of amended Korean Corporate Law, there are many researches that investigate the effectiveness of audit committee in Korea.

Most of the earlier researches conducted before mid of 2000, do not find evidence that audit committees do not improve audit quality and transparency of accounting information. Lee & Lee (2003) and Jeon et al. (2003) show that the installation of an audit committee itself does not significantly mitigate the degree of earnings management. Choi and Park (2004) shows that the audit committee is currently implemented only to meet regulations and has not practically contributed to the objective selection of external auditors. Choi et al. (2004) argue that the independence and competency of the audit committee are associated with the earnings management of a firm. Specifically, the committee members' shareholdings are positively associated with earnings management, while the presence of professors or the employees of financial institutions on the committee is negatively associated with earnings management. However, the activity of audit committee is not significantly related to earnings management. The results of these studies imply that there is little effect of installation of audit committee in Korea. However, these studies have limitations, primarily a short sample period.

Recently, using more than 10 years of data, several researches show that audit committee has a positive impact on financial reporting quality. Furthermore, recent researches investigate on the effect of the characteristics, not just the existence of audit committee. Hong (2009) finds that independency and activeness of audit committee decrease firm's discretionary accruals. Kim and Hong (2012) argue that the audit committee have positive effect on EVA. Cheon et al. (2013) argue that audit committee financial experts have significantly negative association with discretionary accruals only when corporate governance of the firm is strong. Choi et al. (2015) find that audit committees with frequent meetings prevent audit discounts in the first engagement year. Song et al. (2017) find that audit committees are more likely to hire an industry specialist auditor and pay higher audit fees when the committees include at least one member with accounting expertise. Choi et al. (2014) find that stock prices generally increase with audit committee appointments, and chaebol (business group) affiliates and firms switching audit committee membership are associated with significantly lower stock returns, while the independence and financial literacy of the audit committee members appear to mitigate the effect. The results of recent studies imply that audit committee in Korea begin to have a positive impact on financial reporting quality over a considerable period of time.

2.5. Hypothesis development

To investigate whether audit committees have an impact on the improvement of corporate governance, I try to examine the relationship between the existence of audit committee and value of cash holdings then propose the following hypothesis (in the null form).

Hypothesis 1: There is no difference in the marginal value of cash holdings between firms with audit committee and firms without audit committee.

The important thing may not be the existence of audit committee but the audit committee's ability – especially financial expertise. Therefore, I propose the second hypothesis (in the null form).

Hypothesis 2: There is no difference in the marginal value of cash holdings between firms with audit committee financial expertise and firms without audit committee financial expertise.

Lastly, previous literatures (Krishnan & Visvanathan, 2008) argue that only accounting financial experts – not non-accounting financial expert – enhance accounting conservatism. I try to investigate the impacts of each type of financial experts on the value of cash holdings, and propose the third hypothesis (in the null form).

Hypothesis 3: There is no difference in the marginal value of cash holdings between firms with different types of audit committee financial expert.

3. Sample and Descriptive Statistics

3.1. Sample and data

In Korea, public companies whose asset size over 2 trillion won have been required to establish an audit committee since 2000. Thus, my sample consists of December fiscal year-end non-financial Korean companies listed on the Korea Stock Exchange during 2000 to 2015. I hand collect audit committee and financial expertise data from the company's annual reports from Data Analysis, Retrieval and Transfer System (DART) provided by Financial Supervisory Service of Korea and obtain financial data from the Korea Investors Service-Value (KIS-VALUE). I winsorize continuous variables at the 1st and 99th percentile to alleviate the potential effect of outliers. These result in 9,170 firm-year observations for full sample and 2,129 firm-year observations for audit committee sample.

3.2. Classification of the audit committee financial expertise

To enhance to effectiveness of audit committee, Korean Commercial Law defines the requirements of the audit committee's financial experts strictly as follows.

- A person qualified as a Certified Public Accountant (CPA) with at least five years of experience in the work

associated with that qualification

- A person with a master's or higher degree in accounting or finance who has worked at a research institute or university as a researcher or assistant professor of accounting or finance for five years or more
- A person with five or more years of experience as an accounting or financial executive or with ten or more years of the experience as an employee in listed companies
- A person with five or more years of combined experience in accounting or financial affairs or supervisory work at government or financial institutions designated by Capital Market and Financial Investment Services Provider Act of Korea.

It is important to note that, although the definition of financial experts in Korean Commercial Law is largely similar to that of SOX, Korean Commercial Law does not include non-accounting financial experts, but includes people conduct supervisory work at government or financial institutions.

To find out whether a firm has financial experts in its audit committee, I review audit committee the biographical information of audit committee members using the 10-K files of each firm disclosed on DART system. I classify the audit committee member who is in accordance with the definition in Korean Commercial Law

as a financial expert. Then I create AC_EXP as an indicator variable equal to one if a firm has at least one financial expert, and zero otherwise. In order to measure the effectiveness of financial expertise by type, I classify CPAs, accounting professors, and people with accounting experience as accounting experts; finance professors, people with financial experience as financial experts; and people with experience in accounting or financial affairs or supervisory work at government or financial institutions government and financial institution as supervisory experts. I also create more specific measures by type of expertise. ACCEXP is an indicator variable equal to one if a firm has at least one accounting expert, and zero otherwise. FINEXP is an indicator variable equal to one if a firm has at least one financial expert, and zero otherwise. SUPEXP is an indicator variable equal to one if a firm has at least one supervisory expert, and zero otherwise.

To examine the marginal cash value for the firms listed on the Korean Stock Exchange from 2000 to 2015. I employ the KIS-VALUE database to obtain financial statements for the sample firms. I use the 5 by 5 benchmark portfolio base on the size and book-to-market ratios, consistent to the method of Faulkender & Wang (2006). All other variable construction is in line with the approach used in Faulkender & Wang (2006) as well.

3.3. Empirical model

I estimate the marginal value of cash based on the approach of

Faulkender & Wang (2006). They calculate the additional shareholder value of cash resulting from changes in cash holdings of firms over a fiscal year. The dependent variable is the excess return of an individual stock, which is defined as the difference between a firm's stock return and its benchmark return. This inclusion of benchmark portfolio return can offset individual stock i 's common risk components. To take account of firm specific risk factors, the independent variables also incorporate several firm level financing and investment variables.

The regression model used by Faulkender & Wang (2006) is described as follows.

$$\begin{aligned}
r_{i,t} - R_{i,t}^B = & \gamma_0 + \gamma_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \gamma_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \gamma_4 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \gamma_5 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \gamma_6 \frac{\Delta D_{i,t}}{M_{i,t-1}} \\
& + \gamma_7 \frac{C_{i,t-1}}{M_{i,t-1}} + \gamma_8 L_{i,t} + \gamma_9 \frac{NF_{i,t}}{M_{i,t-1}} + \gamma_{10} \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{11} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\
& + \varepsilon_{i,t}
\end{aligned} \tag{1}$$

In this equation (1), ΔX indicates a change in a general variable X from year $t - 1$ to t , The dependent variable $r_{i,t} - R_{i,t}^B$ is the excess stock return of firm i over the fiscal year t where $r_{i,t}$ is the the stock return for firm i during fiscal year t , and $R_{i,t}^B$ is stock i 's benchmark return at year t . The independent variables are firm specific factors that control for sources of value other than cash that may be correlated with cash holdings. The financing variables are cash holdings of firm i at time t ($C_{i,t}$), interest expense ($I_{i,t}$), total dividends ($D_{i,t}$), market leverage at the end of fiscal year t ($L_{i,t}$), and the firm's net financing during the fiscal year t ($NF_{i,t}$).

Faulkender & Wang (2006) also control for changes in the firm's profitability using earnings before interest and extraordinary items ($E_{i,t}$) and changes in the firm's investment policy by controlling for total assets net of cash ($NA_{i,t}$) and R&D expenditures ($RD_{i,t}$). To avoid having the largest firms dominate the results, they deflate the firm-specific factors (except leverage) by the 1-year lagged market value of equity ($M_{i,t-1}$). Since the stock return is the spread of $(M_{i,t} - M_{i,t-1})$ divided by $M_{i,t-1}$, this standardization enables us to interpret the estimated coefficients as the dollar change in value for a one-dollar change in the corresponding independent variable.

Additionally, they add interaction terms to test the hypotheses stated in the previous section. They also use $\frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ in order to estimate the effect of changes in the value of cash for different levels of cash holdings, $Li,t \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ to capture the effect of leverage on the marginal value of cash holdings, the lagged cash position $\frac{C_{i,t-1}}{M_{i,t-1}}$, and the level of leverage (Li,t) to ensure that the estimated coefficients on the interaction terms are due to the interaction, and not due to the cash position or leverage individually.

To test my hypotheses, I include additional variables in equation (1). AC_dummy is an indicator variable equal to one if a firm has an audit committee, and zero otherwise. AC_EXP is an indicator variable equal to one if a firm has at least one financial expert, and zero otherwise. ACCEXP, FINEXP, and SUPEXP are indicator variables equal to one if a firm has at least one accounting expert, financial expert, and supervisory expert, and zero otherwise. To

control the effects of other characteristics of audit committee which might impact marginal value of cash, I include the ratio of independent directors in the audit committee (AC_IND_RATIO) and log value of the number of the audit committee meetings (lnAC_ACTIVITY).

To test Hypothesis 1, I include AC_dummy and its interaction term, $AC_dummy \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ in the equation (1) and conduct a regression analysis with full samples.

$$\begin{aligned}
r_{i,t} - R_{i,t}^B = & \gamma_0 + \gamma_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_2 AC_dummy_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_3 AC_dummy_{i,t} + \gamma_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} \\
& + \gamma_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \gamma_6 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \gamma_7 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \gamma_8 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \gamma_9 \frac{C_{i,t-1}}{M_{i,t-1}} + \gamma_{10} L_{i,t} \\
& + \gamma_{11} \frac{NF_{i,t}}{M_{i,t-1}} + \gamma_{12} \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{13} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \varepsilon_{i,t} \quad (2)
\end{aligned}$$

If an existence of audit committee has a positive impact on value of cash, the coefficient of the interaction term (γ_2) will be significantly positive.

