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Executive Ownership, CEO Over-Confidence and Firm Policies

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ABSTRACT

The executive ownership and the CEO over-confidence can affect the issue of firm policies. The thesis examines the influence of the executive ownership on the firm accounting strategy and the dividend payout policy in China. The thesis also examines the influence of the CEO over-confidence on the cash policy and the cash adjustment speed in the U.S. Firstly, I investigate the relationship between the executive ownership and accounting conservatism in China. The results show that accounting conservatism has a U shape relationship with the executive ownership. It is different from the U.S. studies because of the unique corporate governance features in China. I further find that any deviations from the optimal executive ownership can increase accounting conservatism level in the firms. Secondly, I examine the relationship between the executive ownership and the dividend tunnelling behaviour in China. The results show that the increase of the executive ownership can increase the dividend tunnelling behaviour and help with the move from the traditional tunnelling method toward the more conceived tunnelling method of paying abnormal dividends to the controlling shareholders. Thirdly, I investigate the relationship between the CEO over-confidence and the cash adjustment speed to make the cash reverse to the target cash level. The results show that the over-confident CEOs have the intentions to store more cash. Therefore, they reduce the cash adjustment speed when there is excess cash in the firm.

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Chapter 1: INTRODUCTION

1.1 Background and motivation

The thesis focuses on executive ownership and CEO over-confidence and their relationships with corporate policies including firms' accounting strategy, dividend payout policy and cash strategy. The arrangement of the following chapters is as follows. I first introduce the literature of executive ownership and CEO over-confidence. Second, I summarise the introductions of the three chapters, which are Chapter 2, Chapter 3 and Chapter 4. Chapter 2 discusses the influence of executive ownership on firms' accounting conservatism strategy in the Chinese market. Chapter 3 examines the influence of the executive's ownership on dividend tunnelling behaviour in the Chinese market. Chapter 4 examines the influence of CEO over-confidence on the corporate cash strategy, including cash adjustment speed in the US market.

I introduce the literature about the two aspects related to the top managers, which are executive ownership and CEO over-confidence.

In the following paragraphs, I introduce the literature about executive ownership. There are two theories explaining why executive ownership is important in firms by Morck et al. (1988). They are the incentive alignment theory[1] (effect) and the entrenchment theory[2] (effect). The incentive alignment effect argues that agency problems arise from

[1] Morck et al. (1988) and Shuto and Takada (2010) suggest that incentive alignment theory applies and dominates when managerial ownership is below a certain threshold. It is because the seperation of the ownership and the management of the executives are large when the executives do not have enough shares, which indicates that the executives' interests are not aligned with those of shareholders' (Morck et al., 1988).

[2] About entrenchment theory: Morck et al. (1988) suggest a significant nonlinear cubic relationship between the managerial ownership and the firm value. The reason of the nonlinearity is that the agency cost is raised up when the

the separation of the ownership and the management power of the executives (Lafond and Roychowdhury, 2008; McConnell and Servaes, 1990; Morck et al., 1988; Shuto and Takada, 2010). And therefore, the agency cost can be increased if the separation of the ownership and the management power of the executives is big. The reasons are in the following sentences. Lafond and Roychowdhury (2008) suggest that the limited horizon and limited liability encourage the executives to overstate the current earnings. The executives' payments and bonuses are based on the overstated firm performance, which leads to the agency cost (Shuto and Takada, 2010). When the executive ownership level is lower than a threshold, the increase of executive ownership is regarded as a method to reduce the agency problems because it ensures the interests alignment of the executives and the shareholders (Jensen and Meckling, 1976). It is because Anderson and Reeb (2003) suggest that the managers with higher ownership have longer horizons in their sample of US firms. A longer horizon of the executive position indicates that the overpaid compensations and the bonuses paid to the executives based on the distorted firm performance can be offset by the future decline of the overstated earnings (Lafond and Roychowdhury, 2008). Many papers that support that the agency problems between the executives and the shareholders can be partly resolved by increasing the executives' ownership of the firms as incentives when the executive ownershipo is low (Claessens and Djankov, 1999; Core and Larcker, 2002; Denis et al., 1997; Holderness et al., 1999; Lichtenberg and Pushner, 1994; McConnell and Servaes, 1990, 1995; McConnell et al., 2008; Morck et al., 1988; Shuto and Takada, 2010; Zhou, 2001).

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managerial ownership is higher than a threshold and distorts the original positive relationship between the managerial ownership and the firm value. In order to explain the phenomenon, Morck et al. (1988) introduce the entrenchment effect (theory). McConnell and Servaes (1990), Lichtenberg and Pushner (1994) and McConnell et al. (2008) also point out that there is an inverted U-shape relationship between the performance and managerial ownership, they also use the entrenchment effect to explain why there is turning point in the relationship between firm value and managerial ownership. The entrenchment theory also explains why the firm value can drop when the managerial ownership is above threshold.

However, the relationship between the executive ownership and the agency cost is not conclusive. If executive ownership is higher than a threshold, further increase in executive ownership can increase executives' discretionary power and risk of potential misconduct (Stulz, 1988). The different relationship can be explained by entrenchment theory. Entrenchment theory argues that, compared to managers with low ownership, managers with above-threshold level ownership are less monitored by the board of directors and market discipline and can exhibit more entrenchment behaviour (Lafond and Roychowdhury, 2008; Morck et al., 1988; Shuto and Takada, 2010). Morck et al. (1988) document that entrenchment behaviour of managers can increase the firm's agency cost. Therefore, under the entrenchment effect, if executive ownership is higher than a threshold, the further increase in executive ownership can lead to the increase in the agency cost from executive's entrenchment behaviour. Morck et al. (1988) suggest a significant nonlinear relationship between the managerial ownership and the firm value. The reason of the nonlinearity is that the agency cost is *increased* and in turn reduces the firm value when the managerial ownership is higher than a threshold. McConnell and Servaes (1990), Lichtenberg and Pushner (1994) and McConnell et al. (2008) point out that there is an inverted U-shape relationship between the performance and managerial ownership. Therefore, the different levels of executive ownership can affect the levels of the agency cost in the firm.

Literature does define some threshold, but there is no consensus on the threshold. The thresholds differ across different papers. For example, on paper page 16 of Shuto and Takada (2010), the turning points on the cubic model of managerial ownership are set

around 28.64% (a minimum point) and 56.68% (a maximum point) in the Japanese market. Morck et al. (1988) examine the US market and find that firm value and executive ownership have a cubic relationship as displayed in their Figure 1. The turning points are 5% and 25%. It is obvious that the two papers mentioned above document different turning points. The difference in the turning points is partly ascribed to the distinct feature of the underlying market. In a similar vein, I find that the turning point or the threshold in China is about 29% using a quadratic model.

In the following paragraphs, I introduce literature about CEO over-confidence. Ross (1973), Jensen and Meckling (1976) argue that the agency problems in the corporate governance between the executives and the shareholders can be traced back to the different benefits appeals and the attitudes toward the risks to realise the appeals. CEO over-confidence can lead to the overstatement in the firm's performance (Malmendier and Tate, 2005, 2008). The overstatement in the firm's performance can distort the executives' pay-performance relationship and lead to overpayments to the executives (Lafond and Roychowdhury, 2008; Shuto and Takada, 2010). The executives' over-confidence can affect many aspects of the firm operations. The previous literature shows that the over-confidence of the CEOs can affect the firms' investment strategies (Malmendier and Tate, 2005, 2008), the firms' financial reports accuracy (Schrand and Zechman, 2012) and the firms' accounting strategy (Ahmed and Duellman, 2013).

Libby and Rennekamp (2012) suggest that over-confidence has two key aspects which are over-optimism and miscalibration. The CEOs' over-confidence refers to the CEOs' unreasonable optimism for the uncertainty (Ahmed and Duellman, 2013; Malmendier

and Tate, 2005, 2008). The over-optimism reflects two features of the over-optimistic CEOs. Firstly, the over-optimistic CEOs have the perceptions that they have better than average abilities. Secondly, they have "illusion of control". This feeling indicates that the over-optimistic CEOs believe in their great controlling ability for the uncertainty which can lead to their under-preparation when there are uncontrolled events (Larwood and Whittaker, 1977). Therefore, the over-optimistic CEOs recognise that the firms under their control are better than other firms. Meanwhile, the over-optimistic CEOs believe the market may underestimate the firms' value and profitability (Malmendier and Tate, 2005).

The miscalibration means the CEOs are likely to underestimate the degree of risk and uncertainty of an event. This feature is reflected in the investment process. The over-confident CEOs can underestimate the risk and make aggressive decisions (Englmaier, 2010; Heaton, 2002). In other words, the over-confident executives are more likely than the rational executives to take more risky actions. Therefore, the over-confident CEOs are more likely to conduct value-destroying mergers and acquisitions.

This paragraph is used to explain that the definition of a normal (rational) executive is opposite to the definition of an over-confident executive. Normal (rational) CEOs here means not over-confident CEOs. In my Chapter 4, I use two different measures to examine the impact of CEO over-confidence on firms' cash level and the cash adjustment speed in my main analysis. The first measure is based on the options exercise timing of CEOs, and the second measure is based on the overinvestment

behaviour conducted by CEOs. The details are in the methodology of Chapter 4.

To find the influences of executive ownership and CEO over-confidence on the firms' policies, I divided my thesis into three chapters. I examine the relationship between executive ownership and accounting conservative strategy in Chapter 2. I examine the relationship between executive ownership and dividend tunnelling in Chapter 3. I examine the relationship between CEO over-confidence and firm cash strategy in Chapter 4.

Chapter 2 examines the relationship between executive ownership and accounting conservatism. Basu (1997) points out that accounting conservatism affects the accounting practice for a long time. Sterling (1970) suggests that conservative accounting is the most influential accounting principle to evaluate the firms. Bliss (1924) points out that accounting conservatism is defined as the activity which anticipates no profit but all losses. Basu (1997) makes further interpretations that conservative accounting requires a higher standard of verification to recognise good news as gains than to recognise bad news as losses. Watts (2003) suggests that the main implication of accounting conservatism from the different verifications is the persistent understatement of the net asset value. The incentive alignment theory argues that the agency cost is from the overstatement of the firms' performance because of the separation of the managers' management and ownership in the firm (Morck et al., 1988). The firm managers may receive a large number of bonuses via the overstated future cash flows that can increase the agency costs (Shuto and Takada, 2010). In addition, Ball (2001) argues that accounting conservatism can monitor the firms' investment decisions,

because the *feature called* asymmetric verifiability of accounting conservatism can help the shareholders to investigate the manager's behaviour of investing in the negative NPV (net present value) projects with positive earnings. Therefore, accounting conservatism can help to constrain the manager's intentions to overstate the firm's performances and monitor the self-benefit behaviour of the managers (Ball, 2001; Ball and Shivakumar, 2005; Givoly et al., 2007; Watts, 2003). Shuto and Takada (2010) argue that accounting conservatism is a useful tool to address the agency problems between the managers and the shareholders.

As I mentioned above, the relationship between the agency costs and the executive ownership can vary when there are different levels of executive ownership. The shareholders' demand for accounting conservatism can also vary when there is a change of the executive ownership level. On the one hand, when the executive ownership is lower than the threshold executive ownership level, the executive ownership may be not sufficient for the executives to conduct the self-interested behaviour because they can be easily affected by monitoring from the board of directors and the discipline of the market. At this stage, the agency cost is generated from the separation of the executive management and the executive ownership[3]. Watts (2003) suggests that conservative accounting can help to constrain the executives' intention to overstate the asset value because the managers' compensation is tied to the change of firm value. The conservative accounting involves stricter accounting standards which can make the contracting procedures between the managers and shareholders effective (Lafond and Roychowdhury, 2008). In other words, accounting conservatism can help reduce the conflicts between the executives and the other shareholders. Therefore, when the level

[3] The detailed reasonings are in the introduction of Chapter 2.

of the executive ownership is below the threshold level, the increase in the executive ownership can enhance the alignment between the executives and the shareholders, which reduces the agency costs. Thus, when the executive ownership is below the threshold level, the shareholders' demand for the monitoring of accounting conservatism reduces when the executive ownership increases.

On the other hand, if the executive ownership is higher than the threshold level of the executive ownership, the agency costs can increase because of the management entrenchment effect (Morck et al., 1988). Morck et al. (1988) and Fan and Wong (2002) argue that when the executive ownership is above the threshold, the managers are less subject to monitoring by the board of directors and the discipline of the market (Lafond and Roychowdhury, 2008; Morck et al., 1988; Shuto and Takada, 2010). The executives can conduct behaviour which is only beneficial to themselves. Shuto and Takada (2010) suggest that accounting conservatism can reduce the agency cost. Therefore, when the executive ownership is above the threshold level, the agency costs from the management entrenchment effect can increase the shareholders' demand for accounting conservatism.

This paragraph explains my motivation to conduct the Chinese market study about the relationship between accounting conservatism and executive ownership in Chapter 2. In China, the relationship between accounting conservatism and the executive ownership may be different from that in the developed countries because of the weak corporate governance mechanism, the weak investor protection mechanism and the weak legal systems. Several papers show the evidence of the weak corporate governance

mechanism in the Chinese-listed firms (Bai et al., 2004; Braendle et al., 2005; Chen et al., 2006; Chen et al., 2011; Fan et al., 2007). The weak governance in Chinese-listed firms endangers the firms and increases the agency cost (Braendle et al., 2005; Fan et al., 2007). Chen et al. (2011) argue that the management entrenchment is more severe in China than in the developed countries. Therefore, the shareholders' demand for accounting conservatism is greater in order to balance the large management entrenchment effects when the executive ownership is above the threshold. This fact may lead to the different relationship between the shareholders' demand for accounting conservatism and the executive ownership in China. In addition, Kuo et al. (2014) conjecture that the investor protection is often very weak compared to the developed markets. The less developed legal systems in China also make the corporate governance and the investor protection even worse (Firth et al., 2007b). As a result, the features of the Chinese market are my motivations to do this study. I need to find out how different the relationship between accounting conservatism and executive ownership can be from developed countries.

Chapter 3 investigates the influence of executive ownership on the dividend tunnelling behaviour in China. The previous research by Johnson et al. (2000) introduced the word 'tunnelling' to describe controlling shareholders' behaviour in moving company resources for their own benefits. The traditional tunnelling includes the outright theft, the loan guarantees and the deviation from the market prices when selling assets or products. Such tunnelling methods soon attract the attention of scholars and become a heated research area.

Firms in emerging countries usually have concentrated ownership structures, less independent boards, inactive external takeover markets and low-quality disclosure (Braendle et al., 2005; Chen et al., 2006; Fan et al., 2007; Firth et al., 2007b; Gao and Kling, 2008; Lin, 2004; Liu and Lu, 2007; Lv et al., 2012; Tenev et al., 2002; Xu and Wang, 1999). Therefore, the corporate governance mechanism is weak. The tunnelling is negatively related to effective corporate governance mechanisms (Johnson et al., 2000). As a result, emerging markets are assumed to have a more serious problem of the tunnelling than developed countries. In addition, Lv et al. (2012) suggest that China has over-concentrated ownership structure, and therefore breaks the balance of ownership structure which increases the risk of controlling shareholders' expropriation on minority shareholders. Therefore, I follow their ideas and state that China has weak corporate governance mechanism, particularly the over-concentrated ownership structure. And this can lead to potential tunnelling activities. Therefore, it is necessary to study tunnelling behaviour in China.

Previous studies in China ignore the influence of executives on tunnelling behaviour and focus on the controlling shareholders (Chen et al., 2009; Gao and Kling, 2008; Jiang et al., 2005; Li, 2010; Liu and Lu, 2007). The word "tunnelling" is initially used to describe the top managers' fraudulent transfer of the previous firms' property to their own businesses (e.g. Skoda tunnelling problem in the Czech Republic). Tunnelling differs from outright theft because people who engage in tunnelling generally comply with all of the relevant legal procedures (Johnson et al., 2000). Tunnelling behaviour is not possible without the support of the managers. This is because that the managers have superior access to the private information, the corporate decision-making process,

and are eventually responsible for the corporate outcomes (Zhang et al., 2014). If there is any behaviour of controlling shareholders to tunnel the resources, they need the assistance from executives. The implicit assumption is that the managers may collude with the controlling shareholders in the tunnelling behaviour.

This paragraph explains my motivation to study the relationship between dividend tunnelling and executive ownership. I provide two aspects of my motivation. The first is that executives and controlling shareholders in Chinese-listed firms may collude in tunnelling. The second is that dividend tunnelling has been found in China, but previous literature does not reveal the link between executive ownership and dividend tunnelling. The explanation for the first aspect of my motivation is discussed in the following sentences. Public-listed firms in the Chinese market have weak corporate governance with a dominant controlling shareholder in each firm (Jiang et al., 2010; Zhang et al., 2014). The controlling shareholders can nominate the board members (Cullinan et al., 2012) and determine the executives' remuneration, appointments and dismissals (Conyon and He, 2011; Firth et al., 2006a). Furthermore, the minority shareholders have little access to the decision-making process (Firth et al., 2016). The executives need only to align their interests with the controlling shareholders. In addition, Zhang et al. (2014) suggest that the controlling shareholders cannot conduct dividend tunnelling without the help of the executives because the executives have superior access to the private information, the corporate decision-making process, etc. Therefore, the executives and the controlling shareholders may have collusions in their tunnelling activities (Wang and Xiao, 2011; Zhang et al., 2014). The explanation for the second aspect of my motivation is discussed in the following sentences. Lv et al. (2012) point

out that the controlling shareholders in the Chinese public listed firms issue dividends as the tunnelling method, and the dividend payout is higher when the controlling shareholders hold more shares. Hu and Kumar (2004) indicate that the executives have the intentions to hold more shares because it helps them to gain more power and secure their position. Therefore, the executives can help the controlling shareholders in the process of concentrating the shares to the insiders. As a result, my motivation to study the influence of the executive ownership on dividend tunnelling is to reveal the fact that the executives play important roles in the tunnelling process and colluding with the controlling shareholders.

Chapter 4 discusses the relationship between the CEO over-confidence and the firm's cash adjustment strategy to the target cash level. Jensen (1986) argues that apart from the precautionary motivations[4] of holding more cash, there are the agency-based explanations for holding more cash. Many other papers also hold the same view (Dittmar and Mahrt-Smith, 2007; Dittmar et al., 2003; Harford et al., 2008; Pinkowitz et al., 2006). They argue that the excess cash (the cash is derived from the models using the precautionary motivations for holding more cash as the determinants) can make the agency problems worse by offering the managers with a large pool of accumulated cash. Therefore, the shareholders do not want too large cash reserves in the firms. However, the executives want to keep their discretion or conduct self-benefit behaviours. Harford et al. (2008) show that the not well-governed firms spend and in turn reserve more cash than the better-governed firms because the better-governed firms can manage the cash more efficiently. Bertrand and Mullainathan (2003) suggest that the CEOs' desire can

[4] The precautionary motivations are discussed in Chapter 3 literature. These motivations to hold more cash include the consideration of the transaction costs aspects, the taxes associated with payouts aspects and the managers' desire aspects to wait for the investment projects which can enhance their power through cash.

lead to a relatively high reserve of the cash as they have the preference for holding more cash.

Jiang and Lie (2016) argue that there are two views for the firms to hold cash. Firstly, under the trade-off theory, the managers need to compare and balance the costs and the benefits of holding more cash. Therefore, the trade-off theory indicates that there should be an optimal value of the cash level which can be pursued in the firm. Secondly, Jiang and Lie (2016) also suggest that there is an alternative to the trade-off theory, which argues that holding more cash is secondary to the other firm's targets. These targets contain the equity raising when the equity is overpriced and the transaction cost minimisation by using the cash as the source of the new investment projects rather than the external financing. Jiang and Lie (2016) argue that the two views of the cash holdings are not mutually exclusive. Therefore, they suggest that the firms can make an optimal deviation from the target cash ratio, and the speed of the cash adjustment depends on the relative priority of the two views of the cash holdings.

This paragraph explains my motivation to carry out the study about the relationship between CEO over-confidence and cash adjustment speed. My research in Chapter 4 is the first to examine the influence of the CEO over-confidence on the cash adjustment speed and extends the cash adjustment literature into the behavioural finance area. My motivation to conduct the study is that over-confident CEOs have different perceptions of the market environment and their own ability to improve firm performance compared to rational CEOs. Therefore, the cash strategies used by the over-confident CEOs should be different. For example, the over-confident CEOs are over-confident about their

management and have the perception that the firms are undervalued by the market (Malmendier and Tate, 2005, 2008; Malmendier et al., 2011). Therefore, the over-confident CEOs are more likely to reserve cash for future investment opportunities (Huang-Meier et al., 2015). And over-confident CEOs may avoid external financing due to the high overpriced cost of external financing perceived by the over-confident CEOs (Malmendier and Tate, 2005). This is still because over-confident CEOs often overestimate the performance of the firm under their control and perceive that external financing suppliers can under-value their firms and incur a relatively higher cost to what over-confident CEOs accept. Meanwhile, too much cash reserve can raise the concern of the shareholders because the inefficient investments reduce the shareholders' wealth. However, the over-confident CEOs prefer cash rather than other financing resources (Heaton, 2002; Malmendier and Tate, 2008). Therefore, I suggest that the over-confident CEOs may reduce the cash adjustment speed to the target cash level when there is excess cash in the firms, which can improve their discretion to make investments in risky projects.

I make several contributions in each chapter. My thesis examines the influence of the executive ownership and the CEO over-confidence on firm policy issues including accounting strategy, dividend payout policy and cash strategy. I am the first to examine executive ownership and CEO over-confidence together in one thesis and provide a comprehensive picture of how the executives can affect the accounting strategy, dividend payout policy and the cash strategy. In Chapter 2, I am the first to find the U-shape relationship between the executive ownership and accounting conservatism in China. The second contribution is that I am the first to find that executive ownership

deviation can increase accounting conservatism regardless of the deviation directions and further support the U-shape relationship. Thirdly, I find that accounting conservatism can also reverse to the target level with the reverse of the executive ownership to the target level. Fourthly, I am the first to find the evidence that the analyst coverage can reduce the sensitivity between the executive ownership and accounting conservatism and provide the evidence that the external monitoring can cover the shortage of accounting conservatism.

In Chapter 3, I am the first to fill the gap between the relationship of dividend tunnelling and the influence of the executive ownership concentration. Second, I extend the literature by researching the influences of both the internal factors (ownership concentration degree, the account of other receivables, government ownership) and the external factors (analyst coverage) on the sensitivity between the dividend payouts and the executive ownership. Third, I am the first to use the abnormal dividend payouts to investigate the relationship between the dividend payout and the executive ownership, which further points out that dividend tunnelling is a concealed tunnelling method.

In Chapter 4, I make contributions to the literature by showing that the cash adjustment speed may be decelerated by CEO over-confidence. Secondly, over-confident CEOs are more likely to reduce firms' cash adjustment speed when there is excess cash, while CEO over-confidence does not show a significant effect on firms' cash adjustment speed when the cash is insufficient. Furthermore, cash is reserved for future dissipation under the influence of the over-confident CEOs rather than just cash accumulation. In addition, I make a further contribution by showing that over-confident CEOs dissipate

cash through investments rather than dividend payouts or debt retirements.

1.2 Structure and scope of the thesis

The first chapter of the thesis is the introduction. Chapter 2 discusses the relationship between firms' accounting conservatism and the executive ownership concentration. In Chapter 3, I investigate the relationship between dividend tunnelling and the influence of the executive ownership concentration. In Chapter 4, I provide the evidence that the over-confident CEOs have intentions to make cash *reserve*s for future investment and reduce the cash adjustment to the target level to keep the excess cash. Chapter 5 is the conclusion of the previous three chapters.

Chapter 2 investigates the relationship between firms' conservatism and the executive ownership in China using the data from CSMAR for the sample period 2005-2015. I find that the conservatism has a U-shaped relationship with the executive ownership. I further examine the relationship between accounting conservatism and the deviation (the target executive ownership minus the actual executive ownership from the previous period) of the executive ownership. The results indicate that the executive ownership deviation has a positive relationship with accounting conservatism but with different sensitivities below and above the threshold. The executive ownership can reverse to the target level. These results support that accounting conservatism can reverse to its target level when executive ownership reverses to the target level. Furthermore, I find that the influence of the analyst coverage can reduce the sensitivity between accounting conservatism and the executive ownership because it is an effective external monitoring

mechanism.

Chapter 3 examines the relationship between executive ownership and the dividend payouts in Chinese-listed firms. I use the sample from all the Chinese-listed firms between 2005 and 2015. I find that the dividend payout can be a method for tunnelling because of the weak corporate governance environment in China. I find that the increase in executive ownership can lead to an increase in the abnormal dividend payout ratio as an alternative form of tunnelling. The results also show that the tunnelling through the related party transactions can be replaced by dividend tunnelling. The government ownership concentration can increase dividend tunnelling behaviour. The analysts' monitoring can reduce the sensitivity between abnormal dividend payouts and executive ownership. The results imply that Chinese firms need to introduce a more balanced ownership structure to improve the corporate governance or strengthen the external monitoring to regulate any potential tunnelling behaviour.

Chapter 4 investigates the influence of the CEOs' over-confidence on the firms' cash holding level and the cash level adjustment speed. I use the data from COMPUSTAT and EXECUCOMP to form the research sample with US firms excluding all financial firms. The sample period is 1993 to 2014. The results show that the over-confident CEOs can positively affect firms' cash *reserve* levels. I extend the literature by showing that the cash adjustment speed to the target level is lower in the firms controlled by the over-confident CEOs when the firms have excess cash. The further results show that over-confident CEOs are likely to use the reserved cash to finance the future investments but not dividend payouts and the debt retirement. The investments include

R&D, the acquisitions and the capital expenditures. However, over-confident CEOs can encourage firms to hold more cash indirectly when the cash is insufficient, but the influence of the over-confidence itself is not significant.

Chapter 5 is the conclusion of the whole thesis. I discuss the main findings, the implications, the limitations and the future study possibilities in Chapter 5.

Chapter 2 FIRM CONSERVATISM AND THE TARGET EXECUTIVE OWNERSHIP

2.1 Introduction

Basu (1997) points out that the influence of accounting conservatism on accounting practice has covered over 500 years. Sterling (1970) suggests that conservative accounting is the most influential accounting principle of firm valuation. Accounting conservatism is traditionally defined by the adage "anticipating no profit but all losses" (Bliss, 1924). Basu (1997) further interprets that conservative accounting requires a higher standard of verification to recognise good news as gains than to recognise losses due to bad news. The main implication of accounting conservatism from differential verification is the persistent understatement of the net asset value (Watts, 2003). Accounting conservatism can help to facilitate the efficient contracting between the managers and shareholders by downward adjusting the overstatement firm performances (Ball, 2001; Ball and Shivakumar, 2005; Givoly et al., 2007; Watts, 2003).

I conjecture that the relationship between executive ownership and shareholders' demand for accounting conservatism can vary when the executive ownership level increases. On the one hand, when the managerial ownership of a firm is low, the executive ownership may not be sufficient for the executives to conduct self-interested behaviour. Low executive ownership also makes the executives less powerful compared to the monitoring given by the board of directors and the market discipline (Morck et al.,

1988; Stulz, 1988). Morck et al. (1988) also indicate that the incentive alignment effect dominates when the executive ownership is low. The incentive alignment theory argues that the agency cost exists because of the separation of executive management and executive ownership, and thus the increase in the executive ownership can align the executives' interests with the shareholders. The reason is that the limited horizon and limited liability of the tenure encourage the executives to overstate the current earnings (Lafond and Roychowdhury, 2008). The executives can increase their payments by providing biased performance via the overstatement of the expected cash flow, which leads to a higher level of the agency costs (Shuto and Takada, 2010). Anderson and Reeb (2003) suggest that the managers with higher ownership are likely to have longer horizons. A longer horizon of the executive position indicates that the current benefits transferred to the executives can be offset by the future decline of the overstated earnings. In other words, the managers are tied to the firms by increasing their ownership. Therefore, when executive ownership is lower than a threshold, a lower (higher) level of the executive ownership indicates a larger (smaller) potential overstatement of the financial reports, which can increase (decrease) the agency cost from the separation of the executives' management and cash flow rights.

Watts (2003) suggests that conservative accounting can constrain the executives' intention to overstate the asset value because the executives' compensation is linked to the changes of firm values. The conservative accounting employs stricter accounting standards which may reduce inefficient contracting between the managers and shareholders (Lafond and Roychowdhury, 2008). LaFond and Watts (2008) suggest that conservatism accounting is an efficient method for reducing the risk of asymmetric

information and mitigating the agency problems and in turn can benefit the shareholders of the firms. Shuto and Takada (2010) follow the arguments of Watts (2003) that accounting conservatism is useful for reducing the likelihood that a manager can overstate net asset value and cumulative earnings in order to distribute the net assets of the firms to themselves instead of exerting efforts to take positive net present value projects. The argument also suggested that firm managers with less or no accounting conservatism may be able to receive large bonuses through providing a biased upward estimate of future cash flows. The behaviour creates deadweight losses and reduces firm value. Therefore, Shuto and Takada (2010) argue that conservative accounting is helpful for firms to monitor investment decisions and can reduce the risk of executives' misbehaviour. As a consequence, accounting conservatism is negatively related to the executive ownership when the executive ownership is below the threshold.

On the other hand, Morck et al. (1988) and Fan and Wong (2002) argue that when the managerial ownership is above the threshold, the managers are less subject to monitoring from the board of directors and the market discipline (Morck et al., 1988; Stulz, 1988). Their arguments support the management entrenchment theory. Morck et al. (1988) indicate that the executives with ownership percentages higher than a threshold level are more likely to conduct opportunistic behaviour for their own benefits, such as through earnings management activities[5]. When the executive ownership is above the threshold, the increase in the executive ownership enhances the management entrenchment and increases the agency costs. Shareholders' demand for conservatism can be higher because conservative accounting can be used to monitor executives and

[5] The earnings management is an opportunistic behaviour of the managers to benefit themselves.
Chung, R, Firth, M, Kim, J-B. Institutional monitoring and opportunistic earnings management. Journal of Corporate Finance 2002;8;29-48.

reduce agency costs from management entrenchment effects (Shuto and Takada, 2010). Ball (2001) argues that accounting conservatism is expected to monitor firms' investment policies. Shuto and Takada (2010) suggest that managers have incentives to delay the termination of negative net present value projects if the managers want to obtain private benefits through entrenchment behaviour. Accounting conservatism can recognise bad news in earnings in a timelier manner, which is useful to identify negative net present value projects (Watts, 2003). The timely recognition of potential management entrenchment provides shareholders with a signal to investigate the existence of negative net present value projects. As a result, inefficient investment by managers, which can lead to deadweight losses, can be reduced through conservative accounting. Therefore, accounting conservatism is necessary for the firms to reduce the agency costs from the management entrenchment. As a consequence, the shareholders' demand for accounting conservatism is positively related to executive ownership when the executive ownership is above the threshold.

To my best knowledge, the literature pays little attention to the relationship between executive ownership and accounting conservatism except for the two papers, Lafond and Roychowdhury (2008) and Shuto and Takada (2010). Lafond and Roychowdhury (2008) use U.S. market data while Shuto and Takada (2010) use Japanese market data. The literature and data of the previous two papers of Lafond and Roychowdhury (2008) and Shuto and Takada (2010) are related to my study for the Chinese market for the following reasons: First, to the best of my knowledge, these are the only two papers that discuss the relationship between managerial ownership and accounting conservative. I refer to them to provide a general idea of accounting conservatism and how it reacts

with the change of managerial ownership, even though the two studies are in developed countries whose market contexts may not be similar to the context of China. However, the contribution of my study is to find whether the different market environment in China may lead to a different relationship between accounting conservatism and executive ownership. Second, Shuto and Takada (2010) make their Japanese study based on the findings and methods of the U.S. market study by Lafond and Roychowdhury (2008). Therefore, I have cited these two papers and compared their findings with the relationship between managerial ownership and accounting conservatism China. China is the largest developing market in the world, and thus it is very important to study the relationship between managerial ownership and accounting conservatism in China. It is also important to find out how the relationship is different from those found in developed countries. Third, I have followed the definition and measure of managerial ownership and accounting conservatism of these two papers for my Chinese study. Finally, I follow these two papers to exclude financial firms.

Lafond and Roychowdhury (2008) show that executive ownership is linearly and negatively related to accounting conservatism because of the incentive alignment effect. Shuto and Takada (2010) find that accounting conservatism first decreases then increases when there is intermediate managerial ownership and finally decreases as the managerial ownership increases. They use management entrenchment theory to explain the short period of the positive relationship between the managerial ownership and accounting conservatism. The general trend of the relationship between the managerial ownership and accounting conservatism is still negative. However, the results of Lafond and Roychowdhury (2008) and Shuto and Takada (2010) may not be applicable to the

public-listed firms in the Chinese market.

The relationship between the shareholders' demand for accounting conservatism and executive ownership in the developing countries may be different from the results of the developed countries. The executives of the Chinese-listed firms with larger than threshold shareholdings can conduct more serious self-benefit behaviour than those in the developed countries because of the weak corporate governance mechanism, the weak investor protection mechanism and the weak legal systems (Jiang et al., 2010; Kuo et al., 2014). Furthermore, a Japanese study of Shuto and Takada (2010) show that CEOs' entrenched behaviour and related agency costs can be reduced when CEO ownership is over the second turning point (56.68%) of CEO ownership because CEOs then become the large block holders. However, Wang and Xiao (2009) document that 70% of Chinese-listed firms are ultimately controlled by the government. Then, executives can hardly become the block holders. Therefore, there are more agency costs in the Chinese-listed firms than in the developed countries, and thus the shareholders' demand for accounting conservatism to monitor the executives is higher in the developing countries.

As a consequence, the pattern of relationship between executive ownership and accounting conservatism may be different in developing countries, especially in China. Firstly, there are several studies that provide evidence of the weak corporate governance mechanism in the Chinese-listed firms (Bai et al., 2004; Braendle et al., 2005; Chen et al., 2006; Chen et al., 2011; Fan et al., 2007). The weak governance in Chinese-listed firms endangers the firms' value and increases the agency cost (Braendle et al., 2005;

Fan et al., 2007). Therefore, it is necessary to introduce conservative accounting to monitor the executives regardless of the executive ownership level. Stulz (1988) and Morck et al. (1988) indicate that the executives with larger than the threshold level of ownership can be less monitored by the board of directors and the market discipline. Chen et al. (2011) argue that management entrenchment is more severe in China than in the developed markets. Therefore, in China, the shareholders' demand for accounting conservatism is larger than that in the developed countries in order to balance the large management entrenchment effects when the executive ownership is above the threshold. This fact may lead to the different relationship between the shareholders' demand for accounting conservatism and executive ownership in China.

Secondly, Kuo et al. (2014) speculate that the investor protection and the legal systems in China are very weak compared to the developed markets. The minority shareholders have almost no private channels to take actions against the misconduct of the insiders (Jiang et al., 2010). Allen et al. (2005) and MacNeil (2002) indicate that the courts in China have traditions to protect the interests of state-owned enterprises. They also speculate that the courts in China have limited experience in minority protections when the minority shareholders reclaim their rights in the conflicts between the controlling shareholders and the minority shareholders. Jiang et al. (2010) also suggest that the regulations to protect the minority shareholders are limited, not only because of the lack of laws but also because of the weak enforcement mechanism of complying with the laws. Allen et al. (2005) point out that the development levels of the law and the institutions in the Chinese market are not as advanced as those in the most countries from the literature of La Porta et al. (1997) and Porta et al. (1998). The Chinese market

is less developed compared to other countries such as the US and Western European countries. Allen et al. (2005) make a list of the under-developed aspects in China compared to developed countries, including weaker investor protection systems, worse corporate governance mechanisms, lower accounting standards and lower quality government policies. The less developed legal systems in China also make corporate governance mechanisms and investor protection even worse (Firth et al., 2007b). As a result, the features of the Chinese market are my motivations to conduct this study to find out how different from the developed countries the relationship between accounting conservatism and the executive ownership can be.

In the Chinese context, when the executive ownership is higher than the threshold, the shareholders' demands for accounting conservatism are larger than those in the developed countries to provide efficient monitoring on the executives. I contribute to the literature to be the first to find the U-shaped relationship between executive ownership and shareholders' demand for accounting conservatism in China.

Previous studies only focus on the relationship between the firms' value and managerial ownership deviation (McConnell et al., 2008; Tong, 2008). In this chapter, I contribute to the literature by being the first to examine the executive ownership deviation relationship with accounting conservatism in the context of the developing markets. I test the relationship between executive ownership deviation (the absolute value of the target level of the executive ownership minus the actual level of the executive ownership) and accounting conservatism and find a positive relationship between them. The results indicate that the more distance from the target executive ownership level,

the more shareholders' demand for accounting conservatism is needed in the firms to monitor the executives' behaviour. It is consistent with the U-shape relationship between accounting conservatism and the executive ownership. Firstly, when the executive ownership is below the threshold level, the lower level of executive ownership means the larger separation of the executive management and their ownership and the larger absolute distance from the target executive level, which indicates the larger agency costs. Therefore, the shareholders' demand for accounting conservatism is larger. Secondly, when the executive ownership is above the threshold level, the higher level of the executive ownership means the more management entrenchment and the larger absolute distance from the target executive ownership level, which indicates larger agency costs. Therefore, the shareholders' demand for accounting conservatism is also larger.

Furthermore, the reason to examine the relationship between the executive ownership deviation and accounting conservatism is that the firm's target executive ownership is determined by each firm's features of different years and industries. In this chapter, I test that whether the executive ownership can reverse to the target level in the Chinese market. According to the regression results in Table 2.5 and 2.6, shareholders' demand for accounting conservatism is positively related to the absolute value of executive ownership deviation (distance between actual and target executive ownership). Following Jiang and Lie (2016), I obtain target executive ownership. My results show that executive ownership can reverse to its target value, which indicates that executive ownership deviation may decrease over time. Since shareholders' demand for accounting conservatism is positively related to executive ownership deviation, I

conjecture that shareholders' demand for accounting conservatism can decrease along with the decrease of executive ownership deviation. When executive ownership reaches its target, shareholders' demand for accounting conservatism would reach its expected minimum value. Therefore, when executive ownership is at the target value, the shareholders' demand for accounting conservatism should be at the expected target value. However, Lafond and Roychowdhury (2008) and Shuto and Takada (2010) only focus on the general pattern of managerial ownership and accounting conservatism among all the observations, regardless of the different firm features in different fiscal years.

The analyst coverage may play a role of the external monitoring power to the firms. Degeorge et al. (2013) suggest that analyst coverage can enhance the good corporate governance in the markets. Since corporate governance mechanisms and the minorities' protections are weak in China, it is necessary to introduce external monitoring to improve corporate governance. The Chinese market is defined as having weak corporate governance with a dominant controlling shareholder (Jiang et al., 2010; Zhang et al., 2014). The controlling shareholders can nominate the board members (Cullinan et al., 2012) and determine the executives' remuneration, appointments and dismissals (Conyon and He, 2011; Firth et al., 2006a). Furthermore, the minorities have little access to the decision-making process in China (Firth et al., 2016). Jensen and Meckling (1976) suggest that the monitoring effects given by the financial analysts can reduce the agency costs caused by the separation of management and cash flow rights. Yu (2008) argues that analyst coverage enhancement can reduce the earnings management. Dyck et al. (2010) document that the analysts' monitoring is an efficient way to detect the

fraud behaviours in firms. Doukas et al. (2005) and Jung et al. (2012) argue that the analysts can monitor the firms effectively and reduce the agency cost. When the executive ownership is higher than the threshold, the discretion*ary* power of the executives is higher. The shareholders' demand for accounting conservatism is higher to monitor the executives (Morck et al., 1988; Shuto and Takada, 2010). Crutchley et al. (1999) argue that managerial entrenchment can increase the agency cost. The weak governance in Chinese-listed firms endangers the firms and increases the agency cost (Braendle et al., 2005; Fan et al., 2007). The relationship between the executive ownership deviation and the shareholders' demand for accounting conservatism can also be reduced by the analysts' monitoring because analyst coverage is the substitute for accounting conservatism. And thus, the analyst coverage has a negative influence on the sensitivity of the executive ownership deviation and accounting conservatism. Therefore, the external monitor power can be more important in China due to the weak corporate governance, the weak minority shareholder protections and the weak legal systems. I contribute to the literature to examine the influence of the analyst coverage on the sensitivity of executive ownership and accounting conservatism.

I use the account of the allowance for the uncollectibles as the measure of accounting conservatism because it is directly related to accounting conservatism central implication.[6] Penman and Zhang (2002) and Watts (2003) conclude that the central implication of accounting conservatism is the understatement of the net asset values. Jackson and Liu (2010) have introduced the account of the allowance for the uncollectibles, which can understate the net asset values, as the measure of a firm's

[6] The allowance for the uncollectible account is a contra current asset account associated with the accounts receivable mentioned in the footnote of Jackson, SB, Liu, X. The Allowance for Uncollectible Accounts, Conservatism, and Earnings Management. Journal of Accounting Research 2010;48;565-601.

conservatism. The higher amount of the allowance indicates the lower current asset and the lower total asset in the balance sheet. In addition, I use the unconditional accounting conservatism measure to examine the relationship between executive ownership deviation and accounting conservatism and provide evidence that the expected accounting conservatism can be reached by maintaining the target executive ownership level.

I obtained the data for Chinese-listed firms from the CSMAR database during the years 2005 and 2015. In this study, I examine the relationship between the executive ownership and accounting conservatism. I find that accounting conservatism first decreases then increases when the executive ownership increases, which indicates the U-shape relationship. Next, I obtain the target value of executive ownership to calculate the deviation of executive ownership from the target value. After generating the deviations, I find a positive relationship between the executive ownership deviation and the change of the executive ownership, which indicates the executive ownership can reverse to the target level. The model of the ownership reversing mechanism is derived from the paper of Jiang and Lie (2016).

I then examine the influence of the executive ownership deviation on accounting conservatism. The results show that the executive ownership deviation has a significantly positive relationship with accounting conservatism, which can support the U-shape relationship between executive ownership and accounting conservatism. Furthermore, since the executive ownership can reverse to the target level, the deviation of the executive ownership can be reduced. The shareholders' demand for accounting

conservatism can also reverse to the target level. I find that the sensitivity of accounting conservatism and the executive ownership deviation is different when the executive ownership is below or above the target executive ownership level. It is because the weak corporate governance environment in China distorts the original downward relationship into an upward relationship when executive ownership is higher than the target level.

In addition, I examine the influence of the analyst coverage on the sensitivity between the executive ownership deviation and accounting conservatism. The analyst monitoring is suggested by several papers to reduce the agency cost (Dyck et al., 2010; Jensen and Meckling, 1976; Yu, 2008). The results in this chapter indicate that the sensitivity of the shareholders' demand for accounting conservatism and the executive ownership deviation is reduced. Therefore, the analyst coverage is a substitute for accounting conservatism when the executive ownership is lower than the target level. When the executive ownership is higher than the target level, the analyst coverage can monitor the management entrenchment to reduce the agency cost.

I make several contributions to the literature. This is the first paper to find the U-shaped relationship between executive ownership and accounting conservatism in the context of the developing markets. The second contribution is that I first examine the influence of the executive ownership deviation on accounting conservatism and find that the executive ownership deviation can increase accounting conservatism regardless of the deviation directions. Thirdly, I find that executive ownership can reverse to the target value in the Chinese market. It means that the deviation (defined as the distance

between executive ownership and the target value) has a trend to be smaller than the previous year. I also find that the need for accounting conservatism is positively related to the deviation of executive ownership. Therefore, if the executive ownership deviation is smaller, the shareholders' demand for accounting conservatism is smaller. When the executive ownership deviation is zero, which means that the executive ownership is at the target level, the need for accounting conservatism is at its target value. Fourthly, I am the first to examine the influence of the analyst coverage on executive ownership and accounting conservatism sensitivity. I find evidence that the analyst coverage can reduce the sensitivity between the executive ownership and accounting conservatism.

The rest of the chapter is divided into four sections. Section 2.2 discusses the literature and hypotheses. Section 2.3 introduces the methodology used and describes the data. Section 2.4 reports the empirical results of the regressions. Finally, Section 2.5 is the conclusion.

