

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

International Review of Economics and Finance

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

The relationship between cash value and accounting conservatism: The role of controlling shareholders

Cho-Min Lin, Min-Lee Chan^{*}, I-Hsin Chien, Kuan-Hua Li

Department of Finance, Providence University, Taiwan

ARTICLE INFO

JEL classification:

G30
G34
M41

Keywords:

Accounting conservatism
Value of cash holdings
Controlling shareholders

ABSTRACT

This paper analyzes the roles of controlling shareholders as either minority shareholder entrenchers or monitors in the relationship between conservative accounting practices and cash holding value. This issue is especially meaningful in countries such as Taiwan that have large numbers of firms with concentrated shareholdings. Consistent with the findings of Louis et al. (2012), our results indicate that accounting conservatism enhanced the value of cash holdings. In addition, our findings support both hypotheses H2a and H2b depending on the proportion of control-affiliated directors, agency problems, and financial crises. In general, the incentive effect of controlling shareholders, H2b, is supported at a relatively low proportion of control-affiliated directors, whereas the entrenchment effect of controlling shareholders, H2a, is confirmed at a relatively high proportion of control-affiliated directors. Moreover, the entrenchment effect is aggravated when a firm suffers a serious agency problem during a period of financial crisis. This study contributes to the current literature on the influence of accounting conservatism on cash value in the presence or absence of controlling shareholders.

1. Introduction

This study attempts to clarify the role of controlling shareholders either as an entrenchment of minority shareholders or as a monitor of the relationship between accounting conservatism and the value of a firm's cash holdings. For reasons related to either higher levels of cash flow volatility or high external financing costs, a growing number of firms are adopting a precautionary approach to cash holdings management (Bernstein, 1994). According to Bates, Kahle, and Stulz (2009), US firms that hold large amounts of cash are increasingly unlikely to invest in projects or distribute them to shareholders, but the greater potential for abuses on the part of CEOs raises questions about the practice of enhancing cash value by holding large amounts of cash.

Louis et al. (2012) propose accounting conservatism as a separate and potentially influential factor resulting in increased cash value. According to conservative accounting principles, firms tend to recognize their losses in a timely manner while deferring gains until revenues are verified. This practice, which is known as *asymmetric timing*, has a conservative effect on earnings. Accounting conservatism in the form of timely loss/delayed gain recognition is one method of mitigating agency problems (Watts, 2003). The practice has the potential effect of preventing managers from hiding losses and evading responsibility by manipulating financial data. As a result, conservative accounting practices are viewed as both helping resolve agency problems and increasing firm value by decreasing the potential for lower cash value tied to overinvestment decisions (Louis et al., 2012). In this paper, we will argue that firms that adopt

^{*} Corresponding author. Department of Finance, Providence University, 200, Sec. 7, Taiwan Boulevard, Shalu Dist., Taichung City 43301, Taiwan.
E-mail address: chanml@pu.edu.tw (M.-L. Chan).

<http://dx.doi.org/10.1016/j.iref.2017.07.017>

Available online xxxx
1059-0560/© 2017 Elsevier Inc. All rights reserved.

accounting conservatism are less likely to participate in overinvestment activity because the timely recognition of losses limits the amount of discretionary cash available to managers. Moreover, when conservative accounting practices are employed, shareholders and board of directors are more likely both to detect inappropriate investment projects (e.g., overinvestment or negative net present value (NPV) projects) and to lobby for better management decisions (Louis et al., 2012; Watts, 2003).

In this paper, we will look at controlling shareholders' specific influences on cash value. Holderness (2009) indicates that in US markets, controlling shareholding is now a common phenomenon (Bebchuk & Weisbach, 2010); deviations between voting rights and cash flow rights are generated by dual-class shares held by controlling shareholders. In Taiwanese markets, pyramid and cross-shareholding patterns are more common, with concentrated shareholding frequently resulting in blockholders who are positioned to expropriate minority shareholder interests. As a result, corporate governance problems tied to cash value can emerge in firms either with or without controlling shareholders (Bebchuk & Hamdani, 2009; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999). Controlling shareholders play influential roles in investment and cash policy decisions that further affect cash holdings value. When control rights exceed cash flow rights, controlling shareholders are more likely to play entrenched roles that expropriate minority shareholder interests (Claessens, Djankov, Fan, & Lang, 2002; Masulis, Wang, & Xie, 2009). However, large cash flow rights provide controlling shareholders with incentives to closely monitor managerial behaviors (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Alternatively, Yeh and Woidtke (2005) investigate whether controlling shareholders have either an entrenchment effect or an incentive effect in terms of the extent to which the controlling shareholder is associated with the board of directors. Accordingly, controlling shareholders concurrently hold either incentive or entrenchment/expropriation roles that influence the value of cash holdings.

Most studies indicate that the higher the concentration of ownership, the lower the degree of accounting conservatism (Fan & Wong, 2005; Song, 2015). These studies imply that controlling shareholders tend to entrench minority shareholders' interests. In this case, the entrenchment effect of controlling shareholders will reduce the positive effect of conservatism on cash value. However, there might be an incentive effect when the interests of controlling shareholders are consistent with the interests of minority shareholders. It is reasonable to infer that cash value (to which controlling shareholders have a greater cash flow right) increases with an increase in controlling shareholder monitoring activity. If this is true, the incentive effect of controlling shareholders can enhance the positive effect of conservatism on cash value. In this study, we investigate the positive effect of accounting conservatism on cash value using the measure of control-affiliated directors, which is absent from related previous studies. Our research is the first to make this observation and contributes to filling a gap in the related literature.

According to Louis et al. (2012), accounting conservatism in the form of timely loss/delayed gain recognition should increase cash value. We will use Louis et al.'s work as a starting point to explore links among controlling shareholders, accounting conservatism, and cash value. We intend to determine whether positive links between accounting conservatism and cash value depend on the presence or absence of controlling shareholders. Because most Taiwanese firms have ownership structures that include controlling shareholders (three reasons shown in Appendix 2 for choosing Taiwanese-listed firms), we will use Taiwanese firms to test the above assertion. We believe that our findings will help explain the role of controlling shareholders in corporate investment and cash policy decisions. To our knowledge, there have been no other efforts to document relationships among accounting conservatism, cash value, and controlling shareholders.

Our results suggest that consistent with Louis et al. (2012), accounting conservatism can enhance cash value. Controlling shareholders' effect on the relationship between conservative accounting practices and cash values depends upon the proportion of control-affiliated directors, the agency problem, and the existence of a financial crisis. In general, with respect to the positive effect of conservatism on cash value, the incentive (entrenchment) effect of controlling shareholders dominates for firms with a relatively low (high) ratio of control-affiliated directors, whereas the entrenchment effect becomes more obvious when firms have a serious agency problem or suffer from a financial crisis.

The rest of this paper is organized as follows: a literature review and hypotheses are presented in section 2; empirical models and additional tests are given in section 3; empirical results are provided in section 4, and conclusions are offered in section 5.

2. Literature review and hypotheses

2.1. The relationship between accounting conservatism and cash holdings value

Accounting conservatism in the form of timely loss but delayed gain recognition is driven by multiple factors such as contract covenants, lawsuits, and tax requirements, with the first factor attracting the most research attention (Ahmed, Billings, Morton, & Harris, 2002; Watts, 2003). Accounting conservatism is one method of mitigating agency problems via debt, compensation, or other types of contracts (Watts, 2003). Creditors—who seek stability in corporate operations and income—view conservative accounting practices as helping them manage their debt rights. The consensus among scholars is that conservative accounting practices mitigate the agency problems associated with the conflicting interests of creditors and both shareholders and managers (Ahmed et al., 2002; Ball, Robin, & Sadka, 2008; Bushman & Piotroski, 2006; Givoly & Hayn, 2000; LaFond & Watts, 2008; Watts, 2003).

García, Manuel, Osmá, and Fernando (2009) assert that as a governance mechanism, accounting conservatism mitigates agency problems attributable to the asymmetric temporal recognition of gains and losses. Although some assert that conservative accounting procedures represent a substitute for corporate governance, others think that the managers of well-governed firms naturally prefer conservative accounting principles (Chi, Liu, & Wang, 2009). We will argue that firms adopting accounting conservatism are less likely to overinvest because timely loss recognition limits the amount of discretionary cash available to managers, and the added efficiency

creates greater cash value.¹ In their study of US-listed firms between 1976 and 2006, Louis et al. (2012) found a positive relationship between cash value and accounting conservatism.

Based on the above discussion, we hypothesize that at a minimum, the influence of conservative accounting on cash values will be non-decreasing. Therefore, our first hypothesis is established as follows:

H1. In the absence of controlling shareholders, cash value is enhanced by a higher degree of accounting conservatism.