Secondly, I include AC_EXP, AC_IND_RATIO, lnAC_ACTIVITY and their interaction terms $AC_EXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ and, $AC_IND_RATIO \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$, $lnAC_ACTIVITY \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ in equation (1) and conduct a regression with audit committee samples to test hypothesis 2.

If audit committee financial expertise has a positive impact on value of cash, the coefficient of $AC_EXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ (δ_2) will be significantly positive.

$$\begin{aligned}
r_{i,t} - R_{i,t}^B = & \delta_0 + \delta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \delta_2 AC_EXP_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \delta_3 AC_EXP_{i,t} \\
& + \delta_4 AC_IND_RATIO_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \delta_5 AC_IND_RATIO_{i,t} \\
& + \delta_6 \ln AC_ACTIVITY_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \delta_7 \ln AC_ACTIVITY_{i,t} \\
& + \delta_8 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \delta_9 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \delta_{10} \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \delta_{11} \frac{\Delta I_{i,t}}{M_{i,t-1}} + \delta_{12} \frac{\Delta D_{i,t}}{M_{i,t-1}} \\
& + \delta_{13} \frac{C_{i,t}}{M_{i,t-1}} + \delta_{14} L_{i,t} + \delta_{15} \frac{NF_{i,t}}{M_{i,t-1}} + \delta_{16} \frac{C_{i,t}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\
& + \delta_{17} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \varepsilon_{i,t} \tag{3}
\end{aligned}$$

Lastly, to test hypothesis 3, I include types of expert indicator variables, such as ACCEXP, FINEXP, SUPEXP and their interaction terms $ACCEXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ and $FINEXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$, $SUPEXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ in equation (1) and conduct a regression with audit committee samples.

$$\begin{aligned}
r_{i,t} - R_{i,t}^B = & \theta_0 + \theta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \theta_2 TYPE_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \theta_3 TYPE_{i,t} + \theta_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} \\
& + \theta_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \theta_6 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \theta_7 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \theta_8 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \theta_9 \frac{C_{i,t}}{M_{i,t-1}} + \theta_{10} L_{i,t} \\
& + \theta_{11} \frac{NF_{i,t}}{M_{i,t-1}} + \theta_{12} \frac{C_{i,t}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \theta_{13} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \varepsilon_{i,t} \tag{4}
\end{aligned}$$

If any type of financial expert has a positive impact on value of cash, the coefficient of its interaction term (θ_2) will be significantly positive.

3.4. Descriptive statistics

Panel A of Table 1 presents descriptive statistics for the full

sample. Among 9,170 observations from 2000 to 2015, I see that median firm has a -9.8% (-9.1%) 1-year excess stock return to equal-weighted (value-weighted) benchmark portfolio; while the mean is 0% (0.9%), consistent with the distribution of abnormal stock returns being right-skewed. The mean and median changes in cash holdings are close to zero, suggesting that the distribution of the change in cash holdings is relatively symmetric. However, the median cash holdings level is equivalent to 17.2% of market equity value at the beginning of the fiscal year, while the mean is much higher at 33.3% , suggesting that cash holdings are right-skewed. These two numbers are much higher than the cash ratios in Faulkender & Wang (2006), suggesting that Korean firms have collected a lot of cash from internal reserves after Asian financial crisis. Panel A also shows that on average, profitability has been increasing over time as the changes in earnings are positive both at the mean and the median. In contrast, firms' research and development expenditures and dividend payments appear to be quite stable. Furthermore, interest expense has been decreasing due to the increase of cash ratio. Lastly, 23.2% have an audit committee and 12.8% are mandated to establish audit committee in accordance with Korean Commercial Law.

Panel B of Table 1 reports descriptive statistics for the audit committee sample consisting of 2,129 observations. Most of the variables shows patterns similar to those in the full samples. However, 1-year excess stock return and increase of profitability of audit committee samples are higher and level of cash holdings is

lower than those of the full samples. It seems to be due to the fact that larger firms are required to establish audit committee.

<Insert Table 1 here>

3.5. Correlation matrix

Panel A of Table 2 shows the correlation matrix for the full sample. Column (2) and (3) of Panel A show that variables that affect the marginal value of cash are generally consistent to Faulkender & Wang (2006). Similar their finding, level of Cash, change of cash, change of EBIT, change of net assets, change of R&D expense, and change of dividend are significantly and positively related to excess stock return. Leverage is negatively related. Level of cash at $t-1$, change of investment and level of net financing variables show different results. Yet these correlations are insignificant or still smaller, which can be interpreted no serious multicollinearity issue in these empirical estimations.

Panel B of Table 2 reports the correlation matrix for the audit committee sample. The relationship between the financial variables mentioned above and excess returns is generally similar to that of full sample.

It is noteworthy that, Column (1) of Panel A shows that there was no significant correlation between AC_Dummy and Excess returns, but Column (1) of Panel B shows weak but negative relationship between AC_EXP and excess return. Moreover, Column (4), (5),

(6) show that ACCEXP is not related to excess return, but FINEXP and SUPEXP are negatively related to excess return. I conduct a multivariate regression to investigate more precise correlations between these variables in the following section.

<Insert Table 2 here>

4. Empirical Results

4.1. The effect of existence of audit committee on marginal value of cash holdings

I begin my empirical analysis by examining the impact of existence audit committee on marginal value of cash with a full sample.

To test Hypothesis 1, I conduct a regression analysis of equation (2). If an existence of audit committee has a positive impact on value of cash, the coefficient of the interaction term (γ_2) will be significantly positive. Table 3 presents the estimation results for Equation (1) and (2). Column (1) and (3) show the results of my base line models – equation (1) – with equal-weighted and value weighted benchmark portfolios. In column (1) and (3), change of cash is positively related to excess return, the coefficient (γ_1) estimate corresponding to the change in cash holdings suggests that an extra KRW of cash is only valued by shareholders at KRW 0.43,

consistent to Faulkender & Wang (2006). The other coefficients show similar effects on excess return in general. However, the variable of interest AC_dummy shows no association with marginal value of cash, as shown in column (2) and (4).

These results imply that mere existence of audit committee does not have impact on the value of cash holdings. This finding can be viewed as in line with the previous studies' findings that the existence of audit committees is not related to the improvement of financial reporting. (Lee & Lee, 2003; and Jeon et al., 2003)

<Insert Table 3 here>

4.2. The effect of audit committee financial expertise on marginal value of cash holdings

A number of previous studies argue that characteristics of audit committee, not its existence, affect financial reporting quality. As the previous researches define independence, activity, and financial expertise as the essential characteristics of audit committee (Krishnan & Visvanathan, 2008; Hoitash et al., 2009; Badolato et al., 2014), I try to investigate the impacts of the audit committee characteristics on the value of cash holdings with audit committee sample. The sample size used for the analysis is 2,129 observations. Table 4 shows the results of several regression analyses with equation (3).

In column (1) of Panel A, I find that the coefficient for the

interaction term between change of cash and audit committee financial expertise ($AC_EXP \times \frac{\Delta C_{it}}{M_{it-1}}$) is -0.317 and significant at the 10 percent level (t -value = -1.70) in column (1), suggesting that audit committee financial expertise has a negative impact on the marginal value of cash holdings, I also find the coefficients of the interaction terms between change of cash and independence of audit committee ($AC_IND_RATIO \times \frac{\Delta C_{it}}{M_{it-1}}$) is -0.083 and insignificant in column (2), and the coefficients of the interaction terms between change of cash and activity of audit committee ($\ln AC_ACTIVITY \times \frac{\Delta C_{it}}{M_{it-1}}$) is -0.034 and insignificant. This finding suggests that the other characteristics such as independence and activity of audit committee has no impact on value of cash holdings. I find a similar result when I conduct a pooled regression. Column (4) shows that only audit committee financial expertise has a significant and negative impact on the value of cash holdings (coefficient = -0.333 , t -value = -1.68). However, Panel B of Table 4 shows that any audit committee characteristics do not have a relationship with the marginal value of cash holdings. In sum, the results of Table 4 show that there is a weak but negative relationship between audit committee financial expertise and the value of cash holdings in firm.

This finding shows quite different results from previous studies that audit committee characteristics affect the quality of financial reporting. Rather, this finding suggest that Korean investors do not trust the monitoring and safeguarding role of audit committee. In

addition, it is peculiar that investors might evaluate the audit committee financial expertise negatively. To investigate this question further, I conduct additional regression analyses in the following section.

<Insert Table 4 here>

4.3. The effect of each type of audit committee experts on the value of cash holdings

If investors do not trust the role of audit committee as a corporate governance mechanism, and evaluate the financial expertise of audit committee negatively, there must be some reason for it. I establish Hypothesis (3) to verify that the effects of audit committee financial expertise may vary depending on the type of audit committee. I conduct several regression analyses based on equation (4) to test Hypothesis (3)

Table 5 presents the result. What is noteworthy is that the coefficient of the interaction term between change of cash and audit committee with supervisory experts ($SUPEXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$) is negative (-0.291) and significant at the five percent level ($t\text{-value}=-2.26$), suggesting that the negative impact of audit committee financial expertise on the value of cash is mainly due to the supervisory expert. This negative impact of the supervisor expert remains still significant when I conduct a pooled regression as shown in column (4) and (8).

I suggest these results can be interpreted as a result of the negative effect of “revolving doors” . As Kowalewski et al. (1991) find little evidence for improved performance of revolving doors, my findings are in line with the “rent-seeking” hypothesis. If supervisory experts are appointed as an audit committee member as a “revolving door” , investors regard that the supervisory expert will not play the roles of monitoring management nor safeguarding a firm’ s resources properly. As a result, the value of cash holdings in a firm with supervisory expert is low.

<Insert Table 5 here>

5. Additional Analyses

5.1. Difference between audit committee established mandatorily and voluntarily.

The impact of audit committee financial expertise on the value of cash holdings may vary depending whether it is established mandatorily by the law or voluntarily. I define a firm as having a mandatorily established audit committee required by Korean commercial law if it has total assets in excess of 2 trillion KRW (Korean won) at $t-1$. I assume that all other firms established audit committees voluntarily. Then I conduct regression analyses based on equation (3) and (4). The results are presented in Table 6.

