

“Anti-takeover provisions, managerial overconfidence, and corporate cash holdings in Korean listed firms”

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ARTICLE INFO	Kevin Troy Chua, A-Young Lee and Hansol Lee (2024). Anti-takeover provisions, managerial overconfidence, and corporate cash holdings in Korean listed firms. <i>Investment Management and Financial Innovations</i> , 21(2), 15-27. doi: 10.21511/imfi.21(2).2024.02
DOI	http://dx.doi.org/10.21511/imfi.21(2).2024.02
RELEASED ON	Wednesday, 03 April 2024
RECEIVED ON	Monday, 19 February 2024
ACCEPTED ON	Thursday, 21 March 2024
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

25



NUMBER OF FIGURES

0



NUMBER OF TABLES

4

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 19th of February, 2024

Accepted on: 21st of March, 2024

Published on: 3rd of April, 2024

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Hansol Lee, 2024

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Conflict of interest statement:

Author(s) reported no conflict of interest

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ANTI-TAKEOVER PROVISIONS, MANAGERIAL OVERCONFIDENCE, AND CORPORATE CASH HOLDINGS IN KOREAN LISTED FIRMS

Abstract

The management of an entity faces diverse decisions concerned with corporate operations and financing choices. Investigating various factors affecting a company's cash holdings provides valuable insights into the decision-making processes of an organization. This study examines the effect of Anti-Takeover Provisions (ATPs), Managerial Overconfidence, and their interaction on the level of an entity's cash holdings. Conducting a regression analysis, this study examines 3,409 firm-year observations from Korean listed entities covering 2011 to 2018. Results reveal that anti-takeover provisions positively influence an entity's cash holdings (coefficient = 0.464, t-stat value = 7.83). Additionally, managerial overconfidence negatively affects cash holdings (coefficient = -0.140, t-stat value = -2.77). Furthermore, the interaction between anti-takeover provisions and managerial overconfidence significantly influences cash holdings (coefficient = -0.402, t-stat value = -3.46), especially in firms employing specific provisions such as supermajority vote requirements for executive dismissal (coefficient = -0.445, t-stat value = -2.73), issuance of convertible preferred stock (coefficient = -0.341, t-stat value = -1.76), and golden parachutes (coefficient = -0.715, t-stat value = -3.02). This study provides empirical evidence on how anti-takeover provisions and managerial traits influence corporate cash reserves. The study offers valuable insights for regulators, investors, and corporate management. It also emphasizes prudent cash management, urging firms, especially those with anti-takeover provisions and overconfident management, to reconsider financial policies to mitigate risks associated with aggressive decision-making.

Keywords

anti-takeover provisions, entrenchment, corporate governance, overconfidence, cash, cash holdings, cash management

JEL Classification

G30, G32, G34, M41

INTRODUCTION

Cash plays a significant role in a company's asset portfolio (Kusnadi, 2011; Akhtar et al., 2018). Notably, companies worldwide have increased their cash reserves over the past twenty years, highlighting the importance of cash holdings (Amess et al., 2015).

This study investigates the factors influencing corporate cash holdings as viewed through the perspective of agency theory, focusing specifically on the role of the CEO. Given that cash serves as a readily accessible asset under the discretion of the management and often constitutes a significant portion of a company's overall wealth (Dittmar & Mahrt-Smith, 2007), analyzing CEO-related variables becomes pivotal. This study explores anti-takeover provisions and managerial overconfidence as indicators of CEO motivation and beliefs, aiming to understand their influence on corporate cash holdings.

Agency theory posits that CEOs favor maintaining higher cash reserves as it affords them greater discretion in capital utilization without external investor oversight. This discretion may lead self-interested CEOs to use excess cash for personal gains such as empire-building strategies (Chen et al., 2020a). Anti-takeover provisions argue to fortify managerial control, allowing executives to pursue personal agendas in the decision-making process, which can potentially diminish corporate value (Manne, 1965). This entrenchment allows self-interested managers to accumulate higher cash reserves for personal benefit (Amess et al., 2015).

Meanwhile, CEO overconfidence signifies a persistent, excessively optimistic outlook on a firm's investments, often disregarding potential negative impacts on cash flow. Existing theories explaining corporate cash holdings are based on the potential uses of corporate cash but tend to neglect the beliefs of decision-makers who determine its utilization (Chen et al., 2020a). This study examines how a CEO's stance regarding risky investments impacts corporate cash holdings.

The study also evaluates a firm's anti-takeover provisions within its corporate governance framework to gauge its agency motives. Chen et al. (2020a) suggest that overconfident CEOs typically lack concerns related to agency issues. Nevertheless, the corporate governance framework can affect the relationship between executive overconfidence and an entity's cash reserves. A robust and transparent governance framework enables the board to effectively oversee executive actions. Consequently, this study empirically investigates whether CEO overconfidence's impact on cash holdings varies based on corporate governance structures. Understanding the interplay among anti-takeover provisions, managerial overconfidence, and cash holdings allows entities to refine governance structures, augmenting the board's role in decision-making affecting the entity's resources.