2.2 Literature and Hypotheses

2.2.1 Conservatism

Conservatism can be established in different ways, as long as it indicates the understatement of the net asset value (Watts, 2003). It is further confirmed by Ball and Shivakumar (2005) and Givoly et al. (2007). Basu (1997) uses the coefficients of the asymmetric timeliness in firms' reporting of the earnings news to examine accounting conservatism. Givoly and Hayn (2000) make a combination of the measures (asymmetric timeliness coefficients and the accruals) of accounting conservatism to

examine firms' conservatism strategies. Roychowdhury and Watts (2007) find that combining timeliness with the book-to-market ratio enables them to assess firms' conservatism and earnings management. Beaver and Ryan (2000) focus on the book-to-market ratio to predict the book return on equity in order to reveal the relationship between the conservatism and the earnings management. Ahmed et al. (2002) use the book-to-market ratio and the accruals method to test the degree of conservatism among the mitigating bondholders. Ball and Shivakumar (2005) use only the accruals to investigate firms' conservatism. Dechow et al. (1999) use the residual income model to assess the short-term earnings management and accounting conservatism. Therefore, conservatism can be established in many ways. I use the account of the allowance for the uncollectables to measure accounting conservatism because Jackson and Liu (2010) point out two advantages of using this measure. The first reason is its direct relationship to the core implications of conservatism-understatement of asset value because the more allowance for uncollectable account means more understatement of asset value (Watts, 2003). The second reason is that the account of the allowance for the uncollectables has been used to examine managers' discretionary behaviour in previous studies. The model used by McNichols and Wilson (1988) study shows that firms need to manage earnings when earnings are extreme and that firms can decrease bad debt expenses in their income statements. Marquardt and Wiedman (2004) provide evidence that firms have the potential to manipulate account receivables in response to equity changes to maintain the appearance of a healthy financial statement. Jackson and Liu (2010) suggest that conservatism measured by the allowance for the uncollectables may reveal problems, such as earnings management in accounting conservatism.

The accounting conservatism I discussed here is demanded by the shareholders of firms. Apart from reducing firm value due to managers' overstatement of financial position, Ball (2001) and Watts (2003) suggest that accounting conservatism also helps to establish the rules if there are more than one financial reporting alternatives, which allows the reporting to be fair and objective. Accounting conservatism demanded by shareholders can overestimate the "allowance for doubtful accounts", which can provide the shareholders with a more accurate picture of firm receivables under protection (Jackson and Liu, 2010).

I apply this accounting conservatism measure in my study to test whether there is a target level of accounting conservatism of the firms by regressing on the absolute value of the deviations of the executive ownership level. My study makes the first attempt to assess accounting conservatism in the context of developing markets using the account of the allowance for the uncollectibles. Furthermore, the demand for accounting conservatism is originated from that shareholders need to constrain the managers' behaviour of overestimation of future cash flow, which can cause deadweight losses and reduce the firm value (shareholder wealth) (Shuto and Takada, 2010). According to the arguments of Shuto and Takada (2010) and Ball (2001), shareholders approve and implement the monitoring function of conservative accounting strategy in the firms to constrain the managers' overestimation of future cash flow, which can cause deadweight losses. Therefore, I follow the previous literature to say that shareholders drive the demand for accounting conservatism. And since the deadweight loss caused by managers' overestimation of future cash flow can reduce firm value, the firm

shareholders are willing to implement conservative accounting strategy in firms.

2.2.2 The executive ownership and the firm contracting agency cost

The executive ownership is an important mechanism in the corporate governance to deal with the agency cost. The studies provide evidence that the conflicts between managers and shareholders can be partly resolved by increasing the managers' shareholdings as incentives (Claessens and Djankov, 1999; Core and Larcker, 2002; Denis et al., 1997; Holderness et al., 1999; Lichtenberg and Pushner, 1994; McConnell and Servaes, 1990, 1995; McConnell et al., 2008; Shuto and Takada, 2010; Zhou, 2001). It is because of the incentive alignment theory (Jensen and Meckling, 1976; Morck et al., 1988). The following paragraph provides explanations of incentive alignment theory.

The incentive alignment theory argues that agency cost exists because of the separation of executive management power and executive ownership, and thus the increase in executive ownership can align executives' interests with those of shareholders. The reason is that the limited horizon and limited liability of tenure encourage executives to overstate current earnings (Lafond and Roychowdhury, 2008). Executives can increase their payments by providing biased performance via the overstatement of expected cash flow, which leads to a higher level of agency costs (Shuto and Takada, 2010). Anderson and Reeb (2003) suggest that managers with higher ownership are likely to have longer horizons. A longer horizon of executive position indicates that current benefits transferred to executives can be offset by the future decline of overstated earnings. In other words, managers are tied to firms by increasing their ownership. Therefore, a

lower (higher) level of executive ownership indicates a larger (smaller) potential overstatement of financial reports, which can increase (decrease) agency cost from the separation of executives' management and cash flow rights. Therefore, conflicts between managers and shareholders can be partly resolved by increasing managers' shareholdings as incentives.

However, the agency cost cannot be reduced by increasing the managers' shareholdings in all situations. Morck et al. (1988) suggest a significant non-linear relationship between the managerial ownership and firm value. Morck et al. (1988) introduce the entrenchment theory which argues that the managerial ownership above the threshold level can lead to managers' entrenchment. When the managerial ownership is larger than the threshold, the managers have more discretionary power in the daily operation and become entrenched. Compared to the managers with low ownership, the managers with the above-threshold ownership level are less subjected to monitoring from the board of directors and the market discipline due to their increased entrenchment powers from the increase in ownership. McConnell and Servaes (1990), Lichtenberg and Pushner (1994) and McConnell et al. (2008) also point out that the entrenchment behaviour of the managers with ownership larger than the threshold can reduce the benefit of the increase in the managerial ownership to reduce the separation of the management and ownership.

Managerial ownership does have effects on the agency cost of the firm. The previous papers show that the incentive alignment theory[7] and entrenchment theory[8] may be

[7] By increasing the managerial ownership, the separation of the managers' management and ownership is reduced, which also reduces the agency cost. The arguments are consistent with the incentive alignment theory.

applicable at different managerial ownership levels (Chen and Steiner, 1999; Lafond and Roychowdhury, 2008; Shuto and Takada, 2010). However, the managerial ownership is relatively stable or changes a little through the years (Zhou, 2001). If the change of the executive ownership is small through the years, the mechanism that the increase in executive ownership can reduce the agency cost from the separation of the executives' management and ownership is not obvious. On the one hand, the change of the executive ownership can change the ownership structure and affect the wealth allocation pattern. On the other hand, conservative accounting is applied more through the years (Watts, 2003). Therefore, conservative accounting is treated as a method to help control the agency cost (Ball, 2001; Lafond and Roychowdhury, 2008; Watts, 2003). The conservative accounting strategy is relatively easily conducted compared to the change of the executive ownership because accounting conservatism does not change the ownership structure and cannot affect the wealth allocation pattern to the shareholders. Therefore, I am motivated to examine the relationship between the firm's shareholders' demand for conservative accounting and managerial ownership.

2.2.3 Hypotheses on the conservatism and the executive ownership

Zhou (2001) finds that managerial ownership is very low compared to other kinds of ownership using the sample from COMPUSTAT in the US market. The increase of the managerial ownership is treated as a method of encouraging managers to work more

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Jensen, MC, Meckling, WH. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics 1976;3;305-360, Morck, R, Shleifer, A, Vishny, RW. Management ownership and market valuation: An empirical analysis. Ibid.1988;20;293-315.

[8] The entrenchment theory dominants when the managerial ownership is larger because the larger managerial shareholdings provide more power to the managers and make them less subject to the forced replacement under the monitoring by the board of directors and the market discipline.
Stulz, R. Managerial control of voting rights: Financing policies and the market for corporate control. Journal of Financial Economics 1988;20;25-54.

efficiently and reduce the agency cost from the separation of the management and the ownership under the incentive alignment theory (Lafond and Roychowdhury, 2008; McConnell and Servaes, 1990; Morck et al., 1988; Shuto and Takada, 2010). Jensen and Meckling (1976), Demsetz (1983), Berle and Means (1991) and Shuto and Takada (2010) suggest that the lower executive ownership can cause more agency problems between managers and other shareholders when the executive ownership is below the threshold. It is because the limited horizon and limited liability can encourage the executives to overstate the firm's value through overstating the expectation of cash flow (Lafond and Roychowdhury, 2008). They also argue that if the managerial ownership increases, the benefits that the managers can obtain from the overstatement can be offset by the future decline of the firm's value. This is because the managers with more ownership are likely to have longer horizons (Anderson and Reeb, 2003). Therefore, the increase of the managerial ownership reduces the managers' overstatement incentives, and the agency cost when the executive ownership is below the threshold (29% (6.199/(2*10.590)) in my thesis according to Table 2.3 Model 1).

Watts (2003) and Shuto and Takada (2010) suggest that without conservative accounting, the executives can increase their salaries and bonuses through biased performance-based pays. The biased performance is because of the executives' overstatement of the expectation of cash flow. The executives are diverted from their primary target to maximise the shareholders' wealth. Watts (2003) suggests that the conservative accounting can help to constrain the executives' intention to overstate the net asset value. It is because conservative accounting indicates the stricter accounting standards in the reports and lowers the potential overstatement of the earnings by the managers. The

managers' incentives and payments are tied to the book value and firm performance. The use of the conservative accounting rules can effectively penalise the managers who create the agency cost when the managers tend to overstate the earnings as their ownership is low. In conclusion, when the level of executive ownership is below the threshold level, the increase in the executive ownership can enhance the alignment between the executives and the shareholders, and thus the shareholders' demand for accounting conservatism reduces.

If the executive ownership is higher than the threshold (29% (6.199/(2*10.590)) in my thesis according to Table 2.3 Model 1), the executives may conduct self-interested behaviour. The higher-than-threshold managerial shareholdings can provide more discretionary power to the managers and make them less subject to the monitoring by the board of directors and the market discipline when they plan to conduct self-interested behaviour (Morck et al., 1988; Stulz, 1988). Morck et al. (1988) indicate that the executives with larger than threshold shareholdings are likely to conduct opportunistic behaviour to benefit themselves, such as earnings management[9]. The shareholders' demand for conservatism can be higher because the conservative accounting can be used to monitor the executives and reduce the agency costs from the management entrenchment effects (Shuto and Takada, 2010). Therefore, the shareholders' demand for a conservative accounting is positively related to the executive ownership when the executive ownership is above the threshold.

Furthermore, the Chinese market, like other developing markets, has distinctive features

[9] The earnings management is an opportunistic behaviour of the managers to benefit themselves.
Chung, R, Firth, M, Kim, J-B. Institutional monitoring and opportunistic earnings management. Journal of Corporate Finance 2002;8;29-48.

compared to developed markets. Management entrenchment is more severe in China, as suggested by Chen et al. (2011), because the law and regulation development is behind economic growth. When the Chinese government and firms start to emulate the Anglo-American models of the economic development, Tam (2002) concludes that the Chinese market does not have the relevant financial infrastructure[10] to work effectively. The relatively low level of legal systems in China endangers the corporate governance mechanism (Firth et al., 2007b). Allen et al. (2005) conclude that the Chinese market has weaker investor protection systems, worse corporate governance mechanism, lower accounting standards and lower quality government policies compared to developed countries, which can increase the agency cost to firms. As a result, the agency cost from management entrenchment can also be increased. Consequently, the cubic model of the Japanese market of Shuto and Takada (2010) and the linear model of the U.S. market of Lafond and Roychowdhury (2008) may not be suitable for the Chinese context. Therefore, shareholders' demands for accounting conservatism mentioned above can be larger than that demanded in developed markets because it can balance the large management entrenchment effects to reduce agency costs when executive ownership is above the threshold.

Therefore, I conjecture that accounting conservatism has a U-shaped relationship with executive ownership in the Chinese market and thus conjecture the following hypothesis:

Hypothesis 1: *There is a U-shaped relationship between the degree of firm*

[10] The Chinese market has severe corruption, the manipulation of the stock market, the cheating in the tax, the abuse of the state assets and the lack of minority protections.

conservatism and executive ownership.

On the one hand, when the executive ownership is lower than the threshold, to increase the firm's value, the incentive alignment theory (Jensen and Meckling, 1976) suggests that the agency costs should be lower. Lafond and Roychowdhury (2008) and Shuto and Takada (2010) suggest that higher accounting conservatism can reduce the agency cost from the low executive shareholdings. In order to reach the optimal firm value, the firms need to reduce the agency costs by increasing the executive shareholdings, which can also lower the shareholders' demand for conservatism (Lafond and Roychowdhury, 2008). It indicates the deviation from target executive ownership level increases the conservatism. On the other hand, when the executive ownership is higher than the target level, the executives serve their own interests, because they possess more discretionary power from their larger than threshold shareholdings (Morck et al., 1988). Shuto and Takada (2010) suggest that if the executives with larger than threshold shareholdings increase their ownership, more accounting conservatism is needed to monitor the self-interested behaviour of the executives. Therefore, the deviation above the target level of executive ownership can also incur a demand for higher accounting conservatism. I then make the following hypothesis:

Hypothesis 2: *The executive ownership deviation degree is positively related to the degree of conservatism.*

When the executive ownership is below the target level, the increase in executive ownership can reduce the agency cost caused by separation of ownership and

management (Shuto and Takada, 2010). Therefore, the executives are encouraged by shareholders to increase their shareholdings. The reason is explained by incentive alignment theory. The incentive alignment theory argues that the agency cost exists because of the separation of executive management and executive ownership, and thus the increase in the executive ownership can align the executives' interests with the shareholders. The reason is that the limited horizon and limited liability of the tenure motivate the executives to overstate the current earnings (Lafond and Roychowdhury, 2008). The executives can increase their payments by providing biased performance and the overstatement of the expected cash flow (Shuto and Takada, 2010). Anderson and Reeb (2003) suggest that the managers with higher ownership are likely to have longer horizons. In other words, the managers are tied to the firms by increasing their ownership.

When the executive ownership is above the target level, the executives may be pushed by the pressure from government shareholders and controlling shareholders to reduce executive ownership. I provide explanations why managers can be pushed to dilute their shares when they have too many shares. First, when executive ownership is above the target level, the further increase in executive ownership can increase executives' entrenched behaviour and reduce firm value as suggested by entrenchment theory of Morck et al. (1988). Therefore, shareholders do not prefer that executives hold too many shares and then reduce firm value too much because of large agency costs. Second, Sun et al. (2002) indicate that firms in China should keep a fraction of government shares to show the links between government support and the firm business. It is important to maintain good relations with the government in China because the Chinese-listed firms

need the relationship with government to obtain special resources. Meanwhile, most listed firms in China are carve-outs from large state-owned enterprises or separate from them initially (Jiang et al., 2010). After the separation, the state-owned shares still occupy a large part of all outstanding shares. Jiang et al. (2010) point out that the Chinese government has declared that the remaining state-owned shares can only be traded under strict restrictions. Yuan et al. (2008) find that the average shareholdings by the government in listed firms are very high. As a consequence, the level of ownership concentration is very high, and many firms are still state-controlled. Yuan et al. (2008) suggest that the controlling shareholders and the state-owned shareholders can be the same most of the time. Furthermore, Firth et al. (2006a) and Conyon and He (2011) point out that the controlling shareholder in China can decide executives' remuneration, appointments and dismissals. Therefore, executives can be pushed by the controlling shareholders or the government shareholders to reduce their shareholdings to a certain level if they have too many shares in Chinese-listed firms.

Therefore, executives with too few shares are encouraged to increase their voting power to eliminate agency problems while executives are forced to dilute their high ownership to keep social links to other firm supporters like banks, government and research institutions. I suggest, therefore, that executive ownership can reverse to the target level.

Hypothesis 3: *The executive ownership can reverse to the target level.*

2.2.4 The influence of the analyst coverage on the executive ownership and conservatism sensitivity

Degeorge et al. (2013) suggest that the analyst coverage can help the firms to build up the good corporate governance. Previous studies provide evidence for that. Jensen and Meckling (1976) suggest that the analysts' activities are able to reduce the agency cost caused by separation of management and cash flow rights to some extent. Yu (2008) argues that the earnings management opportunities can be reduced by the increase in the analyst coverage density. Dyck et al. (2010) document that analysts can monitor the fraud behaviour of companies quickly. The analysts are trained to analyse the accounting reports of firms to monitor the firms' operations. If the analysts cannot produce a good quality monitoring report which can reflect the target firms' information and financial position accurately, the analysts' reputation and interests can be damaged (Degeorge et al., 2013).

I conjecture that the analyst coverage can affect the executive ownership and accounting conservatism sensitivity because it is an external monitoring mechanism to reduce the agency cost linked to the executive ownership and accounting conservatism. Doukas et al. (2005) and Jung et al. (2012) argue that the analysts can facilitate monitoring on the firms effectively to reduce the agency cost. On the one hand, when the executive ownership is lower than the threshold, accounting conservatism can reduce the agency cost caused by separation of the management and cash flow rights in executive ownership (Lafond and Roychowdhury, 2008). The relationship between the deviation of executive ownership and accounting conservatism can be weakened because the analyst monitoring can reduce the agency cost and lower the shareholders' demand for

accounting conservatism to regulate the executive behaviour. Therefore, the analyst coverage can be the substitute of the increase in the executive ownership. On the other hand, when the executive ownership is larger than the threshold, the firms take more conservative accounting strategies to monitor the management entrenchment effects (Morck et al., 1988; Shuto and Takada, 2010). Crutchley et al. (1999) argue that managerial entrenchment can increase the agency cost. As the analyst monitoring can reduce agency costs, the relationship between the executive ownership deviation and accounting conservatism can also be weakened by analysts monitoring because the agency costs have already been reduced by the analyst coverage monitoring. Therefore, I have the following hypothesis:

Hypothesis 4: *The analyst coverage is the substitute of accounting conservatism and can reduce the sensitivity of the relationship between accounting conservatism and the executive ownership deviation.*

2.3 Data and *Methodology*

2.3.1 Methodology and model specification

The first regression is used to test whether there is a U-shape relationship between the accounting conservatism and the executive ownership. The regression model is shown below. Equation (2.1) uses the model similar to the regression model given in McConnell and Servaes (1990)'s study.

$$CON_{it} = \alpha_0 + \alpha_1 EXEOWN_{it} + \alpha_2 EXEOWN_{it}^2 + (CONTROL_{it}) + \varepsilon_{it} \quad (2.1)$$

CON_{it} is the conservatism measure which is the allowance for uncollectible account divided by the firm's revenue. $EXEOWN_{it}$ is the fraction of executives' ownership. $EXEOWN_{it}^2$ is the squared term of the executive ownership. If the curves have the assumed U-shape, the sign of α_1 should be negative while the sign of α_2 should be positive. The control variables are denoted as the $CONTROL_{it}$. It contains the firm's capital structure measure which is the leverage ratio ($LEVERAGE_{it}$) of the firm in the current year. $LNAT_{it}$ is the firm's asset size measure in the natural logarithm. MTB_{it} is the market-to-book ratio of the firm in the current year. The three control variables are mainly used in accounting conservatism related papers to control for the firms' fundamental features (Lafond and Roychowdhury, 2008; Shuto and Takada, 2010).

K_AS_{it} is the fixed asset divided by the total asset. Tong (2008) uses the fixed asset as the control variable to test the relationship between the managerial ownership and the firm's value and finds the coefficient of the fixed asset is positively related to the firm's value. The main implication of accounting conservatism is to understate the asset value (Watts, 2003). Therefore, the coefficient in this chapter should be negatively related to the dependent variable. $SALE\_GROWTH_{it}$ is the revenue growth ratio in the current year. Ahmed et al. (2002) and Tong (2008) use the sales growth ratio as the control variable to control for the firm growth capability. The results of Tong (2008) show that the sales growth is positively related to the firm's value. I conjecture that the sales growth is negatively related to accounting conservatism using the same reasoning. In

addition, accounting conservatism measured by the allowance for the uncollectible account reduces the available funds used to make further investment to increase the sales growth. This is because the cash is reserved for the allowance and cannot be used for investments. SD_LNSALE_{it} is the volatility of the revenue to measure the operating risk (García Lara et al., 2016; Tong, 2008). The greater sales volatility means the more risks in the revenue. García Lara et al. (2016) suggest that the income volatility is high when the investments of the firms are not prudent. García Lara et al. (2016) also suggest that accounting conservatism can reduce the firm risk-taking level, which indicates the that the firm may invest in more prudent ways and reduces the income volatility. Therefore, if the risk level is high, the shareholders' demand for accounting conservatism is high. $LNTIME_{it}$ is the measure of the listing age from paper of Hu and Zhou (2008). Watts (2003) suggests that the firm takes more accounting conservatism if the firm has longer existing time. Therefore, the coefficient of $LNTIME_{it}$ should be positive.

$HERF3_{it}$ is the large shareholding concentration degree which is the Herfindahl index (Wang et al., 2004). Demsetz and Villalonga (2001) show that the greater concentration of share ownership can raise the firm's performance. However, the conservatism is the understatement of asset value (Watts, 2003), and thus my results show that the ownership concentration index (Herfindahl 3) is negatively related to accounting conservatism. $CFOCOVER_{it}$ is the cash generated from the operating activity divided by the operating revenue. It measures the ability of a company to generate cash from its sales. I include this control variable because the cash level is important in the firms for the daily operations. The lack of liquidity reduces the opportunity to make further

investment and reduce the ability to resist the adverse conditions (Gao et al., 2013). Since accounting conservatism can understate cash flow of the firms, I suppose that the sign of the coefficient is negative.

When I design the models, I also include the industry and the year-fixed effect in the regressions. By adding the year-fixed effect, the influences of the market environment features like the annual financial positions and policies changes can be examined. The industry-fixed effect examines the different industry features. Therefore, I can reduce the omitted variables' effects of the regression models. The normal regressions use the robust standard error. I also take consideration of the firm clustered standard error robust into the regression to test the consistency of the regression results. I follow Gao et al. (2013) and Jiang and Lie (2016) to use the heteroskedasticity-consistent standard errors to account for the possible correlation within a firm cluster.

I then need to determine the model for obtaining the target level of the executive ownership by industry year grouped regressions. Appendix 2.2 shows the regressions for obtaining the target value of executive ownership. Following Jiang and Lie (2016), Himmelberg et al. (1999) and Tong (2008). Appendix 2.2 shows the regressions of obtaining the target value of executive ownership. The main variables are the same as those used in the papers of Himmelberg et al. (1999) and Tong (2008). Following Jiang and Lie (2016), I use the pooled regression results in the appendix instead of the industry-year grouped regressions to show the determinants of the target executive ownership. In addition to those control variables employed by Himmelberg et al. (1999) and Tong (2008), I also incorporate more variables to control for the impact of firm

characteristics.

The additional variables include *CASH_LIABILITY*, *LABOR*, *LNEQ*, *TO* and *ROA*. *CASH_LIABILITY* is the ratio of cash and cash equivalents to the current liability which measures the current capability of the firms to use cash to pay back all the liabilities (Ertuğrul and Karakaşoğlu, 2009). The variables from Himmelberg et al. (1999) and Tong (2008) do not consider the liquidity aspect of the firm. Therefore, I include the liquidity-related variable - *CASH_LIABILITY* to increase the accuracy of the target executive ownership according to different firm features. Following Hu and Zhou (2008), I include *LABOR* which is the measure of the employee size of the firms. Hu and Zhou (2008) suggest that the number of the employee is not only the alternative measure of the firm's size but also a significant factor in determining the firm's productivity. Therefore, I include this variable to cover the productivity aspect of the firm's features. *LNEQ* is the natural logarithm of the shareholders' equity. It is an alternative to the firm's size. I use it to improve the accuracy of the prediction for the target executive ownership because this measure removes the influence of the liability on the firm's size and is directly related to the capital amount. *TO* is the turnover ratio of sales divided by the accounts receivable. The high turnover ratio indicates that the firms can collect its receivables more quickly (Ertuğrul and Karakaşoğlu, 2009). Jackson and Liu (2010) use the turnover ratio as the control variable to test the firm's accounting conservatism. Therefore, I include this variable to cover the turnover aspects of the firm features. *ROA* is the performance measure. I use it to examine the influence of the firm's performance on the target executive ownership.

This methodology is applicable to the Chinese market because the variables regarded in the previous papers as the determinants of executive ownership are mainly from the balance sheet, income statement and cash flow statement. These variables are accessible in China. In particular, I have included more control variables in the model for Chinese-listed firms. Furthermore, I can more easily compare my empirical results about Chinese-listed firms with those from U.S. studies by using similar variables.

The executive ownership deviation is defined as the target value of executive ownership minus the actual lagged executive ownership. I use *DEF* to represent the deviation in managerial ownership. Therefore, I have the following equations:

$$DEF_{it} = TARGET_{it} - EXEOWN_{it-1} \tag{2.2}$$

$$DEXEOWN_{it} = \beta_0 + \beta_1 DEF_{it} + (CONTROL_{it}) + \varepsilon_{it} \tag{2.3}$$

Following Jiang and Lie (2016) and Byoun (2008), the regression model Equation (2.3) is employed to capture the capital structure adjustment speed. *DEXEOWN* is the current executive ownership minus the lagged executive ownership. *DEF* is the target executive ownership minus the lagged executive ownership. The positive sign of the coefficient on *DEF* (β_1) indicates that the actual executive ownership can reverse to the target executive ownership. The coefficient of *DEF* (β_1) is the adjustment speed at a given level of the deviation. The industry and the year-fixed effects are also included in Equation (2.3). The firm clustered standard error is also used in the regression estimation.

To examine the relationship between the executive ownership deviation and accounting conservatism, I use Equations (2.4.1) and (2.4.2) derived from the paper of Tong (2008). The regression model is as follows.

$$CON_{it} = \alpha_0 + \alpha_1 ABSDEF_{it} + (CONTROL_{it}) + \varepsilon_{it} \quad (2.4.1)$$

$$CON_{it} = \alpha_0 + \alpha_1 ABSDEF_{it} + \alpha_2 ABSDEF_{it} \times ABOVEDUMMY_{it} + \alpha_3 ABOVEDUMMY_{it} + (CONTROL_{it}) + \varepsilon_{it} \quad (2.4.2)$$

The *CON* is the same as I mentioned before, and is measured as the allowance for the uncollectible account divided by the sales. The *ABSDEF* is the absolute value of the deviation of the executive ownership following Tong (2008). By using the absolute value of the deviation, I can examine the degree of the executive ownership deviation regardless of the direction of the executive ownership deviations. However, I use a dummy variable *ABOVEDUMMY* to include the influences of the executive ownership on accounting conservatism both below and above the target executive ownership level. The above target dummy equals one if the actual previous executive ownership is higher than the target level, otherwise zero. The interaction of the absolute value of the deviation and the above target dummy is used to examine whether the executive ownership deviations above the target level also increase accounting conservatism. The control variables are the same as I discussed in Equation (2.1). The influences of the industry and the year fixed effects are included in the regressions. I test the regression standard errors not only using the basic robust but also test the regression standard

errors using the firm clustering robust (Jiang and Lie, 2016).

This paragraph further explains why the relationship between accounting conservatism and executive ownership has a U shape in my study. I use Function 2.4.1 and 2.4.2 to further prove that the relationship between executive ownership and accounting conservatism can only be U shape in China by introducing the deviation of executive ownership. According to Shuto and Takada (2010), the relationship between managerial ownership and accounting conservatism is a cubic regression function in Japan. If the Chinese market listed firms have the cubic pattern similar to that in Japan rather than a U-shaped pattern, the results of the two functions can be insignificant. It is because the distance to the target value cannot be determined in a cubic function since there are two turning points in the cubic function. The distance to the target level can only be determined in a U-shaped function as there is only one turning point. My results in Table 2.5 and Table 2.6 show that the shareholders' demands for accounting conservatism are positively related to the absolute value of executive ownership deviation. This indicates that the more distance from the target value, the more shareholders' demands for accounting conservatism, which can support that the U-shaped relationship holds in China.

To examine the influence of the analyst coverage on the executive ownership deviation and accounting conservatism sensitivity, I introduce the following regression models (2.5.1) and (2.5.2).

$$CON_{it} = \alpha_0 + \alpha_1 ABSDEF_{it} + \alpha_2 ANALYST_{it} + \alpha_3 ABSDEF_{it} \times ANALYST_{it} + (CONTROL_{it}) + \varepsilon_{it} \quad (2.5.1)$$

$$CON_{it} = \alpha_0 + \alpha_1 ABSDEF_{it} + \alpha_2 ANALYST_{it} + \alpha_3 ABSDEF_{it} \times ANALYST_{it} + \alpha_4 ABSDEF_{it} \times ABOVEDUMMY_{it} + \alpha_5 ABSDEF_{it} \times ABOVEDUMMY_{it} \times ANALYST_{it} + \alpha_6 ABOVEDUMMY_{it} + (CONTROL_{it}) + \varepsilon_{it} \quad (2.5.2)$$

The analyst coverage (*ANALYST*) contains three aspects, the number of analysts, number of brokers and the number of reports. I use the dummy variable *AD*, *BD* and *RD* to represent the heavy monitoring from the analysts. *AD* equals to one if the analyst coverage is greater than the industry-year mean, otherwise zero. *BD* equals one if the broker coverage is greater than the industry-year mean, otherwise zero. *RD* equals one if the report coverage is greater than the industry-year mean, otherwise zero. The other variables are the same as the variables mentioned before. The industry and the year fixed effects and the firm clustered standard errors are included.

In econometrics, an endogeneity problem occurs when an explanatory variable is correlated with the error term (Jeffrey, 2013). Endogeneity can arise as a result of measurement error, autoregression with autocorrelated errors, simultaneous causality, omitted selection, and omitted variables (Antonakis et al., 2010). However, the endogeneity problem can be reduced but very difficult to be eliminated (McCarthy et al., 2017). I have tried my best to deal with the potential endogeneity problems. First, I use many control variables following relevant literature to reduce the problem from omitted variables. Second, I use the panel data year-and-industry-fixed effect to check

robustness between the OLS model and the fixed effect model. Rossi (2013) suggests that by controlling for all time and industry differences, the unobservable effects can be considered, and fixed effects models greatly reduce the threat of omitted variable bias. The Hausman test results are in Appendix 2.3, which indicate that I need to use industry and year-fixed effect. Third, to solve the potential distribution bias of executive ownership, I use the bootstrap regression. The bootstrap regression allows the estimation of the sampling distribution of almost any statistic using random sampling methods and forms a normally distributed resampled data (Efron and Tibshirani, 1994; Varian, 2005). Since executive ownership data is skewed and biased, using bootstrap regression can resample the variables and correct the skewed distribution of executive ownership. The results of bootstrap regression results are consistent with main results. I include this robustness check and provide the results in Table 2.12 of my thesis. The details of why I use bootstrap regression are discussed in Section 2.4.7. Fourth, following McCarthy et al. (2017), Arslan-Ayaydin et al. (2014) and Duchin et al. (2010), I apply a regression in which the dependent variable is measured at time t while the independent variables, as well as the control variables, are measured at time t-1 to reduce simultaneity related endogeneity. The details are provided in Section 2.4.7, and the results are reported in Table 2.13. Using these four methods to deal with the potential endogeneity and bias problems, I find the results are still consistent with my original regressions, and thus my results are robust across different models.

I provide the reasons to explain that executive ownership is a meaningful magnitude for large listed firms. In addition, I also explain why I use executive ownership as the measure of managerial ownership in my thesis. First, Shuto and Takada (2010) use CEO

ownership in their study about the Japanese listed firms. I do not use CEO ownership because CEO ownership only takes consideration of one top manager rather than the management team. Therefore, CEO ownership is even smaller in percentage and can be more skewed in data distribution as suggested by Core and Larcker (2002), which cannot reflect enough influence of the management team on firm operations in Chinese large listed companies. Executive ownership reflects the sum of the shareholding percentage of top three managers, which is a better measure than just CEO ownership. I have referred to Wang and Judge (2012) and found that executive ownership is used in China to investigate its influence on the listed firms' performances. They find that executive ownership can significantly affect firm performance even though it is much smaller compared to other shareholding types. Following the study of Wang and Judge (2012), we also use executive ownership to investigate the Chinese-listed firms. In addition, many papers such as Morck et al. (1988), McConnell and Servaes (1990), Lafond and Roychowdhury (2008), Shuto and Takada (2010) and Florackis et al. (2015) use similar ownership like board ownership, insider ownership, CEO ownership and executive ownership as the measure of managerial ownership in their studies of large listed companies across the world. Even though these types of ownership are small in shareholding percentages and skewed in distribution, these papers point out that managerial ownership can affect firm policies and performances directly and significantly. For example, Morck et al. (1988) and McConnell and Servaes (1990) develop and further confirm the incentive alignment theory and entrenchment theory to explain the significant non-monotonic relationship between firm value and board ownership in US-listed firms. Their managerial ownership data is also small in shareholding percentage, but their papers are widely cited by other researchers to

continue the relevant research. Lafond and Roychowdhury (2008) find that shareholders' demand for accounting conservatism has a significant negative relationship with executive ownership in US-listed firms while executive ownership is relatively smaller compared to other types of shareholdings. Shuto and Takada (2010) find that Japanese shareholders' demand for accounting conservatism has a significant cubic pattern of relationship with CEO ownership when executive ownership still has small size and skewed distribution. Florackis et al. (2015) find out that dividend payments and managerial ownership have a significant non-monotonic relationship when managerial ownership is small and skewed. Therefore, executive ownership still has a meaningful magnitude when investigating the listed firms across the world.

Second, in my thesis, *EXEOWN* is used to measure the executive ownership in my thesis. The managerial ownership discussed by Morck et al. (1988) and McConnell and Servaes (1990) is measured by the board ownership. The board of directors contains the executive directors and non-executive directors. The non-executive members are expected to engage in the executives' decision-making process because they are designed as the internal monitoring mechanisms to regulate the executives (Mura, 2007). Morck et al. (1988) show that there is a positive relationship between the board ownership and the firm value when the board ownership is above 25% (second turning point of a cubic relationship). The reason for this phenomenon is that the monitoring mechanism from the non-executive members is internally built into the structure of the board of directors. Therefore, the self-interested behaviour can be reduced when the board ownership is above 25%. Therefore, I only use the executive ownership to eliminate the potential influence of the monitoring of the non-executive directors.

Third, Core and Larcker (2002) suggest that even though managerial ownership is important in studies, it still suffers from its skewed distributions in data. In order to eliminate the influence of bias from the measure of executive ownership, I add a new regression which is the bootstrap regression. The bootstrap regression allows the estimation of the sampling distribution of almost any statistic using random sampling methods (Varian, 2005). The bootstrap regression can improve the estimation accuracy regardless of original sample data distributions. I use STATA to run the regression, and the results are consistent with main results. I add this robustness check and provide the results in Table 2.12 of my thesis.

2.3.2 Data & sample

All the variables are obtained from the Chinese Stock Market Accounting Research (CSMAR) database. Similar to the previous studies, my sample includes all the firms listed on both the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) but removes all the financial firms from the sample (Firth et al., 2006a, b, 2007a; Takao Kato and Cheryl Long, 2006). My sample period is from 2005 to 2015. The reason for me to start the sample from the year 2005 is that the split share reform took place in that year (Firth et al., 2010; Hou et al., 2012; Kuo et al., 2014). Prior to the split share reform, the non-tradable shares were in the hands of the insiders including the managers, the directors and the controlling shareholders. The non-tradable shareholders' wealth was unrelated to the stock price movement before the reform which can lead to the lack of incentives to provide the good quality of the information disclosure (Liu and

Tian, 2012). Therefore, I can ensure a good quality of the sample data by excluding the influence of a large amount of the non-tradable shares before the split share reform in 2005. In Table 2.1-Panel A, the total number of firm-year observations is 16,133 for all the variables. In Table 2.1-Panel B, the distribution of the executive ownership is displayed. The sample period covers both the pre- and post- the financial crisis in 2008.

[Insert Table 2.1 here]

I take the year-end accounting record from CSMAR. In Table 2.1, I report all the variables used in this study. Panel A includes those variables used to test the U-shape relationship between the firms' accounting conservatism and the executive ownership. In Panel A, *CON* is the measure of accounting conservatism, which is the allowance for uncollectible account divided by the revenue. The mean is 1.509 while the standard deviation is 8.915.

EXEOWN is used to measure the executive ownership. The detailed distribution of the executive ownership is shown in Panel B. Almost half of the non-zero executive ownership is located in the range from zero to 1%. The data show that few executive ownerships are greater than 50%. The *EXEOWN,* which denotes the executive ownership, is the main variable I need to examine. The analyst coverage is transferred into the heavy analyst coverage for the firms. The *AD*, *BD* and *RD* equal to one if the number of analysts, brokers and reports is greater than the industry-year mean.

LEVERAGE is the firm's leverage ratio, which is obtained by dividing the long-term

debt by the replacement value. The mean is 0.419 while the standard deviation is 0.240. *CFOCOVER* is the cash generated from operating activity divided by operating revenue. The cash flow consideration becomes increasingly important in China because in 2012 and 2013 the domestic market suffered a severe shortage of liquidity, which caused a widespread economic downturn. The mean of *CFOCOVER* is -0.845 while the standard deviation is 11.459. *K_AS* is the value of plant, property and equipment to the firms' total assets. *LNAT* is the firm's size measure calculated as the log of total book asset. *LNTIME* is the natural logarithm of the listing time of companies up to the latest reading. Watts (2003) concludes that the firms' accounting can become increasingly conservative over time. Therefore, the listing age should be positively related to accounting conservatism. *SALE_GROWTH* is the sales growth rate. The mean of the sales growth rate is 0.187 while the standard deviation is 0.971. *HERF3* is the ownership concentration degree of the top 3 shareholders. *SD_LNSALE* measures the volatility of the log of sales.

[Insert Table 2.2 here]

Table 2.2 shows the correlation matrix for all the aforementioned variables in Panel A. These variables are the core components of the main regression. In Table 2.2 the correlations for all the variables are not large. Therefore, there is no concern about multicollinearity. Each of the control variables stands for a different aspect of the features of firms, so there are no highly correlated cases.

2.4 Empirical results

2.4.1 The relationship between executive ownership and conservatism

Table 2.3 reports the results of testing the relationship between the degree of accounting conservatism and the executive ownership for the Chinese market.

[Insert Table 2.3 here]

The results show that both the first order and second order of executive ownership are significantly related to accounting conservatism. The coefficients of *EXEOWN* are negatively significant at the 1% level across all regressions in Table 2.3. The coefficients of the square of the executive ownership ($EXEOWN^2$) are positive and significant at the 1% level. The results are consistent when the industry and the year effects are controlled. The results with the firm clustering standard errors are still consistent. The results show a typical pattern for the U-shaped relationship between the executive ownership and the shareholders' demand for accounting conservatism. Therefore, I can provide evidence that there is a significant U-shaped relationship between the executive ownership and the shareholders' demand for accounting conservatism.

Regarding the control variables, I find that *LEVERAGE*, *CFOCOVER*, *K_AS*, *LNTIME*, *LNAT*, *SALE_GROWTH, HERF3, SD_LNSALE* and *MTB* are significant across all the regression models regardless of the robust types. *LEVERAGE* is the long-term debt divided by the total asset. The coefficient is positive, and it implies that the firms'

leverage ratio is positively related to the degree of accounting conservatism. Since the long-term debt needs to be repaid and has the payment of interests to the debtors, the increase in long-term debt may constrain the managers from taking more risks and being aggressive in the investment projects. And thus the firm's leverage is positively related to the demand for accounting conservatism. *CFOCOVER* measures the amount of cash from operating activities as a proportion of total sales. I find that the coefficient of *CFOCOVER* is significant and negative, which is consistent across all the regression models in the table. Firms may try to ensure that they have more than enough cash available to protect against possible adverse conditions in the market (Bates et al., 2009). However, the cash can be reduced when the allowance for the uncollectible account is large (i.e. when accounting conservatism is high). Therefore, the cash from operating divided by the sales has a negative relationship between accounting conservatism. *K_AS* is the fixed asset divided by the total asset. Tong (2008) shows that the fixed asset is positively related to the firm's value. Accounting conservatism is the understatement of the net asset value. Therefore, the fixed asset should be negatively related to accounting conservatism, which has been supported by the results of the regressions.

LNTIME is the log of listing time of the firm. The coefficient is positively significant. It indicates the longer period a firm has been listed on the market, the more conservative it can be (Watts, 2003). *LNAT* is the measure of the firm's size. As I discussed above, the main implication of conservatism is its understatement of the firm value. Therefore, the coefficient is negative and significant. *SALE_GROWTH* is the sales growth rate of the firms. The result shows that it is negatively related to the conservatism. It is because the measure of accounting conservatism is the allowance for the uncollectible accounts,

which need cash or internal funds to cover the potential bad debt expenses. Therefore, the funds used in the investment to increase the sales growth rate can be reduced. As a result, the sales growth rate is negatively related to accounting conservatism. *SD_LNSALE* is the volatility of the revenue to measure the operating risk (García Lara et al., 2016; Tong, 2008). The larger sales volatility means the more risks in the revenue. García Lara et al. (2016) suggest that the income volatility is high when the investments of the firms are not prudent. García Lara et al. (2016) also suggest that accounting conservatism can reduce the firm's risk-taking level, which indicates that the firm may invest in more prudent ways and reduce the income volatility. Therefore, if the risk level is high, the shareholders' demand for accounting conservatism is high.

MTB is the relative valuation of the firm to identify whether the firm is overvalued or undervalued. Accounting conservatism can understate the firms' value but is not directly related to the relative value of the firms. Therefore, I do not conjecture the signs of the coefficients of *MTB*. *HERF3* is the top three shareholders' concentration degree in Chinese firms. This variable is used to capture the high ownership concentration of Chinese firms. Demsetz and Villalonga (2001) show that the greater concentration of share ownership can raise the firms' performance. However, conservatism is the understatement of asset value (Watts, 2003). And thus, my results show that the ownership concentration index (Herfindahl 3) is negatively related to accounting conservatism.

2.4.2 The relationship between the executive ownership deviation and the change of executive ownership

Appendix 2.2 shows the target value of the target ownership fitting model for the executive ownership. The adjusted R-square is 42.2%, which is similar to the results of Himmelberg et al. (1999). Therefore, I have developed a reasonable model to generate the target executive ownership. I use the fitted values from the industry-year grouped regression as the target executive ownership to obtain the deviations. The deviation value is calculated as the difference between the expected target value and the actual lagged executive ownership. The deviation (*DEF*) is used to test its impacts on the executive ownership and the degree of conservatism in the next parts. *ABSDEF* is the absolute value of the deviation. It is more convenient and easy to test the regression results with the absolute value because it eliminates the positive and negative sign effects.

[Insert Table 2.4 here]

Table 2.4 shows the results of the relationship between changes in executive ownership and executive ownership deviation from the target executive ownership. *DEF* is the deviation value generated using the target executive ownership from Appendix 2.2. *DEXEOWN* is the dependent variable. I consider the pooled OLS model, the year fixed effect model and the year-industry fixed effect model in Table 2.4. The coefficients of *DEF* are significant and positive at the 1% level across all the regressions. The results indicate that the non-financial firms do react to revert to the target level. The relationship between *DEF* and *DEXEOWN* shows that the executive ownership can

reverse to the target level. This result provides the evidence for Hypothesis 3 in this chapter. The reversing speed of the executive ownership to the target executive ownership level is around 13%.

2.4.3 The influence of the deviation on executive ownership and conservatism

Following the model of Tong (2008), Table 2.5 shows the results of the relationship between conservatism and deviation. The deviation absolute value *ABSDEF* is positively related to conservatism. *ABSDEF* indicates how far is the current executive ownership from the target level of executive ownership. I focus on the coefficients of *ABSDEF* and *ABSDEFABOVEDUMMY*. The coefficient of *ABSDEF* shows that the deviation has a positive relationship with the conservatism without considering the influence of the executive ownership below or above the target executive ownership. The combination of the two coefficients shows that the deviation has a positive relationship with conservatism when the executive ownership is above the target level. Therefore, the results show that an increase in the deviation can lead to an increase in the use of the conservative accounting strategy, which supports Hypothesis 2. The results can also support the U-shaped relationship between executive ownership and accounting conservatism because the conservatism is at minimum only if the firms keep the executive ownership at the target level. If executive ownership is away from the target level, the shareholders' demand for accounting conservatism also increases.

[Insert Table 2.5&2.6 here]

Furthermore, I also find that the sensitivities of accounting conservatism and executive ownership are significantly different in the above target executive ownership level compared to the whole sample. I compare the coefficients from Table 2.5 Model 1 and Model 4. The sensitivity when the executive ownership is above target level (25.189-19.494=5.695) is weaker than that in the whole sample (9.451). Morck et al. (1988) suggest that the incentive alignment may regain dominance when the executive ownership becomes even higher in US market. The reason is that the good corporate governance makes the managers align effectively with the shareholders even when the executives obtain a very high level of the ownership. However, the corporate governance in China is very weak (Braendle et al., 2005). In addition, investor protection and the legal systems are also less developed than the developed markets (Jiang et al., 2010; Kuo et al., 2014). Therefore, the management entrenchment can be more severe in China, which indicates that the demand for the monitoring of accounting conservatism is higher when the executive ownership is above the threshold. The results show that the incentive alignment effect cannot regain dominance in the Chinese market when the executive ownership is very high. The results reveal that I need to consider the weak corporate governance conditions when the studies are about Chinese-listed firms.