Panel A of Table 6 shows the coefficient of the interaction term between change of cash and audit committee financial expertise ($AC_EXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$) is a negative and significant at the one percent level (coefficient = -0.599 , t -value = -3.02) only in the voluntarily-established audit committee sample. Panel B of Table 6 also shows that the coefficient of the interaction term between change of cash and audit committee with supervisory experts ($SUPEXP \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$) is a negative and significant at the five percent level (coefficient = -0.446 , t -value = -2.53). However, I find no significant association between the other types of expertise and the value of cash holdings.

These results suggest that investors suspect the supervisory expert as a “revolving door” when a firm establishes an audit committee voluntarily and appoints the supervisory expert, so they negatively evaluate the impact of the audit committees on corporate governance.

<Insert Table 6 here>

5.2. Using excess cash specification

The other branch of empirical studies on the determination of marginal cash values is those that emphasize the role of agency conflicts. The effect of corporate governance on the value of excess cash is examined in previous literature. For example, Pinkowitz et al. (2006) find that the value of cash is lower in countries with poor

investor protection, which is a proxy of corporate governance. Dittmar & Mahrt-Smith (2007) show that good corporate governance improves the value of excess cash in U.S. firms. In their researches, the impact of excess cash on firm value is increased in case of good corporate governance. For robustness, I use this model to test the impact of audit committee financial expertise on the value of excess cash. To estimate the excess cash, I follow the methods of Opler et al. (1999). Previous studies follow the similar methodology to estimate excess cash (Dittmar & Mahrt-Smith, 2007). I estimate the level of normal cash by using the method of Opler et al. (1999), where the difference between actual cash and predicted cash is defined as excess cash. To find the effect of excess cash on firm value, I use the model from the previous literature. The research model is value regression model by Pinkowitz et al. (2006), which is an adjusted model of Fama & French (1998). This model is used to find the impact of excess cash on the value of firm, and I add the same variables of interest which described in section 3.3

$$\begin{aligned}
\frac{MV_{i,t}}{NA_{i,t}} &= \beta_0 + \beta_1 \frac{XCash_{i,t}}{NA_{i,t}} + \beta_2 \frac{XCash_{i,t}}{NA_{i,t}} \times FACTOR_{i,t} + \beta_3 FACTOR_{i,t} + \beta_4 \frac{E_{i,t}}{NA_{i,t}} \\
&+ \beta_5 \frac{dE_{i,t}}{NA_{i,t}} + \beta_6 \frac{dE_{i,t+2}}{NA_{i,t}} + \beta_7 \frac{RD_{i,t}}{NA_{i,t}} + \beta_8 \frac{dRD_{i,t}}{NA_{i,t}} + \beta_9 \frac{dRD_{i,t+2}}{NA_{i,t}} + \beta_{10} \frac{D_{i,t}}{NA_{i,t}} + \beta_{11} \frac{dD_{i,t}}{NA_{i,t}} \\
&+ \beta_{12} \frac{dD_{i,t+2}}{NA_{i,t}} + \beta_{13} \frac{I_{i,t}}{NA_{i,t}} + \beta_{14} \frac{dI_{i,t}}{NA_{i,t}} + \beta_{15} \frac{dI_{i,t+2}}{NA_{i,t}} + \beta_{16} \frac{dNA_{i,t}}{NA_{i,t}} + \beta_{17} \frac{dNA_{i,t+2}}{NA_{i,t}} \\
&+ \beta_{18} \frac{dMV_{i,t+2}}{NA_{i,t}} + \text{Industry fixed effects} + \text{Year fixed effects} + \varepsilon_{i,t} \quad (5)
\end{aligned}$$

Xcash is excess cash which is driven through the normal cash regression model in Panel A of Table 7. MV is the market capitalization plus book value of liabilities over the total assets. E is earning before interest and tax (EBIT). NA is net asset, which is total asset minus cash and cash equivalent. RD is R&D expenditure and I is interest expense. D is common cash dividend payout. $dX_{i,t}$ indicates a change in X from time $t - 2$ to t and $FACTOR_{i,t}$ is main variable such as AC_dummy, AC_EXP, AC_IND_RATIO, lnAC_ACTIVITY, ACCEXP, FINEXP, and SUPEX. The variable of interest is the coefficient of the interaction term with $FACTOR_{i,t}$ and $Xcash_{i,t}$.

Table 7 shows the results of the regression analyses. Panel A of table 7 presents the result of the first regression to find the excess cash of firm i . and it shows similar result to the previous studies. Panel B of table 7 presents the results of main regressions. The results are generally similar to those in table 3, 4 and 5. Specifically, column (2) of Panel B shows that audit committee has no impact on value of excess cash, column (3) shows that audit committee financial expertise has no impact on value of excess cash, and column (4) shows supervisory experts in audit committee has a negative impact on value of excess cash. This finding robusts my tests.

<Insert Table 7 here>

5.3. Control for endogeneity : Propensity–Score–Matching (PSM) Analysis

Prior research recognizes that attributes of corporate boards and governance mechanisms are endogenously determined (Klein 2002b). Building on a model developed Agrawal & Chadha (2005), Krishnan & Visvanathan (2008) apply a propensity score matching analysis to address this endogeneity concern. I conduct a first stage regression, following Krishnan & Visvanathan (2008):

$$\begin{aligned} \text{Pr(Expertise)} = & \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{PROA} + \beta_3 \text{DEBT} + \beta_4 \text{SGROW} + \beta_5 \text{BSIZE} \\ & + \beta_6 \text{AEMP} + \beta_7 \text{EVOL} + \beta_8 \text{AGE} \end{aligned} \quad (6)$$

where *SIZE* is the log of total assets; *PROA* is the prior three–year average return on assets; *DEBT* is the long–term debt divided by total assets; *SGROW* is the annual percentage change in sales; *BSIZE* is the log of total number of directors in the board; *AEMP* is a measure of capital intensity, computed as total assets divided by number of employees; *EVOL* is earnings volatility for the past five years; and *AGE* is the log of age of the firm from the establishment date. Other variables are the same as defined before. Panel A of Table 8 presents the result of the first stage regression.

Next, I conduct a second stage regression with matched sample. To eliminate poor candidates for matching, I use a caliper distance equal to 0.05 of the standard deviation of the logit of the propensity score. The regression results on $(\text{SUPEXP} \times \frac{\Delta \text{Ci,t}}{\text{Mf,t-1}})$ in column (4) and (8) of Panel B still show that the marginal value that investors place on cash balances decreases with the supervisory expert in audit

committee ($p < 0.05$), where **SUPEXP** is an indicator variable whose value is set to 1 if the firm is selected from the treatment sample, and 0 otherwise. Overall, this result verifies that the prior observation that the negative effect of the supervisory expert on value of cash holdings, and alleviates concerns that the reported results are driven by the endogenous relationship between board attributes and corporate governance mechanism.

<Insert Table 8 here>

6. Conclusion

The major role of audit committee is to enhance financial reporting quality, but audit committee is purported to serve as a governance mechanism to mitigate agency problems between corporate insiders and outsiders and to curb managerial rent-seeking activities. Cash is the most liquid asset and the private benefits associated with cash are particularly high. Using corporate liquid assets as a tight and powerful setting, I test the governance role of audit committee in safeguarding corporate resources. Specifically, with large sample listed on the Korean Stock Exchange, I investigate whether audit committee financial expertise can safeguard cash resources, which leads investors to value liquid assets in firms with audit committee financial expertise more than

they do in firms without financial expertise. My empirical results show that there is weak but negative impact of financial expertise in audit committee on the market value of cash holdings in firms. Moreover, supervisory experts in audit committee have a significant and negative impact on the value of cash holdings. The results hold for both the level of cash and excess cash and remain robust to different models. The contextual analyses demonstrate that the negative valuation impact of audit committee financial expertise appears to be due to the “revolving door” effect of the supervisory experts in audit committees.

These finding implies that, without a more precise and strict definition of audit committee financial expertise, investors do not trust the audit committee’s role as an effective corporate governance mechanism and they may even regard the supervisory expert in audit committee as deteriorating the firm value. I expect that this finding can support an insight for policy makers and practitioners as well as academia.

This study has some limitations. First, researches on the effectiveness of audit committees on Korean firms still often show controversial results. Consequently, if I test the impact of audit committee financial expertise with a sample in the countries in which audit committee system works well, I may find different results. Second, although I follow the previous researches, there might be correlated omitted variable problems. Previous researches suggest that the effectiveness of audit committee is affected by its relative status to the management. In this regard, further studies,

taking into account the various factors affecting the effectiveness of audit committee, may provide more accurate results.

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Table 1. Descriptive Statistics

Panel A. Descriptive Statistics for the Full Sample

Variable	Obs.	Mean	Std.Dev.	Q1	Median	Q3
AC_dummy _t	9,170	0.232	0.422	0	0	0
$r_{i,t} - R^{EWB}_{i,t}$	9,170	0.000	0.552	-0.319	-0.098	0.187
$r_{i,t} - R^{VWB}_{i,t}$	9,170	0.009	0.553	-0.313	-0.091	0.197
C_t/M_{t-1}	9,170	0.333	0.492	0.065	0.172	0.392
$\Delta C_t/M_{t-1}$	9,170	0.016	0.281	-0.059	0.001	0.074
$\Delta E_t/M_{t-1}$	9,170	0.020	0.321	-0.049	0.003	0.060
$\Delta NA_t/M_{t-1}$	9,170	0.000	1.056	-0.099	0.065	0.278
$\Delta RD_t/M_{t-1}$	9,170	0.002	0.029	-0.001	0	0.004
$\Delta I_t/M_{t-1}$	9,170	-0.021	0.117	-0.010	0.000	0.003
$\Delta D_t/M_{t-1}$	9,170	0.001	0.015	0	0	0.003
$L_{i,t}$	9,170	0.357	0.278	0.104	0.322	0.576
$NF_{i,t}/M_{t-1}$	9,170	-0.012	0.557	-0.083	0	0.108
Mandatory	9,170	0.128	0.334	0	0	0

