Co-opted Boards and Corporate Cash Holdings

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Abstract

We study the relationship between board co-option and corporate cash holdings. We find that as the fraction of co-opted board members (those appointed after a CEO assumes office) increases, firms opportunistically maintain higher cash holdings, indicating an agency problem of board co-option. The effect of gaining one co-opted board member is comparable, in magnitude and significance, to that of losing an independent board member. The agency problem of cash holdings arises once a board is co-opted, regardless of whether it is classified as independent based on conventional and legal definitions. We further discover that abnormal cash holdings under co-opted boards are driven by flexibility motives, but not precautionary motives. The positive effect of board co-option on cash is more pronounced in financially unconstrained firms and firms with high information asymmetry. In addition, board co-option leads to a significantly lower marginal value of cash and reduced dividend payouts. Finally, we find that alternative governance mechanisms, such as institutional ownership and analyst coverage, dampen the documented effects. We address the endogeneity problem with a variety of methods including exogenous events of CEO sudden deaths.

Keywords: Board co-option; board independence; cash holdings; agency problem; corporate governance

JEL Classification: G31, G32, G34, G35

1. Introduction

Decision-making on cash holdings is a core issue for a company's management, corporate governance system, and shareholders. There are two broad theories for explaining corporate cash holdings: the precautionary motive and the agency problem. Given the endogenous nature of corporate cash holdings and corporate governance structure, the existing empirical literature on cash holdings concerning agency issues offers mixed evidence. One strand of the literature suggests that corporate executives hold cash at least in part for precaution, and higher cash holdings do not necessarily reflect agency issues (Bates et al., 2009; Mikkelson and Partch, 2003). For example, firms hold cash to maintain financial flexibility by avoiding raising capital when external capital is unavailable or expensive (Acharya et al., 2007; Almeida et al., 2004). The other stream of the literature documents that a high level of cash holdings is a classic agency problem because management has incentives to expropriate excess cash for private interests, for example, by perquisite consumption (Jensen, 1986), excessive compensation (Harford et al., 2008), empire building (Giroud and Mueller, 2010), and subsidizing and sustaining unprofitable projects or divisions (Dittmar and Mahrt-Smith, 2007).

Harford et al. (2008) classify these motives into two views of cash holdings: the flexibility view and the spending view. The flexibility view of cash holdings suggests that self-interested managers prefer to hold excess cash to maintain personal flexibility and freedom from the scrutiny of the capital markets (Easterbrook, 1984; Jensen, 1986). Excessive cash reserves give managers the flexibility to smooth earnings (Almeida et al., 2014), make acquisitions without external financing and scrutiny (Harford, 1999), reduce personal risk because they are risk averse (Opler et al., 1999), and (over)invest in certain projects that interest them personally and enhance their reputation (Chintrakarn et al., 2016). Therefore, it is not surprising that the empirical literature (e.g., Opler et al., 1999; Jiang and Lie, 2016) consistently finds self-interested and entrenched

managers to be less inclined to disburse excess cash in a timely manner. As governance mechanisms become less effective, managers are more likely to opportunistically hoard cash. The literature generally finds that independent boards, consisting of majority of independent directors who are considered more effective monitors by conventional wisdom, hold less cash (Al Mamun et al., 2023; R. R. Chen et al., 2020). External governance may also work; Carl Icahn, a prominent activist investor, believes Apple's cash position has grown unjustifiably large and successfully pushes Apple to distribute cash back to shareholders; the same person does not believe co-opted directors and claim they are "cronies appointed by the very CEOs they're supposed to be watching" (Business Week Online, 11/18/2005). In contrast, the spending view suggests that managers prioritize expansion of their firms and will spend corporate cash excessively and inefficiently, for empire building for example (Bhuiyan and Hooks, 2019; Jensen and Meckling, 1976). These managers are unlikely to hold large cash reserves and may spend on potentially value-destroying real assets. Therefore, flexibility and spending motives predict opposite relationships between the control of agency conflicts and cash holdings.

Board monitoring is one of the most effective ways to constrain agency issues (Fama, 1980; Fama and Jensen, 1983). In particular, board structure is the central element of effective governance mechanisms, shaping the quality and tone of discussions and decision-making at the top level of the company (Baghdadi et al., 2020)). Researchers and regulators recommend increasing the representation of independent directors (often defined as non-employee directors) on the board, as they can enhance the board's ability to monitor managers and exercise control on behalf of shareholders. For instance, the Sarbanes-Oxley Act of 2002 requires a majority of independent directors on the audit committee of publicly traded firms to ensure unbiased financial oversight. Similarly, the NYSE Euronext has an independence policy that requires at least three

quarters of board members to be independent. These policies are supported by empirical evidence demonstrating that the presence of independent directors enhances firm value by improving a firm's information environment (Liang and Zeng, 2016), lowering monitoring costs (Linck, Netter, and Yang, 2008), enhancing technical efficiency (Uribe-Bohorquez et al., 2018) and innovation (Lu and Wang, 2018), and preventing corporate misconduct (Neville et al., 2019). However, the more recent literature and the media have started to question the formal and declared measure of board independence and shift attention to informal and genuine independence or independence "in mind" (Ang et al., 2021; Boivie et al., 2021).

Board co-option—the fraction of the board comprising directors appointed after the CEO assumes office—represents a unique aspect of board structure and an alternative, and potentially more truthful, measure of board independence. It raises concerns about the genuine independence of these co-opted board members and therefore the effectiveness of their monitoring. The social psychology literature contends that the decision-making process is generally facilitated by the free exchange of diverse perspectives (Giannetti and Zhao, 2019; Ma and Khanna, 2016). Given that CEOs are often deeply involved in recruiting, nominating, and appointing new board members,[1] co-opted directors tend to assign their allegiance to the appointing CEOs (Coles et al., 2014); the social norm of reciprocity increases the uneasiness in co-opted directors when voicing dissent and therefore significantly compromises their independence. Such co-opted board members become less independent "in mind", even though they may still be defined and declared as independent "on paper."

The existing literature suggests that board co-option may damage firm value through the channels of default risk (Baghdadi et al., 2020), corporate misconduct (Zaman et al., 2021),

[1] For example, it is the CEOs who approve the slate of directors who are almost always elected by shareholders (Cai, Garner, and Walkling, 2013).

dividend payout (Jiraporn and Lee, 2018), cost of capital (Bhuiyan et al., 2022), and business ethics such as insider trading (Rahman et al., 2021). Despite the literature consistently showing that co-opted boards are weak monitors and that excessive cash retention is an outcome of agency problem, the impact of board co-option on cash holdings has not been studied.

Overall, our findings support the flexibility view of cash holdings as an agency problem by discovering a significant positive association between board co-option and cash holdings, and this relation is not driven by a precautionary motive. In the absence of effective monitoring due to board co-option, executives are more likely to satisfy their preferences for higher (than optimal) cash holdings. Furthermore, the economic significance of our findings suggests that a one standard deviation increase in board co-option leads to an increase of 6.6% or $9,769,787 in the cash holding level on average. This effect of board co-option on cash is comparable to that of board independence, which is commonly used as a proxy for board monitoring; for example, Kusnadi (2011) finds that a one standard deviation *decrease* in board independence raises cash holdings by 7%. While board co-option is less scrutinized by the public or studied by researchers than conventional measures of board independence, our findings suggest that declared independent boards, once co-opted, may lose their genuine independence, and the effect of having one more co-opted board member is similar to the effect of losing one declared independent member.

We perform a variety of robustness tests to specifically address the potential concerns about reverse causality, model misspecification, sample selection bias, omitted variable bias, and measurement errors of cash holdings and board co-options. For instance, we study the exogenous events of CEOs' sudden deaths when boards become less co-opted under the new CEOs.

To rule out the possibility that the precautionary motive drives our results, we study how financial constraints moderate the relationship between co-option and cash. The cash holdings

literature (Almeida et al., 2004; Han and Qiu, 2007; Sibilkov, 2009) suggests that financially constrained firms face challenges in accessing external financing and therefore maintain higher levels of cash reserves for precautionary motives; such motives do not play a significant role in financially unconstrained firms which hold comparatively less cash as they can tap into capital markets whenever needed. Therefore, our findings that co-opted boards hoard more (less) cash than unco-opted boards in less (more) constrained firms rule out the precautionary motive and support the flexibility hypothesis.

Next, we study the channels through which board co-option affects cash holdings. First, we delve into the uses of cash holdings, with a specific focus on cash disbursement and investments. We show that firms with co-opted boards tend to cut dividends, which supports the agency view that dividend policy is a critical tool in mitigating agency problems of cash (Jensen, 1986). Overall, we find that firms with co-opted boards hoard cash by reducing cash distribution to shareholders, but when they do pay out they prefer more flexible share repurchases over dividend payouts. We find no evidence that co-opted boards increase their firms' investment in capital expenditure or acquisitions. This is consistent with the flexibility motive of hoarding cash, but not the spending motive that prompts self-interested managers to allocate cash to value-destroying real assets, as proposed by Jensen and Meckling (1976).

Our findings reveal that co-opted boards significantly reduce the marginal value of cash and damage firm value. This is consistent with the agency view in the cash holdings literature that weak governance causes devaluation of cash assets (e.g., Dittmar and Mahrt-Smith, 2007). Finally, we study the effectiveness of other governance mechanisms, such as institutional ownership, the hostile takeover index, and analyst followings, in substituting co-opted boards in monitoring cash holdings. We find that these alternative governance measures damped the effect of board co-

option. In contrast, information asymmetry enhance the effect; a less transparent information environment aggravates the agency problem of cash holdings under co-opted boards.