I use the pooled OLS model, the year-fixed-effect model and the year-industry fixed effect model in Table 2.5. The standard error is robust. The results are consistent across the different models. In Table 2.6, I use the same variables but with the firm-clustered robust standard error. The results are consistent with Table 2.5. Therefore, I can conclude the deviation distance from the target executive ownership level enhances the shareholders' demand for accounting conservatism. By using firm-clustered robust

standard error in the regressions, I eliminate the heteroskedasticity of the different firm features.

2.4.4 The influence of the analyst coverage on the executive ownership deviation and conservatism

Table 2.7 examines the relationship between the deviation-*DEF* and the conservatism-*CON* with the analyst number dummy effect. *AD*, *BD* and *RD* represent the analyst number dummy, the broker number dummy and the report number dummy.

[Insert Table 2.7, 2.8&2.9 here]

AD is the dummy equal to one if the number of analysts focusing on the firm is larger than the average number of analysts by year and industry. *RD* is the dummy equal to one if the number of reports focusing on the firm is larger than the average number of reports by year and industry. According to Hou et al. (2012), the number of reports indicates the strength of monitoring similar to the number of analysts. It also indicates the frequency of forecast results. In other words, the number of report can measure the review frequency for a certain firm. I consider this measure because analysts are divided into different groups to compile the reports. Even though the number of analysts is sometimes very large, they may just issue one version of the forecast report. Therefore, it is necessary to include the number of reports as another measure. Similarly, the number of brokerage firms measures how many analyst brokerage institutions investigate a certain firm. *BD* is the dummy equal to one if the number of brokers

focusing on the firm is larger than the average number of brokers by year and industry. I include *AD* and the interaction with *AD* to the original *ABSDEF* and *ABSDEFABOVEDUMMY*. The results show that the analyst coverage reduces the influence of the executive ownership deviation on accounting conservatism. It implies that the external monitoring, such as the analyst coverage, can help the firms to reduce the agency cost and meanwhile reduce the sensitivity between the executive ownership and accounting conservatism because the external monitoring (analyst coverage) is a substitute for the internal monitoring (accounting conservatism). The conservative accounting strategy is appreciated because it reduces the agency cost. If the external monitoring mechanism like the analyst coverage is well built, the agency cost can be reduced efficiently. Therefore, the shareholders' demand for accounting conservatism to reduce the agency cost is lower. Table 2.8 and Table 2.9 results are consistent with Table 2.7.

2.4.5 The robustness test including the state-controlled firm dummy

In Table 2.10, I include the state-controlled firm dummy *STATEDUMMY* to test whether the government-controlled firms have some special features in the relationship between the executive ownership and accounting conservatism. The dummy equals one if the state controls the firm, otherwise zero.

[Insert Table 2.10 here]

The explanatory power of the original models is the same because the main variable

coefficients are consistently significant with the same signs. However, the state-controlled firm dummy is not significant throughout different regression models. It indicates the state-owned firms do not have a significant direct impact on accounting conservatism. The findings of this chapter reveal that the weak corporate governance environment is the main concern in the relationship between the executive ownership and accounting conservatism rather than the state-owned-firm features.

2.4.6 The robustness test using the method of the asymmetric timeliness accounting conservatism measure

The measure of accounting conservatism can be classified as the unconditional measures and the conditional measures. The method of using the allowance for the uncollectible account is the unconditional method. Therefore, I follow Basu (1997), Lafond and Roychowdhury (2008) and Shuto and Takada (2010) to use the conditional method of the asymmetric timeliness to measure accounting conservatism. I use this robust check to further support the U-shaped relationship between accounting conservatism and the executive ownership in China. I follow Shuto and Takada (2010)[11] to design the regression with the same structure and the same control variables. Basu et al. (2005) and Khan and Watts (2009) also use similar regression models.

[11] They follow the argument of Khan and Watts (2009) that the regression only needs the interaction terms between the return and the firm's characteristics. They provide two reasons for the absence of the separate firm's characteristics. The first is that adding the firm's characteristics separately can lead to strong multicollinearity. The precision of the estimates can be reduced. Secondly, the goal of the study is to obtain the measure of accounting conservatism rather than focus on the effects of the firm's characteristics. The paper of Basu et al. (2005) also does not use the separate firm's characteristics.

$$
\begin{aligned}
E_{it} &= \alpha + \beta_1 RET_{it} \times NEG_{it} + \beta_2 RET_{it} \times NEG_{it} \times EXEOWN_{it-1} \\
&+ \beta_3 RET_{it} \times NEG_{it} \times EXEOWN^2_{it-1} + \beta_4 RET_{it} \times EXEOWN_{it-1} \\
&+ \beta_5 RET_{it} \times EXEOWN^2_{it-1} + \beta_6 NEG_{it} + \beta_7 RET_{it} \\
&+ \beta_8 RET_{it} \times LEVERAGE_{it-1} + \beta_9 RET_{it} \times NEG_{it} \times LEVERAGE_{it-1} \\
&+ \beta_{10} RET_{it} \times LNAT_{it-1} + \beta_{11} RET_{it} \times NEG_{it} \times LNAT_{it-1} \\
&+ \beta_{12} RET_{it} \times MTB_{it-1} + \beta_{13} RET_{it} \times NEG_{it} \times MTB_{it-1} + year + industry + \varepsilon
\end{aligned}
\tag{2.6}
$$

Shuto and Takada (2010) point out that the primary concern in the analysis of Basu (1997) is the coefficient on $RET_{it} \times NEG_{it}$, because the coefficient measures the degree of accounting conservatism. Therefore, the coefficients of the first three variables $RET_{it} \times NEG_{it}$, $RET_{it} \times NEG_{it} \times EXEOWN_{it-1}$ and $RET_{it} \times NEG_{it} \times EXEOWN^2_{it-1}$ in the regression are the main variables I am interested in. If the firms' accounting strategies are conservative, the coefficient of $RET_{it} \times NEG_{it}$ should be significant and positive according to the paper of Basu (1997). Basu (1997) investigates that the news about a firm in a given period can be incorporated in the earnings of the firm. The news can be conditioned as "good" (positive return) or "bad" (negative return). Basu (1997) suggests that the asymmetric standards for the verification of the losses and the gains from the bad news can be reflected more than those from the good news in the current earnings. In the above regression, the coefficient (β_7) of RET_{it} can measure the response of the earnings to the positive returns. The coefficients combination ($\beta_7 + \beta_1$) of RET_{it} and $RET_{it} \times NEG_{it}$ measures the response of the negative return. Basu (1997) suggests that accounting conservatism indicates that the combined coefficients of RET_{it} and $RET_{it} \times NEG_{it}$ ($\beta_7 + \beta_1$) is larger than the coefficient of RET_{it} (β_7). Therefore, the positive sign of the coefficient of $RET_{it} \times NEG_{it}$ can show that the accounting strategy is conservative in the firm.

[Insert Table 2.11 here]

Lafond and Roychowdhury (2008) and Shuto and Takada (2010) suggest that the coefficients of $RET_{it} \times NEG_{it} \times EXEOWN_{it-1}$ should be negative while the coefficients of $RET_{it} \times NEG_{it} \times EXEOWN^2_{it-1}$ should be positive if the relationship between accounting conservatism and executive ownership is U-shaped. It is because the negative sign of $RET_{it} \times NEG_{it} \times EXEOWN_{it-1}$ indicates the incremental effect of the executive ownership is to reduce the original accounting conservatism when the executive ownership increases and the executive ownership is below the threshold. Therefore, the executive ownership is a substitute of accounting conservatism when the executive is below the threshold. The positive coefficient of $RET_{it} \times NEG_{it} \times EXEOWN^2_{it-1}$ shows that the incremental effect of the square of the executive ownership also adds the shareholders' demand of accounting conservatism to monitor the management entrenchment effect when the executive ownership is above the threshold. The results of Table 2.11 show that the regressions of the conditional accounting conservatism support my hypothesis that the relationship between accounting conservatism and the executive ownership is a U-shape. The coefficients of $RET_{it} \times NEG_{it} \times EXEOWN_{it-1}$ and $RET_{it} \times NEG_{it} \times EXEOWN^2_{it-1}$ have the same signs and meanings compared to the results of Shuto and Takada (2010). Therefore, my results are consistent across both the unconditional and conditional measures of accounting conservatism.

2.4.7 The robustness test to reduce potential endogeneity problem using bootstrap regression and the regression with first lag of all independent variables

[Insert Table 2.12 here]

The bootstrap regression allows the estimation of the sampling distribution of almost any statistic using random sampling methods (Varian, 2005). DiCiccio and Efron (1996) suggest that bootstrap is a straightforward way to derive estimates of standard errors and confidence intervals for complex estimators and complex parameters which do not have normal distributions, including percentile points, proportions and odd ratio. They also suggest that bootstrap is an appropriate way to control and check the stability of the results. In the event that it is impossible to know the true confidence interval, DiCiccio and Efron (1996) suggest that bootstrap is asymptotically more accurate than the standard intervals obtained using sample variance and assumptions of normality. Bootstrap regression does not require normal distribution assumptions and can provide more accurate inferences when the data are not normally distributed or when the sample size is small (Fox, 2002). Therefore, I can reduce the potential problem from the biased distribution of executive ownership.

[Insert Table 2.13 here]

I also apply a regression in which the dependent variable is measured at time t while the independent variables, as well as the control variables, are measured at time t-1. A similar approach is also applied by Duchin et al. (2010) and Arslan-Ayaydin et al. (2014) in order to reduce the effect of endogeneity. By using this method to reduce the potential

endogeneity problem, I find the results are still consistent with my original regressions.

2.5 Conclusion

I obtained the data for Chinese-listed firms from the CSMAR database. The sample data covers a time span of 11 years from 2005 to 2015, excluding financial firms. In this study, accounting conservatism is measured by the allowance for the uncollectible account. The core implication of accounting conservatism is the understatement of the asset value (Jackson and Liu, 2010; Penman and Zhang, 2002; Watts, 2003). Jackson and Liu (2010) suggest the allowance for the uncollectible account can help to constrain a significant amount of the management discretion. Furthermore, Jackson and Liu (2010) suggest that the allowance for the uncollectible account is an account for which accounting conservatism is amenable to fairly direct observation and measurement. The U-shaped relationship between executive ownership and accounting conservatism can be explained by the incentive alignment theory when executive ownership is lower than the threshold (Lafond and Roychowdhury, 2008) and the entrenchment theory when the executive ownership is higher than the threshold (Shuto and Takada, 2010).

I obtain the target value of the executive ownership to calculate the deviation of the executive ownership from the target value. I find a positive relationship between the executive ownership deviation and the change of the executive ownership, which indicates the executive ownership can reverse to the target level. The adjustment speed of the reversing mechanism is around 13%. The results are consistent with the arguments of Core and Larcker (2002) which suggest that the executive ownership can

reverse to the target level under the consideration of the firms' contracting and re-contracting cost and benefit balance.

I examine the influence of the executive ownership deviation on accounting conservatism. The results show that the executive ownership deviation has a positive relationship with accounting conservatism. It supports the U-shaped relationship between the executive ownership and accounting conservatism. Furthermore, I find that the sensitivities of accounting conservatism and the executive ownership deviation are different when the executive ownership is above or below the target level. When executive ownership is higher than the target level, the sensitivity of accounting conservatism and the executive ownership deviation is lower and positive in amount. Compared to developed markets, more shareholders' demand for accounting conservatism is needed to monitor the executives' entrenchment behaviour (executive ownership higher than the threshold).

Chinese firms do apply accounting conservatism in the operations. For example, Li and Lu (2003) consider the effects of conservatism on accruals and find the significant phenomenon of accounting conservatism in financial reports of China A-share market listing firms. Razzaq and Zou (2016) find that the accounting conservatism enables timely loss recognition to mitigate firms from overinvestment in China. Hence conservatism is mostly demanded by investors and shareholders. However, in this chapter, I discuss the relationship between shareholders' demand for accounting conservatism and executive ownership. When executive ownership is below the threshold, the incentive alignment theory dominates. The increase in executive

ownership reduces the agency costs. Shareholders' demand for accounting conservatism decreases along with the increase in executive ownership. It is because that Watts (2003) suggest accounting conservatism can monitor the executives and reduce the agency cost of their misbehaviour. Therefore, shareholders' demand for accounting conservatism is negatively related to executive ownership (lower than the threshold). When executive ownership is above the threshold, the entrenchment theory dominates. The increase in executive ownership increases the agency cost. Shareholders' demand for accounting conservatism is increased along with the increase in executive ownership as Watts (2003) suggest accounting conservatism can reduce the agency cost caused by executives' misconduct. Therefore, shareholders' demand for accounting conservatism is positively related to executive ownership (higher than the threshold).

I examine the influence of the analyst coverage to the relationship between the executive ownership deviation and accounting conservatism. Analyst coverage reduces sensitivity between the demand for accounting conservatism and executive ownership deviation. The monitoring power of the analyst can also reduce the agency cost (Dyck et al., 2010; Jensen and Meckling, 1976; Yu, 2008). Therefore, the analyst coverage is a substitute to accounting conservatism.

Tables for Chapter 2

Table 2.1 Summary statistics

PANEL A

VARIABLE	N	MEAN	SD	P25	P50	P75
CON	16133	1.509	8.915	0.007	0.023	0.080
EXEOWN	16133	0.049	0.126	0.000	0.000	0.001
AD	16133	0.353	0.478	0	0	1
BD	16133	0.358	0.479	0	0	1
RD	16133	0.328	0.470	0	0	1
LEVERAGE	16133	0.419	0.240	0.243	0.407	0.567
CFOCOVER	16133	-0.845	11.459	-0.028	0.074	0.212
K_AS	16133	0.163	0.157	0.040	0.118	0.242
LNTIME	16133	2.052	0.714	1.609	2.197	2.639
LNAT	16133	21.569	1.147	20.788	21.461	22.202
SALE_G~H	16133	0.187	0.971	-0.101	0.059	0.232
HERF3	16133	0.166	0.120	0.072	0.134	0.237
SD_LNS~E	16133	0.306	0.415	0.098	0.175	0.314
MTB	16133	2.478	1.861	1.335	1.883	2.900

PANEL B EXECUTIVE OWNERSHIP

EXEOWN	0<*EXE*<=1%	1%<*EXE*<=10%	10%<*EXE*<=30%	30%<*EXE*<=50%	*EXE* >50%	N
OBSERVATION	3030	992	1019	895	319	6255
YEAR 2005	48	0	0	0	0	48
YEAR 2006	222	10	3	0	0	235
YEAR 2007	199	11	4	0	0	214
YEAR 2008	240	34	18	2	3	297
YEAR 2009	287	59	33	7	0	386
YEAR 2010	263	60	48	27	10	408
YEAR 2011	279	87	77	56	26	525
YEAR 2012	316	140	127	134	102	819
YEAR 2013	361	170	188	220	102	1041
YEAR 2014	398	193	231	236	50	1108
YEAR 2015	417	228	290	213	26	1174

All variables definitions can be found in Appendix 2.1. The sample period ranges from 2005 to 2015. Panel A variables are used to run the regression to test the curve linear relationship between *CON* and independent variables. Panel B variables are used to get the target value of the managerial ownership.

Table 2.2 Pairwise correlation matrix

	1	2	3	4	5	6	7	8	10	11	12	13	14	15
CON	**1.000**													
EXEOWN	**-0.061**	**1.000**												
AD	**-0.094**	**0.078**	**1.000**											
BD	**-0.099**	**0.079**	**0.918**	**1.000**										
RD	**-0.093**	**0.077**	**0.866**	**0.865**	**1.000**									
LEVERAGE	**0.099**	**-0.221**	**-0.086**	**-0.081**	**-0.082**	**1.000**								
CFOCOVER	**-0.303**	**0.027**	0.013	0.014	0.013	**0.028**	**1.000**							
K_AS	**-0.109**	**-0.099**	**-0.029**	**-0.027**	**-0.030**	**0.142**	**0.080**	**1.000**						
LNTIME	**0.121**	**-0.489**	**-0.135**	**-0.142**	**-0.137**	**0.221**	**-0.068**	**-0.066**	**1.000**					
LNAT	**-0.165**	**-0.123**	**0.375**	**0.374**	**0.358**	**0.157**	0.007	**0.021**	**0.164**	**1.000**				
SALE_GROWTH	**-0.033**	**-0.025**	**0.023**	**0.025**	**0.027**	**0.020**	**0.032**	**-0.062**	**0.041**	0.011	**1.000**			
HERF3	**-0.098**	**-0.066**	**0.104**	**0.107**	**0.101**	**-0.028**	**0.030**	**0.103**	**-0.114**	**0.282**	0.005	**1.000**		
SD_LNSALE	**0.317**	**-0.085**	**-0.056**	**-0.057**	**-0.053**	**0.076**	**-0.152**	**-0.217**	**0.155**	**-0.078**	**0.342**	**-0.048**	**1.000**	
MTB	**0.134**	**0.165**	**0.061**	**0.052**	**0.074**	**-0.114**	**-0.018**	**-0.083**	**-0.080**	**-0.362**	0.005	**-0.106**	**0.045**	**1.000**

All variables definitions can be found in Appendix 2.1. The sample period ranges from 2005 to 2015. The bold and italic correlation coefficients are significant at 5%. 1=*CON*, 2=*EXEOWN*, 3=*AD*, 4=*BD*, 5=*RD*, 6=*LEVERAGE*, 7=*CFOCOVER*, 8=*K_AS*, 9=*LNTIME*, 10=*LNAT*, 11=*SALE_GROWTH*, 12=*HERF3*, 13=*SD_LNSALE*, 14=*MTB*.

Table 2.3 Executive ownership impacts on firms' conservatism

CON	(1)	(2)	(3)	(4)	(5)	(6)
EXEOWN	-6.199***	-6.546***	-6.400***	-6.199***	-6.546***	-6.400***
	(-7.238)	(-7.438)	(-7.275)	(-4.233)	(-4.685)	(-4.573)
$EXEOWN^2$	10.590***	10.325***	10.202***	10.590***	10.325***	10.202***
	(7.356)	(7.185)	(7.088)	(4.450)	(4.726)	(4.654)
LEVERAGE	3.888***	3.897***	3.790***	3.888***	3.897***	3.790***
	(6.916)	(6.995)	(6.661)	(3.875)	(3.934)	(3.687)
CFOCOVER	-0.193***	-0.193***	-0.192***	-0.193***	-0.193***	-0.192***
	(-8.044)	(-8.047)	(-8.019)	(-6.274)	(-6.280)	(-6.279)
K_AS	-2.161***	-2.024***	-1.598***	-2.161***	-2.024***	-1.598***
	(-6.034)	(-5.597)	(-4.455)	(-3.774)	(-3.475)	(-2.637)
LNTIME	0.670***	0.661***	0.643***	0.670***	0.661***	0.643***
	(7.994)	(8.149)	(7.873)	(4.616)	(4.593)	(4.398)
LNAT	-1.004***	-0.972***	-0.967***	-1.004***	-0.972***	-0.967***
	(-12.648)	(-11.163)	(-10.983)	(-6.493)	(-5.662)	(-5.568)
SALE_GROWTH	-1.174***	-1.184***	-1.184***	-1.174***	-1.184***	-1.184***
	(-8.334)	(-8.364)	(-8.354)	(-7.902)	(-7.923)	(-7.939)
HERF3	-1.683***	-1.802***	-1.790***	-1.683*	-1.802*	-1.790*
	(-3.264)	(-3.408)	(-3.382)	(-1.819)	(-1.905)	(-1.869)
SD_LNSALE	6.025***	6.029***	5.937***	6.025***	6.029***	5.937***
	(11.689)	(11.653)	(11.347)	(9.495)	(9.388)	(9.270)
MTB	0.417***	0.486***	0.499***	0.417***	0.486***	0.499***
	(5.847)	(5.765)	(5.903)	(3.520)	(3.373)	(3.515)
CONSTANT	18.078***	17.289***	17.103***	18.078***	17.289***	17.103***
	(11.140)	(9.719)	(9.464)	(5.694)	(4.929)	(4.853)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	R	R	R	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	16,133	16,133	16,133	16,133	16,133	16,133
R2_A	0.226	0.227	0.228	0.226	0.227	0.228

All variables definitions can be found in Appendix 2.1. This table reports the relationships of the conservatism and the managerial ownership. The results show the OLS and fixed effect of the regression model. *CON* is the firms' conservatism degree which is the provision for bad debt divided by firm's revenue. *EXEOWN* is the board member ownership. It is the fraction of board shares in all outstanding shares. $EXEOWN^2$ is the square of *EXEOWN*. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.4 Relationship between changes of executive ownership and the deviation from target level

DEXEOWN	(1)	(2)	(3)	(4)	(5)	(6)
DEF	0.128***	0.132***	0.132***	0.128***	0.132***	0.132***
	(24.453)	(23.357)	(23.302)	(24.010)	(21.926)	(21.862)
LEVERAGE	-0.004*	-0.003*	-0.004*	-0.004**	-0.003*	-0.004**
	(-1.947)	(-1.780)	(-1.934)	(-2.041)	(-1.928)	(-2.085)
CFOCOVER	0.000***	0.000***	0.000***	0.000**	0.000**	0.000**
	(2.654)	(2.622)	(2.615)	(2.507)	(2.574)	(2.556)
K_AS	-0.013***	-0.012***	-0.012***	-0.013***	-0.012***	-0.012***
	(-5.466)	(-5.139)	(-4.901)	(-6.089)	(-5.869)	(-5.668)
LNTIME	0.006***	0.006***	0.007***	0.006***	0.006***	0.007***
	(7.532)	(7.955)	(8.042)	(8.649)	(9.076)	(9.149)
LNAT	0.000	0.000	0.000	0.000	0.000	0.000
	(0.097)	(0.935)	(0.889)	(0.099)	(0.956)	(0.910)
SALE_GROWTH	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(6.447)	(5.421)	(5.434)	(6.301)	(5.331)	(5.343)
HERF3	0.004	0.003	0.003	0.004	0.003	0.003
	(1.301)	(0.879)	(0.794)	(1.511)	(1.037)	(0.936)
SD_LNSALE	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(-5.144)	(-5.168)	(-5.078)	(-4.627)	(-4.656)	(-4.512)
MTB	-0.001*	0.000	0.000	-0.001*	0.000	0.000
	(-1.687)	(0.346)	(0.455)	(-1.718)	(0.362)	(0.477)
CONSTANT	-0.013*	-0.025***	-0.026***	-0.013*	-0.025***	-0.026***
	(-1.798)	(-3.041)	(-3.121)	(-1.886)	(-3.183)	(-3.285)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	R	R	R	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	11,293	11,293	11,293	11,293	11,293	11,293
R2_A	0.166	0.181	0.182	0.166	0.181	0.182

All variables definitions can be found in Appendix 2.1. This table shows the relationship between *DEXEOWN* and *DEF*. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.5 Relationship between the deviation and the conservativism with robust standard error

CON	(1)	(2)	(3)	(4)	(5)	(6)
ABSDEF	9.451***	9.728***	9.757***	25.189***	25.839***	25.877***
	(4.965)	(4.999)	(5.012)	(5.662)	(5.719)	(5.730)
ABSDEFABOVEDUMMY				-19.494***	-19.894***	-19.917***
				(-5.502)	(-5.539)	(-5.554)
ABOVEDUMMY				0.805***	0.625***	0.630***
				(4.033)	(3.254)	(3.302)
LEVERAGE	1.634***	1.541***	1.624***	0.934***	0.991***	1.079***
	(4.867)	(4.682)	(4.783)	(3.154)	(3.337)	(3.570)
CFOCOVER	-0.186***	-0.186***	-0.186***	-0.172***	-0.171***	-0.171***
	(-4.526)	(-4.528)	(-4.544)	(-4.205)	(-4.191)	(-4.206)
K_AS	-0.379**	-0.486**	-0.593***	-1.648***	-1.626***	-1.726***
	(-2.002)	(-2.492)	(-2.905)	(-6.210)	(-6.202)	(-6.026)
LNTIME	1.209***	1.233***	1.245***	1.538***	1.616***	1.628***
	(6.877)	(6.989)	(7.058)	(7.310)	(7.394)	(7.428)
LNAT	-0.516***	-0.457***	-0.452***	-0.426***	-0.413***	-0.411***
	(-9.489)	(-7.945)	(-7.818)	(-8.048)	(-7.251)	(-7.156)
SALE_GROWTH	-0.931***	-0.942***	-0.940***	-0.787***	-0.782***	-0.781***
	(-6.812)	(-6.848)	(-6.840)	(-6.233)	(-6.164)	(-6.163)
HERF3	-0.746**	-0.958***	-0.884**	-1.638***	-1.760***	-1.695***
	(-2.285)	(-2.753)	(-2.556)	(-4.378)	(-4.565)	(-4.427)
SD_LNSALE	4.363***	4.324***	4.325***	3.678***	3.650***	3.646***
	(7.693)	(7.648)	(7.571)	(7.084)	(7.036)	(6.992)
MTB	0.077*	0.118**	0.111*	0.062	0.100*	0.092
	(1.679)	(2.043)	(1.955)	(1.329)	(1.723)	(1.604)
CONSTANT	6.592***	5.407***	5.450***	3.931***	3.399***	3.561***
	(6.100)	(4.622)	(4.635)	(3.112)	(2.602)	(2.738)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	R	R	R	R	R	R
OBSERVATIONS	11,061	11,061	11,061	11,061	11,061	11,061
R2_A	0.247	0.247	0.248	0.284	0.286	0.286

All variables definitions can be found in Appendix 2.1. This table shows the relationship between the deviation-*DEF* and the conservativism-*CON*. *DEF* is calculated from the fitted values minus the previous accounting period actual *EXEOWN*. And these fitted values are the target values in each firm-year. The standard errors of the variables are basic robust standard errors. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.6 Relationship between the deviation and the conservativism with firm clustered robust standard error

CON	(1)	(2)	(3)	(4)	(5)	(6)
ABSDEF	9.451***	9.728***	9.757***	25.189***	25.839***	25.877***
	(3.878)	(3.901)	(3.909)	(4.909)	(4.994)	(5.007)
ABSDEFABOVEDUMMY				-19.494***	-19.894***	-19.917***
				(-4.797)	(-4.864)	(-4.883)
ABOVEDUMMY				0.805***	0.625***	0.630***
				(3.599)	(2.889)	(2.903)
LEVERAGE	1.634***	1.541***	1.624***	0.934**	0.991**	1.079**
	(3.026)	(2.908)	(3.044)	(2.000)	(2.096)	(2.295)
CFOCOVER	-0.186**	-0.186**	-0.186**	-0.172**	-0.171**	-0.171**
	(-2.499)	(-2.503)	(-2.516)	(-2.293)	(-2.285)	(-2.299)
K_AS	-0.379	-0.486*	-0.593*	-1.648***	-1.626***	-1.726***
	(-1.443)	(-1.765)	(-1.795)	(-4.516)	(-4.402)	(-3.921)
LNTIME	1.209***	1.233***	1.245***	1.538***	1.616***	1.628***
	(5.161)	(5.216)	(5.221)	(6.020)	(6.130)	(6.109)
LNAT	-0.516***	-0.457***	-0.452***	-0.426***	-0.413***	-0.411***
	(-5.407)	(-4.642)	(-4.545)	(-4.721)	(-4.297)	(-4.210)
SALE_GROWTH	-0.931***	-0.942***	-0.940***	-0.787***	-0.782***	-0.781***
	(-5.942)	(-5.977)	(-6.004)	(-5.454)	(-5.393)	(-5.421)
HERF3	-0.746	-0.958*	-0.884	-1.638***	-1.760***	-1.695***
	(-1.492)	(-1.733)	(-1.571)	(-2.973)	(-2.999)	(-2.849)
SD_LNSALE	4.363***	4.324***	4.325***	3.678***	3.650***	3.646***
	(6.344)	(6.266)	(6.413)	(5.829)	(5.738)	(5.952)
MTB	0.077	0.118	0.111	0.062	0.100	0.092
	(0.990)	(1.122)	(1.142)	(0.789)	(0.947)	(0.939)
CONSTANT	6.592***	5.407***	5.450***	3.931**	3.399*	3.561*
	(3.725)	(2.913)	(2.969)	(2.156)	(1.794)	(1.898)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	11,061	11,061	11,061	11,061	11,061	11,061
R2_A	0.247	0.247	0.248	0.284	0.286	0.286

All variables definitions can be found in Appendix 2.1. This table shows the relationship between the deviation-*DEF* and the conservativism-*CON*. *DEF* is calculated from the fitted values minus the previous accounting period actual *EXEOWN*. And these fitted values are the target values in each firm-year. The standard errors robust to clustering by firm. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.7 Relationship between the deviation-*DEF* and the conservativism with *AD* effect

CON	(1)	(2)	(3)	(4)	(5)	(6)
ABSDEF	12.511***	12.742***	12.787***	29.566***	30.151***	30.205***
	(4.189)	(4.212)	(4.226)	(5.550)	(5.634)	(5.654)
AD	0.870***	0.800***	0.808***	1.094***	1.051***	1.058***
	(3.274)	(2.923)	(2.940)	(4.418)	(4.077)	(4.071)
ABSDEFAD	-9.383***	-9.301***	-9.342***	-21.477***	-21.373***	-21.435***
	(-4.388)	(-4.393)	(-4.424)	(-5.681)	(-5.649)	(-5.662)
ABSDEFABOVEDUMMY				-23.560***	-23.958***	-23.982***
				(-5.464)	(-5.536)	(-5.555)
ABSDEFABOVEDUMMYAD				17.983***	18.014***	18.043***
				(5.623)	(5.601)	(5.591)
ABOVEDUMMY				0.675***	0.515***	0.519***
				(3.328)	(2.600)	(2.599)
LEVERAGE	1.688***	1.586***	1.668***	0.892*	0.921*	1.011**
	(3.089)	(2.933)	(3.090)	(1.926)	(1.953)	(2.184)
CFOCOVER	-0.185**	-0.185**	-0.185**	-0.173**	-0.172**	-0.172**
	(-2.492)	(-2.498)	(-2.511)	(-2.332)	(-2.328)	(-2.343)
K_AS	-0.476*	-0.580**	-0.677**	-1.578***	-1.577***	-1.667***
	(-1.798)	(-2.045)	(-1.986)	(-4.413)	(-4.306)	(-3.845)
LNTIME	1.164***	1.182***	1.194***	1.363***	1.435***	1.445***
	(5.296)	(5.362)	(5.366)	(6.164)	(6.280)	(6.257)
LNAT	-0.538***	-0.464***	-0.459***	-0.431***	-0.397***	-0.395***
	(-5.019)	(-3.838)	(-3.770)	(-4.310)	(-3.398)	(-3.329)
SALE_GROWTH	-0.908***	-0.917***	-0.915***	-0.751***	-0.749***	-0.748***
	(-5.906)	(-5.937)	(-5.968)	(-5.264)	(-5.226)	(-5.253)
HERF3	-0.816	-1.039*	-0.964*	-1.536***	-1.689***	-1.620***
	(-1.640)	(-1.862)	(-1.701)	(-2.870)	(-2.922)	(-2.762)
SD_LNSALE	4.324***	4.285***	4.281***	3.625***	3.594***	3.588***
	(6.389)	(6.288)	(6.451)	(5.751)	(5.645)	(5.865)
MTB	0.091	0.139	0.132	0.086	0.135	0.126
	(1.108)	(1.217)	(1.245)	(1.040)	(1.179)	(1.189)
CONSTANT	6.874***	5.408**	5.461**	4.195**	3.260	3.431
	(3.551)	(2.423)	(2.536)	(2.168)	(1.464)	(1.592)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	11,061	11,061	11,061	11,061	11,061	11,061
R2_A	0.255	0.256	0.257	0.298	0.300	0.301

All variables definitions can be found in Appendix 2.1. This table is discussing the relation between the deviation and the *CON*. In this table, *AD* is the considered dummy to affect the *DEF* and *CON* relationship. *ABSDEF* means the absolute value of *DEF*. *ABSDEFABOVEDUMMY* is the product of *ABSDEF* and *ABOVEDUMMY*. *ABOVEDUMMY* equals to 1 if the target executive ownership not exceeds previous *EXEOWN*. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.8 Relationship between the deviation-*DEF* and the conservativism with *BD* effect

CON	(1)	(2)	(3)	(4)	(5)	(6)
ABSDEF	12.660***	12.890***	12.934***	29.744***	30.315***	30.373***
	(4.194)	(4.217)	(4.230)	(5.562)	(5.644)	(5.665)
BD	0.839***	0.766***	0.773***	1.066***	1.025***	1.032***
	(3.243)	(2.862)	(2.880)	(4.391)	(4.027)	(4.028)
ABSDEFBD	-9.492***	-9.404***	-9.440***	-21.654***	-21.530***	-21.615***
	(-4.356)	(-4.360)	(-4.387)	(-5.671)	(-5.647)	(-5.655)
ABSDEFABOVEDUMMY				-23.723***	-24.105***	-24.140***
				(-5.469)	(-5.539)	(-5.559)
ABSDEFABOVEDUMMYBD				18.213***	18.202***	18.268***
				(5.621)	(5.608)	(5.589)
ABOVEDUMMY				0.670***	0.509***	0.513**
				(3.319)	(2.580)	(2.578)
LEVERAGE	1.669***	1.568***	1.649***	0.895*	0.928**	1.020**
	(3.071)	(2.914)	(3.069)	(1.937)	(1.971)	(2.205)
CFOCOVER	-0.186**	-0.185**	-0.186**	-0.173**	-0.172**	-0.172**
	(-2.497)	(-2.503)	(-2.515)	(-2.330)	(-2.326)	(-2.341)
K_AS	-0.474*	-0.579**	-0.675**	-1.571***	-1.570***	-1.667***
	(-1.789)	(-2.037)	(-1.976)	(-4.402)	(-4.291)	(-3.839)
LNTIME	1.159***	1.177***	1.189***	1.357***	1.430***	1.441***
	(5.302)	(5.366)	(5.368)	(6.177)	(6.293)	(6.269)
LNAT	-0.526***	-0.451***	-0.446***	-0.419***	-0.386***	-0.383***
	(-4.978)	(-3.778)	(-3.695)	(-4.239)	(-3.339)	(-3.254)
SALE_GROWTH	-0.906***	-0.915***	-0.913***	-0.753***	-0.750***	-0.749***
	(-5.888)	(-5.917)	(-5.947)	(-5.258)	(-5.219)	(-5.245)
HERF3	-0.843*	-1.067*	-0.991*	-1.558***	-1.708***	-1.635***
	(-1.688)	(-1.908)	(-1.748)	(-2.905)	(-2.952)	(-2.789)
SD_LNSALE	4.322***	4.282***	4.279***	3.630***	3.600***	3.596***
	(6.388)	(6.287)	(6.452)	(5.760)	(5.656)	(5.879)
MTB	0.093	0.141	0.135	0.087	0.136	0.127
	(1.136)	(1.245)	(1.277)	(1.062)	(1.197)	(1.206)
CONSTANT	6.644***	5.155**	5.195**	3.955**	3.025	3.188
	(3.465)	(2.330)	(2.420)	(2.060)	(1.370)	(1.483)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	11,061	11,061	11,061	11,061	11,061	11,061
R2_A	0.256	0.256	0.257	0.299	0.301	0.301

All variables definitions can be found in Appendix 2.1. This table is discussing the relation between the deviation and the *CON*. In this table, *BD* is the considered dummy to affect the *DEF* and *CON* relationship. *ABSDEF* means the absolute value of *DEF*. *ABSDEFABOVEDUMMY* is the product of *ABSDEF* and *ABOVEDUMMY*. *ABOVEDUMMY* equals to 1 if the target executive ownership not exceeds previous *EXEOWN*. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.9 Relationship between the deviation-*DEF* and the conservativism with *RD* effect

CON	(1)	(2)	(3)	(4)	(5)	(6)
ABSDEF	12.254***	12.475***	12.519***	28.919***	29.492***	29.550***
	(4.166)	(4.189)	(4.204)	(5.448)	(5.528)	(5.549)
RD	0.837***	0.758***	0.762***	1.036***	0.993***	0.999***
	(3.202)	(2.804)	(2.817)	(4.227)	(3.869)	(3.875)
ABSDEFRD	-9.187***	-9.071***	-9.110***	-20.787***	-20.624***	-20.716***
	(-4.351)	(-4.348)	(-4.385)	(-5.510)	(-5.479)	(-5.498)
ABSDEFABOVEDUMMY				-23.002***	-23.387***	-23.421***
				(-5.359)	(-5.427)	(-5.448)
ABSDEFABOVEDUMMYRD				17.401***	17.378***	17.444***
				(5.478)	(5.459)	(5.447)
ABOVEDUMMY				0.678***	0.519***	0.522***
				(3.306)	(2.596)	(2.594)
LEVERAGE	1.691***	1.590***	1.671***	0.912**	0.944**	1.035**
	(3.097)	(2.943)	(3.098)	(1.966)	(1.998)	(2.231)
CFOCOVER	-0.186**	-0.185**	-0.186**	-0.173**	-0.172**	-0.172**
	(-2.496)	(-2.502)	(-2.515)	(-2.331)	(-2.327)	(-2.342)
K_AS	-0.457*	-0.561**	-0.656*	-1.578***	-1.578***	-1.671***
	(-1.727)	(-1.975)	(-1.914)	(-4.403)	(-4.289)	(-3.814)
LNTIME	1.165***	1.183***	1.194***	1.362***	1.435***	1.445***
	(5.277)	(5.344)	(5.347)	(6.097)	(6.213)	(6.192)
LNAT	-0.531***	-0.456***	-0.451***	-0.423***	-0.391***	-0.388***
	(-4.962)	(-3.761)	(-3.665)	(-4.221)	(-3.322)	(-3.227)
SALE_GROWTH	-0.909***	-0.918***	-0.915***	-0.760***	-0.757***	-0.756***
	(-5.894)	(-5.919)	(-5.948)	(-5.304)	(-5.261)	(-5.286)
HERF3	-0.812	-1.034*	-0.959*	-1.536***	-1.689***	-1.620***
	(-1.630)	(-1.846)	(-1.690)	(-2.854)	(-2.901)	(-2.747)
SD_LNSALE	4.334***	4.294***	4.289***	3.655***	3.624***	3.619***
	(6.388)	(6.284)	(6.446)	(5.795)	(5.686)	(5.906)
MTB	0.095	0.143	0.136	0.087	0.136	0.127
	(1.149)	(1.247)	(1.280)	(1.047)	(1.180)	(1.189)
CONSTANT	6.733***	5.254**	5.291**	4.071**	3.160	3.331
	(3.464)	(2.334)	(2.412)	(2.079)	(1.401)	(1.509)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	11,061	11,061	11,061	11,061	11,061	11,061
R2_A	0.255	0.255	0.256	0.296	0.298	0.299

All variables definitions can be found in Appendix 2.1. This table is discussing the relation between the deviation and the *CON*. In this table, *RD* is the considered dummy to affect the *DEF* and *CON* relationship. *ABSDEF* means the absolute value of *DEF*. *ABSDEFABOVEDUMMY* is the product of *ABSDEF* and *ABOVEDUMMY*. *ABOVEDUMMY* equals to 1 if the target executive ownership not exceeds previous *EXEOWN*. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.10 The influence of the state dummy on accounting conservatism

CON	(1)	(2)	(3)	(4)	(5)	(6)
ABSDEF	9.534***	9.779***	9.806***	25.270***	25.889***	25.931***
	(3.833)	(3.870)	(3.876)	(4.909)	(4.984)	(4.998)
ABSDEFABOVEDUMMY				-19.638***	-19.984***	-20.013***
				(-4.812)	(-4.867)	(-4.886)
ABOVEDUMMY				0.774***	0.613***	0.616***
				(3.378)	(2.810)	(2.810)
STATEDUMMY	0.089	0.021	0.015	-0.208	-0.176	-0.186
	(0.432)	(0.090)	(0.058)	(-1.015)	(-0.763)	(-0.752)
LEVERAGE	1.652***	1.559***	1.633***	0.957**	0.997**	1.080**
	(3.055)	(2.930)	(3.047)	(2.041)	(2.100)	(2.288)
CFOCOVER	-0.192**	-0.192**	-0.192**	-0.178**	-0.176**	-0.177**
	(-2.526)	(-2.532)	(-2.543)	(-2.332)	(-2.322)	(-2.335)
K_AS	-0.439	-0.518*	-0.597**	-1.590***	-1.597***	-1.671***
	(-1.546)	(-1.870)	(-1.980)	(-4.316)	(-4.347)	(-4.030)
LNTIME	1.189***	1.228***	1.240***	1.594***	1.662***	1.675***
	(5.140)	(5.104)	(5.076)	(5.975)	(6.024)	(5.964)
LNAT	-0.516***	-0.452***	-0.447***	-0.413***	-0.393***	-0.390***
	(-5.323)	(-4.250)	(-4.166)	(-4.490)	(-3.767)	(-3.684)
SALE_GROWTH	-0.932***	-0.944***	-0.942***	-0.785***	-0.783***	-0.782***
	(-5.937)	(-5.981)	(-6.016)	(-5.403)	(-5.382)	(-5.418)
HERF3	-0.824	-0.992*	-0.918*	-1.530***	-1.697***	-1.630***
	(-1.625)	(-1.871)	(-1.672)	(-2.851)	(-3.041)	(-2.833)
SD_LNSALE	4.355***	4.314***	4.309***	3.653***	3.625***	3.616***
	(6.306)	(6.190)	(6.331)	(5.728)	(5.618)	(5.823)
MTB	0.080	0.120	0.113	0.056	0.099	0.090
	(1.070)	(1.160)	(1.192)	(0.742)	(0.953)	(0.948)
CONSTANT	6.572***	5.292***	5.341***	3.649*	3.009	3.181
	(3.659)	(2.649)	(2.757)	(1.946)	(1.462)	(1.586)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD	CLUSTER STKCD
OBSERVATIONS	10,953	10,953	10,953	10,953	10,953	10,953
R-SQUARED	0.250	0.252	0.252	0.287	0.290	0.291
R2_A	0.249	0.250	0.251	0.287	0.289	0.289

All variables definitions can be found in Appendix 2.1. This table is testing whether the state dummy can affect accounting conservatism directly. In this table, *STATEDUMMY* is the considered dummy to affect accounting conservatism. *ABSDEF* means the absolute value of *DEF*. *ABSDEFABOVEDUMMY* is the product of *ABSDEF* and *ABOVEDUMMY*. *ABOVEDUMMY* equals to 1 if the target executive ownership not exceeds previous *EXEOWN*. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.11 Robustness check with the asymmetric timeliness measure of accounting conservatism

E_{it}	(1)	(2)
$RET_{it}\times NEG_{it}$	0.975***	0.975***
	(10.689)	(8.096)
$RET_{it}\times NEG_{it}\times EXEOWN_{it-1}$	-0.118*	-0.118**
	(-1.910)	(-2.298)
$RET_{it}\times NEG_{it}\times EXEOWN^2_{it-1}$	0.189**	0.189**
	(2.124)	(2.322)
$RET_{it}\times EXEOWN_{it-1}$	-0.024	-0.024
	(-1.151)	(-1.076)
$RET_{it}\times EXEOWN^2_{it-1}$	0.020	0.020
	(0.594)	(0.570)
NEG_{it}	0.004	0.004
	(1.221)	(1.286)
RET_{it}	-0.205***	-0.205***
	(-5.838)	(-4.957)
$RET_{it}\times LEVERAGE_{it-1}$	0.003	0.003
	(0.423)	(0.417)
$RET_{it}\times NEG_{it}\times LEVERAGE_{it-1}$	0.145***	0.145***
	(5.496)	(4.908)
$RET_{it}\times LNAT_{it-1}$	0.010***	0.010***
	(6.237)	(5.098)
$RET_{it}\times NEG_{it}\times LNAT_{it-1}$	-0.042***	-0.042***
	(-10.620)	(-7.998)
$RET_{it}\times MTB_{it-1}$	0.001	0.001
	(0.813)	(0.796)
$RET_{it}\times NEG_{it}\times MTB_{it-1}$	-0.014***	-0.014***
	(-6.312)	(-5.491)
CONSTANT	0.020***	0.020***
	(3.230)	(3.566)
YEAR FE	Y	Y
INDUSTRY FE	Y	Y
ROBUST	R	CLUSTER STKCD
OBSERVATIONS	19,453	19,453
R2_A	0.0513	0.0513

All variables definitions can be found in Appendix 1. The two models use different robust standard errors. Model (1) uses common robust standard errors under the regression coefficients. Model (2) uses firm clustering standard errors under the regression coefficients. This table is the robustness check with accounting conservatism measure of Basu (1997). I follow the method in the paper of *Basu et al. (2005) and Khan and Watts (2009)* make the regression using the Chinese-listed firms. *E* is the closing net income divided by the beginning market value of equity. *RET* is the closing annual return of the firms. *NEG* is a dummy variable equals to 1 if *RET* is negative, otherwise 0. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 2.12 The bootstrap regression to eliminate the influence of bias from the measure of executive ownership

DEPENDENT VARIABLE: CON	(1)	(2)	(3)
ABSDEF	0.024***	0.020***	0.020***
	(6.845)	(3.451)	(5.468)
LEVERAGE	0.018***	0.019***	0.021***
	(6.638)	(5.790)	(8.235)
CFOCOVER	-0.013***	-0.013***	-0.013**
	(-3.115)	(-2.844)	(-2.565)
K_AS	-0.025***	-0.024***	-0.027***
	(-9.017)	(-9.669)	(-8.004)
LNTIME	0.012***	0.012***	0.012***
	(17.996)	(15.411)	(14.277)
LNAT	-0.012***	-0.013***	-0.013***
	(-16.305)	(-20.130)	(-22.199)
SALE_GROWTH	-0.023***	-0.023***	-0.021***
	(-10.522)	(-6.861)	(-8.345)
HERF3	-0.016***	-0.014***	-0.014***
	(-5.799)	(-4.085)	(-3.506)
SD_LNSALE	0.101***	0.102***	0.095***
	(11.542)	(7.219)	(8.334)
MTB	0.001***	0.000	0.000
	(2.604)	(1.560)	(0.495)
CONSTANT	0.252***	0.265***	0.283***
	(16.693)	(21.586)	(21.893)
YEAR FE	N	Y	Y
INDUSTRY FE	N	N	Y
OBSERVATIONS	11,061	11,061	11,061

T STATISTICS IN PARENTHESES, * *P < 0.10,* ** *P < 0.05,* *** *P < 0.01*. In order to eliminate the influence of bias from the measure of executive ownership, I add a new regression, which is the bootstrap quantile regression. The bootstrap regression allows the estimation of the sampling distribution of almost any statistic using random sampling methods (Varian, 2005). The bootstrap regression can improve the estimation accuracy regardless of original sample data distributions. I use STATA to run the regression and the results are consistent with the results of Table 2.5 and Table 2.6 to support the U-shaped relationship between executive ownership and shareholders' demand for accounting conservatism. Therefore, using the bootstrap regression, I can still obtain the results that the shareholders' demand for conservatism can increase along with the increase in the absolute value of executive ownership deviation. I added this new robust check in my thesis.