2.2. The effect of controlling shareholders on the relationship between conservative accounting and cash values

In light of the ownership structures of most Taiwanese companies with controlling shareholders, our goal is to use a sample of Taiwanese firms to extend Louis et al.'s (2012) research on the positive relationship between cash value and accounting conservatism to determine the effect (if any) of controlling shareholders. Controlling shareholders—who can influence major corporate policies involving financing, investments, and mergers—are considered both boons and banes in corporate operations. Because controlling shareholders' large cash flow rights (which motivate them to monitor managerial behaviors) prompt them to pay close attention to firm performance, several researchers have examined them from an *incentives (or interests) hypothesis* perspective (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). However, when controlling shareholders care about only their own interests, they occasionally take action at the expense of minority shareholder interests—thus providing an example of the *entrenchment hypothesis* (Morck, Shleifer, & Vishny, 1988; Shleifer & Vishny, 1997; La Porta et al., 1999; Claessens et al., 2002; Masulis et al., 2009).

Most studies indicate that the higher the concentration of ownership, the lower the degree of accounting conservatism (Fan & Wong, 2002; Song, 2015). All these studies argue that firms with concentrated ownership prefer to resolve information asymmetry through private information instead of public financial information. Accordingly, they reduce the demand for accounting conservatism and thus decrease the positive effect of accounting conservatism on cash value. These studies imply that controlling shareholders tend to play an expropriation role, seizing the interests of minority shareholders. Because the largest shareholders usually act solely in their own self-interest, the entrenchment effect is likely to intensify as the degree of deviation between cash flow rights and control rights increases (Claessens et al., 2002). Masulis et al. (2009) show that larger deviations between cash flow rights and control rights reduce the value of a firm's cash holdings. This harms firm value. In addition, we argue that controlling shareholders fail to provide managers with incentives to adopt conservative accounting practices as a governance mechanism, thereby decreasing cash value even further. Accordingly, the next hypothesis, which we refer to as the *entrenched hypothesis of controlling shareholders*, is expressed as follows:

H2a. The entrenchment effects of controlling shareholders decrease the positive influences of conservative accounting practices on cash value.

In contrast, when controlling shareholders achieve higher cash flow rights relative to control rights, their monitoring incentives are strengthened. Accordingly, assuming such an incentive hypothesis, we believe it reasonable to infer that cash value increases as controlling shareholder monitoring activity increases. The third hypothesis is referred to as an *incentive hypothesis of controlling shareholders*²:

H2b. The monitoring effect of controlling shareholders intensifies the positive relationship between cash value and accounting conservatism, at least to a non-decreasing degree.

In this paper, we first adopt the shareholdings of controlling shareholders as a proxy for controlling shareholders. Alternatively, Yeh and Woidtke (2005) identify whether controlling shareholders create either an entrenchment effect or an incentive effect in terms of the extent to which the controlling shareholder is associated with the board of directors (referred to as control-affiliated directors). They claim that the control-affiliated directors are a reasonable proxy for the quality of corporate governance in the context of controlling shareholders. They assert that a lower proportion of control-affiliated directors represents better corporate governance. Combined with Chi et al.'s (2009) finding that well-governed firms engage in a higher level of accounting conservatism, we therefore claim that firms with fewer control-affiliated directors could enhance the positive relationship between accounting conservatism and cash value. Therefore, we employ control-affiliated directors as another variable to reexamine H2, that is, whether there is an incentive effect or an entrenchment effect in the relationship between accounting conservatism and cash value.³

3. Empirical models and additional tests

3.1. Empirical models

Our sample consists of all firms listed on the Taiwan Stock Exchange between 2006 and 2014 as identified in the *Taiwan Economic*

¹ According to Biddle, Hilary, and Verdi (2009), good financial report quality increases the potential for efficient investments by decreasing the potential for over- or under-investing. Although under-investment can result from accounting conservatism, evidence indicates that lower cash holdings generally decreases in firms that over-invest because managers tend to waste cash in the pursuit of individual interests (Dittmar & Mahrt-Smith, 2007; Faulkender & Wang, 2006; Louis et al., 2012).

² We also tried different entrenched variable proxies for controlling shareholders based on the work of Claessens et al., 2002 and Masulis et al. (2009), who analyzed the extent of deviation between the cash flow rights and control rights of the largest (or controlling) shareholders. Furthermore, we used the incentive variable proxy adopted by Zerni, Kallunki, and Nilsson (2010), which is based on the cash flow rights of the largest (i.e., controlling) shareholders. None of these methods returned significant results.

³ Using Taiwanese firms, Kuan, Li, and Liu (2012) also adopted the control-affiliated directors as a proxy of corporate governance. However, they investigate the relationship between corporate governance and cash holdings instead of cash value.

Journal (TEJ), excluding utilities and financial firms. We also drop observations with missing values on variables used in this study. The model shown as Equation (1) is based on the work of Faulkender and Wang (2006). To examine H1, we estimate this equation without the $\beta_{14}\Delta C_{i,t} \times AC_{i,t} \times CS_{i,t}$ interaction term. A significantly positive β_{13} indicates support for H1 (Louis et al., 2012). To examine H2, we estimate Equation (1) with the $\beta_{14}\Delta C_{i,t} \times AC_{i,t} \times CS_{i,t}$ interaction term. H2a is considered supported when β_{14} is significantly negative. H2b is supported when β_{14} is significantly positive. Equation (1) is expressed as follows:

$$\begin{aligned} r_{i,t} - M_{i,t} = & \beta_0 + \beta_1 \Delta C_{i,t} + \beta_2 AC_{i,t} + \beta_3 \Delta E_{i,t} + \beta_4 \Delta NCA_{i,t} + \beta_5 \Delta RD_{i,t} + \beta_6 \Delta I_{i,t} \\ & + \beta_7 \Delta D_{i,t} + \beta_8 NF_{i,t} + \beta_{19} C_{i,t-1} + \beta_{1110} LEV_{i,t} + \beta_{11} \Delta C_{i,t} \times C_{i,t-1} \\ & + \beta_{12} \Delta C_{i,t} \times LEV_{i,t} + \beta_{13} \Delta C_{i,t} \times AC_{i,t} + \beta_{14} \Delta C_{i,t} \times AC_{i,t} \times CS_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where $\varepsilon_{i,t}$ is the error term of firm i in year t , and ΔC represents a change in cash holdings from $t-1$ to t . The Δ symbol indicates change in a variable. Variable definitions are based on Faulkender and Wang (2006) and are listed in Appendix 1. To eliminate the effect of firm scale, all variables were divided by equity market value at the beginning of each year.⁴ Based on the work of Khan and Watts (2009), accounting conservatism (AC) was calculated in terms of a C-score as follows:

Step 1: Basu Model (1997).

$$EARN_{i,t} = a_1 + a_2 NEG_{DUM_{i,t}} + a_3 RET_{i,t} + a_4 NEG_DUM_{i,t} \times RET_{i,t} + \varepsilon_{i,t}, \quad (2)$$

where EARN denotes accounting earnings divided by equity market value at the beginning of each year, RET denotes the rate of stock return, and NEG_DUM is a dummy variable with a value of 1 if RET is negative, otherwise 0. The a_4 coefficient was added to monitor the sensitivity of earnings to bad news.

