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CEO Reputation and Corporate Cash Holdings

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Disclaimer Statement

The work presented in this thesis is, to the best of my knowledge and belief, original, except as acknowledged in the text. The material has not been submitted, either in whole or in part, for a degree at this or any other university.

Jiale Huang

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Abstract

We investigate whether and to what extent CEO reputation affects both the level and the value of corporate cash holdings for US firms. We show that CEO reputation has a negative impact on the level of corporate cash holdings: the most reputable CEOs hold approximately 17% less cash than the least reputable CEOs. Furthermore, we find that the value of corporate cash holdings held by the most reputable CEOs is much higher than that held by the least reputable CEOs: the difference is approximately 44 cents per dollar for the average firm in our sample. In addition, we also find that the value of one dollar of excess cash holdings held by the most reputable CEOs is worth 77 cents more than that held by the least reputable CEOs. Collectively, our findings provide new evidence in support of prior theories arguing that CEO reputation adds value to the firm's assets. Meanwhile, our findings also suggest that the agency problem could potentially be mitigated by CEO reputation.

Keywords: CEO reputation; Corporate cash holdings; Agency problems; Firm value; Corporate governance

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CEO Reputation and Corporate Cash Holdings

Chapter 1 Introduction

1.1 Research Question

Cash is undoubtedly one of the most important corporate assets on a firm's balance sheet, not only because of its liquidity function for corporate operating, financing, and investing activities but also because of its direct impact on the firm's very existence. However, in some circumstances, cash could also be a significant burden to the firm. Adam Smith (1826) first notes that due to the separation of management and ownership in a modern company, the managers' personal preferences or characteristics could lead to "negligence and profusion" regarding corporate resources.¹ *In this study, we aim to examine whether and to what extent the level and value of corporate cash holdings could be affected by the CEOs' personal characteristics, especially CEO reputation. If reputable CEOs also hold excess cash reserves, we further examine whether they are more valuable than the excess cash reserves held by non-reputable CEOs.*

1.2 Motivation

Our study focuses on the effect of CEO reputation on both the level and the value of corporate cash holdings. This study is motivated by the following five observations. *First*, CEOs hold a

¹ This idea is later formalised by Jensen and Meckling (1976) in the form of "agency theory" or "the agency problem". Empirical studies show that managers tend to hold more cash in firms with a higher level of agency problems. Other empirical studies based on agency theory also find evidence that managers in cash rich firms tend to waste these cash holdings.

very special role in the firm because in most cases a CEO is regarded as the most influential executive officer in the firm. The prior literature finds evidence that the CEOs' personal preferences affect corporate financing policies (e.g., Cronqvist, Makhija, and Yonker, 2012).

Second, economic theories predict that CEO reputation, defined as the markets' perception of the CEOs' ability, could possibly mitigate agency problems between shareholders and CEOs. Many empirical studies on reputation show that reputation can affect firm value, but they do not identify the mechanism through which this result occurs.

Third, corporate cash holdings are one of the most important corporate resources; however, cash is also the easiest corporate resource for CEOs to access, receiving little scrutiny relative to external financing choices. Furthermore, the use of cash is normally at the CEOs' discretion (Myers and Rajan, 1998).

Fourth, agency theory predicts a value destruction effect for holding corporate liquidity, especially for holding free corporate cash flows. We are motivated to examine whether reputable CEOs could mitigate the agency problem. Because Jensen's (1986) agency theory mentions the value reduction of free cash, we try to examine CEO reputation's direct effect on the value of free cash reserves.

Fifth, Pinkowitz, Stulz, and Williamson (2012) find that US firms tend to hold increasing cash relative to firm assets over time.² This interesting phenomenon implies the growing importance of cash; thus, it becomes more attractive to conduct research on these increasing corporate cash holdings.

² Bates, Kahle, and Stulz (2009) show that the increasing trend of corporate cash holdings is not a GFC related phenomena. Indeed, the increasing trend already exists before the GFC.

1.3 Primary Findings

We believe that reputable CEOs should hold less cash; however, the value of the cash they hold should be higher than the value for that of non-reputable CEOs.³ Collectively, we expect that reputable CEOs could achieve the same goal with a lower level of cash due to their superior abilities.

In terms of the level of cash holdings, we find that reputable CEOs hold significantly less cash than non-reputable CEOs. Specifically, the most reputable CEOs—with reputation measured as the cumulative density function for the principal component score of three reputational proxies: CEO Tenure, outsider status, and Industry Adjusted Performance—hold 17.06% less cash than the non-reputable CEOs in an average firm.

In terms of the value of corporate cash holdings, we also find that the corporate cash reserves held by the most reputable CEOs are more valuable than those held by the non-reputable CEOs. One dollar of cash held by the most reputable CEOs has approximately 44 cents more value than one held by the non-reputable CEOs in an average firm.

In addition, excess cash held by the most reputable CEOs is found to be more valuable than that held by the non-reputable CEOs. One dollar of excess cash is worth 1.09 dollars if held by the most reputable CEOs, while the value decreases to 77 cents if it is held by the non-reputable CEOs.

In summary, we find that reputable CEOs hold significantly less cash than non-reputable CEOs and that the value of both cash holdings and excess cash holdings is higher for

³ Reputable CEOs are not only skilled CEOs, but also shareholder-friendly CEOs. We employ CEO tenure, Industry adjusted performance, and whether the CEOs are hired externally as proxies for CEO reputation.

reputable CEOs. Our primary results are robust to a battery of robustness tests. For example, our results remain robust when we control for different measures of corporate governance and use individual proxies for CEO reputation.

1.4 Contributions

This study makes five contributions to the existing literature. First, it contributes to the literature on the **level of corporate cash holdings**. Previous studies primarily focus on the effects of firm-specific characteristics on the level of corporate cash holdings. Our study is the first that relates the CEO's personal characteristics to the level of corporate cash holdings.

Second, this study contributes to the literature on the determinants of **the market value of corporate cash holdings**. Pinkowitz and Williamson (2002) first empirically proved that the market value of cash does not equal its face value. Since then, an increasing number of researchers have tried to exploit new factors that could affect the market value of cash, yet most of those studies focus on firm-specific factors.⁴ Our study not only finds new and significant factors that affect the value of corporate cash holdings but also elucidates the effect of the CEO's reputation on corporate resources.

Third, this study also contributes to the behavioural corporate finance literature, especially in the area of CEO reputation. Existing economic models (see, e.g., Fama, 1980; Diamond, 1989; Holmstrom, 1999) on CEO reputation show that reputable CEOs have both the ability and the incentive to perform well; however, there are only a few studies that conduct empirical research

⁴ For example, Faulkender and Wang (2006) find the leverage factor. Dittmar and Mahrt-Smith (2007) show that corporate governance could also affect the value of corporate cash holdings. Denis and Sibilkov (2010) indicate that the value of cash differs in financially constrained firms from that in unconstrained firms.

to verify these theories. Therefore, this study helps to elucidate the value of CEO reputation in corporate activities by investigating the value effect of CEO reputation on corporate cash holdings.

Fourth, this study potentially provides a way to prevent agency problems stemming from corporate cash holdings. Because reputation could motivate the CEO to act in the shareholders' interest, a firm managed by a reputable CEO would incur fewer conflicts of interest with shareholders. This finding is useful for investors who want to invest in firms with substantial cash holdings. In addition, this study provides a new line of thinking that can be applied to resolve the high cash holdings puzzle of US multinational firms (Pinkowitz, Stulz, and Williamson, 2012).⁵

Fifth, this study hand collects missing value for one of the CEO reputational proxies—*OUTSIDER*. In most CEO reputation studies outside CEO is normally defined as the date the outsider became CEO matches the date he joined the company in the Execucomp database. However, those CEOs with missing *joined the company date* in the Execucomp database, are typically ignored in the literature.

1.5 Thesis Structure

The remainder of this thesis proceeds as follows. In Chapter 2, we review and summarise a large number of prior studies on both CEO reputation and corporate cash holdings. In Chapter 3, we present the hypotheses. In Chapter 4, we describe the data used and explain key variables. At the end of this chapter, we present our empirical model. In Chapter 5, we present

⁵ Bates, Kahle, and Stulz (2009) and Sanchez and Yurdagul (2013) also identify an increasing trend in cash holdings in US firms. Both of these studies believe that US firms hold too much cash.

the empirical results of the effect of CEO reputation on the value of corporate cash holdings. In Chapter 6, we conduct a series of robustness checks, and conclude the study in Chapter 7.

Chapter 2 Literature Review

Chapter 2 summarises the related prior literature in two sections. Section 2.1 provides an overview of the previous literature on corporate cash holdings. Section 2.2 focuses on the CEO reputation related literature. Section 2.3 provides a brief summary of the literature review.

2.1 Corporate Cash Holding Literature

2.1.1 The Motives for Holding Cash

There are many reasons why firms hold cash, but these reasons can generally be categorised into two groups. *First*, firms hold cash for precautionary motives. Normally, firms tend to hold a particular amount of cash to manage the potential costs caused by cash shortages. Shareholders in firms with a higher level of financial distress would place a higher value on the corporate cash holdings, reflecting the necessity of holding cash in this type of situation (Denis and Sibikov, 2010).⁶

Second, firms hold cash for transactional purposes (Keynes, 1934). It is obvious that a firm needs cash to support its operating, financing, and investing activities. Myers and Majluf (1984) show that information asymmetry between inside managers and outside investors

⁶ In Section 2.2, we show that reputable CEOs tend to take less risks than non-reputable CEOs. Thus, we believe reputable CEOs tend to hold less cash (for precautionary purpose) than non-reputable CEOs, even in the time of financial recession.

creates a pecking order in terms of financing choices. Internal financing, which is cash, is cheaper for the firm than an external financing choice (debt and equity). Empirical evidences on pecking order theory are found among small firms, where these small firms tend to hold more cash than large firms (see e.g., Shyam-Sunder and Myers 1999; Fama and French 2002).⁷ Furthermore, Denis and Sibilkov (2009) and Faulkender and Wang (2006) find supportive evidence for pecking order theory, showing that a high level of cash holdings is beneficial for high growth firms, especially for financially constrained firms with positive NPV projects.

2.1.2 The Cost of Holding Cash

Having discussed the two important motives or benefits of holding cash, the cost of holding cash cannot be ignored. There are two major types of costs associated with corporate cash holdings. *First*, holding cash is always associated with opportunity cost. Because interest paid on the cash account is quite low, firms with a large amount of cash holdings could earn higher returns if they invested their cash in illiquid safe projects or if they return cash to shareholders, who can utilise it better. Moreover, the opportunity cost associated with holding cash reserves cannot be eliminated and will increase with the level of corporate cash holdings.

Second, the agency theory or the free cash flow theory proposed by Jensen (1986) and Jensen and Meckling (1974) argues that firm value would be destroyed by holding free cash flows due to the negligence of the managers who control these cash reserves. As a consequence, free

⁷ It is widely believed that information asymmetry between inside managers and outside investors are more sever among small firms. Therefore, small firms usually borrow at higher interest rate than large firms.

cash flows not only cannot be used efficiently⁸ but in some cases will also be extracted by managers for their personal welfare. The primary idea of agency costs is built on the assumption that managers are more likely to extract rents from shareholders in the absence of corporate governance. However, if such rent extraction does not even exist in the first place, then the agency problem from high cash holdings could be mitigated.

2.1.3 Determinants of the Level of Corporate Cash Holdings

Incorporating both the benefits and costs of holding cash with both the sources and uses of cash holdings, Opler, Pinkowitz, Stulz, and Williamson (1999) identify various firm-specific factors that determine the level of corporate cash holdings.⁹ They find that the decision regarding the level of corporate cash holdings is normally based on the trade-off between the benefits and the costs of holding cash. Therefore, Opler, Pinkowitz, Stulz, and Williamson (1999) argue that optimal cash holding levels exist, and this optimal level is determined by the variables they propose.¹⁰

Harford, Mansi, and Maxwell (2008) extend the study by Opler et al. (1999) by incorporating corporate governance into the level of cash holdings. Their corporate governance proxies cover both monitoring and anti-entrenchment. In the presence of commonly used control variables for the level of cash holdings, Harford et al. (2008) find that firms with a weaker corporate governance structure have a smaller cash reserve. This result is actually counterintuitive. Given that poor corporate governance is normally associated with less

⁸ Generally speaking, every dollar of cash should be utilised to maximise shareholder wealth.

⁹ Opler et al. (1999) believe that size, cash flow, net working capital, R&D expense, capital expenditure, debt level, and market to book ratio collectively determine the normal level of corporate cash holdings.

¹⁰ The static trade-off theory predicts the existence of an optimal level of cash holdings that maximises firm value.

monitoring and higher managerial entrenchment, the managers in this type of poorly governed firm should find it easier to hoard cash instead of paying out cash as dividends than managers in a well-governed firm. Despite their unexpected results, Harford, Mansi, and Maxwell (2008) still show us that corporate governance is also a determinant of the level of cash holdings.

2.2 The Market Value of Cash Holdings Literature

Although there is an extensive literature elucidating the level of corporate cash holdings, the market value of corporate cash holdings has recently received nearly as much attention. Indeed, the value of cash is a controversial topic in both theoretical and empirical studies. For example, the value of corporate cash holdings implied in agency (free cash flow problem) theory is obviously lower than that implied in pecking order theory, which suggests that cash is the cheapest source of financing.

Empirically, researchers also find that financial constraints could have a significant impact on the value of cash holdings; however, there is still a debate as to the direction of this impact. While Pinkowitz and Williamson (2002) find that cash tends to be more valuable in financially unconstrained firms, Faulkender and Wang (2006) show that the market value of cash is higher for financially constrained firms. Nevertheless, the level of financial constraint is still regarded to be one important determinant for the market value of cash holdings.¹¹

2.2.1 Agency Theory and Empirical Evidence

Adam Smith (1826) first proposed the idea of agency cost—he explains that due to the

¹¹ Intuitively, we are more biased toward Faulkender and Wang (2006). We believe that better access to outside financial markets reduces the usefulness of corporate cash holdings and thus, reduces the value of cash holdings.

separation of ownership and control, “negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such companies.” This idea is later formalised by Jensen and Meckling (1976) in the form of agency theory, which maintains that the managers’ potential misuse of corporate resources will discount the value of these resources. Further, Jensen’s (1986) free cash flow theory shows that the value of corporate cash holdings is lower if managers have discretionary control of cash holdings without any scrutiny or penalty.

Jensen’s (1986) free flow theory is supported by Harford’s (1999) work, which shows that cash rich firms are not only more likely to engage in mergers and acquisitions (M&As) but also more likely to overpay for them. Additionally, the post M&A performances of cash rich firms are worse than those of other acquirers, which implies that managers actually take negative NPV projects when they have discretion over cash reserves.

Although both theoretical and empirical studies on the free cash flow problem assume that managers have a conflict of interest with shareholders, we argue that this assumption is open to a series of questions. In the real world, individual preferences could vary. Some CEOs could have the same interests as shareholders, in which case these CEOs will act in their best interest. As long as the market learns these CEOs’ behaviour, there would be no discounts on their cash reserves.

In our study, we relax the assumption that CEOs have a conflict of interest with shareholders and investigate whether the reputational characteristics of different CEOs have a value effect on the market value of corporate cash holdings.

2.2.2 Firm-Specific Factors and Corporate Governance

Pinkowitz and Williamson (2002) is one of the earliest papers measuring the market value of cash holdings. Based on the idea that the market would react to a change in the level of corporate cash holdings, they indirectly examine the market value of corporate cash holdings by running an OLS regression on the market value of equity against excess cash holdings and a group of control variables that could potentially affect the market capitalisation of the firm. They find that each marginal dollar is worth \$0.97. However, Dittmar and Mahrt-Smith (2007) argue that due to the use of excess cash, which is calculated as the actual cash level minus the optimal cash level, the result becomes hard to interpret because it is unclear whether the result is driven by a change in the optimal or in the actual level of cash holdings.

Faulkender and Wang (2006) create a new model measuring the value of each marginal dollar held by the firm.¹² Similar to Pinkowitz and Williamson (2002), this model also indirectly measures the value of corporate cash reserves using the market reaction to the change of cash holdings. After controlling for commonly used variables that affect the market price, Faulkender and Wang (2006) argue that the unexplained market reaction is due to the change in cash holdings. According to their findings, one dollar of cash in an all-equity firm with no opening balance of cash reserves has a value of \$1.47.

Dittmar and Mahrt-Smith (2007) further examine the corporate governance effect on the market value of corporate cash holdings using Faulkender and Wang's (2006) model as a baseline. They find that corporate governance also affects the value of cash holdings, where

¹² Compared with Pinkowitz and Williamson's (2002) model for measuring the value of cash holdings, Faulkender and Wang's (2006) model is considered to be new and different.

the value of one dollar of cash varies from \$1.62 for well governed firms to 0.42 for poorly governed firms.¹³

Meanwhile, using the Pinkowitz and Williamson (2002) model to measure the value of excess cash holdings, Dittmar and Mahrt-Smith (2007) also find a significant result that corporate governance is positively related to the market value of excess cash holdings.