Panel B. Descriptive Statistics for the Audit Committee Sample

Variable	Obs.	Mean	Std.Dev.	Q1	Median	Q3
AC_EXP _t	2,129	0.840	0.367	1	1	1
AC_IND_RATIO _t	2,129	0.946	0.122	1	1	1
lnAC_ACTIVITY _t	2,129	1.669	0.592	1.386	1.609	1.946
ACCEXP _t	2,129	0.432	0.495	0	0	1
FINEXP _t	2,129	0.212	0.409	0	0	0
SUPEXP _t	2,129	0.459	0.498	0	0	1
$r_{i,t} - R^{EWB}_{i,t}$	2,129	0.003	0.470	-0.287	-0.082	0.176
$r_{i,t} - R^{VWB}_{i,t}$	2,129	0.013	0.470	-0.276	-0.069	0.190
C_t/M_{t-1}	2,129	0.203	0.247	0.043	0.112	0.263
$\Delta C_t/M_{t-1}$	2,129	0.008	0.169	-0.037	0.001	0.046
$\Delta E_t/M_{t-1}$	2,129	0.006	0.170	-0.035	0.002	0.034
$\Delta NA_t/M_{t-1}$	2,129	0.031	0.765	-0.053	0.057	0.206
$\Delta RD_t/M_{t-1}$	2,129	0.003	0.027	0.000	0.000	0.004
$\Delta I_t/M_{t-1}$	2,129	-0.010	0.055	-0.006	0.000	0.002
$\Delta D_t/M_{t-1}$	2,129	0.000	0.012	0.000	0	0.002
$L_{i,t}$	2,129	0.341	0.272	0.104	0.285	0.551
$NF_{i,t}/M_{t-1}$	2,129	-0.028	0.426	-0.061	0.000	0.069
Mandatory	2,129	0.518	0.500	0	1	1

All variables are defined in Appendix A

Table 2. Correlation Matrix
Panel A. For the full sample

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) AC_dum _{it}													
(2) $r_{i,t} - R^{EWB}_{i,t}$	0.005												
(3) $r_{i,t} - R^{VWB}_{i,t}$	0.615	0.994											
(4) C_t/M_{t-1}	0.007	0.025	0.030										
(5) $\Delta C_t/M_{t-1}$	0.522	<0.001	0.004	0.189									
(6) $\Delta E_t/M_{t-1}$	-0.046	0.015	0.078	0.152	0.065								
(7) $\Delta NA_t/M_{t-1}$	-0.014	0.076	0.078	0.152	0.065	0.060							
(8) $\Delta RD_t/M_{t-1}$	0.172	<0.001	<0.001	<0.001	<0.001	0.004	0.076						
(9) $\Delta I_t/M_{t-1}$	-0.021	0.193	0.196	0.152	0.065	0.008	0.038	0.076					
(10) $\Delta D_t/M_{t-1}$	0.050	<0.001	<0.001	<0.001	<0.001	0.466	0.699	<0.001					
(11) C_{t-1}/M_{t-1}	0.010	0.108	0.103	-0.155	-0.114	0.000	0.389	-0.009					
(12) $L_{i,t}$	0.341	<0.001	<0.001	<0.001	<0.001	0.000	0.175	<0.001	0.385				
(13) $NF_{i,t}/M_{t-1}$	0.006	0.025	0.026	0.038	0.008	0.004	0.076		0.385				
(14) Mandatory	0.553	0.016	0.014	0.000	0.466	0.699	<0.001		0.389	-0.009			
	0.042	0.007	0.000	-0.226	-0.015	-0.166	0.389	-0.009					
	<0.001	0.477	0.979	<0.001	0.152	<0.001	<0.001	0.385					
	-0.018	0.042	0.040	-0.009	0.001	-0.011	0.051	0.038	-0.016				
	0.085	<0.001	0.000	0.403	0.900	0.272	<0.001	0.000	0.116				
	-0.137	-0.008	-0.002	0.359	-0.155	0.077	-0.222	0.040	-0.402	-0.005			
	<0.001	0.454	0.872	<0.001	<0.001	<0.001	<0.001	0.000	<0.001	0.621			
	-0.031	-0.142	-0.139	0.070	-0.015	0.012	-0.154	-0.014	-0.167	-0.059	0.239		
	0.003	<0.001	<0.001	<0.001	0.151	0.244	<0.001	0.175	<0.001	<0.001	<0.001		
	-0.017	-0.035	-0.039	-0.046	0.111	-0.135	0.398	-0.014	0.264	-0.001	-0.237	-0.057	
	0.099	0.001	0.000	<0.001	<0.001	<0.001	<0.001	0.190	<0.001	0.910	<0.001	<0.001	
	0.642	-0.007	-0.003	-0.033	0.003	-0.012	0.016	0.013	0.026	-0.002	-0.112	0.022	-0.006
	<0.001	0.502	0.772	0.002	0.774	0.242	0.136	0.224	0.012	0.867	<0.001	0.039	0.592

Table 2. Correlation Matrix
Panel B. For the Audit Committee Sample

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) AC_EXP																		
(2) AC_IND_RATIO	0.163 <0.001																	
(3) lnAC_ACTIVITY	0.015 0.491	-0.035 0.103																
(4) ACCEXP	0.381 <0.001	0.146 <0.001	-0.026 0.234															
(5) FINEXP	0.226 <0.001	0.064 0.003	-0.014 0.533	-0.238 <0.001														
(6) SUPEXP	0.402 <0.001	0.017 0.427	0.080 0.000	-0.205 <0.001	-0.058 0.008													
(7) $r_{i,t} - R^{EWB}_{i,t}$	-0.043 0.048	-0.008 0.705	-0.022 0.300	0.007 0.761	-0.038 0.082	-0.030 0.174												
(8) $r_{i,t} - R^{VWB}_{i,t}$	-0.046 0.033	-0.005 0.811	-0.025 0.255	0.006 0.793	-0.037 0.089	-0.038 0.076	0.989 <0.001											
(9) C_t/M_{t-1}	-0.006 0.776	-0.101 <0.001	-0.055 0.011	-0.048 0.027	0.011 0.628	0.059 0.006	0.066 0.002	0.057 0.008										
(10) $\Delta C_t/M_{t-1}$	-0.019 0.386	0.002 0.914	0.000 0.989	-0.013 0.540	0.004 0.853	0.013 0.556	0.095 <0.001	0.097 <0.001	0.413 <0.001									
(11) $\Delta E_t/M_{t-1}$	0.002 0.913	-0.041 0.056	-0.011 0.615	-0.020 0.367	0.046 0.033	-0.012 0.585	0.240 <0.001	0.237 <0.001	0.052 0.017	0.060 0.006								
(12) $\Delta NA_t/M_{t-1}$	-0.021 0.341	-0.017 0.426	0.012 0.577	0.008 0.726	-0.044 0.040	-0.018 0.395	0.087 <0.001	0.086 <0.001	-0.056 0.010	0.050 0.020	0.073 0.001							
(13) $\Delta RD_t/M_{t-1}$	0.019 0.380	0.024 0.264	0.009 0.677	0.007 0.731	0.004 0.861	-0.005 0.828	0.018 0.419	0.020 0.358	0.036 0.094	0.063 0.004	-0.016 0.470	0.039 0.074						
(14) $\Delta I_t/M_{t-1}$	0.030 0.165	0.043 0.046	0.004 0.864	0.066 0.002	-0.033 0.125	-0.015 0.480	-0.066 0.002	-0.062 0.004	-0.252 <0.001	0.006 0.794	-0.105 <0.001	0.357 <0.001	0.007 0.754					
(15) $\Delta D_t/M_{t-1}$	0.029 0.183	-0.017 0.435	-0.004 0.866	0.004 0.870	0.010 0.640	0.026 0.233	0.071 0.001	0.077 0.000	0.002 0.912	0.049 0.025	0.048 0.027	0.060 0.006	0.038 0.078	-0.058 0.007				
(16) C_{t-1}/M_{t-1}	0.004 0.839	-0.123 <0.001	-0.054 0.013	-0.037 0.090	0.002 0.923	0.057 0.008	0.012 0.571	0.004 0.872	0.713 <0.001	-0.235 <0.001	0.011 0.618	-0.092 <0.001	-0.021 0.328	-0.240 <0.001	-0.018 0.396			
(17) $L_{i,t}$	-0.051 0.018	-0.062 0.004	0.013 0.551	-0.203 <0.001	0.098 <0.001	0.054 0.012	-0.202 <0.001	-0.209 <0.001	0.196 <0.001	-0.047 <0.001	-0.055 <0.001	-0.150 <0.001	-0.023 0.285	-0.222 <0.001	-0.073 0.001	0.253 <0.001		
(18) $NF_{i,t}/M_{t-1}$	0.001 0.961	0.014 0.521	-0.008 0.711	0.002 0.928	-0.032 0.140	0.024 0.263	-0.062 0.004	-0.065 0.003	-0.213 <0.001	0.081 0.000	-0.126 <0.001	0.469 0.008	-0.057 <0.001	0.427 0.008	-0.039 <0.001	-0.242 0.075	-0.089 <0.001	
(19) Mandatory	0.047 0.029	0.276 <0.001	0.047 0.032	0.010 0.642	0.093 <0.001	0.012 0.584	-0.024 0.270	-0.016 0.454	-0.023 0.284	0.037 0.089	0.002 0.929	0.019 0.389	0.034 0.119	-0.022 0.301	0.015 0.489	-0.069 0.002	0.107 <0.001	0.008 0.697