Step 2: Because the Basu Model is capable of obtaining only the average sensitivity of earnings to good (bad) news, we revised it to obtain sensitivities across firms and years, as shown in equations (3) and (4):

$$a_{3i,t} = \delta_{1i,t} + \delta_{2i,t} SIZE_{i,t} + \delta_{3i,t} MB_{i,t} + \delta_{4i,t} LEV_{i,t} \quad (3)$$

$$a_{4i,t} = \gamma_{1i,t} + \gamma_{2i,t} SIZE_{i,t} + \gamma_{3i,t} MB_{i,t} + \gamma_{4i,t} LEV_{i,t}, \quad (4)$$

where MB denotes market value to equity book value, SIZE market value, and LEV debt ratio.

$$\begin{aligned} EARN_{i,t} = & a_1 + a_2 NEG_{DUM_{i,t}} + (\delta_{1i,t} + \delta_{2i,t} SIZE_{i,t} + \delta_{3i,t} MB_{i,t} + \delta_{4i,t} LEV_{i,t}) \\ & \times RET_{i,t} + (\gamma_{1i,t} + \gamma_{2i,t} SIZE_{i,t} + \gamma_{3i,t} MB_{i,t} + \gamma_{4i,t} LEV_{i,t}) \times NEG_DUM_{i,t} \\ & \times RET_{i,t} + \alpha_{1i,t} SIZE_{i,t} + \alpha_{2i,t} MB_{i,t} + \alpha_{3i,t} LEV_{i,t} \varepsilon_{i,t} + \alpha_{4i,t} SIZE_{i,t} \\ & \times NEG_{DUM_{i,t}} + \alpha_{5i,t} MB_{i,t} \times NEG_{DUM_{i,t}} + \alpha_{6i,t} LEV_{i,t} \times NEG_{DUM_{i,t}} + \theta_{i,t} \end{aligned} \quad (5)$$

Step 3: Equations (3) and (4) were substituted into Equation (2) to obtain Equation (5). The $\delta_{1i,t} \sim \delta_{4i,t}$ and $\gamma_{1i,t} \sim \gamma_{4i,t}$ estimated coefficients were reapplied to equations (3) and (4) to obtain $a_{3i,t}$ (the G-score) of firm i at year t (the degree of earnings sensitivity to good news), and $a_{4i,t}$ (the C-score) of firm i at year t (the degree of earnings sensitivity to bad news).⁵

Considering either correlations across years for specific firms or correlations across multiple firms for specific years, we used a regression analysis with two-way cluster-robust standard errors to analyze the effects of controlling shareholders on cash value (Gow, Ormazabal, & Taylor, 2010; Petersen, 2009). We also winsorized major variables at the 1% and 99% levels to avoid the impacts of extreme values.

3.2. Additional tests

We conduct additional tests for endogeneity, agency problems in terms of free cash flow and firm growth, and financial crisis.

3.2.1. Endogeneity

The potential concern with our findings is the endogeneity of accounting conservatism.⁶ Specifically, firms with controlling shareholders tend to relate to accounting conservatism. Therefore, the degree of accounting conservatism depends on the presence of controlling shareholders. To address this concern, we use the following two approaches to solving endogeneity. First, an instrumental variable (IV) estimation with 2SLS (Two-Stage least squares) estimator is adopted where we use industry-year average accounting conservatism (two-digit Tej-SIC codes) as an IV. We regress accounting conservatism (AC) on the industry-year average accounting

⁴ Following Louis et al. (2012), leverage is defined as the total debt divided by the sum of total debt and the beginning market value of equity.

⁵ a_3 and a_4 denote the average sensitivities of corporate earnings to good and bad news, respectively. Ball and Shivakumar (2005) divide accounting conservatism into conditional and unconditional categories. This study uses accounting conservatism measures associated with market information—that is, conditional conservatism.

⁶ We thank an anonymous referee for noting this concern.

Table 1
Descriptive statistics.

Variable	Mean	Standard Deviation	MIN	Q1	Median	Q3	MAX
Y	-0.0085	0.3458	-0.8203	-0.2307	-0.0321	0.1834	1.0717
CS1	0.8705	0.3356	0.0000	1.0000	1.0000	1.0000	1.0000
CS2	0.6550	0.4753	0.0000	0.0000	1.0000	1.0000	1.0000
ΔC	0.0191	0.1158	-0.3695	-0.0246	0.0082	0.0574	0.5182
AC	-0.0306	0.3320	-1.5948	-0.0019	0.0004	0.0023	1.4752
CR	0.3450	0.6033	-1.6096	0.0481	0.1814	0.5261	3.4346
ΔE	-0.0594	2.2755	-12.5866	-0.1273	-0.0006	0.1148	10.4124
ΔNCA	0.2678	34.2666	-172.4798	-1.1385	0.0025	0.9573	192.6283
ΔRD	-0.0059	0.4184	-2.3026	-0.0122	0.0000	0.0130	2.1754
ΔI	-0.0210	0.1032	-0.7367	-0.0096	0.0003	0.0079	0.0866
ΔD	0.0201	0.7704	-3.5193	-0.0279	0.0000	0.0325	4.3985
NF	0.0190	0.2010	-0.7653	-0.0358	0.0017	0.0774	0.8065
CASH	0.2326	0.2175	0.0073	0.0883	0.1688	0.3013	1.2570
LEV	0.9971	0.0036	0.9782	0.9968	0.9984	0.9992	0.9999
CAD	66.1317	21.1512	0.0000	14.2900	66.6700	80.0000	100.0000

Note 1: MIN, minimum value; Q1, first quartile value (25%); Q3, third quartile value (75%); MAX, maximum value; Y, abnormal return (individual firm return minus market return, or $r-M$); CS1, sum of direct and indirect shareholdings from ultimate controlling shareholders >10%; CS2, sum of direct and indirect shareholdings from ultimate controlling shareholders >20%; ΔC , change in cash holdings from $t-1$ to t ; AC, accounting conservatism; ΔE , change in corporate earnings from $t-1$ to t ; ΔNCA , change in net assets from $t-1$ to t ; ΔRD , change in R&D from $t-1$ to t ; ΔI , change in interest expenses from $t-1$ to t ; ΔD , change in stock dividends from $t-1$ to t ; NF, new financing; CASH, total cash; LEV, total debt; and CAD, the ratio of directors affiliated with the controlling shareholders. Detailed definitions are given in [Appendix 1](#). All variables, except for AC, LEV, CAD, and dummy variables, are scaled by beginning market value of equity. Specifically, the leverage (LEV) is scaled by the sum of total debt and beginning market value of equity.

Note 2: The decision to use 10% and 20% critical values to define controlling shareholders is based on the work of [Cubbin and Leech \(1983\)](#), and [Leech \(1987\)](#).

conservatism and obtain the predicted accounting conservatism value. The interaction term of this predicted value and controlling shareholders (or control-affiliated directors) is then included in our regression model. Second, we consider the possible endogeneity of accounting conservatism by employing the Heckman self-selection model. We define a dummy variable as equal to 1 if accounting conservatism exceeds its median in year t and 0 otherwise. The interaction of this dummy variable and controlling shareholders (or control-affiliated directors) is included in our regression model. The results of Heckman self-selection are omitted from the main text because of space limitations.⁷

3.2.2. Agency problem

According to previous studies, conservative accounting practices have a positive influence on firm cash value, likely because of the reduced potential for agency problems. It is reasonable to infer that the positive effects of conservative accounting practices on cash value are important for firms suffering from the agency problems associated with free cash flow and low growth ([Jensen, 1986](#)). Therefore, we divided our sample into two groups: firms with serious agency problems (high free cash flow and low growth) and firms with extremely serious agency problems (extremely high free cash flow and low growth).⁸

3.2.3. Financial crisis

[Bae, Baek, Kang, and Liu \(2012\)](#) confirm the influences of controlling shareholders on firm value. Other researchers assert that controlling shareholders tend to expropriate the interests of minority shareholders whenever investment returns are expected to decrease during periods of economic crisis, especially during times of high systematic risk ([Baek, Kang, & Park, 2004](#)). Furthermore, during times of economic crisis, the controlling shareholders of poorly governed firms tend to move toward more entrenched positions that can harm firm value—a situation that [Bae et al. \(2012\)](#) used to propose an *expropriation hypothesis of controlling shareholders*. Thus, we incorporate the financial crisis period (covering the 2007–2008 financial crises and the 2011 European debt crisis) to reexamine the incentive and entrenchment effects of controlling shareholders on the positive effect of accounting conservatism on cash value.

4. Empirical results

4.1. Descriptive statistics

Descriptive statistics are presented in [Table 1](#). As shown, the accounting conservatism (AC) median value exceeded its mean value. This left-skewed distribution implies that many firms have a potentially high degree of accounting conservatism. Cash holdings (CASH) showed a right distribution (i.e., mean value exceeding median value), indicating extremely large cash holdings among a few sample firms.

⁷ Detailed results are available from the author upon request.

⁸ Free cash flow is defined as operating cash flow minus capital expenditures. Market to book ratio is defined as market value relative to equity book value. (Extremely) high free cash flow indicates the top (10%) 50% free cash flow among all groups; (extremely) low growth indicates the lowest (10%) 50% of market value to equity book value.

4.2. Bivariate analysis

Table 2 presents results from a bivariate analysis comparing conservative accounting practices across firms with and without controlling shareholders. Bivariate tests were also applied to three groups separated by degree of accounting conservatism: high (AC_D90), medium (AC_D50), and low (AC_D10). According to the results shown in Table 2, accounting conservatism was generally higher at firms with controlling shareholders—for example, the data shown in Panel B indicate average AC_D50 accounting conservatism values of 0.5159 and 0.4697 for controlling shareholding (>20%) and non-controlling shareholding firms, respectively. This suggests that firms with controlling shareholders are more likely to adopt conservative accounting principles. Bivariate test results for the other two groups (AC and AC_D90) were also significant.