Our study contributes to both the corporate governance and cash holdings literature and has practical implications. First, we extend the recent literature on the impact of co-opted boards on firm policies and outcomes (Chintrakarn et al., 2016; Coles et al., 2014; Ghafoor et al., 2023; Jiraporn and Lee, 2018) by specifically investigating the implications of co-option on incentive misalignment in cash holdings. Our findings imply that board co-option significantly compromises the effectiveness of board monitoring, thereby highlighting the importance of the genuine independence of board members. We show that declared independent board directors who are co-opted behave as though they are not independent, raising concerns about the conventional measures of board independence. Our work aligns with Morck's (2008) call for more empirical studies on the consequences of low-quality decision-making resulting from the absence of truly independent boards. Our research also has practical implications and suggests regulators, investors, financial institutions, and board members should pay attention to implicit and genuine board independence rather than cosmetic and declared independence.

Second, our study contributes to the literature studying the value of cash holdings in enhancing shareholder value (Faulkender and Wang, 2006; Halford et al., 2020). Although the literature has highlighted the role of agency problem in cash holdings, we extend this literature by showing not all independent directors are effective monitors of cash management and identifying board co-option as a significant factor and predictor for the value relevance of corporate cash. In particular, we are the first to study the effect of board co-option on marginal value of cash, which has important implications on the agency costs of cash holdings and firms' long-term valuations. Our study also provides insights into the potential downside of cash holdings (as distinguished

from the precautionary purpose of cash holdings) and particularly the flexibility view of cash holdings as an agency problem.

The paper proceeds as follows. Section 2 describes our sample and research design. Section 3 presents the baseline results. Section 4 addresses the endogeneity problem. Section 5 studies specific agency issues regarding the motives, uses, and marginal value of cash. Section 6 explores the role of alternative governance mechanisms on the effects of board co-option. Section 7 examines the moderating effect of information asymmetry. Section 8 compares board co-option and the conventional measures of board independence. Section 9 concludes.

2. Sample and Research Design

We collect data from various sources. The board co-option data are obtained from Lalitha Naveen's webpage.[2] We follow the literature (e.g., Coles et al., 2014) to define co-opted directors as those appointed after the incumbent CEO assumes office. Board co-option (COB) is measured as the number of co-opted directors divided by the total number of directors on a board. Furthermore, we follow the cash holdings literature to exclude financial and utility firms (SIC codes 6000–6999 and 4900–4999) from our sample because they have very different industry characteristics and regulations (Y.-R. Chen et al., 2020; Deshmukh et al., 2021). Finally, we merge the ExecuComp sample with Computstat for the period from 1996 to 2018.

To investigate the relationship between co-opted board (COB) and cash holdings, we estimate the following base model:

$$\mathrm{CASH}_{it} = \alpha + \beta \mathrm{COB}_{it} + \gamma \mathrm{CONTROLS}_{it} + \varepsilon_{it}$$

[2] The data on co-opted board are available at Lalitha Naveen's webpage: https://sites.temple.edu/lnaveen/data/

where i and t denote firm and year, respectively. Our dependent variable is firms' cash holdings (CASH), and the variable of interest is board co-option level (COB). CASH is the ratio of cash and short-term investments scaled by total assets—consistent with the literature (e.g., Chen et al., 2020). We use the firm-level and CEO-level control variables as suggested by the literature (Bates et al., 2009; Y.-R. Chen et al., 2020; Opler et al., 1999) to have an impact on corporate cash holdings. Specifically, we control for firm size (SIZE: natural logarithm of total assets), market-to-book ratio (MTB: the ratio of the market value of equity to its book value), leverage (LEV: the ratio of total debt to total assets), sales growth (SGR: the % changes in sales from the prior year to the current year), capital expenditures (CAPEX: capital expenditures scaled by total assets), acquisition expenditures (ACQ: acquisition expenditures scaled by total assets), research and development expenditures (R&D: research and development expenditures scaled by total assets), dividends (DIV: dividend payout scaled by total assets), and cash flow (CF: operating cash flows scaled by total assets). We also control for CEO-level variables including the CEO's pay-performance-sensitivity (DELTA: dollar change in CEO stock and option portfolio for 1% change in stock price), pay-risk-sensitivity (VEGA: dollar change in CEO stock and option portfolio for a 1% change in stock return volatility), gender (MALE: dummy variable equal to 1 if the CEO's gender is male, 0 otherwise), age (AGE: log of the CEO's age in years), and tenure (TENURE: log of the number of years the executive has been the CEO with this firm). The definitions of all these variables are also presented in Appendix A.

Table 1 provides a summary of the descriptive statistics for the variables used in the study. The mean and median values for cash holdings (CASH) in our sample are 0.130 and 0.074, respectively, which is consistent with the data in prior research such as Chen et al. (2020). Our sample companies have an average of 47.2% co-opted directors on their boards (COB), which is

similar to the averages reported in earlier studies (Bhuiyan et al., 2022; Chintrakarn et al., 2016; Zaman et al., 2021). The summary statistics for the other control variables are also in line with the literature. Table 2 presents the results of the correlation analysis. We find that there is a positive and statistically significant correlation between COB and cash holdings at the 1 percent level, which provides initial evidence that board co-option is associated with higher levels of cash holdings.

3. Baseline Results

We test our main hypothesis on the potential impact of board co-option on cash holdings in Table 3. Column (1) only includes the main independent variable (COB) without control variables. Column (2) controls for standard firm-level characteristics used in prior cash holdings literature. Column (3) further controls for CEO characteristics. We include both year and industry effects in all model specifications with standard error clustered at the firm level.

The results in Table 3 show that across all the model specifications, the coefficient of COB on CASH is consistently positive and significant. For instance, the coefficient of COB reported in Model 3—the most comprehensive model that controls for firm and CEO characteristics—is 0.017 at a 1 percent significance level. The economic significance of our main result suggests that a one standard deviation increase in board co-option is associated with a 6.58 percent increase[3] in cash holdings or $9,769,787 on average. These findings support the flexibility view of cash holdings and contradict the spending hypothesis.

While the observed positive relationship between board co-option and cash holdings can also be driven by precautionary motives, we attempt to distinguish between the two motives in our

[3] It is calculated as $0.317 \times 0.027/0.130 = 6.58\%$

analysis in Section 5.1. Specifically, we present compelling evidence that self-interested managers under co-opted boards hoard cash for personal flexibility instead of as a precaution against risk.

In Table 3, the signs and significance of the coefficients of the control variables are consistent with prior studies (Bates et al., 2009; Y.-R. Chen et al., 2020; Opler et al., 1999); this indicates our data are consistent with the literature and our model is correctly specified to explain cash holdings. Specifically, we find a significantly negative coefficient of firm size, suggesting that larger firms tend to hold relatively lower cash because of economies of scale and more liquidity resources. Similarly, we find that leverage (LEV), acquisition expenditures (ACQ), capital expenditure investment (CAPEX), and operating cash flows (CF) have a negative relationship with cash holdings, which is consistent with the literature (Harford et al., 2008).

4. Endogeneity Problem

In this section, we discuss various sources of endogeneity problems in the relationship between cash holdings and board co-option and conduct a variety of analyses to address each issue.

4.1. Reverse Causality

Since cash is the most readily available resource at the disposal of CEOs, it provides incentives for the CEOs to appoint more co-opted directors who would afford them more discretion in cash holdings. Therefore, it is potentially cash holdings, or the intention to abuse cash holdings, that leads to board co-option. While this plausible reverse-causality story is also consistent with our main argument that co-opted boards are compromised monitors of cash holdings, we attempt to pin down the direction of causality using two approaches. First, we adopt the method used in prior research, which involves identifying firms where the percentage of co-opted directors remains constant for two consecutive years —i.e., (Jiraporn and Lee, 2018; Zaman et al., 2021). This allows us to create a sample in which the degree of board co-option does not change due to

cash holdings or CEO incentives, making reverse causality less likely. Second, we follow Jiraporn and Lee (2018) to use board co-option in the earliest year as an instrumental variable for the co-option in the years after. This estimation assumes that board co-option in the earliest year of a firm is less likely to be affected by cash-holding decisions in subsequent years, thus posing a lower threat of reverse causality.

Table 4 Column 1 shows that board co-option leads to higher cash holdings rather than the other way around. Column 2 presents the first-stage regression where co-option in the earliest year is regressed on co-option. As expected, co-option in the earliest year has a significantly positive effect on subsequent co-option. In Column 3, the second-stage regression shows the significantly positive effect of instrumented co-option (COB instrumented) on cash holdings. Overall, Table 4 excludes the possibility of reverse causality and also suggests that board co-option may have a long-term effect on cash holdings.

4.2. Sample Selection Bias: Propensity Score Matching (PSM)

Another potential endogeneity problem is selection bias, where firms with co-opted boards may be fundamentally different from other firms, driving differences in cash holdings. To address this issue, we use propensity score matching (PSM). In particular, we follow the approach of Zaman et al. (2021) and define the treatment group as firms whose proportion of board co-option is in the top quartile and the control group as firms whose board co-option is in the bottom quartile. We then match these two groups using nearest neighbor propensity matching with replacement while considering all the firm fundamental variables specified in Model (2) of Table 3 to ensure comparability between the two groups. Thus, we are now comparing co-opted boards and unco-opted boards in otherwise similar firms.

We justify the quality of the matching process in Table 5 Panel A, which reports the univariate mean comparisons between the treatment group and the control group in firm characteristics. We show that the two groups have comparable firm fundamentals. We then compare cash holdings between the treatment co-opted group and the control unco-opted group. The average value of cash holdings in the treatment group is significantly higher than in the control group. To further verify that this difference is driven by the presence of co-opted directors, we perform PSM regressions using the post-matched sample. The multivariate analysis in Table 6 also confirms that the presence of co-opted directors in otherwise comparable firms leads to significantly higher cash holdings.