1. LITERATURE REVIEW AND HYPOTHESES

Management's decisions regarding firm operations and financing choices are wide-ranging and complex (Malmendier & Tate, 2015). One important lens through which to understand these decisions is agency theory, which examines the conflicts of interest that can arise between managers and shareholders. This theory highlights how these conflicts can affect cash holdings, suggesting that holding excessive cash might give managers too much discretion, leading to agency problems (Opler et al., 1999). Fundamentally, managers tend to prioritize retaining control over a firm's resources, which can create a fundamental misalignment of interests between managers and shareholders (Straska & Waller, 2014). The strategic intentions of management often revolve around retaining valuable resources for a firm. Cash holdings play a crucial role in this dynamic, serving as indicators of a firm's liquidity and its ability to promptly meet short-term obligations. However, determining the ideal level of cash reserves is intricate and involves weighing various factors (Opler et al., 1999; Ozkan & Ozkan, 2004; Akhtar et al., 2018; Weidemann, 2018).

Any action that reduces threats of corporate takeovers provides a potential for management entrenchment, resulting in engaging in activities that might not align with the best interest of shareholders (Bhojraj et al., 2017). Managers have the power to neutralize various control mechanisms in increasing their power over the entity, which shows how managers act in a personal interest, self-serving fashion. Entrenched managers will endeavor to secure their positions even in the absence of the competence or qualification necessary to lead the entity. Moreover, it is also expected that as entrenchment grows, firms will then exhibit an increased propensity for risk-taking behavior (Shleifer & Vishny, 1989; Salehi et al., 2022). When the influence of internal ownership becomes too strong, managers can have misaligned goals with those of shareholders. Measures designed to prevent takeovers protect managers from external accountability, which could encourage them to act at their own discretion (Weidemann, 2018).

The agency theory posits that CEOs tend to hold significant cash reserves as it grants them greater discretion over capital for investments without external investor oversight. Consequently, self-inter-

ested CEOs might utilize surplus cash for personal gains, such as pursuing empire-building strategies (Chen et al., 2020a). Existing literature primarily discusses anti-takeover provisions as governance mechanisms that weaken potential takeovers, enabling managerial entrenchment. In such cases, self-serving managers often increase corporate cash holdings for personal benefits (Amess et al., 2015). Entities employing anti-takeover provisions are more prone to retaining excess cash due to their ability to evade market discipline (Opler et al., 1999). However, Harford et al. (2008) analyzed firms in the US from 1993 to 2004, utilizing governance metrics centered on safeguarding shareholder rights through anti-takeover provisions. The study reveals an unexpected positive relationship, indicating that entities with less robust corporate governance structures tend to maintain smaller cash holdings. This outcome stems from managers' tendencies in such firms to promptly allocate surplus cash to acquisitions and capital expenditures rather than hoarding it.

Moreover, Dittmar and Mahrt-Smith (2007), who also focused on US entities for the period 1990 to 2003, delved into the realm of corporate governance mechanisms that examine investor oversight and managerial entrenchment arising from anti-takeover provisions. The results show that subpar corporate governance practices tend to rapidly deploy cash reserves into investments perceived as less profitable. This behavior in poorly governed firms was identified as a wasteful utilization of cash resources, ultimately leading to a detrimental impact on firm value. Drawing on these insights, the current study predicts that anti-takeover provisions have a significant influence on the level of corporate cash holdings.

The literature on managerial overconfidence and how it affects cash holdings shows mixed results. Dao et al. (2023) investigated Vietnamese listed firms on the association between CEO overconfidence and cash holdings. Interestingly, the study used a unique and novel form of overconfidence measurement, represented by voice pitch, results of psychometric tests, CEO photographs appearing in annual reports, earnings forecast bias, and CEO gender. The study reveals that managerial overconfidence negatively influenc-

es the level of cash holdings of a firm. This implies that managers displaying overconfidence tend to engage in more aggressive corporate decision-making, leading to lower cash holdings alongside increased risk-taking in anticipation of greater profits.

On the other side of the coin, Chen et al. (2020a), in their investigation of US firms from 1992 to 2016, reveal a positive relationship surrounding CEO overconfidence and the level of cash holdings. This suggests that while companies led by overconfident CEOs make larger investments compared to those led by non-overconfident CEOs, they do express a greater inclination to keep more cash for future investment requirements. This elevated cash reserve would enable an overconfident CEO to exercise more control over capital expenditures without being subject to constant market scrutiny. Similarly, also investigating Vietnamese firms covering 2010 to 2016, Tran et al. (2021) explored managerial optimism and its effect on cash holdings. In this paper, the word optimism is used interchangeably with the term overconfidence. Optimism, represented by the linguistic tone and language used in an entity's annual report, is seen to influence entities to have higher cash holdings in contrast to firms led by managers with a less optimistic outlook. This implies that optimistic managers retain larger cash reserves in anticipation of future investment prospects. Given these, the current study predicts that there is a significant relationship between managerial overconfidence and the level of cash holdings.

