# The Role of CEO Perquisites in Firm Cash holding: A US case

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## Abstract

Previous literature exploring the agency cost of firm cash holding and value of cash has not clearly identified the motives for stockpiling or dissipating cash holdings in the firm, and the value of cash for investors. This study uses a more direct proxy, CEO perquisites, to explain the different motives of CEOs in setting cash holdings and how market participants perceive the value of cash. Three hypotheses derived from the literature offering three different explanations for the effect of CEO perquisites on cash holding and value of cash are tested in this study. The three hypotheses are *Compensation protection hypothesis*, the *Overinvestment hypothesis*, and the *Appropriate stimulation hypothesis*.

Empirical results show that CEO perquisites are negatively related to firms' cash holding level and value of cash, a finding more consistent with the *Overinvestment Hypothesis.* Empirical results further indicate that investors may dislike excess CEO perk offerings and that perks are not an effective incentive scheme, but instead are linked to poorer market and operating performance.

Key words: CEO perquisites, Cash holding, Value of Cash, Agency Cost

## 1. Introduction

Cash holding and the value of the cash to investors have long been discussed by researchers (Jensen,1986; Harford, 1999; Opler et al., 1999; Pinkowitz et al., 2006) The level of cash holding are claimed directly link to executive decision on payout to shareholder, internally use, external investment or continuous holding (Harford et al., 2008)). Researchers generally hold the consensus that firm stockpiles cash in order to fund future investment, in case the external funding is too costly (Acharya et al., 2007; Opler et al., 1999). More importantly, market participants may reflect their opinion of the firm's level of cash holding through estimation of the value of cash for the firm. (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008; Liu and Mauer, 2011).

Several determinants of cash holding have been discussed in the finance literature. Bates et al. (2009) contend that the cash ratio increases considerably after 1980, finding that the increase in cash holding is due to higher uncertainty about cash flow (lower inventories and accounts receivable) and R&D intensity. They suggest that the rise in cash holding is related to the precautionary incentive. They also argue that cash holding could be related to tax considerations and transaction motives for large firms. Faulkender and Wang (2006) show that the marginal value of cash is negatively associated with large amounts of cash, higher leverage, and better access to capital markets. Another stream of research argues that entrenched managers may overinvest cash in projects that may not maximize shareholder wealth (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008; Jensen, 1986; Myers and Rajan, 1998).

Recent research on cash holding highlights the agent conflicts and corporate governance associated with firm cash holding.[1] Though research on cash holding finds that governance quality and agency conflicts are crucial in determining firm cash holding and value of the cash, the proxies used to assess the determinants of cash holding are limited to regular CEO compensation items (i.e. stock options), firm level governance indexes (i.e. G-index), or ownership concerns.

This study argues that if corporate operations and cash management could be affected by potential agency conflict and firm governance quality, then the most direct representation must be the private benefit a CEO can receive outside of regular

[1] See Harford (1999), Opler et al. (1999), Dittmar, et al.(2003), Pinkowitz et al.(2006), Acharya et al. (2007), Faulkender and Wang (2006), Dittmar and Mahrt-Smith (2007), Kalcheva and Lins (2007), Harford et al. (2008), Bates et al. (2009), Liu and Mauer (2011), and Nikolov and Whited (2013)

compensation, and that more specific CEO attributes and board characteristics may be linked to agency cost. This study postulates that the personal benefits the CEO receives are not only directly associated with the agency costs but also represent corporate governance quality to an important extent. Thus, these benefits may serve as more direct determinants of the firm's cash management then other governance proxies in the literature.

Jensen and Meckling (1976) first identified CEO perquisites may be representations of agency cost and a governance proxy. They suggested that excess perquisites may induce agency problems. Though Fama (1980) and Rajan and Wulf (2006) argue that perquisites improve executive productivity, Grossman and Hart (1980), Jensen (1986), and Yermack (2006) find that excess perquisites may lead to weak corporate governance. Rajan and Wulf (2006) and Grinstein et al. (2011) find that the amount of perquisites is positively related to free cash flow.

Critics of the role of CEO perquisites receive notable attention from both scholars, policy makers, and market practitioners.[2] In the UK, investors criticized the Chairman of Cable & Wireless Communications for receiving "*nauseatingly generous*" personal awards while the "*dividend payments were not covered by free cash flow… there was a question mark over whether the dividend would be maintained in 2012/13*." The excess executive personal benefit may well affect firm and shareholders' welfare, including corporate governance and cash holding.

Another stream of studies by Rosen (2000), Rajan and Wulf (2006), and Marino and Zabojnik (2008) show that higher amounts of perks are associated with better governance quality and more efficient productivity. Rajan and Wulf (2006) discuss the association between perks and productivity, private benefit, status. and taxes. They suggest that perks and salary are "mutually reinforcing" incentive schemes. Rosen (2000) contends that perquisites to some extent provide motivation and enhance productivity. Marino and Zabojnik (2008) suggest that perquisites serve the functions of consumption complementarities and productivity enhancement, especially when the production process is more uncertain.

[2] Because perquisite data must be hand-collected from the firm's proxy statement, empirical studies on perquisites are scarce. This is another contribution of this study.
Recently several scholars have explored how perquisites affect the firm value and corporate governance quality, including Yermack (2006), Rajan and Wulf (2006), Andrews et al. (2009), and Grinstein et al. (2011).

The literature exploring how the agency cost is related to firm cash holding and value of cash have drawn inconclusive results on why CEOs increase or decrease cash holdings, and on the value of cash as seen by investors. This study uses a more pertinent proxy, CEO perquisites and CEO attributes, in explaining the differing motives of CEOs in setting the level of cash holdings and how market participants perceive the value of cash. Three hypotheses derived from the literature offering three different explanations for the effect of CEO perquisites on cash holding and value of cash are tested in this study. The three hypotheses are Compensation protection hypothesis, the Overinvestment hypothesis, and the Appropriate stimulation hypothesis.

In sum, this study contributes to the literature on cash holding in several ways. First, this paper hand collects all CEO perquisites data from S&P 500 firms' proxy statements between 1997 and 2012. Second, this paper investigates the impact of agency cost on firm cash holding, value of cash, and level of excess cash by focusing on the hidden side of CEO compensation, CEO perquisites. Information on CEO perks is hand-collected from firm proxy statements and used to compute CEO Sum Perks.[3]

The remainder of this study is presented as follows. Section 2 reviews the literature and develops hypotheses. Section 3 presents the data and methodology. Section 4 offers the empirical results and analysis. The final section provides the conclusions of the study.

## 2. Literature Review and Hypothesis

### 2.1 CEO Perquisite as a Proxy for Agency Cost and Corporate Governance

[3] CEO perquisites following Andrews et al. (2009), are categorized by: (1) air travel expenses; (2) company automobile allowance and local transportation; (3) entertainment expenses, club dues, vacation expenses and other personal benefits; (4) securities, housing allowance, moving and relocation expenses, and other home/family related perquisites; (5) travel expense (6) legal, financial, and tax services fees and tax payments or tax gross-ups; (7) medical and health benefits; (8) financial perquisites, equity related perquisites, and severances; (9) administrative privileges; (10) deferred compensation and other perquisites).

Cash holding can be seen as precautionary hedge for future external funding, yet may lead to over-spending on low value projects. Scholars have explored whether cash holding and the value of cash may be affected by firm governance quality. Several recent studies investigate managerial compensation and agency cost, (Coles et al., 2006; Liu and Mauer, 2011; Tong, 2010), applying the governance index (G index and E index) as a proxy for governance quality (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008).

Scholars argue that executive compensation is important in determining the firm cash holding. Coles et al. (2006) and Tong (2010) suggest that managers pursuing risk (higher Vega) decrease firm cash holding, but Tong (2010) finds that the value of cash is higher for CEOs of firms with a higher Vega. Liu and Mauer (2011) investigate firm cash holding and CEO incentives using the Delta and Vega of CEO stock options plans. They confirm that there is a positive association between Vega (the volatility of the CEO compensation) and firm cash holding, and argue that the greater Vega represents greater risk taking behavior by the CEO, which makes bondholders require a higher level of cash when the CEO stock options have a higher Vega and the firm is financially constrained (*the Costly contracting hypothesis*). Nevertheless, they did not find any significant relation at the Delta level. They further argue that there is a negative association between the *value of cash* to shareholders and Vega.

Several scholars emphasize the governance index (G-index by Gompers et al., 2003), and E-index by Bebchuk et al., 2009) as representations of a firms' governance quality. (Bates et al., 2009; Dittmar and Mahrt-Smith, 2007; Harford et al., 2008). Dittmar and Mahrt-Smith (2007) apply institutional ownership and G-index as goverance proxies and find that excess cash decreased rapidly for poorly governed firms, which may have spent the cash on projects that damage operating performance. The value of cash is lower in poorly governed firms. Examining a sample of firms from 1996 and 2004 in the US, Harford et al. (2008) use the G-index and E-index, executive, block holder and institutional ownership, the ratio of executive stock options to total compensation, board size and board independence as governance proxies. Harford et al. (2008) find that firms with weak governance quality have lower levels of cash holding. A recent study by Nikolov and Whited (2013), who examine the association between agency conflict and cash holding via a structural model, argue that level of managerial perquisites is the strongest determinant of firm cash holdings. Nevertheless, their model, along with other studies, only include executive compensation data on regular items, including salary, cash bonus and stock options. Real items that are generally defined as

"perquisites" are not included in their empirical investigation.

Jensen and Meckling (1976) assert that introduction of executive compensation helps align the interests of principals (shareholders) and agents (managers). This argument has been supported by numerous studies (Core and Guay, 1999; Fama and Jensen, 1983; Jensen and Murphy, 1990; Smith and Stulz, 1985; Yermack, 1995). Yet researchers also argue that an inappropriate amount of compensation may induce agency problems (Core et al., 1999; Jensen et al., 2004). A manager (agent) could commit a crime if the utility of the crime payoff were to exceed the 'disutility' of being caught in the process (Becker, 1968). While excess executive compensation intensifies agency problems, Core et al. (2008) find that the media responds passively to excess compensation. Further, firms did not response to negative press by reducing compensation. This implies that to a certain extent, firms' executives may influence firms' policy decision making to retain excess compensation even in the face of bad publicity.

Although the existence of executive perquisites have drawn significant attention from the media and the market recently, studies on executive perquisites remain scarce, because the data is only available by hand collecting it from proxy statements. Yermack (2006), Andrews et al. (2009) and Grinstein et al. (2011) find a negative market response to the disclosure of perks. While Coles et al. (2006) and Tong (2010) find a negative relation between Vega and cash holding, Liu and Mauer (2011) find the opposite. Though these studies treat stock options as a form of CEO incentive, they neglect the fact that CEO compensation also includes perquisites. Because the value of the executive stock options depends on the market performance of the shares, researchers have used Delta as the pay-for-performance proxy and Vega as the risk-incentive indicator. Unlike options and restricted stocks, which are considered long term incentives, cash compensation and perks could be treated as short term incentive schemes. Hence it is possible that CEOs have the incentive to extract personal benefits from shareholders. Pinkowitz et al. (2006) argue that controlling shareholders may expropriate private benefits from minority shareholders through cash management, an agency cost. Nikolov and Whited (2013) argue that perquisites are a crucial motive for executives in explaining their cash holding strategies. Grinstein et al. (2011) argues that firms disclosing large amounts of perks exhibit large amounts of free cash flow. Furthermore, the literature shows that specific board characteristics and CEO attributes are linked with corporate governance and agency problems. This study further includes

related variables in the empirical investigation.[4]

Based on the foregoing discussion, this study argues that CEO perquisites is an important factors that may directly represent agency costs and the quality of corporate governance. The conflicting motives of the CEO (the agent), and the shareholders (the principal), affect cash holding levels and the value of the cash. Based on the previous literature, the following hypotheses are developed to examine the impact of CEO perquisites on firm cash holding and the value of the cash perceived by the market.

## 2.2 Hypotheses

Previous studies investigating the association between cash holding and value of cash, and corporate governance and agency cost, are inconclusive. This study postulates that using CEO perquisites as a proxy for firm's governance quality and agency cost may yield new insight into these issues.

### *2.2.1 Compensation protection hypothesis*

Kim et al. (1998) suggest that firms maintain a higher level of cash for potential future investment. Opler et al. (1999) contend that because external funding may be costly, managers may hold more cash. Studying firms from 31 countries, Kalcheva and Lins (2007) find that firms with lower shareholder's rights have higher cash holdings. They also show that firm value is distressed when managers hold too much cash. Dittmar and Mahrt-Smith (2007) suggest that markets give cash a lower value when firms have greater agency problems.