4.3. The Omitted-Variable Bias: Fixed effects (Firm, CEO, and Region)

As our results may be driven by unobservable firm, CEO, or location characteristics omitted from the base model, we employ a fixed-effects approach to mitigate the omitted-variable bias. In particular, we control for any unobservable and time-invariant characteristics by removing the cross-sectional variations in cash holdings across firms, CEOs, and locations. With a variety of fixed effects, we can also shed light on the effects of board co-option on cash within firm, CEO, and location over time. We re-estimate our base model using firm fixed effects in Table 6 Column (1), CEO fixed effects in Column (2), and state fixed effects in Column (3). The coefficients of COB remain consistently and significantly positive. While the positive effect of co-option is robust within firm, CEO, and location, the largest effect seems to be within CEO. It is plausible that as the board becomes more co-opted under the same CEO, making the CEO more entrenched, the problem of opportunistic cash holdings becomes more salient.

4.4. Measurement Error: Alternative Measures of Cash Holdings and Board Co-option

The measurement errors in the variables of cash holdings and board co-option can possibly create a spurious correlation between them. In this section, we use alternative measures of cash holdings and board co-option to test the robustness and sensitivity of our findings to the choice of variable measurement. Following the literature, we employ three alternative proxies for cash holdings: CASH1, calculated as cash scaled by total assets (Subramaniam et al., 2011); CASH2, cash and short-term investment scaled by net assets (Dudley and Zhang, 2016); and CASH3, the natural logarithm of one plus cash holdings (Deshmukh et al., 2021).

We also use various ways to measure board co-option. The first measure is COB_IND, which captures the proportion of co-opted independent directors by dividing the number of independent co-opted directors by the total number of directors on the board. The second and third measures account for the potential impact of tenure by recognizing that longer-serving directors tend to exert greater influence on board decision-making. Following Coles et al. (2014), COB_TW is the number of tenure-weighted co-opted directors divided by the total number of directors on a board; COB_IND_TW is the number of tenure-weighted co-opted independent directors scaled by the total number of directors. These measures are also used in the prior literature as alternative measures of board co-option (Baghdadi et al., 2020; Coles et al., 2014; Gull et al., 2023). Table 7 shows that our results remain robust no matter how we measure cash holdings (in Panel A) and board co-option (in Panel B).

4.5. Exogenous Shock of CEO Sudden Death

While the fixed effects model controls for time-invariant unobservable variables, any factor that is time-variant and unobservable can still drive both board co-option and cash holdings simultaneously. To address this endogeneity issue, we apply an exogenous shock of a CEO's sudden death to board co-option and then observe changes in cash holdings. The sudden death of

a CEO can serve as a valid instrument for board co-option. First, a CEO's sudden death satisfies the relevance condition. The death of a CEO can have a significant impact on board composition (Al Mamun et al., 2023; Zaman et al., 2021) and trigger a succession process, leading to changes in executive leadership (Worrell and Davidson III, 1987). The incumbent board members often engage in co-opting a new CEO to fill the vacancy; the company should have a much less co-opted board under the new CEO. Second, an unexpected CEO death is an exogenous event that is unlikely to directly influence cash holdings other than through the channel of board co-option. Based on the events of CEO sudden deaths, which satisfy both exogeneity and relevance conditions, we can capture the exogenous variations in board co-option.

We hand collect the CEO sudden death data for the period of 1996–2016 and find 461 events. Specifically, we collect names of CEOs who died in office and the dates of death from the obituary section of Standard and Poor's Register of Corporations, Directors, and Executives ("S&P Register"). We then use a news search to confirm that the deaths are unexpected and not preceded by poor health. The most common causes of CEO sudden deaths are heart attack and plane or automobile accidents, and the news often indicates "died due to sudden illness" or "died unexpectedly."

First, we use a difference-in-difference (DiD) approach based on the exogenous CEO death events. Coles et al. (2014) assert that co-opted directors often prioritize the interests of the CEO who appointed them. Therefore, the board should be less co-opted for the new CEO, and we should observe a decrease in cash holdings.

Following Bernile et al. (2017) and Zaman et al. (2021), who examine changes in corporate policies around exogenous CEO turnovers, we construct a treatment group of firms (Treated) that have experienced the sudden death of their CEOs. We then create a control group (Control) of firms without CEO sudden

death (and therefore no sudden decrease in board co-option). To ensure comparability between the two groups, we implement PSM and choose the nearest neighbor with the replacement of the same control variables. We also impose a maximum caliper of 1% to ensure that the propensity score of each firm with co-opted directors is well-matched with its peers. Specifically, we calculate the change in cash holdings from the three years preceding the death to the three years after for both the treated and control groups. Our DiD estimator is the difference in the differences of cash holdings between the treatment and control groups.

Table 8 Panel A reports the univariate mean comparisons between the treatment and control firms' characteristics and the corresponding t-statistics and p-values. The results indicate that the treated and control firms are statistically identical except for the treatment effect on board co-option due to CEO death. Panel B confirms a significant decrease in cash holdings following the unexpected death of a CEO. The DiD estimator is -0.043 and significant at the 2% level, suggesting the effect is significant and indeed causal.

In Panel C, we use CEO sudden death as an IV for board co-option. We create the variable DEATH to indicate CEO sudden death in a firm year and 0 otherwise. In the first stage of our analysis, we estimate the effect of CEO sudden death (DEATH) on board co-option using all the baseline controls. The coefficient of DEATH is significantly negative. In the second stage, we regress cash holdings on the predicted value of board co-option obtained from the first stage along with other control variables. Column (2) presents the results of the second-stage regression, which confirm our hypothesis. The results are robust; the statistical and economic significances of board co-option are comparable to those in our baseline results.

5: Motivation and Channels

Once we confirm our hypothesis that co-opted boards lead to higher cash holdings, we attempt to answer why and how. In this section, we study the motivations for hoarding cash, the

channels of spending and accumulating cash, and the efficiency of cash management under co-opted boards.

5.1: Agency or Precautionary Motives?

Maintaining high and unnecessary cash holdings is an agency problem that gives self-interested managers more flexibility to abuse cash at any time in any way to benefit themselves, such as making acquisitions or investments not in the best interest of their firms. However, when facing financial constraints, rational managers may hold onto cash for precaution against uncertainties and financial distress (Bates et al., 2009). In theory, since CEOs under co-opted boards are more entrenched (Coles et al., 2014) and therefore less risk-averse (Huang et al., 2021), their excessive cash holdings are less likely to be driven by precautionary motives. Furthermore, even though no theory predicts that co-opted boards care more about such precautions, we attempt to empirically rule out the possibility in this section.

While cash-holding policies in financially constrained firms can be largely shaped by precautionary motives, the same is not true for financially unconstrained firms. Constrained firms face external financing constraints due to informational opacity (Denis and Sibilkov, 2010) and distress risk (Dittmar and Mahrt-Smith, 2007); their access to external capital markets is limited and costly, necessitating precautionary cash buffers (Bates et al., 2009; Gao et al., 2013). In contrast, the need for precautionary cash for unconstrained firms is low because external capital is readily accessible (D'Mello et al., 2008; Lim et al., 2014). The literature (Han and Qiu, 2007; Denis and Sibilkov, 2009) generally finds that financially constrained firms hold more cash compared to unconstrained firms due to precautionary motives. Therefore, finding higher cash holdings in unconstrained firms with co-opted directors would refute the possibility that the precautionary motive drives our results.

Following the literature, we use 8 proxies to identify financially constrained and unconstrained firms: payout ratio (PAYOUT), credit rating (RATING), leverage ratio (LEV), interest coverage ratio (COVERAGE), KZ index (KZ), WW index (WW), SA index (SA), and operating cash flow volatility (CFVOL). All these financial constraint measures are constructed as dummy variables that equal 1 for financial constrained firms and 0 for unconstrained firms. For example, we follow Dittmar and Mahrt-Smith (2007) to define a firm as unconstrained if the firm has a payout ratio above the median, and follow Elnahas et al., (2022) to define RATING equals 1 for constrained firms that have a bond rating below investment grade. Kaplan and Zingales's (1997) KZ Index, Whited and Wu's (2006) WW Index, and Hadlock and Pierce's (2010) SA Index are the commonly used indices to measure financial constraints. Higher levels of these indices indicate a higher likelihood that a firm is financially constrained; the correspondent dummy variable equals 1 if the value of the index is above the median. We use cash flow volatility because the literature suggests that idiosyncratic risk increases cash flow volatility which risk is difficult to hedge (Campbell et al., 2001, Irvine and Pontiff, 2009), and therefore firms with greater cash flow uncertainty hold more cash for precautionary purposes (Opler et al., 1999; Han and Qiu, 2007). Similarly, based on the literature (Al Mamun et al., 2023; Sun and Wang, 2015; Zhang et al., 2020) we also use debt ratio and interest coverage ratio to measure financial constraints. All of these financial constraint measures are widely used in the finance and accounting literature (Al Mamun et al., 2023; Bao et al., 2012; Elnahas et al., 2022; Hennessy and Whited, 2007; Linck et al., 2013); their detailed definitions can be found in the Appendix.

In Table 9, across all measures of financial constraints in Models 1 to 8, the coefficients for the interaction terms are consistently negative. Co-opted boards in financially constrained firms hold less cash, which suggests that co-opted boards do not use cash holdings as a precaution to

alleviate financial constraints. Conversely, co-opted boards in unconstrained firms keep more cash than necessary. Overall, our results support that the precautionary motive is not a dominant driver for excessive cash holdings under co-opted boards; they are rather consistent with the flexibility motive in the agency framework.