2.2 CEO Reputation Related Literature

According to Kreps and Wilson (1982), reputation is very important in reality, especially in the context of industry organisations, for two reasons. First, a reputable CEO achieves a better public image for shareholders, thereby improving stock returns. Second, a reputable CEO has a superior ability to manage the firm.

Diamond (1989) shows that the market will not recognise the borrower's reputation until the market assesses his risk management abilities. This result implies that reputable persons have stronger abilities than non-reputable persons.

In the following sub-sections, we review some previous studies on the area of CEO reputation.

2.2.1 The Role of CEO

In a modern company with separate ownership and management, the CEO is regarded as the highest-ranking employee with a particular role—making investment, financing, and operating decisions. Different CEOs are likely to make different decisions for the same activities, which subsequently result in different firm values. Hence, it is assumed that

¹³ Dittmar and Mahrt-Smith (2007) also find similar significant results using Pinkowitz and Williamson's (2002).

investors assess each individual CEO accordingly. This assumption is supported by some prior studies showing that the stock market reacts to changes in management.¹⁴

Furthermore, some studies suggest that the value of the CEO's human capital (reflected by his performance) contributes to at least some portion of firm value. For example, Hayes and Schaefer (1999) find that firms that lose high-performing managers to other firms experience a negative stock return, while firms that experience the sudden death of low-performing managers experience a positive stock return. Similarly, Huson, Malatesta, and Parrino (2004) and Dedman and Lin (2002) show that investors tend to react positively (negatively) to the announcement of a CEO dismissal/departure in poor (good) performing firms, because the board of directors is more likely to punish a poor performing CEO by replacing him or her.

To date, the literature on the role of the CEO reveals the importance of the CEO to firm value; however, it is still unclear which characteristics distinguish the value-adding CEOs from the value-destroying CEOs. We believe that CEO reputation could possibly be one of those characteristics.

2.2.2 Reputation

Akerlof (1970) proposed the famous "lemon" problem, which demonstrates that the market will eventually fail due to information asymmetry between suppliers and demanders. In the labour market, this type of failure occurs when the employers know less about the employees than the employees themselves. Consequently, firms are only able to hire "low quality" employees or firms would rather not hire anyone. However, in the real world, we do not

¹⁴ See, for example, Bonnier and Bruner (1989); Denis and Denis (1995); Khanna and Poulsen (1995); Huson, Malatesta, and Parrino (2004); and Dedman and Lin (2002).

observe these types of failure in the labour market. Instead, many high performing employees are hired by different firms, suggesting that the employers can most likely observe the employees' quality.

Fama (1980) argues that the employees' reputation reflects the managers' quality, thus reducing the adverse selection problem in the labour market. Moreover, in his paper, Fama (1980) predicts that there will be fewer moral hazard problems in firms with more reputable managers because the managers' reputation is highly related with the performance of the firm in which they hold an office; in addition, this reputation possibly determines the manager's price in the labour market. Therefore, reputation could simultaneously reduce two types of information asymmetry and potentially increase the market value of the firm.¹⁵

In a similar vein to Fama (1980), Diamond (1989) also shows that reputable borrowers always enjoy a lower interest rate than non-reputable borrowers. In addition, Diamond (1989) and Holmstrom (1999) find that the better reputation a person gains, the stronger incentive he has to take low-risk projects, because even a single default could destroy the entire value of the reputation that he has built.¹⁶

Because reputation represents both high performance ability and an incentive to decrease risk taking, we believe that reputation could have a significant impact on cash in terms of both the level of and value of cash holdings.

¹⁵ Because the agency problem is also a type of moral hazard problems, we expect that a reputable CEO can also deter the value destruction of corporate resources, especially corporate cash holdings, as a consequence of any agency problem between managers and shareholders.

¹⁶ In Diamond's (1989) and Holmstrom's (1999) papers, a low-risk project has the same expected return but a lower volatility of outcomes compared with a risky project.

2.2.3 CEO Reputation

We focus on the CEO's personal reputation for two reasons. First, we argue that a reputation will not be effective unless it is accompanied by controlling power. As we discussed in Section 1.2.1, the CEO is the most powerful person in the firm and makes the final decision regarding the hoarding or spending of corporate resources (especially cash). We therefore expect that the CEO's reputation will have a stronger influence on both the level and the value of these corporate resources than that of any other individual in the firm.

Second, a practitioner's survey shows that CEO reputation represents 45% of the firm reputation, and CEO image continues to be a significant determinant of the shareholders' wealth (Gaines-Ross, 2000). Meanwhile, this same survey also shows that investors as well as analysts are more biased toward firms with reputable CEOs: over 95% of surveyed analysts responded that they would either purchase or recommend stocks based on the CEO reputation and over 80% of investors believe that reputable CEOs are more trustworthy (Gaines-Ross, 2000).

In a recent empirical study, Jian and Lee (2011) find that CEO reputation adds value to the announcement of a capital investment. They find that the market reacts more positively to a capital investment announcement made by more reputable CEOs. Furthermore, the market reacts positively to the capital investment announcements of cash rich firms if these firms have a reputable CEO. These two findings motivate us to further investigate whether CEO reputation can really affect the value of corporate (excess) cash holdings, and if so, what the exact value of corporate (excess) cash holdings is under different levels of CEO reputation.

In addition, Milbourn (2003) shows a positive and economically meaningful relationship

between stock-based pay sensitivities and CEO reputation, which implies that the conflict of interest between shareholders and CEOs decreases as the CEO's reputation grows. In other words, CEO reputation could potentially reduce the agency costs between CEOs and shareholders; thereby, the value destruction of corporate resources could be mitigated.

Our study differs from the study by Jian and Lee (2011) in the following two ways. First, Jian and Lee (2011) do not measure the exact dollar value of cash under the condition of CEO reputation. In contrast, we measure the exact value that shareholders place on one dollar of cash under the condition of different levels of CEO reputation. Second, the result in our study is easier to interpret because the coefficient of the interaction variable of CEO reputation and changes in cash holdings directly presents the marginal value of one dollar of cash under the condition of different levels of CEO reputation. Meanwhile, due to the use of the cumulative density function for CEO proxies in our study, it is also quite easy to interpret the effect of different levels of CEO reputation on the value of cash holdings.

2.3 Summary

A large number of the previous studies examine the determinants of both the level and the value of corporate cash holdings. In terms of the level of cash holdings, researchers have identified many firm-specific variables that could affect the level of cash held by the firm. These firm-specific variables reflect the need and uses of corporate cash holdings; thus, Opler et al. (1990) argue that the optimal level of cash that maximises shareholder wealth is determined by all these variables.

The previous literature, however, does not consider how efficiently cash can be used and

acquired by the CEO. In this study, we fill this gap by introducing CEO reputation as a marginal effect on the level of cash holdings. To test the economic efficiency of the cash held by reputable CEOs, we further test its value.

In terms of the value of cash holdings, the research develops two different models to measure the market value of corporate cash holdings.¹⁷ They propose growth opportunities, leverage, amount of cash holdings, financial constraints, and financial distress costs as factors that affect the value of corporate cash holdings (see, e.g., Faulkender and Wang 2006; Pinkowitz and Williamson 2002). Dittmar and Mahrt-Smith (2007) show that the value of cash holdings is higher for well governed firms but lower for poorly governed firms.

Given the importance of the CEO's reputation, we are motivated to examine its effect on the value of corporate cash holdings. We interact the proxy for CEO reputation with the cash-related variables. By doing so, the coefficients of the interaction variable directly represent the effect of a change of one dollar in cash on the value of the firm. This analysis provides a more direct view of the effect than Jian and Lee's (2011) study examining the effect of CEO reputation on the value of cash.

¹⁷ The two models used are Faulkender and Wang's (2006) model and Pinkowitz and Williamson's (2002) model.

Chapter 3 Hypothesis Development

This chapter draws on the presented theories related to corporate cash holdings and the determinants of both the level and the market value of corporate cash holdings to construct the following three hypotheses. First, Section 3.1 develops the first hypothesis, which predicts that reputable CEOs tend to hold a lower amount of cash than non-reputable CEOs. Second, Section 3.2 further extends the first hypothesis by examining the value effects of the cash reserves held by reputable CEOs. Third, Section 3.3 additionally hypothesises the market value of the excess cash reserves held by reputable CEOs.

3.1 CEO Reputation and the Level of Cash Holdings

We expect that there is a negative relationship between CEO reputation and the level of corporate cash holdings for the following two reasons.

First, reputable CEOs can access a cheaper source of external financing, so they do not need to hold a high amount of cash for either transactions or precautionary purposes. Diamond (1989) argues that as borrowers become more reputable, the cost of debt tends to decrease. He explains that as the borrowers' reputation improves, information regarding the quality or the ability of the borrower is revealed to the market. Therefore, the cost of debt capital will be lower for such reputable borrowers once this information is learned by the lenders.

Empirically, Cao, Myers, Myers, and Omer (2013) find that firm reputation significantly reduces the firm's cost of equity capital. Although they do not directly examine CEO reputation, their finding still indirectly supports the idea that CEO reputation could reduce the cost of outside financing because CEO reputation, in practice, constitutes nearly half of the

firm's reputation.¹⁸

Second, according to Diamond (1989), as people become increasingly reputable, they also decrease their risk seeking. Holmstrom (1999) also indicates that even a risk-neutral CEO would become biased toward less risky projects as he becomes more reputable. This tendency emerges because although a CEO's reputation is built up over a long time period, it could potentially be destroyed by one small mistake. As the CEO becomes increasingly reputable, the cost of taking risks also grows.¹⁹ Thus, reputable CEOs have a weak incentive to undertake risky projects. If reputable CEOs tend to take fewer risks, then the level of cash for precautionary purposes could also be reduced.

Collectively, we hypothesise as follows:

H1: Reputable CEOs are more likely to hold a lower level of cash than non-reputable CEOs.

3.2 CEO Reputation and the Value of Cash Holdings

We expect that there exists a positive relationship between CEO reputation and the market value of corporate cash holdings for the following two reasons.

First, cash is one form of corporate liquidity that can easily lead to managerial entrenchment/misuse of cash, and the magnitude of the value discount on corporate cash holdings should be higher than those illiquid corporate resources. That is because the use of corporate cash holdings is highly discretely and the monitoring on the use of cash is very little.

Consequently, holding a high level of cash is more harmful to firm value than holding other

¹⁸ Refer to the discussion in section 2.2.3; a survey shows that CEO reputation represents 45% of firm reputation (Gaines-Ross, 2000).

¹⁹ The cost of taking risk for CEOs could be losing their jobs as well as their high salaries.

corporate resources of the same value. However, if shareholders learn that managers will not waste these cash holdings, the discount on the value of corporate cash holdings should be reduced.

We believe that CEO reputation conveys this type of positive information to the shareholders. On the one hand, Gaines-Ross (2000) shows that CEO reputation changes the individual's image of the firm. On the other hand, reputable CEOs have a strong incentive to protect their reputation, which is related to the success or failure of the firm in which they hold an office. For this reason, reputable CEOs are more likely to align their personal interests with the interests of shareholders. Therefore, shareholders are less likely to discount the value of corporate cash holdings.

Second, reputable CEOs are more likely to avoid negative NPV projects to protect their well-established reputation. In this way, corporate cash holdings are less likely to be wasted in non-profitable projects, and corporate cash holdings are more likely to be efficiently utilised. Support from Gaines-Ross (2000) shows that, on average, firms with more reputable CEOs achieved a 13% annual shareholder return compared with a negative 28% annual shareholder return for companies with less reputable CEOs.

Similar supporting evidence is also found in Jian and Lee's (2011) study, which finds that firms with more reputable CEOs exhibit significantly better post-investment operating performance improvements than those with non-reputable CEOs. In addition, Jian and Lee (2012) find that the market always reacts positively to capital announcements made by reputable CEOs, regardless of whether these CEOs hold an office in cash-rich firms or not. This finding implies that for reputable CEOs, the value of excess cash holdings may not be discounted by

shareholders. Indeed, shareholders trust that these reputable CEOs are not likely to waste their excess cash.

Collectively, we hypothesise as follows:

H2: The market value of corporate cash holdings is higher in firms with reputable CEOs than in firms with non-reputable CEOs.

3.3 CEO Reputation and the Value of Excess Cash Holdings

We argue that CEO reputation not only affects the value of total cash holdings but also affects the value of excess cash holdings.

Excess cash holdings are usually regarded as unnecessary cash holdings that do not provide either precautionary benefits or transactional benefits to the firm.²⁰ Therefore, on average, shareholders are more likely to assign a lower value on each excess dollar held due to the low interest income generated by holding cash and the high probability of managerial entrenchment/misuse of corporate cash holdings given these excess cash holdings.

As we discussed in the last section, reputable CEOs increase the market value of cash holdings by taking less risky projects (as well as avoiding negative NPV projects) and aligning their personal interests with the interest of shareholders. Therefore, we believe that reputable CEOs are able to increase the market value of excess cash holdings through a similar mechanism.

Therefore, our third hypothesis is given as below:

H3: The market value of excess corporate cash holdings is higher in firms with reputable CEOs than in firms with non-reputable CEOs.

²⁰ We assume that the normal level of cash is sufficient to address all potential transactions and risks.

Chapter 4 Research Design

4.1 Sample Formation

Table I shows the sample selection procedure in our study. We obtain CEO reputation related data from the Execucomp annual compensation database. Cash holdings data and other financial statement data are obtained from the Compustat/CRSP merged (CCM) fundamental annual database. Stock market data are obtained from both the CRSP security monthly database and the CCM security monthly database.

Table I
Sample Selection Procedure

This table provides the sample selection procedure. We start with the *Execucomp* database, which includes 34,840 CEO-years. We next exclude all finance firms (SIC 6000-6999), utility firms (SIC 4900-4999), and Unclassified firms (SIC 9900-9999). Next, we merge the *Execucomp* database with the *Compustat CRSP Merged* database. We drop all unmatched variables, duplicate CEOs recorded in one firm-year, and missing variables. Our final sample consists of 16,250 CEO-years.

	Number of observations
Initial Sample (ExecuComp)	34,840
Drop:	
<i>Finance Firms</i> (SIC code 6000-6999)	(5,280)
<i>Utility Firms</i> (SIC code 4900-4999)	(2,061)
<i>Unclassified</i> (SIC code 9900-9999)	(158)
	27,341
Merge with CCM	
<i>Unsuccessful Merge</i> (due to one year lag in CCM)	(2,952)
	24,389
Drop:	
<i>Duplicate CEO</i> recorded in one firm-year	(43)
CEO Tenure<0	(938)
Missing variables	(7,158)
Final Sample	16,250

Following Dittmar and Mahrt-Smith (2007), we exclude financial firms (Standard Industrialization Code (SIC) 4900-4999), utility firms (SIC 6900-6999), and firms in

unclassified industries (SIC 9900-9999). We exclude all financial firms because financial firms such as banks are required to hold cash depending on their deposits. We drop all utility firms because these firms are highly regulated, and regulations may have different effects on firms' corporate cash holding policies.

After excluding the unsuccessful merges and missing variables, our final sample consists of 2,121 US publicly listed firms (or 16,250 firm-year observations) from fiscal year 1993 to 2012.²¹ Appendix A shows the detailed development of the final sample. All variables are converted into real values in 2012 data using the consumer index price (CPI). To avoid the impact of outliers on our results, we winsorise all the ratio variables at the 1st and 99th percentiles.²²

4.2 CEO Reputation Proxies

In many previous theoretical papers, CEO reputation is defined as the market's perception of the CEO's ability. However, it is challenging to quantify the CEO's ability due to the multi-dimensional nature of CEO reputation.

Following Milbourn (2003), who attempts to empirically measure CEO reputation, we employ the following three proxies for CEO reputation.²³

²¹ We initially obtain all firm specified data from 1990 to 2012 and CEO reputation data from 1993 to 2012 (the longest period available on Execucomp). For tests on H1 and H2, the useful sample only starts from 1993 due to the one year lag of all firm-specific variables. For H3, we only use the sample firms from 1993 to 2010, due to the 2-years' lead and lag of all firm-specific variables.

²² We follow previous literature to winsorise all ratio variables in order to avoid any outliers which could drive the results in a different way.

²³ Milbourn (2003) also proposes using business-related news article coverage as a proxy for CEO reputation. This proxy has many shortcomings. For example, Lafond (2008) argues that this proxy could possibly measure other factors instead of CEO reputation. Meanwhile, it takes time to search and read the articles. Given the time

- (i) CEO **Tenure**
- (ii) Being appointed as CEO from **outside** of the firm
- (iii) **Industry-adjusted firm performance** during the CEO's tenure

In addition to the above three proxies, we control for CEO age for all CEO proxies (Milbourn, 2003).