Table 3. The Effect of Audit Committee on the Value of Cash Holdings

	Excess Return (Equal-weighted)		Excess Return (Value-weighted)	
	(1) Baseline	(2) AC dummy	(3) Baseline	(4) AC dummy
Constant	0.256*** (3.04)	0.255*** (3.05)	0.288*** (3.41)	0.287*** (3.43)
$\Delta C_t/M_{t-1}$	0.432*** (6.35)	0.434*** (6.28)	0.436*** (6.34)	0.437*** (6.25)
AC_dummy*($\Delta C_t/M_{t-1}$)		-0.013 (-0.18)		-0.003 (-0.04)
AC_dummy		0.010 (0.88)		0.015 (1.26)
$\Delta E_t/M_{t-1}$	0.287*** (9.25)	0.287*** (9.23)	0.289*** (9.35)	0.289*** (9.35)
$\Delta NA_t/M_{t-1}$	0.064*** (6.29)	0.064*** (6.27)	0.063*** (6.20)	0.063*** (6.18)
$\Delta RD_t/M_{t-1}$	0.225 (0.95)	0.225 (0.95)	0.248 (1.05)	0.247 (1.04)
$\Delta I_t/M_{t-1}$	0.023 (0.25)	0.024 (0.26)	-0.005 (-0.05)	-0.003 (-0.04)
$\Delta D_t/M_{t-1}$	0.948** (2.31)	0.949** (2.31)	0.838** (2.01)	0.838** (2.01)
C_{t-1}/M_{t-1}	0.041* (1.91)	0.042* (1.95)	0.046** (2.13)	0.048** (2.19)
$L_{i,t}$	-0.283*** (-12.39)	-0.284*** (-12.41)	-0.281*** (-12.22)	-0.283*** (-12.26)
$NF_{i,t}/M_{t-1}$	-0.061*** (-3.78)	-0.061*** (-3.77)	-0.064*** (-3.94)	-0.064*** (-3.92)
$(C_{t-1}/M_{t-1})*(\Delta C_t/M_{t-1})$	-0.050 (-1.55)	-0.050 (-1.56)	-0.044 (-1.40)	-0.045 (-1.39)
$L_{i,t}*(\Delta C_t/M_{t-1})$	-0.355*** (-3.36)	-0.353*** (-3.33)	-0.368*** (-3.49)	-0.367*** (-3.47)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	9,170	9,170	9,170	9,170
Adjusted R-squared	0.0890	0.0888	0.0874	0.0873

I extend the model from Faulkender and Wang (2006) by introducing the income smoothing measure as an additional explanatory variable and interacting change in cash holdings with the above variables. More specifically, I use the following regression model:

$$\begin{aligned}
 r_{i,t} - R_{i,t}^B = & \gamma_0 + \gamma_1 \frac{\Delta C}{M}_{i,t} + \gamma_2 AC_dummy_{i,t} \times \frac{\Delta C}{M}_{i,t} + \gamma_3 AC_dummy_{i,t} + \gamma_4 \frac{\Delta E}{M}_{i,t} + \gamma_5 \frac{\Delta NA}{M}_{i,t} + \gamma_6 \frac{\Delta RD}{M}_{i,t} + \gamma_7 \frac{\Delta I}{M}_{i,t} \\
 & + \gamma_8 \frac{\Delta D}{M}_{i,t} + \gamma_9 \frac{C}{M}_{i,t} + \gamma_{10} L_{i,t} + \gamma_{11} \frac{NF}{M}_{i,t} + \gamma_{12} \frac{C}{M}_{i,t} \times \frac{\Delta C}{M}_{i,t} + \gamma_{13} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t}} + \varepsilon_{i,t} \quad (2)
 \end{aligned}$$

The dependent variable is $r_{i,t} - R_{i,t}^B$, and all variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t-values. All regressions include year and industry indicators and are clustered by firm.

Table 4. The effect of Audit Committee Characteristics on the Value of Cash Holdings

Panel A. Regression with equal-weighted excess return

	Dependent Variable = Excess Return (Equal-weighted)			
	(1)Expertise	(2)Independence	(3)Activity	(4)Pooled
Constant	0.599*** (7.35)	0.470*** (4.01)	0.600*** (6.23)	0.563*** (4.33)
$\Delta C_t/M_{t-1}$	0.672*** (3.15)	0.493 (1.18)	0.464** (2.03)	0.713 (1.37)
AC_EXP*($\Delta C_t/M_{t-1}$)	-0.317* (-1.70)			-0.333* (-1.68)
AC_IND_RATIO*($\Delta C_t/M_{t-1}$)		-0.083 (-0.20)		0.070 (0.15)
lnAC_ACTIVITY*($\Delta C_t/M_{t-1}$)			-0.034 (-0.32)	-0.058 (-0.55)
AC_EXP	-0.052* (-1.79)			-0.056* (-1.84)
AC_IND_RATIO		0.102 (1.02)		0.117 (1.16)
lnAC_ACTIVITY			-0.018 (-1.15)	-0.014 (-0.91)
$\Delta E_t/M_{t-1}$	0.537*** (6.66)	0.539*** (6.65)	0.536*** (6.63)	0.540*** (6.65)
$\Delta NA_t/M_{t-1}$	0.053** (2.35)	0.053** (2.36)	0.053** (2.39)	0.053** (2.39)
$\Delta RD_t/M_{t-1}$	0.150 (0.35)	0.128 (0.30)	0.150 (0.36)	0.160 (0.38)
$\Delta I_t/M_{t-1}$	-0.627** (-2.34)	-0.619** (-2.30)	-0.624** (-2.33)	-0.617** (-2.36)
$\Delta D_t/M_{t-1}$	0.659 (0.85)	0.719 (0.95)	0.725 (0.96)	0.663 (0.86)
C_{t-1}/M_{t-1}	0.107** (2.21)	0.112** (2.29)	0.106** (2.18)	0.112** (2.31)
$L_{i,t}$	-0.429*** (-10.77)	-0.424*** (-10.63)	-0.424*** (-10.84)	-0.428*** (-10.71)
$NF_{i,t}/M_{t-1}$	-0.040 (-1.14)	-0.038 (-1.09)	-0.040 (-1.13)	-0.041 (-1.15)
$(C_{t-1}/M_{t-1}) * (\Delta C_t/M_{t-1})$	-0.570*** (-3.22)	-0.570*** (-3.22)	-0.563*** (-3.08)	-0.564*** (-3.13)
$L_{i,t} * (\Delta C_t/M_{t-1})$	0.253 (1.15)	0.246 (1.08)	0.249 (1.09)	0.249 (1.15)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	2,129	2,129	2,129	2,129
Adjusted R-squared	0.132	0.129	0.128	0.131

All variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t-values. All regressions include year and industry indicators and are clustered by firm.

Table 4. The effect of Audit Committee Characteristics on the Value of Cash Holdings

Panel B. Regression with value-weighted excess return

	Dependent Variable = Excess Return (Value-weighted)			
	(5)Expertise	(6)Independence	(7)Activity	(8)Pooled
Constant	0.604*** (7.47)	0.469*** (4.09)	0.605*** (6.38)	0.578*** (4.53)
$\Delta C_t/M_{t-1}$	0.660*** (3.10)	0.514 (1.17)	0.481** (2.09)	0.716 (1.36)
AC_EXP*($\Delta C_t/M_{t-1}$)	-0.282 (-1.56)			-0.291 (-1.53)
AC_IND_RATIO*($\Delta C_t/M_{t-1}$)		-0.087 (-0.20)		0.039 (0.08)
lnAC_ACTIVITY*($\Delta C_t/M_{t-1}$)			-0.035 (-0.32)	-0.054 (-0.50)
AC_EXP	-0.061** (-2.11)			-0.064** (-2.16)
AC_IND_RATIO		0.098 (0.99)		0.117 (1.16)
lnAC_ACTIVITY			-0.021 (-1.28)	-0.018 (-1.08)
$\Delta E_t/M_{t-1}$	0.537*** (6.55)	0.539*** (6.53)	0.535*** (6.51)	0.540*** (6.53)
$\Delta NA_t/M_{t-1}$	0.054** (2.43)	0.055** (2.45)	0.055** (2.47)	0.055** (2.46)
$\Delta RD_t/M_{t-1}$	0.207 (0.48)	0.184 (0.42)	0.206 (0.48)	0.214 (0.50)
$\Delta I_t/M_{t-1}$	-0.627** (-2.33)	-0.621** (-2.29)	-0.626** (-2.32)	-0.617** (-2.34)
$\Delta D_t/M_{t-1}$	0.739 (0.92)	0.778 (0.99)	0.783 (0.99)	0.746 (0.93)
C_{t-1}/M_{t-1}	0.087* (1.66)	0.090* (1.71)	0.084 (1.61)	0.091* (1.73)
$L_{i,t}$	-0.437*** (-10.94)	-0.431*** (-10.81)	-0.431*** (-11.03)	-0.436*** (-10.89)
$NF_{i,t}/M_{t-1}$	-0.048 (-1.32)	-0.046 (-1.28)	-0.048 (-1.32)	-0.048 (-1.34)
$(C_{t-1}/M_{t-1})*(\Delta C_t/M_{t-1})$	-0.625*** (-3.19)	-0.626*** (-3.17)	-0.618*** (-3.06)	-0.620*** (-3.09)
$L_{i,t}*(\Delta C_t/M_{t-1})$	0.288 (1.28)	0.280 (1.21)	0.284 (1.22)	0.284 (1.29)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	2,129	2,129	2,129	2,129
Adjusted R-squared	0.129	0.126	0.126	0.129

All variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t-values. All regressions include year and industry indicators and are clustered by firm.

Table 5. The effect of Each Type of Audit Committee Experts on the Value of Cash

Panel A. Regression with equal-weighted excess return

	Dependent Variable = Excess Return (Equal-weighted)			
	(1) Accounting	(2) Finance	(3) Supervisory	(4) Pooled
Constant	0.546*** (6.73)	0.541*** (6.69)	0.564*** (7.19)	0.572*** (7.18)
$\Delta C_t/M_{t-1}$	0.376** (2.51)	0.422*** (2.77)	0.551*** (3.46)	0.562*** (3.04)
ACCEXP*($\Delta C_t/M_{t-1}$)	0.088 (0.67)			0.030 (0.22)
FINEXP*($\Delta C_t/M_{t-1}$)		-0.044 (-0.31)		-0.097 (-0.66)
SUPEXP*($\Delta C_t/M_{t-1}$)			-0.291** (-2.26)	-0.300** (-2.21)
ACCEXP	-0.008 (-0.43)			-0.019 (-0.94)
FINEXP		-0.027 (-1.14)		-0.034 (-1.38)
SUPEXP			-0.025 (-1.25)	-0.030 (-1.45)
$\Delta E_t/M_{t-1}$	0.537*** (6.64)	0.539*** (6.67)	0.541*** (6.72)	0.545*** (6.77)
$\Delta NA_t/M_{t-1}$	0.052** (2.34)	0.053** (2.34)	0.050** (2.25)	0.049** (2.20)
$\Delta RD_t/M_{t-1}$	0.137 (0.32)	0.141 (0.33)	0.165 (0.39)	0.162 (0.39)
$\Delta I_t/M_{t-1}$	-0.634** (-2.32)	-0.632** (-2.34)	-0.624** (-2.33)	-0.636** (-2.39)
$\Delta D_t/M_{t-1}$	0.722 (0.95)	0.696 (0.94)	0.751 (0.99)	0.708 (0.94)
C_{t-1}/M_{t-1}	0.110** (2.23)	0.106** (2.20)	0.119** (2.44)	0.118** (2.46)
$L_{i,t}$	-0.427*** (-10.48)	-0.422*** (-10.64)	-0.423*** (-10.72)	-0.426*** (-10.41)
$NF_{i,t}/M_{t-1}$	-0.038 (-1.07)	-0.039 (-1.09)	-0.041 (-1.14)	-0.040 (-1.13)
$(C_{t-1}/M_{t-1}) * (\Delta C_t/M_{t-1})$	-0.565*** (-3.15)	-0.570*** (-3.17)	-0.554*** (-3.19)	-0.559*** (-3.26)
$L_{i,t} * (\Delta C_t/M_{t-1})$	0.258 (1.10)	0.255 (1.11)	0.240 (1.06)	0.259 (1.13)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	2,129	2,129	2,129	2,129
Adjusted R-squared	0.128	0.129	0.131	0.131

All variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t-values. All regressions include year and industry indicators and are clustered by firm.