Table 2.13 First lag of variables to reduce the risk of endogeneity

CON	(1)	(2)	(3)
L.EXEOWN	-5.981***	-7.015***	-6.829***
	(-3.721)	(-4.521)	(-4.388)
L.EXEOWN2	9.976***	11.133***	10.966***
	(3.970)	(4.636)	(4.545)
L.LEVERAGE	3.495***	3.544***	3.439***
	(3.186)	(3.247)	(3.041)
L.CFOCOVER	-0.139***	-0.139***	-0.138***
	(-4.045)	(-4.041)	(-4.045)
L.K_AS	-2.705***	-2.599***	-2.110***
	(-5.166)	(-4.767)	(-3.524)
L.LNTIME	0.685***	0.660***	0.650***
	(4.334)	(4.220)	(4.023)
L.LNAT	-0.986***	-0.982***	-0.984***
	(-6.092)	(-5.492)	(-5.417)
L.SALE_GROWTH	-0.501***	-0.495***	-0.494***
	(-2.762)	(-2.712)	(-2.729)
L.HERF3	-2.219**	-2.363**	-2.359**
	(-2.306)	(-2.375)	(-2.343)
L.SD_LNSALE	5.546***	5.548***	5.419***
	(7.871)	(7.777)	(7.656)
L.MTB	0.460***	0.507***	0.519***
	(2.924)	(2.746)	(2.875)
Constant	18.069***	17.583***	17.517***
	(5.417)	(4.866)	(4.813)
Year fe	N	Y	Y
Industry fe	N	N	Y
Observations	13,932	13,932	13,932
r2_a	0.164	0.164	0.166

CON is the dependent variable accounting conservatism. I take first lag of all the independent variables in the regression. The results here are consistent with test results in previous tables. *T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01*

Appendix for Chapter 2

Appendix 2.1 Variable definitions

Variables in the paper	Explanations
CON	The allowance for uncollectible account divided by firm's revenue
EXEOWN	executive ownership (executive shares divided by total shares)
$EXEOWN^2$	Square of the executive ownership
DEXEOWN	First difference of *EXEOWN*
DEF	Expected executive ownership minus previous actual ownership: the fitted value (from the regressions to get the target executive ownership) minus *l. EXEOWN*.
ABSDEF	Absolute value of *DEF*
ABOVEDUMMY	Equals to 1 if the target executive ownership not exceeds previous *EXEOWN*
ABSDEFABOVEDUMMY	*ABSDEF* multiplies *ABOVEDUMMY*
AD	Analyst coverage dummy, equals to 1 if the analyst coverage is greater than industry year mean; 0 otherwise
ABSDEFAD	*ABSDEF* multiplies analyst coverage dummy
ABSDEFABOVEDUMMYAD	*ABSDEFABOVEDUMMY* multiplies analyst coverage dummy
BD	Broker coverage dummy, equals to 1 if the analyst coverage is greater than industry year mean; 0 otherwise
ABSDEFBD	*ABSDEF* multiplies broker coverage dummy
ABSDEFABOVEDUMMYBD	*ABSDEFABOVEDUMMY* multiplies broker coverage dummy
RD	Report coverage dummy, equals to 1 if the analyst coverage is greater than industry year mean; 0 otherwise
ABSDEFRD	*ABSDEF* multiplies report coverage dummy
ABSDEFABOVEDUMMYRD	*ABSDEFABOVEDUMMY* multiplies report coverage dummy
CFOCOVER	Cash generated from the operating activity divided by operating revenue
LEVERAGE	Long term debt divided by the replacement value, firms' leverage ratio
LNTIME	The logarithm of the life time of the firm up to the accounting date
K_AS	PP&E to total book asset
LNAT	Natural logarithm for the total asset of the firm
HERF3	Herfindahl index top 3 ownership concentration degree
SALE_GROWTH	(total operating revenue-l. total operating revenue)/l. total operating revenue
SD_LNSALE	Volatility of LNSALES: latest three years' *LNSALES* standard deviation
MTB	Market to book ratio
STATEDUMMY	State owned firms according to the CSMAR database, equals to 1 if the firm is state owned, otherwise 0.
E	The closing net income divided by the beginning market value of equity
RET	The closing annual return of the firms
NEG	The closing annual return of the firms: *NEG* is a dummy variable equals to 1 if *RET* is negative, otherwise 0
INDCD	CSMAR industry code, 2=public ware fare; 3=real estate; 4=utility; 5=manufacture; 6=commerce. Finance firms are excluded.
ACCPER	Year dummy

Appendix 2.2 The target value of the executive ownership fitting regression

EXEOWN	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ALL	INDCD=2	INDCD=3	INDCD=4	INDCD=5	INDCD=6
LNAT	-0.018	-0.155**	0.066	-0.070	0.001	-0.009
	(-0.900)	(-2.440)	(1.409)	(-0.392)	(0.019)	(-0.157)
LNAT2	0.001	0.004**	-0.002	0.002	0.000	0.000
	(1.413)	(2.563)	(-1.477)	(0.508)	(0.602)	(0.095)
K_S	0.000	0.003	-0.001*	0.001	-0.000	0.001
	(0.200)	(1.566)	(-1.784)	(0.617)	(-0.441)	(0.915)
K_S2	-0.000	-0.000	0.000***	-0.000	-0.000	-0.000
	(-0.176)	(-0.502)	(2.791)	(-0.475)	(-0.110)	(-1.147)
LNSALE	0.008*	0.057***	0.004	-0.010	-0.010	0.019*
	(1.682)	(3.617)	(0.241)	(-0.396)	(-1.354)	(1.714)
LNSALE2	-0.000	-0.001***	-0.000	0.000	0.000	-0.001*
	(-1.541)	(-3.433)	(-0.168)	(0.476)	(1.398)	(-1.690)
I_K	-0.000***	-0.000***	-0.000*	0.000**	-0.000***	-0.000*
	(-4.659)	(-2.659)	(-1.700)	(2.326)	(-2.859)	(-1.650)
A_K	0.001	0.003	0.001	-0.004	0.001	0.001
	(0.810)	(0.929)	(0.625)	(-1.572)	(1.184)	(0.453)
K_AS	-0.032***	-0.027	0.049*	0.018	-0.042***	-0.005
	(-4.824)	(-1.537)	(1.881)	(0.291)	(-4.588)	(-0.408)
HERF3	-0.061***	-0.066**	-0.021	-0.002	-0.068***	-0.053***
	(-6.635)	(-2.099)	(-1.247)	(-0.031)	(-5.622)	(-3.699)
LNEQ	-0.016***	-0.030***	-0.000	-0.002	-0.021***	0.001
	(-3.592)	(-2.640)	(-0.030)	(-0.061)	(-3.776)	(0.076)
TO	-0.000	0.000	-0.000**	0.000	-0.000	-0.000
	(-0.761)	(1.502)	(-2.484)	(0.765)	(-1.602)	(-0.313)
SIGMA	0.940***	1.491***	0.141	2.031***	0.761***	1.373***
	(5.878)	(2.763)	(0.559)	(2.622)	(3.858)	(3.437)
ROA	0.053***	0.141**	0.104***	-0.149*	0.047***	-0.054
	(3.467)	(2.361)	(2.755)	(-1.888)	(2.681)	(-1.452)
SALE_GROWTH	0.001	0.003	-0.002	-0.000	0.002	0.000
	(0.806)	(1.240)	(-1.599)	(-0.258)	(1.120)	(0.118)
SD_LNSALE	-0.002	0.004	0.009***	0.004	-0.008**	-0.007
	(-1.069)	(0.575)	(2.969)	(0.633)	(-2.061)	(-1.452)
CASH_LIBILITY	0.002**	0.002	-0.001	-0.001	0.001	-0.005
	(2.071)	(1.486)	(-0.363)	(-0.282)	(0.874)	(-1.142)
LNTIME	-0.096***	-0.095***	-0.083***	-0.088***	-0.098***	-0.062***
	(-45.355)	(-16.051)	(-8.413)	(-6.980)	(-37.763)	(-7.330)
LEVERAGE	-0.060***	-0.109***	-0.022	-0.075	-0.064***	-0.022
	(-4.716)	(-3.239)	(-0.596)	(-1.017)	(-3.913)	(-0.973)
CFOCOVER	-0.000	-0.000**	0.000	0.000	0.000	0.000
	(-0.143)	(-2.535)	(0.263)	(0.533)	(0.234)	(0.584)
LABOR	-0.004***	-0.000	-0.009***	-0.002	-0.006***	0.001
	(-3.985)	(-0.129)	(-4.764)	(-0.527)	(-3.562)	(0.613)
CONSTANT	0.568***	1.786***	-0.496	0.836	0.623**	0.069
	(2.825)	(2.677)	(-1.049)	(0.469)	(2.361)	(0.111)
YEAR FE	Y	Y	Y	Y	Y	Y
INDUSTRY FE	N	N	N	N	N	N
ROBUST	R	R	R	R	R	R
OBSERVATIONS	11,629	1,505	774	414	8,020	916
R2_A	0.422	0.468	0.413	0.374	0.407	0.349

All variables definitions can be found in Appendix 2.1. The target level of *EXEOWN* is generated by regressing the same variables by industry and year. It can help me to get more precise predicted values. But it is not reasonable to display all the regressions here. Therefore, the regression here is displayed using the method stated in the table. *LNAT* is the natural logarithm of total asset. *LNAT2* is the square of the *LNAT*. *K_S* is the PP&E divided by firm sales revenue. *K_S2* is the square of *K_S*. *LNSALE* is the natural logarithm of firm sales. *LNSALE2* is the *LNSALE* square. *I_K* is the capital expenditure to PP&E. *A_K* is the selling cost to PP&E. *K_AS* is the PP&E to total book asset. *TO* represents the sales divided by receivables. *SIGMA* is the S.D. of idiosyncratic risk. *ROA* is the return of asset. *SALE_GROWTH* is the sales growth rate. *SD_LNSALE* is the *LNSALS* volatility. *LNTIME* is the logarithm of the listing time of the firm up to the accounting date. *CFOCOVER* is the cash generated from the operating activity divided by operating revenue. *LABOR* is the natural logarithm of the number of the employees. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Appendix 2.3 Hausman test for panel data

	COEFFICIENTS			
	(b)	(B)	(b-B)	SQRT(DIAG(V_b-V_B))
DEPENDENT VARIABLE: CON	FE	RE	DIFFERENCE	S.E.
EXEOWN	-6.400	-6.546	0.146	.
EXEOWN2	10.202	10.325	-0.124	.
LEVERAGE	3.790	3.897	-0.107	0.041
CFOCOVER	-0.192	-0.193	0.001	0.000
K_AS	-1.598	-2.024	0.426	0.109
LNTIME	0.643	0.661	-0.018	0.012
LNAT	-0.967	-0.972	0.005	0.007
SALE_GROWTH	-1.184	-1.184	0.001	.
HERF3	-1.790	-1.802	0.011	0.006
SD_LNSALE	5.937	6.029	-0.091	0.020
MTB	0.499	0.486	0.012	0.005

YEAR DUMMY INCLUDED

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(20) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 29.78

Prob>chi2 = 0.0735

(V_b-V_B is not positive definite)

The results of Hausman tests show that I need to use the fixed effect for the regressions. I therefore use the year and industry fixed effect in the regressions for the test of U shape.

Chapter 3 THE INFLUENCE OF EXECUTIVE OWNERSHIP ON DIVIDEND TUNNELLING IN CHINA

3.1 Introduction

Tunnelling, as a specific type of financial fraud, is the controlling shareholders' expropriation on the minority shareholders' interests. The Chinese stock market is a well-suited context for tunnelling research for several reasons. I provide five main reasons to explain the severity of tunnelling in China and provide further details in the following five paragraphs. First, Jiang et al. (2010) indicate that the Chinese firms do not face enough external governance mechanisms (e.g., lack of takeovers, lack of public enforcement for tunnelling punishment). Second, minority shareholders have little impact on the firm and cannot monitor firms efficiently (Jiang et al., 2010). Third, the weak legal system in China cannot regulate the tunnelling behaviours effectively (Kuo et al., 2014). Fourth, Jiang et al. (2010) indicate that the controlling shareholders' trading behaviours are highly restricted, which pushes them towards dividend tunnelling. Fifth, China, as a developing market, has a weaker corporate governance environment compared to the developed markets (Bai et al., 2004). I provide explanations for these reasons in the following paragraphs.

For the first reason, Jiang et al. (2010) argue that Chinese-listed firms face very limited external governance mechanisms including takeover threats or other forms of investor activism. Jiang et al. (2010) also suggest that China lacks public enforcement for tunnelling punishment such as very limited fines and prison terms. The lack of external

governance mechanisms cannot monitor and constrain the misconduct of the controlling shareholders such as tunnelling behaviour. It is because that insufficient supervision, enforcement and regulations can result in firms' lack of motivation to reform and employ better corporate governance mechanisms. In addition, Jiang et al. (2010) suggest that the low level of institutional ownership (mutual fund ownership) in China also limits the monitoring effect of these investors on share prices.

The second reason is that the minority shareholders have almost no channels to take actions against the misconduct of the insiders (Jiang et al., 2010). Firth et al. (2016) document that most Chinese-listed firms have a dominant controlling shareholder, and the minority shareholders cannot participate in the decision-making process. Yuan et al. (2008) indicate that controlling shareholders and state-owned shareholders are highly likely to be the same in Chinese-listed firms. Wang and Xiao (2009) show that 70% of Chinese-listed companies are ultimately controlled by the government. Allen et al. (2005) and MacNeil (2002) point out that, traditionally, the law courts in China have protected the interests of the state-owned listed firms. Therefore, 70% of Chinese-listed companies are protected by the current regulations and law courts against the interests of minority shareholders. Controlling shareholders in the remaining 30% of Chinese-listed firms also have large advantage in the law court when there are conflicts between controlling shareholders and minority shareholders, because the relevant regulations and supervisions to protect minority shareholders are very weak in China (Jiang et al., 2005; Jiang et al., 2010; Lv et al., 2012). Jiang et al. (2010) contend that the regulations in place to protect the minority shareholders are limited not only because of the lack of laws but also because of the weak enforcement mechanisms involved in

complying with the laws. The listed firms' boards of directors and the executive management teams who are familiar with the firm information are nominated by the controlling shareholders (Cullinan et al., 2012). Therefore, if the law courts summoned the managers and directors for detailed information, this still cannot help minority shareholders.

The third reason is that the legal systems in China are also weak and cannot effectively regulate the misconduct such as tunnelling of firms controlled by the dominant state-owned shareholders (Kuo et al., 2014). Allen et al. (2005) point out that the development levels of the law and the institutions in the Chinese market are not as advanced as those in most countries investigated by La Porta et al. (1997) and Porta et al. (1998). The less developed legal systems in China also means that the corporate governance mechanism and the investor protection systems are even less efficient (Firth et al., 2007b).

The fourth reason is that the trading behaviour of the controlling shareholders is highly restricted (Jiang et al., 2010). The Chinese common stocks are classified into two groups: the tradeable shares or the non-tradeable shares. The trading of the non-tradeable shares is restricted in the market. Wang and Xiao (2009) and Jiang et al. (2010) point out that 63.51% total outstanding shares are non-tradeable and mostly belong to the controlling shareholders. Therefore, the controlling shareholder cannot easily obtain benefits from the price appreciation of the shareholdings like minority shareholders do by trading the shares[12]. The controlling shareholders are motivated to engage in the dividend tunnelling for their benefits.

[12] The capital gain from trading shares is tax-free (Firth et al., 2016).

The fifth reason is that China has long been regarded as having a weaker corporate governance environment compared to the developed markets (Bai et al., 2004; Braendle et al., 2005; Chen et al., 2006; Chen et al., 2011; Dechow and Skinner, 2000; Fan et al., 2007; Kuo et al., 2014). Most Chinese-listed firms have a dominant controlling shareholder, and the minorities have little direct impact on the decision-making process (Firth et al., 2016). As a result, controlling shareholders may neglect the minorities' interests and extract firms' resources to benefit themselves (Chen et al., 2014; Ma et al., 2013; Wang and Xiao, 2011; Zhang et al., 2014). Under the weaker corporate governance environment, Zhang et al. (2014) and Wang and Xiao (2011) also suggest that the dominant shareholders and CEOs are in cahoots to do the tunnelling in China.

Previous studies have provided evidence of the tunnelling activities of the controlling shareholders. Jiang et al. (2015) find that the controlling shareholders can carry out their tunnelling activities through the non-operational funds in the Chinese-listed firms. The controlling shareholders can directly take funds away from the listed firms without matching any transaction in the firm. Peng et al. (2011) indicate that the controlling shareholders can use the related party transactions as a tunnelling method, while Jiang et al. (2010) find that the controlling shareholders can also use intercorporate loans as a channel of tunnelling.

The Chinese Government has developed regulations to constrain the controlling shareholders' tunnelling behaviours. Jiang et al. (2010) point out that the regulators such as the China Securities Regulatory Commission (CSRC) have largely restricted the

tunnelling activities through intercorporate loans from the market. However, the elimination of one particular method of tunnelling can push the controlling shareholders to employ other tunnelling methods such as through dividend tunnelling. Chen et al. (2009) and Lv et al. (2012) suggest that the controlling shareholders and the executives use the dividend payouts for tunnelling purposes.

The studies of Chen et al. (2009), Lv et al. (2012) and others, however, ignore the influence of the executives on the tunnelling behaviour and focus only on the controlling shareholders (Chen et al., 2009; Gao and Kling, 2008; Jiang et al., 2005; Li, 2010; Liu and Lu, 2007). However, tunnelling cannot be realised without the support of managers. On the one hand, controlling shareholders cannot leave executives to conduct tunnelling activities as executives are in charge of firm's daily operation (Zhang et al., 2014). On the other hand, most Chinese-listed firms have a dominant controlling shareholder (Firth et al., 2016). In China, executives' appointments and tenure can be determined by controlling shareholders (Conyon and He, 2011; Firth et al., 2006a). Therefore, the activities of the executives should be consistent with the willingness of the controlling shareholders to conduct tunnelling behaviour in the Chinese-listed firms (Wang and Xiao, 2011; Zhang et al., 2014).

Florackis et al. (2015) find that the relationship between dividend and managerial ownership is negative when the managerial ownership is below a threshold. However, the relationship between dividend and managerial ownership is positive when the managerial ownership is above a threshold.

Firstly, Florackis et al. (2015) indicate that the increase in managerial ownership can help align managers' interests with those of shareholders when managerial ownership is below a threshold. It is consistent with the incentive alignment effect which suggests that managers who own equity in the firm act as owners and reduce the degree of expropriation from other investors (Jensen and Meckling, 1976). In other words, the increase in managerial ownership aligns the interests between managers and shareholders, which in turn reduces agency cost from the separation of managers' management power and their ownership level. However, Morck et al. (1988) suggest that the increase in managerial ownership when managerial ownership exceed the threshold level can lead to managerial opportunism and entrenchment behaviour (i.e. entrenchment effect). It is because that the above threshold level of managerial ownership provides managers more power and influence and not afraid of replacement or the discipline of markets and firms (Lafond and Roychowdhury, 2008; Morck et al., 1988; Shuto and Takada, 2010). As a result, increase in managerial ownership can induce managers' entrenchment behaviour and increase agency costs.

Secondly, different from the argument of Lv et al. (2012) that dividend payment can be a tunnelling method in China, Florackis et al. (2015) and Allen et al. (2000) indicate that dividends play a monitoring role and can reduce agency costs in the US market. It is because the dividend payout reduces the firm resources which can be abused by managers in the US market with relatively balanced shareholder structure (Lv et al., 2012).

Combining the two reasons, when the managerial ownership is below the threshold of

Florackis et al. (2015), their findings support a negative relationship between managerial ownership and dividends as dividends are the substitute of managerial ownership to reduce the agency cost. However, when managerial ownership is above the threshold of Florackis et al. (2015), the relationship between dividend and managerial ownership is positive and can be explained by the entrenchment effect of managerial ownership. First, dividend is a monitoring role and can reduce agency costs in the US market (Florackis et al., 2015). Second, entrenchment effect argues that the executives are self-interested and can exhibit opportunistic behaviour for their own benefit and in turn increase agency cost if their ownership further increases when executive ownership is above a threshold (Farinha, 2003; Schooley and Barney, 1994). The increase in dividend in U.S firms can enhance the monitoring on the entrenched executives when their shareholdings further increase. This is because the ownership in the US market is dispersed and thus the dividend payout can benefit all the shareholders by constraining executives' abuse of firm resource. Therefore, the relationship between dividend and executive ownership is positive when executive ownership is above a threshold.

Due to the five unique characteristics of the Chinese market mentioned at the start of this chapter, I investigate the impact of the executive ownership on the dividend policy in China. Compared to the arguments of Florackis et al. (2015), I conjecture that the dividend policy in China is different from that in the developed markets because the environment of the Chinese market is suitable for the tunnelling activities. Even the dividend payout can become the channel for the tunnelling by the controlling shareholders (Chen et al., 2009; Lv et al., 2012). Since the dividend payout can be used

as the channel for the tunnelling, when the executive ownership is low, the executives need to issue more dividends as the executive ownership increases. It is because the executives need to be consistent with the willingness of the controlling shareholders to engage in the tunnelling. In addition, Hu and Kumar (2004) indicate that the executives have the intention to increase their ownership in order to gain more control and secure their position in the firms. Meanwhile, the controlling shareholders can nominate the board members and determine the executives' remunerations, appointments and dismissals (Conyon and He, 2011; Cullinan et al., 2012; Firth et al., 2006a). If the executives with low ownership do not help the controlling shareholders in the tunnelling, the executives can hamper their own career development. When the executive ownership is high, the executives may become self-interested and collude with the controlling shareholders to issue more dividends for tunnelling purposes. The controlling shareholders of Chinese-listed firms also want to acquire more dividends for their benefits (Chen et al., 2009; Lv et al., 2012). Therefore, the activities of the executives are consistent with the willingness of the controlling shareholders. My results show that both the dividends and the abnormal dividends are positively related to the executive ownership. The results support that the executives can extract more than expected firms' resources through the dividend payouts to the controlling shareholders and themselves.

My study further looks at the impacts of both the internal factors and the external monitoring mechanisms on the relationship between the executive ownership and the dividend tunnelling. By evaluating the internal factors like the degree of the ownership concentration, the influence of the state ownership, and the traditional tunnelling

method, the results show that the internal factors can increase the dividend tunnelling. The results in this chapter are consistent with the view that the weak corporate governance facilitates the dividend tunnelling. I then consider the external monitoring factor such as the analyst coverage to constrain the dividend tunnelling.

Yu (2008) suggests that analysts' coverage can monitor firms' activities. Analysts can be regarded as the external monitoring mechanism for corporate managers (Healy and Palepu, 2001; Jensen and Meckling, 1976). Analysts can track financial statements regularly and have the substantial financial and industrial background and analytical knowledge. As a result, analysts can detect misconduct of corporate managers and constrain their misbehaviour. In addition, Degeorge et al. (2013) suggest that analyst coverage can help firms to build up good corporate governance because it increases external monitoring. Previous studies provide supportive evidence. For instance, Jensen and Meckling (1976) suggest that analysts' activities are able to reduce agency costs. Dyck et al. (2010) document that analysts can monitor fraudulent behaviour in firms quickly. Yu (2008) argues that earnings management opportunities can be reduced by the increase in analyst coverage. Analysts are trained to analyse the accounting reports of firms to monitor the firms' operations. If analysts cannot produce a good quality report which can reflect target firms' information and financial position accurately, the analysts' reputation can be damaged (Degeorge et al., 2013). Therefore, more analysts following a certain firm's financial reports and the firm's daily operations can recognize the firm's potentially fraudulent behaviour more efficiently. Dividend tunnelling is a method of tunnelling in China suggested by Lv et al. (2012) and Chen et al. (2009), and thus analyst coverage can monitor fraud including tunnelling behaviour, and dividend

tunnelling particularly in China. I undertake a test of the external analyst coverage. If the analysts' coverage is the external monitoring mechanisms to regulate the firm behaviour in China, the sensitivity between the dividend tunnelling and the executive ownership should be reduced.

I use the data from the CSMAR database with the sample period from 2005 to 2015. I first re-confirm that the dividend payouts are treated as the tunnelling method in China by running the same regressions as Lv et al. (2012). To provide further supporting evidence that the dividend payouts are treated as the method of the dividend tunnelling in China, I replace the dividend payouts with the abnormal dividend payouts[13] and run the same regressions. The results support the arguments of Lv et al. (2012). Then I find that the increase in the executive ownership can increase the dividend payouts. Furthermore, the abnormal dividend payouts are also positively related to the executive ownership. It indicates the executives can extract more than expected firms' resources through dividends. Lv et al. (2012) suggest that the dividend payout policy is also a channel for tunnelling company funds to the controlling shareholders and the executives. Therefore, I conjecture that the executive ownership concentration can increase the dividend tunnelling. When adding the other receivable account as the interaction, the results show that the dividend tunnelling and the inter-corporate loan tunnelling are substitutes for each other. By evaluating the state ownership as the interaction term, I find that the increase in the state ownership also increases the sensitivity of managerial ownership and dividend tunnelling. After considering the internal factors, I tested the

[13] The abnormal dividend payouts are the residuals extracted from the regressions on several dividend determinants including the firm performance. The regression is derived from the following two papers.
Holder, ME, Langrehr, FW, Hexter, JL. Dividend policy determinants: An investigation of the influences of stakeholder theory. Financial Management 1998;73-82.
Rozeff, MS. Growth, beta and agency costs as determinants of dividend payout ratios. Journal of Financial Research 1982;5;249-259.

external factors. I added the analyst number dummy, the report number dummy and the broker number dummy into the regressions to examine the influence of the analyst coverage on the sensitivity between the dividend tunnelling and the executive ownership. The results imply that the analyst coverage is an efficient way to monitor the insiders' behaviour and to reduce the dividend tunnelling.

In this chapter, I make several contributions. Firstly, mine is the first attempt to fill the gap in the literature concerning the relationship between the dividend tunnelling and the executive ownership. I find that the cash dividend itself is a channel for the tunnelling activities. Chen et al. (2009) show that some Chinese firms use high dividends to transfer the proceeds of the IPO to the controlling shareholders. However, they focus on the dividend tunnelling occurring in the IPOs but do not consider the continuous expropriation by the controlling shareholders' use of the dividend payouts. Lv et al. (2012) find evidence that the dividend payout is a tunnelling method in the Chinese market but do not investigate the relationship between the dividend payout strategy and the executive ownership. I am also the first to use the abnormal dividend payouts to investigate the relationship between the dividend tunnelling and the executive ownership. The advantage of using the abnormal dividend payout is that I can directly argue that the dividend payouts extract more than expected dividends to the controlling shareholders in China. Secondly, I contribute to the literature by studying the influences of the internal factors like the ownership concentration, the tunnelling of the other receivables and the government ownership on the sensitivity between the dividend payouts and the executive ownership. Thirdly, I contribute to the field by investigating the influence of the analyst coverage on the sensitivity between the dividend tunnelling

and the executive ownership. This is consistent with the finding of Ding et al. (2013) that the analyst coverage is an effective external monitoring mechanism to improve the corporate governance.

The rest of the chapter is arranged as follows. The second part outlines the related literature. The third part covers hypotheses development. The fourth part consists of the data and methodology. While the fifth part provides the results from the regressions, the sixth part draws conclusions.

3.2 Related Literature

3.2.1 Controlling shareholders and executives

Prior research reveals a determinant role of the ownership structure in the expropriation of minority shareholders by the insiders (Farinha and López-de-Foronda, 2009; Lemmon and Lins, 2003). Maury and Pajuste (2005) document that the multiple shareholders have a major influencing role in the corporate governance mechanism because many shareholders with similar shareholdings can compete with each other and keep balanced ownership structure. Berkman et al. (2009) find a negative relationship between the private non-controlling shareholder ownership and the likelihood of expropriation by a controlling shareholder when studying Chinese company-related party loan guarantees. The incentives to monitor the controlling shareholders and the willingness to constrain the expropriation of minority shareholders are strongest among the private non-controlling shareholders. However, firstly, Jiang et al. (2010) argue that the legal system in China affords the minority shareholders little opportunity to take

private enforcement actions against the controlling shareholders' misconduct. Secondly, the Chinese firms are not subject to sufficient external governance mechanisms. The lack of external governance mechanisms can hide the misconduct of the controlling shareholders. The non-competitive environment can lead to a shortage of motivation to reform and obtain better corporate governance mechanisms. Thirdly, the weak legal system in China cannot regulate the tunnelling behaviours effectively. Fourthly, the controlling shareholders' trading behaviours are highly restricted, which push them into the dividend tunnelling. Fifthly, China has a weaker corporate governance environment compared to the developed markets. Therefore, I assume that the corporate insiders may attempt to expropriate the minorities when the corporate governance remains weak.

Tunnelling activities are pervasive. First, Jiang et al. (2010) suggest that intercorporate loans were used by controlling shareholders to siphon tens of billions of RMB from Chinese-listed companies during the 1996–2006 period. Inter-corporate loans are typically reported as part of ‘‘Other receivables’’ (OREC), which can be found in the balance sheets of a majority of Chinese firms and collectively represent a large portion of their assets and market values. Then regulatory departments in China found the severe problem and required firms to return inter-corporate loans; this continued until 2006. A joint statement by eight government ministries required the firms with tunnelling behaviour to disclose information to the public and to take legal action against related persons in firms to stop the abuse of OREC. The forced returning of the "other receivables" account had some positive effects; most of the OREC has been returned and the related tunnelling ended. The statistic shows that tunnelling related to inter-corporate loan abuse amounted to close to 50 billion RMB, and involved over

one-third of all listed firms (Jiang et al., 2010). Therefore, before the forced payback, these firms exhibited severe tunnelling behaviour through OREC. Second, when inter-corporate loans were largely regulated during this period by the government to stop tunnelling behaviour, a new method of tunnelling-dividend tunnelling was used. Dividend tunnelling is discussed by Chen et al. (2009) and Lv et al. (2012). Lv et al. (2012) find that the dividend is negatively related to the minority shareholder protection proxy-SBM, and thus the dividend payment does not help to protect minority shareholder interests in China. Chen et al. (2009) also provide an example of dividend tunnelling: the case of a listed firm, Ufida Software Company (code 600588). Dividend was paid to the firm's controlling shareholder without considering the firm performance, and thus the controlling shareholder of Ufida conduct tunnelling behaviour.

The pervasive tunnelling is because of the institutional set-up in the Chinese stock markets. There are several explanations for this phenomenon. First of all, most of the listed firms in China are carve-outs from large state-owned enterprises or separate from them initially (Jiang et al., 2010). After the separation, the state-owned shares still occupy a large part of all outstanding shares. Meanwhile, Jiang et al. (2010) and Lv et al. (2012) point out that the Chinese Government has declared that the remaining state-owned shares or the converted non-tradable shares have more restrictions in trading, because Jiang et al. (2010) suggest that the Chinese government has the intention to retain control of the listed firms. Yuan et al. (2008) find that the average shareholding by the government in the listed firms is very high. As a consequence, the level of ownership concentration is very high, and many firms are state-controlled. Yuan et al. (2008) suggest that the controlling shareholders and the state-owned shareholders

can be the same at most times. The minority shareholders do not have the chance to make their voice heard. Secondly, the controlling shareholders have dominant control over the firms in China (Zhang et al., 2014). The control is reflected in the firms' board composition and the executive incentives. Cullinan et al. (2012) indicate that the controlling shareholders can affect board composition by nominating board members. Those nominated and those who successfully remain on the firms' board may be affiliated with the controlling shareholders. Cullinan et al. (2012) find that, in their sample, the affiliated directors occupy almost 40% of the board seats. Therefore, even though the board contains the supervisory directors, they do not conduct effective monitoring in the decision-making process (Firth et al., 2006a).

The large shareholders, who hold a majority of the voting rights, can exert a strong influence on firms' operations in China. Firth et al. (2006a) and Conyon and He (2011) conclude that controlling shareholders can control the appointments and tenure of executives in the Chinese market. However, managers can assist the controlling shareholders in conducting tunnelling activities. Zhang et al. (2014) point out that executives manage daily operation and make decisions for all the firm policies and investments, and thus controlling shareholders need managers to assist in the tunnelling activities. For example, Wang and Xiao (2011) discover that the controlling shareholders in Chinese-listed firms collude with executives in tunnelling activities.

3.2.2 Tunnelling behaviour of controlling shareholders

Previously, Johnson et al. (2000) introduced 'tunnelling' to describe the controlling

shareholder's behaviour of transferring the company resources for their own benefits. There is a wide range of activities associated with tunnelling, including outright theft, loan guarantees, and deviation from the market prices when selling assets or products. Tunnelling behaviour has been discussed in the literature. For instance, tunnelling through inter-corporate loans and related party transactions has been discussed by Jiang et al. (2010), Aharony et al. (2010) and Du et al. (2013). Some new methods of tunnelling, such as dividend tunnelling, have also been recognized by scholars such as Chen et al. (2009) and Lv et al. (2012) in the Chinese market. Since the tunnelling is negatively related to effective corporate governance mechanisms (Johnson et al., 2000), emerging markets are found to have more serious problems of tunnelling than the developed countries do. This is because the firms in emerging countries usually have a concentrated ownership structure, less independent boards, inactive external takeover markets and low-quality disclosure (Braendle et al., 2005; Chen et al., 2006; Fan et al., 2007; Firth et al., 2007b; Gao and Kling, 2008; Lin, 2004; Liu and Lu, 2007; Lv et al., 2012; Tenev et al., 2002; Xu and Wang, 1999). China is the largest emerging market country and has weak corporate governance mechanisms particularly in the over-concentrated ownership structure. Therefore, China is an important context within which to study tunnelling behaviour.

Research on the corporate loans reveals that the aim of the controlling shareholders is to extract funds from the Chinese-listed firms for themselves (Jiang et al., 2005; Jiang et al., 2010). However, Jiang et al. (2010) point out that the regulators like the CSRC have constrained the tunnelling method of the "other receivables account". Jiang et al. (2010) document that the government forces both the top managers and controlling

shareholders to pay back the deficits in the "other receivables account". However, the prevention of one particular channel of tunnelling may simply push the controlling shareholders to transfer to an alternative channel, dividend payout. Chen et al. (2009) and Lv et al. (2012) highlight the role of the tunnelling in the dividend policy. The tunnelling theory suggests that dividend payment is a channel by which the controlling shareholders can hamper the interests of minority shareholders.

Not all dividend payments can be treated as dividend tunnelling as it is subject to conditions. Following Lv et al. (2012), dividend policy has been considered as a puzzle in the finance literature. Many theories have been developed to explain corporate dividend behaviour. Lv et al. (2012) suggested that these dividend theories can be categorized into two groups: protection theories and tunnelling theories. The protection theories include clientele effect theory (Elton and Gruber, 1970), agency cost theory (Easterbrook, 1984), signalling theory (Miller and Rock, 1985), free cash flow theory (Jensen, 1986) and catering theory (Baker and Wurgler, 2004). Tunnelling theory (Chen et al., 2009; Lv et al., 2012) is different from the traditional dividend theories because dividend tunnelling theory argues that dividends can be used to expropriate minority shareholder interests.

Dividend can be used as a method to tunnel firm resources by the controlling shareholders in China where firms' ownership structure is highly concentrated (Chen et al., 2009). Lv et al. (2012) also suggest the dividend payment in China can be explained by dividend tunnelling theory. Under tunnelling theory, dividends are employed by controlling shareholders to expropriate the interests of minority shareholders. More

importantly, the evidence of dividend tunnelling comes mainly from the Chinese market. Lv et al. (2012) suggested that dividends can be treated as a method of tunnelling if the relationship between the shareholder balancing mechanism (SBM) and the dividend payout is negative. SBM measures the strength of minority shareholder protection. Lv et al. (2012) suggest that tunnelling can expropriate minority shareholders' interests, and thus they indicate that if dividend is a tunnelling method, the increase in dividend is positively related to the expropriation of minority shareholders' interests (i.e. when SBM is lower, or the ownership structure is highly concentrated). The details of *SBM* are in Section 3.4.1.

3.2.3 Analyst coverage

Analyst coverage can monitor firms and reduce the potential for fraud within firms (Yu, 2008). Analysts' reputation is based on the accuracy of their investigations into firms (Degeorge et al., 2013). Healy and Palepu (2001) suggest that analysts are familiar with the relevant financial and industrial knowledge and can investigate firms to write reports to guide investors. Therefore, executives' potential misconduct may be found by analysts. However, if there is only one analyst investigating many firms, the analyst may not maintain accuracy all the time. Many analysts focusing on a certain firm can make the information as transparent as possible. The idea is supported by Yu (2008), who argues that earnings management opportunities and related agency cost can be reduced by the increase in analyst coverage density (high frequency of analysts' investigations), which means more analyst focus on firms can reduce agency costs related to earnings management. The papers of Liu and Lu (2007) and Aharony et al.

(2010) argue that earnings management is positively related to the degree of tunnelling behaviour because firms' executives and controlling shareholders need to use managed earnings to cover the amount of resources which have been tunnelled out of the firms. Therefore, analyst coverage (higher density of analysts' investigations) can reduce executives' and controlling shareholders' misconduct and fraudulent behaviour, such as tunnelling in firms. Lv et al. (2012) and Chen et al. (2009) find that dividend payout can be used for tunnelling purposes in China. Therefore, I want to test whether analyst coverage can monitor and reduce dividend tunnelling behaviour. I, therefore, discuss the relationship between analyst coverage and dividend tunnelling in the Related Literature section of my thesis.

3.3 Hypotheses development

In order to find the relationship between executive ownership and dividend tunnelling, I need to first follow Lv et al. (2012) to confirm that dividend payment in China is used as a tunnelling method to help controlling shareholders to expropriate minority shareholders by introducing split-share reform and SBM (shareholder balancing mechanism). Then I further study the relationship between executive ownership and dividend tunnelling in Chinese-listed firms.

Lv et al. (2012) point out that many Chinese-listed firms have transferred from previous state-owned enterprises. However, the previous controlling shareholders and the executives largely remain in place, even following the split-share reform that took place in the year 2005 (Firth et al., 2010; Hou et al., 2012; Kuo et al., 2014). I first discuss the

background of split-share reform, then I discuss the reform. At last, I discuss the remaining restrictions on converted NTS (non-tradeable shares) after split-share reform.

Firstly, according to Kuo et al. (2014), the center of China's economic reform is the privatization of previous state-owned firms both listed and unlisted. Following Kuo et al. (2014), the government ownership is mainly formed by the non-tradable shares, while the other type of share is the tradable share which is only issued to domestic individuals and institutional investors and can be freely traded in stock markets in China.

Before split-share reform, this two-tier stock structure put limits on firms' profitability and efficiency and even declines after the firms' listing (Chen et al., 2008b; Yu et al., 2006). NTS (non-tradeable shares) were recognized as an impediment to the growth and effective functioning of the stock market. There are two main reasons for this. First, corporate control was almost absent as NTS occupied large proportions of shares. The high level of state non-tradable shares meant minority shareholders had very little decision-making rights in firms. Second, there was serious unfairness between NTS (non-tradeable shares) and TS (tradable shares) shareholders because of the differences in the tradability and pricing mechanisms. TS are priced based on the market and have higher price-earnings ratios than NTS, while NTS are based on the net asset value (Kuo et al., 2014). Kuo et al. (2014) document that NTS can only be negotiated to transfer to other parties under restrictions of the time period and amount . Consequently, the stock price movement cannot have a large impact on NTS value. Therefore, NTS shareholders do not have enough market-based incentives to improve the performance or to maximize market-based TS value (Chen et al., 2008a; Li et al., 2011).

Secondly, Lv et al. (2012) and Kuo et al. (2014) document that split-share reform is to solve the problems originated from the two-tier stock structure in Chinese-listed firms by removing the differences between NTS and TS gradually. Initially, the Chinese government launched the reduction of government ownership and privatized firms in 2001 in order to achieve the target of split-share reform immediately. However, the market responded with a sudden drop over 30% when the initial reform policy was issued as TS investors were concerned about the sudden increase in the supply of shares could reduce share price of their shareholdings (Kuo et al., 2014). As a result, the initial trial was ended in 2002 to keep the market stable. Then, in 2005, the China Securities Regulatory Commissions (CSRC) reopened the trial of split-share reform. Kuo et al. (2014) suggest that, different from the initial trial, NTS shareholders were required to pay compensation to TS shareholders before trading their NTS. During the split-share reform, other methods to keep market stable were also introduced such as reducing too much volatility of share price, suspending share trading prior to the public announcement of the agreed compensation plans, etc. In 2007, split-share reform was completed, and most NTS were converted to TS in Chinese stock market (Firth et al., 2010).

At last, even after the split-share reform, the converted NTS still have restrictions on trading in practice. After the reform, the firms' operation decisions and powers are still controlled by those previous executives, directors and the controlling shareholders. This is because that although the split-share reform has solved the legal problems of the shares with different trading and price mechanisms, there are still several technical

restrictions for the converted non-tradable shares (Lv et al., 2012). For example, Kuo et al. (2014) document that the converted NTS need at least a 12-month "lockup" period to ease the possible impact of stock overhang on the holdings of TS shareholders. They document that CSRC required that converted NTS shareholders with more than 5% of a firm's shares should be restricted for trading with more than 5% and 10% of the firm's total share capital within 12 and 24 months. It is used to prevent the sudden reduction in the controlling shareholder ownership. Cheng et al. (2009) indicate that the trading restrictions for the converted shares may remain in place for a number of years. As a result, the dominant shareholders still exist in the Chinese-listed firms, and thus the ownership structure is still less balanced compared to the developed markets. Also, the minority shareholder protection can still be insufficient as was the case previously.

To measure the controlling shareholders' expropriation on minority shareholders and confirm the dividend can be used as a tunnelling method, I follow Lv et al. (2012) to use SBM as the proxy for minority shareholder protection level. Maury and Pajuste (2005) suggest that a balanced shareholder structure with a high SBM (shareholder balancing mechanism) can help protect firms' minority shareholders. The details about SBM are explained in the following methodology[14].