TENURE—reputation works over time, though ability could be inherent. A CEO's ability will not be recognised until he passes a number of shareholder' assessments on his ability year by year. That is, a longer CEO tenure implies that the CEO has survived previous dismissal decisions. Therefore, a longer CEO tenure will increase the shareholders' recognition of the CEO's ability. We measure the variable *TENURE* as the number of years that the executive has been the CEO of this firm as of the company's preceding fiscal year end.

Although Milbourn (2003) argues that CEO Tenure is a good proxy for CEO reputation, others may still believe that CEO tenure more or less reflects entrenchment. That is, a longer CEO tenure may correspond to a higher level of entrenchment. The intuition is that longer tenure CEOs tend to hold a high level of power that enables them to extract shareholder wealth. If CEO tenure represents entrenchment rather than CEO reputation, then our result would be opposite to our expectations.

OUTSIDER—this variable measures whether the CEO is appointed from within or outside of the firm, where outside appointments could be associated with having a higher reputation. The intuition is that shareholders are more biased toward insider CEO candidates (Agrawal, Knoeber, and Tsoulouhas, 2000); therefore, the most likely reason for shareholders to hire an

constraint during the honours year, we will perform this proxy in a future extension.

outside candidate as CEO is that the perceived ability of the outside candidate is greater than the ability of the inside candidate.

We measure *OUTSIDER* as a dummy variable that equals 1 if the CEO was appointed externally and 0 otherwise. We define a CEO as an outside appointment if the date he became CEO exactly matches the date he joined the company. We also notice that such CEOs could also be the founder of the company. In this case, the CEO is obviously an insider. To address this problem, we manually check each outsider CEO to identify whether the CEO is truly an outsider or just the founder. We discuss this issue in more detail in Appendix 1.

When measuring the *OUTSIDER* variable, previous studies choose to discard those data that had an unobservable date for joining the company. We find that almost half of the firm-year observations would be dropped in the regression if we followed this strategy. Furthermore, because we are using principal components for all three proxies, we must make sure that the number of observations used in the regression equals the number of observations used in the principal component construction. Therefore, we manually collect the date that the CEO joined the company. The detailed collection criteria are discussed in Appendix 2.

IND_ADJ_PERF—the industry adjusted performance variable explicitly measures CEO reputation, where better performance is associated with a higher reputation. We adjust firm performance given the entire industry performance because it is unlikely that shareholders will discount the CEO's reputation based on poor performance if the entire industry performs poorly. Therefore, the CEOs of firms whose stock price out-performs the entire industry will be recognised as reputable by shareholders. In our study, we construct the one-year industry adjusted performance (*IND_ADJ_PERF*) as the difference between the firm's average monthly

returns and the industry's returns over one fiscal year.

$$IND_ADJ_PERF_i = (\bar{R}_i - \bar{R}_{Ind})/\sigma_{Ind}$$

where \bar{R}_i is the average monthly return for the firm's stock price over one year, \bar{R}_{Ind} is the average monthly return on an equally weighted portfolio for firm i 's two-digit SIC industry over one year, and σ_{Ind} is the standard deviation of the average monthly industry returns over one year. Following Milbourn (2003), we use an equally weighted industry return portfolio because CEOs from large firms are less likely to outperform the industry average compared with CEOs from small firms.

In addition to using each of the three above-mentioned proxies for CEO reputation, we also employ the first order principal component score of all three proxies, called *Overall Reputation*. We believe that the principal component analysis (PCA) takes the most common part from the above three proxies, and the newly created variable should represent the core of CEO reputation. However, *OUTSIDER* is a category variable while *TENURE* and *IND_ADJ_PERF* are continuous variables. Therefore, we also perform a PCA without *OUTSIDER* and call this variable *Overall Reputation 2*.

All continuous reputation proxies as well as the principal component score are converted into cumulative density function (cdf) form. Milbourn (2003) proposes two reasons for using a cumulative density function for CEO reputation. First, this function makes the interpretation of the economic significance of our results much easier. For example, $F(\text{CEO Tenure})$, which is the cdf of *CEO Tenure*, takes a value of 1 for the most reputable CEOs, 0.5 for median reputable CEOs, and 0 for the non-reputable CEOs. We can easily find the dollar value as well as the level of cash holdings for different types of CEOs. Second, cdf reduces the extreme

outliers by normalising the raw variables to the unit interval. For example, *CEO Tenure* could be any value, but $F(\text{CEO Tenure})$ will only have a value between 0 and 1.²⁴

4.3 Empirical Models

4.3.1 The Level of Cash Holdings Model (Hypothesis 1)

We follow Opler et al. (1999) to examine the association between CEO reputation and the level of corporate cash holdings. As we discussed in Section 2.1, both the benefits and the costs of holding cash determine the level of corporate cash holdings. Opler, Pinkowitz, Stulz, and Williamson (1999) suggest that the size of the firm, growth opportunity, firm cash flows, risk of cash flows, and substitutes for cash are important determinants. Other factors such as capital expenditures, R&D expenses, and whether the firm pays a dividend or not are also included in our model. Intuitively, the more the firm spends, the less cash it is able to hold. We then deflate all dollar term variables by net assets (except net assets itself) to control for the large economic scale effect.²⁵ Therefore, our model can measure the relative level of corporate cash holdings. Specifically, we run an OLS regression on cash measurements against CEO reputation measurements after controlling for the above-mentioned cash holding determinants and firm and time fixed effects with cluster-robust standard errors.

The regression equation is given as follows.

²⁴ Our results are qualitatively similar when we do not use the cumulative density function, but this makes the interpretation of the economic significance of the results more difficult. Therefore, we report the results using the cumulative density function.

²⁵ Following previous studies, net asset in this thesis is defined as the differences between total assets and cash.

$$\begin{aligned}
\ln\left(\frac{Cash_{i,t}}{NA_{i,t}}\right) = & \beta_0 + \beta_1 F(Rep_{i,t}) + \beta_2 F(Age) + \beta_3 \ln(NA_{i,t}) + \beta_4 \frac{FCF_{i,t}}{NA_{i,t}} + \beta_5 \frac{NWC_{i,t}}{NA_{i,t}} \\
& + \beta_6 (Industry\ sigma)_{i,t} + \beta_7 \frac{MV_{i,t}}{NA_{i,t}} + \beta_8 \frac{RD_{i,t}}{NA_{i,t}} + \beta_9 \frac{CAPX_{i,t}}{NA_{i,t}} + \beta_{10} L_{i,t} \\
& + \beta_{11} Dividend_{i,t} + Year\ Dummies + Firm\ Fixed\ Effects + \varepsilon_{i,t} \quad (1)
\end{aligned}$$

Where:

$F(Rep_{i,t}) =$ Cumulative density function (cdf) of CEO reputation measurements (CEO Tenure, Industry Adjusted Performance, and the principal component scores). We do not use the cdf for *OUTSIDER* because it is a dummy variable that by definition can only have a value of 1 or 0.

$F(Age) =$ Cumulative density function (cdf) of CEO age as of the preceding fiscal year end.

$\ln\left(\frac{Cash_{i,t}}{NA_{i,t}}\right) =$ Natural logarithm of cash to net assets ratio for firm i in year t , where net assets is the difference between total assets and cash.

$\ln(NA_{i,t}) =$ Natural logarithm of net assets

$\frac{FCF_{i,t}}{NA_{i,t}} =$ Free cash flow to net asset ratio, where free cash flow is calculated as operating income minus interest minus taxes.

$\frac{NWC_{i,t}}{NA_{i,t}} =$ Net working capital to net asset ratio, where net working capital is calculated as current assets minus current liabilities. Net working capital is regarded as a substitute for cash holdings.

Industry sigma = Industry average for the prior 10 years standard deviation of $\frac{FCF_{i,t}}{NA_{i,t}}$

$\frac{MV_{i,t}}{NA_{i,t}} =$ The market value of assets to the net asset ratio, where the market value of assets is calculated as the market closing price times shares outstanding plus total liabilities. This variable represents the growth opportunity. A higher value means a stronger growth opportunity.

$\frac{RD_{i,t}}{NA_{i,t}} =$ Research and development expense to net asset ratio. We set RD=0 if the RD data are missing.

$\frac{CAPX_{i,t}}{NA_{i,t}} =$ The ratio of capital expenditure expense to net assets

$L_{i,t} =$ Leverage, which is calculated as (total debt)/(total debt plus total market capitalisation).

$Dividend_{i,t} =$ Dummy variable that take the value of 1 for dividend paying firms, otherwise 0.

According to our first hypothesis, we expect β_1 , which measures the effect of CEO reputation on the level of corporate cash holdings, to be **negative**, implying that reputable CEOs tend to hold less cash than non-reputable CEOs.

4.3.2 The Value of Cash Holdings Model (Hypothesis 2)

To determine a more precise value of cash holdings for firms with reputable CEOs, we follow Faulkender and Wang (2006), who regress the excess market returns on various firm characteristics divided by the previous year's market capitalisation. Because both dependent (excess market value) and independent variables are scaled by the previous year's market value of equity, the coefficient for the change in cash could be directly interpreted as the value effect on shareholders' wealth resulting from one dollar change in the amount of cash held by

the firm.

In addition to following Faulkender and Wang (2006), we also control for year fixed effects and industry fixed effects. We run an OLS regression with cluster-robust standard errors.

Our model is given as follows:

$$\begin{aligned}
r_{i,t} - R_{i,t}^B = & \gamma_0 + \gamma_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \gamma_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \gamma_4 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \gamma_5 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \gamma_6 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \\
& \gamma_7 \frac{C_{i,t-1}}{M_{i,t-1}} + \gamma_8 L_{i,t} + \gamma_9 \frac{NF_{i,t}}{M_{i,t-1}} + \gamma_{10} \frac{C_{i,t}}{M_{i,t-1}} \times \frac{\Delta C_{i,t-1}}{M_{i,t-1}} + \gamma_{11} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \\
& \gamma_{12} F(Rep_{i,t}) + \gamma_{13} \mathbf{Rep}_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{14} F(Age_{i,t}) + year\ dummy + \\
& Industry\ fixed\ effects + \varepsilon_{i,t}
\end{aligned} \tag{2}$$

We use model (2) to test our second hypothesis, where ΔX indicates a change in X from year t –

1 to t. $r_{i,t}$ = Stock returns over year t – 1 to t. $R_{i,t}^B$ = Benchmark portfolio returns for firm i from year t-1 to t.²⁶ $M_{i,t-1}$ = Market value of equity at time t computed as price times shares.

$C_{i,t}$ = Cash at time t. $E_{i,t}$ = Earnings before extraordinary items from year t-1 to t. $NA_{i,t}$ =

Net assets at time t. $RD_{i,t}$ = R&D expense (set to 0 if missing) from year t-1 to t. $I_{i,t}$ = Interest

expense from year t-1 to t. $D_{i,t}$ = Common dividend from year t-1 to t. $L_{i,t}$ = $Debt_{i,t} / (Debt_{i,t}$

+ $M_{i,t})$ = Leverage at time t. $Debt_{i,t}$ = all long-term and short-term debt at time t. $NF_{i,t}$ = New

financing from year t – 1 to t = Net new equity issues plus net new debt issues from year t – 1 to

t. $Rep_{i,t}$ = CEO reputation measurements including *TENURE*, *OUTSIDER*, *INDUSTRY*

ADJUSTED PERFORMANCE, and the principal component score. $Age_{i,t}$ = CEO age at year t.

We predict the coefficient (γ_{13}) for the interaction variable between CEO reputation and cash

²⁶ The benchmark portfolio is available on Professor Kenneth French's website http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Breakpoints. We thank Professor Kenneth French for providing these free data.

holdings to be positive and statistically significant, which implies that CEO reputation adds incremental value to the corporate cash holdings. Specifically, the market value of corporate cash holdings for reputable CEOs is represented as $\gamma_{13} + \gamma_1 + \gamma_8 * \text{leverage} + \gamma_7 * \text{opening balance of cash holdings}$. The market value of corporate cash holdings for non-reputable CEOs is represented as $\gamma_1 + \gamma_8 * \text{leverage} + \gamma_7 * \text{opening balance of cash holdings}$.

4.3.3 The Value of Excess Cash Holdings Model (Hypothesis 3)

We employ Pinkowitz and Williamson's (2002) model to measure the value impact of CEO reputation on the corporate excess cash holdings.²⁷ This model regresses the firm's market value of equity against corporate cash holdings, controlling for variables that are likely to affect the investors' expectation for future cash flows, which determine the value of the firm. All variables are divided by net assets. We also use this model as a robustness test for Faulkender and Wang's (2006) model, although this model measures the value of excess cash holdings.

Because our study just predicts the effect of CEO reputation on the value of positive excess cash holdings, we only test a sub-sample with positive excess cash holdings. Therefore, only 1,428 (7,768) firms (firm-years) are examined.

The model used to test the third hypothesis is presented below.²⁸

²⁷ Pinkowitz and Williamson's (2002) model originates from an idea of Fama and French (1998). While Faulkender and Wang's (2006) model measures the value of all cash holdings in the firm, Pinkowitz and Williamson's (2002) model only measures the value of excess dollars of cash holdings.

²⁸ According to Dittmar and Mahrt-Smith (2007), it is hard to interpret the value of excess cash holdings using model (3) since excess cash holdings is based on the optimal level of cash holdings. We do not know the the value change of Xcash is actually caused by the changes of actual level of cash or the changes of optimal level of

$$\begin{aligned}
\frac{MV_{i,t}}{NA_{i,t}} = & \beta_0 + \beta_1 \frac{E_{i,t}}{NA_{i,t}} + \beta_2 \frac{dE_{i,t}}{NA_{i,t}} + \beta_3 \frac{dE_{i,t+2}}{NA_{i,t}} + \beta_4 \frac{RD_{i,t}}{NA_{i,t}} + \beta_5 \frac{dRD_{i,t}}{NA_{i,t}} + \beta_6 \frac{dRD_{i,t+2}}{NA_{i,t}} + \beta_7 \frac{D_{i,t}}{NA_{i,t}} + \\
& \beta_8 \frac{dD_{i,t}}{NA_{i,t}} + \beta_9 \frac{dD_{i,t+2}}{NA_{i,t}} + \beta_{10} \frac{I_{i,t}}{NA_{i,t}} + \beta_{11} \frac{dI_{i,t}}{NA_{i,t}} + \beta_{12} \frac{dI_{i,t+2}}{NA_{i,t}} + \beta_{13} \frac{dNA_{i,t}}{NA_{i,t}} + \beta_{14} \frac{dNA_{i,t+2}}{NA_{i,t}} + \\
& \beta_{15} \frac{dMV_{i,t+2}}{NA_{i,t}} + \beta_{16} F(Rep_{i,t}) + \beta_{17} \frac{XCash_{i,t}}{NA_{i,t}} + \beta_{18} F(Age_{i,t}) + \beta_{19} F(Rep_{i,t}) \times \frac{XCash_{i,t}}{NA_{i,t}} + \\
& Year\ Dummy + Firm\ Effects + \varepsilon_{i,t}
\end{aligned} \tag{3}$$

where dX_t indicates a change in X from time $t-2$ to t . $MV_{i,t}$ = Market value at time t = Price times shares plus total liabilities. $NA_{i,t}$ = Net assets at time t . $RD_{i,t}$ = R&D expense (set to 0 if missing) from year $t-1$ to t . $D_{i,t}$ = Common dividend from year $t-1$ to t . $I_{i,t}$ = Interest expense from year $t-1$ to t . $XCash_{i,t}$ = Cash at time t minus optimal cash estimated from Appendix 2. $Rep_{i,t}$ = CEO reputation measurements including *TENURE*, *OUTSIDER*, *IND_ADJ_PERF*, and the principal component score. $Age_{i,t}$ = CEO age at the preceding fiscal year end.

We expect β_{19} , which measures the marginal value effect of CEO reputation on excess cash holdings, to be positive, implying that reputable CEOs increase the value of excess cash holdings. $\beta_{17} + \beta_{19}$ measures the value of excess cash holdings by the most reputable CEOs, while β_{17} measures the value of excess cash holdings by the non-reputable CEOs.

The value of excess cash holdings held by average reputable CEOs is represented as

$$\beta_{17} + \frac{1}{2}\beta_{19}.$$

cash holdings. Nevertheless, it is the only model that can be used to measure the value of excess cash holdings.