5.2: Use of Cash:

In this section, we study the channels of how co-opted boards spend and accumulate cash holdings. In particular, we focus on the two primary ways, namely dividend payout and corporate investment. We attempt to find whether CEOs who have co-opted the board can disburse and invest corporate cash in ways they otherwise would not.

5.2.1: Board Co-option and Dividend Policy

We study the dividend policy under co-opted boards because it has long been used as a crucial mechanism to mitigate the agency problem of cash holdings (Jensen, 1986). While excess cash should be paid back to shareholders, CEOs under co-opted boards can reduce dividend payouts for personal benefits such as flexibility. The other way to distribute cash to shareholders is through share repurchases. Given the flexible nature of repurchases—where shareholders do not anticipate the same regularity as they do with dividends—managers possess greater latitude in this realm compared to dividend payout. While dividends, once paid or raised, must be routinely maintained, repurchase is not a commitment to shareholders. This flexibility aligns with the agency theory, suggesting a managerial inclination to favor repurchases over dividends (Jiraporn and Lee, 2018).

Drawing from DeAngelo et al. (2006), we adopt two proxies for dividend policy, namely, cash dividends declared on common stocks scaled by total assets (CDVC) and total dividends scaled by total assets (DIV). We also investigate the preference between share repurchases and

dividends by creating a dummy variable REP_DIV that equals 1 if the firm uses stock repurchases and does not pay dividends and 0 otherwise.

We control for various firm fundamentals that are likely to influence a firm's dividend policy, such as firm size (SIZE), market-to-book ratio (MTB), leverage (LEV), and return on assets (ROA). Following the literature (Caliskan and Doukas, 2015; Jiraporn and Lee, 2018), we also control for a firm's investment channels including research and development (RD), capital expenditures (CAPEX), and acquisition activities (ACQ), as investments compete with dividend payouts for funds (Sheikh, 2022). We include CEO and governance characteristics, such as age (AGE), gender (MALE), tenure (TENURE), board independence (BIND), CEO duality (CEODUALITY), and the percentage of female representation on the board (%FEMALE). Finally, we control for industry and firm-year fixed effects.

The results in Table 10 show that co-option (COB) has a statistically significant and negative impact on cash dividends and total payout in Columns 1 and 2, respectively. Overall, firms with co-opted boards tend to hoard cash by reducing cash distribution to shareholders, but when they do pay out they prefer repurchases over dividends, as shown in Columns 3 to 5. These results complement the findings of Jiraporn and Lee (2018), who show that companies with a high percentage of co-opted directors tend to reduce dividend distribution. Our results lend support to the agency theory of dividend policy and also the flexibility view of cash holdings.

5.2.2: Use of Cash for Investment: Board Co-option and Corporate Investment

The literature has studied firm policies and outcomes under co-opted boards. For instance, Coles et al. (2014) demonstrate that co-opted directors lead to low forced CEO turnover, high CEO pay, low CEO pay-performance sensitivity, and an increase in investing activities. Huang et al. (2021) report a positive association between board co-option and firm risk through the channel of

investments. In this section, we examine the specific investment channels of firms led by co-opted boards. We further distinguish the flexibility and the spending motives based on the investment channels.

We identify firm investment channels including capital expenditure (CAPEX), research and development expenditures (R&D), and acquisition expenditures (ACQ). The results in Table 11 show that board co-option has a significantly positive effect on R&D but not on investments in real assets such as CAPEX and ACQ. While this result rules out the spending hypothesis of cash holdings in Harford et al. (2008), who show that self-interested managers invest heavily in real assets rather than in R&D, the positive effect of COB on R&D is consistent with the literature on R&D investments under co-opted boards. Chintrakarn et al. (2016) suggest that managers are less likely to be fired by co-opted boards and therefore are more motivated to make long-term risky investments such as R&D. Harris and Erkan (2023) further find that co-opted directors impede firm productivity by allowing managers to over-invest in inefficient R&D projects. Our analysis of the marginal value of cash in the next section seems to support this view.

5.2.3: Marginal Value of Cash

If firms with co-opted boards hold more cash as a result of agency motives, the market will value such cash holdings lower compared to firms with lower board co-option where cash holdings are mainly driven by precautionary motives. To estimate the marginal value of cash holdings, we follow the approach of Faulkender and Wang (2006) to calculate the change in firm value resulting from a marginal change in cash holdings. We estimate the marginal value of cash holdings based on:

$$EXRET_{it} = \gamma_{0+}\gamma_1 \frac{\Delta CASH_{it}}{MV_{it-1}} + \gamma_2 COB + \gamma_3 COB * \frac{\Delta CASH_{it}}{MV_{it-1}} + \gamma_4 \frac{\Delta NASSETS_{it}}{MV_{it-1}} + \gamma_5 \frac{\Delta EARNINGS_{it}}{MV_{it-1}} + \gamma_6 \frac{\Delta INTEREST_{it}}{MV_{it-1}} + \gamma_7 \frac{\Delta DIV._{it}}{MV_{it-1}} + \gamma_8 \frac{\Delta RandD_{it}}{MV_{it-1}} + \gamma_9 \frac{\Delta FIN._{it}}{MV_{it}} + \gamma_{10} \frac{CASH_{it-1}}{MV_{it}} + \gamma_{11} LEV_{it} + \gamma_{12} \frac{CASH_{it-1}}{MV_{it}} * \frac{\Delta CASH_{it}}{MV_{it-1}} + \gamma_{13} LEV_{it} * \frac{\Delta CASH_{it}}{MV_{it-1}} + FIRM\ FE + Year\ FE + \varepsilon_{it}$$

EXRET is the excess return, obtained by subtracting the benchmark portfolio return from the stock return over the fiscal year. The benchmark 25 Fama and French portfolios are formed based on size and book-to-market. The portfolio return is value-weighted based on market capitalization. Δ*CASH* is the yearly change in cash and cash equivalents. To investigate the impact of board co-option on the marginal value of cash, we interact *COB* with Δ*CASH* (*COB*×Δ*CASH*) in the model. Δ*NASSETS* is the yearly change in net assets, i.e., the difference between total assets and cash. Δ*EARNINGS* is the yearly change in earnings before extraordinary items. Δ*INTEREST* represents the change in interest expense, Δ*CASHD* denotes the change in cash dividends distributed to shareholders, and Δ*R&D* is the change in research and development expenditures. Δ*FIN* refers to the changes in total financing. We also examine the interaction of the change in cash with a lagged value of cash and with leverage to control for the previous cash level and capital structure. All the variables are scaled by the lagged market value of equity (*MV*).

Although a vast majority of the cash holdings literature uses Faulkender and Wang's (2006) approach to estimate the marginal value of cash, Halford et al. (2020) recently propose some modifications to the Faulkender and Wang's (2006) model. Halford et al. (2020) argue that Faulkender and Wang's (2006) model should separately control for changes in different financing, including stock issuance, stock repurchases, debt issuances and debt reductions, because they have differing effects on firm value. The first two columns in Table 12 are based on the Faulkender and Wang's (2006) model, and the last two are based on Halford et al. (2020).

In Table 12 Column 1, the coefficient on △CASH is significantly positive, indicating the marginal value of an additional dollar of cash is $1.045 to the firm's shareholders. This is consistent with the literature that typically finds the marginal value to be around $1 (e.g., Bates, Chang, and Chi, 2018; Aktas, Louca, and Petmezas, 2019). In Columns 2 to 4, the coefficient on $\triangle COB \times \triangle CASH$ captures the changes in the marginal value of cash under co-opted boards. The coefficient on $\triangle COB \times \triangle CASH$ is significantly and consistently negative, reducing the marginal value of cash. For example, in Column 2 based on the prevailing Faulkender and Wang's (2006) model, a one standard deviation change in $\triangle COB$ leads to a decrease in marginal value of $1 cash by $0.11 (= stdev of $\triangle COB$ 0.19 × coefficient 0.58), suggesting that the inefficient use of cash under co-opted boards leads to a decrease in marginal value of cash from $1.045 to $0.935. Similarly, the Halford et al.'s (2020) model in Column 3 estimates a drop of $0.12 in marginal value. Overall, the marginal value of each dollar in cash holdings decreases significantly when boards become co-opted.

As the first study on the effect of board co-option on marginal value of cash, our work confirms the agency problem associated with co-opted boards and have important implications on the agency costs of cash holdings and firms' long-term valuations.

6. Moderating Role of Alternative Governance Mechanisms

Board monitoring is not the only governance mechanism to mitigate the agency problem of cash holdings. The new institutional theory proposed by Powell and DiMaggio (1983) posits that the behavior of executives has limited impact due to the inertia of organizations driven by external factors. In this section, we examine the potential moderating role of alternative governance mechanisms in the relationship between board co-option and cash holdings. Following the literature (Al Mamun et al., 2020; Baghdadi et al., 2020; Hegde et al., 2022), we employ several

corporate governance measures: institutional ownership (INST), takeover index (TOINDX), and analyst following (ANALYSTS) that may be able to substitute co-opted boards in monitoring cash holdings. Institutional ownership is a measure of the proportion of shares held by institutional investors; intuitional owners are often considered more active and knowledgeable monitors (Edmans and Holderness, 2017). Cain et al. (2017) construct a takeover index, based on takeover laws, to measure the likelihood of a firm being taken over. The external takeover market serves as a potential threat to underperforming boards and may incentivize even co-opted boards to limit their cash holdings. Finally, the number of analysts following captures the external scrutiny that firms receive from financial analysts, which results in greater transparency and accountability (Chen et al., 2015).