Both Dittmar and Mahrt-Smith (2007) and Harford et al. (2008) argue that

[4] Hambrick and D'Aveni (1992), Daily and Dalton (1994), Anderson and Bizjak (2003) and Abdullah (2006) suggest that CEO duality may represent an agency problem and that a dominant CEO may raise a firm's likelihood of bankruptcy. Many studies find that smaller board size may enable more efficient board performance, positively affect firm operations (Simpson and Gleason, 1999; Uzun et al. 2004; Yermack, 1996) and reduce the likelihood of fraud (Daily and Dalton, 1994; Jensen, 1993; Lipton and Lorsch, 1992). Yet studies examining the size of the nomination committee and compensation committee are scarce. Fisher (1986) and Daily et al. (1998) suggest that the role of compensation committee is crucial in governance. Sun and Cahan (2009) and Sun et al. (2009) show that both CEO stock options and cash compensation are affected by the quality of compensation committee. They suggest that future firm performance is positively related to the quality of the compensation committee. Other researchers also emphasize the relationship between compensation and board structure (Core et al. 1999; Hartzell and Starks, 2003; Hermalin and Weisbach, 2003). Basu et al. (2007), Cornett et al. (2008), and Harris (2009) discuss the importance of policy design to mitigate the governance problem induced by executive compensation schemes.

managers of firms with weak governance tend to stockpile cash, but dispose of cash quickly in events such as acquisitions. Bates et al. (2009), investigating why firms hold more cash at present than in previous decades, identify four motives for firms to hold cash: "*inventories have fallen, cash flow risk for firms has increased, capital expenditures have fallen, and R&D expenditures have increased.*" Hence, they contend that the level of cash holding is related to the firm's specific characteristics. Bates et al. (2009) do not find evidence using the G-index. Studies examining the agency cost and cash holding at the international level (Dittmar et al., 2003; Kalcheva and Lins, 2007; Pinkowitz et al., 2006), and show that in countries with weak shareholder rights, firms hold more cash. Liu and Mauer (2011) confirm that there is a positive association between Vega (the volatility of the CEO compensation) and firm's cash holding. Grinstein et al. (2011) find high levels of perquisites are associated with high levels of free cash flow.

Entrenched CEOs with high perquisites and stronger attributes may maintain higher level of cash to permit greater flexibility in financing, since they may have limited or costly external financing, which is also subject to public scrutiny, when their firms are considered to be poorly governed. Further, an entrenched CEO may retain cash in order to seek support for lavish personal perquisites "paid in cash" by firm shareholders.

A CEO with abundant perks or cash compensation and greater power to influence the firm's operations may be hesitant to pursue high risk projects and attempt to keep more cash in the firm in order to ensure the future flexibility of fund raising and to secure the continuation of perquisites. However, if investors perceive that generous perquisites and strong CEO attributes lead to lower governance quality, they may discount the value of the firm. Hence, this study proposes a *Compensation protection hypothesis:*

*"A CEO with large perks may be hesitant to pursue high risk projects and attempt to keep more cash in the firm in order to ensure the future flexibility of fund raising and to secure the continuation of their perquisite compensation. There is a positive relation between CEO perquisite and cash holding. If this hypothesis holds, market investors may perceive that cash has reduced value due to its less effective use and excessive cash levels."*

### *2.2.2 Overinvestment hypothesis*

Research suggests that excessive executive stock options may induce CEO risk-taking behavior (Coles et al., 2006; Guay, 1999). Such risk-taking behavior may reduce the level of cash holding and hence reduce the value of cash for market investors.

Jensen and Meckling (1976) suggest that managers pursuing self-interest may spend cash to expand the firm. Jensen (1986) and Myers and Rajan (1998) argue that entrenched managers may overinvest in negative NPV projects. Pinkowitz et al. (2006) show that cash is valued less by shareholders when the country has lower shareholder protection. Coles et al. (2006) and Tong (2010) suggest that managers pursuing risk (higher Vega) decrease the firm's cash. Kalcheva and Lins (2007) confirm that the stronger the management control, the more significant the negative relation between cash holding and firm value. Harford et al. (2008) observe that to avoid public attention, managers in the US may reduce cash holding to "*avoid visible accumulation of excess cash*".

Since majority types of perquisites can be considered as "one-time usage", such as golf club memberships which may not be annually renewed, to a certain extent entrenched managers may pursue risky investments to achieve short term performance, in order to obtain extra perquisites. Therefore, entrenched managers may overinvest when they intend to keep their perk offering by pursuing short term performance. If this argument holds, then a negative association between perquisites (stronger CEO attributes) and cash holding should be observed, and the market would assign lower value to firm cash due to the agency cost. Hence; this study proposes an <u>*Overinvestment hypothesis:*</u>

*"Entrenched managers may overinvest or may pursue risky investments to achieve short term performance, in order to retain or obtain perquisites. There will be a negative relation between CEO perquisites and firm cash holding, and the value of cash for market investors will be negative."*

### *2.2.3 Appropriate stimulation hypothesis*

CEO compensation aligns the interest between the agent and the principle (Jensen and Meckling, 1976). Dittmar, et al. (2003), Kalcheva and Lins (2007), and Pinkowitz

et al. (2006) argue that firms with stronger shareholders' rights may have lower cash holdings due to their greater payouts to shareholders. If CEO perquisites act as an incentive scheme, then theoretically the compensation scheme would align the interests of the CEO with those of the shareholders. Since holding excess cash generates income (risk free rate) lower than the required rate of return, CEOs should choose appropriate investments and maintain cash at a relatively low level. If this is the case, then markets should perceive the value of cash to be positive. Thus:

*"If the CEO has the same goal as the shareholders, there will be a negative relation between CEO perquisites and firm cash holding. The value of cash for market investors should be positive."*

This study explores the impact of agency cost and governance quality on firm cash holding. To explore the perception of market investors towards agency cost, governance quality, and cash holding, the value of cash for market investors is examined. The three hypotheses in this study are summarized in Table 1 below.

**Table 1. Hypotheses of this study**

| Hypothesis | Firms' Cash Holding vs. Agency Cost | Value of Cash vs. Agency Cost |
|---|---|---|
| 1.***Compensation protection hypothesis*** | *Positive* | *Negative* |
| 2. ***Overinvestment hypothesis*** | *Negative* | *Negative* |
| 3. ***Appropriate Stimulation hypothesis*** | *Negative* | *Positive* |

## 3. Data and Methodology

### 3.1 Data

The sample consists of US S&P 500 firms (according to the classification in end 2009) for the period 1997 and 2012. The empirical analysis of this study draws from several databases. All accounting variables, including proxies related to cash holdings, are collected from Compustat. All market related variables are obtained from the CRSP

database. Proxy statements are downloaded from the EDGER database. Data on CEO perquisites, board characteristics, and CEO attributes are hand-collected from the proxy statements. Other CEO compensation information related to equity based (i.e. stock options and restricted stocks), and cash based (i.e cash bonus and salary), are obtained from Executive Comp database. CEO compensation and CEO perquisites will then be merged based on the name of CEO and firm year. Panel A in Table 2 presents the databases used in this study. Panel B in Table 2 presents variables applied in this study. Panel C and Panel D of Table 2 presents definitions of dependent variables and independent variables in empirical analysis. Panel C and Panel D of Table 2 presents definition of dependent/independent variables in the emrpirical models.

Insert Table 2 about here

### 3.2.1 Impact of CEO Attributes and CEO Perquisites on Firm Cash Holding

To estimate the Cash_holding, the following equation based on Opler et al. (1999), Harford et al. (2008), and Liu and Mauer (2011) is used:

$$Cash\_Holding = CEO\_Chr + CEO\_Compensation + Board\_Chr + Ownership + Controls + YearDummy + Firm\_Fixed\_Effect$$

(Model 1)

*Cash_Holding:* (1) Ratio of cash plus marketable securities to net assets, (2) Cash and Marketable Securities to total assets (3) Cash/Sales ratio (all use natural logarithm)

*CEO_Cha:* CEO_Tenure, CEO-President_D,

*CEO_Compensation:* all adjusted to natural logrithm: (1) logPerk: Total Amount of Perquisite (2) logNonPerk: Total Amount of non perk compensation (CEO TDC1 defiend by Execucomp database) (3) Perk_Med_D: above and below median dummy for CEO cash and perquisite compensation

Except for CEO perquisite, which is hand collected from proxy statements, other compensation variables are collected from the Executive Compustat

data base and matched with CEO perquisite based on CEO name and firm year.

*Board_Chr:* Board Size

*Ownership:* CEO Ownership,

*Controls:* All Assets are net of cash, all dollar amount are converted to logarithm. Market to Book ratio, Net Working Capital/Net asset, Capital Expenditure/Net Asset, Acquisition/Sales, Debt, Dividend dummy, Previous Period ROA

### 3.2.2 Impacts of CEO Compensation and Attributes on Value of Cash

Model 2 is derived following Faulkender and Wang (2006), Dittmar and Mahrt-Smith (2007), and Liu and Mauer (2011):

$$Value\_of\_Cash = Change\_of\_Cash + CEO\_Chr + CEO\_Compensation + Board\_Chr + Ownership + Controls + YearDummy + Firm\_FixedEffect$$

(Model 2)

*Value_of_Cash* : (1) AR1: Mean daily AR, alpha under one factor model (2) AR3: Mean daily AR, alpha under three factor model (3) AR4: Mean daily AR, alpha under four factor model (4) AR1_Post: Mean daily AR in the following year, alpha under one factor model (5) AR3_Post: Mean daily AR in the following year, alpha under three factor model (6) AR4_Post: Mean daily AR in the following year, alpha under four factor model (7) ROA: Industry median adjusted ROA, ROA=NI/beginning Total Asset (8) ChgROA: Industry median adjusted ROA(t)- Industry median adjusted ROA(t-1)

### 3.2.3 Impact of Excess Cash, CEO Compensation and CEO Attributes on Firm Value

Model (2) can be further extend by applying the "*Excess Cash"* following the model of Dittmar and Mahrt-Smith (2007). Excess cash is estimated by a regression which predicts the level of cash. The residual of the cash holding prediction regression

represents “excess cash”. Following Dittmar and Mahrt-Smith (2007), *Excess Cash* is defined as the regression residual from Model (1).

$$Value\_of\_Cash = ExcessCash/Sales + CEO\_Chr + CEO\_Compensation + Board\_Chr + Ownership + Controls + YearDummy + Firm\_FixedEffect$$

Model (3)

## 4. Empirical Results and Analysis

Figure 1 presents average CEO compensation for S&P 500 firms between 1997 and 2012. A large proportion of the compensation package is CEO equity awards, while CEO perk amounts are only a small fraction compared to the overall package. Interestingly, there is a sudden increase in CEO equity compensation in 2006 and 2007.

Figure 2 presents the overall cash holding ratio between 1997 and 2012 for S&P 500 firms. After 2000 there is an increasing trend in cash ratios, which declines in 2008, perhaps an effect of the financial crisis.

Table 3 presents summary statistics of the dependent and independent variables. The mean amount of Nonperk (TDC1) is larger than the total amount of Perks (Sum perk) (9282.2 thoursands compared to 258.1 thousands). Table 4 present parametric/nonparametric test by applying Above Mean (Median) Perk and Above Mean (Median) TDC1 as classifications. From Pane A we can see that there is significant differences between higher perk and low perk groups. Very significant differences are generated in all cash levels and value of cash levels. We can see that firms offer higher CEO perks are associated with lower amount of cash holdings and lower value of cash. This observation supports our overinvestment hypothesis. Panel B of Table 4 similar results are found when using above median TDC1 as classification. Which means CEO receives higher amount of total compensation also linked with lower level of cash holding. On the other hand, these CEO receives higher amount of TDC1 is associated with higher four factor abnormal returns and ROA, implying the effect of stimulation is significant, and total amount of compensation helps to align the interest between shareholders and executives.

In sum, CEO perquisite may serve as another proxy of risk-taking tendency, similar to what has been found in the association between executive options vega and

level of cash holding.

Insert Table 3 about here

Insert Table 4 about here

Table 5 shows results for model 1 where Cash holding (cash1) is estimated by the ratio of cash plus market securities to net assets. There is a positive relation between LogNonperk (All CEO regular compensation: TDC1) and level of cash holding in models 3 and 4 (0.0031, 0.0029). Further, there is a significant negative relation between Cash and Logperk and the Perk median dummy in models 2, 3, and 4 (-0.0021, -0.0023, -0.0098, respectively). These results show that perks have a negative impact on firm cashholding. Since this may be explained by either the overinvestment hypothesis, or the appropriate stimulation hypothesis, we need to further evaluate the relation between the value of cash and amount of perks to determine which of the above hypotheses better explains the results. There is a significant negative relation between cash volatility and Cash1. However, no significant relationship is found between CEO ownership and Cash 1, as well as between CEO tenure and Cash 1.

Overall, Table 5 confirms a negative association between Cash holding and CEO perks. This is more consistent with the overinvestment and appropriate stimulation hypothesis. To determine which hypothesis better explains our findings, we evaluate the results of Models 2 and 3 to analyze the relationship between the value of cash and the change in cash level.

Insert Table 5 about here

Table 6 presents the regression results of the relationship between the value of cash (AR4) and change in cash. Panel A of Table 6 shows a positive relation between change in cash holding and abnormal returns (AR4) (M1: 0.1339, M2:0.1339, M3:0.1327, M4: 0.1335), implying that investors prefer firms which hold higher levels of cash.

In addition, a positive association between logNonperk and stock performance is found (M1: 0.0119, M3:0.0177, M4:0.0147, M5: 0.0178, M6:0.0147). This finding implies that market participants believe the total amount of CEO regular compensation is a pertinent incentive scheme. Nevertheless, a significant relationship is found between Logperk and stock performance (M2: -0.0092, M3:-0.0111, M4: -0.0416, M6:-0.0419). This result reflects the fact that CEO perquisites are scrutinized by market participants, and investors may dislike large amounts of CEO perquisites.

Table 6, Panel B, shows that the results via estimating Value of Cash with the following year abnormal returns are consistent with those shown in Panel A. These results support the overinvestment hypothesis, which states that there is a negative relationship between the value of cash and CEO perquisite amount. Interestingly, when the following year abnormal returns are applied as dependent variables in Panel B, the relation between logNonperk and post abnormal returns becomes negative, implying that a greater amount of total compensation may result in negative market performance in the subsequent year.