Chapter 5 Empirical Results

5.1 Descriptive Statistics

Table II provides the descriptive statistics for the key variables. Panel A contains the full sample of this study. On average, firms hold approximately 23% cash reserves relative to net assets, which is consistent with Dittmar and Mahrt-Smith (2007), who find an average cash to net asset ratio of 22%. The mean of the 1-year excess return is 1.03%, while the median is -2.91%. According to Faulkender and Wang (2006), this result is consistent with the notation that the distribution of abnormal stock returns is positively skewed. Other ratio variables are also consistent with Faulkender and Wang (2006), although we use a shorter sample period (1993-2012 vs. (1972-2001). Note that the mean leverage ratio as well as the median leverage ratio in our sample is 7% lower than those in Faulkender and Wang (2006). The possible reason for this difference is that the level of corporate cash holdings and the level of total assets continue to increase over time, while this type of increasing trend is not observed in corporate debt holdings (Dittmar and Mahrt-Smith, 2007; Bates, Kahle, and Stulz, 2009; Sanchez and Yurdagul, 2013). Meanwhile, our sample includes the recent Global Financial Crisis (GFC). In the GFC, many highly leveraged firms were bankrupted, thus the remaining firms tend to be low-leverage firms.

In terms of CEO reputation proxies, we find that descriptive statistics for all the three proxies (*TENURE*, *OUTSIDER*, *IND_ADJ_PERF*) are consistent with Milbourn (2003) and Jian and Lee (2012). Panel A of Table II shows that approximately 22% of the sample CEOs are externally appointed, which is quite close to Milbourn (2003), who shows that 23% of CEOs

in the sample are outside appointed. One major improvement in this CEO reputation proxy is that we include the outside CEOs with unobservable dates for joining the firm, while Milbourn (2003) discards these CEOs. The mean (median) *CEO Tenure* in our sample is 7.83 (5.58) years, which is slightly lower than the *CEO Tenure* in Milbourn's (2003) sample. One possible explanation is that our sample contains more new CEOs than his. The industry adjusted performance as shown in Panel A is -0.01, which implies that on average, our sample firms do not outperform the industry average.

Panel B separates the full sample into the reputable and non-reputable CEO subsamples, based on the *Overall Reputation* of the CEOs. Specifically, we split the *Overall Reputation*, which is the principal component score of the three CEO reputation proxies, into terciles. We then define the first tercile (lowest score) of CEOs as non-reputable CEOs and the highest tercile of CEOs as reputable CEOs. We find that reputable CEOs are on average 58 years old and hold 23.51% cash, while the non-reputable CEOs are on average 55 years old and hold 27.25% cash. Panel B shows that the differences in the level of corporate cash holdings between the most reputable CEOs and the non-reputable CEOs are also statistically significant. This finding is consistent with the notion that reputable CEOs have a stronger ability to use cash efficiently than non-reputable CEOs. Meanwhile, these univariate results are consistent with Diamond's (1989) prediction that reputable CEOs have more access to external financial markets and borrow at a lower rate.²⁹

We also find that firms with reputable CEOs realise higher abnormal returns. For example, the

²⁹ We find that reputable CEO tend to be older than non-reputable CEOs when industry adjusted performance is used as proxy for CEO reputation, Meanwhile, we also find reputable CEOs tend to perform better than non-reputable CEOs when tenure is used as proxy for CEO reputation.

one-year excess returns for reputable CEOs (3.44%) are statistically and significantly higher than those for non-reputable CEOs (-2.14%). The higher abnormal returns for firms with reputable CEOs reflect the value adding effect of CEO reputation to the firm. These results are consistent with the capital investment findings from Jian and Lee (2012).

In terms of CEO reputation measurements, we find that on average, the most reputable CEOs have 15 years of tenure, while non-reputable CEOs only have 4.06 years of tenure. This finding is consistent with the argument that reputable CEOs survive the shareholders' assessment of their abilities longer than non-reputable CEOs (Jian and Lee, 2012; Milbourn, 2003). The mean and median industry adjusted performance for reputable CEOs is also significantly higher than those for non-reputable CEOs, which further confirms the reputable CEOs' superior performance.

Surprisingly, our descriptive statistics suggest that reputable CEOs are mostly insiders rather than outsiders as argued in Milbourn (2003).³⁰ Specifically, only approximately 2% of reputable CEOs are classified as outsiders, while this proportion is as large as 62.65% among our non-reputable CEO sample. The mean difference between these proportions is also statistically significant. One possible explanation for the difference between Milbourn (2003) and our study is that we hand collected the outside CEO data for each CEO missing the date for joining the company, whereas, Milbourn (2003) discarded those CEOs. Therefore, our newly hand-collected outsiders on average may be not as reputable as Milbourn's (2003)

³⁰ This surprising finding still exists if we using Overall Reputation 2 (exclude Outsider itself) as proxy for CEO reputation. That is, Reputable CEOs are more likely to be internally promoted instead of externally appointed.

Table II
Summary Statistics for the 1993-2012 Sample

This table provides summary statistics for the variables in our sample of firm-years from US publicly traded firms over the period 1993 to 2001. Panel A summarises the entire sample, while Panel B further partitions the sample into reputable CEO and non-reputable CEO samples. Reputable CEOs are defined as CEOs in the third (highest) tercile of *Overall Reputation*, while non-reputable CEOs are those in the first tercile of *Overall Reputation*. All variables are defined below. CEO Age is the CEO's age in year t. Cash refers to cash plus marketable securities (1). Earnings refers to earnings before extraordinary items (Compustat item numbers 18+15+50+51) from year t-1 to t. Net Assets refers to total assets (6) minus cash (1). R&D is the research and development expense (46, R&D=0 if missing). Interest refers to interest expense (15). Dividend refers to common dividends (21). Lagged Cash refers to cash (1) from previous year (t-1). Market value of equity (ME) in year t-1 is calculated as price (199) times shares (25). Leverage is calculated as total debt (9+34) to total debt and market value of equity. Net Finance is the sum of net new equity issues (108-115) and net new debt issues (111-114). Cash Ratio is the ratio of cash (1) to net assets (6-1). ΔX is the compact notation for the 1-year change in variable X, $X_t - X_{t-1}$. Excess Return (Value Weighted) is defined as the difference between $r_{i,t}$ (annual return for firm *i* in year t) and $R_{i,t}^B$ (annual Fama and French 5×5 portfolio return for firm *i* in year t). *Overall Reputation* is the principal component of all CEO reputation proxies (CEO Tenure, Outsider, and Industry Adjusted Performance). Overall Reputation 2 is the principal component of CEO Tenure and Industry Adjusted Performance. CEO Tenure is defined as the number of years the executive has been CEO of this firm as of the company's fiscal year end. Outsider takes a value of 1 for the CEO in every year he appears in the sample if he joined the company at the date he became CEO. Outsider takes a value of 0 if the CEO joined the company at a date prior to becoming CEO. We further hand collected all founder "outsiders" and set those founder "outsiders" with a value of 0. We also hand categorise each CEO whose joining company date is unobservable. Industry adjusted performance is calculated as the difference between the firm's average monthly stock returns and its industry's (defined by two-digit SIC code) average monthly return over one year. All ratio variables and Industry Adjusted performance are winsorised at the 1st and 99th percentile. In Panel B, we use a t-test (Wilcoxon z statistic) to test the statistical significance of each variable's mean (median) differences between the non-reputable CEO and Reputable CEO subsamples. * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Panel A: full sample

N=16250					
Variable	Mean	SD	P25	Median	P75
CEO Age	56.0000	7.3947	51.0000	55.0000	60.0000
Cash Ratio	0.2323	0.4166	0.0230	0.0783	0.2415
Excess Return (Value Weighted)	0.0103	0.4274	-0.2557	-0.0291	0.2129
Δ Cash/ME	0.0085	0.0797	-0.0159	0.0020	0.0271
Δ Earnings/ME	0.0111	0.1327	-0.0155	0.0065	0.0283
Δ Net Asset/ME	0.0407	0.2845	-0.0321	0.0235	0.0975
Δ R&D/ME	0.0005	0.0099	0.0000	0.0000	0.0009
Δ Interest/ME	0.0006	0.0105	-0.0017	0.0000	0.0021
Δ Dividend/ME	-0.0001	0.0060	0.0000	0.0000	0.0006

Table II (continued)

Variable	Mean	SD	P25	Median	P75
Lagged Cash/ME	0.1157	0.1477	0.0233	0.0645	0.1473
Leverage	0.1987	0.1897	0.0408	0.1536	0.2989
Net Finance/ME	0.0105	0.1283	-0.0374	-0.0028	0.0276
Overall Reputation	-0.0000	1.0290	-0.3094	0.0099	0.4967
Overall Reputation 2	-0.0000	1.0080	-0.6604	-0.1339	0.5361
CEO Tenure	7.8312	7.4100	2.6655	5.5823	10.0000
Outsider	0.2235	0.4166	0.0000	0.0000	0.0000
Industry Adjusted Performance	-0.0120	0.5211	-0.3164	-0.0226	0.2762

	Non-Reputable CEO		Reputable CEO		Differences	
	Mean	(Median)	Mean	(Median)	Mean	(Median)
					(t-test)	(z-test)
CEO Age	54.9967	(54.0000)	58.0000	(58.0000)	-4.2176***	(-4.0000***)
Cash Ratio	0.2725	(0.0960)	0.2351	(0.0747)	0.0374***	(0.0213***)
Excess Return (Value Weighted)	-0.0214	(-0.0619)	0.0344	(-0.0118)	-0.0558***	(-0.0501***)
ΔCash/ME	0.0071	(0.0012)	0.0102	(0.0027)	-0.0031**	(-0.0015***)
ΔEarnings/ME	0.0125	(0.0060)	0.0119	(0.0072)	0.0006	(-0.0012**)
ΔNet Asset/ME	0.0253	(0.0175)	0.0519	(0.0293)	-0.0266***	(-0.0118***)
ΔR&D/ME	0.0003	(0.0000)	0.0007	(0.0000)	-0.0005**	(0.0000**)
ΔInterest/ME	0.0006	(0.0000)	0.0008	(0.0000)	-0.0002	(0.0000***)
ΔDividend/ME	-0.0005	(0.0000)	0.0001	(0.0000)	-0.0007***	(0.0000***)
Lagged Cash/ME	0.1324	(0.0759)	0.1074	(0.0615)	0.0250***	(0.0144***)
Leverage	0.2011	(0.1536)	0.1926	(0.1436)	0.0085**	(0.0100*)
Net Finance/ME	0.0102	(-0.0022)	0.0108	(-0.0018)	-0.0005	(-0.0004)
Overall Reputation	-1.0472	(-1.1598)	1.0268	(0.7919)	-2.0740***	(-1.9517***)
Overall Reputation 2	-0.4626	(-0.5256)	0.7472	(0.5961)	-1.2098***	(-1.1217***)
CEO Tenure	4.0642	(2.1831)	15.0000	(12.0000)	-10.8093***	(-9.8169***)
Outsider	0.6265	(1.0000)	0.0192	(0.0000)	0.6073***	(1.0000***)
Industry Adjusted Performance	-0.0880	(-0.0857)	0.0434	(0.0249)	-0.1314***	(-0.1106***)
Observations	5424		5410		10834	

5.2 Correlation among Reputation Measurements

This section examines whether all the reputation proxies that we used are independent measures of CEO reputation. Table III presents the correlation among the CEO reputation measurements along with the *Cash Ratio* and *CEO Age*. *CEO Age* and *CEO Tenure* are highly correlated (41.0%), but *CEO Age* is negatively related with *Industry Adjusted Performance* and *Outsider*. Nevertheless, no correlation between the CEO reputation proxies exceeds 5.9% in absolute value.³¹ *CEO Tenure* and *Industry Adjusted Performance* are positively related with a correlation coefficient of 1.6%, which implies that *CEO Tenure* only explains 0.026% ($R^2 = \rho^2 = 0.016^2$) of the *Industry Adjusted Performance*. Similarly, being an outsider explains 0.348% of *CEO Tenure*. Therefore, these reputation proxies represent different dimensions of CEO reputation.

In addition, the *Cash Ratio* is negatively related to the *Overall Reputation*, but positively related to other reputation measurements. However, this result does not necessarily represent that reputable CEOs tend to hold more cash; we need to further control for several firm-specific variables.

³¹ Unsurprisingly, we find that Overall Reputation and Overall Reputation 2, which are the principal component scores, are highly related to the three reputation proxies by definition.

Table III
Correlations among reputation proxies and Cash Ratio

This table contains the correlations among the CEO reputation proxies and Cash Ratios estimated in this paper. Age is the CEO's age in year t. CEO Tenure is defined as the number of years the executive has been CEO with this firm as of the company's fiscal year end. Outsider takes the value of 1 for the CEO in every year he appears in the sample if he joined the company at the date he became CEO; it takes the value of 0 if the CEO joined the company at a date prior to becoming CEO. We further hand collected data confirming all founder "outsiders" and set those founder "outsiders" with a value of 0. We also hand categorise each CEO whose joining the company date is unobservable. Industry adjusted performance is calculated as the difference between the firm's average monthly stock returns and its industry's (defined by two-digit SIC code) average monthly return over one year. Cash Ratio is the ratio of cash (1) to net assets (6-1). * denotes that the significance of the test for the independence of the two variables is at the 10% level, ** denotes the same significance at the 5% level, and *** denotes the same significance at the 1% level.

	Cash Ratio	Overall Reputation	Overall Reputation 2	CEO Tenure	Industry Adjusted Performance	Outsider	CEO Age
Cash Ratio	1.000						
Overall Reputation	-0.041***	1.000					
Overall Reputation 2	0.067***	0.561***	1.000				
CEO Tenure	0.041***	0.734***	0.713***	1.000			
Industry Adjusted Performance	0.054***	0.066***	0.713***	0.016**	1.000		
Outsider	0.107***	-0.719***	-0.034***	-0.059***	0.011	1.000	
CEO Age	-0.122***	0.302***	0.272***	0.410***	-0.022***	-0.027***	1.000

5.2 Regression Result

5.2.1 H1: Do firms with more reputable CEOs hold less cash? *Answer: Yes.*

To test our first hypothesis, we run an OLS regression for equation (1) with fixed effects and clustered robust standard errors. The regression results are for the level of cash holdings on the *Overall Reputation*. Column (1) uses Overall Reputation as the primary proxy for CEO reputation, while Columns (2) to (6) use different proxies for CEO reputation. In our discussion, we primarily discuss the Overall Reputation proxy (Column 1) and briefly discuss other individual reputation proxies as a robustness check.

Table IV shows support for hypothesis 1 that reputable CEOs tend to hold a lower level of cash reserves when using Overall Reputation, Overall Reputation 2, CEO Tenure, and Industry Adjusted Performance as measurements for CEO reputation (except Outsider). For example, using Overall Reputation as a proxy for CEO reputation in Column 1, we find that reputable CEOs (indicated by Overall Reputation) hold approximately 17% (calculated as $1 - e^{-0.187}$) less cash than non-reputable CEOs.³²

When the Outsider is used as the CEO reputation proxy in Column (5), we do not find that reputable CEOs tend to hold less cash than non-reputable CEOs at any conventional level of significance. One possible explanation for this result is that we identify additional outside CEOs in our sample who are discarded in Milbourn's (2003) study; it is possible that those additionally identified outside CEOs represent CEO characteristics other than CEO

³² Reputable CEOs hold 16% (13%) [12%] less cash than non-reputable CEOs using Overall Reputation 2 (CEO tenure) [Industry Adjusted Performance].

reputation.

In Column (6), we re-run the regression on all three reputation proxies (CEO Tenure, IND_ADJ_PERF, and Outsider) and find that CEO Tenure and Industry Adjusted Performance are still significant and both variables have negative coefficients. The Outsider variable is still insignificant in Column (6). In addition, we find that the magnitude of the coefficients for three CEO reputation proxies in column (6) are similar to those in columns (3) to (5), where each proxy is examined individually.

In terms of these control variables, our findings are consistent with Opler, Pinkowitz, Stulz, and Williamson (1999). The coefficient for the size variable (Log NA) is negative and statistically significant, which implies that large firms tend to hold less cash than small firms. Opler, Pinkowitz, Stulz, and Williamson (1999) explain that large firms are less likely to be financially constrained. Free cash flow (net working capital), which is regarded as the source (substitute) of cash, is positively (negatively) related with the level of corporate cash holdings. In addition, the volatility of free cash flows positively affects the level of corporate cash holdings, which can be explained by the precautionary and growth motives for holding cash.

Consistent with Myers and Majluf's (1984) prediction, we find that R&D expense and growth opportunities (proxied by MV/NA) are positively related to cash levels, which implies that firms with more growth opportunities tend to hold more cash. Meanwhile, the coefficient of leverage is negative and consistent with the agency theory prediction, which shows that highly leveraged firms are exposed to a greater expense for raising external funds. We also find that capital expenditure is negatively related to cash levels, which is consistent with the notion that high spending firms are not able to raise cash reserves. Surprisingly, we find that

dividend-paying companies actually hold more cash, but because the result is statistically insignificant, we do not interpret it.