4.3. Regression analysis

To examine hypothesis (H1), we initially regress $r_{i,t} - M_{i,t}$ on $\Delta C_{i,t}$, $AC_{i,t}$, and $\Delta C_{i,t} \times AC_{i,t}$ based on only the basic regression model (Equation (1)) with neither control variables nor controlling shareholders. Next, we add both control variables and controlling shareholders to the basic model to examine the relationship between accounting conservatism and cash value for H1 and the role of controlling shareholders in that relationship for H2a and H2b.

As shown in Table 3, a significantly positive result ($\widehat{\beta}_{13}=0.3618$ at 1% significance level) was observed for the interaction term $\Delta C \times AC$, suggesting higher cash values among firms that adhered to more conservative accounting principles. Next, control variables were added to the basic model to reexamine the effect of both controlling shareholders and accounting conservatism on corporate cash values. As shown in Model 4 of Table 3, the significantly positive coefficient of $\Delta C \times AC$ ($\widehat{\beta}_{13}=0.3306$) indicates that conservative accounting practices exerted a positive impact on cash value after the control variables were added. Overall, coefficients of $\Delta C \times AC$ in Table 3, even considering controlling shareholders (Models 5 and 6), and all coefficients of $\Delta C \times AC$, except for those in Model 5, are consistently significantly positive. Combined, these findings support H1 and are consistent with those reported by Louis et al. (2012).

To examine H2, we first analyze the effect of controlling shareholders on the relationship between accounting conservatism and cash values without considering control variables. Models 2 and 3 in Table 3 were used to determine the effects of controlling shareholders on the relationship between accounting conservatism and cash values. The CS1 dummy variable in Model 5, Table 2 had a value of 1 if the sum of direct and indirect shareholdings exceeded 10% and 0 otherwise. The CS2 dummy variable in Model 6 had a value of 1 if the sum of direct and indirect shareholdings exceeded 20% and 0 otherwise. The $\Delta C \times AC \times CS1$ interaction term in Model 2 was significantly positive ($\widehat{\beta}_{14}=0.5184$), indicating that the presence of controlling shareholders enhanced the positive effects of accounting conservatism on cash value. The use of a different set of controlling shareholders (CS2) in Model 3 produced a similar significant finding with a $\Delta C \times AC \times CS2$ interaction term of $\widehat{\beta}_{14} = 0.2822$. Second, we discuss the role of controlling shareholders (CS_{i,t}) incorporated with control variables in Models 5 and 6. The results are also shown to be consistently positive at the 1% significance level. In sum, Table 3 suggests that the presence of controlling shareholders enhanced the positive impact of conservative accounting practices on cash value

Table 2
Bivariate analysis results.

Panel A				
Variable	CS1 = 0	CS1 = 1	P-value	
AC	-0.0344	-0.0300	0.756	T-test
	-0.0002	0.0005	0.000***	Wilcoxon
AC_D90	0.0894	0.1015	0.351	T-test
	0.0000	0.0000	0.351	Wilcoxon
AC_D50	0.3869	0.5167	0.000***	T-test
	0.0000	1.0000	0.000***	Wilcoxon
AC_D10	0.1008	0.1000	0.954	T-test
	0.1008	0.1000	0.954	Wilcoxon
Panel B				
Variable	CS2 = 0	CS2 = 1	P-value	
AC	-0.0181	-0.0371	0.059*	T-test
	0.0002	0.0005	0.012**	Wilcoxon
AC_D90	0.0878	0.1063	0.043**	T-test
	0.0000	0.0000	0.043**	Wilcoxon
AC_D50	0.4697	0.5159	0.002***	T-test
	0.0000	1.0000	0.002***	Wilcoxon
AC_D10	0.0921	0.1044	0.180	T-test
	0.0921	0.1044	0.180	Wilcoxon

Note 1: T-tests involve the mean value, Wilcoxon tests the median value. AC, accounting conservatism. AC_D90 is a dummy variable with a value of 1 if AC > 0.0041 (highest tenth centesimal), 0 otherwise. AC_D10 is a dummy variable with a value of 1 if AC < -0.0071 (lowest tenth centesimal), 0 otherwise. AC_D50 is a dummy variable with a value of 1 if AC > 0.0004 (AC median), 0 otherwise. CS1 and CS2 are dummy variables when the sum of direct and indirect shareholdings exceeds 10% (CS1 = 1) or 20% (CS2 = 1), respectively, otherwise CS1 = 0, CS2 = 0.

Significance levels: ***, 1%; **, 5%; *, 10%.

Table 3
Regression analysis results.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
INTERCEPT	-0.0168 (0.627)	-0.0170 (0.622)	-0.0169 (0.625)	-5.8157 (0.037)**	-5.8416 (0.037)**	-5.8348 (0.037)**
ΔC	0.5215 (0.000)***	0.5225 (0.000)***	0.5266 (0.000)***	1.4411 (0.949)	1.4783 (0.947)	2.7930 (0.902)
AC	0.0525 (0.000)***	0.0536 (0.000)***	0.0543 (0.000)***	0.0819 (0.000)***	0.0823 (0.000)***	0.0832 (0.000)***
ΔE				-0.0024 (0.425)	-0.0025 (0.408)	-0.0025 (0.419)
ΔNCA				0.0001 (0.606)	0.0001 (0.631)	0.0001 (0.622)
ΔRD				-0.0083 (0.478)	-0.0073 (0.540)	-0.0076 (0.521)
ΔI				-0.1554 (0.001)***	-0.1556 (0.001)***	-0.1562 (0.001)***
ΔD				0.0095 (0.351)	0.0092 (0.364)	0.0094 (0.356)
NF				-0.1241 (0.000)***	-0.1247 (0.000)***	-0.1225 (0.000)***
CASH				0.2723 (0.014)**	0.2700 (0.014)**	0.2721 (0.014)**
LEV				5.7412 (0.041)**	5.7676 (0.041)**	5.7604 (0.041)**
$\Delta C \times CASH$				-0.4695 (0.022)**	-0.4749 (0.020)**	-0.4563 (0.029)**
$\Delta C \times LEV$				-0.6251 (0.978)	-0.6591 (0.976)	-1.9805 (0.931)
$\Delta C \times AC$	0.3618 (0.000)*** -0.1958 [0.389]	-0.0827 (0.000)*** -0.4621 [0.225]	0.1987 (0.000)*** -0.1086 [0.704]	0.3306 (0.000)*** 0.0054 [0.980]	0.0431 (0.403)	0.1874 (0.000)***
$\Delta C \times AC \times CS1$		0.5184 (0.000)*** 0.2775 [0.088]*			0.3457 (0.000)*** -0.2604 [0.292]	
$\Delta C \times AC \times CS2$			0.2822 (0.000)*** -0.1096 [0.143]			0.2820 (0.000)*** -0.2242 [0.359]
N	4743	4743	4743	4743	3874	3874

Note: INTERCEPT, model intercept; dependent variable is abnormal return (individual firm return minus market return) (r-M). All definitions of the variables used in this table are same as those in Table 1. $\Delta C \times CASH$, interaction between incremental cash holdings and cash holdings; $\Delta C \times LEV$, interaction between incremental cash holdings and leverage; $\Delta C \times AC$, interaction between incremental cash holdings and accounting conservatism; $\Delta C \times AC \times CS1$, interaction among incremental cash holdings, accounting conservatism, and controlling shareholders >10%; and $\Delta C \times AC \times CS2$, interaction among incremental cash holdings, accounting conservatism, and controlling shareholders >20%. The decision to use 10% and 20% critical values to define controlling shareholders is based on the work of Cubbin and Leech (1983), and Leech (1987). Numbers in [] denote the p-values of $\Delta C \times AC \times CAD$ after adjusting for endogeneity. Significance levels: ***, 1%; **, 5%; *, 10%.

in our sample firms. Although all $\widehat{\beta}_{14}$ reveal a significant and positive effect, most of the significance, except for Model 2, will disappear after the endogeneity of accounting conservatism being considered. We cannot support H2 using CS1 and CS2 for controlling shareholders.

Given the inconclusive results of H2 obtained using CS1 and CS2, we next employ control-affiliated directors (CAD) as another proxy for controlling shareholders adopted by Yeh and Woidtke (2005) to reexamine H2, whether an incentive effect or an entrenchment exists in the relationship between accounting conservatism and cash value. In Table 4, six models represent different proportions of directors affiliated with the controlling shareholders from 5% (Model 1) to 80% (Model 6). To examine H2, the positive (negative) coefficient $\Delta C \times AC \times CAD$ represents the incentive (entrenchment) effect, implying that controlling shareholders increased (decreased) the positive impact of conservative accounting practices on cash value.