In sum, the results shown in Tables 5 and 6 support the overinvestment hypothesis, which holds there is a negative relationship between CEO perks and firm cash holding, as well as the value of cash as perceived by investors.

Insert Table 6 about here

Panels A and B of Table 7 show the effect of CEO perquisites on stock returns using excess cash as an independent variable instead of the change in cash. Overall, there is a positive relation between excess cash and stock performance. Firms with better cash flow are safer and attract positive responses from investors. In addition, in Panel A of Table 7, using AR4 as dependent variable, a positive association between logNonperk and abnormal returns is found again ((M1: 0.4358, M2:0.4358, M3:0.4358, M4: 0.4333). Further, logperk generates a negative sign (M2: -0.0093, M3:-0.0113, M5:-0.0112). Perk_D also emerged consistent results to logPerk. These results are consistent with those in Table 6 and again support the overinvestment hypothesis.

Insert Table 7 about here

Table 8 uses ROA and change of ROA as the dependent variable to examine the relationship between operating performance and CEO perquisites. Panel A shows there is a negative association between logperk and ROA (M2: -0.0019, M3:-0.0023, M5:-0.0023), meaning that when CEO perk amount is large, ROA is poor. In addition, a positive relationship between change in cash holding level and ROA is found, implying that an increase of cash holding leads to better operating performance. This result is valid since ROA may be a more appropriate proxy for investment performance. When

a firm has more cash available to put into projects, operating performance, as represented by ROA, could be enhanced. Further, consistent with previous findings, there is a positive relation between logNonperk and operating performance, including ROA and change in ROA (M1: 0.0052, M3: 0.0060, M4:0.0059, M5:0.0060 M6: 0.0059). These results support the incentive argument which states that a pertinent amount of regular compensation can stimulate CEOs and lead to better firm performance. Panel B of Table 8 shows negative relation between change of ROA and LogPerk, indicating that perks are not a good incentive alignment schemes, they do not enhace the ROA performance. On the other hand, there is a positive relation between logNonperk and change of ROA, implying the total CEO compensation brings stimulating effect and lead to better ROA performance.

Insert Table 8 about here

Table 9 Panel A shows the results after including excess cash in the regression analysis. Again there is a significant negative relation between log perk and ROA (M2: -0.0021, M3:-0.0025, M5:-0.0025), and a positive relation between logNonperk and ROA (M1: 0.0054, M3:0.0062, M4: 0.0062, M5:0.0063, M6: 0.0062). This finding is consistent with the results shown in Table 8. It appears that the total amount of regular compensation has a positive impact on firm operating performance, whereas CEO perquisite does not enhance ROA, implying an agency cost to the firm. Panel B of Table 9 also confirms consistent results as Panel B of Table 8.

Insert Table 9 about here

Overall, results in Tables 8 and 9 are consistent with the results shown in Table 6 and Table 7. There is a negative relation between value of cash (represented by either stock performance or operating performance) and CEO perks. Combined with the previous finding of a negative association between cash holding and CEO perks, our

empirical results support the overinvestment hypothesis.

**Robustness Test**

Panels A through E of Table 10 present the results of the robustness test using different definitions of Cash holding. In Panel A the dependent variable of logCHRA (Cash 2) is the ratio of cash to net assets, following Liu and Mauer (2011). Consistent with Table 5, there is a negative relation between logPerk and cash holdings (M1: -0.00101, M3: -0.0012). Panel B of Table 10 assesses the relation between Value of cash (stock performance) and CEO perks. The sign is again negative (M1: -0.0110, M2: -0.0111, M3:-0.0032 M4:-0.0031), a consistent with previous findings in Table 6. In Panel C of Table 10, after excess cash is included in the regression, the negative relationship between logPerk and the market value of cash remains unchanged, consistent with the results Table 7. In Panels D and E of Table 10, industry adjusted ROA and change of ROA are used as the dependent variable to present firm value of cash. Again, there is a negative association between value of cash (proxied by ROA) and CEO perquisites, consistent with the results in Tables 8 and 9.

Panels A through E of Table 11 present the results of the robustness test using logCHRS (Cash 3) is the ratio of cash to sales, following Harford et al. (2008) as definitions of Cash holding. Empirical results are consistent with findings in Table 10.[5]

Insert Table 10 about here

Insert Table 11 about here

Furthermore, since there was a reform in Compensation Disclosure Rule in 2006 implemented by the SEC, which required publicly listed firm to thoroughly disclose the setting process and items of the executive compensation in the "Compensation Discussion and Analysis" (CD&A) section. Therefore, CEO perks are disclosed in more detail post year 2007. In Table 12 and Table 13, two subsample groups are conducted, one contained data prior to year 2007, the other post 2007. In general, empirical results generate consistent consensus with the whole sample period, that there is a negative relation between the cash holding and CEO perks. Nevertheless, the negative relation between CEO perks and market performance no longer exists in the post Disclosure

[5] Empirial results hold the same if we apply AR1, AR2 and AR3 in the regression analysis.

rule reform period. This confirms the effectiveness of the legislation enactment, the reform makes the information on CEO perks become more transparent, therefore the market participant react less significantly to the disclosure of the CEO perk information. This rule alleviated the concern of the agency cost brought by the amount of CEO perks offering. On the other hand, the negative association between CEO perks and ROA (Change or ROA) still verified, which emerged consistent conclusion that CEO perquisite may not bring positive incentive effect.

Insert Table 12 about here

Insert Table 13 about here

Overall, results from the robustness tests are consistent with the main findings of the regression analysis shown in Tables 5 to Table 9. Our investigation confirms the overinvestment hypothesis, which states that: "*Entrenched managers may overinvest when they have stronger attributes and have more influence on board decisions. There will be a negative relation between CEO perquisitesand firm cash holding, and the value of cash for market investors will be negative*

## 5. Conclusion

Recently, researchers have been exploring the relationship between cash holding and the value of cash, and corporate governance and agency cost (Dittmar and Mahrt-Smith, 2007; Harford et al. 2008; Kalcheva and Lins, 2007; Liu and Mauer, 2011; Nikolov and Whited, 2013). However, the proxies used in these studies for corporate governance quality is often a firm-level index. Inspired by the fact that in recent years public policy makers and market investors have come to suspect that the lavish personal benefits firms offer executives may induce server agency costs and poor governance quality, this study argues that CEO perquisites may be a more useful proxy for the agency cost, while specific CEO attributes and board characteristics may be directly linked to the quality of governance.

To better assess the incentive of CEOs in forming their firm's cash holding policy, this study explores a neglected CEO personal benefit, perquisites, to examine its relationship with cash holding and the value of cash. CEO perquisites are a private benefit for CEOs outside their regular compensation package. The amount of perks may be more representative of the entrenchment of the CEO, the governance quality of the

firm, and the agency cost. Thus, it is directly linked with the level of cash holding and value of the firm's cash as perceived by market investors.

Our results show there is a negative association between CEO perquisites and firms' cash holding level, and a negative relation between CEO perquisites and value of cash, a situation most consistent with the *Overinvestment Hypothesis*. Our results indicate that investors appear to dislike excess CEO perks and consider such perks an ineffective incentive scheme linked to poorer market and operating performance.

**Reference List:**


Abdullah, S. N., 2006. Board structure and ownership in Malaysia: the case of distressed listed companies. Corporate Governance 6, 582-594.

Acharya, V., H. Almeida, M. Campello, 2007, Is cash negative debt? A hedging perspective on corporate financial policies, Journal of Financial Intermediation 16, 515-554.

Anderson, R.C., Bizjak, J.M. 2003. An empirical examination of the role of the CEO and the compensation committee in structuring executive pay. Journal of Banking and Finance. 27, 1323-48.

Andrews, A., Linn, S., Yi, H., 2009. Corporate governance and executive perquisites: Evidence from the new SEC disclosure rules. Unpublished working paper.

Basu, S., Hwang, L., Mitsudome, T., Weintrop, J., 2007. Corporate governance, top executive compensation and firm performance in Japan. Pacific-Basin Finance Journal 15, 56-79.

Bates, T. W., K. M. Kahle and R. Stulz, 2009. Why do U.S. firms hold so much more cash than they used to?, Journal of Finance 64, 1985-2021.

Becker, G., 1968. Crime and punishment: an economic approach. Journal of Political Economy 76, 169-217.

Bebchuk, L., A. Cohen, and A. Ferrell, 2009, What matters in corporate governance, Review of Financial Studies 22, 783-827.

Coles, J. L., Daniel, N. D., Naveen, L., 2006. Managerial incentives and risk taking. Journal of Financial Economics 79, 431-468.

Core, J., Guay, W., 1999. The use equity grants to manage optimal equity incentive levels. Journal of Accounting and Economics 28, 151-184.

Core, J., Guay, W., Larcker, D., 2008. The power of the pen and executive compensation. Journal of Financial Economics 88, 1-25.

Core, J., Holthausen, R., Larcker, D., 1999. Corporate governance, chief executive officer compensation, and firm performance. Journal of Financial Economics 51, 371-406.

Cornett, M., Marcus A., Tehranian, H., 2008. Corporate governance and pay-for-performance: The impact of earnings management. Journal of Financial Economics 87, 357-373.

Daily, C. M., Dalton, D. R., 1994. Bankruptcy and corporate governance: the impact of board composition and structure. Academy of Management Journal 37, 1603-1607.

Daily, C. M., Johnson J. L., Ellstrand, A. E., Dalton, D. R., 1998. Compensation committee composition as a determinant of CEO compensation. Academy of Management Journal 41, 209-220.

Dittmar, A., Mahrt-Smith, J., 2007. Corporate governance and the value of cash holdings. Journal of Financial Economics 83, 599–634.

Dittmar, A., Mahrt-Smith, J., Servaes, H., 2003. International corporate governance and corporate cash holdings. Journal of Financial and Quantitative Analysis 38, 111-133.

Fama, E., 1980. Agency problems and the theory of the firm. The Journal of Political Economy 88, 288-307.

Fama, E., Jensen, M., 1983. Separation of ownership and control. Journal of Law and Economics 26, 301-325.

Faulkender, M. and R. Wang, 2006, Corporate financial policy and the value of cash, Journal of Finance 61, 1957-1990.

Fisher, J. W., 1986. Crafting policy for performance and rewards. Directors & Boards 10, 26-29.

Gompers, P. A., J. L. Ishii, and A. Metrick, 2003. Corporate governance and equity prices. Quarterly Journal of Economics 118, 107–155.

Grinstein, Y., Weinbaum, D., Yehuda, N., 2011. The economic consequence of perk disclosure, Unpublished working paper, Cornell University.

Grossman, S., Hart, O., 1980. Takeover bids, the free-rider problem, and the theory of the corporation. The Bell Journal of Economics 11, 42–64.

Guay, W., 1999. An empirical analysis of convexity in the relation between CEOs' wealth and stock price. Journal of Financial Economics 53, 43-71.

Hambrick, D. C., D'Aveni, R. A., 1992. Top team deterioration as part of the downward spiral of large corporate bankruptcies. Management Science 38, 1445-1446.

Harris, J., 2009. What's wrong with executive compensation? Journal of Business Ethics 85, 147-156.

Harford, J., 1999. Corporate cash reserves and acquisitions. The Journal of Finance 54, 1969-1997.

Harford, J., Mansi, S. A., Maxwell, W. F., 2008. Corporate governance and firm cash holdings in the US. Journal of Financial Economics 87, 535-555.

Hartzell, J. C., Starks, L. T., 2003. Institutional investors and executive compensation. Journal of Finance 58, 2351-2373.

Hermalin, B., Weisbach, M., 2003. Boards of directors as an endogenously determined

institution: a survey of economic literature. Economic Policy Review 9, 7–26.

Jensen, M., 1986. Agency costs of free cash flow, corporate finance, and takeovers. The American Economic Review 76, 323-329.

Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3, 305-360.

Jensen, M., Murphy, K., 1990. Performance pay and top-management incentives. Journal of Political Economy 98, 225-264.

Jensen, M., Murphy, K., Wruck, E., 2004. Remuneration: where we've been, how we got to here, what are the problems and how to fix them Harvard NOM. Working Paper No. 04-28.

Jensen, M. C., 1993. The modern industrial revolution, exit, and the failure of internal control systems. Journal of Finance 48, 831-880.

Kalcheva, I., Lins, K. V., 2007. International evidence on cash holdings and expected managerial agency problems. The Review of Financial Studies 20, 1087-1112.

Kim, C., Mauer, D., Sherman, A., 1998. The determinants of corporate liquidity: Theory and evidence. Journal of Financial and Quantitative Analysis 33, 335-59.

Lipton, M., Lorsch, J. W., 1992. A modest study for improved corporate governance. Business Lawyer 48, 59-77.

Liu, Y., Mauer, D. C., 2011. Corporate cash holdings and CEO compensation incentives. 102, 183-198.

Marino, A. M., Zabojnik, J., 2008. Work-related perks, agency problems, and optimal incentive contracts. The RAND Journal of Economics, 39(2), 565-585.

Myers, S. C., Rajan, R. G., 1998. The paradox of liquidity. Quarterly Journal of Economics 108, 733-771.

Nikolov, B., Whited T. M., 2013. Agency conflicts and cash: estimates from a structural model. Journal of Financial, Forthcoming.

Opler, T., Pinkowitz, L., Stulz, R., Williamson, R., 1999. The determinants and implications of corporate cash holdings. Journal of Financial Economics 52, 3-46.