In Table 13, we analyze the interactive effects between board co-option and various governance mechanisms, namely institutional ownership (COB×INST) in Model 1, analyst coverage (COB×ANALYSTS) in Model 2, and takeover index (COB×TOINDX) in Model 3. All the interaction terms have a consistent and significantly negative effect on cash holdings, indicating that these governance mechanisms can effectively moderate the positive relationship between board co-option and cash holdings. These results provide further support for the proposition that an effective corporate governance system plays a central role in mitigating the agency problem arising from board co-option, ultimately leading to better cash-holding policies.

7. Moderating Role of Information Asymmetry

Information asymmetry between the management and outsiders creates and shapes the agency problem (Jensen and Meckling, 1976). We hypothesize that the agency problem of cash holdings under co-opted boards is more pronounced in an asymmetric information environment. To test this hypothesis, we interact board co-option with five commonly used proxies for

information asymmetry: bid-ask spread (SPREAD: The annual average of the ratio of the daily closing bid-ask spread to the closing price (Cheng et al., 2011)); analyst forecast dispersion (DISP: Analyst forecast dispersion measured as the annual average of the monthly dispersion of analysts' forecasts (Diether et al., 2002)); the close-to-close (CCAM) and open-to-close (OCAM) measures of Barardehi et al. (2021);[4] and the probability of informed trading (PIN) measured by Easley et al. (1996). A higher CCAM or OCAM indicates higher stock liquidity, while all the other variables measure illiquidity. Our results in Table 14 provide consistent evidence that information asymmetry exacerbates the positive effects of board co-option on cash holdings; that is, CEOs who have co-opted a greater fraction of the board have more discretion to hoard cash when information asymmetry is high. Therefore, it is helpful to create a more transparent information environment to mitigate the agency problem of board co-option. It is also plausible that in a transparent information environment, board co-option may not be a concern.

8. Board Co-option vs. Board Independence

The conventional measure of board independence is usually based on a company's self-reported SEC filings. For example, the Boardex data define an independent director as a non-employee director; a subordinate of the CEO is less independent and more loyal to the CEO. The SEC requires independent directors to be free of any "material" relationship with the company or its management. NYSE and Nasdaq rules provide specific independence tests to determine that a director is independent based on certain employment, family, and business relationships as well as interlocking compensation committee relationships.

[4] CCAM, the daily close-to-close return to dollar volume, is a proxy for the impact of trading on price, i.e., the amount a given trading volume moves the stock price. OCAM is the daily open-to-close return to dollar volume, which does not include overnight price movements that are typically driven by after-hour information arrival unrelated to the daily trading volume.

Co-opted directors may not have any material relationship but may still have allegiance to the CEO. In theory, board co-option and board independence are two highly correlated concepts, but in practice and empirical research they are two completely different measures. In this section, we explore the consequences of when an independent director becomes co-opted. Does co-option compromise the independent director's monitoring effectiveness completely, partially, or not at all?

In Table 15, we study the board composition of co-opted independent directors (COB_IND) and co-opted non-independent directors (COB_NONIND). IND is the % of directors who are independent. COB_IND% is COB_IND scaled by COB, representing the % of all co-opted directors who are considered independent by conventional measures. Column 1 shows that board independence can marginally mitigate the positive effect of co-option on cash. Column 2, however, suggests that COB_IND has a positive effect on CASH, indicating that independent directors who are co-opted are less effective in monitoring cash holdings. In Column 3, when we keep board co-option constant by controlling for COB, increasing independent directors (and decreasing non-independent directors) among co-opted directors may marginally mitigate the agency problem. In Column 4, the interaction term between COB and COB_IND is insignificant, which further confirms that cash holdings are determined by a board's overall co-option but not affected by whether the co-opted directors are independent or not. In other words, only those independent directors who are not co-opted are the effective monitors that matter. Column 5 also suggests that the % of co-opted directors who are independent does not matter. In Column 6, we run a horse race between independent co-opted directors and non-independent co-opted ones. We find that both have a positive effect on cash, and the difference is not significant. Overall, our results consistently show that board co-option is a stronger predictor for cash holdings than board

independence. In particular, the agency problem of cash holdings arises once a board is co-opted, regardless of whether it is defined as independent or not in the conventional and legal sense.

9. Conclusion

While the impact of corporate governance on cash holdings has been extensively studied in the agency framework, we are the first to study cash-holding behaviors under a co-opted board, where members appointed by the CEO may be more loyal to the CEO. Our baseline results show a significant positive association between the degree of board co-option and the level of cash reserves held by firms. A one standard deviation increase in board co-option leads to an increase in cash holdings by 6.6% or $9,769,787 on average. The effect of having one more co-opted board member is comparable to the effect of losing one independent board member. Overall, our study provides evidence of a significant positive relationship between board co-option and cash holdings in US firms, which is robust to a range of specifications and tests that account for the endogeneity problem.

To ensure the validity of the agency motive, especially the flexibility motive, we conduct additional tests and find that firms with co-opted directors tend to hold more cash when financial constraints are low. We also investigate the underlying channels and find that firms with co-opted boards have lower dividend payouts but higher share repurchases, giving CEOs additional flexibility. Our analysis of the marginal value of cash holdings reveals that co-opted boards significantly reduce the marginal value of cash holdings and damage shareholder value. We also find that the relationship between co-option and cash holdings is damped by alternative governance, suggesting some other governance mechanisms may be able to substitute co-opted boards in monitoring cash holdings.

Our study has several implications for practitioners, policymakers, and researchers. First, our findings suggest that co-opted directors may collude with CEOs and not always act in the best interests of the shareholders. This paper highlights the importance of ensuring that boards are genuinely independent and aligned with shareholder interests. For example, our findings may suggest that firms use staggered boards where not all board members' services expire in the same year and to make the entire process of board hiring more transparent. The purpose of such measures and policies is to reduce CEO influence in board appointment and therefore decrease board co-option and increase its genuine independence. Second, our study underscores the need for alternative monitoring mechanisms to mitigate the negative effects of co-opted boards. Third, our study contributes to the growing body of literature on corporate governance and cash holdings by providing new evidence on the role of board composition in shaping firms' cash holdings behavior.

Appendix A. Variable Definition

Variable	Measurement and Source
Dependent Variables	
CASH	Cash and cash equivalents scaled by total assets (CHE/AT). Source: Computstat
CASH1	Cash scaled by total assets (CH/AT). Source: Computstat
CASH2	Cash and short-term investment scaled by net assets (CHE/(AT-CHE)). Source: Computstat
CASH3	Natural logarithm of one plus cash and cash equivalents.
Independent Variables	
COB	The proportion of co-opted directors to the total number of directors on a board. See Coles et al. (2014) for details. Source: https://sites.temple.edu/lnaveen/data/
COB_IND	Number of co-opted independent directors divided by the total number of directors on a board.
COB_TW	Number of tenure-weighted co-opted directors divided by the total number of directors on a board.
COB_INDTW	Number of tenure-weighted co-opted independent directors divided by the total number of directors on a board.
Firm Controls	
SIZE	Log of total assets (AT). Source: Compustat
MTB	Market value of equity divided by its book value. Source: Compustat
SGR	Sales growth measured as the annual change in sales. Source: Compustat
ROA	Operating income/total assets (OIBDP/AT). Source: Compustat
LEV	Total debt/total assets ((DLC+DLTT)/AT). Source: Compustat
CF	Cash flow ((OIBDP-XINT-TXT-DVC)/AT). Source: Compustat
CAPEX	Capital expenditures/total assets (CAPEX/AT). Source: Compustat
ACQ	Acquisition expenditures/total assets (AQC/AT). Source: Compustat
R&D	R&D expenditures/total assets (R&D/AT). Source: Compustat
DIV	Total dividends/total assets (DVT/AT). Source: Compustat
CDVC	Cash dividends on common stocks/total assets (CDVC/AT). Source: Computstat

RET	Last 12-week average monthly returns. Source: CRSP
CEO Controls	
MALE	An indicator variable for gender equals 1 if the CEO of the company is male and zero otherwise. Source: Execucomp
AGE	Log of the CEO's age in years. Source: Execucomp
TENURE	Log of the number of years the executive has been CEO of a firm. Source: Execucomp
Governance Variables	
BIND	Percentage of independent directors on the board of the company. BoardEx classifies independent directors as non-employee directors. Source: BOARDEX
CEODUALITY	A dummy variable equals 1 if the CEO is also the chairman of the board of his/her company and 0 otherwise. Source: BOARDEX
BSIZE	Log of board size (i.e., number of board directors). Source: BOARDEX
FEMALE%	Percentage of female directors on a board. Source: BOARDEX
INST	Institutional holdings, the percentage of a firm's equity held by institutional investors.
TAKEOVER	The takeover index of Cain et al. (2017) constructed based on takeover laws.
COVERAGE	Log of total analysts following the company. Source: I/B/E/S
Financial Constraint Variables	
PAYOUT	A dummy variable equals 1 if payout ratio is below the median, 0 otherwise. Payout ratio is measured as the ratio of the sum of cash dividends to income before extraordinary items.
RATING	A dummy variable equals 1 if credit rating is below investment grade and 0 otherwise.
LEV	A dummy variable equals 1 if leverage ratio is above the median and 0 otherwise. Leverage ratio = total debt/total assets.
COVERAGE	A dummy variable equals 1 if interest coverage ratio is below the median and 0 otherwise. Interest coverage ratio = EBIT/Interest Expense
KZ	A dummy variable equals 1 if KZ index is above the median and 0 otherwise. KZ index = −1.001909*CF + 3.139193*LTDR − 39.3678*DIVR − 1.314759*Cash + 0.2826389*Q, per Kaplan and Zingales (1997), where CF is the ratio of operating cash flow to total assets; LTDR is the ratio of total long-term debt to total assets; DIVR is the ratio of total dividends to total assets; Cash is the ratio of cash to total assets; and Q is the market-to-book ratio.
WW	A dummy variable equals 1 if WW index is above the median and 0 otherwise. WW index= −0.091*CF − 0.062*DIV + 0.021*LTD − 0.044*LGTA + 0.102*ISG −

	0.035*SG), per Whited and Wu (2006), where CF is the ratio of operating cash flow to total assets; DIV is a dummy equal to 1 if the firm pays dividends and 0 otherwise; LTD is long-term debt; LGTA is the natural logarithm of total assets; ISG is the three-digit industry sales growth; SG is the firm-level sales growth.
SA	A dummy variable equals 1 if SA index is above the median and 0 otherwise. SA index = −0.737 × Size + 0.043 × Size^2 − 0.04 × Firm Age, per Hadlock and Pierce (2010), where size is the logarithm of total assets and firm age is the number of years the firm has been listed.
CFVOL	A dummy variable equals 1 if operating cash flow volatility is above the median and 0 otherwise. Operating cash flow volatility is the standard deviation of operating cash flows in the preceding 5 years.