Results shown in Table 4 differ depending upon consideration of the endogeneity problem of accounting conservatism. For example, the coefficients $\Delta C \times AC \times CAD$ show significantly negative effects at low proportions of directors affiliated with the controlling shareholders ($\widehat{\beta}_{14} = -2.2945$ in Model 1, $\widehat{\beta}_{14} = -1.0316$ in Model 2), whereas they have significantly positive effects after adjusting for the problem of endogeneity ($\widehat{\beta}_{14} = 4.4166$ in Model 1, $\widehat{\beta}_{14} = 0.9725$ in Model 2). In addition, for firms with high proportions of directors affiliated with the controlling shareholders, the coefficients $\Delta C \times AC \times CAD$ are significantly negative after adjusting for the problem of endogeneity ($\widehat{\beta}_{14} = -0.1253$ in Model 6). The above evidence suggests that firms with high (low) proportions of directors affiliated with controlling shareholders show an entrenchment (incentive) effect in terms of a decreasing (increasing) positive effect of accounting

Table 4
Regression analysis results using control-affiliated directors (CAD).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	director5	director20	director2040	director4060	director6080	director80
INTERCEPT	−5.7479 (0.037)**	−5.7171 (0.037)**	−5.7503 (0.039)**	−5.8133 (0.037)**	−5.8075 (0.038)**	−5.8163 (0.037)**
ΔC	0.7232 (0.973)	4.0717 (0.863)	1.9176 (0.934)	1.2727 (0.955)	1.2632 (0.955)	1.4566 (0.948)
AC	0.0735 (0.000)***	0.0780 (0.000)***	0.0796 (0.000)***	0.0820 (0.000)***	0.0818 (0.000)***	0.0819 (0.000)***
ΔE	−0.0024 (0.431)	−0.0023 (0.449)	−0.0024 (0.431)	−0.0024 (0.431)	−0.0024 (0.428)	−0.0024 (0.425)
ΔNCA	0.0001 (0.585)	0.0001 (0.528)	0.0001 (0.574)	0.0001 (0.603)	0.0001 (0.603)	0.0001 (0.607)
ΔRD	−0.0091 (0.442)	−0.0098 (0.406)	−0.0090 (0.447)	−0.0082 (0.485)	−0.0083 (0.482)	−0.0084 (0.478)
ΔI	−0.1603 (0.000)***	−0.1559 (0.001)***	−0.1544 (0.001)***	−0.1554 (0.001)***	−0.1555 (0.001)***	−0.1554 (0.001)***
ΔD	0.0088 (0.381)	0.0092 (0.367)	0.0092 (0.363)	0.0095 (0.348)	0.0095 (0.350)	0.0094 (0.350)
NF	−0.1214 (0.000)***	−0.1234 (0.000)***	−0.1244 (0.000)***	−0.1243 (0.000)***	−0.1242 (0.000)***	−0.1241 (0.000)***
CASH	0.2708 (0.013)**	0.2713 (0.013)**	0.2720 (0.014)**	0.2720 (0.014)**	0.2723 (0.014)**	0.2723 (0.014)**
LEV	5.6731 (0.041)**	5.6426 (0.041)**	5.6757 (0.043)**	5.7389 (0.041)**	5.7331 (0.042)**	5.7419 (0.041)**
$\Delta C \times CASH$	−0.4637 (0.024)**	−0.4391 (0.041)**	−0.4757 (0.020)**	−0.4712 (0.021)**	−0.4700 (0.022)**	−0.4699 (0.023)**
$\Delta C \times LEV$	0.1023 (0.996)	−3.2630 (0.890)	−1.1069 (0.962)	−0.4553 (0.984)	−0.4474 (0.984)	−0.6405 (0.977)
$\Delta C \times AC$	0.3933 (0.000)***	0.4329 (0.000)***	0.1946 (0.000)***	0.3186 (0.000)***	0.3411 (0.000)***	0.3320 (0.000)***
	−0.0124 [0.954]	−0.0111 [0.957]	0.0859 [0.639]	−0.0639 [0.786]	−0.0193 [0.932]	0.0513 [0.815]
$\Delta C \times AC \times CAD$	−2.2945 (0.000)***	−1.0316 (0.000)***	0.3347 (0.000)***	0.1458 (0.002)***	−0.0429 (0.505)	−0.0083 (0.877)
	4.4166 [0.000]***	0.9725 [0.020]**	−0.4642 [0.046]**	0.6054 [0.005]***	0.0753 [0.124]	−0.1253 [0.062]*
N	3874	3874	3874	3874	3874	3874

Note 1: The variable definitions are the same as those in Table 3.

Note 2: CAD, the ratio of directors affiliated with the controlling shareholders, and $\Delta C \times AC \times CAD$, interaction among incremental cash holdings, accounting conservatism, and control-affiliated directors >10%. Numbers in [] denote the p-values of $\Delta C \times AC \times CAD$ after adjusting for endogeneity.

Significance levels: ***, 1%; **, 5%; *, 10%.

conservatism on cash values. Collectively, H2 is supported depending on the proportion of directors affiliated with the controlling shareholders.

4.4. Additional tests

To add detail to our understanding of the impact of controlling shareholders on the positive relationship between accounting conservatism and cash value, we complete additional tests of the following aspects: endogeneity (addressed in the previous section),⁹ agency problems in terms of free cash flow (FCF) and firm growth in terms of market value to equity book value (MB), and financial crisis (the 2007–2008 financial crisis and the 2011 European debt crisis).

4.4.1. Agency problem

Theoretically, free cash flow agency problems should increase when firms retain too much cash instead of making profitable investments because this practice increases the possibility that managers will use the extra cash to pursue individual interests. We therefore expect that the agency problem might exist in the impact of controlling shareholders on the positive relationship between accounting conservatism and cash values. Firms with the agency problem are defined as those with high free cash flow but low growth. High free cash flow is measured in terms of the median and the highest 10% of cash flow. Low growth is measured in terms of the median and the lowest 10% of market to book value. The results considering the agency problem are shown in Table 5. The following discussion focuses on the case of endogenous adjustment. Comparing coefficients $\Delta C \times AC \times CAD$ in Panel A, Model 2 for both Tables 4 and 5,

⁹ We re-run Equation (1) adjusted for endogeneity. The results are shown in Table 3 through 6.