Pinkowitz, L., Stulz, R., Williamson, R., 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. The Journal of Finance 61, 2725-2751.

Rajan, R., Wulf, J., 2006. Are perks purely managerial excess? Journal of Financial Economics 79, 1-33.

Rosen, S., 2000. Does the composition of pay matter? Employee benefits and labor markets in Canada and the United States, 13-30.

Simpson, W. G., Gleason, A. E., 1999. Board structure, ownership, and financial distress in banking firms. International Review of Economics and Finance 8, 281-292.

Smith, C., Stulz, R., 1985. The determinants of firms' hedging policies. The Journal of Financial and Quantitative Analysis 20, 391-405.

Sun, J., Cahan, S. 2009. The effect of compensation committee quality on the association between CEO cash compensation and accounting performance. Corporate Governance: An International Review, 17, 193-207.

Sun, J., Cahan, S., Emanuel, D., 2009. Compensation committee governance quality, chief executive officer stock option grants, and future firm performance. Journal of Banking and Finance 33, 1507-1519.

Tong, Z., 2010. CEO risk incentives and corporate cash holdings. Journal of Business Finance and accounting 37, 1248-1280.

Uzun, H., Szewczyk, S. H., Varma, R., 2004. Board composition and corporate fraud. Financial Analysts Journal 60, 33-43.

Yermack, D., 1995. Do corporations award CEO stock options effectively? Journal of Financial Economics 39, 237-269.

Yermack, D., 1996, Higher market valuation of companies with a small board of directors. Journal of Financial Economics 40, 185-212.

Yermack, D., 2006. Flights of fancy: Corporate jets, CEO perquisites, and inferior shareholder returns. Journal of Financial Economics 80, 211-242.

## Table 2. Description Database and Variables Applied in This Study

## Panel A. Database Applied in This Study

| Database | Proxy | Data Period |
|---|---|---|
| EDGAR-pro | | |
| Proxy Statement | CEO Perks and Characteristics | 1997-2012 |
| Proxy Statement | CEO Attributes | 1997-2012 |
| Execu-Comp | CEO Compensation | 1997-2012 |
| | CEO Ownership | 1997-2012 |
| Compustat | Accounting Variables | 1997-2012 |
| CRSP | Market Variables | 1997-2012 |

## Panel B. List of Variables from Various Databases

This table provides variable definitions used in the regression analysis. Data are obtained from EDGAR-pro proxy statements, Compustat, the Center for Research in Securities Prices (CRSP), ExecuComp, and RiskMetrics.

*Cash 1 is ratio of cash plus marketable securities to total assets. Cash 2* is ratio of cash to net asset which presented by Liu and Mauer (2011). *Cash 3* is ratio of cash to sales which following Harford et al., 2008)(all use natural logarithm).

Performance: *AR1, AR3, AR4, AR1_Post, AR3_Post, AR4_Post, ROA, ChgROA*

*CEO_TENURE* is average CEO tenure. *CEO President_D* represents a CEO holding another position as president. *CEO_OWNERSHIP* is average ownership held by CEO..

Perquisites are divided into ten categories following Andrews et al. (2009): (1) *CEO_NUM_Airplane*; (2) *CEO_NUM_Car_and_Local_Trans*; (3) *CEO_NUM_entertain_pbenefits*; (4)*CEO_NUM_home_family*; (5)*CEO_NUM_Travel*; (6)*CEO_NUM_Medical_and_Health*; (7) *CEO_NUM_Service* (8)*CEO_NUM_Financial*; (9) *CEO_NUM_Administrative_Privileges*; and (10) *CEO_NUM_Other_Perks*. CEO SumPerk is sum of CEOs' 10 types of perks.

*Board chr* is board size.

*Ownership:* CEO Ownership,

*Controls:* All Assets are net of cash, all dollar amounts calculated using logarithm.

*Market to Book ratio, Net Working Capital/Net asset, Capital Expenditure/Net Asset, Acquisition/Sales, Debt, Dividend dummy, and LagROA*

| Proxy | Variables | Proxy | Variables |
|---|---|---|---|
| Cash Holding | Cash 1 (CHR) | CEO Compensation | CEO Nonperks (TDC1) |
| | Cash 2 (CHRA) | | CEO Income |
| | Cash 3 (CHRS) | | CEO Equity |
| | ChgCHR | CEO Perquisite | CEO SumPerk |
| | ChgCHRA | | Sum of total 10 types |
| | ChgCHRS | Ownership | CEO Ownerships |
| | CHR_STD | CEO characteristics | CEO Tenure |
| Performance | AR1 | | CEO President_D |
| | AR3 | Board Characteristic | Board Size |
| | AR4 | Controls | Market to Book Ratio |
| | AR1_Post | | Working Capital to Net Assets |
| | AR3_Post | | CapEx to Net Assets |
| | AR4_Post | | Acquisition to Sales |
| | ROA | | Debt |
| | ChgROA | | Dividend dummy |
| | LagROA | | |

| Panel C Dependent Variables | Definition |
|---|---|
| Variable | |
| logCHR | log (1+CHR) |
| CHR | Ratio of cash plus marketable securities to net assets, net asset 指 total asset-(cash plus marketable securities) |
| logCHRA | log (1+CHRA) |
| CHRA | Cash and Marketable Securities to total assets |
| logCHRS | log (1+CHRS) |
| CHRS | Cash and Marketable Securities to Sales |
| AR1 | Mean daily AR, alpha under one factor model |
| AR3 | Mean daily AR, alpha under three factor model |
| AR4 | Mean daily AR, alpha under four factor model |
| AR1_Post | Mean daily AR in the following year, alpha under one factor model |
| AR3_Post | Mean daily AR in the following year, alpha under three factor model |
| AR4_Post | Mean daily AR in the following year, alpha under four factor model |
| ROA | Industry median adjusted ROA, ROA=NI/beginning Total Asset |
| ChgROA | Industry median adjusted ROA(t)- Industry median adjusted ROA(t-1) |

| Panel D Independent Variables | Definition |
|---|---|
| Variable | |
| logNonPerk | log(1+NonPerk) |
| NonPerk | TDC1(Total CEO compensation defiend by Execucomp) |
| logPerk | log(1+Perk) |
| Perk | CEO perquisite |
| Perk_Med_D | When firm perk above industry median, dummy=1 |
| ChgCHR | CHR(t)-CHR(t-1) |
| ChgCHRA | CHRA(t)-CHRA(t-1) |
| ChgCHRS | CHRS(t)-CHRS(t-1) |
| CHR_STD | Standard deviation of t＝-1～-5 CHR |
| logCEO_Ownership | log(1+CEO_Ownership) |
| CEO_Ownership | CEO_Ownership |
| CEO_PRESIDENT_D | CEO also serves as the president of the firm |
| logCEO_tenure | log(1+CEO_tenure) |
| CEO_tenure | CEO tenure |
| logBoardSize | log(1+BoardSize) |
| BoardSize | Board size |
| CAPXR | Capital Expenditure/Net Asset |
| AQCR | Acquisition/Sales |
| Div_D | When there is dividend payment, dummy=1 |
| lagNWCR | Prior year (current asset-current liability)/Net asset |
| DebtR | Total Debt/Net Asset |
| MB | market to book ratio |
| lagROA | Prior year ROA |

**Figure 1. Average CEO compensation for S&P 500 firms between 1997 and 2012**

Figure 1 presents average CEO compensation for S&P 500 firms between 1997 and 2012. A large proportion of the compensation package is CEO equity awards, while CEO perk amounts are only a small fraction compared to the overall package. Interestingly, there is a sudden increase in CEO equity compensation in 2006 and 2007.

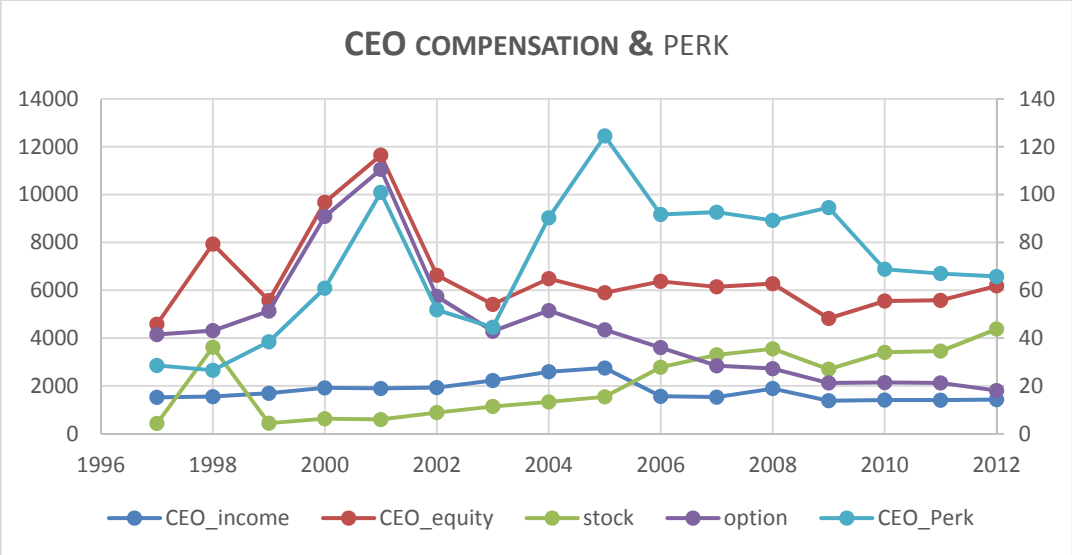

**Figure 2. Cash Holding (S&P 100 firms 1997-2012)**
Figure 2 presents the overall cash holding ratio between 1997 and 2012 for S&P 500 firms. After 2000 there is an increasing trend in cash ratios, which declines in 2008, perhaps an effect of the financial crisis.

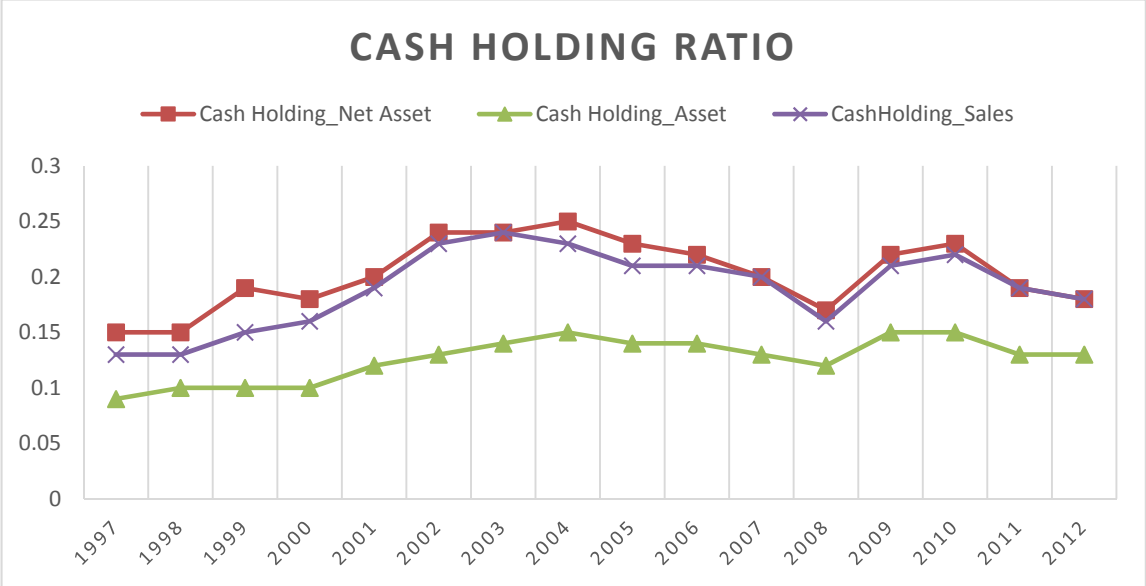

**Table 3 Summary Statistics of the Dependent and Independent Variables.**

Table 3 presents summary statistics of the dependent and independent variables.