SBM is the sum of the square percentage of the shares held by non-block shareholders divided by the square percentage of shares held by controlling shareholders. It is a proxy for minority shareholder protection (Lv et al., 2012; Maury and Pajuste, 2005). Under tunnelling theory mentioned in Section 3.2.2, dividends are employed by corporate controlling shareholders to expropriate the interest of minority shareholders

[14] The details are near Equation (3.1.3)

(Lv et al., 2012). Therefore, under dividend tunnelling theory, more controlling shareholders' expropriation on minority shareholders means more dividend payouts. Maury and Pajuste (2005) document that minority shareholder protection (SBM) has a significant negative relationship with the agency conflicts between controlling and minority shareholders such as controlling shareholders expropriation on minority shareholders. Therefore, minority shareholders in China have the perception that the relationship between minority shareholder protection (SBM) and the dividend payment is negative. Following Lv et al. (2012), I conjecture the hypothesis that the relationship between dividend and minority protection (SBM) is negative to confirm the dividend tunnelling phenomenon in China. In addition, to clarify that controlling shareholders can extract the firms' resources regardless of the firms' real financial position, I use the abnormal dividend payout ratio[15] and the dividend payout ratio in the regression. I conjecture that the controlling shareholders can extract the firms' resources for their own benefits through the dividend payout policy, and thus I make the following hypothesis:

H1: *The strength of minority shareholder protection is negatively related to the dividend payout ratio in Chinese-listed firms.*

Florackis et al. (2015) suggest that the relationship between the managerial ownership and the dividend payouts can be explained by the two contradictory theories-the alignment theory (Jensen and Meckling, 1976) and the entrenchment theory (Morck et al., 1988) in the developed markets. The developed markets are recognised as having relatively balanced shareholder structure and better minority shareholder protection than

[15] The explanation of abnormal dividend is in the Methodology part and in Appendix 3.3.

the developing markets have. The alignment theory dominates when the executive ownership is lower than the threshold, while the entrenchment theory dominates when the executive ownership is higher than a certain threshold (Morck et al., 1988). However, the two explanations do not consider the unique characteristics in the Chinese market.

Lv et al. (2012) point out that the dividend tunnelling is high when the ownership concentration is high. The Chinese-listed firms often have a dominant controlling shareholder (Jiang et al., 2010). Zhang et al. (2014) suggest that the firms' controlling shareholders can control the Chinese-listed firms. The control mainly affects the firms' board composition and the executive incentives. Firth et al. (2006a) and Conyon and He (2011) conclude that the controlling shareholder in China can decide the executives' remuneration, appointments and dismissals. In addition, Jiang et al. (2010) argue that the legal system in China provides little protection to the minority shareholders; however, Firth et al. (2016) indicate that the minority shareholders have limited impact on firms' decision-making processes in China. Therefore, the executives may not take into account the minorities' interests. Hu and Kumar (2004) indicate that the increase in the executive ownership can enhance the CEO power which can reduce the risk of CEO replacement and turnover, and thus the executives have the intention to hold more shares. If the executives with low ownership do not help the controlling shareholders in the tunnelling, the executives can hamper their own career development. Consequently, in China, the executives may collude with the controlling shareholders' willingness which is to issue more than expected dividends while the executive ownership increases.

The entrenchment theory proposed by Morck et al. (1988) indicate that when the executive ownership is higher than the threshold, the executives may engage in self-interested behaviours. When the executive ownership is high in the Chinese-listed firms, the executives may become self-interested and collude with the controlling shareholders to issue more dividends for tunnelling purposes. The controlling shareholders of Chinese-listed firms also want to make more dividends for their benefit (Chen et al., 2009; Lv et al., 2012). Therefore, the activities of the executives are consistent with the willingness of the controlling shareholders. In summary, the executives may increase the dividend (both the dividend and the abnormal dividend) when executive ownership increases, no matter executive ownership is below or above the threshold.

Hu and Kumar (2004) indicate that the executives have the intention to hold more shares to obtain power and stay in charge of the firms. Lv et al. (2012) use the *SBM* as the measure of the minority shareholder protection to examine whether the dividend payouts are employed by controlling shareholders to expropriate the minorities in China. Lv et al. (2012) point out that minority shareholders may sell shares when dividend payouts increase because the minority shareholders consider that as expropriation of their interests. In China, the capital gain from trading shares is tax-free (Firth et al., 2016). And Lv et al. (2012) suggest that the minority shareholders do not have trading restrictions. The minority shareholders sell shares while the large shareholders and the executives buy shares. This mechanism can further increase the level of ownership concentration. Therefore, the executives have the intention to issue more than expected

dividends under tunnelling. The executives can use the mechanism to gain more power. I then conjecture the following hypothesis:

H2: *A higher level of dividend payout is related to a higher level of executive ownership for the dividend tunnelling.*

The lower *SBM* indicates that the minority protection is lower. Previous studies only discuss the dividend tunnelling as the controlling shareholders' expropriation on the minority shareholders (Chen et al., 2009; Lv et al., 2012). However, the executives and the controlling shareholders may collude to conduct the tunnelling (Zhang et al., 2014). *SBM* is calculated as the sum of squares of the second to fifth shareholders' holdings divided by the controlling shareholder's holding square. The reciprocal of *SBM* reveals the controlling shareholders' dominance degree compared to the non-controlling shareholders from the second to the fifth. The less protection of minority indicates the lower *SBM* and the higher reciprocal of *SBM*. A higher reciprocal of *SBM* reveals the dominance of controlling shareholder over the other shareholders. If the executives collude with the controlling shareholders in dividend tunnelling, I expect that the reciprocal of *SBM* (*RSBM*) would have a positive incremental effect on the relationship between the dividend payout and executive ownership. I then have the following hypothesis:

H3: *The reciprocal of SBM (RSBM) and executive ownership interaction is positively related to the dividend payout for dividend tunnelling.*

In China, the traditional way of tunnelling firm resources to the insiders is through the inter-corporate loan which is provided in the balance sheet as the “other receivables” (OREC) (Jiang et al., 2010). The inter-corporate loans have been used by controlling shareholders to siphon a large amount of firm resources in Chinese-listed firms as mentioned in Section 3.2.1 in Chapter 3 of my revised thesis. After 2006, tunnelling through inter-corporate loan is largely regulated by the Chinese government. However, in Section 3.2.1, I also mention that tunnelling is pervasive in China, the old method of tunnelling may be replaced by the new method of tunnelling (dividend tunnelling). Dividend tunnelling is recognized and discussed by Chen et al. (2009) and Lv et al. (2012). Lv et al. (2012) find that dividend payments in China can be treated as a method of tunnelling. After the regulation to constrain previous tunnelling method, controlling shareholders still tunnel firm resources through dividend tunnelling. Therefore, I conjecture that dividend tunnelling is a substitute of the traditional inter-corporate loan tunnelling.

I provide two reasons to explain why the traditional inter-corporate loan can be replaced by dividend tunnelling. First, the reason why inter-corporate loan related tunnelling can be disclosed and regulated is that inter-corporate loan is recorded as “other receivables” in the balance sheet and often has a large amount (Jiang et al., 2005; Jiang et al., 2010). If there is any investigation on the tunnelling behaviour, this can be easily detected. Second, dividend tunnelling is through the dividend payments which can be more difficult to be investigated because both controlling shareholders and minority shareholders can receive dividends by investing in the firms. However, controlling shareholders in Chinese-listed firms can take advantage of minority shareholders during

the issuance of dividend. It is supported by the evidence that, in China, under dividend tunnelling theory, dividend payments are negatively related to the minority shareholders' protection mechanism (Lv et al., 2012). As a result, I make the following hypothesis.

H4: *Firms' other receivables are negatively related to the dividend payout for the dividend tunnelling if dividend tunnelling is a substitute of inter-corporate loan related tunnelling.*

Prior literature focuses on the influences of the analysts' forecasts on share prices and investors' decisions. Few studies have looked at the external governance effect of analysts. I am interested in the effects of analysts on managers' behaviour, and I examine whether analysts play a monitoring role over managers' decision-making. In the context of dividend tunnelling, this chapter examines the effect of analyst coverage on the relationship between executive ownership and dividend tunnelling. Analysts can be regarded as the external monitoring mechanism for corporate managers (Healy and Palepu, 2001; Jensen and Meckling, 1976). Analysts can track financial statements regularly and have substantial financial and industrial background knowledge. As a result, analysts can detect misconduct of corporate managers and constrain their expropriation.

Degeorge et al. (2013) suggest that the analyst coverage can promote the firms to improve corporate governance. Jensen and Meckling (1976) postulate that the analysts' activities are able to reduce the agency costs, while Yu (2008) argues that the earnings management activities can be reduced by the analyst coverage. Meanwhile, Dyck et al.

(2010) document that the financial analysts can monitor the fraud behaviours of companies effectively as they are trained to analyse the accounting reports of firms and thus can monitor the firms' actions. If financial analysts cannot play an effective monitoring role and provide a reliable suggestion, the analysts' reputation may be damaged (Degeorge et al., 2013). Since the dividend payout may be used as a tunnelling method in China, I conjecture that analyst coverage can reduce the positive impact of the executive ownership on dividend tunnelling. The analysts can be considered as external monitors for all companies. The external monitoring of the analyst coverage is important in China because the Chinese-listed firms commonly have concentrated ownership structure and the internal corporate governance is weak and ineffective. The more analyst coverage there is, the more transparency the firms have (Yu, 2008). The implication is that the firms may not be able to expropriate minority shareholders when there are a large number of strong external monitors. Therefore, I have the hypothesis below.

H5: *The analyst coverage can reduce the dividend payout for dividend tunnelling.*

3.4 Data and Methodology

3.4.1 The regression model for the dividend tunnelling test:

Chen et al. (2009) and Lv et al. (2012) find that the dividend is used as another dividend tunnelling method. Following Lv et al. (2012), I have the first two regression models.

$$DIV_{it} = \alpha_i + \beta_1 SBM_{it-1} + \gamma_1 FRSIZE_{it-1} + \gamma_2 FASSET_{it-1} + \gamma_3 LEVERAGE_{it-1} + \gamma_4 PAY_{it-1} + \gamma_5 CFLW_{it-1} + \gamma_6 CAPEXTA_{it-1} + \gamma_7 MTB_{it-1} + \gamma_8 LNTIME_{it-1} + \gamma_9 CA\_CL_{it-1} + \gamma_{10} WC_{it-1} + \gamma_{11} PROFITABILITY_{it-1} + \text{year\_dummy} + industry\_dummy + \varepsilon_{it} \quad (3.1.1)$$

$$ABDPR_{it} = \alpha_i + \beta_1 SBM_{it-1} + \gamma_1 FRSIZE_{it-1} + \gamma_2 FASSET_{it-1} + \gamma_3 LEVERAGE_{it-1} + \gamma_4 PAY_{it-1} + \gamma_5 CFLW_{it-1} + \gamma_6 CAPEXTA_{it-1} + \gamma_7 MTB_{it-1} + \gamma_8 LNTIME_{it-1} + \gamma_9 CA\_CL_{it-1} + \gamma_{10} WC_{it-1} + \gamma_{11} PROFITABILITY_{it-1} + \text{year\_dummy} + industry\_dummy + \varepsilon_{it} \quad (3.1.2)$$

The dependent variables are *DIV* and *ABDPR*. *DIV* is the dividend payout ratio of the firm. *ABDPR* is the abnormal dividend payout ratio of the firm. The rest are the control variables. *FRSIZE* is the firm size calculated as the natural logarithm of the total asset. *FASSET* is the fixed asset scaled by the total asset. *LEVERAGE* is the ratio of the total liability of the firm divided by the total asset. *PAY* is the natural logarithm of the average of the three top managers' emoluments. *CFLW* is the cash and cash equivalents scaled by the total asset. *CAPEXTA* is the capital expenditure scaled by the total asset. *MTB* is the market-to-book ratio of the firm. *LNTIME* is the natural logarithm of the firm listing time. *CA_CL* is the ratio of the current asset to the current liability. *WC* is the working capital scaled by the total asset. *PROFITABILITY* is the *EBITDA* divided by the operating revenue. These are the control variables widely used in the corporate governance literature. *SBM* is the shareholder balancing scheme used to measure the strength of the minority shareholder interest protection (Lv et al., 2012; Maury and Pajuste, 2005). The *SBM* is calculated as follows.

$$SBM = \frac{l_2^2 + l_3^2 + l_4^2 + l_5^2}{c^2} \tag{3.1.3}$$

The notations l_2, l_3, l_4 and l_5 are the proportions of the shares held by the second to the fifth largest shareholders. The numerator is the sum of the square of the shareholding fractions of the non-controlling shareholders from the second to the fifth. The denominator is the square of the shareholding fraction of the controlling shareholder.

Maury and Pajuste (2005) suggest that a balanced shareholder structure with a high SBM (shareholder balancing mechanism) can help protect firms' minority shareholders and reduce the potential tunnelling behaviour. Therefore, a low SBM indicates the expropriation of minority shareholder interests. The notations l_2, l_3, l_4 and l_5 are the proportions of the shares held by the second to the fifth largest shareholders. The numerator is the sum of the square of the shareholding fractions of the non-controlling shareholders from the second to the fifth. The denominator is the square of the shareholding fraction of the controlling shareholder. The low SBM means the square of shareholdings of the controlling shareholder is more than the square sum of the rest of the shareholders' shareholdings. It means that the ownership concentration is high. Following Maury and Pajuste (2005), I use SBM to measure minority shareholder protection. According to Maury and Pajuste (2005), it is because that high shareholdings of multiple shareholders (l_2, l_3, l_4, l_5), indicating a high degree of corporate SBM, play an important role in corporate governance, as competition among largest shareholders can limit the expropriation of minority shareholders. On referring to prior research on the agency conflicts between controlling and minority shareholders,

a significant negative relation was found between the SBM (shareholder balancing mechanism) and the controlling shareholder's expropriation. It has been shown that a balanced ownership structure plays an important role in reducing insider expropriation on minority shareholders (Farinha and López-de-Foronda, 2009; Lemmon and Lins, 2003). Consequently, a low SBM means the controlling shareholders can expropriate the minority shareholders and increase tunnelling risk.

I use Equation (3.1.2) to further verify that the more unbalanced ownership structure can lead to more abnormal dividend payouts. Therefore, the firms' resources are tunnelled to the controlling shareholders. *ABDPR* is the abnormal dividend payouts. The abnormal dividend payout is the residuals from the following regressions. Following Holder et al. (1998) and Rozeff (1982), the regression is used to determine the expected dividend payouts which is the fitted value given by the regressions. I obtain the residuals from the regressions in the industry-year group and considering the dividend smoothing effect. I also control for the influence of the firm performance. The abnormal dividend payouts to the shareholders then indicate that the firms can issue more dividends than the amount that they should. Therefore, I can further test whether the dividend is used as a tunnelling method by using the abnormal dividend payout as a new dependent variable. The regression results and the regression equation are in Appendix 3.3.

3.4.2 The regression models for the executive ownership and the internal factors:

I examine the relationship between executive ownership and dividend tunnelling using

Equation (3.2.1) and Equation (3.2.2). Zhang et al. (2014) find evidence of collusion between the managers and the controlling shareholders. They argue that tunnelling behaviour cannot be executed without the help of managers. Therefore, the paper confirms that the traditional tunnelling is not only related to the controlling shareholders but also related to the managers. According to Hypothesis 2, I run the regressions below to test whether the executive ownership concentration can enhance the dividend tunnelling.

$$DIV_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP1_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.2.1)$$

$$ABDPR_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP1_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.2.2)$$

In the regressions, I follow Chen et al. (2009) to use the dividend payout ratio as the dependent variable *DIV*. Lv et al. (2012) find that cash dividend payout is recognised as a channel of tunnelling *in China*, and thus the coefficient of *EXEOWN* (β_1) is expected to be positive and significant. The reason is that I need to consider more executive-related features in the firms, because the main explanatory variable is changed from *SBM* to *EXEOWN*. I need to design different equations to test the relationship between the executive ownership and the dividend tunnelling. Therefore, I include several different control variables to capture the influences on the executive

decisions in the firms rather than only the variables for the firms' financial positions. Equation (3.2.1) and Equation (3.2.2) combined can show that the increase of the executive ownership can prompt the firms to issue more than expected dividends to tunnel the firms' resources to the controlling shareholders. *ABDPR* is the abnormal dividend payouts. The significant coefficients of the explanatory variables support the fact that the executives can extract the firms' resources to the controlling shareholders.

The control variables *FRSIZE*, *FASSET*, *CFLW* and *MTB* are the same as those mentioned above. *OLEVE* is the operating leverage of the firm which measures how risky the operating income can be. Lev (2009) investigates the relationship between the operating leverage and the firms' stock return risks and finds a positive relationship. Lev (2009) also points out that the managers' decisions can change the firms' operating leverage substantially. The increase in the executive ownership can increase the executive discretion power (Morck et al., 1988), which can make the executives' decisions more powerful. The financial leverage is the measure of the debtors' supervision of the controlling shareholders (Lv et al., 2012). It reveals the firms' capital structure but does not directly relate to the executives' discretionary power. Therefore, it is more appropriate to use the operating leverage as the control variable to study the relationship between the dividend tunnelling and the executive ownership. I replace the financial leverage with the operating leverage in the following regressions. The operating leverage is also used as the control variable in many papers with the dividend payout or ownership structure topics (Farinha, 2003; Moh'd et al., 1995, 1998).

TOP1 is the shareholding fraction of the controlling shareholders. The positive sign of

the *TOP1* coefficient can partially suggest that more dividends can be issued by tunnelling firms' resources when both the executive ownership and the controlling ownership increase. *ASSET_GROWTH* is the total asset growth rate. Chino (2016) uses the asset growth rate as the control variable to study the influence of the labour union on the dividend policy and finds that the asset growth rate is negatively related to the dividend payouts. This is because further investments in the firms can reduce the funds used to issue the dividends. Following Kuo et al. (2014), I also include the board of directors' features as the control variables. *DINDSIZE_DUM* is the independent director dummy. It equals 1 if the number of the independent directors is larger than the industry-year median. *DBSIZE_DUM* is the dummy variable which equals one if the size of the board of directors is larger than the industry-year median, otherwise zero. *DMEET_DUM* is the annual board meeting frequency dummy. It equals one if the frequency is higher than the industry-year median, otherwise zero. These are the corporate governance mechanisms in the firms to regulate the executives' decisions. I also consider the influence of the 2008 financial crisis and use the dummy variable *FCRI* to capture the market risk in that year. The control variables for the rest of the regressions are the same because they all discuss the same topic.

I also investigate whether the more concentrated controlling shareholder ownership over the non-controlling shareholder can enhance the sensitivity between the executive ownership and the dividend tunnelling behaviour. This indicates that the controlling shareholders can expropriate the minorities because the shareholder ownership balance is distorted. In Hypothesis 3, the positive coefficient of the interaction of the reciprocal of *SBM* and the *EXEOWN* can support the fact that the more concentrated the

controlling shareholder ownership is, the more dividend tunnelling can take place when the executive ownership increases. Furthermore, since the two explanatory variables are continuous variables, I follow Adams and Jiang (2016) to centralise the interaction terms in order to make the explanation simple and accurate. The regression models are in Equation (3.3.1) and Equation (3.3.2).

$$\begin{aligned} DIV_{it} &= \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 RSBM_{it-1} \times EXEOWN_{it} + \beta_3 RSBM_{it-1} \\ &+ \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} \\ &+ \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} \\ &+ \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (3.3.1)$$

$$\begin{aligned} ABDPR_{it} &= \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 RSBM_{it-1} \times EXEOWN_{it} + \beta_3 RSBM_{it-1} \\ &+ \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} \\ &+ \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} \\ &+ \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (3.3.2)$$

ABDPR is the abnormal dividend payouts. $RSBM_{it-1}$ is the reciprocal of *SBM* which can measure the degree of concentration of the controlling shareholders. The significant coefficients of the explanatory variables lend support to the fact that the executives can extract the firms' resources to the controlling shareholders.

In the following paragraphs, I discuss the internal factors which can affect the relationship between the executive ownership and the dividend tunnelling. Firstly, I include *ORECTA* (other receivable to the total asset) as the interaction. This regression is to test whether the two kinds of tunnelling have substitute features. *ORECTA* is the proxy for the traditional inter-corporate loan tunnelling discussed by Jiang et al. (2010).

A more covered-up method of tunnelling is dividend tunnelling, researched by Lv et al. (2012). The regression model and the idea of using interaction is similar to the model in the paper of Jiang et al. (2010). The modified regression is in Equation (3.4.1) and Equation (3.4.2). *ORECTA* and *EXEOWN* are centralised for their industry-year means.

$$\begin{aligned} DIV_{it} &= \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 ORECTA_{it} \times EXEOWN_{it} + \beta_3 ORECTA_{it} \\ &+ \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} \\ &+ \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} \\ &+ \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (3.4.1)$$

$$\begin{aligned} ABDPR_{it} &= \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 ORECTA_{it} \times EXEOWN_{it} + \beta_3 ORECTA_{it} \\ &+ \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} \\ &+ \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} \\ &+ \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (3.4.2)$$

If the dividend payment is used as a channel for tunnelling the resource, the coefficients of the interactions of *ORECTA* and *EXEOWN* (β_2 and β_3) would be negative because the dividend tunnelling is a substitute for the traditional tunnelling method. *ABDPR* is the abnormal dividend payouts.

Secondly, the state ownership is another internal factor that I test in the regressions. Even though the country has been economically reforming for over 30 years, state ownership still plays a major role in the Chinese stock markets. Accordingly, I incorporate the state ownership and its interaction term with executive ownership to test the sensitivity between the dividend tunnelling and the executive ownership. The regression equations are Equation (3.5.1) and Equation (3.5.2).

$$DIV_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 STAOWN_{it} \times EXEOWN_{it} + \beta_3 STAOWN_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.5.1)$$

$$ABDPR_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 STAOWN_{it} \times EXEOWN_{it} + \beta_3 STAOWN_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.5.2)$$

STAOWN is the fraction of the state-owned shares. *STAOWN* and *EXEOWN* are centralised for their industry-year means. The higher state-owned shares' fraction should have higher dividend payouts (Bradford et al., 2013; Wang et al., 2011). If the coefficients of interaction terms are positive in both regressions, they indicate how state ownership concentration increases the sensitivity between the executive ownership and the dividend tunnelling behaviour. *ABDPR* is the abnormal dividend payouts.

3.4.3 The regression models for the external monitoring-analyst coverage:

The following regressions are designed to test whether the external analysts and brokers, and the forecast reports they issue can monitor firms' behaviours. The Chinese-listed firms are recognised as having weak minority protection and weak corporate governance. It is important to test whether the external monitoring can introduce a good monitoring mechanism into the market. Therefore, I consider the influence of the analyst coverage on the tunnelling behaviour.

$$DIV_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 ANALYST_{it} \times EXEOWN_{it} + \beta_3 ANALYST_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.6.1)$$

$$ABDPR_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 ANALYST_{it} \times EXEOWN_{it} + \beta_3 ANALYST_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.6.2)$$

I test the analyst coverage using Equation (3.6.1) and Equation (3.6.2). *ANALYST* is the dummy variable which equals one if the number of analysts focus on the firms is above the industry-year mean, otherwise zero. Firms followed by more analyst are under more monitoring, and the expropriation on minority shareholders from controlling shareholders can be constrained because of the high monitoring pressure (Jensen and Meckling, 1976). Therefore, the minority shareholders can be protected when more analysts follow a certain firm. Healy and Palepu (2001) point out that analysts can help shareholders to detect the misbehaviour of the managerial team and the insiders. Dyck et al. (2010) document that financial analysts can monitor fraud behaviour of companies effectively as they are trained to analyse the accounting reports of firms and thus can monitor the firms' actions. As a consequence, those firms are more likely to reduce the abuse of company resources and protect minority interests. Tunnelling behaviour is positively related to the controlling shareholders' expropriation on the minority shareholders and the firm resources abuse in China (Jiang et al., 2010). Consequently, if more analysts follow a certain firm, the tunnelling behaviour can be detected more

easily and help protect minority shareholders' interests. Therefore, the coefficient of the interaction (β_2) should be negative, which indicates that dividend tunnelling is reduced when there is more external monitoring. *ABDPR* is the abnormal dividend payouts.

$$\begin{aligned} DIV_{it} &= \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 BROKER_{it} \times EXEOWN_{it} + \beta_3 BROKER_{it} \\ &+ \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} \\ &+ \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} \\ &+ \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (3.7.1)$$

$$\begin{aligned} ABDPR_{it} &= \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 BROKER_{it} \times EXEOWN_{it} + \beta_3 BROKER_{it} \\ &+ \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} \\ &+ \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} \\ &+ \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (3.7.2)$$

I replace *ANALYST* by *BROKER* in Equation (3.7.1) and Equation (3.7.2). Just as the number of analysts denotes the strength of monitoring of a firm, the number of brokers cover the width of monitoring on a certain firm. Many analysts may review one firm. If the analysts are from the same brokerage companies, they may have very similar ideas in the forecasts; however, the repeated versions of reports with similar ideas are not very efficient for the investors to extract useful information. Therefore, I use the broker number dummy-*BROKER*. The monitoring results of the forecasts can then be more trustworthy. *BROKER* is the dummy variable that equals one if the number of brokers is larger than the industry-year mean, otherwise zero.

$$DIV_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 REPORT_{it} \times EXEOWN_{it} + \beta_3 REPORT_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.8.1)$$

$$ABDPR_{it} = \alpha_i + \beta_1 EXEOWN_{it} + \beta_2 REPORT_{it} \times EXEOWN_{it} + \beta_3 REPORT_{it} + \gamma_1 FRSIZE_{it} + \gamma_2 TOP_{it} + \gamma_3 FASSET_{it} + \gamma_4 OLEVE_{it} + \gamma_5 ASSET\_GROWTH_{it} + \gamma_6 CFLW_{it} + \gamma_7 MTB_{it} + \gamma_8 DINDSIZE\_DUM_{it} + \gamma_9 DBSIZE\_DUM_{it} + \gamma_{10} DMEET\_DUM_{it} + \gamma_{11} FCRI_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \quad (3.8.2)$$

Equation (3.8.1) and Equation (3.8.2) replace *ANALYST* with a *REPORT*. The number of reports indicates the strength of the monitoring in the same way as the number of analysts do. It also indicates the frequency of forecast results. How often a certain firm is reviewed can be explained by the number of reports. I consider this measure because analysts are divided into different groups to compile the reports. Even though the number of analysts is sometimes very high, they may just issue one version of the forecast report. Therefore, it is necessary to include the number of reports measure. *REPORT* is the dummy variable that equals one if the number of reports is larger than the industry-year mean, otherwise zero.

In order to reduce the potential endogeneity problem, I use similar methods in Chapter 2. McCarthy et al. (2017) document that endogeneity occurs when the independent variable of interest is correlated with the error term. Sources of endogeneity include omitted variables, measurement errors, and simultaneity (McCarthy et al., 2017). In this chapter, I use many control variables to minimise the omitted variable problems. I then consider the industry and year-fixed effect in each table to further include the

unobservable factors in the regressions. The Hausman test indicates that I need to use the year-and-industry-fixed effect. The Hausman test results are in Appendix 3.2. I also use bootstrap regressions to reduce the influence of executive ownership distribution bias. The details are discussed in the section of Empirical Results, and the results are reported in Table 3.12. In addition, I use both dividend payout ratio and abnormal dividend payout ratio as two dependent variables to conduct the robustness check. I include two different measures of the dependent variable, and thus we can reduce the impact of measurement errors (McCarthy et al., 2017). The value of abnormal dividend contains the influence of firm performance as shown in the regression table in Appendix 3.3, and thus we can recognize whether the dividend is paid based on the firm performance and provide more accurate regression results. Furthermore, I use one lag of the independent variables to deal with the simultaneity issue. The details are provided in the section of Empirical Results, and the results are reported in Table 3.14.

3.4.4 Data and variables

I collect the data from the Chinese Stock Market Accounting Research (CSMAR) database. This dataset has been used widely for Chinese studies in the literature (Firth et al., 2006a, b, 2007a, b; Firth et al., 2016; Firth et al., 2012). I collect my data of the listed firms from both the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE), excluding all financial and banking firms. The sample period of my data is from 2005 to 2015. The maximum observation is 19957 firm-years. The observation is derived from the whole sample with control variables available.

[Insert Table 3.1 around here]

Table 3.1 displays the summary statistics for the variables used in this chapter. The first variable is the dividend payout ratio, or *DIV*. *ABDPR* is the abnormal dividend payout ratio. Lv et al. (2012) use the cash dividend payments as the dependent variable to identify that the controlling shareholders conceal the tunnelling behaviour in the dividend payment in China. The dividend tunnelling in my case differs from previous literature, which argues for inter-firm transactions and inter-corporate loans as the main forms of tunnelling (Jiang et al., 2010). Therefore, I use *DIV* as the dependent variable. Furthermore, *ABDPR* reveals that the tunnelling behaviour is concealed in the dividend payouts. The total observation for *DIV* is 19957 from 2005 to 2015. The dividend payout ratio average number is 0.228. The median is 0.152, and the standard deviation is 0.291.

The main explanatory variable is *EXEOWN*. It is the short form for executive ownership in the firm, and is calculated as the executive-held shares divided by total shares. Zhang et al. (2014) find that managers and controlling shareholders work together to expropriate the minority interests and this view indicates the fact that controlling shareholders' tunnelling behaviour can be executed by the managers. Therefore, I use *EXEOWN* in the regression as the main influential factor of the dividend tunnelling. The observation from 2005 to 2015 is 19956, and the average number is 0.055. This means that the firms have 5.5% of shares in the hands of executives on average. The median is much less than the mean. The detailed distribution of the executive ownership is displayed in Table 3.2.

[Insert Table 3.2 around here]

The majority of the executive ownership is located in the domain from 0 to 1%, which is consistent with the literature that the executive ownership is small (Coles et al., 2012; Core and Larcker, 2002; Mehran, 1995). However, the executive ownership that is larger than 50% has 630 observations in the sample, and accounts for approximately 3% of the total executive ownership observations. The other observations are distributed evenly across the middle ranges. The total number of the non-zero observations of the executive ownership is 7845 which accounts for almost 40% of the sample population. Therefore, the amount is adequate for the study and I expect to extract meaningful results from the data.

In Table 3.1, *ORECTA* is a proxy for the traditional method of tunnelling. It is used by Jiang et al. (2010) to scrutinise the tunnelling hypothesis through China's related party trading. It is the short form for other receivable accounts. *ORECTA* is calculated as the other receivable account balance divided by the total asset to control for the firm size bias. I use the other receivable account in the CSMAR database derived from the financial footnote catalogue. The average of the *ORECTA* is 0.026, which means the other receivables on average account for 2.6% of the total asset among the listed firms. The median is 0.010 which is less than mean. However, the standard deviation is very small (0.052). This indicates the stability of the data and the slightly right-skewed feature.

The next internal governance variable is the state ownership-*STAOWN*. It is the fundamental feature of the listed firms in China. Papers on different topics about China use this as the benchmark against which to assess the government's controlling power over firms. Wang et al. (2008) note the differences of the auditor choices between state-owned firms and non-state-owned firms. It is natural to bring state ownership as an influencing factor into consideration. The state ownership is calculated as the state shares divided by the total shares outstanding. The state-owned shares used to be non-tradable shares[16], but since the reform (2005-2008) they can be traded under very strict regulations (Hou et al., 2012; Lv et al., 2012). I introduce state ownership in this chapter as an interactive term to test the impacts on the executive ownership and dividend tunnelling relationship.

The Chinese market has been recognised to have weak corporate governance system, and thus the external monitoring mechanism may play an important role to protect the minorities. *ANALYST* is the number of analysts following the listed firms to issue the forecasts. *BROKER* is the brokerage number that the analysts work in. *REPORT* is the number of reports issued by the analysts to forecast the firms being tracked. Previous papers mainly use the number of analysts as the measure. Sun (2011) studies analyst coverage and the income-smoothing relationship, while Chan and Hameed (2006) study the synchronicity and the analyst coverage relationship. Yu (2008) tests the relationship between the earnings management and the analyst coverage, but only uses one measure and the findings sometimes lack robustness. Furthermore, the three measures are not the same. I follow Xu et al. (2013) and Ding et al. (2013) to use all three measures of the

[16] Non-tradable shares were introduced by the state control firms of China in the early ages and were used to protect state control firms throughout the whole market. However, the non-tradebale shares can lead to many problems in the secondary markets.

analyst coverage. Ding et al. (2013) suggest that the number of analysts can identify the intensity of the monitoring of firms. The number of brokers has the ability to reflect the range and scope of monitoring on the target firms. Hong and Kubik (2003) point to the fact that brokerage firms sometimes have a relationship with the target firms, for example, underwriting the stocks, which means that the analyst from the same brokerage firm cannot act independently. Therefore, it is necessary to consider the number of brokers to help reduce the biases caused by the business relationship with the brokerage firms. The number of reports is the frequency of the targets, which means how often they issue the earnings forecast on the firms. The dummy variables *ANALYST*, *BROKER* and *REPORT* have 19957 observations each.

[Insert Table 3.3 around here]

Table 3.3 is the correlation table for all the variables. *ABDPR* and *DIV* are positively related because they naturally have the same features. The three aspects of the external analyst coverage (*ANALYST*, *BROKER* and *REPORT*) are highly related because they have similar features and measure the same monitoring power from outside the firm. *SBM* and *TOP1* are highly related because they can both measure the controlling shareholding concentration.

3.5 Empirical results

Table 3.4 displays the results of testing the relationship between the dividend payout ratio and the abnormal dividend payout ratio, and the shareholder balancing mechanism.

However, I not only use the dividend payout ratio as the dependent variable but also the abnormal dividend payout ratio. La Porta et al. (2000) argue that the dividend should be higher when the minority protection is lower. Lv et al. (2012) argue there is a negative relationship between the dividend payouts and the minority shareholder protection (*SBM*) if the dividend is used for tunnelling. Their research results support their arguments. I confirm the same hypothesis with additional and new evidence that *ABDPR* (the abnormal dividend payout ratio) has the same relationship to *SBM* (the shareholder balancing mechanism) as the dividend payout ratio does. Therefore, the dividend payouts can extract the firms' resources to the shareholders. However, the minority shareholders in a weak protection environment take the dividend issuing as a signal of the expropriation of the minority interest (Lv et al., 2012). The minority sell their shares to avoid further expropriations and make the shareholder balance even worse. Therefore, the benefits all go to the controlling shareholders' pocket.

[Insert Table 3.4 around here]

The coefficients of *SBM* in most of the regression models are negative and significant at the 1% level. My results further support that the dividend payouts in China can be regarded as the tunnelling method because the abnormal dividend payouts are negatively related to the minority protection as discussed above. Table 3.4 also shows the models considering the year and industry fixed effects and with robust standard errors.

The regression results of the relationship between the executive ownership and the

dividend tunnelling are reported in Table 3.5. The results support my Hypothesis 2 that the executive ownership concentration is positively related to dividend tunnelling. Both *ABDPR* and *DIV* are positively related to the executive ownership. This indicates that not only does the dividend payout increase when the executive ownership increases, but so does the abnormal dividend payout. Therefore, this dividend is not a pure and simple way to share the firm profit with the shareholders, because the abnormal dividend payouts can extract the firms' resources to the controlling shareholders and heavily restrict future investment ability. Lv et al. (2012) contend that the dividend payment is the vehicle of dividend tunnelling: combining my results and the argument of Lv et al. (2012), I conclude that the executive ownership concentration increases the dividend tunnelling.

[Insert Table 3.5 around here]

In Table 3.5, the first three models have the dependent variable *ABDPR*. I do not include the industry and year dummies in the first model, but I do include them in the second and third models. The last three models have the same structure but with the dependent variable *DIV*. The results are consistent in all six regression models. The coefficients of the executive ownership are all positive and significant at the 1% level. The variable *TOP1* is the controlling shareholder ownership. The results show that *TOP1* is positively related to both the abnormal dividend and the dividend payouts at the 1% significance level. The results support the fact that the controlling shareholders have the same target in issuing the dividends to tunnel the firms' resources.

[Insert Table 3.6 around here]

I use the reciprocal of *SBM* as the interaction to test whether the executives have the same target with the controlling shareholders when issuing dividends for tunnelling purposes. Table 3.6 shows that the reciprocal of the shareholder balancing mechanism can not only increase the sensitivity of the executive ownership and the dividend payout ratio, but also the abnormal dividend payout ratio. *SBM* is calculated as the sum of the square of the top four non-controlling shareholders' ownership divided by the controlling shareholding fraction. Therefore, the reciprocal of *SBM* can reflect the bias of the ownership structure towards the controlling shareholder ownership concentration. Lv et al. (2012) suggest that the tunnelling view of the dividend payout strategy indicates that the more biased the ownership is towards the controlling shareholders; the more dividend can be paid out for the tunnelling purposes. The results in Table 3.6 imply that the more shares concentrated among the controlling shareholders, the more sensitivity can be observed between the executive ownership and the dividend tunnelling. Therefore, the results show that the executives are aligned with the controlling shareholders to issue more than expected dividends for tunnelling purposes. The results are significant and consistent in all six models. The structure of Table 3.6 is the same as that of the previous tables.

[Insert Table 3.7 around here]

Table 3.7 shows the relationship between *EXEOWN* and *DIV* along with *ABDPR* under the influence of *ORECTA*. Table 3.7 has the same structure as the previous tables have.

In Table 3.7, all the executive ownership coefficients in six models are positive at the 1% significance level, while the *ORECTA* coefficients are negative at the 1% significance level in all six models. The coefficients of the interaction terms are also significantly negative in all six models. Therefore, I conclude that the dividend tunnelling method is the substitute for the traditional tunnelling method through inter-corporate loans and related party transaction. The significantly negative coefficients of the interaction terms imply that the executive ownership concentration enhances the substitute effect of the two tunnelling methods. In other words, under the influence of the executive ownership, firms just need to reduce some traditional methods of tunnelling to derive greater tunnelling benefits from a concealed tunnelling method via dividend payouts. Therefore, there is a strong motivation for the executives and the controlling shareholders to conduct dividend tunnelling.

[Insert Table 3.8 around here]

The results shown in Table 3.8 are used to test the influence of the state ownership on the sensitivity between the dividend tunnelling and the executive ownership. *STAOWN* is the short form for the state ownership. The coefficients of the state ownership are positive at the 1% significance level in all six models, which implies that the state ownership concentration has positive direct effects on the firms' dividend payout strategy. The results are consistent with the results in the papers of Wang et al. (2011) and Bradford et al. (2013). The coefficients of the interaction terms are positive at the 1% significance level in all six models. The results imply that the executives are encouraged by the state shareholders to issue not only more dividends but also more abnormal

dividends when the executive ownership is increasing. Therefore, the results in Table 3.8 indicate that the state shareholders encourage the dividend tunnelling. The CSRC made regulations to forbid the inter-corporate loan tunnelling (Jiang et al., 2010; Lv et al., 2012). The controlling shareholders can still search for a concealed way to tunnel funds because of the weak Chinese corporate governance feature and the *underdeveloped* regulated legal systems. The dividend tunnelling is one concealed method to tunnel the internal funds outside the firms. Therefore, I conclude that the state ownership increases the sensitivity of the executive ownership and its relationship with the dividend tunnelling.

The previous tables discuss the internal factors and their effects on the dividend tunnelling under the executive control. Table 3.9, Table 3.10 and Table 3.11 show the influence of the external monitoring (analyst coverage) on the dividend tunnelling under the executive control.

[Insert Table 3.9 around here]

Table 3.9 reports the results by using *ANALYST* as the interaction term. *ANALYST* is the short form for the analyst number dummy; it equals one if the number of analysts is greater than the industry-year mean, otherwise zero. The number of analysts can measure the intensity of the analyst coverage. The results in Table 3.9 show that the coefficients of the interaction terms are negatively related to the dividend payouts in all six models. The executive ownership is still positively related to the dividend tunnelling behaviour. Therefore, I can conclude that the firms with a high level of analyst focus are

less likely to conduct dividend tunnelling behaviours because the high level of the analysts' focus can monitor the executives' power. Therefore, the results in this table can support Hypothesis 5. However, the results also show that the analyst number dummy is positively related to both the dividend payouts and the abnormal dividend payouts. A possible reason for this is that the analysts' over-monitoring can exert pressure on the executives to fulfil the analysts' forecast expectations (Degeorge et al., 1999; Yu, 2008). The forecasts' expectations may contain the requirements for the dividend payout ratio because the CSRC has imposed many regulations on the firms to pay more dividends (Lv et al., 2012). However, the CSRC does not realise that the dividend payouts have already been transferred into a tunnelling method.

[Insert Table 3.10 around here]

Table 3.10 shows the results of the influence of the broker number dummy on the sensitivity between the executive ownership and the dividend tunnelling behaviours. *DIV* is the short form of the dividend payout. *ABDPR* is the short form of the abnormal dividend payout ratio. The number of brokers measures the scope of the analyst coverage. *BROKER* is the short form for the broker number dummy. The coefficients of the interaction terms of *BROKER* and *EXEOWN* are significantly negative in all six models. Therefore, I can conclude that the high level of the scope of the analyst coverage (*BROKER*) can protect the minority shareholders from abuse by the dividend tunnelling. *BROKER* coefficients also show that the broker number dummy is positively related to both the dividend payouts and the abnormal dividend payouts. The reason is the same as that mentioned in the results of Table 3.9.

[Insert Table 3.11 around here]

Table 3.11 shows the results by using *REPORT* as the interaction term to test the external monitoring efficiency on the sensitivity between the executive ownership and the dividend tunnelling. The number of reports measures the frequency of the analyst coverage. *REPORT* is the short form for the report number dummy. The interaction term coefficients of *REPORT* and *EXEOWN* are significantly negative in all six models. Therefore, I can conclude that the large number of reports of a certain firm can reduce the sensitivity between the executive ownership and dividend tunnelling. This indicates that the analyst coverage can efficiently monitor the firms to ensure they behave well and thus protect the minorities. *REPORT* coefficients still show that the report number dummy is positively related to both the dividend payouts and the abnormal dividend payouts. The reason is the same that as mentioned in the results of Table 3.9. Together, the results from Table 3.9, Table 3.10 and Table 3.11 indicate that the external monitoring is effective in reducing the chance of tunnelling via dividend payouts.

[Insert Table 3.12 around here]

Table 3.12 is the robustness check for the relationship between executive ownership and dividend tunnelling. I use the bootstrap regression to reduce the effect of biased distribution of executive ownership and to test whether the results are robust. Bootstrap regression does not require normal distribution assumptions and can provide more accurate inferences when the data are not normally distributed or when the sample size

is small (Fox, 2002), and thus I can reduce the potential bias problem from the measurement of executive ownership which is not normally distributed. I find that the results in Table 3.12 are consistent with those I obtained from the previous tables.

[Insert Table 3.13 around here]

Table 3.13 is the sensitivity analysis by adding the tradeable shares ownership into the regressions. The tradeable shares are the exchangeable shares in the secondary market while the non-tradeable shares are the privileged shares held by the top managers and the controlling shareholders in the Chinese-listed firms (Kuo et al., 2014; Lv et al., 2012). The tradeable shares allow the shareholders to exchange their shares when they realise that the shares are no longer beneficial to them. Therefore, in the context of the dividend tunnelling, the tradeable shareholders recognise the dividend payments as the tunnelling signal and may trade their shares out to avoid further expropriation by the controlling shareholders. I include the variable which is the tradeable shares ownership to capture its impact on the original regressions. The results show that the more tradeable shares ownership can lead to the more dividend tunnelling. I try to explain this phenomenon in two aspects. Since the dividend tunnelling already exists in the Chinese stock market, once the investors find they have been expropriated they can trade the stocks with new investors (Lv et al., 2012). The more tradable shares ensure the liquidity of the shares. As a result, there are new investors continuously been expropriated through holding the small amount of shares. Secondly, the minority shareholders have very limited rights in determining the firm strategies (Jiang et al., 2010). Meanwhile, the minority shareholders can still obtain benefits through untaxed

capital gains from share tradings (Firth et al., 2016). Therefore, the minority shareholders do not have enough motivations to monitor the controlling shareholders. As a consequence, the dividend tunnelling can be more severe when there are more tradable shares.

[Insert Table 3.14 around here]

Table 3.14 shows the regression results of using one lag of all the independent variables in order to reduce the potential endogeneity problem. To address endogeneity concerns, Duchin et al. (2010) measure firms' financial position with the lags of variables to ensure there is no chance the dependent variables and the independent variables can affect each other. Arslan-Ayaydin et al. (2014) design their regressions to have independent variables with lagged one year to control for potential endogeneity problems. Similarly, McCarthy et al. (2017) use the regressions with one lag of all independent variables to avoid simultaneity which can cause potential endogeneity. The variables definitions are the same as the previous regressions, but with "L." indicating one lag of the variables. The results in Table 3.14 are consistent with the findings in the previous regressions, and thus my results are consistent across different models.