Table 5
Additional tests involving the agency problem in terms of free cash flow and firm growth.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	director5	director20	director2040	director4060	director6080	director80
Panel A: High free cash flow/Low firm growth						
INTERCEPT	-4.9755 (0.054)*	-5.0063 (0.052)*	-5.0398 (0.052)*	-5.0223 (0.053)*	-4.9927 (0.055)*	-4.9876 (0.054)*
ΔC	-18.2293 (0.311)	-16.9536 (0.364)	-17.6719 (0.327)	-17.6566 (0.335)	-18.2389 (0.329)	-18.1265 (0.322)
AC	0.0739 (0.000)***	0.0733 (0.000)***	0.0732 (0.000)***	0.0721 (0.000)***	0.0708 (0.000)***	0.0721 (0.000)***
ΔE	0.0086 (0.009)***	0.0090 (0.006)***	0.0089 (0.006)***	0.0090 (0.006)***	0.0090 (0.006)***	0.0089 (0.006)***
ΔNCA	-0.0003 (0.305)	-0.0003 (0.294)	-0.0003 (0.293)	-0.0003 (0.296)	-0.0003 (0.299)	-0.0003 (0.299)
ΔRD	-0.0013 (0.924)	0.0005 (0.968)	0.0007 (0.958)	0.0005 (0.970)	0.0004 (0.976)	0.0006 (0.962)
ΔI	-0.0131 (0.769)	-0.0104 (0.818)	-0.0110 (0.808)	-0.0102 (0.820)	-0.0102 (0.819)	-0.0140 (0.750)
ΔD	0.0169 (0.319)	0.0180 (0.290)	0.0181 (0.288)	0.0180 (0.290)	0.0182 (0.288)	0.0184 (0.282)
NF	-0.2114 (0.000)***	-0.2157 (0.000)***	-0.2144 (0.000)***	-0.2152 (0.000)***	-0.2161 (0.000)***	-0.2151 (0.000)***
CASH	0.2614 (0.000)***	0.2630 (0.000)***	0.2617 (0.000)***	0.2625 (0.000)***	0.2630 (0.000)***	0.2620 (0.000)***
LEV	4.9122 (0.059)*	4.9431 (0.057)*	4.9768 (0.057)*	4.9592 (0.058)*	4.9294 (0.060)*	4.9245 (0.059)*
$\Delta C \times CASH$	-0.2602 (0.347)	-0.2812 (0.313)	-0.2828 (0.310)	-0.2838 (0.309)	-0.2824 (0.309)	-0.2622 (0.345)
$\Delta C \times LEV$	19.1233 (0.285)	17.8497 (0.337)	18.5720 (0.301)	18.5556 (0.309)	19.1375 (0.303)	19.0176 (0.297)
$\Delta C \times AC$	0.5334 (0.000)***	0.5475 (0.000)***	0.5734 (0.000)***	0.5386 (0.000)***	0.5650 (0.000)***	0.4825 (0.000)***
$\Delta C \times AC \times CAD$	0.3137 [0.113]	0.3220 [0.074]*	0.3427 [0.015]**	0.2384 [0.292]	0.2841 [0.254]	0.3467 [0.055]*
	14.1250 (0.000)***	-0.3744 (0.001)***	-0.0804 (0.097)*	-0.0046 (0.934)	-0.1037 (0.215)	0.3790 (0.000)***
	21.5803 [0.000]***	-3.7428 [0.004]***	-0.1262 [0.655]	0.4238 [0.072]*	0.0642 [0.734]	-0.2342 [0.064]*
N	2249	2249	2249	2249	2249	2249
Panel B: Extremely high free cash flow/Extremely low firm growth						
INTERCEPT	5.5623 (0.165)	5.7636 (0.137)	5.5342 (0.162)	5.3869 (0.183)	5.5239 (0.167)	5.6533 (0.152)
ΔC	8.7744 (0.903)	-36.7096 (0.612)	2.9715 (0.963)	17.7481 (0.813)	12.8572 (0.860)	6.5940 (0.926)
AC	-0.0331 (0.009)***	-0.0470 (0.001)***	-0.0320 (0.009)***	-0.0310 (0.020)**	-0.0319 (0.011)**	-0.0336 (0.008)***
ΔE	-0.0173 (0.053)*	-0.0168 (0.063)*	-0.0163 (0.066)*	-0.0173 (0.051)*	-0.0169 (0.057)*	-0.0172 (0.052)*
ΔNCA	-0.0004 (0.166)	-0.0004 (0.147)	-0.0005 (0.039)**	-0.0004 (0.165)	-0.0005 (0.106)	-0.0004 (0.129)
ΔRD	-0.0286 (0.315)	-0.0284 (0.303)	-0.0255 (0.346)	-0.0300 (0.295)	-0.0282 (0.317)	-0.0288 (0.308)
ΔI	-0.1625 (0.129)	-0.1535 (0.144)	-0.1460 (0.177)	-0.1615 (0.134)	-0.1553 (0.144)	-0.1580 (0.138)
ΔD	-0.0710 (0.009)***	-0.0693 (0.016)**	-0.0687 (0.016)**	-0.0708 (0.009)***	-0.0701 (0.012)**	-0.0704 (0.011)**
NF	-0.2324 (0.017)**	-0.2328 (0.016)**	-0.2375 (0.019)**	-0.2417 (0.018)**	-0.2373 (0.017)**	-0.2403 (0.017)**
CASH	0.1493 (0.025)**	0.1466 (0.026)**	0.1462 (0.024)**	0.1474 (0.025)**	0.1520 (0.027)**	0.1521 (0.028)**
LEV	-5.7234 (0.155)	-5.9251 (0.129)	-5.6952 (0.152)	-5.5470 (0.173)	-5.6855 (0.158)	-5.8157 (0.143)
$\Delta C \times CASH$	-0.6009 (0.000)***	-0.6595 (0.000)***	-0.5691 (0.000)***	-0.5858 (0.000)***	-0.6018 (0.000)***	-0.6274 (0.000)***
$\Delta C \times LEV$	-8.0715 (0.911)	37.4802 (0.605)	-2.3079 (0.971)	-17.0921 (0.820)	-12.1622 (0.868)	-5.8665 (0.934)
$\Delta C \times AC$	0.3888 (0.999)	0.3466 (0.999)	0.9422 (0.999)	0.2947 (0.999)	0.3146 (0.999)	0.3290 (0.999)
	0.1412 [0.638]	0.1531 [0.590]	0.1356 [0.640]	0.1797 [0.390]	1.8575 [0.000]***	-0.2689 [0.354]

(continued on next page)

Table 5 (continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	director5	director20	director2040	director4060	director6080	director80
$\Delta C \times AC \times CAD$	7.1275 (0.001)*** 14.3729 [0.001]***	2.0603 (0.018)** -0.5226 [0.999]	-1.0419 (0.000)*** 0.6981 [0.312]	1.2272 (0.000)*** -18.7248 [0.000]***	0.2513 (0.999) -2.0210 [0.000]***	1.3360 (0.000)*** 3.2511 [0.000]***
N	694	694	694	694	694	694

Note 1: CAD is the ratio of directors affiliated with the controlling shareholders. director5, director20, director2040, director4060, director6080, director80 indicate that CAD equals 5% (less than 5%), 20% (less than 20%), 20%–40% (greater than 20% and less than 40%), 40%–60% (greater than 40% and less than 60%), 60%–80% (greater than 60% and less than 80%), 80% (greater than 80%), respectively. Other variable definitions are same as in Table 4.

Note 2: Free cash flow is defined as operating cash flow minus capital expenditures. Market to book ratio is defined as market value relative to equity book value. (Extremely) high free cash flow indicates top (10%) 50% free cash flow among all groups; (extremely) low growth indicates lowest (10%) 50% of market value to equity book value.

Significance levels: ***, 1%; **, 5%; *, 10%.

Table 6

Additional tests involving cash flow and low firm growth during financial crisis period (2007–2008 financial crisis period and 2011 European debt crisis).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	director5	director20	director2040	director4060	director6080	director80
Panel A: High free cash flow/Low firm growth						
INTERCEPT	-1.7993 (0.638)	-1.7978 (0.645)	-1.7675 (0.647)	-1.9018 (0.619)	-1.7685 (0.649)	-1.8087 (0.637)
ΔC	22.5793 (0.188)	21.7803 (0.184)	26.0423 (0.222)	24.5087 (0.169)	22.8067 (0.159)	22.3530 (0.166)
AC	-1.2829 (0.932)	-1.7619 (0.908)	0.1017 (0.995)	-2.0108 (0.896)	-1.3716 (0.930)	-1.4211 (0.925)
ΔE	-0.0010 (0.774)	-0.0012 (0.737)	-0.0013 (0.735)	-0.0008 (0.808)	-0.0010 (0.778)	-0.0010 (0.754)
ΔNCA	-0.0004 (0.460)	-0.0004 (0.478)	-0.0003 (0.510)	-0.0004 (0.454)	-0.0004 (0.458)	-0.0003 (0.465)
ΔRD	-0.0248 (0.326)	-0.0249 (0.324)	-0.0258 (0.355)	-0.0267 (0.308)	-0.0251 (0.347)	-0.0272 (0.314)
ΔI	-0.0454 (0.746)	-0.0474 (0.740)	-0.0361 (0.801)	-0.0407 (0.769)	-0.0454 (0.749)	-0.0427 (0.758)
ΔD	-0.0157 (0.708)	-0.0157 (0.717)	-0.0171 (0.684)	-0.0159 (0.701)	-0.0161 (0.699)	-0.0157 (0.712)
NF	-0.0286 (0.686)	-0.0252 (0.715)	-0.0325 (0.668)	-0.0228 (0.729)	-0.0248 (0.706)	-0.0284 (0.679)
CASH	0.2912 (0.001)***	0.2905 (0.002)***	0.2798 (0.007)***	0.2885 (0.002)***	0.2911 (0.002)***	0.2787 (0.015)**
LEV	1.6634 (0.665)	1.6621 (0.671)	1.6344 (0.673)	1.7675 (0.645)	1.6329 (0.675)	1.6757 (0.663)
$\Delta C \times CASH$	-0.4761 (0.561)	-0.5223 (0.536)	-0.4678 (0.564)	-0.4589 (0.575)	-0.4936 (0.540)	-0.4766 (0.587)
$\Delta C \times LEV$	-21.8233 (0.207)	-21.0200 (0.201)	-25.3212 (0.239)	-23.7691 (0.188)	-22.0499 (0.176)	-21.5994 (0.185)
$\Delta C \times AC$	50.2388 (0.575) 128.3208 [0.000]***	40.4009 (0.644) 147.3164 [0.013]**	66.6897 (0.454) 143.5008 [0.081]*	52.6619 (0.541) 113.7181 [0.002]***	40.3848 (0.471) 47.4918 [0.618]	29.0503 (0.794) 71.4004 [0.230]
$\Delta C \times AC \times CAD$	-691.0010 (0.005)*** -1386.7250 [0.000]***	183.3862 (0.007)*** -585.9707 [0.000]***	-252.4628 (0.139) -161.6854 [0.581]	-320.5364 (0.099)* -282.0035 [0.111]	10.6265 (0.866) 130.2101 [0.615]	98.4697 (0.469) 166.8317 [0.211]
N	742	742	742	742	742	742
Panel B: Extremely high free cash flow/Extremely low firm growth						
INTERCEPT	14.0037 (0.000)***	14.2958 (0.000)***	14.4539 (0.000)***	14.5332 (0.000)***	14.7174 (0.000)***	14.6746 (0.000)***
ΔC	-337.1766 (0.000)***	-331.8734 (0.000)***	-360.1550 (0.000)***	-367.2907 (0.000)***	-388.3478 (0.000)***	-378.1717 (0.000)***
AC	-11.5253 (0.391)	-11.4685 (0.390)	-10.9814 (0.408)	-11.2347 (0.441)	-11.2563 (0.430)	-11.3120 (0.438)
ΔE	-0.0119 (0.253)	-0.0116 (0.284)	-0.0119 (0.242)	-0.0119 (0.227)	-0.0121 (0.263)	-0.0114 (0.270)
ΔNCA	-0.0007 (0.000)***	-0.0007 (0.000)***	-0.0007 (0.000)***	-0.0007 (0.000)***	-0.0007 (0.000)***	-0.0007 (0.000)***