| **Panel A Dependent variables** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Variable | Mean | Median | Min | Q1 | Q3 | Max | Std Dev |
| logCHR | 0.1541 | 0.0676 | 0.0000 | 0.0226 | 0.1935 | 1.9746 | 0.22 |
| CHR | 0.2034 | 0.0700 | 0.0000 | 0.0228 | 0.2135 | 6.2036 | 0.40 |
| logCHRA | 0.1107 | 0.0634 | 0.0000 | 0.0221 | 0.1621 | 0.6212 | 0.12 |
| CHRA | 0.1255 | 0.0654 | 0.0000 | 0.0223 | 0.1759 | 0.8612 | 0.15 |
| logCHRS | 0.1492 | 0.0676 | 0.0000 | 0.0243 | 0.1924 | 1.8186 | 0.20 |
| CHRS | 0.1906 | 0.0699 | 0.0000 | 0.0246 | 0.2122 | 5.1630 | 0.34 |
| AR4 | 0.0771 | 0.0553 | -1.3685 | -0.0988 | 0.2335 | 2.7210 | 0.32 |
| AR3 | 0.0760 | 0.0580 | -1.3556 | -0.1074 | 0.2368 | 2.8035 | 0.33 |
| AR1_Post | 0.0865 | 0.0689 | -1.2994 | -0.0973 | 0.2488 | 2.7140 | 0.33 |
| AR4_Post | 0.0682 | 0.0501 | -1.3685 | -0.0992 | 0.2182 | 2.4311 | 0.31 |
| AR3_Post | 0.0677 | 0.0515 | -1.3556 | -0.1051 | 0.2212 | 2.6788 | 0.32 |
| AR1_Post | 0.0777 | 0.0621 | -1.2947 | -0.1008 | 0.2322 | 2.7140 | 0.32 |
| ROA | 0.0522 | 0.0318 | -0.2030 | 0.0000 | 0.0852 | 0.4139 | 0.10 |
| ChgROA | 0.0004 | 0.0005 | -0.2207 | -0.0206 | 0.0226 | 0.2393 | 0.06 |
| N | 3642 | | | | | | |
| **Panel B Independent variables** | | | | | | | |
| Variable | Mean | Median | Min | Q1 | Q3 | Max | Std Dev |
| logNonPerk | 8.6820 | 8.7822 | 0.0010 | 8.2100 | 9.2468 | 13.3931 | 1.02 |
| NonPerk | 9185.8 | 6516.4 | 0.0 | 3676.6 | 10370.7 | 655448.0 | 17740.05 |
| logPerk | 1.9597 | 0.0000 | 0.0000 | 0.0000 | 4.0469 | 9.1602 | 2.23 |
| Perk | 71.8 | 0.0 | 0.0 | 0.0 | 56.2 | 9509.6 | 294.28 |
| logCEOincome | 7.1 | 7.1 | 0.0 | 6.8 | 7.6 | 11.3 | 1.03 |
| CEO_income | 1785.4 | 1220.8 | 0.0 | 925.0 | 2028.0 | 77926.0 | 2659.12 |
| logCEOequity | 7.5 | 8.3 | 0.0 | 7.4 | 8.9 | 13.9 | 2.71 |
| CEO_equity | 6599.1 | 3911.1 | 0.0 | 1707.0 | 7100.1 | 1112435.8 | 24656.07 |
| ChgCHR | 0.0033 | 0.0011 | -3.5387 | -0.0183 | 0.0288 | 3.8374 | 0.21 |
| ChgCHRA | 0.0021 | 0.0011 | -0.5854 | -0.0144 | 0.0216 | 0.3831 | 0.06 |
| ChgCHRS | 0.0033 | 0.0011 | -2.2690 | -0.0185 | 0.0263 | 3.3632 | 0.16 |
| CHR_STD | 0.0985 | 0.0325 | 0.0001 | 0.0115 | 0.0828 | 7.3810 | 0.31 |
| logCEO_Ownership | 0.0089 | 0.0014 | 0.0000 | 0.0005 | 0.0038 | 0.3047 | 0.03 |
| CEO_Ownership | 0.0093 | 0.0014 | 0.0000 | 0.0005 | 0.0038 | 0.3562 | 0.03 |
| CEO_PRESIDENT_D | 0.5390 | 1.0000 | 0.0000 | 0.0000 | 1.0000 | 1.0000 | 0.50 |
| logCEO_tenure | 1.8962 | 1.9459 | 0.6931 | 1.3863 | 2.3979 | 3.7842 | 0.68 |
| CEO_tenure | 7.4259 | 6.0000 | 1.0000 | 3.0000 | 10.0000 | 43.0000 | 6.27 |
| logBoardSize | 2.3972 | 2.3979 | 1.6094 | 2.3026 | 2.5649 | 3.5553 | 0.22 |
| BoardSize | 10.2672 | 10.0000 | 4.0000 | 9.0000 | 12.0000 | 34.0000 | 2.56 |
| CAPXR | 0.0649 | 0.0491 | 0.0023 | 0.0295 | 0.0796 | 0.4810 | 0.05 |
| AQCR | 0.0385 | 0.0029 | -0.7944 | 0.0000 | 0.0265 | 1.7645 | 0.12 |
| Div_D | 0.7098 | 1.0000 | 0.0000 | 0.0000 | 1.0000 | 1.0000 | 0.45 |
| lagNWCR | 0.2245 | 0.1244 | -0.3358 | 0.0103 | 0.3001 | 4.3249 | 0.39 |
| DebtR | 0.6445 | 0.6350 | 0.0497 | 0.5216 | 0.7486 | 4.6134 | 0.23 |
| MB | 0.0047 | 0.0028 | 0.0003 | 0.0018 | 0.0045 | 0.8311 | 0.02 |

**Table 4 Difference** Parametric/Nonparametrci test classified by Above Mean (Median) Perk and Above Mean (Median) TDC1

The table shows t- and Wilcoxon rank sum Z-statistics for tests of differences in mean and median, respectively.
***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

| | Mean Analysis | | | | Median Analysis | | | |
|---|---|---|---|---|---|---|---|---|
| **Panel A Group by Perk for per year and industry** | | | | | | | | |
| Variable | High | Low | Diff | t | High | Low | Diff | Z |
| CHR | 0.1521 | 0.2535 | -0.1014 | -7.68 *** | 0.0627 | 0.0787 | -0.0160 | -5.55 *** |
| CHRA | 0.1043 | 0.1462 | -0.0418 | -8.63 *** | 0.0590 | 0.0730 | -0.0140 | -5.55 *** |
| CHRS | 0.1531 | 0.2272 | -0.0740 | -6.54 *** | 0.0625 | 0.0798 | -0.0173 | -6.39 *** |
| AR4 | 0.0540 | 0.0997 | -0.0457 | -4.29 *** | 0.0465 | 0.0681 | -0.0216 | -3.08 *** |
| AR4_post | 0.0547 | 0.0814 | -0.0266 | -2.62 *** | 0.0428 | 0.0555 | -0.0127 | -1.50 |
| ROA | 0.0393 | 0.0646 | -0.0253 | -7.92 *** | 0.0248 | 0.0411 | -0.0164 | -7.13 *** |
| ChgROA | -0.0018 | 0.0026 | -0.0044 | -2.15 ** | 0.0000 | 0.0014 | -0.0014 | -1.83 * |
| **Panel B Group by NonPerk for per year and industry** | | | | | | | | |
| Variable | High | Low | Diff | tValue sig | High | Low | Diff | Z |
| CHR1 | 0.1880 | 0.2230 | -0.0350 | -2.62 *** | 0.0723 | 0.0669 | 0.0054 | -1.81 * |
| CHR2 | 0.1222 | 0.1297 | -0.0075 | -1.53 | 0.0674 | 0.0627 | 0.0047 | -1.81 * |
| CHR3 | 0.1791 | 0.2052 | -0.0260 | -2.27 ** | 0.0745 | 0.0622 | 0.0123 | -2.30 ** |
| AR4 | 0.0864 | 0.0655 | 0.0209 | 1.95 * | 0.0606 | 0.0468 | 0.0138 | -1.92 * |
| AR4_post | 0.0577 | 0.0816 | -0.0239 | -2.34 ** | 0.0470 | 0.0548 | -0.0078 | 1.58 |
| ROA_AdIND | 0.0580 | 0.0447 | 0.0133 | 4.10 *** | 0.0334 | 0.0297 | 0.0037 | -3.56 *** |
| ChgROA_AdIND | 0.0026 | -0.0023 | 0.0050 | 2.42 ** | 0.0009 | 0.0002 | 0.0007 | -2.10 ** |

## Table 5 Relationship Between Level of Cash and CEO Perks (Regression (1))

This table shows results for model 1 with Cash holding (cash1) estimated by ratio of cash plus market securities to net assets. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

| | M1 | | M2 | | M3 | | M4 | |
|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0092 | -0.26 | 0.0035 | 0.10 | -0.0177 | -0.50 | -0.0146 | -0.42 |
| logNonPerk | 0.0024 | 1.53 | | | 0.0031 | 1.99 ** | 0.0029 | 1.85 * |
| logPerk | | | -0.0021 | -2.97 *** | -0.0023 | -3.23 *** | | |
| Perk_Med_D | | | | | | | -0.0098 | -3.21 *** |
| LaglogCHR | 0.7499 | 41.12 *** | 0.7484 | 41.06 *** | 0.7474 | 41.01 *** | 0.7475 | 41.01 *** |
| CHR_STD | -0.0204 | -3.78 *** | -0.0210 | -3.90 *** | -0.0207 | -3.83 *** | -0.0204 | -3.79 *** |
| logCEO_Ownership | 0.0654 | 1.09 | 0.0486 | 0.81 | 0.0620 | 1.03 | 0.0573 | 0.95 |
| CEO_PRESIDENT_D | 0.0023 | 0.76 | 0.0021 | 0.69 | 0.0020 | 0.66 | 0.0019 | 0.64 |
| logCEO_tenure | 0.0029 | 1.27 | 0.0034 | 1.48 | 0.0030 | 1.32 | 0.0028 | 1.23 |
| logBoardSize | -0.0474 | -6.04 *** | -0.0445 | -5.75 *** | -0.0470 | -6.00 *** | -0.0473 | -6.04 *** |
| CAPXR | 0.0224 | 0.65 | 0.0244 | 0.71 | 0.0188 | 0.55 | 0.0186 | 0.54 |
| AQCR | -0.1862 | -15.03 *** | -0.1853 | -14.99 *** | -0.1862 | -15.06 *** | -0.1863 | -15.07 *** |
| Div_D | -0.0245 | -6.28 *** | -0.0240 | -6.16 *** | -0.0241 | -6.18 *** | -0.0241 | -6.18 *** |
| lagNWCR | 0.0478 | 4.91 *** | 0.0472 | 4.86 *** | 0.0479 | 4.92 *** | 0.0479 | 4.92 *** |
| DebtR | 0.1624 | 22.43 *** | 0.1635 | 22.57 *** | 0.1640 | 22.63 *** | 0.1638 | 22.62 *** |
| MB | -0.1929 | -2.54 ** | -0.1982 | -2.62 *** | -0.2010 | -2.65 *** | -0.2043 | -2.70 *** |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.8583 | | 0.8586 | | 0.8587 . | | 0.8587 | |
| N | 3,642 | | 3,642 | | 3,642 . | | 3,642 | |

## Table 6 Relationship Between Value of Cash (Stock Performance) and CEO Perks (Regression (2))

Table 6 presents regression results of value of cash in related to change in cash. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

**Panel A The performance of stock prices during this year**

| **Dependent Variable** | **AR4** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **M1** | | **M2** | | **M3** | | **M4** | | **M5** | | **M6** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0267 | -0.58 | 0.0947 | 13.39*** | -0.0554 | -1.20 | -0.0363 | -0.79 | -0.0555 | -1.21 | -0.0365 | -0.80 |
| ChgCHR1 | 0.1339 | 5.24*** | 0.1339 | 5.24*** | 0.1327 | 5.21*** | 0.1335 | 5.23*** | -0.1407 | -0.83 | -0.1856 | -1.09 |
| logNonPerk | 0.0119 | 2.28** | | | 0.0177 | 3.30*** | 0.0147 | 2.79*** | 0.0178 | 3.31*** | 0.0147 | 2.80*** |
| logPerk | | | -0.0092 | -3.86*** | -0.0111 | -4.54*** | | | -0.0113 | -4.61*** | | |
| Perk_Med_D | | | | | | | -0.0416 | -3.70*** | | | -0.0419 | -3.74*** |
| Interactive_logNonPerk | | | | | | | | | 0.0275 | 1.35 | 0.0338 | 1.66* |
| Interactive_logPerk | | | | | | | | | 0.0574 | 3.37*** | | |
| Interactive_logPerkD | | | | | | | | | | | 0.2031 | 3.15*** |
| Adj R-Sq | 0.0084 | | 0.0111 | | 0.0138 | | 0.0119 | | 0.0171 | | 0.0148 | |
| N | 3,638 | | 3,638 | | 3,638 | | 3,638 | | 3,638 | | 3,638 | |

**Panel B The performance of stock prices subsequent year**

| | **M1** | | **M2** | | **M3** | | **M4** | | **M5** | | **M6** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.2631 | 6.05*** | 0.0787 | 11.66*** | 0.2547 | 5.80*** | 0.2597 | 5.97*** | 0.2562 | 5.84*** | 0.2613 | 6.00*** |
| ChgCHR1 | 0.1055 | 4.34*** | 0.1038 | 4.26*** | 0.1051 | 4.32*** | 0.1053 | 4.33*** | -0.2614 | -1.61 | -0.2571 | -1.58 |
| logNonPerk | -0.0225 | -4.52*** | | | -0.0208 | -4.06*** | -0.0215 | -4.28*** | -0.0210 | -4.10*** | -0.0217 | -4.32*** |
| logPerk | | | -0.0055 | -2.43** | -0.0033 | -1.39 | | | -0.0032 | -1.36 | | |
| Perk_Med_D | | | | | | | -0.0146 | -1.37 | | | -0.0143 | -1.34 |
| Interactive_logNonPerk | | | | | | | | | 0.0442 | 2.27** | 0.0444 | 2.30** |
| Interactive_logPerk | | | | | | | | | 0.0003 | 0.02 | | |
| Interactive_logPerkD | | | | | | | | | | | -0.0286 | -0.46 |
| Adj R-Sq | 0.0101 | | 0.0061 | | 0.0103 | | 0.0103 | | 0.0112 | | 0.0112 | |
| N | 3,633 | | 3,633 | | 3,633 | | 3,633 | | 3,633 | | 3,633 | |

## Table 7 Relation Between Value of Cash (Stock Performance) and CEO Perks (Regression (3))

Panel A and Panel B presents results of impact of CEO perquisites on stock abnormal returns (AR4) using excess cash as one of independent variable instead of the change in cash. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