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Table 1: Descriptive Statistics

This table presents summary statistics for US-listed firms for the period of 1996–2018. The data set comprises 20,473 firm-year observations from 2,137 firms. The descriptive statistics include the 25th and 75th percentiles along with the mean, median, and standard deviation (STD). The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels.

	N	Mean	Median	SD	p25	p75
CASH	20473	0.130	0.074	0.168	0.026	0.166
COB	20473	0.472	0.444	0.317	0.200	0.733
SIZE	20473	7.597	7.460	1.486	6.519	8.585
MTB	20473	2.077	1.659	1.355	1.254	2.388
LEV	20473	0.217	0.202	0.190	0.060	0.322
SGR	20473	0.068	0.067	0.211	-0.006	0.149
CAPEX	20473	0.053	0.036	0.052	0.020	0.066
ACQ	20473	0.030	0.000	0.063	0.000	0.026
R&D	20473	0.031	0.004	0.051	0.000	0.042
NWC	20473	0.068	0.064	0.142	-0.018	0.153
DIV	20473	0.403	0.010	0.487	0.000	1.000
CF	20473	0.094	0.097	0.081	0.066	0.130
DELTA	20473	3.974	3.995	1.739	2.920	5.121
VEGA	20473	2.736	2.922	1.830	1.539	4.033
MALE	20473	0.971	1.000	0.168	1.000	1.000
AGE	20473	4.013	4.025	0.126	3.932	4.094
TENURE	20473	1.483	1.609	0.778	1.099	2.079

Table 2: Correlation Analysis

This table presents the Pearson correlation matrix of the variables used in the study. The sample includes US-listed firms for the period of 1996–2018. The data set comprises 20,473 firm-year observations from 2,137 firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
(1) CASH	1.000								
(2) COB	0.084***	1.000							
(3) SIZE	-0.290***	-0.086***	1.000						
(4) MTB	0.325***	0.058***	-0.091***	1.000					
(5) LEV	-0.289***	-0.041***	0.287***	-0.123***	1.000				
(6) SGR	0.011	0.070***	0.005	0.201***	-0.036***	1.000			
(7) CAPEX	-0.130***	0.002	-0.003	0.016**	0.043***	0.072***	1.000		
(8) ACQ	-0.104***	0.009	-0.019***	-0.032***	0.098***	0.180***	-0.132***	1.000	
(9) R&D	0.441***	0.070***	-0.215***	0.293***	-0.235***	0.004	-0.140***	0.004	
(10) NWC	-0.134***	0.001	-0.255***	-0.153***	-0.148***	0.004	-0.130***	0.004	
(11) DIV	-0.171***	-0.096***	0.332***	-0.032***	0.115***	-0.082***	-0.086***	-0.029***	
(12) CF	-0.108***	0.003	0.073***	0.241***	-0.046***	0.224***	0.175***	0.008	
(13) DELTA	0.017**	0.075***	0.380***	0.266***	-0.006	0.149***	0.027***	0.013*	
(14) VEGA	0.006	0.007	0.359***	0.121***	0.013*	0.054***	-0.021***	-0.002	
(15) MALE	-0.016**	0.036***	0.000	0.004	0.023***	0.025***	0.006	0.006	
(16) AGE	-0.103***	0.223***	0.108***	-0.059***	0.041***	-0.042***	-0.034***	-0.014**	
(17) TENURE	-0.037***	0.439***	0.073***	0.020***	-0.003	0.019***	-0.029***	0.001	
	(9)	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
(9) R&D	1.000								
(10) NWC	-0.117***	1.000							
(11) DIV	-0.200***	-0.018**	1.000						
(12) CF	-0.205***	0.029***	0.032***	1.000					
(13) DELTA	0.027***	-0.141***	0.058***	0.154***	1.000				
(14) VEGA	0.057***	-0.139***	0.041***	0.092***	0.665***	1.000			
(15) MALE	0.032***	0.028***	-0.016**	-0.011	0.042***	0.033***	1.000		
(16) AGE	-0.113***	0.075***	0.110***	0.010	0.029***	-0.014**	0.056***	1.000	
(17) TENURE	0.000	0.004	0.113***	0.028***	0.121***	0.037***	0.054***	0.359***	1.000

Table 3: Baseline Results

This table presents the baseline results. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. COB is the proportion of co-opted directors to the total number of directors on a board. We control for industry and year fixed effects. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	(1) CASH	(2) CASH	(3) CASH
COB	0.032***	0.016***	0.027***
	(0.007)	(0.006)	(0.006)
SIZE		-0.025***	-0.026***
		(0.002)	(0.002)
MTB		0.025***	0.024***
		(0.002)	(0.002)
LEV		-0.120***	-0.119***
		(0.011)	(0.011)
SGR		0.003	0.001
		(0.009)	(0.008)
CAPEX		-0.389***	-0.394***
		(0.040)	(0.040)
ACQ		-0.271***	-0.274***
		(0.016)	(0.016)
R&D		0.553***	0.546***
		(0.076)	(0.076)
NWC		-0.209***	-0.204***
		(0.020)	(0.020)
DIV		-0.001	0.000
		(0.004)	(0.004)
CF		-0.137***	-0.141***
		(0.029)	(0.029)
DELTA			0.002**
			(0.001)
VEGA			0.002
			(0.001)
MALE			-0.021**
			(0.009)
AGE			-0.025
			(0.017)
TENURE			-0.008***
			(0.002)
Constant	0.141**	0.336***	0.465***
	(0.060)	(0.042)	(0.080)
Industry&Year FE	YES	YES	YES
Observations	20,473	20,473	20,473
R-squared	0.194	0.370	0.373

Table 4: Reverse Causality

This table reports regression results on whether the baseline findings remain robust after controlling for reverse causality. Column (1) presents the results for a subsample where the percentage of co-option (COB) does not change for two consecutive years. Columns (2) and (3) present the first-stage and second-stage results, respectively, of the IV regressions. We use the EARLIEST-YEAR board co-option as an instrumental variable for the current-year board co-option. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	No Change in COB for 2 Consecutive Years	Instrumental Variable (IV) Regression	
	(1)	(2)	(3)
	CASH	COB	CASH
COB	0.031***		
	(0.008)		
EARLIEST-YEAR		0.114***	
		(0.008)	
COB Instrumented			0.028***
			(0.004)
Constant	0.424***	-0.834***	0.652***
	(0.105)	(0.219)	(0.109)
Baseline Controls	Yes	Yes	Yes
Industry&Year FE	Yes	Yes	Yes
Observations	10,014	20,473	20,473
R-squared	0.360	0.262	0.193

Table 5: Propensity Score Matching

This table presents the results based on the PSM method. Panel A compares the means of firm fundamentals between treatment and control firms. Columns Treatment and Control show the two subsamples where the proportion of board co-option is in the top and the bottom quartiles, respectively. Panel B presents the regression results for the propensity score-matched sample. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. COB is the proportion of co-opted directors to the total number of directors on a board. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

Panel A: Treatment and Control Samples

	Treatment	Control	T-Value	P-Value
SIZE	7.465	7.485	-0.540	0.589
MTB	2.135	2.190	-1.580	0.115
LEV	0.203	0.199	0.750	0.452
SGR	0.081	0.079	0.340	0.733
CAPEX	0.046	0.046	0.330	0.744
ACQ	0.032	0.030	1.210	0.228
R&D	0.035	0.035	0.310	0.754
NWC	0.065	0.060	1.550	0.121
DIV	0.439	0.445	-0.520	0.604
CF	0.097	0.098	-0.500	0.619
DELTA	4.039	3.979	1.360	0.173
VEGA	2.563	2.556	0.150	0.883
COB	0.916	0.087	33.251***	0.000
CASH	0.135	0.119	4.050***	0.000

Panel B: PSM Regression

	(1)
VARIABLES	CASH
COB	0.011**
	(0.005)
Constant	0.357***
	(0.061)
Baseline Controls	Yes
Industry&Year FE	Yes
Observations	4,201
R-squared	0.375

Table 6: Fixed Effects Regressions

This table presents the results of firm, CEO, and location fixed-effects regressions in Columns 1 to 3, respectively. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. COB is the proportion of co-opted directors to the total number of directors on a board. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	Firm FE	CEO FE	Region FE
	(1)	(2)	(3)
	CASH	CASH	CASH
COB	0.022***	0.028***	0.013***
	(0.006)	(0.008)	(0.003)
Constant	0.568***	0.538***	0.298***
	(0.098)	(0.120)	(0.026)
Baseline Controls	Yes	Yes	Yes
Observations	20,473	20,473	14,962
R-squared	0.114	0.115	0.353