As part of its detailed analysis of their main arguments, Chen et al. (2020a) also investigated the variations in the impact of CEO overconfidence on corporate cash policies concerning the agency rationale for cash holdings while considering the corporate governance context of the firm. This study utilized the entrenchment index introduced by Bebchuk et al. (2009)¹, which represents different kinds of anti-takeover provisions – that there is a higher level of entrenchment when a firm has more anti-takeover mechanisms. The results suggest that whatever condition of corporate governance mechanism an entity has will have no significant effect on the cash policies of companies with overconfident management. This finding

¹ Bebchuk et al. (2009) introduced the E-index through six (6) core indicators: staggered board, limitations on shareholder rights in bylaw amendments, supermajority vote requirements for mergers, supermajority vote requirements for charter amendments, poison pills, and golden parachutes.

aligns with the assertion in the literature on CEO overconfidence that suggests overconfident CEOs do not prioritize agency concerns, and thus focus, for instance, on their empire-building strategies. However, corporate governance structure may regulate the relationship between executive overconfidence and a company's level of cash holdings. Having a strong board and a transparent corporate governance structure, the board can more effectively monitor executives' actions. This oversight can influence the level of cash held by firms, limiting the effect of executive overconfidence on cash reserves. A strong corporate governance structure can sensitively respond to the demands of various stakeholders, including shareholders, customers, and regulatory bodies. Based on these demands, companies may adjust their cash holding levels, influencing how executive overconfidence affects cash reserves. Therefore, it is an empirical problem whether the impact of CEO overconfidence on cash holdings varies depending on the corporate governance structure of a firm. This study employs anti-takeover provisions as an alternative metric for evaluating corporate governance, where corporate governance could be weakened in the presence of ATPs. Based on this logic, the current study predicts that the interaction between anti-takeover provisions and managerial overconfidence possess a significant relationship with the level of an entity's cash holdings.

The study hypotheses are as follows:

- H1: There is a significant relationship between anti-takeover provisions and the level of corporate cash holdings.*
- H2: There is a significant relationship between managerial overconfidence and the level of corporate cash holdings.*
- H3: There is a significant relationship seen on the interaction between anti-takeover provisions and managerial overconfidence and the level of corporate cash holdings.*

2. METHODOLOGY

This study employs the following research model to analyze the impact of the presence of anti-take-

over provisions (*ATP*), managerial overconfidence (*OC*), and their interaction (*OC*ATP*) on cash holdings (*CASH*):

$$\begin{aligned} \ln(CASH) = & \alpha + \beta_1 ATP + \beta_2 OC \\ & + \beta_3 (OC \cdot ATP) + \beta_4 SIZE + \beta_5 LEV \\ & + \beta_6 NWC + \beta_7 CF + \beta_8 GROWTH \\ & + \beta_9 DIVIDEND + \beta_{10} CF_VOL \\ & + \beta_{11} CAP + \beta_{12} RND \\ & + Industry_{dum} + Year_{dum} + \varepsilon. \end{aligned} \quad (1)$$

ATPs can be broadly categorized into bylaw amendments and defense through changes in the capital structure. Bylaw amendments, the focus of this study, constitute one of the oldest defense mechanisms employed to make the transfer of managerial control or mergers more challenging. This strategy entails revising a corporation's bylaws within the limits permitted by prevailing laws to hinder the exercise of acquirer or bidder voting rights, aiming to prepare for potential hostile takeovers (Kwon, 2008). Notable examples include differential voting rights systems, staggered boards, supermajority requirements for mergers, poison pills, and golden parachutes, to name a few.

This study specifically confines itself to ATP through bylaw amendments. By employing bylaw provisions for defense purposes, corporations establish a 'preventive (proactive) defense strategy' intended to safeguard managerial control before hostile takeover attempts occur, distinguishing it from the more active defensive measures that can be employed in the event of such attempts. ATP, through bylaw amendments, allows for better early detection of the intentions related to managerial defense and facilitates database-driven analysis for research purposes (Lee & Kim 2023). Therefore, this study places its primary focus on ATP through bylaw amendments. Building upon the study by Bebchuk et al. (2009), the current study analyzed the bylaw provisions of South Korean companies, examining ATPs available to domestic publicly listed companies.

The analysis of bylaw provisions in South Korean companies has shown that the ATPs employed by domestic publicly traded companies include: (1) supermajority vote requirements for executive

dismissal, (2) supermajority vote requirements for merger, (3) the issuance of convertible preferred stock with immediate voting rights, and (4) golden parachutes. A measure of *ATP* in the current study was determined based on the presence of these four types. *ATP* is a dummy variable that equals 1 if a company has one or more anti-takeover provisions based on the aforementioned mechanisms, and 0 otherwise.

A company's investment choices correlate with managerial overconfidence, and data concerning the extent of managerial overconfidence is accessible (Malmendier & Tate 2005; Campbell et al. 2011). This study measures managerial overconfidence based on managers' investment decisions. The investment-based proxy for overconfidence (*OC*) is a dichotomous variable set equal to 1 if the capital expenditures deflated by lagged total assets in a given year are greater than the median level of capital expenditures to lagged total assets for the firm's industry in that year, and 0 otherwise (Ahmed & Duellman, 2013).