Table 5. The effect of Each Type of Audit Committee Experts on the Value of Cash

Panel B. Regression with value-weighted excess return

	Dependent Variable = Excess Return (Value-weighted)			
	(5) Accounting	(6) Finance	(7) Supervisory	(8) Pooled
Constant	0.542*** (6.82)	0.536*** (6.79)	0.570*** (7.32)	0.578*** (7.33)
$\Delta C_t/M_{t-1}$	0.402*** (2.70)	0.436*** (2.93)	0.565*** (3.49)	0.576*** (3.14)
ACCEXP*($\Delta C_t/M_{t-1}$)	0.067 (0.51)			0.016 (0.12)
FINEXP*($\Delta C_t/M_{t-1}$)		-0.026 (-0.17)		-0.078 (-0.51)
SUPEXP*($\Delta C_t/M_{t-1}$)			-0.282** (-2.15)	-0.289** (-2.16)
ACCEXP	-0.012 (-0.62)			-0.025 (-1.25)
FINEXP		-0.028 (-1.15)		-0.038 (-1.50)
SUPEXP			-0.033* (-1.71)	-0.040** (-1.97)
$\Delta E_t/M_{t-1}$	0.536*** (6.51)	0.538*** (6.57)	0.541*** (6.60)	0.544*** (6.62)
$\Delta N A_t/M_{t-1}$	0.054** (2.43)	0.054** (2.43)	0.052** (2.33)	0.051** (2.28)
$\Delta R D_t/M_{t-1}$	0.193 (0.45)	0.197 (0.46)	0.220 (0.51)	0.217 (0.51)
$\Delta I_t/M_{t-1}$	-0.634** (-2.31)	-0.631** (-2.32)	-0.624** (-2.33)	-0.632** (-2.37)
$\Delta D_t/M_{t-1}$	0.780 (0.99)	0.768 (0.99)	0.821 (1.03)	0.792 (1.01)
C_{t-1}/M_{t-1}	0.088* (1.67)	0.085 (1.64)	0.099* (1.90)	0.098* (1.93)
$L_{i,t}$	-0.435*** (-10.69)	-0.429*** (-10.81)	-0.429*** (-10.87)	-0.433*** (-10.61)
$N F_{i,t}/M_{t-1}$	-0.046 (-1.27)	-0.047 (-1.29)	-0.047 (-1.31)	-0.048 (-1.31)
$(C_{t-1}/M_{t-1}) * (\Delta C_t/M_{t-1})$	-0.622*** (-3.14)	-0.626*** (-3.15)	-0.606*** (-3.14)	-0.614*** (-3.22)
$L_{i,t} * (\Delta C_t/M_{t-1})$	0.291 (1.22)	0.288 (1.23)	0.273 (1.18)	0.291 (1.24)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	2,129	2,129	2,129	2,129
Adjusted R-squared	0.125	0.126	0.129	0.129

All variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t-values. All regressions include year and industry indicators and are clustered by firm.

Table 6. Audit committees established Mandatorily vs. Voluntarily
Panel A. regressions on Audit Committee Characteristics

Dependent Variable =	Excess Return (Equal-weighted)		Excess Return (Value-weighted)	
	(1) Mandatory	(2) Voluntary	(3) Mandatory	(4) Voluntary
	Constant	-0.182 (-0.61)	0.709*** (2.87)	-0.161 (-0.56)
$\Delta C_t/M_{t-1}$	-0.798 (-0.88)	1.368** (2.11)	-0.666 (-0.73)	1.303** (2.07)
AC_EXP*($\Delta C_t/M_{t-1}$)	0.271 (0.85)	-0.599*** (-3.02)	0.320 (0.99)	-0.554*** (-3.10)
AC_IND_RATIO*($\Delta C_t/M_{t-1}$)	1.088 (1.10)	-0.068 (-0.11)	0.902 (0.92)	-0.034 (-0.05)
lnAC_ACTIVITY*($\Delta C_t/M_{t-1}$)	-0.076 (-0.41)	-0.142 (-1.26)	-0.049 (-0.25)	-0.144 (-1.32)
AC_EXP	-0.085* (-1.95)	-0.060 (-1.39)	-0.091** (-2.15)	-0.069 (-1.59)
AC_IND_RATIO	0.057 (0.20)	0.166 (1.42)	0.064 (0.23)	0.169 (1.44)
lnAC_ACTIVITY	-0.016 (-0.57)	-0.016 (-0.74)	-0.020 (-0.68)	-0.018 (-0.83)
$\Delta E_t/M_{t-1}$	0.672*** (6.12)	0.411*** (3.40)	0.666*** (6.11)	0.419*** (3.41)
$\Delta NA_t/M_{t-1}$	0.047* (1.67)	0.059* (1.97)	0.043 (1.52)	0.063** (2.13)
$\Delta RD_t/M_{t-1}$	0.370 (0.80)	0.038 (0.05)	0.459 (0.94)	0.016 (0.02)
$\Delta I_t/M_{t-1}$	-0.488* (-1.70)	-0.903** (-2.12)	-0.435 (-1.48)	-0.951** (-2.22)
$\Delta D_t/M_{t-1}$	0.246 (0.20)	1.354 (1.16)	0.245 (0.20)	1.470 (1.22)
C_{t-1}/M_{t-1}	0.162** (2.38)	0.104* (1.66)	0.122 (1.60)	0.107* (1.68)
$L_{i,t}$	-0.499*** (-9.16)	-0.458*** (-7.10)	-0.505*** (-9.18)	-0.464*** (-7.27)
$NF_{i,t}/M_{t-1}$	-0.018 (-0.35)	-0.029 (-0.57)	-0.026 (-0.49)	-0.035 (-0.71)
$(C_{t-1}/M_{t-1})*(\Delta C_t/M_{t-1})$	-0.728*** (-2.85)	-0.626*** (-2.93)	-0.801*** (-2.75)	-0.650*** (-3.00)
$L_{i,t}*(\Delta C_t/M_{t-1})$	0.315 (0.90)	0.129 (0.54)	0.339 (0.92)	0.182 (0.74)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	1,102	1,027	1,102	1,027
Adjusted R-squared	0.156	0.119	0.150	0.120

I define a firm as having a mandatorily established audit committee if it has total assets in excess of 2 trillion KRW (Korean won) at $t-1$ required by Korean commercial law. I assume all other firms have voluntarily established audit committees.

All variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t -values. All regressions include year and industry indicators and are clustered by firm.

Table 6. Audit committees established Mandatorily vs. Voluntarily
Panel B. Regressions on the Types of Audit Committee Experts

	Expertise Type			
	Excess Return (Equal-weighted)		Excess Return (Equal-weighted)	
	(5) Mandatory	(6) Voluntary	(7) Mandatory	(8) Voluntary
Constant	-0.207** (-2.54)	0.698*** (3.05)	-0.185** (-2.32)	0.729*** (3.34)
$\Delta C_t/M_{t-1}$	0.346 (1.25)	0.790*** (3.10)	0.378 (1.34)	0.777*** (3.07)
ACCEXP*($\Delta C_t/M_{t-1}$)	0.164 (0.82)	-0.036 (-0.17)	0.125 (0.60)	-0.028 (-0.13)
FINEXP*($\Delta C_t/M_{t-1}$)	-0.109 (-0.47)	0.069 (0.31)	-0.069 (-0.28)	0.067 (0.30)
SUPEXP*($\Delta C_t/M_{t-1}$)	-0.084 (-0.36)	-0.446** (-2.53)	-0.074 (-0.32)	-0.425** (-2.46)
ACCEXP	-0.035 (-1.35)	-0.012 (-0.35)	-0.042 (-1.64)	-0.016 (-0.48)
FINEXP	-0.058** (-2.04)	0.001 (0.02)	-0.060** (-2.16)	-0.003 (-0.07)
SUPEXP	-0.030 (-1.12)	-0.041 (-1.33)	-0.039 (-1.47)	-0.050* (-1.66)
$\Delta E_t/M_{t-1}$	0.680*** (6.37)	0.388*** (3.18)	0.671*** (6.28)	0.398*** (3.20)
$\Delta NA_t/M_{t-1}$	0.043 (1.49)	0.058* (1.91)	0.039 (1.36)	0.061** (2.06)
$\Delta RD_t/M_{t-1}$	0.237 (0.48)	0.011 (0.02)	0.341 (0.64)	-0.012 (-0.02)
$\Delta I_t/M_{t-1}$	-0.483 (-1.59)	-0.980** (-2.39)	-0.422 (-1.36)	-1.027** (-2.48)
$\Delta D_t/M_{t-1}$	0.200 (0.16)	1.529 (1.36)	0.202 (0.16)	1.653 (1.41)
C_{t-1}/M_{t-1}	0.170** (2.55)	0.109 (1.60)	0.132* (1.81)	0.110 (1.61)
$L_{i,t}$	-0.497*** (-9.24)	-0.453*** (-6.84)	-0.502*** (-9.23)	-0.458*** (-7.00)
$NF_{i,t}/M_{t-1}$	-0.024 (-0.47)	-0.032 (-0.60)	-0.031 (-0.58)	-0.037 (-0.72)
$(C_{t-1}/M_{t-1}) * (\Delta C_t/M_{t-1})$	-0.668*** (-2.80)	-0.657*** (-3.03)	-0.740*** (-2.75)	-0.683*** (-3.08)
$L_{i,t} * (\Delta C_t/M_{t-1})$	0.333 (1.04)	0.144 (0.53)	0.363 (1.10)	0.195 (0.70)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	1,102	1,027	1,102	1,027
Adjusted R-squared	0.154	0.114	0.148	0.116

I define a firm as having a mandatorily established audit committee if it has total assets in excess of 2 trillion KRW (Korean won) at $t-1$ required by Korean commercial law. I assume all other firms have voluntarily established audit committees.