Table 7: Alternative Measures of Cash Holdings and Board Co-option

This table presents the regression results using alternative measures of cash holdings (in Panel A) and board co-option (in Panel B). In Panel (A), CASH1 is cash scaled by total assets, CASH2 is cash and short-term investment scaled by net assets, and CASH3 is the natural logarithm of one plus cash holdings. In Panel (B), COB_IND is board co-option for independent directors (i.e., the number of co-opted independent directors divided by the total number of directors on a board), COB_TW is the tenure-weighted board co-option (the number of tenure-weighted co-opted directors divided by the total number of directors), and COB_INDTW is the tenure weighted co-option of independent directors (the number of tenure-weighted co-opted independent directors divided by the total number of directors). We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	Panel A: Alternative Cash Holding Measures			Panel B: Alternative Board Co-option Measures		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CASH1	CASH2	CASH3	CASH	CASH	CASH
COB	0.016***	0.028***	0.020***			
	(0.004)	(0.006)	(0.005)			
COB_IND				0.022***		
				(0.007)		
COB_TW					0.017**	
					(0.007)	
COB_INDTW						0.026***
						(0.008)
Constant	0.254***	0.341***	0.362***	0.458***	0.384***	0.462***
	(0.050)	(0.070)	(0.061)	(0.079)	(0.070)	(0.079)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry&Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,473	20,473	20,473	20,473	20,473	20,473
R-squared	0.383	0.537	0.396	0.372	0.374	0.372

Table 8: Exogenous Shocks of CEO Sudden Deaths

This table presents results based on the exogenous shocks of CEO sudden deaths from 1996 to 2018. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at 0.1, 0.05, and 0.01 levels, respectively.

Panel A: Post-matched sample mean differences (using PSM)

This panel presents the quality of matching of control variables by comparing the means of treatment and control samples. The treatment group consists of firms that have experienced a CEO sudden death, and control firms are those that have not experienced a CEO sudden death. The control firms are matched using propensity score matching (using the nearest neighbor option) with the same control variables as used in the main analysis.

	Treated	Control	T-Stats	P-value
SIZE	7.694	7.840	-0.910	0.362
MTB	1.988	1.980	0.070	0.944
LEV	0.202	0.195	0.410	0.682
SGR	0.075	0.094	-0.790	0.428
CAPEX	0.051	0.047	1.180	0.239
ACQ	0.030	0.025	0.780	0.437
R&D	0.027	0.027	0.090	0.927
DIV	0.268	0.304	-0.790	0.431
NWC	0.077	0.064	0.890	0.376
CF	0.097	0.090	1.320	0.187
DELTA	3.884	3.880	0.020	0.981
VEGA	2.998	3.044	-0.290	0.769
MALE	0.967	0.951	0.790	0.430
AGE	3.940	3.955	-1.060	0.292
TENURE	0.153	0.190	-0.670	0.503
CASH	0.093	0.131	-2.170**	0.030

Panel B: Difference-in-Differences (DiD) Approach

This panel presents the difference-in-differences (DiD) estimators for cash holdings based on CEO sudden deaths from 1996 to 2018. The treatment group consists of firms that have experienced a CEO sudden death, and control firms are those that have not experienced a CEO sudden death. The control firms are matched using propensity score matching (using the nearest neighbor option) with the same control variables as used in the main analysis.

Outcome Variable	CASH	Standard Error	T-Stats	P-value
Before CEO Death				
Control	0.112			
Treated	0.111			
Diff (T-C)	-0.001	0.014	-0.84	0.935
After CEO Death				
Control	0.130			
Treated	0.087			
Diff (T-C)	-0.044	0.011	3.84	0.000**
Diff-in-Diff (CASH)	**-0.043**	**0.018**	**2.38**	**0.018****

Panel C: 2SLS with the Instrumental Variable of CEO Sudden Death

This panel investigates the effect of board co-option on cash holdings using the instrumental variable method. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. DEATH is the instrumental variable for board co-option, which equals 1 if there is a CEO sudden death in the firm-year and 0 otherwise. COB is the proportion of co-opted directors to the total number of directors on a board. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables.

	First Stage	Second Stage
	(1)	(2)
	COB	CASH
DEATH	-0.060***	
	(0.018)	
Instrumented COB		0.047***
		(0.165)
Constant	-0.160	0.471***
	(0.178)	(0.114)
Baseline Controls	Yes	Yes
Industry&Year FE	Yes	Yes
Observations	20,473	20,473
R-squared	0.315	0.383

Table 9: Financially Constraints

This table presents the regression results for the moderating effect of financial constraints. We interact COB with payout ratio (PAYOUT), credit rating (RATING), leverage ratio (LEV), interest coverage (COVERAGE), KZ-index (KZ), WW-index (WW), SA-index (AA), and cash flow volatility (CFVOL), respectively. All the financial constraint measures are constructed as dummy variables that equal 1 for financially constrained firms and 0 for unconstrained firms. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	(1) CASH	(2) CASH	(3) CASH	(4) CASH	(5) CASH	(6) CASH	(7) CASH	(8) CASH
COB	0.016***	0.019***	0.016***	0.018***	0.014**	0.024***	0.016***	0.023***
	(0.004)	(0.007)	(0.006)	(0.007)	(0.006)	(0.008)	(0.005)	(0.005)
PAYOUT	0.045***							
	(0.004)							
COB×PAYOUT	-0.018***							
	(0.006)							
RATING		0.013***						
		(0.004)						
COB×RATING		-0.011*						
		(0.006)						
LEV			-0.000					
			(0.006)					
COB×LEV			-0.021**					
			(0.010)					
COVERAGE				-0.012**				
				(0.006)				
COB×COVERAGE				-0.019*				
				(0.010)				
KZ					-0.031***			
					(0.006)			
COB×KZ					-0.036***			
					(0.012)			
WW						-0.011*		
						(0.006)		
COB×WW						-0.009*		
						(0.005)		
SA							0.003	
							(0.004)	
COB×SA							-0.015**	
							(0.006)	
CFVOL								0.053***
								(0.003)
COB×CFVOL								-0.010*
								(0.006)
Constant	0.439***	0.487***	0.451***	0.451***	0.434***	0.468***	0.449***	0.360***
	(0.033)	(0.030)	(0.067)	(0.067)	(0.066)	(0.067)	(0.033)	(0.034)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry&Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,473	17,552	20,473	20,473	20,473	20,473	20,473	20,473
R-squared	0.378	0.546	0.374	0.376	0.388	0.374	0.373	0.373

Table 10: Board Co-option and Dividend Policy

This table examines the effect of board co-option (COB) on dividend payouts. The dependent variable CDVC in Column 1 is cash dividends scaled by total assets; DIV in Column 2 is total dividends scaled by total assets. In Column 3, REP Only vs. DIV is a dummy variable that equals 1 if the firm uses stock repurchases only and 0 if the firm pays dividends. In Column 4, REP Only vs. DIV & REP equals 1 if the firm uses stock repurchase only and 0 if the firm pays dividends and uses stock repurchase. In Column 5, REP Only vs. DIV Only equals to 1 if the firm uses stock repurchase only and 0 if the firm pays dividends only (without using stock repurchases). COB is the proportion of co-opted directors to the total number of directors on a board. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% levels, respectively.

	(1) CDVC	(2) DIV	(3) REP Only vs. DIV	(4) REP Only vs. DIV & REP	(5) REP Only vs. DIV Only
COB	-0.005***	-0.004***	0.147***	0.135***	0.161***
	(0.001)	(0.001)	(0.029)	(0.031)	(0.034)
SIZE	0.001*	0.001*	-0.057***	-0.073***	-0.030***
	(0.000)	(0.000)	(0.007)	(0.008)	(0.010)
MTB	0.006***	0.007***	-0.033***	-0.034***	-0.021**
	(0.001)	(0.001)	(0.008)	(0.008)	(0.009)
LEV	-0.002	-0.001	0.078	0.110*	0.031
	(0.003)	(0.003)	(0.054)	(0.056)	(0.064)
SGR	-0.010***	-0.010***	0.177***	0.217***	0.077***
	(0.001)	(0.001)	(0.025)	(0.028)	(0.028)
CAPEX	-0.001	0.001	0.212	0.270	-0.002
	(0.007)	(0.008)	(0.236)	(0.250)	(0.287)
RD	-0.041***	-0.040***	1.676***	1.305***	1.466***
	(0.013)	(0.013)	(0.306)	(0.299)	(0.263)
CF	-0.046***	-0.048***	0.684***	0.541***	1.077***
	(0.007)	(0.007)	(0.122)	(0.113)	(0.171)
VOLT	-0.095***	-0.091***	2.054***	2.331***	1.292***
	(0.006)	(0.006)	(0.149)	(0.157)	(0.159)
MALE	-0.000	-0.000	-0.059	-0.071	-0.053
	(0.002)	(0.002)	(0.049)	(0.050)	(0.059)
AGE	0.007**	0.007**	-0.294***	-0.235***	-0.334***
	(0.003)	(0.003)	(0.077)	(0.082)	(0.081)
TENURE	0.000	0.000	-0.012	-0.016	-0.004
	(0.000)	(0.000)	(0.010)	(0.011)	(0.013)
BIND	0.000	-0.000	-0.058	-0.045	-0.145*
	(0.003)	(0.003)	(0.064)	(0.067)	(0.075)
CEOD	0.001	0.001	-0.009	-0.015	-0.005
	(0.001)	(0.001)	(0.018)	(0.019)	(0.022)
FEMALE	0.012***	0.012***	-0.330***	-0.393***	-0.118
	(0.004)	(0.004)	(0.107)	(0.112)	(0.123)
Constant	-0.014	-0.014	1.626***	1.650***	1.697***
	(0.015)	(0.015)	(0.391)	(0.430)	(0.460)
Industry&Year FE	Yes	Yes	Yes	Yes	Yes
Observations	14,904	14,904	12,765	10,804	6,249
R-squared	0.306	0.300	0.292	0.325	0.295