(continued on next page)

Table 6 (continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	director5	director20	director2040	director4060	director6080	director80
Δ RD	-0.0356 (0.239)	-0.0342 (0.249)	-0.0349 (0.226)	-0.0348 (0.237)	-0.0360 (0.191)	-0.0372 (0.170)
Δ I	-0.2222 (0.065)*	-0.2274 (0.064)*	-0.2334 (0.042)**	-0.2312 (0.025)**	-0.2325 (0.035)**	-0.2273 (0.035)**
Δ D	-0.0875 (0.001)***	-0.0859 (0.002)***	-0.0864 (0.002)***	-0.0867 (0.003)***	-0.0879 (0.003)***	-0.0865 (0.003)***
NF	0.0290 (0.532)	0.0407 (0.444)	0.0324 (0.521)	0.0346 (0.342)	-0.0276 (0.378)	0.0162 (0.567)
CASH	-0.0031 (0.979)	-0.0162 (0.893)	-0.0282 (0.821)	-0.0268 (0.837)	-0.0485 (0.732)	-0.0714 (0.620)
LEV	-14.2373 (0.000)***	-14.5290 (0.000)***	-14.6855 (0.000)***	-14.7654 (0.000)***	-14.9463 (0.000)***	-14.8985 (0.000)***
Δ C \times CASH	-0.8709 (0.062)*	-0.7881 (0.110)	-0.8802 (0.056)*	-0.8843 (0.109)	-0.9083 (0.051)*	-0.8499 (0.083)*
Δ C \times LEV	338.6011 (0.000)***	333.2464 (0.000)***	361.6430 (0.000)***	368.8066 (0.000)***	389.9343 (0.000)***	379.6747 (0.000)***
Δ C \times AC	139.3916 (0.119)	141.3770 (0.096)*	142.9222 (0.112)	144.7986 (0.073)*	187.7521 (0.048)**	109.7755 (0.219)
	79.2060 [0.159]	108.6620 [0.235]	98.9865 [0.024]**	160.3670 [0.171]	173.7612 [0.000]***	-85.7693 [0.999]
Δ C \times AC \times CAD	-763.4821 (0.000)***	-405.0954 (0.463)	-47.3935 (0.831)	-41.6144 (0.950)	-57.5403 (0.134)	126.3945 (0.162)
	-2994.2490 [0.001]***	-368.2661 [0.402]	-300.3097 [0.582]	-1865.4130 [0.000]***	-146.1868 [0.002]***	533.7772 [0.000]***
N	345	345	345	345	345	345

Note 1: All variable definitions are the same as those in Table 5.

Significance levels: ***, 1%; **, 5%; *, 10%.

coefficients in Table 4 appear significantly positive ($\widehat{\beta}_{14}=0.9725$), whereas they are significantly negative ($\widehat{\beta}_{14}=-3.7428$) in Table 5 with the agency problem, implying that the agency problem will induce a more obvious entrenchment effect. The results shown in Table 5 conclude that the agency problem will exacerbate the effect of controlling shareholders on the relationship between conservative accounting practices and cash values even at low proportions of control-affiliated directors (CAD). In other words, the agency problem will induce a more obvious entrenchment effect.

4.4.2. Financial crisis

In this section, we discuss the case that includes both the agency problem and financial crisis. The results are presented in Table 6, which shows that the Δ C \times AC \times CAD estimated coefficients (-1386.7250 in Panel A, Model 1 and -585.9707 in Panel A, Model 2) are significantly negatively larger than the corresponding results in Table 5, whose coefficients are 21.5803 and -3.7428, respectively. According to these results, the positive impacts of controlling shareholders on the relationship between conservative accounting practices and cash values disappear, even in the case with a very low ratio of control-affiliated directors (CAD; Model 1). Because the Δ C \times AC \times CAD estimated coefficients in Table 6 are larger than those in Table 5, we conclude that firms with agency problems tend to experience degeneration of the positive effects of controlling shareholders on the relationship between accounting conservatism and cash values; moreover, the degeneration effect tends to become more serious when firms suffer huge losses in the financial crisis.

In general, our empirical results regarding controlling shareholders support the incentive effect of controlling shareholders at a relatively low proportion of control-affiliated directors and the entrenchment effect at a relatively high proportion of control-affiliated directors without considering the agency problem and financial crisis (Table 4). However, with the exception of Model 6 in Tables 5 and 6, the entrenchment effect of controlling shareholders becomes more significant for firms with high free cash flow (Table 5) and suffering from financial crisis (Table 6).¹⁰ In sum, our findings support both hypotheses H2a and H2b depending on the proportion of control-affiliated directors, the agency problem, and financial crisis.

5. Conclusions

This study used a sample consisting of all firms listed on the Taiwan Stock Exchange between 2006 and 2014, excluding financial and utility industries, to analyze the roles of controlling shareholders as either minority shareholder entrenchers or monitors in the relationship between conservative accounting practices and cash holding value. This is an especially meaningful issue in countries such as Taiwan. To the best of our knowledge, this is the first attempt to document the relationships among accounting conservatism, cash value,

¹⁰ In this paper, the effects of controlling shareholders on the relationship between conservative accounting practices and cash values are more significant when using control-affiliated directors (CAD) than when using the shareholdings of controlling shareholders (CS1 and CS2).

and controlling shareholders.

Our results, without considering controlling shareholders, support H1 and are consistent with the findings of Louis et al. (2012); in other words, accounting conservatism enhanced corporate cash value in the sample firms. When controlling shareholders were considered, our findings support both hypotheses H2a and H2b depending on the proportion of control-affiliated directors, the agency problem, and financial crisis. Generally speaking, the incentive effect of controlling shareholders, H2b, is supported at a relatively low proportion of control-affiliated directors, whereas the entrenchment effect, H2a, is confirmed at a relatively high proportion of control-affiliated directors. However, the entrenchment effect will dominate when the agency problem and financial crisis are considered.

To examine the link between agency problems and cash value, we performed an additional test to determine whether the relationship between accounting conservatism and cash value depended on free cash flow and firm growth. In this case, the positive relationship weakens and becomes negative for firms with serious agency problems as measured by high levels of free cash flow and low firm growth, with the exception of the extremely high control-affiliated directors group. Our evidence indicates that the presence of controlling shareholders lowers (at least in part) the positive relationship between accounting conservatism and cash value for firms with an agency problem. This deterioration becomes more obvious with serious agency problems and during the financial crisis, thus supporting an entrenchment hypothesis of controlling shareholders (H2a). Collectively, the entrenchment effect will become prevailing when the agency problem and financial crisis are considered.

Our empirical results not only confirm a positive relationship between accounting conservatism and cash value in the absence of controlling shareholders but also suggest that ignoring the important role of controlling shareholders can result in the wrong conclusions about the influences of accounting conservatism on cash value, especially in countries such as Taiwan in which a large percentage of firms are characterized by concentrated ownership structures.

Acknowledgment

We thank an anonymous referee for several helpful comments. We also thank the National Science Council of R.O.C. for the funding support under NSC104-2815-C-126-015-H.