**Panel A The performance of stock prices during this year**

| | M1 | | M2 | | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Interactive_logPerkD | | | | | | | | | | | 0.2620 | 1.69 * |
| Intercept | -0.0289 | -0.63 | 0.0953 | 13.51 *** | -0.0579 | -1.26 | -0.0384 | -0.84 | -0.0532 | -1.15 | -0.0341 | -0.75 |
| ExcessCHR | 0.4358 | 6.73 *** | 0.4358 | 6.74 *** | 0.4358 | 6.75 *** | 0.4333 | 6.70 *** | -0.1395 | -0.32 | -0.1734 | -0.39 |
| logNonPerk | 0.0122 | 2.34 ** | | | 0.0181 | 3.38 *** | 0.0150 | 2.85 *** | 0.0176 | 3.26 *** | 0.0145 | 2.74 *** |
| logPerk | | | -0.0093 | -3.91 *** | -0.0113 | -4.61 *** | | | -0.0112 | -4.60 *** | | |
| Perk_Med_D | | | | | | | -0.0411 | -3.67 *** | | | -0.0406 | -3.63 *** |
| Interactive_logNonPerk | | | | | | | | | 0.0610 | 1.19 | 0.0639 | 1.25 |
| Interactive_logPerk | | | | | | | | | 0.0472 | 1.36 | | |
| Adj R-Sq | 0.0132 | | 0.0159 | | 0.0187 | | 0.0166 | | 0.0192 | | 0.0174 | |
| N | 3,638 | | 3,638 | | 3,638 | | 3,638 | | 3,638 | | 3,638 | |

**Panel B The performance of stock prices subsequent year**

| | M1 | | M2 | | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.2615 | 6.01 *** | 0.0792 | 11.72 *** | 0.2527 | 5.75 *** | 0.2580 | 5.92 *** | 0.2622 | 5.95 *** | 0.2681 | 6.13 *** |
| ExcessCHR | 0.1769 | 2.86 *** | 0.1767 | 2.85 *** | 0.1768 | 2.86 *** | 0.1760 | 2.85 *** | -0.7945 | -1.88 * | -0.7762 | -1.85 * |
| logNonPerk | -0.0223 | -4.47 *** | | | -0.0205 | -4.00 *** | -0.0213 | -4.23 *** | -0.0216 | -4.20 *** | -0.0225 | -4.45 *** |
| logPerk | | | -0.0056 | -2.46 ** | -0.0034 | -1.43 | | | -0.0032 | -1.36 | | |
| Perk_Med_D | | | | | | | -0.0146 | -1.36 | | | -0.0142 | -1.33 |
| Interactive_logNonPerk | | | | | | | | | 0.1196 | 2.43 ** | 0.1198 | 2.45 ** |
| Interactive_logPerk | | | | | | | | | -0.0480 | -1.44 | | |
| Interactive_logPerkD | | | | | | | | | | | -0.3300 | -2.22 ** |
| Adj R-Sq | 0.0072 | | 0.0033 | | 0.0074 | | 0.0074 | | 0.0088 | | 0.0095 | |
| N | 3,633 | | 3,633 | | 3,633 | | 3,633 | | 3,633 | | 3,633 | |

## Table 8 Relation Between Value of Cash (Operating performance) and CEO Perks

This table uses ROA and change in ROA as the dependent variables to examine the relationship between operating performance and CEO perquisites. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

**Panel A ROA**

| | M1 | | M2 | | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.0018 | 0.06 | 0.0341 | 1.17 | -0.0066 | -0.22 | -0.0054 | -0.18 | -0.0070 | -0.23 | -0.0066 | -0.22 |
| ChgCHR1 | 0.0550 | 8.49 *** | 0.0547 | 8.42 *** | 0.0540 | 8.33 *** | 0.0536 | 8.29 *** | 0.0730 | 1.85 * | 0.0826 | 2.10 ** |
| logNonPerk | 0.0052 | 3.91 *** | | | 0.0060 | 4.43 *** | 0.0059 | 4.42 *** | 0.0060 | 4.44 *** | 0.0059 | 4.43 *** |
| logPerk | | | -0.0019 | -3.17 *** | -0.0023 | -3.79 *** | | | -0.0023 | -3.77 *** | | |
| Perk_Med_D | | | | | | | -0.0134 | -5.12 *** | | | -0.0132 | -5.04 *** |
| Interactive_logNonPerk | | | | | | | | | -0.0022 | -0.47 | -0.0023 | -0.50 |
| Interactive_logPerk | | | | | | | | | -0.0009 | -0.24 | | |
| Interactive_logPerkD | | | | | | | | | | | -0.0481 | -3.31 *** |
| CHR_STD1 | 0.0278 | 5.81 *** | 0.0268 | 5.60 *** | 0.0272 | 5.71 *** | 0.0274 | 5.76 *** | 0.0276 | 5.71 *** | 0.0281 | 5.83 *** |
| logCEO_Ownership | 0.1307 | 2.51 ** | 0.1015 | 1.96 * | 0.1277 | 2.46 ** | 0.1199 | 2.31 ** | 0.1273 | 2.44 ** | 0.1230 | 2.37 ** |
| CEO_PRESIDENT_D | 0.0002 | 0.07 | 0.0000 | 0.01 | -0.0001 | -0.03 | -0.0003 | -0.10 | -0.0001 | -0.02 | -0.0002 | -0.07 |
| logCEO_tenure | 0.0027 | 1.39 | 0.0035 | 1.79 * | 0.0029 | 1.47 | 0.0027 | 1.36 | 0.0029 | 1.48 | 0.0027 | 1.37 |
| logBoardSize | 0.0006 | 0.09 | 0.0058 | 0.86 | 0.0008 | 0.12 | 0.0006 | 0.08 | 0.0009 | 0.12 | 0.0010 | 0.15 |
| CAPXR | 0.0869 | 2.92 *** | 0.0941 | 3.16 *** | 0.0835 | 2.81 *** | 0.0818 | 2.75 *** | 0.0829 | 2.78 *** | 0.0791 | 2.66 *** |
| AQCR | -0.0097 | -0.89 | -0.0081 | -0.74 | -0.0100 | -0.92 | -0.0103 | -0.95 | -0.0105 | -0.96 | -0.0110 | -1.01 |
| Div_D | -0.0029 | -0.87 | -0.0023 | -0.68 | -0.0024 | -0.71 | -0.0022 | -0.66 | -0.0024 | -0.71 | -0.0022 | -0.65 |
| lagNWCR | 0.0322 | 7.47 *** | 0.0308 | 7.11 *** | 0.0312 | 7.21 *** | 0.0307 | 7.12 *** | 0.0311 | 7.20 *** | 0.0313 | 7.25 *** |
| DebtR2 | -0.0731 | -11.34 *** | -0.0723 | -11.19 *** | -0.0716 | -11.11 *** | -0.0712 | -11.06 *** | -0.0717 | -11.12 *** | -0.0716 | -11.14 *** |
| MB | 0.2968 | 4.51 *** | 0.2939 | 4.47 *** | 0.2889 | 4.40 *** | 0.2812 | 4.29 *** | 0.2887 | 4.40 *** | 0.2811 | 4.29 *** |
| lagROA | 0.2929 | 25.08 *** | 0.2924 | 25.00 *** | 0.2906 | 24.90 *** | 0.2906 | 24.95 *** | 0.2913 | 24.75 *** | 0.2914 | 24.86 *** |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4518 | | 0.4510 | | 0.4539 | | 0.4557 | | 0.4536 | | 0.4571 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

**Panel B Change of ROA**

| | M1 | | M2 | | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | | |
| Intercept | 0.0359 | 1.51 | 0.0614 | 2.70*** | 0.0306 | 1.29 | 0.0315 | 1.33 | 0.0318 | 1.34 | 0.0323 | 1.36 |
| ChgCHR1 | 0.0086 | 1.69* | 0.0084 | 1.66* | 0.0079 | 1.56 | 0.0077 | 1.52 | -0.0550 | -1.79* | -0.0478 | -1.56 |
| logNonPerk | 0.0041 | 3.90*** | | | 0.0045 | 4.31*** | 0.0045 | 4.29*** | 0.0045 | 4.26*** | 0.0044 | 4.24*** |
| logPerk | | | -0.0012 | -2.46** | -0.0015 | -3.07*** | | | -0.0015 | -3.06*** | | |
| Perk_Med_D | | | | | | | -0.0082 | -4.00*** | | | -0.0081 | -3.93*** |
| Interactive_logNonPerk | | | | | | | | | 0.0078 | 2.13** | 0.0075 | 2.07** |
| Interactive_logPerk | | | | | | | | | -0.0026 | -0.85 | | |
| Interactive_logPerkD | | | | | | | | | | | -0.0354 | -3.12*** |
| CHR_STD1 | -0.0025 | -0.66 | -0.0032 | -0.84 | -0.0028 | -0.75 | -0.0027 | -0.72 | -0.0040 | -1.07 | -0.0037 | -0.99 |
| logCEO_Ownership | 0.0286 | 0.70 | 0.0068 | 0.17 | 0.0267 | 0.66 | 0.0220 | 0.54 | 0.0306 | 0.75 | 0.0277 | 0.68 |
| CEO_PRESIDENT_D | -0.0001 | -0.03 | -0.0001 | -0.06 | -0.0002 | -0.11 | -0.0003 | -0.16 | -0.0003 | -0.12 | -0.0003 | -0.16 |
| logCEO_tenure | -0.0001 | -0.06 | 0.0005 | 0.32 | 0.0000 | 0.01 | -0.0001 | -0.08 | 0.0000 | -0.02 | -0.0002 | -0.11 |
| logBoardSize | -0.0153 | -2.87*** | -0.0113 | -2.16** | -0.0151 | -2.85*** | -0.0153 | -2.88*** | -0.0152 | -2.85*** | -0.0150 | -2.83*** |
| CAPXR | -0.0069 | -0.30 | -0.0010 | -0.04 | -0.0090 | -0.39 | -0.0100 | -0.43 | -0.0079 | -0.34 | -0.0100 | -0.43 |
| AQCR | -0.0350 | -4.12*** | -0.0337 | -3.97*** | -0.0352 | -4.15*** | -0.0354 | -4.17*** | -0.0344 | -4.04*** | -0.0344 | -4.05*** |
| Div_D | 0.0031 | 1.19 | 0.0035 | 1.34 | 0.0034 | 1.32 | 0.0035 | 1.36 | 0.0034 | 1.32 | 0.0036 | 1.37 |
| lagNWCR | 0.0013 | 0.37 | 0.0003 | 0.08 | 0.0006 | 0.17 | 0.0003 | 0.09 | 0.0008 | 0.25 | 0.0010 | 0.29 |
| DebtR2 | -0.0154 | -3.07*** | -0.0150 | -2.97*** | -0.0145 | -2.87*** | -0.0142 | -2.83*** | -0.0142 | -2.83*** | -0.0143 | -2.84*** |
| MB | 0.1344 | 2.62*** | 0.1333 | 2.60*** | 0.1294 | 2.53** | 0.1249 | 2.44** | 0.1298 | 2.53** | 0.1254 | 2.45** |
| lagROA | -0.2256 | -24.78*** | -0.2257 | -24.74*** | -0.2270 | -24.94*** | -0.2270 | -24.97*** | -0.2294 | -25.00*** | -0.2293 | -25.06*** |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.1655 | | 0.1634 | | 0.1675 | | 0.1690 | | 0.1682 | | 0.1718 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

## Table 9 Relation Between Value of Cash (Operating performance) and CEO Perks

Results of regression analysis including excess cash. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