Table 11: Board Co-option and Corporate Investment

This table examines the effect of board co-option (COB) on the investment decisions of firms. We use three measures of investment: (1) CAPEX in column (1) is capital expenditures scaled by total assets, (2) ACQ in column (2) is total acquisition expenditures scaled by total assets, and (R&D) is the research and development expenditure of firms divided by total assets. COB is the proportion of co-opted directors to the total number of directors on a board. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	(1) CAPEX	(2) ACQ	(3) R&D
COB	0.002	0.001	0.004**
	(0.002)	(0.002)	(0.002)
SIZE	-0.002***	-0.001***	-0.002***
	(0.001)	(0.000)	(0.001)
MTB	0.002***	-0.003***	0.007***
	(0.001)	(0.000)	(0.001)
LEV	0.001	0.044***	-0.020***
	(0.004)	(0.005)	(0.003)
DIV	-0.004**	-0.003**	-0.007***
	(0.002)	(0.001)	(0.002)
CF	0.084***	0.031***	-0.124***
	(0.012)	(0.006)	(0.012)
MALE	-0.001	0.000	0.003
	(0.003)	(0.003)	(0.003)
TENURE	0.000	0.001	0.002**
	(0.001)	(0.001)	(0.001)
AGE	-0.015***	-0.007	-0.025***
	(0.005)	(0.005)	(0.006)
Constant	0.121***	0.063**	0.143***
	(0.022)	(0.027)	(0.027)
Industry&Year FE	Yes	Yes	Yes
Observations	20,473	20,473	20,473
R-squared	0.393	0.054	0.541

Table 12: Board Co-option and Marginal Value of Cash

This table presents the regression results for the effect of board co-option on the marginal value of cash holdings. Columns 1 and 2 are based on Faulkender and Wang's (2006) model; Columns 3 and 4 are based on Halford et al.'s (2020) model. Column 4 uses propensity score-matching sample. The dependent variable is excess return EXRET, computed as stock returns over the fiscal year minus that of the corresponding Fama French benchmark portfolio formed on size and book-to-market. △COB×△CASH is the interaction term to show if board co-option affects the marginal value of cash. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	Faulkender and Wang (2006)	Faulkender and Wang (2006)	Halford et al. (2020)	Halford et al. (2020) with PSM
	(1)	(2)	(3)	(4)
	EXRET	EXRET	EXRET	EXRET
△CASH	1.045***	1.054***	1.050***	1.290***
	(0.085)	(0.088)	(0.097)	(0.182)
△COB		0.032*	0.031	0.103**
		(0.019)	(0.020)	(0.047)
△COB×△CASH		-0.579**	-0.630**	-1.184*
		(0.263)	(0.251)	(0.633)
△NASSETS	0.218***	0.216***	0.248***	0.259***
	(0.025)	(0.024)	(0.030)	(0.044)
△EARNINGS	0.117*	0.127**	0.122**	0.288***
	(0.070)	(0.061)	(0.051)	(0.053)
△INTEREST	-2.523***	-2.509***	-1.551**	-2.990***
	(0.605)	(0.612)	(0.626)	(1.126)
△DVC	0.072	0.071	0.076	0.375
	(0.138)	(0.138)	(0.129)	(0.393)
△R&D	-0.275	-0.310	-0.349	-0.497
	(0.297)	(0.296)	(0.304)	(0.411)
$CASH_{t-1}$	0.724***	0.718***	0.685***	1.059***
	(0.082)	(0.084)	(0.081)	(0.174)
LEV	-0.335***	-0.345***	-0.279***	-0.291***
	(0.051)	(0.052)	(0.054)	(0.091)
△FIN	-0.119***	-0.119***		
	(0.027)	(0.027)		
$△CASH×CASH_{t-1}$	-0.229**	-0.211*	-0.197*	-0.039
	(0.102)	(0.110)	(0.108)	(0.210)
△CASH×LEV	-0.198	-0.255	-0.425**	-0.526
	(0.184)	(0.193)	(0.192)	(0.512)
STOCKREPURCASHE			0.707***	0.353
			(0.116)	(0.256)
STOCKISSUE			0.469***	0.114
			(0.126)	(0.244)
DEBTISSUE			-0.307***	-0.158
			(0.060)	(0.098)
DEBTREDUCTION			0.302***	0.193*
			(0.061)	(0.099)
Constant	-0.019	-0.015	-0.048***	-0.075***
	(0.014)	(0.014)	(0.014)	(0.027)
Firm&Year FE	Yes	Yes	Yes	Yes
Observations	15,239	15,092	13,851	3,537
R-squared	0.373	0.373	0.394	0.477

Table 13: Moderating Effect of Alternative Governance Mechanisms

This table examines the moderating effect of corporate governance on the relationship between board co-option and cash holdings. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. COB is the proportion of co-opted directors to the total number of directors on a board. We interact COB with alternative governance mechanisms including INSTOWN (institutional ownership), TAKEOVER (takeover index), ANALYSTS (analyst followings), and INDEPENDENCE (board independence) in Columns 1 to 4 respectively. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	CASH	CASH	CASH	CASH
COB	0.068***	0.027**	0.033*	0.050**
	(0.024)	(0.013)	(0.017)	(0.020)
INSTOWN	0.062***			
	(0.022)			
COB×INSTOWN	-0.114***			
	(0.043)			
TAKEOVER		-0.101***		
		(0.029)		
COB×TAKEOVER		-0.043		
		(0.057)		
ANALYSTS			0.001***	
			(0.000)	
COB×ANALYSTS			-0.002***	
			(0.001)	
INDEPENDENCE				0.006
				(0.019)
COB×INDEPENDENCE				-0.056*
				(0.029)
Constant	0.498***	0.631***	0.537***	0.410***
	(0.104)	(0.080)	(0.063)	(0.091)
Baseline Controls	Yes	Yes	Yes	Yes
Industry&Year FE	Yes	Yes	Yes	Yes
Observations	15,290	16,140	15,290	20,472
R-squared	0.292	0.291	0.292	0.340

Table 14: Moderating Effect of Information Asymmetry

This table examines the moderating effect of corporate governance on the relationship between board co-option and cash holdings. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. COB is the proportion of co-opted directors to the total number of directors on a board. SPREAD is the annual average of the ratio of the daily closing bid-ask spread to the closing price, DISP is the analyst forecast dispersion measured as the annual average of the monthly dispersion of analysts' forecasts, CCAM and OCAM are the close-to-close and open-to-close measures, respectively, of Barardehi et al. (2021), and PIN is the probability of informed trading measured by Easley et al. (1996). We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	(1) CASH	(2) CASH	(3) CASH	(4) CASH	(5) CASH
COB	0.077***	0.012**	0.012**	0.021***	0.019**
	(0.020)	(0.006)	(0.006)	(0.005)	(0.008)
SPREAD	-0.032***				
	(0.003)				
COB×SPREAD	0.008***				
	(0.003)				
OCAM		0.580***			
		(0.173)			
COB×OCAM		-0.884**			
		(0.426)			
CCAM			0.535***		
			(0.156)		
COB×CCAM			-0.826**		
			(0.396)		
DISP				0.079	
				(0.203)	
COB×DISP				1.197**	
				(0.534)	
PIN					-0.384***
					(0.039)
COB×PIN					0.078**
					(0.038)
Constant	0.327***	0.347***	0.346***	0.506***	0.533***
	(0.074)	(0.075)	(0.075)	(0.052)	(0.043)
Baseline controls	Yes	Yes	Yes	Yes	Yes
Industry&Year FE	Yes	Yes	Yes	Yes	Yes
Observations	16,841	12,574	12,574	15,078	12,557
R-squared	0.375	0.317	0.317	0.395	0.569

Table 15: Co-option Vs. Independence

This table examines the effect of board co-option and board independence on cash holdings. The dependent variable CASH is the ratio of cash and cash equivalents to total assets. COB is the proportion of co-opted directors to the total number of directors on a board. IND is board independence measured by % of independent board directors. COB_IND is the % of directors who are co-opted and independent. COB_NONIND is the % of directors who are co-opted and non-independent. COB_IND% is COB_IND scaled by COB, representing the % of all co-opted directors who are independent. We include all the baseline control variables used in Table 3; for brevity, we only show the results of the main independent variables. The variables are defined in Appendix A. All variables are winsorized at the 1% and 99% levels. Numbers in parentheses are robust standard errors clustered by firms. Superscripts ***, **, and * indicate the significance at the 1%, 5%, and 10% level, respectively.

	(1) CASH	(2) CASH	(3) CASH	(4) CASH	(5) CASH	(6) CASH
IND	0.006					
	(0.019)					
COB×IND	-0.056*					
	(0.029)					
COB_IND		0.022***	-0.031*	-0.023		0.018**
		(0.007)	(0.019)	(0.024)		(0.007)
COB×COB_IND				-0.013		
				(0.022)		
COB_IND%					0.007	
					(0.010)	
COB×COB_IND%					-0.042	
					(0.027)	
COB_NONIND						0.049***
						(0.016)
COB	0.050**		0.049***	0.053***	0.061***	
	(0.020)		(0.016)	(0.016)	(0.023)	
Constant	0.410***	0.458***	0.464***	0.460***	0.463***	0.464***
	(0.091)	(0.079)	(0.080)	(0.080)	(0.083)	(0.080)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry&Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,472	20,472	20,472	20,472	18,432	20,472
R-squared	0.340	0.372	0.374	0.374	0.377	0.374