Furthermore, we find that the coefficients of all control variables are quite stable across different models using different CEO reputation proxies, which indicates that CEO reputation proxies do not take the level effect of those control variables on corporate cash holdings . Thus, we argue that CEO reputation is different from traditional firm-specific variables in determining the level of cash holdings.

Table IV**H1: Regression Results of the Level of Corporate Cash holdings on CEO Reputation**

This table provide the results of regression (1) measuring the effect of CEO reputation on the level of corporate cash holdings from fiscal year 1993 to 2012. The dependent variable is the natural logarithm of the cash to net asset ratio, where cash refers to cash plus short-term investments, and net assets is calculated as the total assets minus cash. The independent variables include the logarithm of net assets (Log NA); the free cash flow ratio (Free Cash Flow/NA), where free cash flow is calculated as operating income minus interest minus taxes; the working capital ratio (NWC/NA), where net working capital is equal to current assets minus current liabilities minus cash; the standard deviation of the past 10 years free cash flow ratios (Industry Sigma); research and development expense ratio (RD/NA), where missing RD values are set to 0; market to net book assets (MV/NA), with market assets calculated as (price times shares) plus total liabilities; Leverage, which is calculated as total debt to (total debt and market capitalisation); the capital expenditure ratio (CAPX/NA); and the dividend paying dummy, which equals 1 for dividend paying firms and 0 otherwise. Outsider takes a value of 1 for the CEO in every year he appears in the sample if he joined the company at the date he became CEO, and it takes a value of 0 if the CEO joined the company at a date prior to becoming CEO. We further hand collected data for all founder “outsiders” and set those founder “outsiders” to a value of 0. We also hand categorise each CEO whose joining company date is unobservable. F(X) is the cumulative density function of variable X, with X representing CEO Tenure, which is defined as the number of years the executive has been CEO with this firm as of the company’s fiscal year end. Industry Adjusted Performance (IND_ADJ_PERF) is calculated as the difference between the firm’s average monthly stock returns and its industry’s (defined by two-digit SIC code) average monthly return over one year. Overall reputation 2 (overall reputation) is the principal component of CEO Tenure, Industry Adjusted Performance (and outsider). Model (1) to Model (6) are identical OLS regressions but with different measures for CEO reputation as indicated under the numbers. All regressions are estimated with firm fixed and year fixed effects (but unreported for brevity) and clustered robust standard errors. All the ratio variables are winsorised at the 1st and 99th percentile. * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Dependent Variable	Reputation Proxies					
	Overall Reputation	Overall Reputation 2	Tenure	Industry Adjusted Performance	Outsider	All Proxies
Ln(Cash/NA)	(1)	(2)	(3)	(4)	(5)	(6)
Log NA	-0.231*** (-6.08)	-0.241*** (-6.32)	-0.233*** (-6.09)	-0.246*** (-6.42)	-0.234*** (-6.16)	-0.238*** (-6.24)
Free Cash Flow/NA	0.768*** (5.22)	0.769*** (5.25)	0.762*** (5.20)	0.771*** (5.25)	0.772*** (5.23)	0.772*** (5.27)
NWC/NA	-1.745*** (-10.56)	-1.762*** (-10.68)	-1.748*** (-10.63)	-1.775*** (-10.80)	-1.756*** (-10.61)	-1.749*** (-10.64)
Industry Sigma	0.107*** (5.45)	0.109*** (5.50)	0.107*** (5.41)	0.110*** (5.53)	0.108*** (5.46)	0.109*** (5.50)

Table IV (continued)

Column→	(1)	(2)	(3)	(4)	(5)	(6)
R&D/NA	1.572*** (5.35)	1.516*** (5.15)	1.569*** (5.35)	1.508*** (5.10)	1.570*** (5.32)	1.507*** (5.13)
MV/NA	0.093*** (12.67)	0.097*** (12.97)	0.093*** (12.57)	0.096*** (12.89)	0.092*** (12.52)	0.097*** (12.97)
Leverage	-1.294*** (-9.14)	-1.311*** (-9.23)	-1.288*** (-9.08)	-1.308*** (-9.17)	-1.284*** (-9.04)	-1.319*** (-9.29)
CAPX/NA	-2.696*** (-9.58)	-2.765*** (-9.76)	-2.698*** (-9.57)	-2.785*** (-9.84)	-2.710*** (-9.62)	-2.739*** (-9.74)
Dividend Dummy	0.028 (0.48)	0.021 (0.37)	0.025 (0.44)	0.018 (0.30)	0.024 (0.41)	0.024 (0.41)
F(Overall Reputation)	-0.187** (-2.57)					
F(Overall Reputation 2)		-0.170*** (-4.56)				
F (CEO Tenure)			-0.135** (-2.47)			-0.132** (-2.42)
F (IND_ADJ_PERF)				-0.133*** (-5.09)		-0.135*** (-5.22)
Outsider					0.098 (1.56)	0.099 (1.58)
Constant	-0.794*** (-2.76)	-0.723** (-2.49)	-0.806*** (-2.81)	-0.704** (-2.43)	-0.880*** (-3.06)	-0.722** (-2.49)
Observations	14,890	14,890	14,890	14,890	14,890	14,890
R-squared	0.123	0.123	0.122	0.123	0.122	0.125
Number of Firms	1,865	1,865	1,865	1,865	1,865	1,865

5.2.2 H2: Is the market value of corporate cash holdings higher in firms with reputable CEOs? *Answer: Yes.*

We follow Faulkender and Wang (2006) to construct regression (2), which measures the value of corporate cash reserves held by different types of CEO. Specifically, equation (2) is estimated as an OLS regression with industry fixed effects, year fixed effects, and clustered robust standard errors. Panel A of Table V presents the regression results.

Column (1) shows the replication results of Faulkender and Wang's (2006) model. We find that the value of one dollar of cash in an all-equity firm with no cash balance at the beginning of the year is worth \$0.67.³³ Column (2) to Column (6) are the identical models but using different measurements for CEO reputation. In Column (2), we use Overall Reputation, which is the principal component score of CEO Tenure, Industry Adjusted Performance, and Outsider, as the measure for CEO reputation. Overall Reputation, which is the principal component of CEO Tenure and Industry Adjusted Performance, has been used as the CEO reputation measurement in Column (3). We use CEO Tenure, Industry Adjusted Performance, and Outsider as proxies for CEO reputation for Column (4) to Column (6), respectively. Column (7) includes all CEO reputation proxies, which are CEO Tenure, Industry Adjusted Performance, and whether the CEO is appointed from outside. Note that all the CEO

³³ In unreported results, we find that the coefficient on change in the cash to market capitalisation ratio is closer to the coefficient (1.466) reported by Faulkender and Wang (2006) if we restrict our sample period (1993-2012) to their sample (1972-2001). Our sample differs from theirs for the following reason. To calculate CEO reputation, we need managerial information from the Execucomp database, which provides its first data in 1992. Another plausible explanation is that Faulkender and Wang (2006) trim their outliers at 1%, while we winsorize our outliers at the 1st and 99th percentile.

reputation measurements (except *Outsider*) are in cumulative density function form, which equals 1 for reputable CEOs, 0.5 for average CEOs, and 0 for non-reputable CEOs.

The results in Column (2) show that reputable CEOs additionally contribute approximately 44.1 cents to the value of corporate cash holdings for their firms. Specifically, in an all-equity firm without an opening balance of cash, the value of one dollar of cash held by a reputable CEO is approximately \$0.889 ($=\$0.448+\$0.441*1$), while this value is reduced to \$0.448 ($=\$0.448+\$0.441*0$) for non-reputable CEOs. Similar results are found when CEO Tenure is used as a proxy for CEO reputation.³⁴ The findings are consistent with our expectations that the CEO's reputation is likely to increase the value of corporate cash holdings. In addition, the effects of CEO reputation are also statistically significant.

However, when industry adjusted performance is used, the value of one dollar of cash for non-reputable CEOs becomes nearly zero, though the marginal effect of CEO reputation (34 cents) on the value of one dollar of cash is still significant. We argue that this result could be due to the high correlation between industry adjusted performance and excess returns, thus, most of the excess return is explained by the cumulative density function of industry adjusted performance. The last proxy for CEO reputation, *outsider*, is not statistically significant; thus, we cannot interpret how it will influence the value of corporate cash holdings.

³⁴ The value of one dollar of cash for reputable CEOs is \$0.88, while the value of one dollar of cash is only worth \$0.47 ($\$0.88-\0.41) for non-reputable CEOs.

Table V

H2:Regression Results for the Excess Stock Return on CEO Reputation

This table provides the results from regressing the excess stock return on changes in firm characteristics over the fiscal year. CEO Age is the CEO’s age in year t. The dependent variable is Excess Returns (Value Weighted), which is defined as the difference between $r_{i,t}$ (annual return for firm i in year t) and $R_{i,t}^B$ (annual Fama and French 5×5 portfolio returns for firm i in year t). Cash refers to cash plus marketable securities (Compustat item number 1). Earnings refer to earnings before extraordinary items (18+15+50+51) from year. t-1 to t. Net Assets refers to total assets (6) minus cash (1). R&D is research and development expenses (46, R&D=0 if missing). Interest refers to interest expense (15). Dividend refers to common dividends (21). Lagged Cash refers to cash (1) from previous year (t-1). Market value of equity (ME) in year t-1 is calculated as price (199) times shares (25). Leverage is calculated as the ratio of total debts (9+34) to (total debts and market value of equity). Net Finance is the sum of net new equity issues (108-115) and net new debt issues (111-114). Cash Ratio is the ratio of cash (1) to net assets (6-1). ΔX is the compact notation for the 1-year change of variable X, $X_t - X_{t-1}$. F(X) is the cumulative density function for variable X, where X refers to all CEO reputation measurements except Outsider. Overall Reputation is the principal component of all CEO reputation proxies (CEO Tenure, Outsider, and Industry Adjusted Performance). Overall Reputation 2 is the principal component of CEO Tenure and Industry Adjusted Performance. CEO Tenure is defined as the number of years the executive has been CEO with this firm as of the company’s fiscal year end. Outsider takes a value of 1 for the CEO in every year he appears in the sample if he joined the company at the date he became CEO; it takes a value of 0 if the CEO joined the company at a date prior to becoming CEO. We further hand collected all founder “outsiders” and set those founder “outsiders” to a value of 0. We also hand categorise each CEO whose joining company date is unobservable. Industry adjusted performance is calculated as the difference between the firm’s average monthly stock returns and its industry’s (defined by two-digit SIC code) average monthly return over one year. All ratio variables and Industry Adjusted Performance are winsorised at the 1st and 99th percentile. Column (1) is a replica of Faulkender and Wang (2006). Columns (2) to (6) are identical models with different measures for CEO reputation as the independent variable. Column (7) incorporated all proxies for CEO reputation. Clustered t-statistics are reported in parentheses. * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

<i>Panel A</i>	Proxies for CEO reputation							
	<i>Dependent Variable:</i>	FW	Overall	Overall	Tenure	Industry	Outsider	All
<i>Excess Return</i>		Reputation	Reputation		Adjusted			Proxies
<i>(Value-weighted)</i>			2		Performance			
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Δ Cash/ME	0.673*** (6.79)	0.448*** (3.20)	0.096 (0.78)	0.465*** (3.40)	0.019 (0.15)	0.702*** (6.99)	-0.122 (-0.84)	
Δ Earnings/ME	0.250*** (6.53)	0.251*** (6.56)	0.166*** (4.59)	0.253*** (6.62)	0.107*** (3.01)	0.250*** (6.51)	0.110*** (3.10)	
Δ Net Asset/ME	0.039* (1.90)	0.036* (1.77)	0.011 (0.59)	0.038* (1.86)	-0.004 (-0.22)	0.039* (1.90)	-0.005 (-0.27)	

Table V (continued)

Column→	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\Delta R\&D/ME$	0.037 (0.08)	0.000 (0.00)	-0.402 (-0.95)	-0.012 (-0.03)	-0.177 (-0.42)	0.037 (0.08)	-0.195 (-0.47)
$\Delta Interest/ME$	0.128 (0.29)	0.103 (0.23)	0.255 (0.61)	0.083 (0.19)	0.672* (1.66)	0.130 (0.29)	0.655 (1.62)
$\Delta Dividend/ME$	-1.304** (-2.02)	-1.419** (-2.21)	-1.371** (-2.22)	-1.339** (-2.08)	-1.194** (-2.00)	-1.315** (-2.04)	-1.246** (-2.09)
Lagged Cash/ME	0.140*** (4.13)	0.145*** (4.30)	0.056* (1.86)	0.140*** (4.16)	0.016 (0.54)	0.141*** (4.12)	0.018 (0.65)
Leverage	-0.230*** (-10.39)	-0.222*** (-10.04)	-0.115*** (-5.46)	-0.225*** (-10.12)	-0.093*** (-5.00)	-0.230*** (-10.37)	-0.090*** (-4.83)
Net Finance/ME	-0.106** (-2.47)	-0.105** (-2.46)	-0.109*** (-2.73)	-0.109** (-2.55)	-0.083** (-2.12)	-0.107** (-2.48)	-0.084** (-2.14)
Lagged Cash/ME* Δ Cash/ME	0.103 (0.43)	0.141 (0.60)	0.161 (0.74)	0.138 (0.59)	0.255 (1.17)	0.119 (0.49)	0.294 (1.37)
Leverage $\times\Delta$ Cash/ME	-0.734*** (-3.13)	-0.712*** (-3.06)	-0.356 (-1.63)	-0.722*** (-3.10)	-0.305 (-1.39)	-0.742*** (-3.16)	-0.305 (-1.40)
F(Overall Reputation)		0.075*** (6.45)					
F(Overall Reputation) $\times\Delta$ Cash/ME		0.441** (2.41)					
F(CEO Age)		-0.036*** (-3.11)	-0.121*** (-10.60)	-0.026** (-2.22)	-0.013 (-1.39)	-0.016 (-1.44)	-0.020** (-2.03)
F(Overall Reputation 2)			0.432*** (33.26)				
F(Overall Reputation 2) $\times\Delta$ Cash/ME			0.503*** (3.00)				
F(CEO Tenure)				0.028** (2.38)			0.019* (1.88)

Table V (continued)

Column→	(1)	(2)	(3)	(4)	(5)	(6)	(7)
F(CEO Tenure)×ΔCash/ME				0.416** (2.26)			0.342** (2.01)
F(Industry Adjusted Performance)					0.547*** (41.09)		0.546*** (41.01)
F(Industry Adjusted Performance)×ΔCash/ME					0.344** (2.00)		0.335* (1.95)
Outsider						-0.008 (-0.96)	-0.007 (-0.99)
Outsider×ΔCash/ME						-0.108 (-0.85)	-0.089 (-0.75)
Constant	-0.055 (-0.70)	-0.069 (-0.95)	-0.231*** (-3.12)	-0.055 (-0.70)	-0.339*** (-5.72)	-0.043 (-0.56)	-0.344*** (-5.78)
Observations	16,250	16,250	16,250	16,250	16,250	16,250	16,250
R-squared	0.077	0.080	0.151	0.078	0.197	0.077	0.198

Panel B: The marginal Value of cash for the average firm

		Column (2) Overall Reputation	Column (3) Overall Reputation 2
Sample means for cash value computation	Lagged Cash	0.12	0.12
	Leverage	0.20	0.20
Value of \$1 (Reputable CEO)		\$0.76	\$0.49
Value of \$1 (Non-reputable CEO)		\$0.32	\$0.06
Value of \$1 (Average CEO)		\$0.54	\$0.27

Panel B of Table V presents the marginal value of cash for average firms with three types of CEOs, namely (1) the most reputable, (2) the average, and (3) the non-reputable CEOs. We focus on the analysis of the two principal component score variables (Overall Reputation and Overall Reputation 2), because the principal components select the most common variance factors among all reputational proxies. Using the cumulative density function of Overall Reputation as a measurement for CEO reputation, Panel B of Table V shows that the market value of one dollar of cash held by the most reputable CEOs is worth approximately \$0.76 ($=\$0.448+0.12*\$0.141-0.2*\$0.356+\$0.441*1$) to a firm with average leverage (20%) and an average opening balance of cash holdings (12%).³⁵ In contrast, the value of one dollar of cash held by the least-reputable CEOs is only worth \$0.32 ($=\$0.448+0.12*\$0.141-0.2*\$0.356+\$0.441*0$) to the same firm.

To gauge the economic significance of the 44 cents difference in the market value of one dollar of cash between reputable CEOs and non-reputable CEOs, we multiply 44 cents by the average cash holdings of our firms of \$611.26 million. We find a nearly \$269 million discount in the total cash reserves held by the non-reputable CEOs compared to the most reputable CEOs. In summary, we find supporting evidence that CEO reputation adds value to corporate cash holdings.