**Panel A ROA**

| | M1 | | M2 | | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.0007 | 0.02 | 0.0340 | 1.18 | -0.0084 | -0.28 | -0.0068 | -0.22 | -0.0089 | -0.29 | -0.0077 | -0.26 |
| ExcessCHR | 0.1650 | 11.42*** | 0.1650 | 11.41*** | 0.1649 | 11.44*** | 0.1640 | 11.40*** | 0.2273 | 2.26** | 0.2213 | 2.21** |
| logNonPerk | 0.0054 | 4.09*** | | | 0.0062 | 4.66*** | 0.0062 | 4.63*** | 0.0063 | 4.70*** | 0.0062 | 4.65*** |
| logPerk | | | -0.0021 | -3.51*** | -0.0025 | -4.16*** | | | -0.0025 | -4.17*** | | |
| Perk_Med_D | | | | | | | -0.0140 | -5.38*** | | | -0.0140 | -5.38*** |
| Interactive_logNonPerk | | | | | | | | | -0.0086 | -0.73 | -0.0061 | -0.52 |
| Interactive_logPerk | | | | | | | | | 0.0098 | 1.25 | | |
| Interactive_logPerkD | | | | | | | | | | | -0.0226 | -0.65 |
| CHR_STD1 | 0.0241 | 5.11*** | 0.0230 | 4.88*** | 0.0236 | 5.01*** | 0.0238 | 5.08*** | 0.0239 | 5.04*** | 0.0241 | 5.11*** |
| logCEO_Ownership | 0.1323 | 2.56** | 0.1016 | 1.98** | 0.1289 | 2.50** | 0.1210 | 2.35** | 0.1256 | 2.43** | 0.1202 | 2.33** |
| CEO_PRESIDENT_D | 0.0006 | 0.23 | 0.0004 | 0.17 | 0.0003 | 0.11 | 0.0001 | 0.04 | 0.0003 | 0.10 | 0.0002 | 0.07 |
| logCEO_tenure | 0.0031 | 1.60 | 0.0040 | 2.03** | 0.0033 | 1.69* | 0.0031 | 1.57 | 0.0033 | 1.70* | 0.0031 | 1.57 |
| logBoardSize | -0.0057 | -0.84 | -0.0002 | -0.03 | -0.0053 | -0.79 | -0.0056 | -0.83 | -0.0055 | -0.82 | -0.0053 | -0.79 |
| CAPXR | 0.0899 | 3.04*** | 0.0972 | 3.29*** | 0.0861 | 2.92*** | 0.0844 | 2.86*** | 0.0865 | 2.93*** | 0.0836 | 2.83*** |
| AQCR | -0.0263 | -2.47** | -0.0244 | -2.30** | -0.0262 | -2.47** | -0.0264 | -2.49** | -0.0266 | -2.50** | -0.0262 | -2.47** |
| Div_D | -0.0047 | -1.41 | -0.0040 | -1.20 | -0.0041 | -1.23 | -0.0039 | -1.18 | -0.0042 | -1.26 | -0.0039 | -1.19 |
| lagNWCR | 0.0242 | 5.77*** | 0.0226 | 5.39*** | 0.0231 | 5.52*** | 0.0228 | 5.44*** | 0.0230 | 5.49*** | 0.0229 | 5.46*** |
| DebtR2 | -0.0534 | -8.92*** | -0.0526 | -8.77*** | -0.0522 | -8.72*** | -0.0519 | -8.69*** | -0.0522 | -8.69*** | -0.0522 | -8.72*** |
| MB | 0.2685 | 4.12*** | 0.2653 | 4.07*** | 0.2604 | 4.00*** | 0.2530 | 3.89*** | 0.2593 | 3.99*** | 0.2534 | 3.90*** |
| lagROA | 0.2967 | 25.59*** | 0.2961 | 25.50*** | 0.2942 | 25.40*** | 0.2943 | 25.47*** | 0.2949 | 25.22*** | 0.2954 | 25.31*** |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4605 | | 0.4598 | | 0.4630 | | 0.4647 | | 0.4629 | | 0.4645 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

**Panel B Change of ROA**

| | M1 | | M2 | | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | | |
| Intercept | 0.0357 | 1.50 | 0.0614 | 2.70*** | 0.0303 | 1.27 | 0.0313 | 1.32 | 0.0322 | 1.35 | 0.0329 | 1.39 |
| ExcessCHR | 0.0342 | 3.01*** | 0.0341 | 3.01*** | 0.0341 | 3.01*** | 0.0336 | 2.96*** | -0.1102 | -1.39 | -0.1103 | -1.40 |
| logNonPerk | 0.0041 | 3.93*** | | | 0.0046 | 4.35*** | 0.0045 | 4.33*** | 0.0044 | 4.19*** | 0.0044 | 4.16*** |
| logPerk | | | -0.0012 | -2.52** | -0.0015 | -3.13*** | | | -0.0015 | -3.15*** | | |
| Perk_Med_D | | | | | | | -0.0083 | -4.04*** | | | -0.0083 | -4.04*** |
| Interactive_logNonPerk | | | | | | | | | 0.0167 | 1.81* | 0.0173 | 1.89* |
| Interactive_logPerk | | | | | | | | | 0.0012 | 0.20 | | |
| Interactive_logPerkD | | | | | | | | | | | -0.0184 | -0.67 |
| CHR_STD1 | -0.0030 | -0.81 | -0.0037 | -1.00 | -0.0033 | -0.89 | -0.0032 | -0.85 | -0.0041 | -1.10 | -0.0039 | -1.06 |
| logCEO_Ownership | 0.0288 | 0.71 | 0.0067 | 0.17 | 0.0268 | 0.66 | 0.0221 | 0.54 | 0.0300 | 0.74 | 0.0260 | 0.64 |
| CEO_PRESIDENT_D | 0.0000 | 0.00 | -0.0001 | -0.04 | -0.0002 | -0.08 | -0.0003 | -0.14 | -0.0003 | -0.12 | -0.0003 | -0.16 |
| logCEO_tenure | 0.0000 | -0.02 | 0.0006 | 0.36 | 0.0001 | 0.04 | -0.0001 | -0.05 | 0.0000 | 0.01 | -0.0001 | -0.09 |
| logBoardSize | -0.0162 | -3.07*** | -0.0123 | -2.35** | -0.0160 | -3.04*** | -0.0162 | -3.07*** | -0.0163 | -3.09*** | -0.0163 | -3.09*** |
| CAPXR | -0.0065 | -0.28 | -0.0006 | -0.03 | -0.0087 | -0.38 | -0.0097 | -0.42 | -0.0070 | -0.30 | -0.0083 | -0.36 |
| AQCR | -0.0376 | -4.50*** | -0.0363 | -4.34*** | -0.0376 | -4.50*** | -0.0377 | -4.52*** | -0.0375 | -4.49*** | -0.0374 | -4.48*** |
| Div_D | 0.0028 | 1.08 | 0.0032 | 1.24 | 0.0032 | 1.22 | 0.0033 | 1.26 | 0.0033 | 1.27 | 0.0034 | 1.31 |
| lagNWCR | 0.0000 | -0.01 | -0.0010 | -0.30 | -0.0006 | -0.19 | -0.0009 | -0.26 | -0.0007 | -0.20 | -0.0008 | -0.24 |
| DebtR2 | -0.0123 | -2.62*** | -0.0119 | -2.53** | -0.0116 | -2.46** | -0.0114 | -2.43** | -0.0109 | -2.30** | -0.0108 | -2.30** |
| MB | 0.1300 | 2.54** | 0.1288 | 2.51** | 0.1252 | 2.45** | 0.1208 | 2.36** | 0.1241 | 2.43** | 0.1200 | 2.35** |
| lagROA | -0.2247 | -24.68*** | -0.2247 | -24.64*** | -0.2261 | -24.84*** | -0.2260 | -24.87*** | -0.2284 | -24.86*** | -0.2282 | -24.88*** |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.1670 | | 0.1649 | | 0.1690 | | 0.1705 | | 0.1694 | | 0.1710 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

## Table 10 Robustness Test-Different Definition of Cash Holding Ratio ~logCHRA

Panels A through Panel E present the results of the robustness test using different definitions of Cash holding. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

| **Panel A Regression (1) Robustness test** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Dependent Variable** | **logCHRA** | | | | | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.0148 | 0.83 | 0.0200 | 1.17 | 0.0106 | 0.59 | 0.0125 | 0.70 |
| logNonPerk | 0.0010 | 1.27 | | | 0.0014 | 1.73 * | 0.0012 | 1.56 |
| logPerk | | | -0.0011 | -3.06 *** | -0.0012 | -3.28 *** | | |
| Perk_Med_D | | | | | | | -0.0045 | -2.94 *** |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.8750 | | 0.8753 | | 0.8754 | | 0.8753 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | |
| **Panel B Regression (2) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0565 | -1.23 | -0.0561 | -1.22 | 0.2533 | 5.76 *** | 0.2541 | 5.78 *** |
| ChgCHR | 0.4707 | 5.27 *** | -0.1635 | -0.27 | 0.1898 | 2.23 ** | -0.3941 | -0.69 |
| logNonPerk | 0.0178 | 3.31 *** | 0.0177 | 3.30 *** | -0.0206 | -4.02 *** | -0.0208 | -4.05 *** |
| logPerk | -0.0110 | -4.47 *** | -0.0111 | -4.52 *** | -0.0032 | -1.38 | -0.0031 | -1.34 |
| ChgCHRxlogNonPerk | | | 0.0628 | 0.90 | | | 0.0764 | 1.14 |
| ChgCHRxlogPerk | | | 0.0649 | 1.47 | | | -0.0481 | -1.14 |
| Adj R-Sq | 0.0147 | | 0.0078 | | 0.0134 | | 0.0075 | |
| N | 3,518 | | 3,494 | | 3,518 | | 3,494 | |
| **Panel C Regression (3) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0579 | -1.26 | -0.0544 | -1.18 | 0.2527 | 5.75 *** | 0.2566 | 5.82 *** |
| ExcessCHR | 0.7532 | 5.92 *** | -0.3331 | -0.36 | 0.1802 | 1.48 | -1.0962 | -1.25 |
| logNonPerk | 0.0181 | 3.37 *** | 0.0177 | 3.29 *** | -0.0205 | -3.99 *** | -0.0210 | -4.07 *** |
| logPerk | -0.0113 | -4.60 *** | -0.0113 | -4.60 *** | -0.0034 | -1.43 | -0.0033 | -1.41 |
| ExcessCHRxlogNonPerk | | | 0.1134 | 1.06 | | | 0.1589 | 1.55 |
| ExcessCHRxlogPerk | | | 0.0711 | 1.15 | | | -0.0595 | -1.01 |
| Adj R-Sq | 0.0159 | | 0.0162 | | 0.0058 | | 0.0061 | |
| N | 3,638 | | 3,638 | | 3,633 | | 3,633 | |

**Panel D Robustness test Relation Between Value of Cash (Operating performance) and CEO Perks**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| Variable | Coeff. | t | Coeff. | t | Coeff. | t | Coeff. | t |
| Intercept | -0.0084 | -0.28 | -0.0093 | -0.30 | 0.0302 | 1.27 | 0.0307 | 1.29 |
| ChgCHR | 0.1729 | 7.74 *** | 0.4274 | 3.10 *** | 0.0397 | 2.28 ** | -0.1164 | -1.08 |
| logNonPerk | 0.0060 | 4.42 *** | 0.0060 | 4.42 *** | 0.0045 | 4.29 *** | 0.0045 | 4.28 *** |
| logPerk | -0.0023 | -3.80 *** | -0.0023 | -3.73 *** | -0.0014 | -3.03 *** | -0.0015 | -3.07 *** |
| ChgCHRxlogNonPerk | | | -0.0283 | -1.76 * | | | 0.0175 | 1.39 |
| ChgCHRxlogPerk | | | -0.0073 | -0.73 | | | 0.0039 | 0.49 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4524 | | 0.4528 | | 0.1681 | | 0.1683 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

**Panel E Robustness test Relation Between Value of Cash (Operating performance) and CEO Perks**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| Variable | Coeff. | t | Coeff. | t | Coeff. | t | Coeff. | t |
| Intercept | -0.0085 | -0.28 | -0.0091 | -0.30 | 0.0302 | 1.27 | 0.0311 | 1.31 |
| ExcessCHR | 0.2922 | 10.27 *** | 0.4799 | 2.30 ** | 0.0673 | 3.02 *** | -0.1424 | -0.87 |
| logNonPerk | 0.0062 | 4.64 *** | 0.0063 | 4.67 *** | 0.0046 | 4.35 *** | 0.0045 | 4.29 *** |
| logPerk | -0.0025 | -4.14 *** | -0.0025 | -4.13 *** | -0.0015 | -3.13 *** | -0.0015 | -3.15 *** |
| ExcessCHRxlogNonPerk | | | -0.0223 | -0.92 | | | 0.0237 | 1.24 |
| ExcessCHRxlogPerk | | | 0.0032 | 0.23 | | | 0.0036 | 0.33 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4592 | | 0.4591 | | 0.1691 | | 0.1690 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

## Table 11 Robustness Test-Different Definition of Cash Holding Ratio ~logCHRS

Panels A through Panel E present the results of the robustness test using different definitions of Cash holding. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

| **Panel A Regression (1) Robustness test** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Dependent Variable** | **logCHRS** | | | | | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.0223 | 0.71 | 0.0406 | 1.35 | 0.0170 | 0.54 | 0.0193 | 0.61 |
| logNonPerk | 0.0030 | 2.18 ** | | | 0.0035 | 2.48 ** | 0.0033 | 2.37 ** |
| logPerk | | | -0.0012 | -1.89 * | -0.0014 | -2.23 ** | | |
| Perk_Med_D | | | | | | | -0.0054 | -1.98 ** |
| Control Variables | Yes | | Yes | | Yes | | Yes | . |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | . |
| Adj R-Sq | 0.8663 | | 0.8663 | | 0.8665 | | 0.8664 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | |
| **Panel B Regression (2) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0502 | -1.09 | -0.0496 | -1.08 | 0.2541 | 5.77 *** | 0.2515 | 5.71 *** |
| ChgCHR | 0.1790 | 5.34 *** | 0.2864 | 1.31 | 0.0338 | 1.05 | -0.3998 | -1.91 * |
| logNonPerk | 0.0170 | 3.17 *** | 0.0170 | 3.17 *** | -0.0207 | -4.03 *** | -0.0205 | -3.98 *** |
| logPerk | -0.0108 | -4.42 *** | -0.0109 | -4.45 *** | -0.0033 | -1.40 | -0.0031 | -1.34 |
| ChgCHRxlogNonPerk | | | -0.0163 | -0.62 | | | 0.0551 | 2.20 ** |
| ChgCHRxlogPerk | | | 0.0252 | 1.35 | | | -0.0240 | -1.34 |
| Adj R-Sq | 0.0141 | | 0.0141 | | 0.0055 | | 0.0066 | |
| N | 3,638 | | 3,638 | | 3,633 | | 3,633 | |
| **Panel C Regression (3) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0579 | -1.26 | -0.0568 | -1.23 | 0.2527 | 5.74 *** | 0.2543 | 5.78 *** |
| ExcessCHR | 0.3879 | 5.36 *** | -0.3852 | -0.70 | 0.0435 | 0.63 | -0.9599 | -1.82 * |
| logNonPerk | 0.0181 | 3.37 *** | 0.0180 | 3.35 *** | -0.0205 | -3.99 *** | -0.0207 | -4.03 *** |
| logPerk | -0.0113 | -4.60 *** | -0.0113 | -4.59 *** | -0.0034 | -1.43 | -0.0033 | -1.40 |
| ExcessCHRxlogNonPerk | | | 0.0900 | 1.39 | | | 0.1235 | 2.00 ** |
| ExcessCHRxlogPerk | | | 0.0002 | 0.01 | | | -0.0388 | -1.12 |
| Adj R-Sq | 0.0142 | | 0.0142 | | 0.0053 | | 0.0060 | |
| N | 3,638 | | 3,638 | | 3,633 | | 3,633 | |