Lastly, based on Chen et al. (2020b), this study measures cash holdings (*CASH*) as the ratio of cash and marketable securities to net assets, where net assets is the difference between total assets and cash and short-term investment.

If the presence of anti-takeover provisions influences a company's cash holdings, we would expect the regression coefficient β_1 of the *ATP* variable to be statistically significant. Likewise, if managerial overconfidence affects a company's cash holdings, we would expect the regression coefficient β_2 of the *OC* variable to also be statistically significant. Meanwhile, the inclusion of the variable *OC*ATP* in the equation is done to examine the potential effect of the interaction between *OC* and *ATP* on cash holdings. If the interaction of these two variables affects cash holdings, one would expect β_3 to be statistically significant.

Consistent with prior studies, this study includes control variables representing various characteristics of firms known to significantly influence corporate cash holdings (Harford et al., 2008; Chen et al., 2020b). These variables encompass firm size (*SIZE*), leverage (*LEV*), net working capital (*NWC*), cash flow (*CF*), sales growth (*GROWTH*),

a dividend dummy (*DIVIDEND*), cash flow volatility (*CF_VOL*), capital expenditure (*CAP*), and research and development expenditure (*RND*). Moreover, the analysis incorporates industry-specific differences and temporal changes by including industry classification and year dummies. Detailed definitions for all the research variables are provided in Appendix A.

This study focuses on South Korean listed firms from 2011 to 2018. To maintain focus and consistency, the study excludes financial institutions given their unique industry characteristics. Moreover, firms with fiscal year-ends other than December were omitted to ensure homogeneity within the sample. Data related to anti-takeover provisions were collected by examining each company's by-laws through the Financial Supervisory Service's electronic disclosure system, which includes attached documents in annual reports.

The variables used to measure managerial overconfidence and other control variables were extracted from the FnGuide database, equivalent to Compustat of the United States of America. The criteria also involved excluding firms lacking sufficient data on dependent and independent variables and those missing necessary information for the control variables. After applying these selection criteria, this study arrived at a final sample size comprising 3,409 firm-year observations.

3. RESULTS

Table 1 delineates the descriptive statistics for the key regression variables. Winsorizing was applied to the top and bottom 1% of each variable to mitigate the impact of outliers. The dependent variable, *CASH*, has a mean (median) of 0.176 (0.106), which means that on average, the firm-year observations hold 17.6% of cash and short-term investments as compared to the total assets an entity has. This is accompanied by a standard deviation of 0.223 across the dataset.

The main independent variable, *ATP*, has a mean of 0.104, which implies that 10.4% of our 3,409 firm-year samples have anti-takeover provisions. Further dissecting the *ATP* variable, *ATP1* is a variable that indicates whether a company has

supermajority vote requirements for executive dismissal as a means of anti-takeover provisions, where the mean value is 0.056. *ATP2* is a variable that indicates whether a company has supermajority vote requirements for the merger as a means of anti-takeover provisions, with a mean value of 0.023. *ATP3* is a variable indicating whether a company utilizes the issuance of convertible preferred stock with immediate voting rights as a means of anti-takeover provisions, with a mean value of 0.034. Lastly, *ATP4* corresponds to another anti-takeover provision associated with golden parachutes, also demonstrating a mean value of 0.034. It is noteworthy that the mean value of *ATP1* significantly surpasses that of all the other kinds of ATPs, indicating that Korean listed firms in the sample use *ATP1*, supermajority vote requirements for executive dismissal, as a means of anti-takeover provisions the most.

ATP_SUM is a variable representing the number of possible anti-takeover provisions that companies can utilize, with a mean value of 0.147. This suggests that across the dataset, on average, entities tend to utilize approximately 0.147 ATPs. The minimum value being 0.000 and the maximum value being 4.000 means that there are entities refraining entirely from the utilization of any ATPs, while some entities deploy the entirety of the four specified anti-takeover mechanisms available. These observed differences, spanning from no utilization to complete adoption of anti-takeover provisions, underscore the intricate strategic choices and decisions made by Korean firms.

Meanwhile, the other independent variable, *OC*, has a mean value of 0.498, which implies that approximately 49.8%, or nearly half of the observations, tend to have overconfident management.

Table 1. Descriptive statistics (N = 3,409)

Variable	Mean	SD	Min	Median	Max
CASH	0.176	0.223	0.002	0.106	1.449
ATP	0.104	0.305	0.000	0.000	1.000
ATP1	0.056	0.230	0.000	0.000	1.000
ATP2	0.023	0.150	0.000	0.000	1.000
ATP3	0.034	0.182	0.000	0.000	1.000
ATP4	0.034	0.181	0.000	0.000	1.000
ATP_SUM	0.147	0.475	0.000	0.000	4.000
OC	0.498	0.500	0.000	0.000	1.000

Variable	Mean	SD	Min	Median	Max
SIZE	20.193	1.527	17.326	20.001	24.670
LEV	0.468	0.199	0.078	0.471	0.925
NWC	0.003	0.183	-0.503	0.005	0.443
CF	0.086	0.074	-0.135	0.079	0.341
GROWTH	0.064	0.276	-0.414	0.027	1.926
CF_VOL	0.724	0.447	0.000	1.000	1.000
CAP	0.023	0.028	0.000	0.013	0.169
RND	0.042	0.044	-0.065	0.030	0.207

Note: (1) All continuous variables are winsorized at 1% and 99% levels. (2) Variable definitions are presented in Appendix A.