³⁵ In this example, we obtain all our coefficients from Column 2 of Table V. Specifically, we obtain 0.448 from the coefficient of $\Delta Cash/ME$, 0.145 from the coefficient of *Lagged Cash/ME*, and 0.441 from the coefficient of $F(Overall\ Reputation) \times \Delta Cash/ME$. Please note that the cumulative density function (CDF) of our reputation proxies ranges from 0 to 1, with 1 being the most reputable CEOs and 0 being the non-reputable CEOs..

5.2.3 H3: Is the market value of excess corporate cash holdings higher in firms with reputable CEOs? Answer: Yes.

We argue in Section 3.3 that CEO reputation not only affects the market value of all corporate cash but also affects the market value of excess corporate cash because of the superior ability and the interest alignment between reputable CEOs and shareholders. To examine the effect of CEO reputation on the value of corporate excess cash holdings, we run an OLS regression on equation (3) with year fixed effects, firm fixed effects, and clustered robust standard errors. The results are presented in Table VI. The sample employed in this test only covers firms from 1993 to 2010, due to the two years' forward estimation of independent variables. Additionally, we also use this regression as a robustness check on the results in Section 5.2.2. Notably, only firms with positive excess cash holdings are included in the regression (3) estimation because our hypothesis is only concerned with positive excess cash holdings. There are two other reasons why we exclude firms with negative excess cash holdings. First, the managers in cash-poor firms are not likely to become entrenched given cash reserves due to the limited amount of cash they could extract from. Second, neither theoretical nor empirical studies have predicted the value impact of negative excess cash holdings; thus, we do not know whether reputable CEOs have a value adding effect on these negative excess cash holdings.

Column (1) of Table VI shows that the coefficient for the interaction variable of excess cash and Overall Reputation is 0.315, which implies that one dollar of excess cash held by the most reputable CEOs is worth \$0.315 more than the same dollar of cash held by the non-reputable

CEOs. Specifically, we show that one dollar of excess cash held by the most reputable CEOs has a market value of \$1.09 ($=\$0.774+\$0.315*1$),³⁶ approximately 9% higher than its face value of one dollar. In contrast, one dollar of excess cash held by the non-reputable CEOs is only worth \$0.77 ($=\$0.774+\$0.315*0$), which is consistent with the agency theory prediction that managers tend to waste free cash flows if they have the opportunity. On average, the value of excess cash held by a *median* reputable CEO is approximately \$0.93 ($=\$0.774+\$0.315*0.5$).

The result is quite similar if we use CEO Tenure as a proxy for CEO reputation. One dollar of excess cash held by the most reputable CEOs is worth \$1.09 ($=\$0.696+\$0.395*1$); however, it is only worth approximately \$0.70 ($=\$0.696+\$0.395*0$) if it is held by a non-reputable CEO. We mention in Section 4.2 that CEO Tenure could also be a proxy for CEO entrenchment, which could negatively affect the value of both corporate cash holdings and corporate excess cash holdings. However, the results in both Table V and Table VI show that CEO Tenure is unlikely to contain a large proportion of entrenchment elements in our sample. Indeed, CEO Tenure is positively related to the value of both cash and excess cash, which implies that the longer the CEO's tenure, the higher the value of both corporate cash holdings and excess holdings. Furthermore, from Section 5.2.1, we show that CEOs with a longer tenure are more likely to hold a lower level of cash. Collectively, reputable CEOs tend to hold less cash but the value of both cash and excess cash are higher compared with non-reputable CEOs. Thus, our results suggest that CEO Tenure in our study is more likely to represent CEO reputation

³⁶ We obtain 0.774 from the coefficient of the *Excess Cash Ratio*, which is the base market value of the excess cash value for the non-reputable CEOs.

rather than CEO entrenchment.

The industry adjusted performance and outsider measurements for CEO reputation do not present any significant results; therefore, we cannot interpret these two variables as having a negative impact on the market value of excess corporate cash holdings. In Column (7), we incorporate all reputation proxies in one model, and we find that each CEO reputation proxy is quite independent in explaining the value of excess cash holdings.

5.2.4 Summary of the Results

Collectively, our results suggest that CEO reputation reduces (increases) the level (value) of corporate cash holdings. There are three plausible explanations for these findings. First, reputable CEOs have a superior cash management ability. Second, to protect their reputation, reputable CEOs have a low incentive to extract rents from shareholders; thus, they do not hold a high level of cash.³⁷ Third, because reputable CEOs do not tend to extract rent from shareholders by wasting cash reserves, the value of both cash holdings and excess cash holdings are higher for firms with reputable CEOs.

³⁷ As discussed in Myers and Rajan (1998), cash is the first asset that managers tend to extract benefit from because the use of cash usually receives low scrutiny and is also highly discretionary.

Table VI**H3: Regression Results for Market Value on Excess Cash and CEO Reputation**

This table provides the regression results for equation (3). The dependent variable is the ratio of market value to net assets, where market value is calculated as price times shares plus total liabilities. Net assets are defined as total assets minus cash and short-term investments. The independent variables are defined as follows. Earnings are the earnings before extraordinary items. R&D refers to research and development expenses, where all missing R&D values are set to 0. Dividend refers to the common dividend paid to shareholders. Interest refers to interest expenses. ME refers to the market capitalisation, which is calculated as price times shares. The excess Cash Ratio is the ratio of excess cash to net assets, where excess cash is defined as the actual cash holdings minus the normal level of cash holdings. All positive excess cash is used in this regression. $F(X)$ is the cumulative density function for the variable X , where X refers to all CEO reputation measurements except for Outsider. Overall Reputation is the principal component of all CEO reputation proxies (CEO Tenure, Outsider, and Industry Adjusted Performance). Overall Reputation 2 is the principal component of CEO Tenure and Industry Adjusted Performance. CEO Tenure is defined as the number of years the executive has been CEO with this firm as of the company's fiscal year end. Outsider takes a value of 1 for the CEO in every year he appears in the sample if he joined the company at the date he became CEO; it takes a value of 0 if the CEO joined the company at a date prior to becoming CEO. We further hand collected all founder "outsiders" and set those founder "outsiders" to a value 0. We also hand categorise each CEO whose joining company date is unobservable. Industry adjusted performance is calculated as the difference between the firm's average monthly stock returns and its industry's (defined by two-digit SIC code) average monthly return over one year. All ratio variables and Industry Adjusted Performance are winsorised at the 1st and 99th percentile. $\Delta L2 X$ is the change in variable X from year $t-2$ to t . $\Delta F2 X$ is the change in variable X from year t to $t+2$. Columns (1) to (6) are identical models but with different CEO reputation measurements, where each choice for the CEO reputation measurement is clearly marked under its respective column number. All models are estimated using an OLS regression with year fixed effects, firm fixed effects, and clustered robust standard errors. Clustered t -statistics are reported in parentheses. * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
Proxies for Reputation →	Overall Reputation	Overall Reputation 2	CEO Tenure	Industry Adjusted Performance	Outsider	All
Earnings/NA	3.270*** (13.92)	3.166*** (13.63)	3.285*** (13.99)	3.173*** (13.70)	3.310*** (14.07)	3.145*** (13.59)
$\Delta L2$ Earnings/NA	-0.910*** (-6.16)	-0.829*** (-5.67)	-0.914*** (-6.19)	-0.794*** (-5.45)	-0.911*** (-6.16)	-0.796*** (-5.46)
$\Delta F2$ Earnings/NA	-1.583*** (-12.15)	-1.465*** (-11.33)	-1.608*** (-12.33)	-1.449*** (-11.24)	-1.583*** (-12.13)	-1.474*** (-11.43)
R&D/NA	10.244*** (20.59)	10.315*** (20.97)	10.264*** (20.63)	10.297*** (20.98)	10.302*** (20.68)	10.246*** (20.90)

Table VI (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta L2$ R&D/NA	-5.100*** (-8.56)	-4.985*** (-8.46)	-5.182*** (-8.71)	-4.921*** (-8.38)	-5.183*** (-8.69)	-4.853*** (-8.25)
$\Delta F2$ R&D/NA	-8.571*** (-18.53)	-8.332*** (-18.15)	-8.681*** (-18.76)	-8.239*** (-17.99)	-8.579*** (-18.52)	-8.314*** (-18.15)
Dividend/NA	-5.754*** (-3.58)	-5.284*** (-3.32)	-5.603*** (-3.48)	-5.276*** (-3.32)	-5.700*** (-3.54)	-5.223*** (-3.29)
$\Delta L2$ Dividend/NA	-5.778*** (-2.60)	-5.493** (-2.50)	-5.756*** (-2.59)	-6.097*** (-2.79)	-6.098*** (-2.74)	-5.827*** (-2.67)
$\Delta F2$ Dividend/NA	1.994 (1.24)	2.319 (1.46)	2.043 (1.27)	2.074 (1.31)	1.748 (1.09)	2.347 (1.49)
Interest/NA	-9.590*** (-3.20)	-10.631*** (-3.58)	-9.604*** (-3.20)	-10.572*** (-3.58)	-9.662*** (-3.22)	-10.508*** (-3.56)
$\Delta L2$ Interest/NA	5.308** (2.28)	4.901** (2.13)	5.143** (2.21)	4.428* (1.93)	4.744** (2.04)	4.905** (2.14)
$\Delta F2$ Interest/NA	6.166*** (3.34)	6.008*** (3.29)	6.469*** (3.50)	5.575*** (3.06)	6.214*** (3.36)	5.833*** (3.20)
$\Delta L2$ NA/NA	-0.434*** (-5.85)	-0.422*** (-5.78)	-0.432*** (-5.84)	-0.429*** (-5.90)	-0.422*** (-5.70)	-0.447*** (-6.14)
$\Delta F2$ NA/NA	-0.759*** (-15.79)	-0.728*** (-15.29)	-0.762*** (-15.85)	-0.712*** (-14.99)	-0.765*** (-15.90)	-0.708*** (-14.92)
$\Delta F2$ ME/NA	0.256*** (28.57)	0.250*** (28.01)	0.256*** (28.53)	0.252*** (28.41)	0.257*** (28.54)	0.252*** (28.42)
Excess Cash Ratio	0.774*** (13.97)	0.846*** (13.49)	0.696*** (11.30)	0.915*** (15.12)	0.916*** (19.90)	0.737*** (9.26)
F(Overall Reputation)	0.232** (2.46)					
F(Overall Reputation) \times Excess Cash Ratio	0.315*** (3.03)					

Table VI (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
F(Overall Reputation 2)		0.859*** (11.71)				
F(Overall Reputation 2)×Excess Cash Ratio		0.080 (1.00)				
F (CEO Tenure)			0.065 (0.78)			0.042 (0.50)
F(CEO Tenure)×Excess Cash Ratio			0.395*** (4.06)			0.406*** (4.23)
F (IND_ADJ_PERF)				0.880*** (13.59)		0.877*** (13.55)
F(Industry Adjusted Performance)×Excess Cash Ratio				-0.035 (-0.51)		-0.031 (-0.44)
Outsider					0.016 (0.21)	-0.002 (-0.02)
Outsider×Excess Cash Ratio					-0.048 (-0.76)	-0.071 (-1.12)
Constant	1.970*** (24.96)	1.686*** (23.18)	2.050*** (26.70)	1.676*** (23.71)	2.079*** (31.08)	1.656*** (19.97)
Observations	7,768	7,768	7,768	7,768	7,768	7,768
R-squared	0.442	0.455	0.442	0.458	0.440	0.460
Number of Firms	1,428	1,428	1,428	1,428	1,428	1,428

Chapter 6 Robustness Check

In this chapter, we further check the robustness of our core results. Section 6.1 repeats the analysis after controlling for corporate governance. Section 6.2 further investigates the impact of financially constrained firms on our core results.

6.1 Corporate Governance

Dittmar and Mahrt Smith (2007) show that corporate governance also significantly affects the value of corporate cash holdings. They argue that a high level of monitoring and a low level of entrenchment force managers to manage corporate cash holdings appropriately. Thus, the value of corporate cash holdings is expected to be higher in well-governed firms.

In addition, some people may argue that CEO reputation is likely to be highly correlated with corporate governance. That is, CEO reputation's effect on the value of corporate cash holdings is the same as the effect of corporate governance. For the above reasons, we also include the corporate governance proxies in equations (2) and (3) to provide a robustness test on the unique effect of CEO reputation on corporate cash holdings.

6.1.1 Corporate governance data

We follow Dittmar and Mahrt-Smith (2007) to construct a corporate governance index. Due to time constraints, we only use institutional investor ownership (IO), pension fund ownership (PO), and the Gompers, Ishii, and Metrick (2003, hereafter GIM) index to proxy for corporate governance.

According to Dittmar and Mahrt-Smith (2007), our measurement for institutional ownership is the sum of all ownership positions greater than 5% held by institutional investors. These institutional ownership as well as pension fund ownership data are obtained from the “Thomson Reuters Institutional (13f) Holdings - s34 Master File”. The institutional ownership could, more or less, reflect the governance practice, because large shareholders more actively monitor managers’ behaviour, forcing managers to conduct themselves appropriately. Thus, we believe that the higher the percentage of shares held by institutional investors, the stronger the governance practice in the firm.

We also use pension fund ownership as an alternative measurement for institutional ownership, because pension funds are widely regarded as the most active institutional investors in terms of monitoring managers’ behaviour strictly and frequently (Del Guercio and Hawkins, 1999; Gompers and Metrick, 2001). Public pension funds are identified according to a list of public pension fund managers in Dittmar and Mahrt-Smith (2007).

In terms of measuring the degree of managerial entrenchment due to takeover protection, we employ the GIM index. The GIM index varies from 0 to 24, where zero refers to the lowest level of managerial entrenchment and 24 refers to the highest level of entrenchment. We obtained the GIM index from the RISKMETRICS database. Because RISKMETRICS only provides the GIM index up to 2006, we can only conduct the robustness test from 1993 to 2006.

All three corporate governance variables in our study are binary dummies. The highest tercile for the percentage of institutional (pension funds) ownership and the lowest tercile for GIM

index are coded as one (best corporate governance); the lowest tercile for the percentage of institutional (pension funds) ownership and the highest tercile for the GIM index are coded as 0 (poor governance). We discard those firms in the middle for Institutional (pension funds) ownership and the GIM index.

6.1.2 Regression Results

Table VII presents the regression results of CEO reputation effect on the market value of corporate cash holdings under different levels of corporate government practices. We employ *GIM (Column 1)*, *Institutional Ownership (Column 3)*, and *Pension Funds Ownership (Column5)*, which are dummy variables that take value of 1 for good governed firms and 0 for bad governed firms, as the proxy for corporate governance. For brevity, we only use the *Overall Reputation* to proxy for CEO reputation. Columns (1), (3), and (5) present the regression results of corporate governance on the market value of corporate cash holdings, in the absence of CEO reputation.

Surprisingly, we do not find any significant effect of corporate governance on the market value of corporate cash holdings. Moreover, on the monitoring side of corporate governance, we find better monitored firms actually have a lower value of their cash holdings. One possible explanation for this result is that high monitoring pressure from pension funds as well as institutional investors forces CEOs to involve in safe but low return projects.³⁸

³⁸ Public pension funds tend to prefer safe projects with stable cash flows. That is because the shareholders of public pension funds are normally retirees who do not like to take risk.

Nevertheless, in Columns (2), (4), and (6), we find that the coefficients on the interaction variable of CEO reputation and change in cash ($F(\text{Overall Reputation}) \times \Delta \text{Cash}/ME$), are all positive and significant, which implies that CEO reputation uniquely explains the value of corporate cash holdings. Specifically, CEO reputation incrementally increases the value of one dollar of cash by more than 50 cents for all firms.³⁹

In addition, we find the magnitude of CEO reputation effect on the value of corporate cash holdings is smaller in firms with high level of monitoring imposed by both institutional investors and pension funds, though the CEO reputation effect is still statistically significant. In terms of *Institutional Ownership (Pension Funds Ownership)*, we find that CEO reputation additionally impose 51 (59) cents on the value of one dollar of cash is in poorly monitored firms, while this incremental value reduced to 42 (33) cents in well monitored firms. This finding suggests that although CEO reputation uniquely explains the value of corporate cash holdings, the magnitude of CEO reputation effect still depends on the level of corporate governance. Collectively, our findings may suggest that firms cannot improve the value of corporate cash holdings through adopting better corporate governance, but they can do so by employing a reputable CEO.