3.6 Conclusion

Lv et al. (2012) document that there are many dividend policies developed to explain the dividend payout strategies. Most of these theories are developed in the U.S. market, and those theories argue that dividend is a method to protect minority shareholders

(Baker and Wurgler, 2004; Easterbrook, 1984; Elton and Gruber, 1970; Jensen, 1986; Miller and Rock, 1985). However, these theories are established based on the U.S. market conditions. The market conditions in other countries can be very different. For example, in China, the dividend can be changed into a method to tunnel firm resources to controlling shareholders (Chen et al., 2009). Lv et al. (2012) then suggest that dividend payment in China can be explained by dividend tunnelling theory. Under tunnelling theory, dividends are employed by corporate controlling shareholders to expropriate the minority shareholders' interests. If SBM (shareholder balancing mechanism) is negatively associated with corporate cash dividends, the dividend is regarded as a method of tunnelling (Lv et al., 2012).

SBM is a proxy of the minority shareholder protection strength (Lv et al., 2012; Maury and Pajuste, 2005). Maury and Pajuste (2005) and Lv et al. (2012) suggest that a high SBM (shareholder balancing mechanism) is the result of a dispersed and balanced shareholder structure, which indicates there is no controlling shareholder and less tunnelling behaviour. However, a low SBM indicates that controlling shareholders can expropriate minority shareholders' interests (Lv et al., 2012; Maury and Pajuste, 2005). Some other papers about agency conflicts between controlling and minority shareholders also support this view. For example, Lemmon and Lins (2003) and Farinha and López-de-Foronda (2009) both have shown that a balanced ownership structure is important in reducing insiders' potential expropriation on minority shareholders. Since most Chinese-listed firms have a dominant controlling shareholder (Firth et al., 2016), the SBM is very low. As a result, tunnelling exists and the controlling shareholders can expropriate the minorities in China.

Due to the different market and regulation context in China compared to the developed markets, dividend payment in China becomes a tunnelling method. In this chapter, I investigate the relationship between the dividend tunnelling and the executive ownership. I also test the influences of the internal factors and the external factors on the relationship between the executive ownership and the dividend tunnelling. The data are obtained from the CSMAR database. The research sample period is from 2005 to 2015. All the firms studied are listed on the Chinese stock exchange, excluding financial firms.

I design further regressions to test whether the abnormal dividend payouts have the same results as the dividend payouts. This is to confirm that the dividend payout strategy is used as the tunnelling method in China, as suggested by Lv et al. (2012). The results show that the executive ownership concentration can lead to the increase of not only the dividend payouts but also the abnormal dividend payouts. The regression results of the abnormal dividend payout reveal that the executive ownership concentration can make the firms pay more than expected dividends. However, the over-payment of the dividend can impose constraints on the funds for future investment and make the value of the company shares decrease in the future. Therefore, the minority shareholders regard the dividend payouts as the expropriation of their interests and sell the shares when there is a dividend increase to stop the further expropriation. However, the minorities' actions can worsen the existing shareholder imbalance because the insiders have the motivation to buy back the shares and enhance their power.

The results show that the executives are aligned with the controlling shareholders' interests to issue more than expected dividends when the executive ownership increases. The results also show the dividend tunnelling has a negative relationship with the traditional tunnelling methods; this indicates that since the CSRC has taken actions to stop intercorporate loan tunnelling, more firms have the intention to use the concealed tunnelling methods, such as dividend tunnelling, to escape monitoring. The results reveal that the dividend tunnelling is the substitute for the tunnelling through the inter-corporate loans and the related party transactions. Furthermore, I find that the state ownership concentration can increase the dividend tunnelling opportunity.

In comparison with the weak governance inside the firms, the external monitoring via analyst coverage is more effective to regulate the behaviours of the executives and the controlling shareholders. The analyst coverage can reduce the sensitivity between the executive ownership and the dividend tunnelling. Therefore, if I need to strengthen the internal corporate governance to reduce the potential tunnelling behaviour, the regulators need to reduce the state control and make the ownership structure more balanced. From the external view, the monitoring mechanism of the analyst coverage is more useful than the improvement of the internal corporate governance. Therefore, the regulators need to encourage more third-party investigations and monitoring in the financial market.

Regression tables for Chapter 3

Table 3.1 Summary statistics

VARIABLES	N	MEAN	SD	P25	P50	P75
ABDPR	13947	0.019	0.197	-0.137	-0.025	0.131
DIV	19957	0.229	0.291	0.000	0.155	0.341
SBM	19957	0.264	0.395	0.009	0.074	0.363
EXEOWN	19956	0.057	0.141	0.000	0.000	0.001
ORECTA	19957	0.026	0.053	0.004	0.010	0.024
STAOWN	19957	0.117	0.203	0.000	0.000	0.170
A0D	19957	0.354	0.478	0	0	1
B0D	19957	0.359	0.480	0	0	1
R0D	19957	0.327	0.469	0	0	1
FRSIZE	19957	21.792	1.287	20.908	21.649	22.506
FASSET	19957	0.255	0.180	0.113	0.221	0.367
LEVERAGE	19957	0.482	0.241	0.308	0.480	0.636
PAY	19897	12.758	0.821	12.274	12.799	13.298
CFLW	19957	0.179	0.137	0.083	0.141	0.234
CAPEXTA	19936	0.057	0.055	0.016	0.040	0.080
MTB	19957	2.584	2.037	1.351	1.927	2.993
LNTIME	19677	1.970	0.837	1.386	2.197	2.639
CA_CL	19957	2.135	2.511	0.945	1.385	2.213
WC	19957	0.155	0.289	-0.024	0.154	0.347
PROFITABILITY	19939	0.157	0.247	0.075	0.139	0.228
TOP1	19957	0.363	0.154	0.240	0.343	0.477
OLEVE	19957	1.473	0.946	1.134	1.335	1.680
ASSET_GROWTH	19957	0.142	0.320	0.006	0.093	0.209
DINDSIZXE_DUM	19957	0.899	0.302	1	1	1
DBSIZE_DUM	19957	0.714	0.452	0	1	1
DMEET_DUM	19957	0.585	0.493	0	1	1
FCRI	19957	0.138	0.345	0	0	0

All variables definitions are in Appendix 3.1. The year range is from 2005 to 2015. Dividend payout ratio and the *ABDPR* (abnormal dividend payout ratio) is the dependent variable.

Table 3.2 The distribution of the executive ownership

EXEOWN	0<*EXE*<=1%	1%<*EXE*<=10%	10%<*EXE*<=30%	30%<*EXE*<=50%	*EXE* >50%	N
OBSERVATION	3544	1240	1245	1186	630	7845
YEAR 2005	76	0	1	0	0	77
YEAR 2006	270	14	4	0	0	288
YEAR 2007	253	19	10	0	1	283
YEAR 2008	282	53	26	5	6	372
YEAR 2009	319	71	41	12	7	450
YEAR 2010	317	93	74	56	44	584
YEAR 2011	344	150	127	135	123	879
YEAR 2012	387	171	164	206	191	1119
YEAR 2013	406	194	216	261	138	1215
YEAR 2014	425	212	255	265	65	1222
YEAR 2015	465	263	327	246	55	1356

EXEOWN is the executive ownership. This table gives the information of the non-zero executive ownership distribution in each year I investigated in this chapter.

Table 3.3 Correlation coefficients

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	**1.000**												
2	**0.638**	**1.000**											
3	0.005	**0.024**	**1.000**										
4	**0.060**	**0.128**	**0.191**	**1.000**									
5	**-0.144**	**-0.156**	**0.028**	**-0.100**	**1.000**								
6	**0.094**	-0.004	**-0.121**	**-0.222**	**0.042**	**1.000**							
7	**0.183**	**0.131**	0.012	**0.091**	**-0.150**	0.002	**1.000**						
8	**0.190**	**0.136**	0.012	**0.094**	**-0.154**	0.008	**0.916**	**1.000**					
9	**0.172**	**0.119**	0.012	**0.085**	**-0.140**	0.005	**0.863**	**0.860**	**1.000**				
10	**0.136**	**0.083**	**-0.106**	**-0.176**	**-0.193**	**0.084**	**0.364**	**0.361**	**0.348**	**1.000**			
11	**0.051**	-0.009	**-0.035**	**-0.166**	**-0.088**	**0.191**	**-0.019**	**-0.018**	**-0.021**	**0.074**	**1.000**		
12	**-0.228**	**-0.246**	**-0.089**	**-0.316**	**0.298**	**0.094**	**-0.105**	**-0.103**	**-0.099**	**0.231**	**0.104**	**1.000**	
13	**0.181**	**0.175**	**0.059**	**0.064**	**-0.231**	**-0.189**	**0.335**	**0.330**	**0.315**	**0.485**	**-0.173**	**-0.099**	**1.000**
14	**0.104**	**0.171**	**0.085**	**0.285**	**-0.148**	**-0.089**	**0.114**	**0.120**	**0.118**	**-0.155**	**-0.370**	**-0.407**	**0.134**
15	**0.140**	**0.080**	**0.032**	**0.099**	**-0.157**	**0.049**	**0.203**	**0.205**	**0.199**	**0.053**	**0.275**	**-0.124**	**0.041**
16	**-0.049**	**-0.061**	**0.093**	**0.136**	**0.086**	**-0.137**	**0.027**	**0.018**	**0.037**	**-0.422**	**-0.150**	**-0.124**	**-0.042**
17	**-0.250**	**-0.199**	**-0.152**	**-0.507**	**0.105**	0.013	**-0.138**	**-0.144**	**-0.139**	**0.215**	**0.050**	**0.347**	**0.043**
18	**0.128**	**0.179**	**0.118**	**0.364**	**-0.101**	**-0.125**	**0.048**	**0.054**	**0.044**	**-0.221**	**-0.279**	**-0.580**	**0.066**
19	**0.164**	**0.206**	**0.074**	**0.340**	**-0.190**	**-0.152**	**0.126**	**0.129**	**0.119**	**-0.119**	**-0.536**	**-0.714**	**0.214**
20	**0.096**	**0.109**	0.011	**0.031**	**-0.191**	**0.026**	**0.148**	**0.144**	**0.141**	**0.134**	**0.028**	**-0.267**	**0.146**
21	**0.150**	**0.111**	**-0.539**	**-0.083**	**-0.102**	**0.334**	**0.101**	**0.106**	**0.096**	**0.268**	**0.065**	0.005	**0.033**
22	**0.039**	**0.087**	**-0.015**	**-0.035**	**-0.053**	**0.034**	**-0.062**	**-0.063**	**-0.065**	**0.029**	**0.189**	**-0.056**	**-0.040**
23	**0.036**	**0.020**	**0.028**	**0.073**	**-0.144**	**0.042**	**0.156**	**0.156**	**0.151**	**0.179**	**-0.150**	**-0.057**	**0.135**
24	-0.008	0.006	-0.006	0.007	0.001	**0.042**	0.005	0.013	0.013	**-0.078**	**0.060**	**-0.021**	**-0.085**
25	**0.082**	**0.037**	**0.015**	**-0.129**	**-0.050**	**0.133**	**0.080**	**0.079**	**0.076**	**0.137**	**0.123**	**0.062**	**0.038**
26	**-0.052**	**-0.057**	**0.015**	**0.023**	**0.024**	**-0.019**	**0.061**	**0.059**	**0.063**	**0.093**	**-0.051**	**0.085**	**0.068**
27	**0.045**	**-0.057**	**-0.025**	**-0.146**	**0.022**	**0.243**	**-0.020**	**-0.011**	**-0.017**	**-0.078**	**0.071**	**0.070**	**-0.167**

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
14	**1.000**													
15	**-0.038**	**1.000**												
16	**0.184**	**-0.053**	**1.000**											
17	**-0.311**	**-0.272**	**-0.047**	**1.000**										
18	**0.573**	-0.008	**0.193**	**-0.337**	**1.000**									
19	**0.574**	**-0.091**	**0.097**	**-0.338**	**0.657**	**1.000**								
20	**0.075**	**0.127**	0.012	**-0.025**	**0.125**	**0.153**	**1.000**							
21	-0.006	**0.049**	**-0.129**	**-0.085**	**-0.035**	0.013	**0.071**	**1.000**						
22	**-0.083**	**0.067**	**-0.082**	**0.024**	**-0.053**	**-0.064**	**0.070**	0.010	**1.000**					
23	**0.107**	**0.141**	-0.002	**-0.032**	**0.032**	**0.145**	**0.209**	**0.075**	**-0.035**	**1.000**				
24	**0.052**	**0.090**	**-0.072**	**-0.077**	0.013	**-0.025**	-0.002	0.013	0.004	**-0.029**	**1.000**			
25	**-0.052**	**0.062**	**-0.149**	**0.035**	**-0.096**	**-0.086**	**0.023**	0.006	0.010	0.014	**-0.141**	**1.000**		
26	**-0.039**	**0.046**	-0.014	-0.001	**-0.065**	**-0.033**	0.006	**-0.022**	**-0.028**	**0.099**	**0.021**	**-0.023**	**1.000**	
27	**-0.079**	**0.039**	0.000	0.009	**-0.101**	**-0.116**	0.004	0.001	**-0.015**	-0.006	**0.086**	**0.057**	**-0.018**	**1.000**

The sample period ranges from 2005 to 2015. The correlation coefficients in **BOLD** style are statistically significant at 5% degree. The variable definitions are in Appendix 3.1.

1=ABDPR 2=DIV 3=SBM 4=EXEOWN 5=ORECTA 6=STAOWN 7=A0D 8=B0D 9=R0D 10=FRSIZE 11=FASSET 12=LEVERAGE 13=PAY 14=CFLW 15=CAPEXTA 16=MTB 17=LNTIME 18=CA_CL 19=WC 20=PROFITABILITY 21=TOP1 22=OLEVE 23=ASSET_GROWTH 24=DINDSIZE_DUM 25=DBSIZE_DUM 26=DMEET_DUM 27=FCRI

Table 3.4 Regression of the dividend payout ratio and shareholder balancing mechanism

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE		*ABDPR*			*DIV*	
SBM_{t-1}	-0.014***	-0.018***	-0.018***	-0.014**	-0.015***	-0.015***
	(-3.147)	(-4.131)	(-4.105)	(-2.531)	(-2.740)	(-2.723)
$FRSIZE_{t-1}$	0.014***	0.017***	0.016***	0.020***	0.021***	0.021***
	(8.681)	(10.042)	(9.809)	(9.446)	(9.877)	(9.793)
$FASSET_{t-1}$	0.034***	0.028**	0.028**	0.056***	0.057***	0.046***
	(2.872)	(2.410)	(2.343)	(3.793)	(3.901)	(3.084)
$LEVERAGE_{t-1}$	-0.205***	-0.206***	-0.210***	-0.202***	-0.203***	-0.201***
	(-18.758)	(-19.034)	(-18.703)	(-15.323)	(-15.442)	(-14.789)
PAY_{t-1}	0.035***	0.046***	0.046***	0.043***	0.045***	0.046***
	(15.705)	(19.781)	(19.511)	(14.120)	(14.011)	(14.100)
$CFLW_{t-1}$	0.088***	0.092***	0.094***	0.125***	0.126***	0.121***
	(5.504)	(5.747)	(5.783)	(6.319)	(6.355)	(6.029)
$CAPEXTA_{t-1}$	0.110***	0.120***	0.122***	0.029	0.018	0.005
	(3.535)	(3.898)	(3.919)	(0.722)	(0.442)	(0.129)
MTB_{t-1}	-0.003***	0.000	0.000	-0.008***	-0.005***	-0.005***
	(-3.069)	(0.194)	(0.231)	(-6.773)	(-4.443)	(-4.147)
$LNTIME_{t-1}$	-0.084***	-0.076***	-0.076***	-0.043***	-0.041***	-0.041***
	(-27.722)	(-25.190)	(-25.081)	(-14.500)	(-13.898)	(-13.792)
CA_CL_{t-1}	0.003**	0.004***	0.003**	0.003**	0.003**	0.003**
	(2.207)	(2.583)	(2.569)	(2.426)	(2.211)	(2.347)
WC_{t-1}	-0.070***	-0.067***	-0.071***	-0.020	-0.020	-0.019
	(-6.042)	(-5.819)	(-5.913)	(-1.371)	(-1.356)	(-1.282)
$PROFITABILITY_{t-1}$	0.028***	0.027***	0.027***	0.035***	0.036***	0.045***
	(4.158)	(4.070)	(4.011)	(5.585)	(5.768)	(7.165)
CONSTANT	-0.466***	-0.618***	-0.610***	-0.598***	-0.629***	-0.657***
	(-14.516)	(-18.119)	(-17.572)	(-14.848)	(-14.427)	(-14.856)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	14,049	14,049	14,049	18,513	18,513	18,513
R2_A	0.161	0.179	0.179	0.109	0.112	0.113

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and shareholder balancing mechanism. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. *SBM* is the shareholder balancing mechanism. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.5 Regression of the dividend payout ratio and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.244***	0.250***	0.240***	0.244***	0.219***	0.210***
	(10.351)	(10.465)	(10.014)	(15.612)	(13.690)	(13.067)
FRSIZE	0.018***	0.020***	0.021***	0.019***	0.016***	0.018***
	(12.493)	(12.671)	(13.072)	(10.883)	(8.627)	(9.288)
TOP1	0.150***	0.146***	0.145***	0.171***	0.176***	0.175***
	(13.505)	(13.217)	(12.988)	(12.697)	(13.017)	(12.900)
FASSET	0.075***	0.066***	0.041***	0.051***	0.055***	0.023*
	(8.027)	(7.085)	(3.999)	(4.490)	(4.818)	(1.859)
OLEVE	0.006***	0.006***	0.005***	0.028***	0.027***	0.026***
	(3.541)	(3.439)	(3.082)	(9.371)	(9.255)	(9.025)
ASSET_GROWTH	-0.001	0.000	-0.001	-0.016***	-0.012**	-0.012**
	(-0.217)	(0.014)	(-0.164)	(-3.040)	(-2.173)	(-2.184)
CFLW	0.238***	0.248***	0.237***	0.377***	0.389***	0.378***
	(15.485)	(16.130)	(15.208)	(22.523)	(23.124)	(22.211)
MTB	0.001	0.000	-0.000	-0.007***	-0.007***	-0.007***
	(0.917)	(0.450)	(-0.162)	(-6.947)	(-7.024)	(-7.117)
DINDSIZE_DUM	0.002	0.009	0.003	0.003	0.023***	0.013*
	(0.297)	(1.609)	(0.466)	(0.497)	(3.106)	(1.686)
DBSIZE_DUM	0.029***	0.030***	0.028***	0.025***	0.031***	0.028***
	(7.799)	(8.029)	(7.616)	(5.616)	(6.829)	(6.322)
DMEET_DUM	-0.021***	-0.024***	-0.025***	-0.031***	-0.030***	-0.031***
	(-6.367)	(-7.328)	(-7.501)	(-7.583)	(-7.338)	(-7.677)
FCRI	0.037***	-0.027***	-0.029***	-0.020***	-0.018	-0.020*
	(7.916)	(-3.083)	(-3.244)	(-3.524)	(-1.607)	(-1.740)
CONSTANT	-0.524***	-0.503***	-0.485***	-0.362***	-0.326***	-0.342***
	(-15.737)	(-14.713)	(-14.018)	(-9.139)	(-7.967)	(-8.274)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,956	19,956	19,956
R2_A	0.069	0.081	0.084	0.078	0.082	0.085

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and managers' ownership. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.6 Regression on the dividend payout ratio, *RSBM* and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.268***	0.203***	0.245***	0.243***	0.236***	0.240***
	(11.424)	(8.347)	(9.754)	(12.310)	(11.795)	(11.975)
$RSBM_{t-1}$*EXEOWN*	0.007**	0.005*	0.007**	0.009**	0.011***	0.011***
	(2.394)	(1.752)	(2.149)	(2.458)	(2.954)	(3.109)
$RSBM_{t-1}$	0.000	-0.000	0.000	-0.000	-0.000	-0.000
	(0.212)	(-0.212)	(0.056)	(-0.934)	(-0.834)	(-0.722)
FRSIZE	0.019***	0.019***	0.020***	0.020***	0.015***	0.017***
	(13.284)	(12.037)	(12.774)	(11.475)	(8.077)	(9.050)
TOP1	0.159***	0.156***	0.155***	0.180***	0.194***	0.193***
	(13.472)	(13.267)	(13.141)	(12.796)	(13.707)	(13.568)
FASSET	0.083***	0.074***	0.041***	0.053***	0.064***	0.024*
	(8.783)	(7.852)	(4.047)	(4.652)	(5.534)	(1.913)
OLEVE	0.007***	0.006***	0.006***	0.028***	0.028***	0.027***
	(3.898)	(3.690)	(3.219)	(9.573)	(9.426)	(9.160)
ASSET_GROWTH	-0.002	0.001	-0.001	-0.016***	-0.012**	-0.013**
	(-0.314)	(0.107)	(-0.260)	(-2.954)	(-2.267)	(-2.441)
CFLW	0.242***	0.249***	0.236***	0.393***	0.395***	0.377***
	(15.658)	(16.161)	(15.118)	(23.700)	(23.564)	(22.144)
MTB	0.002	0.001	-0.000	-0.006***	-0.007***	-0.008***
	(1.529)	(0.542)	(-0.313)	(-6.066)	(-7.103)	(-7.413)
DINDSIZE_DUM	0.002	0.012**	0.004	0.004	0.026***	0.014*
	(0.461)	(2.112)	(0.734)	(0.596)	(3.509)	(1.866)
DBSIZE_DUM	0.027***	0.030***	0.028***	0.023***	0.031***	0.028***
	(7.485)	(8.022)	(7.586)	(5.069)	(6.835)	(6.290)
DMEET_DUM	-0.023***	-0.024***	-0.025***	-0.032***	-0.030***	-0.032***
	(-6.763)	(-7.207)	(-7.553)	(-7.703)	(-7.302)	(-7.746)
FCRI	0.018***	-0.025***	-0.026***	-0.037***	-0.014	-0.016
	(3.768)	(-2.792)	(-2.986)	(-6.610)	(-1.186)	(-1.360)
CONSTANT	-0.537***	-0.493***	-0.476***	-0.375***	-0.319***	-0.337***
	(-16.093)	(-14.375)	(-13.763)	(-9.441)	(-7.792)	(-8.165)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,952	19,952	19,952
R2_A	0.071	0.079	0.084	0.075	0.082	0.085

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and managers' ownership and the reciprocal of SBM_{t-1} ($RSBM_{t-1}$ is divided by 100% to enlarge the coefficient). The regression results are calculated by the pooled OLS and year-industry fixed effect regression. The first three explanatory variables in the regressions are centralized for industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.7 Regression on the dividend payout ratio, *ORECTA* and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.238***	0.175***	0.216***	0.205***	0.193***	0.195***
	(10.749)	(7.690)	(9.205)	(12.924)	(12.020)	(12.182)
*ORECTA*EXEOWN*	-1.369**	-1.418***	-1.370***	-1.337***	-1.320**	-1.308**
	(-2.548)	(-2.755)	(-2.636)	(-2.605)	(-2.569)	(-2.531)
ORECTA	-0.471***	-0.470***	-0.490***	-0.515***	-0.512***	-0.534***
	(-11.876)	(-12.416)	(-12.823)	(-16.594)	(-16.365)	(-16.905)
FRSIZE	0.018***	0.018***	0.019***	0.018***	0.014***	0.016***
	(12.411)	(11.424)	(12.202)	(10.322)	(7.340)	(8.336)
TOP1	0.138***	0.136***	0.134***	0.154***	0.166***	0.164***
	(12.443)	(12.284)	(12.070)	(11.490)	(12.235)	(12.042)
FASSET	0.068***	0.059***	0.022**	0.033***	0.043***	-0.001
	(7.153)	(6.215)	(2.188)	(2.864)	(3.701)	(-0.051)
OLEVE	0.006***	0.006***	0.005***	0.027***	0.027***	0.026***
	(3.599)	(3.414)	(2.893)	(9.236)	(9.097)	(8.801)
ASSET_GROWTH	-0.006	-0.004	-0.006	-0.023***	-0.019***	-0.020***
	(-1.189)	(-0.763)	(-1.199)	(-4.343)	(-3.549)	(-3.811)
CFLW	0.216***	0.223***	0.207***	0.360***	0.362***	0.341***
	(13.882)	(14.384)	(13.200)	(21.260)	(21.225)	(19.684)
MTB	0.003***	0.002*	0.001	-0.004***	-0.006***	-0.006***
	(2.706)	(1.784)	(0.991)	(-4.639)	(-5.317)	(-5.567)
DINDSIZE_DUM	0.003	0.013**	0.004	0.005	0.026***	0.013*
	(0.653)	(2.178)	(0.598)	(0.736)	(3.489)	(1.675)
DBSIZE_DUM	0.027***	0.029***	0.027***	0.021***	0.029***	0.026***
	(7.302)	(7.754)	(7.245)	(4.720)	(6.399)	(5.778)
DMEET_DUM	-0.021***	-0.022***	-0.023***	-0.030***	-0.028***	-0.030***
	(-6.194)	(-6.685)	(-7.026)	(-7.246)	(-6.830)	(-7.281)
FCRI	0.019***	-0.026***	-0.028***	-0.038***	-0.017	-0.020*
	(3.868)	(-2.972)	(-3.196)	(-6.684)	(-1.521)	(-1.714)
CONSTANT	-0.498***	-0.457***	-0.437***	-0.316***	-0.266***	-0.281***
	(-14.852)	(-13.299)	(-12.620)	(-7.870)	(-6.443)	(-6.751)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,956	19,956	19,956
R2_A	0.080	0.088	0.094	0.081	0.088	0.092

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend per share and other receivable account behaviour under managers' ownership influence. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. *ORECTA*EXEOWN* is the product of *ORECTA* multiplying *EXEOWN*. The first three explanatory variables in the regressions are centralized for industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.8 Regression on the dividend payout ratio, *STAOWN* and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.311***	0.251***	0.298***	0.275***	0.267***	0.274***
	(13.679)	(10.658)	(12.253)	(15.522)	(14.897)	(15.182)
*STAOWN*EXEOWN*	2.112***	1.962***	2.098***	1.418***	1.520***	1.597***
	(10.682)	(9.874)	(10.580)	(7.870)	(8.366)	(8.718)
STAOWN	0.109***	0.099***	0.107***	0.043***	0.047***	0.052***
	(6.815)	(6.243)	(6.801)	(2.888)	(3.185)	(3.514)
FRSIZE	0.020***	0.019***	0.020***	0.021***	0.016***	0.018***
	(13.722)	(12.256)	(12.984)	(11.759)	(8.309)	(9.284)
TOP1	0.135***	0.136***	0.134***	0.167***	0.180***	0.178***
	(11.867)	(11.946)	(11.632)	(11.881)	(12.705)	(12.474)
FASSET	0.086***	0.079***	0.044***	0.058***	0.069***	0.027**
	(9.116)	(8.293)	(4.348)	(4.997)	(5.944)	(2.166)
OLEVE	0.006***	0.006***	0.005***	0.028***	0.027***	0.026***
	(3.676)	(3.495)	(2.986)	(9.432)	(9.274)	(8.995)
ASSET_GROWTH	0.002	0.004	0.002	-0.012**	-0.008	-0.009*
	(0.359)	(0.756)	(0.388)	(-2.224)	(-1.512)	(-1.726)
CFLW	0.238***	0.246***	0.232***	0.399***	0.400***	0.380***
	(15.463)	(15.945)	(14.892)	(24.093)	(23.921)	(22.417)
MTB	0.002*	0.001	-0.000	-0.006***	-0.007***	-0.008***
	(1.677)	(0.650)	(-0.281)	(-5.972)	(-6.972)	(-7.407)
DINDSIZE_DUM	0.004	0.014**	0.006	0.006	0.028***	0.015**
	(0.741)	(2.399)	(0.981)	(0.842)	(3.714)	(2.028)
DBSIZE_DUM	0.027***	0.030***	0.028***	0.023***	0.032***	0.029***
	(7.492)	(8.100)	(7.632)	(5.234)	(7.023)	(6.453)
DMEET_DUM	-0.022***	-0.024***	-0.025***	-0.032***	-0.030***	-0.032***
	(-6.747)	(-7.138)	(-7.485)	(-7.728)	(-7.277)	(-7.723)
FCRI	0.014***	-0.023***	-0.025***	-0.039***	-0.013	-0.015
	(2.924)	(-2.621)	(-2.818)	(-7.007)	(-1.146)	(-1.319)
CONSTANT	-0.540***	-0.497***	-0.476***	-0.383***	-0.326***	-0.338***
	(-16.092)	(-14.406)	(-13.679)	(-9.566)	(-7.907)	(-8.132)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,956	19,956	19,956
R2_A	0.077	0.084	0.091	0.077	0.084	0.087

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and state ownership under managers' ownership influence. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. *STAOWN*EXEOWN* is the product of *STAOWN* multiplying *EXEOWN*. The first three explanatory variables in the regressions are centralized for industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.9 Regression on the dividend payout ratio, analyst above average monitoring and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.260***	0.195***	0.234***	0.272***	0.261***	0.262***
	(8.731)	(6.296)	(7.405)	(11.788)	(11.222)	(11.249)
*ANALYST*EXEOWN*	-0.105**	-0.094**	-0.099**	-0.195***	-0.203***	-0.198***
	(-2.493)	(-2.258)	(-2.373)	(-6.618)	(-6.862)	(-6.714)
ANALYST	0.048***	0.050***	0.048***	0.054***	0.059***	0.056***
	(10.601)	(11.213)	(10.627)	(11.778)	(12.688)	(12.152)
FRSIZE	0.009***	0.007***	0.009***	0.009***	0.003	0.005**
	(5.386)	(4.023)	(4.769)	(4.774)	(1.220)	(2.204)
TOP1	0.147***	0.147***	0.145***	0.162***	0.176***	0.175***
	(13.327)	(13.378)	(13.150)	(12.088)	(13.121)	(12.946)
FASSET	0.076***	0.068***	0.040***	0.045***	0.056***	0.022*
	(8.101)	(7.202)	(3.984)	(3.950)	(4.852)	(1.745)
OLEVE	0.008***	0.007***	0.006***	0.029***	0.028***	0.028***
	(4.417)	(4.196)	(3.761)	(9.929)	(9.775)	(9.522)
ASSET_GROWTH	-0.002	-0.000	-0.002	-0.017***	-0.014***	-0.014***
	(-0.433)	(-0.052)	(-0.381)	(-3.261)	(-2.631)	(-2.750)
CFLW	0.221***	0.229***	0.220***	0.368***	0.369***	0.355***
	(14.291)	(14.768)	(14.046)	(21.972)	(21.816)	(20.761)
MTB	-0.001	-0.003***	-0.004***	-0.008***	-0.011***	-0.011***
	(-1.227)	(-2.614)	(-3.273)	(-8.702)	(-10.382)	(-10.477)
DINDSIZE_DUM	-0.001	0.011*	0.005	-0.001	0.023***	0.013*
	(-0.250)	(1.885)	(0.799)	(-0.167)	(3.177)	(1.761)
DBSIZE_DUM	0.024***	0.027***	0.025***	0.019***	0.028***	0.026***
	(6.545)	(7.257)	(6.931)	(4.327)	(6.249)	(5.792)
DMEET_DUM	-0.023***	-0.024***	-0.025***	-0.032***	-0.030***	-0.031***
	(-6.785)	(-7.219)	(-7.489)	(-7.746)	(-7.309)	(-7.687)
FCRI	0.017***	-0.024***	-0.026***	-0.038***	-0.014	-0.016
	(3.599)	(-2.778)	(-2.950)	(-6.793)	(-1.220)	(-1.382)
CONSTANT	-0.304***	-0.240***	-0.231***	-0.134***	-0.045	-0.071
	(-8.068)	(-6.207)	(-5.928)	(-3.045)	(-0.991)	(-1.558)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,956	19,956	19,956
R2_A	0.082	0.091	0.095	0.083	0.090	0.093

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and analyst number dummy under managers' influence. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. *ANALYST*EXEOWN* is the product of *ANALYST* multiplying *EXEOWN*. The first three explanatory variables in the regressions are centralized for industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.10 Regression on the dividend payout ratio, broker above average monitoring and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.253***	0.190***	0.229***	0.263***	0.252***	0.253***
	(8.405)	(6.077)	(7.199)	(11.340)	(10.808)	(10.826)
*BROKER*EXEOWN*	-0.096**	-0.091**	-0.097**	-0.175***	-0.185***	-0.179***
	(-2.293)	(-2.184)	(-2.314)	(-5.884)	(-6.173)	(-6.012)
BROKER	0.050***	0.053***	0.050***	0.056***	0.061***	0.059***
	(11.224)	(11.794)	(11.182)	(12.214)	(13.187)	(12.653)
FRSIZE	0.009***	0.007***	0.008***	0.009***	0.002	0.004**
	(5.282)	(3.790)	(4.534)	(4.670)	(1.024)	(2.004)
TOP1	0.146***	0.146***	0.144***	0.161***	0.176***	0.174***
	(13.229)	(13.313)	(13.087)	(12.024)	(13.069)	(12.898)
FASSET	0.076***	0.068***	0.040***	0.045***	0.055***	0.021*
	(8.081)	(7.191)	(3.996)	(3.921)	(4.825)	(1.720)
OLEVE	0.008***	0.007***	0.007***	0.029***	0.029***	0.028***
	(4.476)	(4.250)	(3.818)	(9.961)	(9.811)	(9.559)
ASSET_GROWTH	-0.002	-0.000	-0.002	-0.017***	-0.014***	-0.015***
	(-0.434)	(-0.052)	(-0.380)	(-3.327)	(-2.709)	(-2.829)
CFLW	0.219***	0.227***	0.217***	0.366***	0.366***	0.353***
	(14.150)	(14.617)	(13.902)	(21.804)	(21.630)	(20.587)
MTB	-0.001	-0.003***	-0.004***	-0.008***	-0.011***	-0.011***
	(-1.135)	(-2.634)	(-3.297)	(-8.662)	(-10.487)	(-10.591)
DINDSIZE_DUM	-0.002	0.011*	0.005	-0.002	0.023***	0.013*
	(-0.402)	(1.888)	(0.808)	(-0.278)	(3.176)	(1.754)
DBSIZE_DUM	0.024***	0.027***	0.026***	0.019***	0.028***	0.026***
	(6.509)	(7.277)	(6.952)	(4.286)	(6.243)	(5.783)
DMEET_DUM	-0.022***	-0.024***	-0.025***	-0.032***	-0.030***	-0.031***
	(-6.712)	(-7.127)	(-7.397)	(-7.752)	(-7.305)	(-7.683)
FCRI	0.017***	-0.023***	-0.025***	-0.039***	-0.015	-0.017
	(3.528)	(-2.661)	(-2.837)	(-6.908)	(-1.291)	(-1.449)
CONSTANT	-0.298***	-0.233***	-0.223***	-0.129***	-0.036	-0.062
	(-7.981)	(-6.039)	(-5.752)	(-2.940)	(-0.798)	(-1.356)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,956	19,956	19,956
R2_A	0.083	0.092	0.096	0.083	0.091	0.093

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and broker number dummy under managers' influence. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. *BROKER*EXEOWN* is the product of *BROKER* multiplying *EXEOWN*. The first three explanatory variables in the regressions are centralized for industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.11 Regression on dividend payout ratio, report above average monitoring and *EXEOWN*

	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE	*ABDPR*			*DIV*		
EXEOWN	0.260***	0.197***	0.238***	0.272***	0.260***	0.261***
	(8.758)	(6.424)	(7.537)	(12.162)	(11.580)	(11.618)
*REPORT*EXEOWN*	-0.101**	-0.097**	-0.104**	-0.197***	-0.206***	-0.201***
	(-2.410)	(-2.320)	(-2.480)	(-6.734)	(-7.016)	(-6.852)
REPORT	0.043***	0.046***	0.042***	0.047***	0.053***	0.050***
	(9.529)	(10.092)	(9.318)	(10.265)	(11.490)	(10.790)
FRSIZE	0.010***	0.009***	0.010***	0.011***	0.004**	0.006***
	(6.360)	(4.893)	(5.678)	(5.725)	(1.962)	(2.969)
TOP1	0.147***	0.147***	0.146***	0.162***	0.177***	0.176***
	(13.331)	(13.385)	(13.153)	(12.118)	(13.166)	(12.984)
FASSET	0.077***	0.069***	0.042***	0.047***	0.058***	0.024*
	(8.215)	(7.334)	(4.136)	(4.084)	(5.002)	(1.928)
OLEVE	0.007***	0.007***	0.006***	0.029***	0.028***	0.028***
	(4.374)	(4.155)	(3.717)	(9.889)	(9.751)	(9.496)
ASSET_GROWTH	-0.002	-0.000	-0.002	-0.016***	-0.013**	-0.014***
	(-0.430)	(-0.030)	(-0.347)	(-3.172)	(-2.547)	(-2.655)
CFLW	0.222***	0.229***	0.220***	0.372***	0.371***	0.359***
	(14.260)	(14.727)	(14.036)	(22.100)	(21.875)	(20.870)
MTB	-0.001	-0.003**	-0.003***	-0.008***	-0.010***	-0.010***
	(-0.939)	(-2.311)	(-2.918)	(-8.284)	(-10.048)	(-10.096)
DINDSIZE_DUM	-0.002	0.011*	0.004	-0.001	0.023***	0.013*
	(-0.322)	(1.816)	(0.739)	(-0.164)	(3.146)	(1.753)
DBSIZE_DUM	0.024***	0.027***	0.026***	0.020***	0.029***	0.027***
	(6.626)	(7.350)	(7.033)	(4.437)	(6.361)	(5.913)
DMEET_DUM	-0.023***	-0.024***	-0.025***	-0.032***	-0.030***	-0.031***
	(-6.858)	(-7.282)	(-7.544)	(-7.757)	(-7.320)	(-7.689)
FCRI	0.017***	-0.024***	-0.025***	-0.038***	-0.013	-0.015
	(3.597)	(-2.692)	(-2.866)	(-6.791)	(-1.137)	(-1.302)
CONSTANT	-0.334***	-0.271***	-0.265***	-0.171***	-0.078*	-0.106**
	(-8.967)	(-7.051)	(-6.818)	(-3.920)	(-1.716)	(-2.314)
YEAR FE	N	Y	Y	N	Y	Y
INDUSTRY FE	N	N	Y	N	N	Y
ROBUST TYPE	R	R	R	R	R	R
OBSERVATIONS	13,947	13,947	13,947	19,956	19,956	19,956
R2_A	0.080	0.088	0.093	0.081	0.089	0.092

All variables definitions are in Appendix 3.1. This table reports the relationships between dividend payout ratio and report number dummy under managers' influence. The regression results are calculated by the pooled OLS and year-industry fixed effect regression. *REPORT*EXEOWN* is the product of *REPORT* multiplying *EXEOWN*. The first three explanatory variables in the regressions are centralized for industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.12 Robust check using bootstrap regressions with the *ABDPR* as dependent variable

ABDPR	(1)	(2)	(3)	(4)	(5)	(6)
EXEOWN	0.317***	0.264***	0.350***	0.265***	0.257***	0.268***
	(9.832)	(11.198)	(12.296)	(4.999)	(8.086)	(7.956)
$RSBM_{t-1}$*EXEOWN	0.012***					
	(2.963)					
$RSBM_{t-1}$	0.000					
	(0.456)					
*ORECTA*EXEOWN*		-1.366**				
		(-2.050)				
ORECTA		-0.349***				
		(-9.794)				
*STAOWN*EXEOWN*			2.455***			
			(10.279)			
STAOWN			0.145***			
			(7.370)			
*ANALYST*EXEOWN*				-0.099*		
				(-1.848)		
ANALYST				0.054***		
				(10.185)		
*BROKER*EXEOWN*					-0.088***	
					(-2.702)	
EROKER					0.058***	
					(11.060)	
*REPORT*EXEOWN*						-0.082*
						(-1.769)
REPORT						0.051***
						(10.193)
FRSIZE	0.029***	0.027***	0.028***	0.015***	0.014***	0.016***
	(16.486)	(16.709)	(14.903)	(6.854)	(5.468)	(8.435)
TOP1	0.151***	0.125***	0.121***	0.134***	0.131***	0.132***
	(8.770)	(8.846)	(11.565)	(14.352)	(13.834)	(14.833)
FASSET	0.047***	0.032***	0.043***	0.041***	0.043***	0.043***
	(3.506)	(3.028)	(4.629)	(4.246)	(3.797)	(3.912)
OLEVE	0.003	0.001	0.002	0.004**	0.004**	0.003*
	(1.580)	(0.364)	(0.888)	(2.094)	(2.184)	(1.783)
ASSET_GROWTH	0.005	0.003	0.006	0.005	0.003	0.005
	(0.771)	(0.401)	(1.381)	(1.361)	(0.772)	(0.738)
CFLW	0.258***	0.240***	0.247***	0.229***	0.226***	0.228***
	(14.162)	(13.061)	(13.920)	(12.758)	(15.092)	(12.397)
MTB	-0.000	0.000	-0.001	-0.004***	-0.004***	-0.003***
	(-0.369)	(0.428)	(-0.945)	(-4.381)	(-4.259)	(-4.312)
DINDSIZE_DUM	0.003	0.004	0.006	0.009**	0.008	0.009
	(0.568)	(0.599)	(0.843)	(1.979)	(1.245)	(1.638)
DBSIZE_DUM	0.026***	0.027***	0.026***	0.026***	0.026***	0.026***
	(7.261)	(7.883)	(6.995)	(7.204)	(6.621)	(4.944)
DMEET_DUM	-0.030***	-0.029***	-0.029***	-0.026***	-0.025***	-0.026***
	(-9.488)	(-10.086)	(-9.958)	(-8.091)	(-7.502)	(-6.409)
FCRI	-0.013	-0.010	-0.013	-0.030**	-0.031***	-0.029***
	(-1.277)	(-1.105)	(-1.345)	(-2.556)	(-3.346)	(-3.750)
CONSTANT	-0.762***	-0.723***	-0.744***	-0.456***	-0.446***	-0.494***
	(-21.446)	(-19.841)	(-17.877)	(-9.045)	(-8.322)	(-11.103)
YEAR FE	Y	Y	Y	Y	Y	Y
INDUSTRY FE	Y	Y	Y	Y	Y	Y
OBSERVATIONS	13,947	13,947	13,947	13,947	13,947	13,947
PSEUDO R2	0.070	0.073	0.074	0.078	0.079	0.077

All variables definitions are in Appendix 3.1. This table reports the relationships between the abnormal dividend payout ratio and all the interested variables using bootstrap regression. $RSBM_{t-1}$ is the reciprocal of SBM_{t-1} and divided by 100% to enlarge the coefficient. The regression results are calculated by the pooled OLS. The interaction terms are centralized for their industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.13 Robust check including the tradeable shares ownership into the regressions

ABDPR	(1)	(2)	(3)	(4)	(5)	(6)
EXEOWN	0.291***	0.254***	0.332***	0.270***	0.264***	0.274***
	(11.051)	(10.347)	(12.996)	(8.344)	(8.104)	(8.502)
$RSBM_{t-1}$*EXEOWN	0.008**					
	(2.505)					
$RSBM_{t-1}$	0.000					
	(0.218)					
*ORECTA*EXEOWN*		-1.335**				
		(-2.557)				
ORECTA		-0.483***				
		(-12.551)				
*STAOWN*EXEOWN*			1.867***			
			(9.093)			
STAOWN			0.126***			
			(7.684)			
*ANALYST*EXEOWN*				-0.100**		
				(-2.388)		
ANALYST				0.047***		
				(10.349)		
*BROKER*EXEOWN*					-0.097**	
					(-2.321)	
EROKER					0.049***	
					(10.884)	
*REPORT*EXEOWN*						-0.105**
						(-2.501)
REPORT						0.041***
						(9.032)
TRADEOWN	0.054***	0.047***	0.048***	0.044***	0.043***	0.045***
	(5.711)	(5.002)	(4.094)	(4.716)	(4.582)	(4.795)
FRSIZE	0.020***	0.019***	0.020***	0.009***	0.008***	0.010***
	(12.624)	(12.089)	(12.597)	(4.810)	(4.589)	(5.723)
TOP1	0.174***	0.149***	0.141***	0.159***	0.158***	0.160***
	(14.117)	(12.899)	(12.046)	(13.836)	(13.735)	(13.858)
FASSET	0.044***	0.025**	0.044***	0.043***	0.043***	0.044***
	(4.324)	(2.448)	(4.317)	(4.209)	(4.214)	(4.363)
OLEVE	0.006***	0.005***	0.005***	0.006***	0.006***	0.006***
	(3.208)	(2.879)	(2.940)	(3.731)	(3.786)	(3.685)
ASSET_GROWTH	0.008	0.002	0.009	0.006	0.005	0.006
	(1.377)	(0.347)	(1.526)	(1.041)	(1.002)	(1.096)
CFLW	0.234***	0.206***	0.230***	0.219***	0.216***	0.219***
	(15.015)	(13.143)	(14.777)	(13.988)	(13.850)	(13.981)
MTB	0.000	0.002	0.000	-0.003***	-0.003***	-0.003**
	(0.184)	(1.417)	(0.110)	(-2.780)	(-2.812)	(-2.416)
DINDSIZE_DUM	0.004	0.003	0.006	0.005	0.005	0.004
	(0.698)	(0.569)	(0.942)	(0.770)	(0.778)	(0.710)
DBSIZE_DUM	0.028***	0.027***	0.028***	0.026***	0.026***	0.026***
	(7.709)	(7.366)	(7.579)	(7.054)	(7.072)	(7.158)
DMEET_DUM	-0.024***	-0.022***	-0.024***	-0.024***	-0.024***	-0.024***
	(-7.216)	(-6.725)	(-7.152)	(-7.195)	(-7.112)	(-7.244)
FCRI	-0.033***	-0.034***	-0.031***	-0.032***	-0.030***	-0.031***
	(-3.732)	(-3.853)	(-3.492)	(-3.565)	(-3.438)	(-3.494)
CONSTANT	-0.506***	-0.464***	-0.491***	-0.261***	-0.253***	-0.295***
	(-14.480)	(-13.249)	(-14.067)	(-6.601)	(-6.421)	(-7.503)
YEAR FE	Y	Y	Y	Y	Y	Y
INDUSTRY FE	Y	Y	Y	Y	Y	Y
OBSERVATIONS	13,947	13,947	13,947	13,947	13,947	13,947
R2_A	0.086	0.095	0.092	0.096	0.097	0.094