Table 2 presents the results of the correlation analysis among the variables. It is found that *ATP* is significantly positively related to corporate cash holdings (*CASH*). This finding suggests that firms employing anti-takeover provisions tend to exhibit higher levels of corporate cash holdings, implying a proactive stance in bolstering financial resources on entities employing ATPs. Meanwhile, *OC* is significantly negatively related to corporate cash holdings, which shows that heightened managerial overconfidence aligns with diminished levels of cash holdings that signify a potential inclination towards riskier investment behavior. However, the correlation analysis alone, which excludes the role of control variables, does not provide sufficient grounds for definitive conclusions about the relationship between ATPs and managerial overconfidence and cash holdings. Therefore, Table 3 presents the regression results, incorporating all the variables from the analytical model that would provide a more comprehensive understanding of the dynamics between ATPs, managerial overconfidence, and the level of cash holdings.

Table 3 regresses corporate cash holdings (*CASH*) on *ATP*, *OC*, and other control variables. Notably, a regression was also conducted on how corporate governance explains the effect of managerial overconfidence on cash holdings through an interaction term *OC*ATP*. In the baseline specification, the natural logarithm of *CASH* is used as the dependent variable.

Panel A shows the results of analyzing only *ATP* in the regression equation as a test variable. It has been found that the coefficient on *ATP* is positive (0.464) and statistically significant at the 1% level. This finding suggests that the existence of anti-takeover provisions has a positive effect on cash holdings. Therefore, this result corresponds with

Table 2. Pearson correlation (N = 3,409)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CASH	1.000											
(2) ATP	0.13707 ($<.0001$)	1.000										
(3) OC	-0.15055 ($<.0001$)	-0.05744 (0.0008)	1.000									
(4) SIZE	-0.12075 ($<.0001$)	-0.09507 ($<.0001$)	0.56492 ($<.0001$)	1.000								
(5) LEV	-0.39732 ($<.0001$)	-0.00773 (0.6517)	0.13119 ($<.0001$)	0.21037 ($<.0001$)	1.000							
(6) NWC	0.13805 ($<.0001$)	0.01906 (0.2658)	-0.08958 ($<.0001$)	-0.21054 ($<.0001$)	-0.64593 ($<.0001$)	1.000						
(7) CF	0.19165 ($<.0001$)	-0.10717 ($<.0001$)	0.24109 ($<.0001$)	0.19437 ($<.0001$)	-0.26912 ($<.0001$)	0.19705 ($<.0001$)	1.000					
(8) GROWTH	-0.02242 (0.1906)	0.03556 (0.0379)	0.06431 (0.0002)	0.07152 ($<.0001$)	0.02323 (0.1750)	-0.03667 (0.0323)	0.12986 ($<.0001$)	1.000				
(9) DIVIDEND	0.01624 (0.3402)	-0.16704 ($<.0001$)	0.21222 ($<.0001$)	0.28653 ($<.0001$)	-0.29587 ($<.0001$)	0.23150 ($<.0001$)	0.36007 ($<.0001$)	0.05696 (0.0009)	1.000			
(10) CF_VOL	0.24157 ($<.0001$)	0.12175 ($<.0001$)	-0.09468 ($<.0001$)	-0.18425 ($<.0001$)	-0.02050 (0.2314)	-0.03117 (0.0688)	-0.00013 (0.9938)	0.08104 ($<.0001$)	-0.22977 ($<.0001$)	1.000		
(11) CAP	-0.01409 (0.4110)	-0.00076 (0.9647)	0.45966 ($<.0001$)	0.11081 ($<.0001$)	-0.08291 ($<.0001$)	0.00871 (0.6113)	0.38434 ($<.0001$)	0.05670 (0.0009)	0.16248 ($<.0001$)	0.05643 (0.0010)	1.000	
(12) RND	0.10067 ($<.0001$)	0.04176 (0.0147)	0.10435 ($<.0001$)	0.04669 (0.0064)	-0.11168 ($<.0001$)	0.14978 ($<.0001$)	0.37780 ($<.0001$)	0.03319 (0.0527)	0.03468 (0.0429)	0.08848 ($<.0001$)	0.20999 ($<.0001$)	1.000

Note: (1) All continuous variables are winsorized at 1% and 99% levels. (2) The numbers in parentheses indicate the p-value. (3) Variable definitions are presented in Appendix A.