All variables are defined in Appendix A.

*, **, *** Denote two-tailed significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The numbers in parentheses are t -values. All regressions include year and industry indicators and are clustered by firm.

Table 7. Using Excess Cash specification
Panel A. Measuring Excess Cash

VARIABLES	Log (Cash/NA) (1) Baseline
Constant	0.726*** (17.06)
Log(Assets)	-0.037*** (-18.65)
FCF/NA _i	0.497*** (18.66)
NWC/NA _i	-0.031** (-2.55)
Industry Sigma	0.230* (1.72)
$\widehat{MTB}_{i,t}$	-0.001 (-0.11)
RD/NA	0.855*** (11.14)
Industry Fixed	Yes
Year Fixed	Yes
Clustering	by Firm
Observations	26799
Adjusted R-squared	0.285

Following Dittmar and Marht–Smith (2007), I estimate the excess cash with their model. The residual of this regression is defined as excess cash:

$$\ln\left(\frac{Cash_{i,t}}{NA_{i,t}}\right) = \beta_0 + \beta_1 \ln(NA_{i,t}) + \beta_2 \frac{FCF_{i,t}}{NA_{i,t}} + \beta_3 \frac{NWC_{i,t}}{NA_{i,t}} + \beta_4 (IndustrySigma)_{i,t} + \beta_5 \widehat{MTB}_{i,t} + \beta_6 \frac{RD_{i,t}}{NA_{i,t}} + Year\ Dummies + Firm\ fixed\ effects + \varepsilon_{i,t}$$

where : $Cash_{i,t}$ = Cash and Equivalents at time t , $NA_{i,t}$ = Net Assets at time t , $FCF_{i,t}$ = Operating Income minus Interest minus Taxes over year t , $NWC_{i,t}$ = Current Assets minus Current Liabilities minus Cash at time t , $IndustrySigma_{i,t}$ = industry average of prior 10 year standard deviation of FCF/NA , and $RD_{i,t}$ = R&D expenditures, set to zero if missing, over year t . Market to Book Ratio has a potential endogeneity problem. To solve this issue, $\widehat{MTB}_{i,t}$ is estimated with three year lagged sales growth as an instrument, following Dittma & Marht–Smith (2007).

Table 7. Using Excess Cash specification
Panel B. Main Regressions

	Dependent Variable = $MV_{i,t}/NA$			
	(1) Baseline	(2) AC dummy	(3) AC Characteristics	(4) Types of Experts
Constant	0.076 (1.18)	0.079 (1.29)	0.183 (0.93)	-0.228* (-1.67)
XCash	1.141*** (9.54)	1.122*** (8.87)	-0.148 (-0.21)	1.085*** (2.68)
XCash *AC_dummy		-0.104 (-0.36)		
AC_dummy		0.068** (2.08)		
XCash *AC_EXP			-0.291 (-0.48)	
XCash *AC_IND_RATIO			-0.450 (-0.73)	
XCash *LNAC_ACTIVITY			0.894** (2.12)	
AC_EXP			-0.044 (-0.92)	
AC_IND_RATIO			0.122** (2.24)	
LNAC_ACTIVITY			-0.047 (-1.46)	
XCash *ACC_EXP				0.291 (0.63)
XCash *FIN_EXP				-0.115 (-0.17)
XCash *SUP_EXP				-1.011** (-2.44)
ACC_EXP				-0.000 (-0.00)
FIN_EXP				-0.006 (-0.10)
SUP_EXP				-0.034 (-0.69)
$E_{i,t}/NA$	1.654*** (4.37)	1.600*** (4.32)	4.993*** (5.73)	4.917*** (5.74)
$dE_{i,t}/NA$	0.252* (1.66)	0.267* (1.77)	-0.360 (-1.14)	-0.314 (-0.94)
$dE_{i,t+2}/NA$	0.426** (1.97)	0.405* (1.88)	1.675*** (3.50)	1.649*** (3.44)
$RD_{i,t}/NA$	6.097*** (5.49)	5.910*** (5.48)	11.607*** (6.49)	11.709*** (6.18)
$dRD_{i,t}/NA$	-1.381 (-1.41)	-1.333 (-1.37)	-5.870*** (-3.21)	-5.974*** (-3.14)
$dRD_{i,t+2}/NA$	3.592*** (5.54)	3.558*** (5.47)	3.576*** (4.82)	3.531*** (4.86)
$D_{i,t}/NA$	11.949*** (6.49)	12.147*** (6.59)	13.384*** (7.12)	13.858*** (6.83)
$dD_{i,t}/NA$	0.787 (0.67)	0.741 (0.63)	-4.693*** (-5.45)	-5.099*** (-5.46)

Table 7. Using Excess Cash specification
Panel B. Main Regressions (*continued*)

	Dependent Variable = $MV_{i,t}/NA$			
	(1) Baseline	(2) AC dummy	(3) AC Characteristics	(4) Types of Experts
$dD_{i,t+2}/NA$	8.990*** (7.18)	9.055*** (7.23)	4.886** (2.59)	4.796** (2.58)
$I_{i,t}/NA$	-2.608*** (-2.84)	-2.816*** (-3.14)	1.629 (0.73)	1.806 (0.80)
$dI_{i,t}/NA$	-0.651 (-1.23)	-0.543 (-1.01)	-0.209 (-0.20)	-0.285 (-0.26)
$dI_{i,t+2}/NA$	-0.820 (-0.75)	-0.820 (-0.75)	1.715 (0.68)	1.813 (0.73)
$dNA_{i,t}/NA$	0.074** (2.17)	0.068** (2.00)	0.064 (1.27)	0.073 (1.45)
$dNA_{i,t+2}/NA$	0.208*** (5.12)	0.214*** (5.39)	0.090 (1.54)	0.093 (1.54)
$dMV_{i,t+2}/NA$	-0.096*** (-2.60)	-0.096*** (-2.63)	-0.116* (-1.86)	-0.115* (-1.87)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	7,131	7,131	1,743	1,743
Adjusted R-squared	0.553	0.554	0.749	0.748

To test the impact of audit committee financial expertise on the value of excess cash, I use the following model according to the prior researches;

$$\begin{aligned}
 \frac{MV_{i,t}}{NA_{i,t}} = & \beta_0 + \beta_1 \frac{XCash_{i,t}}{NA_{i,t}} + \beta_2 \frac{XCash_{i,t}}{NA_{i,t}} \times FACTOR_{i,t} + \beta_3 FACTOR_{i,t} + \beta_4 \frac{E_{i,t}}{NA_{i,t}} + \beta_5 \frac{dE_{i,t}}{NA_{i,t}} + \beta_6 \frac{dE_{i,t+2}}{NA_{i,t}} \\
 & + \beta_7 \frac{RD_{i,t}}{NA_{i,t}} + \beta_8 \frac{dRD_{i,t}}{NA_{i,t}} + \beta_9 \frac{dRD_{i,t+2}}{NA_{i,t}} + \beta_{10} \frac{D_{i,t}}{NA_{i,t}} + \beta_{11} \frac{dD_{i,t}}{NA_{i,t}} + \beta_{12} \frac{dD_{i,t+2}}{NA_{i,t}} + \beta_{13} \frac{I_{i,t}}{NA_{i,t}} + \beta_{14} \frac{dI_{i,t}}{NA_{i,t}} + \beta_{15} \frac{dI_{i,t+2}}{NA_{i,t}} \\
 & + \beta_{16} \frac{dNA_{i,t}}{NA_{i,t}} + \beta_{17} \frac{dNA_{i,t+2}}{NA_{i,t}} + \beta_{18} \frac{dMV_{i,t+2}}{NA_{i,t}} + \text{Industry fixed effects} + \text{Year fixed effects} + \varepsilon_{it} \quad (5)
 \end{aligned}$$

where Xcash is excess cash which is driven through the normal cash regression model in Panel A of Table 7. MV is the market capitalization plus book value of liabilities over the total assets. E is earning before interest and tax (EBIT). NA is net asset, which is total asset minus cash and cash equivalent. RD is R&D expenditure and I is interest expense. D is common cash dividend payout. $dX_{i,t}$ indicates a change in X from time $t - 2$ to t and $FACTOR_{i,t}$ is main variable such as AC_dummy, AC_EXP, AC_IND_RATIO, lnAC_ACTIVITY, ACCEXP, FINEXP, and SUPEX. The variable of interest is the coefficient of the interaction term with $FACTOR_{i,t}$ and $Xcash_{i,t}$.