All variables definitions are in Appendix 3.1. This table reports the relationships between the abnormal dividend payout ratio and all the interested variables by adding the tradeable shares ownership (*TRADEOWN*) as a control variable. $RSBM_{t-1}$ is the reciprocal of SBM_{t-1} and divided by 100% to enlarge the coefficient. The regression results are calculated by the pooled OLS. The interaction terms are centralized for their industry-year means. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01

Table 3.14 First lag of variables to reduce the risk of endogeneity

DEPENDENT VARIABLE: ABDPR	(1)	(2)	(3)	(4)	(5)	(6)	(7)
L.EXEOWN	0.222***						
	(10.513)						
L.CEXEOWN		0.233***	0.199***	0.289***	0.233***	0.228***	0.238***
		(10.317)	(9.614)	(13.253)	(8.397)	(8.156)	(8.671)
L.C_LSBMEXE		0.000***					
		(2.692)					
L.C_LSBM		-0.000					
		(-0.544)					
L.CORECEXE			-1.229**				
			(-2.457)				
L.CORECTA			-0.564***				
			(-17.605)				
L.CSTAEXE				1.973***			
				(11.159)			
L.CSTAOWN				0.083***			
				(6.291)			
L.CA0DEXE					-0.144***		
					(-3.838)		
L.A0D					0.055***		
					(12.850)		
L.CB0DEXE						-0.131***	
						(-3.477)	
L.B0D						0.056***	
						(13.296)	
L.CR0DEXE							-0.151***
							(-4.027)
L.R0D							0.047***
							(10.923)
L.FRSIZE	0.018***	0.018***	0.016***	0.018***	0.005***	0.004**	0.007***
	(11.809)	(11.472)	(10.414)	(11.843)	(2.599)	(2.536)	(3.813)
L.TOP1	0.155***	0.168***	0.142***	0.143***	0.155***	0.154***	0.156***
	(14.034)	(14.401)	(12.920)	(12.353)	(14.188)	(14.050)	(14.178)
L.FASSET	0.062***	0.063***	0.035***	0.065***	0.059***	0.059***	0.061***
	(6.088)	(6.166)	(3.467)	(6.420)	(5.886)	(5.854)	(6.063)
L.OLEVE	0.006***	0.006***	0.005***	0.006***	0.007***	0.007***	0.007***
	(3.314)	(3.509)	(2.826)	(3.218)	(4.116)	(4.219)	(4.058)
L.ASSET_GROWTH	0.002	0.001	-0.007	0.006	-0.000	-0.000	0.000
	(0.329)	(0.141)	(-1.491)	(1.154)	(-0.056)	(-0.048)	(0.035)
L.CFLW	0.228***	0.228***	0.185***	0.224***	0.207***	0.205***	0.209***
	(14.632)	(14.556)	(11.786)	(14.320)	(13.218)	(13.094)	(13.317)
L.MTB	0.000	-0.000	0.002	0.000	-0.004***	-0.004***	-0.004***
	(0.063)	(-0.133)	(1.527)	(0.109)	(-4.021)	(-3.920)	(-3.463)
L.DINDSIZE_DUM	0.007	0.011	0.008	0.013*	0.008	0.009	0.009
	(0.984)	(1.426)	(1.128)	(1.766)	(1.082)	(1.193)	(1.169)
L.DBSIZE_DUM	0.030***	0.030***	0.028***	0.030***	0.027***	0.027***	0.027***
	(8.224)	(8.158)	(7.665)	(8.177)	(7.384)	(7.401)	(7.531)
L.DMEET_DUM	-0.027***	-0.027***	-0.025***	-0.027***	-0.027***	-0.027***	-0.027***
	(-7.989)	(-8.070)	(-7.510)	(-8.072)	(-8.106)	(-8.038)	(-8.075)
L.FCRI	-0.033***	-0.029***	-0.033***	-0.029***	-0.028***	-0.029***	-0.028***
	(-3.755)	(-3.383)	(-3.874)	(-3.389)	(-3.278)	(-3.367)	(-3.202)
CONSTANT	-0.462***	-0.456***	-0.389***	-0.458***	-0.171***	-0.168***	-0.216***
	(-13.570)	(-13.392)	(-11.452)	(-13.391)	(-4.454)	(-4.407)	(-5.678)
YEAR FE	Y	Y	Y	Y	Y	Y	Y
INDUSTRY FE	Y	Y	Y	Y	Y	Y	Y
OBSERVATIONS	13,989	13,989	13,989	13,989	13,989	13,989	13,989
R2_A	0.0834	0.0839	0.101	0.0903	0.0984	0.0989	0.0946

ABDPR is the dependent variable abnormal dividend payout ratio. I take first lag of all the independent variables in the regression. The results here are consistent with test results in previous tables. *T STATISTICS IN PARENTHESES,* * *P < 0.10,* ** *P < 0.05,* *** *P < 0.01*

Appendix for Chapter 3

Appendix 3.1 Variable definitions

Variable	Explanation
DIVPAYOUTRATIO	Dividend per share
ABDPR	The residuals of the regressions to get the abnormal dividend payout ratios
SBM	Shareholder balancing mechanism
ORECTA	Other receivable account scaled by total asset
STAOWN	Government owned shares divided by total shares
ROE	Return on equity
EXEOWN	Executive ownership, executive shares divided by total shares
A0D	Equals 1 if the value of number of analysts is greater than industry year mean
B0D	Equals 1 if the value of number of brokers is greater than industry year mean
R0D	Equals 1 if the value of number of reports is greater than industry year mean
FRSIZE	Natural logarithm of total asset
FASSET	Fixed asset scaled by total asset
LEVERAGE	Ratio of liability to asset
CA_CL	The ratio of current asset to current liability
WC	Working capital scaled by total asset
PROFITABILITY	EBITDA divided by OPERATING REVENUE
TOP1	The controlling shareholder holding percentage of all outstanding shares
OLEVE	Operating leverage
DINDSIZXE_DUM	Independent directors dummy, equals to 1 if the value is greater than industry year median
DBSIZE_DUM	The board size dummy, equals to 1 if the value is greater than industry year median
DMEET_DUM	Annual board meeting frequency dummy, equals to 1 if the value is greater than industry year median
FCRI	Financial crisis dummy, equals 1 if year equals to 2008
PAY	Natural logarithm of the average of top 3 managers' emoluments
CFLW	Cash and cash equivalent scaled by total asset
CAPEXTA	Capital expenditure scaled by total asset
ASSET_GROWTH	Total asset growth rate
MTB	Market to book value
LNTIME	Natural logarithm of the listing time of a firm

Appendix 3.2 Hausman test for panel data

	COEFFICIENTS			
	(b)	(B)	(b-B)	SQRT(DIAG(V_b-V_B))
DEPENDENT VARIABLE: ABDPR	FE	RE	DIFFERENCE	S.E.
EXEOWN	0.240	0.250	-0.009	0.002
FRSIZE	0.021	0.020	0.001	0.000
TOP1	0.145	0.146	-0.001	0.001
FASSET	0.041	0.066	-0.025	0.004
OLEVE	0.005	0.006	-0.001	0.000
ASSET_GROWTH	-0.001	0.000	-0.001	.
CFLW	0.237	0.248	-0.011	0.002
MTB	0.000	0.000	-0.001	0.000
DINDSIZE_DUM	0.003	0.009	-0.007	0.001
DBSIZE_DUM	0.028	0.030	-0.001	0.000
DMEET_DUM	-0.025	-0.024	-0.001	.
FCRI	-0.029	-0.027	-0.001	.

YEAR DUMMY INCLUDED

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(20) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 46.46

Prob>chi2 = 0.0007

(V_b-V_B is not positive definite)

The results of Hausman tests for my main regressions show that I need to use the fixed effect for the regressions. I therefore use the year and industry fixed effect in the regressions.

Appendix 3.3 Regression to obtain expected dividend, the residual is abnormal dividend

VARIABLES	DP
EXEOWN	0.368***
	(14.965)
GROW	-0.073***
	(-10.058)
BETA	0.051***
	(7.472)
NSHAREHOLDER	-0.015***
	(-6.749)
FCF	0.000***
	(10.686)
LNSALES	0.037***
	(29.974)
ROE	0.089***
	(13.144)
CONSTANT	-0.504***
	(-18.000)
YEAR FE EFFECT	Y
INDUSTRY FE EFFECT	Y
OBSERVATIONS	14,495
R2_A	0.0971

The regression is to obtain the expected dividend payout ratio (fitted value). The abnormal dividend is the residual from the regression. It is the residuals derived from the regressions to determine the expected dividend payouts (Holder et al., 1998; Rozeff, 1982). Following Holder et al. (1998) and Rozeff (1982), I include the same variables and some more variables in the regressions. I obtain the residuals by running the regressions in the industry-year group and considering the dividend smoothing effect as the previous papers. However, it can be too long to provide all the regression results in different industry-year groups. Therefore, I use the regression which is controlled for the year and industry fixed effect to show the variables and formats of the real regressions. A similar method is also used in the paper of Jiang and Lie (2016). EXEOWN is the measure of executive ownership. GROW is the average growth rate of revenues defined by Rozeff (1982). BETA is the yearly Beta value of firms in China. NSHAREHOLDER is the number of shareholders. FCF is the free cash flow. LNSALES is the natural logarithm of sales. ROE is the return on equity. T-statistics in parentheses, * P < 0.10, ** P < 0.05, *** P < 0.01. The equation is as follows.

$$DP(dividend\_dpayout) = \alpha + \beta_1 EXEOWN + \beta_2 GROW + \beta_3 BETA + \beta_4 NSHAREHOLDER + \beta_5 FCF + \beta_6 LNSALES + \beta_7 ROE + \varepsilon$$

Chapter 4 CEO OVER-CONFIDENCE AND THE CASH ADJUSTMENT SPEED

4.1 Introduction

The influence of over-confidence has been widely documented in the literature, but there is mixed evidence of over-confidence related to firm performance and investment results. There are risks of being over-confident. Malmendier and Tate (2008) suggest that over-confident CEOs can overestimate their ability about generating returns when making acquisitions and mergers, and thus overpayment for M&As happens and results in value-destroying mergers. Heaton (2002) suggests that over-confident managers can mistakenly treat negative NPV (net present value) investment as positive NPV investment. This in turns reduces firm value. Schrand and Zechman (2012) also suggest that over-confident managers can misreport financial statements and carry out financial fraud.

There are also positive effects of being over-confident. Kyle and Wang (1997) show that over-confident traders are more likely to gain high returns in secondary markets since over-confidence can act as a commitment device in a standard Cournot duopoly. They introduce the Nash equilibrium of a two-fund game (Prisoner's Dilemma) to explain the phenomenon that over-confident managers can persist and survive in the long run. Some studies indicate that the expected returns on trading activities given by over-confident investors may be greater than those given by rational investors because over-confident investors tend to take more risks than rational investors (Daniel et al., 1998; De Long et

al., 1990; De Long et al., 1991). These papers support that investors' over-confidence can affect their trading behaviour. If the individual is the top manager of a firm, then the top managers' psychological characteristics (e.g., over-confident) can affect the decision-making process in the firm (Heaton, 2002).

CEOs are in charge of corporate strategies for their firms and manage the daily operations (Zhang et al., 2014). A CEO's personality and emotion biases such as over-confidence can affect corporate policies and in turn their firms' development and performance (Heaton, 2002). In this chapter, I attempt to fill a research gap by investigating the influence of CEOs' over-confidence on firms' cash adjustment strategies.

Following the literature, Libby and Rennekamp (2012) indicate that the two key aspects of over-confidence are over-optimism (over-confident) and miscalibration. I first introduce over-optimism. The over-optimism aspect of the CEOs' over-confidence refers to CEOs' excessive level of optimism for assessing uncertainty (Ahmed and Duellman, 2013; Malmendier and Tate, 2005, 2008). Over-optimism reflects two features of over-confident CEOs. Firstly, over-optimistic CEOs perceive that they possess better than average ability to manage their corporations and consequently their performance should outperform other firms in the market (Malmendier and Tate, 2005). Secondly, over-optimistic CEOs have a feeling of so-called "illusion of control", implying that they believe in their own ability to control uncertainty (Larwood and Whittaker, 1977). Therefore, over-optimistic (over-confident) CEOs hold the view that firms under their controls are expected to have better growth opportunities and higher

future earnings than other firms. Over-optimistic CEOs also believe that the market may underestimate their profitability and firm value (Malmendier and Tate, 2005). I then introduce the other aspect of CEO over-confidence, i.e. miscalibration, which means CEOs are likely to underestimate the risk and uncertainty degree of an event. The miscalibration is reflected in the investment process. Over-confident CEOs can under-estimate the risk of potential investment projects and make aggressive decisions in the investment process (Englmaier, 2010; Heaton, 2002). Thompson (1999) suggest that the illusion of control is the tendency for people to overestimate their ability to control events and occurs when someone feels a sense of control over outcomes which he or she actually cannot affect. Vyse (2013) indicates that the illusion of control is thought to affect gambling behaviour. Staw (1997) point out that escalation of commitment is irrational human behaviour. This behaviour makes an individual faces increasingly negative outcomes from some decision, action, or investment nevertheless, but the individual continues the same behaviour without choosing alternatives.

Although miscalibration, the illusion of control and escalation of commitment may lead to several problems including misstatements, earnings management, excessive risk-taking, and fraud, shareholders still have reasons to hire and promote over-confident CEOs. I provide some reasons as follows.

Goel and Thakor (2008) suggest that over-confident managers are more likely to be promoted as CEOs. The first reason is that over-confident candidates are more likely to outperform competitors. To be promoted as a CEO, one must have a higher performance than other competitors. Over-confident candidates have a tendency to

underestimate project risk (Goel and Thakor, 2008). Those candidates' over-confident characteristics, such as underestimating risk and overestimating self-ability, are just as suggested by Malmendier and Tate (2005), Englmaier (2010) and Heaton (2002). Goel and Thakor (2008) suggest that since over-confident managers underestimate project risk, and are willing to make more investments than rational managers. Goel and Thakor (2008) document that higher risk is related to higher performance. Therefore, after the competition for the title of CEO, an over-confident manager is more likely to outperform others and get promoted to CEO by the shareholders because over-confident managers can bring more profit if they succeed. The second reason is that a risk-averse CEO underinvests in projects relative to the shareholders' optimum (Goel and Thakor, 2008). As a result, underinvestment reduces the firm value. More importantly, risk-averse CEOs may disappoint the shareholders and lose their trust. Goel and Thakor (2008) show that underinvestment can easily be solved by over-confident CEOs. Goel and Thakor (2008) explain that over-confident CEOs can overestimate the precision of private information and overreact to it. Therefore, over-confident CEOs can invest in projects even where there is limited positive information about future profitability. Consequently, if a firm has an over-confident CEO, the probability of underinvestment is low and the potential reduction in the firm value related to the underinvestment is low.

Furthermore, even though over-confident managers are more likely to be promoted as CEOs, the negative effects of over-confidence still need mitigation. For instance, Kahneman and Lovallo (1993) and Heaton (2002) argue that external monitoring can mitigate the negative effects of managerial optimism (over-confidence). Banerjee et al.

(2015) suggest that adequate controls and independent viewpoints provided by independent board members can also mitigate the negative effects of CEO over-confidence. Kolasinski and Li (2013) indicate that strong and independent boards can help over-confident CEOs to avoid the negative effects of being over-confident in mergers and acquisitions. Hartzell and Starks (2003) point out that institutional investors can serve as a monitoring role in mitigating the agency costs between managers and shareholders, including over-confident CEOs.

Recently, several studies have focused on the effect of over-confidence on corporate decisions. Malmendier and Tate (2005) and Malmendier and Tate (2008) investigate the effect of CEOs' over-confidence on both investment decisions and merger & acquisition decisions. They find that over-confidence can lead to value-destroying mergers and bad investment performance. Ahmed and Duellman (2013) find that accounting conservatism is negatively related to CEOs' over-confidence because accounting conservatism monitors over-confident CEOs' inappropriate behaviour. Hirshleifer et al. (2012) find evidence to support that firm innovation is accompanied by CEO over-confidence. Schrand and Zechman (2012) suggest that the earnings of firms controlled by over-confident CEOs are exposed to the risk of misstatement. Therefore, the cash strategy may also be affected by CEO over-confidence.

Cash policy forms an important part of corporate policies. Dittmar and Mahrt-Smith (2007) provide three main reasons to explain the importance of cash. Firstly, reserved cash is more easily accessible to management because the use of cash is subject to little scrutiny, and CEOs can use cash at their discretion. Secondly, cash reserve and the

value of the cash holdings represent a significant fraction of all corporate wealth. The cash holdings of firms in the US have increased considerably in recent decades (Bates et al., 2009). The increase in cash holding results from the increase in the risk of firms' cash flows and R&D intensity, and a decrease in inventories and capital expenditures. In other words, firms' cash policy affects most aspects of corporate operations. Thirdly, the adjustment of cash level is substantial over time. Dittmar and Mahrt-Smith (2007) suggest that there is a large variation in firm-level cash holdings over time and cash level may be more sensitive to the impact of over-confidence.

A number of previous studies have investigated the influence of CEO over-confidence on the cash holding levels of firms. Heaton (2002) investigates corporate finance under the influence of over-confident CEOs and find that over-confident CEOs have the preference for internal funds such as cash. Huang-Meier et al. (2015) examine the effect of CEOs' optimism on managerial motivations to increase cash holdings and find that optimistic managers have a preference to reserve cash for future growth opportunities. Over-confident CEOs have the perception that firms under their control are undervalued by the market because over-confident CEOs believe their management can increase their firms' earnings in the future (Malmendier and Tate, 2005, 2008; Malmendier et al., 2011). However, these papers do not discuss the influence of CEO over-confidence on cash adjustment speed which can show the feature of cash to revert to the target cash level. To the best of my knowledge, I make the first attempt to examine the influence of CEO over-confidence on the cash adjustment speed.

Previous papers have discussed the importance of the adjustment speed. The original

studies focus on the adjustment speed of firm's capital structure (Cook and Tang, 2010; Elsas and Florysiak, 2015; Huang and Ritter, 2009). Their studies find that firm value can be decreased when the capital structures are not at optimal leverage level. Firms need to adjust their biased leverages to target leverage level to increase market values. Therefore, the adjustment speed is an important research topic. Similarly, firms cash reserve also have a target level. Bates et al. (2009) and Fritz Foley et al. (2007) find that firms need to balance their liquidity demand and their risk of overinvestment if there is excess cash. This is because the cost can be high both below and above the target level of cash reserve. Holding more cash can provide firms with economic method of financing and do not incur costly external capitals (Jiang and Lie, 2016). However, they also point out that excess level of cash allows firms to squander cash reserves if there is poorly designed disciplinary mechanisms. Therefore, firm top executives need to keep a balance between the benefits and costs and adjust the cash level to the target level to reduce the cost of holding excessive cash.

There is a potential conflict between over-confident CEOs and shareholders about the level of cash reserve. Over-confident CEOs have a preference for cash over other types of assets (Heaton, 2002; Malmendier and Tate, 2008). However, too much cash reserved can lead to some overinvestment which cannot provide positive future cash flow but only help managers to extract benefit to themselves (Jensen, 1986; Opler et al., 1999). Therefore, too much cash reserved may lead to inefficient investment. Inefficient investment means the investment cannot provide positive returns. Opler et al. (1999) and Jensen (1986) suggest that too much cash reserves increase the risk of overinvestment even in negative NPV (net present value) project which can reduce firm

value. When the CEOs are over-confident, they have systematic overestimations of future returns for investment projects (Heaton, 2002; Malmendier and Tate, 2005). Heaton (2002) indicates that over-confident managers can mistakenly perceive that they make positive returns from negative NPV projects due to their over-confidence. Consequently, CEO over-confidence may lead to overinvestment and engagement in more value-destroying investment, mergers and acquisitions (Malmendier and Tate, 2005, 2008). Nikolov and Whited (2010) suggest that an increase in cash holding by 22% can result in a 6% decrease in shareholders' value in the US market according to their regression results. Shareholders may try to prevent over-confident CEOs from keeping excessive cash to make overinvestment (Bates et al., 2009; Fritz Foley et al., 2007; Jiang and Lie, 2016). To balance the preference of more cash by firm CEOs and shareholders' concerns of overinvestment using excess cash, I conjecture that over-confident CEOs may reduce the firm's cash adjustment speed which can make excess cash revert to the target cash level in firms. This is because that less reduction in cash reserve can still ensure over-confident CEOs' discretion to make investments in risky projects. At the same time, over-confident CEOs can show shareholders that they can distribute a reasonable amount of the cash to the stakeholders to release the suspicion of being self-interested CEOs.

In this chapter[17], I make three contributions to the literature. Firstly, my results show that the cash adjustment speed may be decelerated by CEO over-confidence. Secondly, I further find that over-confident CEOs are more likely to reduce firms' cash adjustment speed when there is excess cash, while CEO over-confidence does not show a

[17] I need to clarify that cash adjustment speed is the speed of cash adjustment from the current level to the target cash level. Excess cash means the current cash level is above target cash level, while insufficient cash means the current cash level is below the target cash level.

significant effect on firms' cash adjustment speed when the cash is insufficient. Thirdly, the cash reserves of over-confident CEOs are for future dissipation rather than cash accumulation. Moreover, I further extend my empirical investigation and show that over-confident CEOs can dissipate cash through future investments rather than dividend payouts or debt retirements.

In this study, I employ two main over-confidence measures. They are *OVERCONFIDENCE1* (*HOLDER67*)[18] and *OVERCONFIDENCE2* (*OVER_INVEST*)[19] to test the CEO over-confidence effect on firms' cash level and the cash adjustment speed to the target cash level. The two measures have been widely used by studies related to CEO over-confidence. The measure of *OVERCONFIDENCE1* (*HOLDER67*) is based on the exercise timing of the stock options of CEOs to identify whether CEOs are over-confident or not (Hirshleifer et al., 2012). The measure of *OVERCONFIDENCE2* (*OVER_INVEST*) is based on the overinvestment decisions of CEOs. Malmendier and Tate (2005, 2008) and Campbell et al. (2011) show that the investment decisions of firms are connected to over-confidence, which indicates that the investment decisions contain information about the over-confidence level. Ahmed and Duellman (2013) further suggest that faster growth in the total assets than the sales can reveal the managers' overinvestment behaviour compared to their peers. Campbell et al. (2011) adopt both of the measures to investigate the relationship between the forced

[18] Detailed information is provided in the methodology and data section.
Hirshleifer, D, Low, A, Teoh, SH. Are overconfident CEOs better innovators? The Journal of Finance 2012;67;1457-1498.
Campbell, TC, Gallmeyer, M, Johnson, SA, Rutherford, J, Stanley, BW. CEO optimism and forced turnover. Journal of financial Economics 2011;101;695-712.

[19] Detailed information is provided in the methodology and data section.
Ben-David, I, Graham, JR, Harvey, CR. Managerial miscalibration. The Quarterly Journal of Economics 2013;qjt023.
Campbell, TC, Gallmeyer, M, Johnson, SA, Rutherford, J, Stanley, BW. CEO optimism and forced turnover. Journal of financial Economics 2011;101;695-712.

turnover of CEOs and the influence of CEO over-confidence.

I collect data from COMPUSTAT and EXECUCOMP for the firms listed in the US stock market excluding the financial firms. The sample period is from 1993 to 2014. Firstly, I examine whether CEO over-confidence can affect firms' cash level. The results show that over-confident CEOs are more likely to increase their firms' cash level to keep an adequate or excess amount of cash since they can avoid the monitoring given by other forms of financial resources like debt and shareholders' capital. Secondly, I apply the concept of cash adjustment speed and examine whether over-confident CEOs may accumulate or reduce their firms' cash level when there is excess cash held for their firms. Over-confident CEOs retain a certain level of cash to maintain their discretionary power in the firm, while their shareholders may prefer to obtain dividends and reduce excess cash to avoid various forms of overinvestment. I also examine whether over-confident CEOs have consistent behaviour when firms suffer from insufficient cash or have excess cash reserves. The regression results reveal that CEOs are very sensitive to cash level deduction especially when there is excess cash in the firm. Over-confident CEOs have intentions to keep more excess cash and reduce the cash adjustment speed to the target cash level in order to maintain their discretion in the firm management. The results are consistent with the finding for cash level because the reduction in the adjustment speed of the excess cash can delay the decrease in the excess cash amount and ensure the discretionary power of over-confident CEOs. Thirdly, I examine whether the cash reserves are kept just for accumulation purposes or for future dissipation purposes. The results show that the cash reserved by over-confident CEOs is not for the purposes of future cash accumulation but for future dissipation. I

then further investigate the directions of the future dissipation of the reserved cash under the influence of over-confident CEOs. Over-confident CEOs dissipate the reserved cash in future investment opportunities rather than dividend payouts or debt retirements. Future investments include future capital expenditure, future acquisition events and future research and development expenses.

This chapter has the following structure. Section 4.1 is the Introduction. In Section 4.2, I review the literature related to my research questions and develop my hypotheses for this chapter. In the following section, I provide the detailed methodology for the regressions and the data used in the regressions in this chapter. The fourth section displays the empirical results of the influence of CEO over-confidence on cash level and cash adjustment speed. The last section is the Conclusion for the chapter.

4.2 Related literature and hypothesis development

4.2.1 Cash levels and cash adjustment

Following the argument of Harford et al. (2008) and Gao et al. (2013), the cash reserve behaviour may have agency-based reasons apart from the precautionary reasons. The precautionary reason for the firms to hold more cash including avoiding greater information asymmetry with external capital providers, avoiding the increase of the cash flow uncertainty, and supporting large research and development projects (Bates et al., 2009; Duchin, 2010; Gao et al., 2013; McLean, 2011; Opler et al., 1999). Therefore, firms' cash is reserved against the potentially volatile and unexpected environments faced by the firms. The other one is the agency-based explanations related to top

managers' preference in the financing process (Dittmar and Mahrt-Smith, 2007; Dittmar et al., 2003; Harford et al., 2008; Jensen, 1986; Pinkowitz et al., 2006).

Firstly, Opler et al. (1999) indicate that firms have precautionary motivations to have cash reserves especially when there is large information asymmetry between the internal managers and the external investors. Other studies also provide supportive evidence for the precautionary motivations to hold more cash. Gao et al. (2013) suggest that the behaviour of holding more cash can help protect firms from adverse cash flow shocks during risky periods in the future. More importantly, the reserved cash can reduce the chance of missing investment opportunities due to cash shortage and constraints on using external financing. Bates et al. (2009) provide some plausible explanations for the behaviour of holding more cash among the US firms and argue that the behaviour of having more cash reserve results from reduced inventories in the warehouse, decrease in capital expenditures, risk increase of the firm's cash flow and increase in the investment of research and development (R&D). Furthermore, McLean (2011) shows that firms with large R&D expenditures and high volatility of cash flow prefer to keep a large amount of cash. High R&D expenditure and high volatility of cash flow are the precautionary reasons for firms to hold cash.

In addition, other studies find supporting evidence from private firms in different countries. Brav (2009) shows that the cash holding strategies of UK private firms have more sensitivity to operating cash flows than those of public-listed firms. Bharath and Dittmar (2010) indicate that those public-listed firms with a high level of cash holdings may go private in the US because of firm information and liquidity considerations.

Saunders and Steffen (2011) point out that the borrowing cost for private firms is higher than that of public-listed firms in the UK which leads private firms to store more cash than public firms.

Secondly, apart from the precautionary motivations of holding more cash, there are agency-based explanations (Jensen, 1986). Many other studies also hold the view that the behaviour of holding more cash can be explained by agency-based perspectives (Dittmar and Mahrt-Smith, 2007; Dittmar et al., 2003; Harford et al., 2008; Pinkowitz et al., 2006). They argue that the excess cash derived from models with precautionary motivations for holding more cash can make the agency problems worse when the managers have a large pool of accumulated cash. This is because the executives want to keep cash to secure their discretionary power while the shareholders want to reduce the over-reserved cash for more shareholder wealth (Jiang and Lie, 2016; Nikolov and Whited, 2010). Harford et al. (2008) argue that not well-governed firms spend more cash than better-governed firms. This is because the better-governed firms have lower cash reserves. Bertrand and Mullainathan (2003) suggest that CEO's desire can lead to the relatively high reserve of cash because of CEOs' preference for internal funds.

Managers prefer cash reserve, but their behaviour of keeping too much cash in firms conflicts with their shareholders' interests. Opler et al. (1999) argue that managers inherently wish to accumulate excess cash (i.e., cash in excess of the level that maximizes firm value) because they want greater flexibility to pursue personal objectives. CEOs' demand for excess cash can be stronger when CEOs are over-confident. This is because over-confident CEOs have intentions to hold more cash

to increase their discretion, in particular when there are investment opportunities (Huang-Meier et al., 2015). Jensen (1986) argues that self-interested managers are inclined to invest cash inefficiently, particularly when there is excess cash. These managers' self-interested behaviour can reduce the firm value and harm the wealth of shareholders. If the level of cash reserved is high, shareholders may raise their concerns about potential abuse in cash and the decrease in firm value and shareholder wealth. Some studies indicate that too much cash may lead to potential firm value reduction. Fritz Foley et al. (2007) and Bates et al. (2009) presume that firms trade off the benefits of liquid assets, such as ensuring funds for investments without having to incur costly external capital transactions, versus potential costs, such as overinvestment even in negative NPV (net present value) projects, which can reduce firm value (Opler et al., 1999). For instance, Apple might hold cash primarily to seize strategic opportunities as they arise, whereas its competitor RIM might hold cash as an insurance policy against demand uncertainty. However, Jiang and Lie (2016) suggest that both Apple and RIM may squander the cash if it is excessive, especially when disciplinary mechanisms are not strict.

Cash should be kept to balance its benefits such as ensuring funds without incurring costly external capital and costs such as agency problems originating from concern about overinvestment and shareholder wealth reduction (Jiang and Lie, 2016; Opler et al., 1999). As a consequence, it is of interest to examine whether cash level can revert to target cash level and speed of adjustment if there is a reverse mechanism. Jiang and Lie (2016) argue that there are two different views about cash holding strategies. Firstly, under tradeoff theory, it is necessary for corporate managers to compare and balance

costs and benefits of holding more cash, and thus there should be an optimal cash holding level which can be pursued in firms under tradeoff theory. The optimal value is usually called the target cash level. Secondly, Jiang and Lie (2016) suggest that there is an alternative view to trade-off theory and argue that holding more cash is secondary to other firm targets. The targets include equity raising when there is overpriced equity, and minimising transaction cost by cash without external financing. Following Jiang and Lie (2016), this dynamic view of cash strategy and the trade-off theory are not mutually exclusive. Therefore, they suggest that firms can optimally deviate from their target cash level. Furthermore, they suggest that the cash adjustment speed at which can close the deviations may depend on the relative priority of the two views of cash strategies. If trade-off theory is more important than the dynamic view, the cash adjustment speed can be higher, otherwise not.

4.2.2 CEO over-confidence

Roll (1986) introduces the concept of CEO over-confidence and argues that the hubris is an accompanying feature and is one of the main drivers for value-destroying mergers and acquisitions. This study shows that managerial over-confidence may result in an overpayment for target firms in mergers and acquisitions. Following Heaton (2002) and Malmendier and Tate (2005), over-confident CEOs are considered to be CEOs who have systematic overestimations of future returns for investment projects or who have systematic overestimations of benefits from favourable events. Heaton (2002) provides evidence that over-confident managers make overvaluation for investment projects. Futhermore, Heaton (2002) indicates that over-confident managers can mistakenly

perceive that they make positive NPVs (net present values) from negative NPV projects. CEO over-confidence may lead to overinvestment and engagement in more value-destroying mergers and acquisitions (Malmendier and Tate, 2005, 2008). Some studies look at the over-confidence effect on firm investment, firm financing choice and dividend policy (Baker and Wurgler, 2011; Deshmukh et al., 2013). More specifically, Deshmukh et al. (2013) find that over-confident managers intend to pay lower dividends and reduce shareholder wealth. All aforementioned studies reach the conclusion that managerial over-confidence can distort financial policies in firms (Malmendier et al., 2011).

In addition, managerial over-confidence is examined through its effects on earnings forecast activities of managers (Hilary and Hsu, 2011; Hribar and Yang, 2016; Libby and Rennekamp, 2012). The investigation of the relationship between managers' over-confidence and earnings forecast show that over-confident managers tend to overestimate their contributions for better firm performance. Managerial over-confidence is shown as having a positive relationship with a probability of misreporting and financial statement fraud which cannot be reduced by either internal or external monitoring mechanisms (Schrand and Zechman, 2012).

Previous studies indicate that the cash level of firms can be affected by firms' financial constraint conditions (Acharya et al., 2007; Almeida et al., 2004), corporate governance systems (Dittmar and Mahrt-Smith, 2007) and shareholder protection (Iskandar-Datta and Jia, 2014). However, some previous studies only point out that cash is preferred as a financing method for investment by over-confident managers (Ferris et al., 2013;

Malmendier and Tate, 2008; Malmendier et al., 2011) and very few studies pay attention to the effect of CEOs' beliefs on cash reserve behaviour. Huang-Meier et al. (2015) make the first attempt to show that a higher level of firms' cash is more likely to be reserved by over-confident CEOs. As a consequence, motivated by Huang-Meier et al. (2015) , my study aims to fill the gap and investigate whether CEO over-confidence can affect cash adjustment mechanism to target cash level and how over-confident CEOs react to dissipate reserved cash.

4.2.3 Hypothesis development

Heaton (2002) and Malmendier and Tate (2005) indicate that over-confident managers are more likely to overestimate their capability of investment choice and underestimate risk embedded in investment projects. Furthermore, over-confident CEOs tend to overestimate their firms' future cash flows and hold the view that their firms under their management can outperform others. However, the outsiders – financial analysts and investors – may not hold the same view as over-confident CEOs. As a consequence, over-confident CEOs may have perceived that the market value of their firms is under-estimated (Malmendier and Tate, 2005; Malmendier et al., 2011). Huang-Meier et al. (2015) argue that over-confident CEOs intend to hoard cash for growth opportunities. This is because over-confident CEOs are reluctant to seek external funds, as over-confident CEOs perceive that the firm under their control is undervalued by external financing suppliers, and thus over-confident CEOs perceive that the external financing suppliers may provide higher cost of external financing than over-confident CEOs expected.

Bates et al. (2009) document that the increase in cash flow risk is connected to the increase in the idiosyncratic risk of firms. Furthermore, Opler et al. (1999) and Bates et al. (2009) suggest that firms with strong growth opportunities tend to hold more cash. Over-confident CEOs perceive that firms under their control have better performance and better future earning expectation (Heaton, 2002; Malmendier and Tate, 2005). And over-confident CEOs hoard more cash to finance the firms' investment opportunities to obtain future growth (Heaton, 2002; Malmendier and Tate, 2005). Therefore, over-confident CEOs intend to hoard more cash to finance growth opportunities.

To sum up, following the aforementioned findings and arguments, I conjecture that over-confident CEOs are motivated to hold more cash rather than external funds.

H1: *CEO over-confidence is positively related to firm cash holding.*

In imperfect capital markets, Leary and Roberts (2005), Flannery and Rangan (2006) and Tsyplakov (2008) argue that firms may not be able to instantly adapt themselves to changes in market conditions due to financing and investment frictions. Several studies indicate that firms' ability to manage liquidity assets like cash can also be influenced by similar frictions to deviate from target cash level (Gao et al., 2013; Jiang and Lie, 2016). They also suggest that cash deviations from target level can be corrected over time by making tradeoffs to balance benefits and costs of holding liquidity assets. However, they do not examine the influence of CEO over-confidence on cash adjustment speed.

Huang-Meier et al. (2015) show that level of cash holding may be influenced by CEO over-confidence, but they did not look at the optimal level of firms' cash holding (Gao et al., 2013; Opler et al., 1999). There are several motivations for corporations to hold more cash. More specifically, cash is retained for lowering transaction costs, reducing taxes associated with payouts and investment opportunities (Bates et al., 2009; Opler et al., 1999). Over-confident CEOs pay fewer dividends to shareholders than ordinary CEOs (Deshmukh et al., 2013). However, excess cash reserve without efficient investment and reasonable payouts may increase costs of holding a higher level of cash. The balance between the benefits and costs of holding cash may determine the optimal level of cash for corporations. Jiang and Lie (2016) indicate that cash and other internally generated funds can offer a cheap method of financing. This kind of financing does not incur costly external capitals. However, Jiang and Lie (2016) also indicate that firms with excessive cash level and absence of well-built regulations can face cash extravagancy. Therefore, the arguments imply that a firm's cash level may have an optimal value to balance the costs and benefits.

More importantly, holding a higher level of cash may lead to suspicions of shareholders and debtors about CEOs' self-interest, and their shareholders may put pressure on CEOs since external financing has monitoring power to constrain managerial opportunism (Easterbrook, 1984; Rozeff, 1982). Therefore, it is interesting to look at how CEO over-confidence may affect the adjustment speed of cash holding. Since there are strong motivations for over-confident CEOs to hold more cash, I conjecture that over-confident CEOs may tend to reduce the cash adjustment speed to the target cash level and thus have the following hypotheses:

H2: *The adjustment speed of cash holding to the target level is negatively associated with the level of CEO over-confidence.*

H3: *The cash adjustment speed to the target cash level is reduced by CEO over-confidence when there is excess cash.*

Heaton (2002) and Malmendier and Tate (2005) find that optimistic managers have a preference for internal funds rather than external funds for financing firms' investment. The external funds include debt and newly introduced shareholder capital. If the external funds are not in priority as perceived by over-confident CEOs, the costs of the external funds such as debt interests and dividends are not preferred by over-confident CEOs. As a consequence, consistent with Deshmukh et al. (2013), over-confident CEOs tend to pay fewer dividends to shareholders because Jensen (1986) suggests that payouts to shareholders can reduce resources controlled by managers, which in turn decreases managers' power and constrains their investment capability. Introducing external funds can not only incur the cost of dividends but also raise monitoring from outsiders (Easterbrook, 1984; Rozeff, 1982). Financing with internally generated funds can avoid monitoring and high explicit prices of external funds. Therefore, over-confident CEOs tend to pay fewer dividends and interests and prefer cash. If payouts to shareholders and debt retirement have been reduced, over-confident CEOs can increase firms' cash for future investment opportunities. Furthermore, Griffin and Tversky (1992) argue that individuals tend to accept they are over-confident when they obtain good performance on difficult tasks. Over-confident CEOs are self-confident in

their abilities in investments described as “illusion of control” (Larwood and Whittaker, 1977). Therefore, Hirshleifer et al. (2012) indicate that over-confident CEOs can be attracted by risky and challenging investment opportunities for firm growth to reach their self-actualization. The risks and challenges of risky investments can be under-estimated by over-confident CEOs (Libby and Rennekamp, 2012). In other words, over-confident CEOs need to retain a higher level of cash for future investment opportunities. I then make the following hypothesis.

H4: *Over-confident CEOs tend to make future cash dissipation on investment, not dividend payment or debt retirement.*

4.3 Methodology and data

4.3.1 CEO over-confidence measures

I have used two different measures of CEO over-confidence. The first measure is based on the exercise timing of CEOs’ options, and the second measure is based on the overinvestment behaviour conducted by CEOs. The establishment of them is explained as follows.

Ahmed and Duellman (2013) suggest that CEOs are considered to have a less diversified portfolio of their shareholdings. CEOs then suffer from the idiosyncratic risk of the firms’ shares. CEOs have the motivation to overcome the less diversification portfolio problems through exercising their options held or selling the shares from the exercised options, and thus, the idiosyncratic risk of holding a less diversified portfolio

can be reduced. However, over-confident CEOs over-estimate their own abilities to make their firms continuously outperform a hedged portfolio (Ahmed and Duellman, 2013; Malmendier and Tate, 2005, 2008). As a consequence, over-confident CEOs intend to postpone the exercise of their options compared to ordinary CEOs. This implies that an over-confident CEO may have a higher percentage of options in-the-money (*OPIM*) than rational (ordinary) CEOs. Malmendier and Tate (2005) and Malmendier and Tate (2008) first introduce the method to obtain the option-based over-confidence measure. Following Campbell et al. (2011), Hirshleifer et al. (2012) and Ahmed and Duellman (2013), I compute the over-confidence measure by using the data downloaded from the EXECUCOMP database.

There are four steps to compute the option-based over-confidence measure. In the first step, I calculate the average value of CEOs' options in hand ($\bar{C}$) by dividing the total value of the exercisable options still unexercised by the number of exercisable options which are still unexercised. In the second step, the share price ($\bar{S}$) at the end of the fiscal year is subtracted from the average value of CEOs' options unexercised to get the average exercise price ($\bar{X}$) of each option held by CEOs. In the third step, the average value of each option ($\bar{C}$) is divided by the average exercise price of each option ($\bar{X}$) to calcualte the ratios of the options in-the-money ($\bar{C}/\bar{X}$). In the fourth step, I define that *OVERCONFIDENCE1* (*HOLDER67*) equals one if the ratio of the options in-the-money ($\bar{C}/\bar{X}$) is not less than 0.67 at least twice in the sample, otherwise, it equals zero. CEOs are regarded as over-confident if *OVERCONFIDENCE1* (*HOLDER67*) equals one, otherwise zero. The definitions are used by Malmendier and Tate (2005) and Campbell et al. (2011).

Following Ahmed and Duellman (2013), I provide the procedures to calculate the over-confidence measure based on the timing of options exercise with equations. Firstly, I need to obtain the average value of each option ($\bar{C}$).

$$\bar{C} = \frac{value(exercisable\_options\_unexercised)}{number(exercisable\_options\_unexercised)} \tag{4.1}$$

The second step is to obtain the average exercise price of each option ($\bar{X}$).

$$\bar{X} = \bar{S} - \bar{C} \tag{4.2}$$

Thirdly, I need to get the ratio of the options in-the-money.

$$options\_in-the-money\ \left(OPIM\right) = \frac{\bar{C}}{\bar{X}} \tag{4.3}$$

The last step is to define that *OVERCONFIDENCE1* (*HOLDER67*) equals 1 if $\bar{C}/\bar{X}$ is not less than 0.67 at least twice in the sample, otherwise zero. A CEO is over-confident if *OVERCONFIDENCE1* (*HOLDER67*) equals one, otherwise zero.

The second measure of over-confidence is based on CEOs' overinvestment decisions as in the previous studies. Malmendier and Tate (2005, 2008) show that the investment decisions of firms are associated with CEO over-confidence. More specifically, firms'

investment decisions contain information which can reflect the level of CEO over-confidence (Campbell et al., 2011). Schrand and Zechman (2012) suggest that the overinvestment measure can be extracted from the residuals of the regressions of total asset growth on sales growth by the industry-year groups. Ahmed and Duellman (2013) further suggest that faster growth in the total assets than the sales can reveal the managers' overinvestment behaviour compared to their peers. I compute the second measure of CEO over-confidence in two steps. Firstly, I estimate the regression of total asset growth on sales growth by industry and year groups. Secondly, I use the regression residuals to define this measure. The second measure of CEO over-confidence is still a dummy variable, *OVERCONFIDENCE2* (*OVER_INVEST*), which equals one if the residual of the excess investment regression is positive, otherwise zero.