Hypothesis 1, that there is a significant relationship between anti-takeover provisions and the level of corporate cash holdings, in the positive direction. Panel B shows the results analyzing *OC* in the regression equation as a test variable. It was found that the coefficient on *OC* is negative (-0.140) and statistically significant at the 1% level. This finding suggests that managerial overconfidence has a negative effect on corporate cash holdings. Therefore, this result corresponds with *Hypothesis 2*, that there is a significant relationship between managerial overconfidence and the level of corporate cash holdings, in the negative direction.

This study further endeavors to ascertain the extent to which the condition of an entity’s corporate governance elucidates the impact of managerial overconfidence on the level of a firm’s cash holdings. Panel C shows the results analyzing the interaction term *OC*ATP* as a test variable. It was found that the coefficient on the interaction term *OC*ATP* is negative (-0.402) and significant at the 1% level. This indicates that the negative effect of overconfident CEOs on cash holdings is more pronounced in firms employing anti-takeover pro-

visions. Therefore, this result corresponds with *Hypothesis 3*, that there is a significant relationship seen on the interaction between anti-takeover provisions and managerial overconfidence and the level of corporate cash holdings.

It is also noteworthy to emphasize that the influence of the control variables *SIZE*, *LEV*, *NWC*, *CF*, *GROWTH*, *CF_VOL*, and *CAP* exhibits significant association on a firm’s cash holdings, underscoring how various firm characteristics can also influence the level of cash held by firms.

Table 3. Main analysis: ATP and overconfidence panel regression results on cash holdings

ATP, Overconfidence, and other control variables	Dependent Variable: Cash Holdings		
	(A)	(B)	(C)
Intercept	-2.645*** (-9.61)	-3.156*** (-9.53)	-3.267*** (-9.83)
ATP	0.464 *** (7.83)	0.460*** (7.77)	0.633*** (8.17)
OC		-0.140*** (-2.77)	-0.111** (-2.18)
OC*ATP			-0.402*** (-3.46)

Table 3 (cont.). Main analysis: ATP and overconfidence panel regression results on cash holdings

ATP, Overconfidence, and other control variables	Dependent Variable: Cash Holdings		
	(A)	(B)	(C)
SIZE	0.073 *** (5.41)	0.098*** (6.03)	0.101*** (6.24)
LEV	-2.766*** (-21.96)	-2.738*** (-21.69)	-2.710*** (-21.46)
NWC	-0.720*** (-5.38)	-0.709*** (-5.30)	-0.699*** (-5.23)
CF	2.889*** (9.63)	2.893*** (9.65)	2.935*** (9.80)
GROWTH	-0.132 ** (-2.06)	-0.129** (-2.02)	-0.127** (-1.98)
DIVIDEND	0.047 (1.00)	0.052 (1.11)	0.056 (1.19)
CF_VOL	7.446 *** (11.27)	7.372*** (11.16)	7.236*** (10.96)
CAP	-2.815 *** (-6.31)	-2.086*** (-4.03)	-2.027*** (-3.92)
RND	-1.511 (-1.15)	-1.675 (-1.28)	-1.797 (-1.37)
Industry and year dummies	Included	Included	Included
Adj. R ²	0.289	0.291	0.293
F-value	45.75	44.64	43.79

Notes: (1) Numbers in parentheses represent the t-stat values. (2) ***, **, and * represent significance at the 1, 5, and 10 percent levels, respectively. (3) All continuous variables are winsorized at 1% and 99% levels. (4) Variable definitions are presented in Appendix A.

This study further investigates the impact of anti-takeover provisions on cash holdings by examining the various types of ATPs employed by South Korean firms, as shown in Table 4. As mentioned, *ATP1* indicates whether a firm employs supermajority vote requirements for executive dismissal as an anti-takeover provision. *ATP2* denotes the use of supermajority vote requirements for a merger. *ATP3* indicates the implementation of the issuance of convertible preferred stock with immediate voting rights as an anti-takeover mechanism. Lastly, *ATP4* represents the utilization of golden parachutes. Additionally, this study analyzes the influence of the number of anti-takeover provisions held by a firm on its cash holdings, denoted by the variable *ATP_SUM*.

The regression coefficients for all types of ATPs are all positive and significant at the 1% level (*ATP1* = 0.656; *ATP2* = 0.444; *ATP3* = 0.573; *ATP4* = 0.840). This suggests that, regardless of

the specific type of anti-takeover mechanism an entity employs, it tends to correspond with heightened levels of cash holdings within that entity. Moreover, the regression results for *OC* are also consistent with the main analysis. The regression coefficients are all negative and significant at 1% and 5% levels. It is also noteworthy to underscore that the regression reveals a positive and statistically significant coefficient at the 1% level for *ATP_SUM* (0.393), which signifies that as firms employ a greater number of distinct ATPs, there is a corresponding elevation in their cash holdings.