Appendix 1

Variable definitions

Variable Name	Definition
Rate of Stock Return (r)	$\ln(\text{closing price at end of final period}) - \ln(\text{closing price at end of initial period})$.
Market Return (M)	$\ln(\text{market index at end of final period}) - \ln(\text{market index at end of initial period})$.
Cash (C)	Cash and cash equivalent.
Earnings (E)	Net income before taxes and interest.
Net Assets (NCA)	Total assets minus cash.
Research and Development (RD)	Research and Development expenses.
Interest Expenses (I)	Interest expenses.
Dividends (D)	Cash dividends.
New Financing (NF)	Net financing of new equities and new debt.
Leverage (LEV)	Total debt.
Free Cash Flow (FCF)	Operating cash flow minus capital expenditures.
Market to Book Ratio (MB)	Market value relative to equity book value.
Accounting Conservatism (AC)	C-Score.
Controlling Shareholders (CS)	1. Degree of deviation between controlling shareholder (blockholder) control rights and cash flow rights. 2. Controlling shareholder (blockholder) cash flow rights. 3. Dummy variable with value of 1 if firm has controlling shareholders, 0 otherwise. Information from the <i>TEJ</i> .
Control-Affiliated Directors (CAD)	The ratio of directors affiliated with the controlling shareholders.

Appendix 2

Three reasons for using Taiwanese firms as our research sample.

1. Because Taiwan's civil laws provide limited protection for the interests of minority shareholders, Taiwanese firms' corporate governance practices deserve a detailed examination. As mentioned, most Taiwanese firms have concentrated ownership structures. As a result, there are core agency problems based on the conflicting interests of controlling and minority shareholders. According to Yeh, Lee, and Woitke (2001), 76% of all listed firms in Taiwan were under family control at the time of their survey, with boards dominated by family members; Claessens, Djankov, and Lang (2000) reported a Taiwanese family ownership figure of 80%. This is very different from the dispersed ownership type that is dominant in the US, where agency conflicts between managers and shareholders are much more common. Thus, the potential for problems associated with controlling shareholders must be considered when Taiwanese firms are part of a research sample.
2. Based on concentrated ownership patterns among Taiwanese firms, "core" agency problems between blockholders/controlling shareholders and minority shareholders are very different from the dispersed ownership-related problems (sometimes referred to as "traditional" agency problems) that are common in Western countries.

3. The ratio of cash holdings to total assets in Taiwanese firms has steadily grown over the past 10 years. According to data reported by the *TEJ*, the average ratio of cash and cash equivalents to total assets for all Taiwanese firms grew from 21.6% in 2006 to 26.2% in 2014. These figures support our effort to understand the benefits and drawbacks of value in large cash holdings.

References

- Ahmed, A. S., Billings, B. K., Morton, R. M., & Harris, M. S. (2002). The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review*, 77, 867–890.
- Bae, K. H., Baek, J. S., Kang, J. K., & Liu, W. L. (2012). Do Controlling shareholders' expropriation incentives imply a link between corporate governance and firm value? *Journal of Financial Economics*, 105, 412–435.
- Baek, J. S., Kang, J. K., & Park, K. S. (2004). Corporate governance and firm value: Evidence from the Korean financial crisis. *Journal of Financial Economics*, 71, 265–313.
- Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies*, 13(2–3), 168–205.
- Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics*, 39, 83–128.
- Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, 24, 3–37.
- Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009). Why do U.S. firms hold so much more cash than they used to? *Journal of Finance*, 64, 1985–2021.
- Bebchuk, L., & Hamdani, A. (2009). The elusive quest for global governance standards. *University of Pennsylvania Law Review*, 157, 1263–1317.
- Bebchuk, L. A., & Weisbach, M. S. (2010). The state of corporate governance research. *The Review of Financial Studies*, 23(3), 939–961.
- Bernstein, D. (1994). Imperfect information and agency cost models: Further empirical tests. *International Review of Economics and Finance*, 3, 183–193.
- Biddle, G., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investments efficiency? *Journal of Accounting and Economics*, 48, 112–131.
- Bushman, R. M., & Piotroski, J. D. (2006). Financial Reporting Incentives for Conservative Accounting: The Influence of Legal and Political Institutions. *Journal of Accounting and Economics*, 42(1–2), 107–148.
- Chi, W., Liu, C., & Wang, T. (2009). What affects accounting conservatism: A corporate governance perspective. *Journal of Contemporary Accounting and Economic*, 5, 47–59.
- Claessens, S., Djankov, S. J., Fan, P. H., & Lang, L. H. P. (2002). Disentangling the incentive and entrenchment effect of large shareholding. *Journal of Financial*, 57(6), 2741–2772.
- Claessens, S., Djankov, S., & Lang, L. H. P. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, 58, 81–112.
- Cubbin, J., & Leech, D. (1983). The effect of shareholding dispersion on the degree of control in British companies: Theory and measurement. *Economic Journal*, 93, 351–369.
- Dittmar, A., & Maht-Smith, J. (2007). Corporate governance and the value of cash holdings. *Journal of Financial Economics*, 83, 599–634.
- Fan, J., & Wong, T. (2002). Corporate ownership structure and the informativeness of accounting earnings in east Asia. *Journal of Accounting and Economics*, 33, 401–425.
- Fan, J. P. H., & Wong, T. J. (2005). Do external auditors perform a corporate governance role in emerging markets? Evidence from East Asia. *Journal of Accounting Research*, 43(1), 35–72.
- Faulkender, M., & Wang, R. (2006). Corporate financial policy and the value of cash. *Journal of Finance*, 61, 1957–1990.
- García, L., Manuel, J., García, O., & Fernando, P. (2009). Accounting conservatism and corporate governance. *Review of Accounting Studies*, 14, 161–201.
- Givoly, D., & Hayn, C. (2000). The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting and Economics*, 29, 287–320.
- Gow, I. D., Ormazabal, G., & Taylor, D. J. (2010). Correcting for cross-sectional and time-series dependence in accounting research. *The Accounting Review*, 85(2), 483–512.
- Holderness, C. G. (2009). The Myth of diffuse ownership in the United States. *Review of Financial Studies*, 22, 1377–1408.
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeover. *American Economic Review*, 76(2), 323–329.
- Jensen, M., & Meckling, W. (1976). Theory of firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305–360.
- Khan, M., & Watts, R. (2009). Estimation and empirical properties of a firm-year measure of conservatism. *Journal of Accounting and Economics*, 48, 132–150.
- Kuan, T. H., Li, C. S., & Liu, C. C. (2012). Corporate governance and cash holdings: A quantile regression approach. *International Review of Economics and Finance*, 24, 303–314.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). Corporate ownership around the world. *Journal of Finance*, 54(2), 471–517.
- LaFond, R., & Watts, R. (2008). The information role of conservatism. *The Accounting Review*, 83, 447–478.
- Leech, D. (1987). Ownership concentration and control in large US corporations in the 1930s: An analysis of the TNEC sample. *Journal of Industrial Economics*, 35, 333–342.
- Louis, H., Sun, A. X., & Urchan, O. (2012). Value of cash holdings and accounting conservatism. *Contemporary Accounting Research*, 29(4), 1249–1271.
- Masulis, R. W., Wang, C., & Xie, F. (2009). Agency problems at dual-class companies. *Journal of Finance*, 64, 1697–1727.
- Morck, R., Shleifer, A., & Vishny, R. (1988). Management ownership and market Valuation. *Journal of Financial Economics*, 20, 293–315.
- Petersen, M. A. (2009). Estimating standard errors in finance Panel data Sets: Comparing approaches. *Review of Financial Studies*, 22(2), 435–480.
- Shleifer, A., & Vishny, R. (1997). A survey of corporate governance. *Journal of Finance*, 52(June), 737–783.
- Song, F. (2015). Ownership structure and accounting conservatism: A literature review. *Modern Economy*, 6, 478–483.
- Watts, R. (2003). Conservatism in accounting part I: Explanations and implications. *Accounting Horizons*, 17, 207–221.
- Yeh, Y. H., Lee, T. S., & Woidtke, T. (2001). Family control and corporate governance: Evidence from Taiwan. *International Review of Finance*, 2, 21–48.
- Yeh, Y. H., & Woidtke, T. (2005). Commitment or entrenchment?: Controlling shareholders and board composition. *Journal of Banking & Finance*, 29, 1857–1885.
- Zerni, M., Kallunki, J. P., & Nilsson, J. (2010). The entrenchment problem, corporate governance mechanisms, and firm value. *Contemporary Accounting Research*, 27(4), 1169–1206.