We also conduct a similar robustness test on the value of *excess cash holdings*. The regression results are presented in Table VIII. Corporate governance and CEO reputation proxies are the same with those used in Table VII. Columns (1), (3), and (5) show the corporate governance effect on the value of excess cash holdings, in the absence of CEO reputation. We find that all

³⁹ The coefficients on CEO reputation and change in cash interaction variable is varies from 0.509 to 0.739, therefore, we argue the incremental value CEO add on one dollar of cash is at 50 cents.

corporate governance proxies positively affect the value of excess cash holdings, though the proxy for managerial entrenchment (GIM) is statistically insignificant. In terms of large shareholders monitoring side, we find that institutional investors (pension funds investors) monitoring increase the value of one dollar of excess cash holdings by \$1.12 (\$0.26).⁴⁰ This finding is quite intuitive since excess cash holdings are more likely to be wasted by managers but a strict monitoring imposed by institutional investors could deter such negligence, therefore increasing the market value of excess cash holdings.

Columns (2), (4), and (6) of Table VIII present the regression results of the CEO reputation effect on the market value of excess cash, in the presence of corporate governance proxies. The regression results show that CEO reputation still positively and significantly affects the market value of corporate excess cash holdings after controlling for corporate governance proxies (large shareholders monitoring side). Furthermore, we find the coefficients on all three corporate governance interaction variables are quite stable after adding CEO reputation variable into the regression. Thus, we argue that CEO reputation can be a different factor in determining the market value of excess cash holdings. In other word, good corporate governance is not a substitute of CEO reputation in explaining the market value of corporate excess cash holdings.

Our results are also economically significant. For example, one dollar of excess cash in firms with a high level of institutional investors' monitoring has a market value of \$1.83 ($=\$0.728+\1.1). If a reputable CEO is appointed by this firm then the value of one dollar of

⁴⁰ The coefficient on the interaction variable of governance measurement and change in cash represents the market value of one dollar of cash added by this particular corporate governance proxy.

excess cash becomes \$2.16 ($=\$1.83+\0.331). Similarly, one dollar of excess cash in firms with high level of pension funds monitoring has market value of \$0.78, while this value rise to \$1.7 if those firms are managed by a reputable CEOs.

Collectively, we find CEO reputation could explain the market value of both cash holdings and excess cash holdings differently from corporate governance. This finding is even more significant when institutional ownership and pension funds ownership are employed as the proxies for corporate governance. We further find, large shareholders monitoring has a negative effect on the value of cash holdings, while its effects on the market value of excess cash holdings is positive. Therefore, our results suggest that employing a reputable CEO may be as important as, if not more important more, adapting good corporate governance practices.

Table VII
Robustness Tests of the Excess Stock Return on CEO Reputation

This table shows the regression results for the robustness test described in Section 6.1.1. Corporate governance is measured by the GIM, Institutional Ownership, and Pension Fund Ownership. GIM refers to a dummy variable that takes a value of 1 for the top tercile of the GIM index and 0 for the bottom tercile. Institutional Ownership is a dummy variable that takes a value of 1 (0) for the bottom (top) tercile of the sum of the 5% institutional investor firms. Pension Fund Ownership is a dummy variable that takes the value 1 (0) for the bottom (top) tercile of the sum of public pension fund holdings. Other variables are exactly identical to those described in Table V. All ratio variables are winsorised at the 1st and 99th percentile. Columns (1), (4), and (7) are models only examining the corporate governance effect. Columns (2), (5), and (8) incorporate the effect of CEO reputation (Overall Reputation); and columns (3), (6), and (9) are the identical models but using another CEO reputational proxy (Overall Reputation 2). All models are estimated with firm and industry fixed effects.

Dependent Variable:	Corporate Governance Measures					
Excess Return (Value Weighted)	GIM Index		Institutional Ownership		Pension Funds Ownership	
Columns→	(1)	(2)	(3)	(4)	(5)	(6)
ΔCash/ME	1.113*** (3.99)	0.763** (2.37)	0.677*** (3.61)	0.409* (1.68)	0.968*** (5.71)	0.654*** (2.84)
ΔEarnings/ME	0.156 (1.56)	0.166* (1.66)	0.246*** (4.08)	0.252*** (4.19)	0.274*** (4.67)	0.281*** (4.81)
ΔNet Asset/ME	0.145*** (3.14)	0.139*** (3.02)	0.031 (0.84)	0.027 (0.75)	0.058* (1.85)	0.053* (1.68)
ΔR&D/ME	0.752 (0.73)	0.821 (0.80)	0.610 (0.82)	0.641 (0.87)	0.003 (0.00)	-0.005 (-0.01)
ΔInterest/ME	-0.479 (-0.42)	-0.504 (-0.44)	-0.466 (-0.57)	-0.531 (-0.65)	-0.956 (-1.45)	-0.979 (-1.49)
ΔDividend/ME	-0.420 (-0.24)	-0.634 (-0.36)	-0.882 (-0.79)	-1.107 (-0.99)	-1.550 (-1.49)	-1.614 (-1.55)
Lagged Cash/ME	0.143* (1.80)	0.154** (1.99)	0.168*** (2.91)	0.176*** (3.06)	0.176*** (3.36)	0.184*** (3.55)
Leverage	-0.175*** (-3.40)	-0.168*** (-3.28)	-0.205*** (-5.25)	-0.195*** (-4.96)	-0.198*** (-5.45)	-0.193*** (-5.36)
Net Finance/ME	-0.370*** (-4.12)	-0.357*** (-4.01)	-0.067 (-0.84)	-0.061 (-0.78)	-0.102 (-1.52)	-0.092 (-1.38)

Table VII (Continued)

Column→	(1)	(2)	(3)	(4)	(5)	(6)
F(Overall Reputation)×ΔCash/ME		0.739* (1.73)		0.509* (1.67)		0.587** (2.18)
Lagged Cash/ME*ΔCash/ME	-0.029 (-0.04)	0.042 (0.06)	0.354 (0.91)	0.374 (0.98)	-0.056 (-0.17)	0.009 (0.03)
Leverage×ΔCash/ME	-1.757*** (-2.68)	-1.650** (-2.49)	-0.648* (-1.81)	-0.605* (-1.70)	-1.071*** (-3.41)	-1.050*** (-3.36)
GIM	0.000 (0.03)	-0.001 (-0.09)				
GIM×ΔCash/ME	0.190 (0.67)	0.148 (0.53)				
Institutional Ownership			-0.028* (-1.73)	-0.023 (-1.43)		
Institutional Ownership×ΔCash/ME			-0.129 (-0.76)	-0.086 (-0.51)		
Pension Funds Ownership					-0.066*** (-4.69)	-0.068*** (-4.85)
Pension Funds Ownership×ΔCash/ME					-0.293* (-1.76)	-0.258 (-1.56)
F(Overall Reputation)		0.043* (1.66)		0.084*** (4.19)		0.077*** (4.15)
Constant	-0.277*** (-3.63)	-0.300*** (-3.90)	-0.114 (-1.09)	-0.153 (-1.47)	-0.274*** (-5.70)	-0.311*** (-6.30)
Observations	3,370	3,370	5,987	5,987	6,441	6,441
R-squared	0.100	0.103	0.082	0.086	0.090	0.093

Table VIII**Robustness Test of Market Value on Excess Cash and CEO Reputation**

This table shows the regression results for the robustness test described in Section 6.1.1. Corporate governance is measured by the GIM, Institutional Ownership, and Pension Funds Ownership. GIM refers to a dummy variable that takes value of 1 for the top tercile of GIM index, and 0 for the bottom tercile of GIM index. Institutional Ownership is a dummy variables that takes value of 1 (0) for the bottom (top) tercile of the sum of the 5% institutional investors firms. Pension Funds Ownership refers to a dummy variable that takes value of 1 (0) for the bottom (top) tercile of the sum of public pension fund holdings. Other variables are exactly identical to those described in Table VI. Columns (1), (3), (5) present the regression results of corporate governance effects on the market value of excess cash, in the absence of CEO reputation. Columns (2), (4), (6) are identical to columns (1), (3),(5) but also include CEO reputation measures in the regression. All models are estimated using an OLS regression with firm fixed effect, industry fixed effect, and robust-standard errors. All the ratio variables are winsorized at the 1st and 99th percentile. Standard errors are provided in the parenthesis below the coefficients. * denote significant at 10%, ** 5%, and *** 1%.

Dependent Variable: Market-to-Book Ratio (MV/NA) Column→	Corporate Governance Measures					
	GIM Index		Institutional Ownership		Pension Funds Ownership	
	(1)	(2)	(3)	(4)	(5)	(6)
Earnings/NA	3.523*** (6.85)	3.496*** (6.76)	1.663*** (4.59)	1.733*** (4.76)	1.493*** (3.93)	1.387*** (3.68)
ΔL2 Earnings/NA	-0.879*** (-2.87)	-0.890*** (-2.90)	-1.346*** (-5.90)	-1.311*** (-5.72)	-1.174*** (-5.05)	-1.166*** (-5.05)
ΔF2 Earnings/NA	-1.952*** (-7.00)	-1.953*** (-6.98)	-1.005*** (-5.10)	-1.023*** (-5.19)	-0.722*** (-3.43)	-0.705*** (-3.38)
R&D/NA	10.051*** (7.58)	10.004*** (7.52)	5.678*** (6.88)	5.826*** (7.03)	4.178*** (4.85)	3.832*** (4.48)
ΔL2 R&D/NA	-2.486** (-2.13)	-2.533** (-2.17)	-5.133*** (-5.17)	-4.951*** (-4.96)	-6.271*** (-6.60)	-5.960*** (-6.31)
ΔF2 R&D/NA	-5.236*** (-5.30)	-5.237*** (-5.30)	-8.443*** (-11.37)	-8.539*** (-11.47)	-6.992*** (-9.00)	-6.980*** (-9.06)
Dividend/NA	-1.195 (-0.36)	-1.244 (-0.37)	-9.909*** (-3.43)	-9.897*** (-3.42)	-3.466 (-0.99)	-4.277 (-1.23)
ΔL2 Dividend/NA	-5.888 (-1.27)	-5.937 (-1.28)	-4.382 (-1.24)	-4.518 (-1.28)	-3.250 (-0.75)	-3.645 (-0.85)

Table VIII (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta F2$ Dividend/NA	0.126 (0.04)	0.220 (0.07)	3.548 (1.32)	3.417 (1.27)	-1.346 (-0.44)	-0.302 (-0.10)
Interest/NA	-6.179 (-0.94)	-6.043 (-0.91)	-14.055*** (-2.83)	-13.267*** (-2.66)	-14.375*** (-2.90)	-13.689*** (-2.78)
$\Delta L2$ Interest/NA	3.292 (0.78)	3.495 (0.83)	0.645 (0.18)	1.142 (0.32)	1.353 (0.35)	3.878 (1.02)
$\Delta F2$ Interest/NA	11.406*** (2.86)	11.517*** (2.88)	-1.905 (-0.68)	-2.190 (-0.78)	0.427 (0.14)	0.080 (0.03)
$\Delta L2$ NA/NA	-0.410*** (-2.70)	-0.409*** (-2.68)	-0.068 (-0.57)	-0.098 (-0.82)	-0.193 (-1.58)	-0.281** (-2.30)
$\Delta F2$ NA/NA	-0.708*** (-7.05)	-0.712*** (-7.06)	-0.694*** (-9.58)	-0.680*** (-9.36)	-0.766*** (-9.09)	-0.717*** (-8.53)
$\Delta F2$ ME/NA	0.324*** (17.21)	0.324*** (17.18)	0.260*** (18.75)	0.262*** (18.83)	0.206*** (12.91)	0.202*** (12.78)
Excess Cash Ratio	0.980*** (3.12)	0.954*** (2.79)	0.856*** (15.52)	0.728*** (8.49)	0.799*** (12.39)	0.525*** (6.35)
GIM	-0.319 (-0.64)	-0.339 (-0.68)				
GIM \times Excess Cash Ratio	0.357 (1.12)	0.337 (1.04)				
F(Overall Reputation)		0.087 (0.49)		-0.135 (-0.81)		0.197 (1.05)
F(Overall Reputation) \times Excess Cash Ratio		0.083 (0.25)		0.331* (1.93)		0.917*** (5.26)
Institutional Ownership			-0.647*** (-4.44)	-0.643*** (-4.41)		
Institutional Ownership \times Excess Cash Ratio			1.118*** (9.37)	1.100*** (9.18)		

Table VIII (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Pension Funds Ownership					-0.684*** (-5.72)	-0.662*** (-5.58)
Pension Funds Ownership×Excess Cash Ratio					0.259*** (3.03)	0.258*** (3.04)
Constant	2.052*** (6.54)	2.023*** (6.30)	2.941*** (20.64)	2.973*** (18.29)	2.965*** (22.22)	2.851*** (17.97)
Observations	1,747	1,747	3,087	3,087	2,806	2,806
R-squared	0.487	0.487	0.446	0.447	0.440	0.451
Number of Firms	476	476	964	964	1,023	1,023

6.2 Financial Constraints

The previous literature identified that the market value of cash holdings is also affected by whether a firm is under financial constraints. For example, Faulkender and Wang (2006) found that one dollar of cash has a higher value in financially constrained firms than it does in financially unconstrained firms. The intuition is that in financially constrained firms, cash is usually the only liquidity for day-to-day operating, investing and financing, whereas in financially unconstrained firms, cash could be easily substituted by external funds.

To confirm that the effect of CEO reputation on the value of corporate cash holdings is not primarily driven by the financial constraints status of a firm, we examine the CEO reputation effect in financially constrained firms.

To measure the financial constraints, we employ four common criteria for determining whether a firm is under financial constraints.

Firm Size: It is commonly believed that large firms have better access to external financial markets than do small firms. Therefore, small firms are considered more likely to be financially constrained than are large firms. We use the net asset, which is the difference between the total asset and cash, as the measure for firm size. For each year of our sample period, we split the net assets into deciles. The financially constrained (unconstrained) firms are defined as firms in the bottom (top) three deciles of the annual size distribution.

Long-term bond rating: Firms with long-term bond ratings can access external capital markets, which implies that rated firms are less likely to be financially constrained than are unrated firms.

We obtain long-term bond ratings for our sample firms from Compustat. Following Faulkender and Wang (2006) and define financially constrained (unconstrained) firms as leveraged firms without (with) a long-term bond rating.

Commercial paper rating: Firms with commercial paper ratings are considered the safest publicly traded firms (Faulkender and Wang, 2006); these firms are thus unlikely to be financially constrained. In contrast, firms without commercial paper ratings are more likely to be under financial constraints. We use the same categorization approach as above, where financially constrained firms are defined as those leveraged firms without a commercial paper rating.

Payout ratio: The payout ratio is defined as the total common dividends over earnings before extraordinary items. For each year of our sample period, we defined the financially constrained firms as the bottom 30% of the annual payout ratio distribution. According to Fazzari, Hubbard, and Petersen (1988), financially constrained firms tend to have a lower payout ratio.

The regression results are presented in Table IX. Columns (1), (3), (5), and (7) demonstrate the cash holdings values in financially constrained firms in the absence of the CEO reputation effect. We observe that each cash dollar is worth approximately 60 cents in financially constrained firms. In columns (2), (4), (6), and (8), we repeat the same analysis in the presence of the CEO reputational proxy in our regression. We observe that CEO reputation significantly increases the market value of corporate cash holdings in financially constrained firms. For example, in column (2), the market value of one cash dollar for reputable CEOs in financially constrained firms is approximately \$0.96 ($=\$0.321+\0.637), whereas this value is

approximately \$0.665 (column 1) for an average firm. We suggest that this almost 30 cent difference is incrementally attributed to the CEO's reputation. This additional 30 cent increase due to reputable CEOs is robust enough for use as an alternative proxy for financial constraints, such as the Bond Rating and Commercial Paper Rating. Specifically, CEO reputation incrementally adds 37 (28) cents to the value of one dollar of cash if the Bond Rating (Commercial Paper Rating) is used as the financial constraint proxy.

Collectively, we argue that the effect of CEO reputation on the value of corporate cash holdings cannot be substituted by a firm's financially constrained status. Indeed, we find that reputable CEOs remain important in adding value to corporate cash holdings, especially in financially constrained firms. In the unreported results, we further investigate the effect of CEO reputation on the value of cash holdings in a sample of financially unconstrained firms. In this sample, we find that CEO reputation becomes statistically insignificant. This observation could be explained by the fact that financially unconstrained firms may not need reputable CEOs' superior abilities of borrowing at cheaper rates and investing more carefully because financially unconstrained firms may already have had these two features by themselves.

Table IX
CEO Reputation Effect in Financial Constrained Firms

This table provides the regression results for the CEO reputation effect on the market value of corporate cash holdings in financially constrained firms. We define financially constrained firms as the bottom 30% in firm size, bottom 30% in payout ratio, and lacking a long-term debt credit rating and a short-term debt credit rating. The firm size refers to net asset. The payout ratio is calculated as the total common dividend over earnings. The long-term debt (Bond) credit rating and short-term debt (Commercial Paper) credit rating are available in the Compustat database. The columns (1), (3), (5), and (7) present the results without the CEO reputation effect. The columns (2), (4), (6), and (8) present the regression result after incorporating the CEO reputation effect. All variables are the same as those used in Table V. All of the models are estimated with the industry fixed effect, year fixed effects and clustered-robust standard errors. All ratio variables are winsorized at the 1st and 99th percentiles. The standard errors are reported in the parenthesis below the coefficients. * significant at 10%, **at 5%, and ***at 1%..