Lastly, the extent was also determined to which each type of an entity's anti-takeover mechanism explains the impact of managerial overconfidence on the level of a firm's cash holdings. It was found that the coefficient on *OC*ATP1* is negative (-0.445) and statistically significant at the 1% level. This indicates that the negative effect of overconfident CEOs on cash holdings is more pronounced in firms employing supermajority vote requirements for executive dismissal as an anti-takeover provision. In a similar fashion, it was found that the coefficients for *OC*ATP3* and *OC*ATP4* are negative (*OC*ATP3* = -0.341; *OC*ATP4* = -0.715), and significant at 10% and 1% levels, respectively. This also indicates that the negative effect of managerial overconfidence on the level of cash holdings is more pronounced in entities that utilize the issuance of convertible preferred stock with immediate voting rights and golden parachutes as their anti-takeover mechanism. However, taking a closer look at Panel B, the coefficient of *OC* alone is -0.146, which is statistically significant at the 1% level. Meanwhile, the coefficient for *OC*ATP2* is negative (-0.062) but not statistically significant. This specific part suggests that the impact of managerial overconfidence on the level of a firm's cash holdings is less pronounced in firms that employ supermajority vote requirements for mergers as an anti-takeover provision. Additionally, the coefficient on *OC*ATP_SUM* is also negative (-0.212) and significant at the 1% level, indicating that the negative effect of overconfident CEOs on cash holdings is more pronounced in firms employing a greater number of distinct ATPs, explaining the dynamic interplay between entrenchment and overconfidence.

Table 4. Additional analyses: ATP and overconfidence panel regression results on cash holdings using various types of ATPs

ATPs and Overconfidence Variables	Dependent Variable: Cash Holdings				
	(A)	(B)	(C)	(D)	(E)
Intercept	-3.265*** (-9.81)	-3.082*** (-9.24)	-2.983*** (-8.87)	-3.290*** (-9.88)	-3.247*** (-9.79)
ATP1	0.656*** (6.91)				
ATP2		0.444*** (2.81)			
ATP3			0.573*** (4.06)		
ATP4				0.840*** (7.45)	
ATP_SUM					0.393*** (8.60)
OC	-0.128** (-2.51)	-0.146*** (-2.85)	-0.131** (-2.56)	-0.134*** (-2.64)	-0.115** (-2.25)
OC*ATP1	-0.445*** (-2.73)				
OC*ATP2		-0.062 (-0.26)			
OC*ATP3			-0.341* (-1.76)		
OC*ATP4				-0.715*** (-3.02)	
OC*ATP_SUM					-0.212*** (-2.66)
Control variables	Included	Included	Included	Included	Included
Industry and year dummies	Included	Included	Included	Included	Included

Notes: (1) Numbers in parentheses represent the t-stat values. (2) ***, **, and * represent significance at the 1, 5, and 10 percent levels, respectively. (3) All continuous variables are winsorized at 1% and 99% levels. (4) Variable definitions are presented in Appendix A.

4. DISCUSSION

The findings from this study reveal a distinct positive association between the presence of anti-takeover provisions and the level of cash holdings. This substantiates the notion that anti-takeover provisions bolster managers' incentives to accumulate cash reserves, supporting the argument that entities equipped with anti-takeover provisions are inclined to hold excess cash. This further suggests that entrenched CEOs have a preference for maintaining cash reserves, as substantial cash holdings provide CEOs with greater latitude and discretion for creating personal benefits, notably in the pursuit of expansive corporate endeavors such as empire-building.

Additionally, the findings also suggest that managerial overconfidence has a significant negative association with corporate cash holdings. This reinforces the linkage between overconfident managerial personas and their propensity for engaging in assertive corporate decision-making strategies, which makes them hold less cash and take more risks in anticipation of higher profit, in line with Dao et al. (2023). Given the inclination of overconfident CEOs to indulge in excessive investment activities when endowed with sufficient financial flexibility (Malmendier & Tate, 2005; Ben-David et al., 2013), companies helmed by overconfident managers may deploy more cash than they save, thereby culminating in a diminished level of cash reserves in comparison to entities led by non-overconfident counterparts.

The analyses also confirm that the negative impact of overconfident CEOs on cash holdings is seen to be more pronounced in companies employing anti-takeover provisions. The existence of ATPs typically signifies a compromise in the effectiveness of corporate governance mechanisms due to management entrenchment. In scenarios where corporate governance mechanisms are insufficient, there exists an increased likelihood of management behavior evading adequate control and oversight. This circumstance then becomes particularly pronounced in overconfident CEOs who tend to engage in overinvestment tendencies and risky behavior. Consequently, the combination of weakened corporate governance mechanisms and the presence of overconfident management amplifies the probability of excessive investments when cash resources are available within the firm. This outcome contradicts the findings of Chen et al. (2020a), who argue that corporate governance conditions do not have a significant influence on the cash policies of firms led by overconfident management.

The additional analyses align with the primary analyses, affirming that the presence of anti-takeover provisions positively correlates with increased cash holdings. This validates the premise that ATPs fortify managerial motivations to accumulate higher cash holdings. Indeed, managerial overconfidence detrimentally impacts corporate cash holdings, indicative of overconfident manager's inclination for assertive decision-

making. This results in reduced cash levels due to an increased risk appetite driven by the anticipation of higher profits.