**Panel D Robustness test Relation Between Value of Cash (Operating performance) and CEO Perks**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0075 | -0.24 | -0.0038 | -0.12 | 0.0304 | 1.28 | 0.0267 | 1.13 |
| ChgCHR | 0.0377 | 4.68 *** | -0.2467 | -4.51 *** | 0.0058 | 0.92 | 0.2835 | 6.70 *** |
| logNonPerk | 0.0060 | 4.39 *** | 0.0061 | 4.50 *** | 0.0045 | 4.30 *** | 0.0045 | 4.30 *** |
| logPerk | -0.0024 | -3.94 *** | -0.0024 | -3.95 *** | -0.0015 | -3.10 *** | -0.0015 | -3.25 *** |
| ChgCHRxlogNonPerk | | | 0.0331 | 5.08 *** | | | -0.0343 | -6.79 *** |
| ChgCHRxlogPerk | | | 0.0057 | 1.34 | | | 0.0086 | 2.61 *** |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4466 | | 0.4511 | | 0.1671 | | 0.1778 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

**Panel E Robustness test Relation Between Value of Cash (Operating performance) and CEO Perks**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0079 | -0.26 | -0.0034 | -0.11 | 0.0304 | 1.28 | 0.0292 | 1.23 |
| ExcessCHR | 0.1006 | 6.17 *** | -0.5119 | -3.99 *** | 0.0000 | 0.00 | 0.2372 | 2.37 ** |
| logNonPerk | 0.0063 | 4.61 *** | 0.0062 | 4.61 *** | 0.0046 | 4.35 *** | 0.0046 | 4.38 *** |
| logPerk | -0.0025 | -4.13 *** | -0.0025 | -4.14 *** | -0.0015 | -3.14 *** | -0.0015 | -3.18 *** |
| ExcessCHRxlogNonPerk | | | 0.0705 | 4.68 *** | | | -0.0289 | -2.47 ** |
| ExcessCHRxlogPerk | | | 0.0050 | 0.61 | | | 0.0076 | 1.19 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4491 | | 0.4526 | | 0.1669 | | 0.1680 | |
| N | 3,642 | | 3,642 | | 3,642 | | 3,642 | |

## Table 12 Robustness Test-Subsample in Pre Disclosure Rule Reform Period (1997~2006)

Panels A through Panel E present the results of the robustness test using different definitions of Cash holding. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

| **Panel A Regression (1) Robustness test** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Dependent Variable** | **logCHRA** | | | | **logCHRS** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.0316 | 0.55 | 0.0441 | 0.79 | 0.0280 | 0.49 | 0.0292 | 0.51 |
| logNonPerk | 0.0020 | 1.01 | | | 0.0023 | 1.20 | 0.0022 | 1.11 |
| logPerk | | | -0.0016 | -1.65 * | -0.0017 | -1.77 * | | |
| Perk_Med_D | | | | | | | -0.0069 | -1.65 * |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.8673 | | 0.8674 | | 0.8674 | | 0.8674 | |
| N | 2,208 | | 2,208 | | 2,208 | | 2,208 | |
| **Panel B Regression (2) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0578 | -0.98 | -0.0497 | -0.84 | 0.2756 | 4.90 *** | 0.2880 | 5.10 *** |
| ChgCHR | 0.1741 | 4.92 *** | -0.1886 | -0.93 | 0.1480 | 4.41 *** | -0.3038 | -1.58 |
| logNonPerk | 0.0212 | 3.04 *** | 0.0202 | 2.90 *** | -0.0204 | -3.09 *** | -0.0220 | -3.31 *** |
| logPerk | -0.0113 | -3.21 *** | -0.0116 | -3.32 *** | -0.0043 | -1.28 | -0.0041 | -1.22 |
| ChgCHRxlogNonPerk | | | 0.0364 | 1.49 | | | 0.0561 | 2.42 ** |
| ChgCHRxlogPerk | | | 0.0709 | 3.18 *** | | | -0.0073 | -0.35 |
| Adj R-Sq | 0.0171 | | 0.0220 | | 0.0131 | | 0.0148 | |
| N | 2,204 | | 2,204 | | 2,205 | | 2,205 | |
| **Panel C Regression (3) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0611 | -1.03 | -0.0496 | -0.83 | 0.2729 | 4.84 *** | 0.2909 | 5.11 *** |
| ExcessCHR | 0.5078 | 5.75 *** | -0.3447 | -0.62 | 0.2168 | 2.57 ** | -0.9404 | -1.76 * |
| logNonPerk | 0.0217 | 3.12 *** | 0.0203 | 2.90 *** | -0.0200 | -3.01 *** | -0.0222 | -3.31 *** |
| logPerk | -0.0114 | -3.25 *** | -0.0113 | -3.24 *** | -0.0044 | -1.31 | -0.0041 | -1.23 |
| ExcessCHRxlogNonPerk | | | 0.0917 | 1.41 | | | 0.1447 | 2.33 ** |
| ExcessCHRxlogPerk | | | 0.0717 | 1.46 | | | -0.0762 | -1.63 |
| Adj R-Sq | 0.0210 | | 0.0222 | | 0.0073 | | 0.0097 | |
| N | 2,204 | | 2,204 | | 2,205 | | 2,205 | |

**Panel D Robustness test on ROA**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0407 | -0.84 | -0.0493 | -1.01 | 0.0284 | 0.76 | 0.0283 | 0.76 |
| ChgCHR | 0.0580 | 7.06 *** | 0.1818 | 4.12 *** | 0.0165 | 2.63 *** | 0.0093 | 0.28 |
| logNonPerk | 0.0078 | 4.68 *** | 0.0082 | 4.96 *** | 0.0054 | 4.25 *** | 0.0054 | 4.20 *** |
| logPerk | -0.0025 | -3.02 *** | -0.0024 | -2.95 *** | -0.0008 | -1.29 | -0.0008 | -1.22 |
| ChgCHRxlogNonPerk | | | -0.0145 | -2.76 *** | | | 0.0015 | 0.38 |
| ChgCHRxlogPerk | | | -0.0042 | -0.88 | | | -0.0057 | -1.58 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4722 | | 0.4739 | | 0.1617 | | 0.1619 | |
| N | 2,208 | | 2,208 | | 2,208 | | 2,208 | |

**Panel E Robustness test on Change of ROA**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0365 | -0.76 | -0.0443 | -0.92 | 0.0295 | 0.79 | 0.0300 | 0.81 |
| ExcessCHR | 0.1768 | 9.64 *** | 0.5554 | 4.65 *** | 0.0596 | 4.22 *** | 0.0483 | 0.52 |
| logNonPerk | 0.0079 | 4.84 *** | 0.0086 | 5.22 *** | 0.0054 | 4.29 *** | 0.0054 | 4.24 *** |
| logPerk | -0.0027 | -3.27 *** | -0.0026 | -3.25 *** | -0.0009 | -1.37 | -0.0009 | -1.38 |
| ExcessCHRxlogNonPerk | | | -0.0447 | -3.22 *** | | | 0.0005 | 0.05 |
| ExcessCHRxlogPerk | | | 0.0033 | 0.32 | | | 0.0071 | 0.89 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4824 | | 0.4844 | | 0.1659 | | 0.1655 | |
| N | 2,208 | | 2,208 | | 2,208 | | 2,208 | |

## Table 13 Robustness Test-Subsample in Post Disclosure Rule Reform Period (2007~2012)

Panels A through Panel E present the results of the robustness test using different definitions of Cash holding. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed test).

| **Panel A Regression (1) Robustness test** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Dependent Variable** | **logCHRA** | | | | **logCHRS** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0554 | -1.15 | -0.0574 | -1.29 | -0.0820 | -1.69 * | -0.0749 | -1.55 |
| logNonPerk | 0.0013 | 0.47 | | | 0.0035 | 1.26 | 0.0032 | 1.14 |
| logPerk | | | -0.0039 | -3.67 *** | -0.0042 | -3.85 *** | | |
| Perk_Med_D | | | . | | | | -0.0177 | -3.94 *** |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Industry and Year Fixed Effect | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.8387 | | 0.8402 | | 0.8403 | | 0.8404 | |
| N | 1,434 | | 1,434 | | 1,434 | | 1,434 | |
| **Panel B Regression (2) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.1770 | -2.42 ** | -0.1969 | -2.57 ** | 0.0905 | 1.28 | 0.0683 | 0.92 |
| ChgCHR | 0.0561 | 1.67 * | -0.2881 | -0.72 | 0.0272 | 0.84 | -0.3592 | -0.93 |
| logNonPerk | 0.0249 | 2.96 *** | 0.0272 | 3.09 *** | -0.0081 | -0.99 | -0.0055 | -0.65 |
| logPerk | -0.0046 | -1.43 | -0.0047 | -1.47 | 0.0033 | 1.05 | 0.0031 | 0.99 |
| ChgCHRxlogNonPerk | | | 0.0403 | 0.85 | | | 0.0456 | 0.99 |
| ChgCHRxlogPerk | | | 0.0041 | 0.15 | | | -0.0011 | -0.04 |
| Adj R-Sq | 0.0063 | | 0.0056 | | -0.0005 | | -0.0012 | |
| N | 1,434 | | 1,434 | | 1,428 | | 1,428 | |
| **Panel C Regression (3) Robustness test** | | | | | | | | |
| **Dependent Variable** | **AR4** | | | | **Post AR4** | | | |
| | **M1** | | **M2** | | **M3** | | **M4** | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.1788 | -2.44 ** | -0.1779 | -2.42 ** | 0.0897 | 1.27 | 0.0859 | 1.21 |
| ExcessCHR | 0.1944 | 2.16 ** | 0.2170 | 0.25 | 0.0522 | 0.60 | -0.4259 | -0.51 |
| logNonPerk | 0.0251 | 2.99 *** | 0.0250 | 2.96 *** | -0.0080 | -0.98 | -0.0075 | -0.92 |
| logPerk | -0.0046 | -1.44 | -0.0047 | -1.46 | 0.0032 | 1.04 | 0.0032 | 1.02 |
| ExcessCHRxlogNonPerk | | | -0.0083 | -0.08 | | | 0.0546 | 0.56 |
| ExcessCHRxlogPerk | | | 0.0348 | 0.74 | | | 0.0031 | 0.07 |
| Adj R-Sq | 0.0076 | | 0.0066 | | -0.0007 | | -0.0019 | |
| N | 1,434 | | 1,434 | | 1,428 | | 1,428 | |

**Panel D Robustness test on ROA**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | 0.0017 | 0.04 | -0.0300 | -0.71 | 0.0562 | 1.63 | 0.0348 | 1.00 |
| ChgCHR | 0.0485 | 4.59 *** | -0.4686 | -4.43 *** | 0.0016 | 0.19 | -0.3489 | -4.00 *** |
| logNonPerk | 0.0033 | 1.38 | 0.0072 | 2.85 *** | 0.0022 | 1.13 | 0.0049 | 2.33 ** |
| logPerk | -0.0027 | -2.81 *** | -0.0029 | -3.08 *** | -0.0026 | -3.28 *** | -0.0027 | -3.51 *** |
| ChgCHRxlogNonPerk | | | 0.0612 | 4.87 *** | | | 0.0420 | 4.05 *** |
| ChgCHRxlogPerk | | | -0.0005 | -0.06 | | | -0.0084 | -1.39 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4583 | | 0.4676 | | 0.2064 | | 0.2148 | |
| N | 1,434 | | 1,434 | | 1,434 | | 1,434 | |

**Panel E Robustness test on Change of ROA**

| Dependent Variable | ROA | | | | ChgROA | | | |
|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M4 | |
| **Variable** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** | **Coeff.** | **t** |
| Intercept | -0.0070 | -0.17 | -0.0141 | -0.34 | 0.0559 | 1.62 | 0.0503 | 1.46 |
| ExcessCHR | 0.1342 | 5.72 *** | -0.7974 | -3.53 *** | 0.0057 | 0.29 | -0.5518 | -2.95 *** |
| logNonPerk | 0.0036 | 1.49 | 0.0047 | 1.97 ** | 0.0022 | 1.13 | 0.0029 | 1.45 |
| logPerk | -0.0031 | -3.23 *** | -0.0033 | -3.51 *** | -0.0026 | -3.31 *** | -0.0027 | -3.44 *** |
| ExcessCHRxlogNonPerk | | | 0.1045 | 3.96 *** | | | 0.0663 | 3.03 *** |
| ExcessCHRxlogPerk | | | 0.0171 | 1.37 | | | -0.0124 | -1.21 |
| Control Variables | Yes | | Yes | | Yes | | Yes | |
| Adj R-Sq | 0.4628 | | 0.4707 | | 0.2065 | | 0.2107 | |
| N | 1,434 | | 1,434 | | 1,434 | | 1,434 | |