Table 8. Propensity–Score–Matching (PSM) Analysis
Panel A. First Stage Regression

VARIABLES	Pr(Each Expertise)			
	(1) Pr(AC_EXP)	(2) Pr(ACCEXP)	(3) Pr(FINEXP)	(4) Pr(SUPEXP)
Constant	9.057*** (3.00)	-19.149*** (-10.13)	-20.749*** (-9.26)	14.242*** (7.14)
<i>SIZE</i>	0.077 (0.80)	0.044 (0.58)	0.043 (0.50)	-0.033 (-0.43)
<i>PROA</i>	0.912 (0.56)	2.838* (1.77)	-1.405 (-0.83)	0.827 (0.55)
<i>DEBT</i>	0.036 (0.03)	-1.187 (-1.25)	1.439 (1.15)	0.284 (0.30)
<i>SGROW</i>	-0.382 (-1.27)	-0.061 (-0.28)	-0.037 (-0.15)	-0.207 (-1.00)
<i>BSIZE</i>	3.071** (2.33)	1.914** (2.18)	2.229** (2.17)	1.962** (2.22)
<i>AEMP</i>	0.000*** (2.73)	0.000 (0.10)	0.000 (0.12)	0.000 (1.00)
<i>EVOL</i>	-1.789 (-0.77)	-4.579** (-2.24)	6.477*** (2.96)	0.650 (0.37)
<i>AGE</i>	-0.001 (-0.14)	-0.001 (-0.16)	0.014* (1.92)	-0.006 (-1.10)
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm
Observations	2,053	2,072	2,053	2,066
Pseudo R ²	0.0673	0.0467	0.106	0.0341

To address the endogeneity concern, I conduct a first stage regression, following Krishnan & Visvanathan (2008):

$$\begin{aligned} \text{Pr(Expertise)} = & \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{PROA} + \beta_3 \text{DEBT} + \beta_4 \text{SGROW} + \beta_5 \text{BSIZE} + \beta_6 \text{AEMP} \\ & + \beta_7 \text{EVOL} + \beta_8 \text{AGE} \end{aligned} \quad (6)$$

where *SIZE* is the log of total assets; *PROA* is the prior three–year average return on assets; *DEBT* is the long–term debt divided by total assets; *SGROW* is the annual percentage change in sales; *BSIZE* is the log of total number of directors in the board; *AEMP* is a measure of capital intensity, computed as total assets divided by number of employees; *EVOL* is earnings volatility for the past five years; and *AGE* is the log of age of the firm from the establishment date. Other variables are the same as defined before.

Table 8. Propensity–Score–Matching (PSM) Analysis
Panel B. Matched Sample Analysis

VARIABLES EXP =	Excess Return (Equal-weighted)				Excess Return (Value-weighted)			
	(1) AC_EXP	(2) ACCEXP	(3) FINEXP	(4) SUPEXP	(5) AC_EXP	(6) ACC_EXP	(7) FIN_EXP	(8) SUP_EXP
Constant	0.530 (1.47)	0.187 (1.62)	-0.006 (-0.03)	-0.559*** (-8.03)	0.512 (1.40)	0.193* (1.71)	-0.019 (-0.10)	-0.532*** (-7.95)
$\Delta C_t/M_{t-1}$	0.584* (1.77)	0.408** (2.28)	0.383 (1.23)	0.459*** (2.77)	0.606* (1.82)	0.454** (2.55)	0.404 (1.32)	0.491*** (2.87)
EXP*($\Delta C_t/M_{t-1}$)	-0.020 (-0.09)	0.101 (0.58)	0.242 (1.19)	-0.302** (-2.16)	0.005 (0.02)	0.101 (0.57)	0.222 (1.04)	-0.292** (-2.04)
EXP	-0.018 (-0.48)	-0.017 (-0.81)	-0.046 (-1.45)	-0.027 (-1.16)	-0.032 (-0.84)	-0.021 (-0.98)	-0.045 (-1.39)	-0.036 (-1.52)
$\Delta E_t/M_{t-1}$	0.503*** (3.30)	0.581*** (5.00)	0.591*** (5.13)	0.536*** (6.09)	0.510*** (3.34)	0.582*** (5.01)	0.593*** (5.02)	0.535*** (5.98)
$\Delta NA_t/M_{t-1}$	0.059* (1.94)	0.035 (1.11)	0.040 (1.30)	0.048* (1.89)	0.059* (1.93)	0.034 (1.06)	0.040 (1.29)	0.049** (1.97)
$\Delta RD_t/M_{t-1}$	-0.142 (-0.24)	0.133 (0.26)	0.598 (0.79)	0.033 (0.08)	0.117 (0.18)	0.159 (0.32)	0.674 (0.85)	0.072 (0.18)
$\Delta I_t/M_{t-1}$	-1.545*** (-3.43)	-0.579 (-1.63)	-0.697* (-1.70)	-0.613** (-2.09)	-1.568*** (-3.44)	-0.599 (-1.63)	-0.656 (-1.56)	-0.593*** (-2.03)
$\Delta D_t/M_{t-1}$	-0.240 (-0.16)	0.135 (0.13)	1.113 (0.75)	0.844 (0.90)	-0.210 (-0.13)	0.332 (0.30)	1.223 (0.79)	0.859 (0.90)
C_{t-1}/M_{t-1}	0.054 (0.55)	0.087 (1.49)	0.302*** (3.39)	0.151*** (2.65)	0.025 (0.24)	0.058 (0.96)	0.307*** (3.18)	0.132** (2.11)
$L_{i,t}$	-0.438*** (-4.67)	-0.419*** (-9.01)	-0.448*** (-7.32)	-0.427*** (-10.10)	-0.455*** (-4.89)	-0.424*** (-8.97)	-0.467*** (-7.54)	-0.434*** (-10.08)
$NF_{i,t}/M_{t-1}$	0.004 (0.06)	-0.032 (-0.65)	0.001 (0.03)	-0.036 (-0.91)	-0.010 (-0.16)	-0.039 (-0.77)	0.003 (0.05)	-0.041 (-1.02)
$(C_{t-1}/M_{t-1}) * (\Delta C_t/M_{t-1})$	-0.590 (-1.58)	-0.390 (-1.57)	-0.617** (-2.05)	-0.566*** (-2.72)	-0.674 (-1.65)	-0.490* (-1.82)	-0.672** (-2.01)	-0.653*** (-2.80)
$L_{i,t} * (\Delta C_t/M_{t-1})$	0.279 (0.56)	0.043 (0.15)	0.086 (0.22)	0.370* (1.71)	0.282 (0.56)	0.040 (0.14)	0.196 (0.47)	0.409* (1.86)
Industry Fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	by Firm	by Firm	by Firm	by Firm	by Firm	by Firm	by Firm	by Firm
Observations	628	1,606	828	1,696	628	1,606	828	1,696
Adjusted R-squared	0.177	0.116	0.152	0.145	0.157	0.115	0.155	0.142

I conduct second stage regressions (equation (3) and (4)) with matched sample. To eliminate poor candidates for matching, I use a caliper distance equal to 0.05 of the standard deviation of the logit of the propensity score.

Appendix A. Variable Definitions

Variables	Definition
ΔX	Change in X from year $t-1$ to t
$r_{i,t}$	Stock return over year $t-1$ to t
$R_{i,t}^B$	Size and book-to-market matched portfolio return from year $t-1$ to t (Fama and French, 1993),
$R_{i,t}^{EWB}$	Equal-weighted benchmark portfolio return from year $t-1$ to t
$R_{i,t}^{VWB}$	Value-weighted benchmark portfolio return from year $t-1$ to t
$C_{i,t}$	Cash holdings of firm i at time t
$I_{i,t}$	Interest Expenses at time t
$D_{i,t}$	Total dividends at time t
$L_{i,t}$	market leverage at time $t = \text{Debt}_{i,t} / (\text{Debt}_{i,t} + M_{i,t})$
$NF_{i,t}$	the firm's net financing during the fiscal year $t = \text{Net New Equity Issues} + \text{Net New Debt Issues}$
$E_{i,t}$	Earnings before Extraordinary Items from year $t-1$ to t
$NA_{i,t}$	Net Assets at time t
$RD_{i,t}$	R&D Expenses, from year $t-1$ to t ,
$I_{i,t}$	Interest Expenses from year $t-1$ to t
$M_{i,t}$	Market Value of Equity at time t computed as Price times Shares
$AC_dummy_{i,t}$	Indicator variable equal to 1 if an audit committee has a financial expert then 1, 0 otherwise.
$AC_EXP_{i,t}$	Indicator variable equal to 1 if an audit committee has at least one financial expert then 1, 0 otherwise
$ACCEXP$	Indicator variable equal to one if a firm has at least one accounting expert
$FINEXP$	Indicator variable equal to one if a firm has at least one financial expert
$SUPEXP$	Indicator variable equal to one if a firm has at least one supervisory expert
AC_IND_RATIO	Ratio of independent directors in the audit committee
$\ln AC_ACTIVITY$	Log value of the number of the audit committee meetings
$Mandatory$	Indicator variable equal to one if a firm has total assets in excess of 2 trillion KRW (Korean won) at $t-1$

국문초록

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감사위원회는 기업지배구조에 있어 중요한 기구의 하나이다. 대한민국 정부는 기존의 감사제도가 지배주주로부터의 독립성 결여, 감사의 전문성 부족 등의 이유로 경영진의 회계산출과정을 효과적으로 감시·감독하지 못한다는 주장에 따라 감사위원회의 역할강화를 통해 기업의 회계투명성을 확보하고 기업지배구조를 개선하기 위해 노력하고 있다. 상법개정에 따라 2000년 이후 자산총액 2조원 이상인 주권상장법인에 대한 감사위원회 설립이 의무화되었으며, 2003년 이후 동 법인의 감사위원회에 최소 1명의 재무전문가를 선임할 것이 강제화 되었다. 몇몇 선행연구들이 한국의 감사위원회가 재무보고의 품질을 높인다는 연구결과를 제시하고 있지만, 감사위원회가 직접적으로 기업지배구조를 개선함으로써 기업가치를 증가시키는가에 대한 직접적인 연구는 없었다. 이에 이 연구는 한국의 주권상장법인을 대상으로 감사위원회 및 감사위원회의 재무전문성이 기업보유현금가치에 미치는 영향에 대하여 조사하였다. 그 결과 감사위원회의 존재유무는 기업보유현금가치에 영향을 미치지 않는 것으로 나타났으며, 오히려 감사위원회에 감독전문가가 있을 경우 기업보유현금가치에 부정적인 영향을 미치는 것으로 나타났다. 이러한 결과는 정부의 입법취지와는 달리 투자자들이

기업지배구조의 일환으로서 감사위원회의 감시 · 감독기능을 신뢰하지 않고 있으며, 정부기관이나 금융감독당국 출신의 감독전문가를 선임하는 경우에는 감사위원회의 전문성이 훼손되어 결국 기업지배구조에 부정적인 영향을 미친다고 평가하는 것으로 해석된다.

주요어: 감사위원회, 기업보유현금가치, 기업지배구조

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