Dependent Variable: Excess Return (Value Weighted)	Firm Size		Bond Rating		Commercial Paper Rating		Payout Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta\text{Cash}/\text{ME}$	0.665*** (4.08)	0.321 (1.45)	0.458*** (2.87)	0.073 (0.33)	0.638*** (5.55)	0.373** (2.36)	0.621*** (4.97)	0.441*** (2.60)
F(Overall Reputation) $\times\Delta\text{Cash}/\text{ME}$		0.637** (2.21)		0.758*** (2.75)		0.541*** (2.76)		0.363 (1.58)
$\Delta\text{Earnings}/\text{ME}$	0.230*** (3.27)	0.236*** (3.39)	0.361*** (5.27)	0.363*** (5.34)	0.256*** (5.89)	0.257*** (5.92)	0.264*** (5.99)	0.266*** (6.04)
$\Delta\text{Net Asset}/\text{ME}$	0.106** (1.97)	0.096* (1.80)	0.026 (0.65)	0.020 (0.50)	0.025 (1.04)	0.023 (0.95)	0.033 (1.20)	0.032 (1.16)
$\Delta\text{R\&D}/\text{ME}$	-0.173 (-0.25)	-0.170 (-0.25)	-0.215 (-0.32)	-0.178 (-0.27)	-0.442 (-0.82)	-0.460 (-0.86)	0.165 (0.32)	0.125 (0.24)
$\Delta\text{Interest}/\text{ME}$	-2.113* (-1.83)	-2.127* (-1.87)	0.102 (0.11)	0.106 (0.12)	0.419 (0.85)	0.415 (0.84)	0.361 (0.61)	0.353 (0.60)

ΔDividend/ME	-1.432 (-1.20)	-1.547 (-1.29)	0.988 (0.80)	0.791 (0.64)	-0.758 (-0.89)	-0.897 (-1.06)	-2.747** (-2.39)	-2.786** (-2.42)
Lagged Cash/ME	0.054 (0.92)	0.059 (1.03)	0.068 (1.19)	0.086 (1.52)	0.188*** (4.88)	0.198*** (5.21)	0.134*** (3.09)	0.144*** (3.35)
Leverage	-0.169*** (-2.91)	-0.147** (-2.57)	-0.282*** (-6.16)	-0.275*** (-6.13)	-0.268*** (-9.92)	-0.264*** (-9.82)	-0.279*** (-8.24)	-0.272*** (-8.07)
Net Finance/ME	-0.206** (-2.01)	-0.184* (-1.83)	-0.160* (-1.96)	-0.151* (-1.87)	-0.113** (-2.23)	-0.111** (-2.22)	-0.148** (-2.48)	-0.148** (-2.48)
Lagged Cash/ME*ΔCash/ME	0.332 (0.87)	0.409 (1.10)	0.276 (0.68)	0.407 (1.02)	0.218 (0.83)	0.243 (0.95)	0.206 (0.72)	0.248 (0.88)
Leverage×ΔCash/ME	-1.284*** (-2.84)	-1.175*** (-2.59)	-0.129 (-0.26)	-0.082 (-0.17)	-0.701*** (-2.65)	-0.684*** (-2.62)	-0.855*** (-3.23)	-0.837*** (-3.17)
F(CEO Age)	-0.061*** (-2.63)	-0.082*** (-3.41)	-0.027 (-1.42)	-0.049** (-2.42)	-0.008 (-0.61)	-0.026* (-1.88)	-0.019 (-1.10)	-0.035* (-1.93)
F(Overall Reputation)		0.091*** (3.91)		0.084*** (4.32)		0.072*** (5.18)		0.078*** (4.33)
Constant	-0.229** (-2.07)	-0.264** (-2.16)	-0.115 (-1.44)	-0.150* (-1.83)	-0.151*** (-4.26)	-0.168*** (-4.55)	-0.188*** (-3.05)	-0.210*** (-3.17)
Observations	4,877	4,877	5,852	5,852	10,830	10,830	8,115	8,115
R-squared	0.080	0.084	0.097	0.101	0.081	0.085	0.077	0.080

Chapter 7 Conclusion

7.1 Summary of Key Findings

This thesis aims to reveal the possible relationship between CEO reputation and both the level and value of corporate cash holdings. Specifically, this thesis examines whether reputable CEOs tend to hold a lower amount of cash and whether the corporate cash holdings and the corporate excess cash holdings managed by reputable CEOs have a higher market value. Despite the extensive theoretical predictions of the value adding function of CEO reputation, few studies have empirically verified these theoretical findings. Therefore, this thesis aims to fill this gap by conducting a cross-sectional study to examine the market reaction to the effect of CEO reputation on corporate cash holdings in 2,121 U.S. publicly listed firms from fiscal year 1993 to 2012.

In terms of the level of corporate cash holdings, we hypothesize that reputable CEOs can hold a lower amount of cash reserves than non-reputable CEOs can. We find supportive evidence from the regression results that suggests that reputable CEOs hold significantly less cash than non-reputable CEOs do. Specifically, reputable CEOs hold approximately 17% less cash compared to non-reputable CEOs, which amounts to \$104 mil ($=17\% * \612 mil) less for an average firm in our sample.⁴¹

In terms of the market value of corporate cash holdings, we argue that the cash reserves held by reputable CEOs have a higher market value than those held by non-reputable CEOs for two

⁴¹ The average amount of corporate cash holdings for our sample firms is \$612 million.

reasons. First, a lower information asymmetry exists between reputable CEOs and market participants. Second, reputable CEOs have a superior ability to manage financing and investing activities. The regression results support our argument. Specifically, the market places \$0.76 for each dollar held by reputable CEOs. In contrast, the market only places \$0.32 for each dollar held by non-reputable CEOs. The 44 cent difference on one dollar of cash is statistically significant. To put these 44 cents into perspective, on average in our sample, cash held by a reputable CEO is worth approximately \$269 million more than cash held by a non-reputable CEO.⁴²

In terms of the market value of corporate excess cash holdings, we expect that CEO reputation also positively affects the value of excess cash reserves because CEO reputation may mitigate moral hazard problems between shareholders and managers. The result shows that one dollar of excess cash is worth \$1.09 for reputable CEOs; however, it is only worth \$0.77 for non-reputable CEOs. The 32 cent difference is statistically significant. To put these 32 cents into perspective, appointing a reputable CEO in a firm with an average amount of excess cash could increase the market value of excess cash holdings by approximately \$122 mil ($=\$0.32 * \380 mil).⁴³

In addition, our findings on the market value of corporate cash holdings and the market value of corporate excess cash holdings remain robust even after we control for corporate governance and financial constraints. That is, CEO reputation plays a unique role in the value of corporate resources, which cannot be substituted by other firm-specific characteristics.

⁴² The average cash holdings for our sample firms is approximately 612 million U.S. dollars.

⁴³ The average excess cash holdings is approximately \$380 million.

This thesis makes *five* major contributions to the existing literature. First, this study contributes to the level of corporate cash holdings knowledge. We find that CEO reputation significantly reduces the level of corporate cash holdings for firms' day-to-day operations. Second, theoretical studies predict a value adding effect of CEO reputation on firm assets, but only a few empirical studies provide evidence for this prediction. This study provides new supportive evidence for this prediction through the channel of corporate cash holdings. Third, this study contributes to the published studies on the behavior of corporate finance, where we further confirm the important role of CEOs' personal characteristics, i.e., CEO reputation. Fourth, the findings in this study may provide a feasible way to solve the agency problem. We empirically find that CEO reputation increases the value of excess cash reserves. Fifth, this study hand-collected data on a subset of outside CEO samples, which are typically ignored in the literature.

7.2 Implications

The findings of this thesis have several important implications for U.S. publicly listed firms. We find that reputable CEOs hold less cash but that the value of the cash and excess that they hold is higher, which implies that reputable CEOs use cash more efficiently. In addition, our robustness tests demonstrate that the CEO reputation effect on the value of corporate cash holdings is unique and cannot be substituted by good corporate governance practices. Taken together, our results suggest that firms, especially cash-rich firms, should consider employing a

reputable CEO to maximize shareholder wealth.

7.3 Limitations

Given the time constraints of the honours year, we did not hand-collect *the number of CEOs' names mentioned in business related articles* as a proxy for CEO reputation. According to Milbourn (2003), CEO reputation could be multi-dimensional; thus, CEO reputation in this study could be underestimated. However, this underestimation of CEO reputation should bias against our significant results. Therefore, we plan to hand-collect this variable after the honours year.

In addition, this study shows that externally appointed CEOs tend to hold more corporate cash reserves. Meanwhile, both corporate excess cash and corporate cash held by externally appointed CEOs have a lower market value. All the above findings show that market participants do not recognise those externally appointed CEOs as reputable CEOs, which is inconsistent with many of previous literature. Therefore, further works need to be done to find the exact reason for this huge inconsistency.

Furthermore, proxies for CEO reputation used in this study are more biased towards the ability side of CEO reputation, while CEO reputation in theory is defined as the **market's perception on CEO's ability**. Therefore, we not only need proxies for CEO's ability, but also need proxies for the degree of interests alignment between CEOs and shareholders.

Appendix

A.1 Data Construction

In terms of identifying “true” outside appointed CEOs in our sample, we employ the S&P Capital IQ database to hand collect each CEOs’ career information.⁴⁴ Meanwhile, we also rely on CEO information obtained from famous financial websites such as Bloomberg, Forbes and The Wall Street Transcript to double check that the information on Capital IQ is not misreported. In addition, we also refer to some reputable business related newspapers such as The New York Times, the Los Angeles Times, Business Wire, the Wall Street Transcript, and PRNewswire. Outside CEOs (*Outsider=1*) are initially defined as the *date became CEO* matches the *date joined company*. Under this selection criterion, however, company founders could also be included in the outsider subgroup, although founders are obviously not outsiders.⁴⁵ Therefore, we first search for each outside CEO’s (*Outsider=1*) name on Capital IQ as well as on other reliable websites to obtain the CEO’s career information. Then, we search the key words such as “*found*”, “*establish*”, “*start*”, “*begin*”, and “*open*” in the obtained information. If we observe these key words, we then exclude the CEO from our outsider subgroup (*Outsider=0*). Sometimes, these key words are not directly observable; thus, we also searched in business articles to check whether the CEOs are mentioned as a founder or an outsider.⁴⁶ We eventually identified 138 *founders* out of 558 *outsiders*.

⁴⁴ We only check CEOs with a missing reported date for joining the company and CEOs with *Joined company date* equal to *became CEO date* in ExecuComp.

⁴⁵ It is much easier for founders to become company CEO than for outsiders.

⁴⁶ In some cases, we obtain the CEO’s information from an obituary in the newspapers.

In this paper, we also identify those CEOs with unobservable *date joined the company*. Previously, Milbourn (2003) omitted these CEOs from his regression analysis; however, by doing so, we would have to drop a large number of sample observations. To ensure that the variable *Outsider* accurately reflects CEO reputation, we also hand check each CEO with the missing *date joined the company* in ExecuComp.

With the same sources of information, we read each CEO's background carefully. We employ five criteria to identify CEOs as outside CEOs (*Outsider=1*). *First*, the date the CEO joined the company must be the date he became the CEO. *Second*, this CEO cannot be the founder or co-founder. *Third*, the company in which the CEO holds the position of CEO is not a branch or subsidiary of a company in which he previously held an office. *Fourth*, the company in which the CEO holds an office was not bought by him or bought by another firm owned by him. *Fifth*, the CEO must not be the son or a family member of the founder. If all of the five criteria are satisfied, we then identify the CEO as an outside appointed CEO (*Outsider=1*). Eventually, we further identified 525 outside appointed CEOs.

A.2 Measuring the Optimal Level of Cash Holdings

In a world with a perfect market, there is no problem in determining the optimal level of cash holdings because firms could always access risk free borrowing whenever they required corporate liquidity. However, if the markets are imperfect and risk free borrowing is not always available in the markets, then holding cash becomes valuable to many firms.

Empirically, an optimal level of cash holdings exists when cash exactly meets the needs of

corporate activities. To find this level, we follow Dittmar and Mahrt (2007) and Opler, Pinkowitz, Stulz and Williamson (1999) to construct the optimal level of cash holdings. The basic model we used to estimate the optimal level of cash holdings is exactly the same as equation (1) but without the CEO reputation measurements. There are two reasons for us to exclude CEO reputation in the basic model for estimating the optimal level of cash holdings. *First*, CEO reputation is not an operational determinant of needed cash. Firms need to reserve cash for investment opportunities, day-to-day transactions, and precautionary purposes, but it is not likely that firms need cash for different types of CEO. *Second*, to be consistent with Dittmar and Mahrt (2007) as well as Opler, Pinkowitz, Stulz and Williamson (1999), we do not include the effect of CEO reputation in our OLS estimation. In addition, to avoid potential endogeneity problems, we follow Dittmar and Mahrt-Smith (2007) and instrument the measure of investment opportunities and market-to-book ratio (MV/NA) by the 3-years sales growth.

The regression results are presented in Table A.1. The parameter estimates are consistent with Dittmar and Mahrt-Smith (2007). Our instrument performs statistically well, as the coefficient of 3-year Sales Growth is significant. In addition, Davidson-MacKinnon test of exogeneity for the variable MV/NA shows that market-to-book ratio is endogenous.⁴⁷ Column (1) is estimated without the capital expenditure effect, leverage effect, or dividend payout effect due to the potential endogenous relationship with cash (Dittmar and Mahrt-Smith, 2007). Meanwhile, to be consistent with Opler, Pinkowitz, Stulz, and Williamson (1999), we also

⁴⁷ The p-value of Davidson-MacKinnon test of exogeneity is 1.2e-31, which implies that MV/NA is not exogenous and a proper instrumental variable is needed.

present the regression result with those firm specific effects in column (2). We primary employ the coefficients presented in column (2) to predict the optimal level of cash holdings for our sample firms; however, we also use the coefficients in column (1) as a robustness check.

Table X
Estimating Optimal Level of Corporate Cash Holdings

This table shows the regression results for the level of cash discussed in Appendix 2. The dependent variable is the natural logarithm of cash to net asset ratio, where cash refers to cash plus short-term investment, and net assets is calculated as total assets minus cash. The independent variables include the logarithm of net assets (Log NA); the free cash flow ratio (Free Cash Flow/NA), where free cash flow is calculated as the operating income minus interest minus taxes; working capital ratio (NWC/NA), where net working capital is equal to current assets minus current liabilities minus cash; the standard deviation of the past 10 years free cash flow ratio (Industry Sigma); research and development expenses ratio (RD/NA), with missing RD values set to 0; market to net book asset (MV/NA), where market assets are calculated as (price times shares) plus total liabilities; Leverage, which is calculated as total debt to (total debt and market capitalisation); the capital expenditure ratio (CAPX/NA); and a dividend paying dummy that equals 1 for dividend paying firms and 0 otherwise. Column (1) is estimated as a fixed effect panel with 3-year Sales Growth as an instrument for Market-to-Book Assets (MV/NA). The results for the first stage of the instrumental variable model are in the third column (MV/NA as dependent variable). Column (2) is estimated as the OLS regression with firm fixed effects, year fixed effects and clustered robust standard errors. All the ratio variables are winsorised at the 1st and 99th percentile. * denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Column →	(1)	(2)	(3)	
Dependent: LN(Cash/NA)	First stage of Column (1)			
Log NA	-0.5447*** (-15.05)	-0.4829*** (-14.36)	Log NA	-0.7745*** (-29.77)
Free Cash Flow/NA	3.0057*** (12.45)	2.4654*** (11.15)	Free Cash Flow/NA	4.6667*** (29.10)
NWC/NA	-1.9783*** (-16.34)	-2.1456*** (-17.51)	NWC/NA	-0.9749*** (-6.58)
Industry Sigma	0.1266*** (10.27)	0.1081*** (8.85)	Industry Sigma	0.0091 (0.59)
R&D/NA	4.7306*** (10.84)	4.7049*** (10.89)	R&D/NA	8.8033*** (25.32)
MV/NA	-0.2845 (-7.32)	-0.2899*** (-7.10)	3-years Sales Growth	2.6321*** (20.40)
Leverage		-2.0839*** (-17.01)		
CAPX/NA		-1.7886*** (-6.93)		
Dividend Dummy		0.0838** (2.06)		
Constant	1.6055*** (4.92)	1.7300*** (5.44)		7.3345*** (36.81)
Observations	14,814	14,732		
Number of Firms	1,711	1,710		

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