The findings underscore the propensity for companies equipped with various types of anti-takeover provisions to maintain higher cash reserves while simultaneously highlighting the results, which shows that firms led by overcon-

fidant managers exhibit reduced cash holdings. Moreover, the results emphasize that the negative effect of overconfident CEOs on corporate cash holdings is notably accentuated within entities employing diverse forms of anti-takeover mechanisms, serving as a reflection not only of the prevailing corporate governance mechanisms but also the decision-making patterns within these entities.

CONCLUSION

The main objective of this study is to investigate anti-takeover provisions and managerial overconfidence as indicators of CEO motivation and beliefs, aiming to understand their influence on corporate cash holdings. The results offer compelling evidence that the presence of anti-takeover provisions and their various types has a positive impact on the level of a firm's cash holdings, which strengthens the notion that entrenchment solidifies managerial incentives in accumulating cash reserves. It was also found that managerial overconfidence has a negative impact on corporate cash holdings, which reinforces the linkage between managerial overconfidence and their propensity for engaging in assertive corporate decision-making and risky behavior which makes them hold lesser cash reserves. Lastly, the interaction between ATPs and managerial overconfidence also demonstrates a significant and negative effect on cash holdings, and the negative impact of managerial overconfidence on cash holdings is more evident in companies employing anti-takeover provisions such as supermajority vote requirements for executive dismissal, issuance of convertible preferred stock with immediate voting rights, and golden parachutes.

This study offers practical insights for investors, regulators, and corporate management alike. Investors can use these findings to evaluate entities more thoroughly, considering how anti-takeover provisions and managerial traits impact the level of an entity's cash holdings. For instance, entities led by overconfident management with lower cash reserves pose higher investment risks due to their inclination toward aggressive decision-making and risky behavior. Regulators can consider these implications in enhancing governance guidelines and disclosure requirements, ensuring a balance between managerial autonomy, shareholder interests, and resource stewardship. Additionally, this study underscores the importance of prudent cash management. It encourages firms, especially those with anti-takeover provisions and overconfident management, to reconsider their financial policies and adopt more cautious practices to give way for mitigating risks associated with aggressive decision-making.

This study contributes to the ongoing discourse in the literature concerning the influence of various corporate governance mechanisms and characteristics on cash holdings by presenting new evidence on how the condition of an entity's corporate governance elucidates the relationship of cash holdings of an overconfident firm. This not only enriches the existing literature but also provides a clearer understanding of the dynamics and interplay of anti-takeover provisions, managerial overconfidence, and corporate cash holdings.

AUTHOR CONTRIBUTIONS

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APPENDIX A. VARIABLE DEFINITIONS

Variable	Definition
Dependent Variable	
ln(CASH)	<i>Cash Holdings.</i> The natural logarithm of cash and short-term investment over net assets. Net assets are total assets less cash and short-term investment.
Independent Variables	
ATP	<i>Anti-takeover Provisions.</i> A dummy variable that equals 1 if a company has one or more anti-takeover provisions (ATP1, ATP2, ATP3, and ATP4) and 0 otherwise.
	<i>ATP1:</i> a dummy variable that equals 1 if a company has supermajority vote requirements for executive dismissal and 0 otherwise.
	<i>ATP2:</i> a dummy variable that equals 1 if a company has supermajority vote requirements for merger and 0 otherwise.
	<i>ATP3:</i> a dummy variable that equals 1 if a company has the issuance of convertible preferred stock with immediate voting rights and 0 otherwise.
<i>ATP4:</i> a dummy variable that equals 1 if a company has golden parachutes and 0 otherwise.	
ATP_SUM	The number of anti-takeover provisions a company possesses.
OC	<i>Managerial Overconfidence.</i> A dichotomous variable set equal to 1 if the capital expenditures deflated by lagged total assets in a given year is greater than the median level of capital expenditures to lagged total assets for the firm's industry in that year, and 0 otherwise.
OC*ATP	An interaction term representing overconfidence and ATPs.
Control Variables	
SIZE	<i>Firm size.</i> Natural logarithm of total assets of the firm.
LEV	<i>Leverage.</i> Total debt over total assets.
NWC	<i>Net Working Capital.</i> Net working capital over net assets. Net working capital is calculated as current assets less current liabilities and cash and short-term investment. Net assets are total assets less cash and short-term investment.
CF	<i>Cash Flow.</i> Cash flow over net assets. Cash flow is income before extraordinary items with the inclusion of R&D expenditures and depreciation. Net assets are total assets less cash and short-term investment.
GROWTH	<i>Sales Growth.</i> The difference between current year sales and previous year sales, divided by previous year sales.
DIVIDEND	<i>Dividend Payout.</i> A dummy variable that equals one (1) if the dividend payout is greater than zero, and zero (0) otherwise.
CF_VOL	<i>Cash Flow Volatility.</i> Standard deviation of cash flows divided by net assets over a three-year period. Cash flow is income before extraordinary items including R&D expenditures and depreciation. Net assets are total assets less cash and short-term investment.
CAP	<i>Capital Expenditure.</i> Capital expenditure over net assets. Net assets are total assets less cash and short-term investment.
RND	<i>Research and Development Expenditure.</i> R&D expenditures over net assets. Net assets are total assets less cash and short-term investment.