I also provide the equation of the excess investment regression by industry and year groups to get the residuals below:

$$ASSET\_G_{it} = \alpha_0 + \beta_1 SALES\_G_{it} + \varepsilon_{it} \tag{4.4}$$

The dependent variable *ASSET_G* is the total asset growth rate in Equation (4.4). *SALES_G* is the independent variable which is the sales growth rate. If the residual is positive, I define the CEO as over-confident; otherwise, the CEO is not over-confident.

4.3.2 Over-confidence impact on firm's cash level

I follow the regression for evaluating the over-confidence impact on the cash level from

Gao et al. (2013). The main variables of over-confidence are discussed in Section 4.3.1. I consider the year and industry fixed effect in the following regressions. I also contain the firm clustering standard errors of the variables coefficients, which can reflect the influence of firm-level heteroskedasticity. The regression of the over-confidence effects on the cash level is displayed in Equation (4.5).

$$\begin{aligned} CASH\_RATIO_{it} &= \alpha + \beta_1 OVERCONFIDENCE_{it} + \beta_2 LN\_AT_{it} + \beta_3 CASH\_FLOW_{it} \\ &+ \beta_4 INDUSTRY\_SIGMA_{it} + \beta_5 LEVERAGE_{it} + \beta_6 SALES\_GROWTH_{it} + \beta_7 MTB_{it} \\ &+ \beta_8 NWC_{it} + \beta_9 CAPEX_{it} + \beta_{10} ACQUISITION_{it} + \beta_{11} RND_{it} + \beta_{12} DIV\_DUMMY_{it} \\ &+ \beta_{13} MNC_{it} + \beta_{14} DUMMY\_RATING_{it} + \beta_{15} LN\_FIRM\_AGE_{it} + \beta_{16} FRCI_{it} \\ &+ year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (4.5)$$

The dependent variable in Equation (4.5) is the cash ratio (*CASH_RATIO*). It is the cash holding amount in the firm divided by the total assets. The dependent variable is calculated using the data from COMPUSTAT. The over-confidence data is calculated using the data from EXECUCOMP. The other original variables collected from COMPUSTAT are as follows:

Firm size (*LN_AT*) is defined as the natural logarithm of the total book assets of the firm (#6)[20]. *Cash flow to assets* (*CASH_FLOW*) measures the cash flow of the firm. To calculate it, I first use the income minus the interests to the debtors, the dividends, and the taxes but not minus the depreciation. Then I divide the numerator by the total book assets. The process is displayed as (#13 – #15 – #16 – #21) / #6 using the notations from COMPUSTAT. Bates et al. (2009) suggest that greater cash flow means a stronger ability to accumulate the cash reserves if other conditions are the same. It means the

[20] The notation in the parenthesis is the item number from the COMPUSTAT database.

firm may have more opportunities to finance the investment by cash. *Industry cash flow risk* (*INDUSTRY_SIGMA*) is expected to be positively related to the cash reserve level by Bates et al. (2009). The leverage ratio (*LEVERAGE*) is the sum of the long-term debt (#9) and the current debt (#34) together divided by the total book assets (#6). Bates et al. (2009) suggest that if external financing like debt is constrained, the firm tend to use the cash to decrease the leverage. Therefore, the relationship between the leverage and the cash reserve level is negative. However, Acharya et al. (2007) hold a hedging argument which indicates that there is a positive relationship between the leverage and the cash reserve level. The regression results can show me which of the theories have been verified in this chapter. The sales growth rate (*SALES_GROWTH*) is calculated as sales (#12) minus lagged sales together divided by lagged sales. The sales are the revenue generated by selling products. The more sales, the more cash can be generated. The relationship between sales growth and cash reserve should be positive. *Market-to-book ratio* (*MTB*) is the total book value of the asset (#6) reduce the book value of equity (#60) plus the market value of equity; and use the result to divide the total book value of asset. The market value of equity is the production of the price multiplied by the outstanding share numbers (#199 ∗ #25) divided by the total book asset (#6). Bates et al. (2009) suggest that the market to book ratio measures the investment opportunities. They believe that firms who have better investment opportunities take cash reserve to be more valuable. Therefore, the relationship between *MTB* and cash reserve is positive.

Net working capital to assets (*NWC*) is the working capital (#179) minus the cash (#1) then divided by the total assets (#6). Therefore, I conjecture that the relationship between NWC and the cash reserve is negative. *Capital expenditure for assets* (*CAPEX*)

is the ratio of the capital expenditures (#128) divided by the total book assets (#6). Riddick and Whited (2009) show that a productivity increase event can push firms to invest more in the short term. In turn, it saves less cash temporarily. Therefore, the amount of cash reserve can be reduced. The relationship between the capital expenditure and the cash level should be negative. *Acquisition to assets* (*ACQUISITION*) is calculated as the number of acquisitions (#129) divided by the total assets (#6). There should be a negative relationship between the cash reserve level and the acquisition event because the acquisition event is the cash outflow. *R&D to the asset* (*RND*) measures the growth opportunities of a firm. R&D is calculated as *XRD* (#46) divided by the total asset (#6). The missing value is kept unchanged in the data set because Koh and Reeb (2015) conclude that not every research changes missing R&D data by comparing many research papers. *Dividend payout dummy* (*DIV_DUMMY*) is a dummy variable that equals one if the firm pays a common dividend (#21). The dividend payment reduces cash from the firm. Furthermore, firms paying dividends can attract more investors buying their shares which helps to increase market accessibility. Therefore, it is not necessary to hold cash reserves.

Apart from the above variables, I use the natural logarithm of the firm age (*LN_FIRM_AGE*), the public debt issuance right (*DUMMY_RATING*) and the foreign sales percentage indicator (*MNC*) as additional control variables. The definitions are the same as those in the papers of Gao et al. (2013) and Jiang and Lie (2016). I also include the financial crisis dummy (*FRCI*) in regression. The dummy of financial crisis equals one if the year is 2007 or 2008.

4.3.3 Over-confidence impact on firm's cash adjustment speed

In order to get the target level of the cash holding, I need to estimate a regression on the cash determinants to obtain the fitted value as the target level of firms' cash holding. The determinants are used by Bates et al. (2009). I follow Jiang and Lie (2016) to run 21 regressions to capture the yearly grouped cash target from 1993 to 2014. This method helps to get the cash targets based on the time-varying determinants. I also use the firm clustering standard error to reduce firm unique heteroskedasticity problems. The fitted value of the regressions is the cash target level. The equation for generating the cash target is below in Equation (4.6)[21]. The excess cash means the actual cash level is higher than the target cash level. Following Gao et al. (2013) and Jiang and Lie (2016), if the firms have excess cash, the target level of cash minus the lagged actual level of cash is less than zero. The regression model is defined as follows:

$$\begin{aligned} CASH\_RATIO_{it} &= \alpha + \beta_1 LN\_AT_{it} + \beta_2 CASH\_FLOW_{it} + \beta_3 INDUSTRY\_SIGMA_{it} \\ &+ \beta_4 LEVERAGE_{it} + \beta_5 SALES\_GROWTH_{it} + \beta_6 MTB_{it} + \beta_7 NWC_{it} + \beta_8 CAPEX_{it} \\ &+ \beta_9 ACQUISITION_{it} + \beta_{10} RND_{it} + \beta_{11} DIV\_DUMMY_{it} + \beta_{12} MNC_{it} \\ &+ \beta_{13} DUMMY\_RATING_{it} + \beta_{14} LN\_FIRM\_AGE_{it} + \varepsilon_{it} \end{aligned} \quad (4.6)$$

Byoun (2008) uses several methods to test the capital structure adjustment speed. The method is then used in the research of the cash adjustment speed. For example, the transformed method is used in the papers of Gao et al. (2013) and Jiang and Lie (2016). In my study, I refer to the estimation procedure of the adjustment speed used by Byoun (2008). I conduct the tests in two steps. The first step is to generate the cash target of corresponding years. The cash determinants are extracted from Bates et al. (2009). The

[21] For brevity, I do not report the results, but they are available upon request.

definitions and implications have already been discussed above in Section 3.2. The second step is to regress the cash changes on the cash deviation from the target cash level. The cash deviation from the target cash level is the current year target cash level minus the actual cash level in the previous year. The coefficient is the adjustment speed I need to test. This procedure enables potential research when I need to consider over-confidence measures as the interaction term. The regression model is as follows:

$$CASH\_RATIO_{it} - CASH\_RATIO_{it-1} = \lambda\left(CASH\_RATIO_{it}^{*} - CASH\_RATIO_{it-1}\right) + \varepsilon_{it} \quad (4.7)$$

Equation (4.7) is just the initial version of the regression to test the cash adjustment speed. The coefficient of the right-hand side of equation λ is the cash adjustment speed. The dependent variable is the change of the cash level. The independent variable is the cash deviation from the target cash level. $CASH\_RATIO^{*}$ is the target cash level I obtained from Equation (4.6). I need to include the over-confidence measures as the interactions to examine the influence of CEO over-confidence on cash adjustment speed. Equation (4.8) shows the regression models.

$$\begin{aligned} CASH\_RATIO_{it} - CASH\_RATIO_{it-1} &= \lambda\left(CASH\_RATIO_{it}^{*} - CASH\_RATIO_{it-1}\right) \\ &+ \gamma\left(CASH\_RATIO_{it}^{*} - CASH\_RATIO_{it-1}\right) \times OVERCONFIDENCE_{it} \\ &+ CONTROL\_VARIABLES_{it} + year\_dummy + industry\_dummy + \varepsilon_{it} \end{aligned} \quad (4.8)$$

The sum of the coefficients $(\lambda + \gamma)$ of the first and second variables in the parenthesis of the right-hand side of the equation is the cash adjustment speed under the influence of CEO over-confidence. The dependent variable is the change of cash level. The

independent variable is the target level minus the lagged cash level. When I discuss the influence of CEO over-confidence on cash adjustment speed, I include the over-confidence measures as the interactions to the initial regressions. The control variables are discussed above. I also include the year and industry fixed effects in the regressions.

4.3.4 Over-confidence effects on cash dissipation and accumulation behaviour

In the next section, I introduce the regressions used by Dittmar and Mahrt-Smith (2007) to identify whether excess cash is just for accumulation purposes or stored for future dissipation. The regressions model is as follows.

Dissipation:

$$DDEV_{it+1} = \alpha + \beta_1 OVERCONFIDENCE_{it} + \beta_2 INDUSTRY\_MEAN\_DDEV_{it} + \varepsilon_{it} \quad (4.9)$$

Accumulation:

$$DDEV_{it} = \alpha + \beta_1 OVERCONFIDENCE_{it-1} + \beta_2 INDUSTRY\_MEAN\_DDEV_{it-1} + \varepsilon_{it} \quad (4.10)$$

The dependent variable in Equation (4.9) is $DDEV_{it+1}$ which is the forward change of the cash deviation from the target cash level. The cash deviation equals the target cash level minus the actual cash level in the previous year. The dependent variable in Equation (4.10) is $DDEV_{it}$ which is the change of the cash deviation from the target cash level. Following Jiang and Lie (2016) and Dittmar and Mahrt-Smith (2007), I include *INDUSTRY_MEAN_DDEV* in the two regression equations as the control variable. This

is the industry average change in excess cash. By including this variable as the control variable, it is not necessary to include previously used control variables because this variable has already considered the industry range changes in profitability, the changes in investment opportunities and the hedging need as drivers of cash changes (Dittmar and Mahrt-Smith, 2007). Dittmar and Mahrt-Smith (2007) also mention that the industry average change is parallel to the firm level change. Therefore, I do not include more control variables in the regression. Both dependent variables are about excess cash of firms because if the cash reserve is not enough, CEOs' first task is to gather more cash but not discuss how to deal with it. Furthermore, over-confident CEOs have intentions to store more cash in the firm to increase their discretion when there are investment opportunities (Huang-Meier et al., 2015). I need to find out where the excess cash reserved can be used. Therefore, I introduce Equation (4.11), Equation (4.12) and Equation (4.13) below.

There are three ways to examine how CEOs dissipate the excess cash. The three main ways to dissipate cash are investments, dividend payouts and debt retirements. Investments contain capital expenditures and research and development expenses. Dividend payouts contain share repurchase and dividend payouts. Following the method of Jiang and Lie (2016) and Gao et al. (2013), I design the regressions to test how firms dissipate the cash.

$$FDPAYOUT_{it} = \alpha + \beta_1 OVERCONFIDENCE_{it} + \beta_2 LN\_AT_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 INDUSTRY\_SIGMA_{it} + \beta_5 LEVERAGE_{it} + \beta_6 SALES\_GROWTH_{it} + \beta_7 DIV\_DUMMY_{it} + \beta_8 FRCI_{it} + \varepsilon_{it} \quad (4.11)$$

$$FDINVESTMENT_{it} = \alpha + \beta_1 OVERCONFIDENCE_{it} + \beta_2 LN\_AT_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 INDUSTRY\_SIGMA_{it} + \beta_5 LEVERAGE_{it} + \beta_6 SALES\_GROWTH_{it} + \beta_7 DIV\_DUMMY_{it} + \beta_8 FRCI_{it} + \varepsilon_{it} \quad (4.12)$$

$$FDDLTR\_AT_{it} = \alpha + \beta_1 OVERCONFIDENCE_{it} + \beta_2 LN\_AT_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 INDUSTRY\_SIGMA_{it} + \beta_5 LEVERAGE_{it} + \beta_6 SALES\_GROWTH_{it} + \beta_7 DIV\_DUMMY_{it} + \beta_8 FRCI_{it} + \varepsilon_{it} \quad (4.13)$$

DPAYOUT is the change of the dividend payment adding the share repurchase. *FDPAYOUT* means the forward value of *DPAYOUT*. *DINVESTMENT* is the change of the sum of capital expenditure, the acquisition event and R&D expenses. *FDINVESTMENT* is the forward value of *DINVESTMENT*. *DDLTR_AT* is the change of the long-term debt retirement. *FDDLTR_AT* is the forward value of *DDLTR_AT*. All these variables are scaled by the firm's total assets. The control variables are the same as those in the paper of Gao et al. (2013) with my additional financial crisis dummy *FRCI*.

To reduce the potential endogeneity problems, I use several methods. Endogeneity comes from omitted variables, measurement errors, and simultaneity (Antonakis et al., 2010; McCarthy et al., 2017). I use as several control variables to reduce the omitted variables problems. To further reduce the omitted variables problems, I use year-and-industry-fixed effect model to reduce the unobservable effects (Rossi, 2013). The result of Hausman test in Appendix 4.2 confirms that I need to use the year-and-industry-fixed effect, and thus I can minimize the endogeneity caused by omitted variables. In order to reduce the measurement errors, I follow Jiang and Lie (2016) to use cash target level generated by a GMM estimation and calculate the

alternative cash deviation. I then estimate the previous regression with the alternative cash deviation. Hoque et al. (2013) argue that by using the estimators generated by GMM, the dynamic model can deal with the endogeneity problems by considering lagged and differenced values of the explanatory variables as internal instruments. Following Jiang and Lie (2016), Blundell and Bond (1998) and Flannery and Hankins (2013), the equation in Section 4.4.4 is a dynamic panel model used to generate new target cash level (i.e. the estimators generated by GMM). The results in Table 4.11 are consistent with the main results. The details are included in Section 4.4.4. In addition, I use two different measures of over-confidence in all regressions. This also reduces the risk of endogeneity from measurement errors. To reduce the endogeneity from simultaneity, I include a regression with one lag of independent variables. The details are included in Section 4.4.4, and the results are reported in the Table 4.12. In summary, the robustness check shows that the results are consistent with the main findings.

4.3.5 Sample selection and summary statistics

Following Bates et al. (2009), I obtain the variables from COMPUSTAT for the sample period 1993 to 2014. The sample firms are required to have positive assets and positive sales in this chapter (Bates et al., 2009; Jiang and Lie, 2016). Financial firms (SIC codes 6000-6999) and utility firms (SIC codes 4900-4999) are not included in my sample. Following Gao et al. (2013), I form 48 industry groups and allocate the sample firms into the respective industry group. In total, there are 51,767 firm-year observations in my regression analysis over the sample period.

The data I used is from COMPUSTAT and EXECUCOMP. I obtain firm accounting and financial variables for the US firms from COMPUSTAT, while I collect the information of the firms' managerial team characteristics such as salary, bonus and options from EXECUCOMP. I download the data from 1980 to 2014. I download for a longer than sample period to compute the industry cash volatility which requires data for the previous ten years (Bates et al., 2009). I winsorize the variables at 1% and 99% to remove the large outliers.

[Insert Table 4.1 around here]

The *CASH_RATIO* is the main dependent variable. The average level of the firm cash ratio is 0.218. It is larger than the median value 0.040. The standard deviation is very small. *OVERCONFIDENCE1* and *OVERCONFIDENCE2* are the measures for CEO over-confidence as dummies. *OVERCONFIDENCE1* is defined as *HOLDER67* with 14005 observations. *OVERCONFIDENCE2* is defined as *OVER_INVEST* with 14903 observations. If the CEO is over-confident, the dummy variable equals 1. I find that almost half of the US firms are governed by over-confident CEOs as shown by the average value of the over-confident measures. *OVERCONFIDENCE1* has a mean of 0.457 and *OVERCONFIDENCE2* has a mean of 0.426.

The other variables are the control variables. *LN_AT* is the measure of the firm size. The mean value of the firm size is 5.101 while the median is 3.320. The standard deviation is 2.514. The average value of *CASH_FLOW* is -0.117. The median value of the *CASH_FLOW* is -0.065. *INDUSTRY_SIGMA* is higher in firms with high cash flow risk.

The statistics show that the mean is 0.298 while the median is 0.090. Since the cash flow risk is calculated from the standard deviation of the industry cash level in a long period, the measure itself reveals a consistency in past cash flow. Therefore, it can reflect the long-term cash flow conditions in the firm, which is very closely related to the cash level. *LEVERAGE* is the measure of the firm's capacity to cover the debt payable. The mean is 0.252 while the median is 0.016, which means that the firm has 25% debt in the total assets. *SALES_GROWTH* measures the growth of sales. The mean is 0.225 while the median is -0.049.

MTB is the market to book ratio. The mean of the *MTB* is 2.722 while the median is 1.160. *MTB* reveals the market perceptions of the firms' future profitability. *NWC* is the measure of the net working capital. The mean of *NWC* is -0.016 while the median is -0.061. *CAPEX* is the measure of capital expenditure. The average of *CAPEX* is 0.048 while the median is 0.016. The standard deviation is 0.053. The statistics are quite stable in the sample. *ACQUISITION* is the variable which can track whether firms have acquisition activities in the year and how much has been spent on it. The resources used for acquisition can affect the cash level of a firm. The mean of *ACQUISITION* is 0.021 while the median is 0. The summary of the acquisition behaviour shows that merger and acquisition take place in less than 25% of all the observations.

RND is the measure for R&D. The mean is 0.104 while the median is 0.005. The standard deviation is quite small. Therefore, the statistic is stable. I do not replace the original missing R&D data into another amount. Koh and Reeb (2015) argue that a large amount of previous literature keeps the missing R&D unchanged. They also suggest that

even if there are treatments with the missing R&D, the treatments are not unified in one method. Therefore, I would do better to leave it missing to avoid data mining. *DIV_DUMMY* is the dummy variable used to track whether the firms pay dividends to their shareholders. The dummy equals one if the firms pay dividends, otherwise 0. *MNC* measures the foreign sales in the firms; it is a dummy variable. It equals one if the foreign sales occupy over 20% of the total sales. *DUMMY_RATING* is the dummy variable for evaluating the firm's ability to obtain external financing. It equals one if the firm has been listed in the corporate bond issuing index. *LN_FIRM_AGE* is a proxy for the firms' listing age in the stock market. *LN_FIRM_AGE* has an average value of 2.643 and median 2.079.

A financial crisis dummy is also added to the regressions to capture the influence of the market shock on the cash level and the cash adjustment speed. The *FRCI* denotes the financial crisis dummy. It equals one if the year of observations is 2007 or 2008, otherwise, the dummy equals 0. The coefficient sign of the financial crisis dummy indicates the firm's activities in crisis time. If the sign of parameter is positive with cash level, it means the firm may intend to stay in relatively high cash ratio. However, if the sign is negative, it means the firms are likely to reduce the cash level. However, in times of financial crisis, it is reasonable to hold more cash to secure daily business. Therefore, I can expect a positive sign. Considering the cash change, if a firm needs to keep more cash, the cash change should be negatively related to the financial crisis dummy.

[Insert Table 4.2 around here]

The correlation matrix is displayed in Table 4.2. The correlation coefficients are bold if they are significant at 5% level. All the control variables are statistically significant at 5% level.

4.4 Empirical results

4.4.1 The influence of CEO over-confidence on the firm's cash level

In Table 4.3, I report the results for testing the relationship between the cash holding level and CEO over-confidence. The first three models look at the relationship between *CASH_RATIO* and *OVERCONFIDENCE1*. The other three models look at the relationship between *OVERCONFIDENCE2* and *CASH_RATIO*. The T-statistics are shown in the brackets under each coefficient. I use the firm clustering standard errors in all the regressions following the paper of Gao et al. (2013). I use firm clustering standard errors for taking into account the heteroscedasticity in different firms.

[Insert Table 4.3 around here]

In Model 1 of Table 4.3, I find the coefficient of *OVERCONFIDENCE1* is statistically significant and positively related to the cash holding level. The first regression uses the pooled OLS; it helps me to find the general pattern of CEO over-confidence and cash holding level. In Model 2, I control for the year fixed effect to consider the macroeconomic features in different years. The result is still a significantly positive relation between the cash holding level and the over-confidence measures. In Model 3, I control both the year fixed effect and the industry fixed effect. The coefficient of

OVERCONFIDENCE1 is still significantly and positively related to the cash level. The arrangement of Model 4, Model 5 and Model 6 is the same as the first three models. The results of *OVERCONFIDENCE2* are consistent with the results of *OVERCONFIDENCE1*. The significance levels of *OVERCONFIDENCE2* coefficients are at 1% and more stable compared to the coefficients of *OVERCONFIDENCE1*. Therefore, I suggest that CEO over-confidence can raise the firms' cash holding levels. It reveals that over-confident CEOs have preferences for accumulating more cash which has the least financing cost under the pecking order theory (Myers and Majluf, 1984).

The results show that *LN_AT* is negatively related to the cash ratio of the firms. The reason is that the larger the size of a firm, the easier it is for the firm to get access to other financing choices (Holmstrom and Tirole, 1997). *CASH_FLOW* is a variable which has similar features to the cash ratio in the cash flow statement, therefore, they are positively related. The industry cash volatility appears to not have systematic relations to the firm cash ratio. The leverage is negatively related to the cash ratio. Firms' sales growth helps with cash accumulation, as it makes money inflow to the firms.

The results also show that the market to book ratio is positively related to the cash ratio, which is consistent with Bates et al. (2009). The net working capital is negatively related to the cash ratio consistent with Jiang and Lie (2016) and Gao et al. (2013). The cash ratio is reduced by the capital expenditure and the acquisition because the two activities cost money. The research and development activities have a positive relationship with the cash ratio. It means R&D activities can help the firm to gain more

profits. Although R&D activities are a current cost of firms, R&D provides firms with the probability to gain more cash. The results are consistent with Bates et al. (2009).

The dividend payments reduce the cash of the firm. Therefore, it is negatively related to the cash ratio. The public debt issuance right is negatively related to the cash ratio. The firms with rights to issue debts have fewer constraints on external financing. Therefore, it is not necessary to hold a large amount of cash. The longer the firm is listed on the market, the less cash ratio it has. The results are consistent with Jiang and Lie (2016). The *FRCI* is the dummy for the financial crisis dummy. The results suggest that firms are likely to hold more cash in periods of financial crisis. This is because firms face much more uncertainty in periods of financial crisis. The firms need the cash to secure their financial position. Otherwise, firms can go bankrupt due to a shortage of liquidity.

4.4.2 The influence of CEO over-confidence on the firm's cash adjustment speed

In Table 4.4, I show the adjustment speed of the cash under the influence of CEO over-confidence. There are nine models: the first three models investigate the original cash adjustment regressions without the influence of CEO over-confidence; the middle three models investigate the cash adjustment speed under the influence of *OVERCONFIDENCE1*; the final three models investigate the cash adjustment speed under the influence of *OVERCONFIDENCE2*.

[Insert Table 4.4 around here]

The results show that with or without the influence of CEO over-confidence, the cash level reverts to the target level which can support my Hypothesis 2. The observations of the first three models are 51763. There are fewer observations in the following six models. The reason is that CEO over-confidence observations are limited by the EXECUCOMP database resources. In Model 4, the dependent variable is the change of cash level. The explanatory variable is the cash deviation. The interaction term is the over-confidence measure multiplying the cash deviation (*DEVOVERCONF1*). In Model 4, the cash adjustment speed under the influence of over-confidence is 10.9% (19% - 8.1%). However, if there is no influence of CEO over-confidence, the adjustment speed can be 19%. The results are statistically significant at 1% significance level. In Model 5, the cash adjustment speed under the over-confident CEO controlled firms is 10.7% (18.6% - 7.9%). The cash adjustment speed without the over-confident CEO is 18.6%. In Model 6, the cash adjustment speed under the influence of over-confident CEOs is 11.6% (20.2% - 8.6%). However, without CEO over-confidence, the cash adjustment speed is 20.2%. Therefore, I suggest that over-confident CEOs in firms can reduce the adjustment speed of the cash to the target level when over-confidence is measured by *OVERCONFIDENCE1*.

In Model 7, the cash adjustment speed under *DEVOVERCONF2* is 7.8% (19.1% - 11.3%). However, if there is no influence of the over-confident CEO, the cash adjustment speed can be 19.1%. The results are statistically significant at 1% significance level. In Model 8, the cash adjustment speed under the over-confident CEO controlled firms is 7.5% (19% - 11.5%). The cash adjustment speed without the over-confident CEO is 19%. In Model 9, the cash adjustment speed under the influence

of the over-confident CEO is 8.2 % (19.9% - 11.7%). However, without the influence of CEO over-confidence, the cash adjustment speed is 19.9 %. Therefore, I conclude that over-confident CEOs in firms can reduce the adjustment speed of cash to the target level when over-confidence is measured by *OVERCONFIDENCE2*. The results of both measures of CEO over-confidence can support Hypothesis 2.

Apart from the main testing results, the control variable *FRCI* is negatively related to the change of cash ratio. It suggests that the change of the cash level can be reduced by the overall market environment during the financial crisis period if the over-confident CEO is in charge. Compared with the results in Table 4.3, it reveals that the firms have intentions to stay at high cash level and reduce the cash dissipation during periods of financial crisis.

[Insert Table 4.5 around here]

Cash reserve behaviour can take two possible methods. The first is to hold more cash. The results of the first method are shown in Table 4.3. The second method is to keep the cash by reducing the speed of cash adjustment if there is excess cash. The results in Table 4.5, Table 4.6 and Table 4.7 show that over-confident CEOs can reduce the cash adjustment speed which reverts to the target cash level. The results in Table 4.5, Table 4.6 and Table 4.7 are consistent with the results in Table 4.3 and Table 4.4. I provide the detailed results and explanations below.

I follow Gao et al. (2013) to sort the cash deviation from the target level (*DEV*) from

low to high into four separate parts. The classification is that *DEV*-level=1 indicates that the firm has excess cash while *DEV*-level=4 indicates that the firm has insufficient cash. By defining the subsample in the lower and the upper quantile, I can avoid the mix of the positive and the negative cash deviations in the two middle quantiles and reduce sensitivity to the errors in cash target (Gao et al., 2013).

In Table 4.5, I do not consider the influence of over-confidence but only consider the original models without the influence of CEO over-confidence. Therefore, the observation number is large. Table 4.5 shows the general pattern of the cash reversing mechanism when there is excess cash or insufficient cash. The results of the first three models suggest that the firm's actual cash level can revert to the target cash level when there is excess cash. The adjustment speed is 0.1%. The shareholders and the other stakeholders of firms can be very sensitive to excess cash. The CEOs' discretion power can be strengthened by a large amount of excess cash because the managers have power over the firm owned resources like cash (DeAngelo et al., 2002; Harford et al., 2008; Jensen and Meckling, 1976). The shareholders force CEOs to allocate the cash as the dividend to all the shareholders. Therefore, CEOs can be monitored by the shareholders. This is the reason that the excess cash can revert to the target cash level. However, the results from the other three models show that the firms' actual cash level may not revert to the target cash level when the cash is insufficient. I also include the financial crisis dummy in the regression; the relation between *FRCI* and *DCASH* is still negatively significant.

[Insert Table 4.6 around here]

In Table 4.6, I consider the *DEVOVERCONF1* as the interaction term. The structure is similar to that in Table 4.5. I find that the results in the first three models are still significant as the hypothesis suggested. Therefore, the results show that the cash adjustment speed can be reduced by the influence of over-confident CEOs when the firms have excess cash. It is consistent with the idea that over-confident CEOs have the intention to keep more cash but have to dissipate the cash under the pressure of stakeholders' monitoring. In Model 1, the cash adjustment speed under the influence of CEO over-confidence is 8.7%. It is less than the cash adjustment speed 19.9% without the influence of CEO over-confidence. In Model 2, the cash adjustment speed under the influence of CEO over-confidence is 8.7%. This is less than the cash adjustment speed 19.8% without the over-confidence influence. In Model 3, the cash adjustment speed with CEO over-confidence is 9.3% less than 20.6% without the over-confidence influence.

In Models 4, 5 and 6 of Table 4.6, I find that if the cash is insufficient, the firms' actual cash level can revert to the target level under the control of over-confident CEOs. The results show that the actual cash holding level rises to the target cash level. However, over-confident CEOs cannot decrease or increase the cash adjustment speed to the higher target cash level because the interaction term is not significant. Compared to the results of Models 4, 5 and 6 in Table 4.5, when the cash is adequate in the firms, I suggest that the cash reserve behaviour is more observable under the influence of CEO over-confidence. This is because the coefficients of *DEV* in Models 4, 5 and 6 are positive and significant in Table 4.6, but those in Table 4.5 are insignificant. The results

indicate that CEO over-confidence may have an indirect influence on the cash adjustment speed which can help the insufficient cash to increase to the higher target level.

The financial crisis dummy is negatively significant in the first three models. The results show that the change of the cash is negatively related to the financial crisis dummy. However, when the cash level is already insufficient, the financial crisis dummy does not significantly affect the change of the cash level.

[Insert Table 4.7 around here]

The results in Table 4.7 are similar to those in Table 4.6, but the over-confident measure is *OVERCONFIDENCE2*. The results in the first three models show that the cash adjustment speed is reduced by over-confident CEOs if there is excess cash in the firms. In Model 1, the cash adjustment speed with CEO over-confidence is 7.2% which is less than 27.2% without CEO over-confidence. In Model 2, the cash adjustment speed with CEO over-confidence is 7.2% which is less than 27.1% without CEO over-confidence. In Model 3, the cash adjustment speed with CEO over-confidence is 7.7% which is less than 27.6% without CEO over-confidence. The results in Models 4, 5 and 6 are also consistent with the results of Models 4, 5 and 6 in Table 4.6. The cash level reverts to the target level when there is insufficient cash, but the over-confidence effect is not significant. This fact indicates that CEO over-confidence may have an indirect influence on the cash adjustment speed when the cash is adequate.

4.4.3 The influence of CEO over-confidence on the firm's excess cash level and the adjustment speed of excess cash

Following Jiang and Lie (2016) and Dittmar and Mahrt-Smith (2007), I test the dissipation and the accumulation patterns of the excess cash in Table 4.8 and Table 4.9. I use similar regressions extracted from the previous two papers and include the influence of CEO over-confidence as the explanatory variable.

[Insert Table 4.8 & 4.9 around here]

In Table 4.8, the dependent variable in the regression is the forward change of the excess cash ($DDEV_{it+1}$) which is DEV_{it+1} minus DEV_{it}. I$NDUSTRY_MEAN_DDEV_{it}$ is the control variable in Table 4.8. The results show that the influences of CEO over-confidence are significant and negative in Table 4.8. The results of Models 1, 2 and 3 in Table 4.8 reveal that *OVERCONFIDENCE1* (*HOLDER67*) can reduce future dissipation of the excess cash of the firms. The results in Models 4, 5 and 6 indicate that *OVERCONFIDENCE2* (*OVER_INVEST*) can also reduce future dissipation of the excess cash. In Table 4.9, the dependent variable is the change of the excess cash ($DDEV_{it}$) which is DEV_{it} minus DEV_{it-1}. The independent variables need to take the value of the last year observations which are $OVERCONFIDENCE1_{it-1}$, $OVERCONFIDENCE2_{it-1}$. I$NDUSTRY_MEAN_DDEV_{it-1}$[22] is the control variable in Table 4.9. The results in Table 4.9 are not significant and indicate that the cash is not reserved for accumulation purposes.

[22] This variable is the industry average change in excess cash which is used as the control variable in the previous paper.
Jiang, Z, Lie, E. Cash holding adjustments and managerial entrenchment. Journal of Corporate Finance 2016;36;190-205.

Dittmar and Mahrt-Smith (2007) suggest that CEO over-confidence can affect the firm cash policy by dissipating rather than accumulating the cash. Dittmar and Mahrt-Smith (2007) suggest that excess cash accumulation is a result driven by external factors. However, excess cash dissipation is the managers' discretionary choice. The results in Table 4.8 and Table 4.9 are consistent with the arguments of Dittmar and Mahrt-Smith (2007). The results further confirm that over-confident CEOs can reduce dissipation of the cash and encourage CEOs to store cash for discretionary use.

[Insert Table 4.10 around here]

There are three directions I need to examine when I consider CEOs' actions to dissipate excess cash. The three ways to dissipate cash are investments, dividend payouts and debt retirement. The investments include capital expenditures, R&D expenses and acquisition expenses. Dividend payouts include share repurchase and cash dividend payouts. Following the method of Jiang and Lie (2016) and Gao et al. (2013), I design the regressions and obtain the results in Table 4.10. The dependent variables are a forward change of the investments, forward change of the dividend payouts and forward change of debt retirements respectively.

The results in Table 4.10 show that CEO over-confidence is positively related to the forward change of the investments. The results are consistent with the arguments of Malmendier and Tate (2005). They find that optimistic CEOs have preferences for internal funds rather than external funds for investment opportunities. Huang-Meier et

al. (2015) and Heaton (2002) confirm these arguments. It implies that over-confident CEOs can dissipate cash through investment activities rather than dividend payouts and debt retirements. In the first three models, over-confidence is measured by the exercise timing of over-confident CEOs' incentive options. The feature of over-confident CEOs is that they are likely to extend the holding period of the options as long as possible because they have strong beliefs that the firm can have good growth opportunities in a long time under their control (Malmendier and Tate, 2005, 2008). Therefore, over-confident CEOs who hold options are likely to make investments in future investments because the investments can ensure the future growth of firm performance. Future investments include the costs of R&D, capital expenditure and acquisition. Over-confident CEOs need to ensure the continuous growth of the firm rather than simply pay out valuable cash or retire the debt. Therefore, CEO over-confidence is not significantly related to the change of the payouts and the change of debt retirements.

In the latter three models in Table 4.10, I use the other measures of CEO over-confidence to examine the three ways to dissipate the cash. CEO over-confidence (*OVERCONFIDENCE2-OVER_INVEST*) is also positively related to the forward change of the investments. The results are consistent with the results in the first three models in Table 4.10. The results also indicate that over-confident CEOs hold cash and wait for growth opportunities to make future investment. The results also show that forward change of the payouts and forward change of the debt retirement are not significantly related to CEO over-confidence. Therefore, I suggest that CEO over-confidence makes dissipation of cash through investment rather than dividend payouts and debt retirements.

4.4.4 Robustness check by obtaining GMM generated cash target

In order to reduce the measurement errors, I follow Jiang and Lie (2016) to use the cash target level computed by GMM estimation and recalculate the cash deviation. I follow Faulkender et al. (2012) and use the dynamic panel regression to get the cash target level. Hoque et al. (2013) argue that using the estimators computed by GMM, the dynamic model can handle endogeneity problems by considering the lagged and differenced values of the explanatory variables as internal instruments. Following Jiang and Lie (2016), I combine Equation (4.7) and Equation (4.14) to obtain Equation (4.15) and analyse the cash level with the dynamic panel regression.

$$CASH\_RATIO_{it}^{*} = \beta X_{it-1} + \varepsilon_{it} \tag{4.14}$$

$$CASH\_RATIO_{it} = \lambda\beta X_{it-1} + (1-\lambda)CASH\_RATIO_{it-1} + \varepsilon_{it} \tag{4.15}$$

Following Bates et al. (2009), the cash determinants variables are the same as those in the previous regressions. Follow the method proposed by Blundell and Bond (1998) and Flannery and Hankins (2013), I estimate the alternative cash target level and re-examine the cash adjustment speed.

[Insert Table 4.11 around here]

The results are shown in Table 4.11. GMMDEV is the cash deviation from the target

cash level calculated by the GMM regression. It is calculated as the current year target cash level minus the actual cash level in the previous year. The GMMDEV coefficients are positive and significant for all the regressions. This implies that firms' cash level does revert to the target cash level even when I use the different method to compute the cash target. The results show that interaction term between over-confidence and cash deviation still has a negative relationship with the changes of the cash level, and thus the influence of CEO over-confidence can still reduce the cash adjustment speed if there is excess cash in the firms when I use GMM estimation to compute the cash target.

[Insert Table 4.12 around here]

In Table 4.12, the regressions use one lag of variables to reduce the potential endogeneity (Arslan-Ayaydin et al., 2014; Duchin et al., 2010). DCASH is the first difference of cash level. DEV is the cash deviation which is the target cash level minus the first lag of cash level. I include the first lag of all control variables in the regression. The results are consistent with the previous main results, and thus my findings are consistent with different estimation models.

4.5 Conclusion

Many previous studies have pointed out the importance of the pecking order theory. Firms need to reserve enough internal funds to finance their investments. However, too much cash reserve can incur some inconveniences like strong monitoring from stakeholders. CEOs' psychological features can affect cash strategies. Therefore, I test

whether cash reserve behaviour contains the mechanism to revert to the target cash level under the influence of CEO over-confidence. Over-confident CEOs need to balance their preference to hold more cash and the shareholders' preferences not to keep too much cash in the firm. The main contribution of my study is that I am the first to examine the influence of CEO over-confidence on cash adjustment speed and cash level. Furthermore, I point out that reserved cash is used for future dissipation through investments.

I studied public-listed firms in the US market. I downloaded the data for this chapter from COMPUSTAT and EXECUCOMP and showed the data from 1993 to 2014 in the summary statistics. I design the research into three parts: the first to test how over-confident CEOs affect the firms' cash level; secondly, I introduce the cash adjustment speed to test whether over-confident CEOs have consistent actions to revert the cash to the target level when firms have the excess cash or the insufficient cash; thirdly, I find the reason why over-confident CEOs make cash reserves. I use two over-confidence measures to test the relation of CEO over-confidence with cash adjustment speed. The first is based on the exercise timing of the incentive options. The second is based on investment behaviours.

In the first part, the regression results reveal that CEOs are very sensitive to cash level deduction. They want to increase the firm cash level to keep themselves in an adequate cash environment. Therefore, CEOs can avoid extraordinary monitoring from other forms of financing, especially external financing. The results support the idea of Deshmukh et al. (2013) that over-confident managers save cash for their discretionary

use. Heaton (2002) also points out that over-confident CEOs do not have preferences for external funds. In the second part, the results of the test for the cash adjustment speed support the idea that over-confident CEOs cannot over-reserve cash under pressure of keeping a reasonable cash level from shareholders.

However, over-confident CEOs have the features to hold more cash. Therefore, over-confident CEOs reduce the adjustment speed of the cash in the firms, especially when there is excess cash to keep their discretionary power. In the third part, the regression results further support that the cash is not stored just for accumulation. However, the cash is still dissipated in the future. In the US market, future cash dissipation takes place in future investment opportunities. Over-confident CEOs do not have preferences for future cash dissipation in dividend payments or debt retirements.

Regression tables for Chapter 4

Table 4.1 Summary statistics

STATS	N	MEAN	SD	P25	MEDIAN	P75
CASH_RATIO	51767	0.218	0.228	0.013	0.040	0.132
OVERCONFIDENCE1	14005	0.457	0.498	0	0	0
OVERCONFIDENCE2	14903	0.426	0.495	0	0	0
LN_AT	51767	5.101	2.514	1.943	3.320	5.030
CASH_FLOW	51767	-0.117	0.579	-0.478	-0.065	0.057
INDUSTRY_SIGMA	51767	0.298	0.322	0.058	0.090	0.159
LEVERAGE	51767	0.252	0.372	0.000	0.016	0.162
SALES_GROWTH	51767	0.225	0.923	-0.232	-0.049	0.074
MTB	51767	2.722	3.718	0.917	1.160	1.640
NWC	51767	-0.016	0.543	-0.221	-0.061	0.060
CAPEX	51767	0.048	0.053	0.007	0.016	0.033
ACQUISITION	51767	0.021	0.058	0.000	0.000	0.000
RND	51767	0.104	0.188	0.000	0.005	0.036
DIV_DUMMY	51767	0.255	0.436	0	0	0
MNC	51767	0.606	0.489	0	0	1
DUMMY_RATING	51767	0.223	0.416	0	0	0
LN_FIRM_AGE	51767	2.643	0.707	1.792	2.079	2.639

All variables are winsorized at the 1st and 99th percentiles. The definitions and calculations are listed in the Appendix. N is short for the observation number of the variable. MEAN is the average value of the variable. SD is the standard deviation of the variable. MIN is the minimum value of the variable. P25 is the 25% point of the variable. P75 is the 75% point of the variable. MAX is the maximum value of the variable. The data is from 1993 to 2014.

Table 4.2 Pairwise correlation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CASH_RATIO	**1.000**																
OVERCONFIDENCE1	**0.084**	**1.000**															
OVERCONFIDENCE2	-0.006	**-0.132**	**1.000**														
LN_AT	**-0.217**	**0.022**	**0.016**	**1.000**													
CASH_FLOW	**-0.168**	**0.078**	**-0.138**	**0.496**	**1.000**												
INDUSTRY_SIGMA	**0.289**	**0.053**	-0.011	**-0.078**	**-0.136**	**1.000**											
LEVERAGE	**-0.206**	**-0.062**	**0.083**	**-0.171**	**-0.501**	**0.008**	**1.000**										
SALES_GROWTH	**0.108**	**0.071**	**-0.389**	**-0.091**	**-0.101**	**0.048**	**0.015**	**1.000**									
MTB	**0.204**	**0.167**	**-0.198**	**-0.370**	**-0.672**	**0.135**	**0.420**	**0.145**	**1.000**								
NWC	**-0.097**	-0.009	**-0.052**	**0.321**	**0.716**	**-0.142**	**-0.660**	**-0.058**	**-0.627**	**1.000**							
CAPEX	**-0.180**	**0.040**	**-0.088**	**0.069**	**0.027**	**-0.154**	**0.031**	**0.038**	**0.020**	**-0.013**	**1.000**						
ACQUISITION	**-0.135**	**0.050**	**-0.108**	**0.151**	**0.092**	**0.014**	**0.014**	**0.074**	**-0.065**	**0.046**	**-0.065**	**1.000**					
RND	**0.372**	0.011	0.016	**-0.399**	**-0.636**	**0.226**	**0.206**	**0.106**	**0.494**	**-0.434**	**-0.051**	**-0.086**	**1.000**				
DIV_DUMMY	**-0.240**	**-0.073**	**0.054**	**0.501**	**0.193**	**-0.141**	**-0.067**	**-0.091**	**-0.134**	**0.129**	**0.045**	**0.054**	**-0.227**	**1.000**			
MNC	**0.091**	**0.041**	**-0.055**	**-0.388**	**-0.205**	**-0.022**	**0.090**	**0.087**	**0.145**	**-0.129**	**0.071**	**-0.092**	**0.126**	**-0.202**	**1.000**		
DUMMY_RATING	**-0.253**	**-0.053**	**0.054**	**0.637**	**0.176**	**-0.104**	**0.098**	**-0.066**	**-0.128**	**0.067**	**0.047**	**0.095**	**-0.208**	**0.377**	**-0.238**	**1.000**	
LN_FIRM_AGE	**-0.209**	**-0.082**	**0.117**	**0.330**	**0.189**	**-0.049**	**-0.034**	**-0.141**	**-0.155**	**0.128**	**-0.082**	**0.024**	**-0.175**	**0.391**	**-0.278**	**0.282**	**1.000**

1=*CASH_RATIO* 2=*OVERCONFIDENCE1* 3=*OVERCONFIDENCE2* 4=*LN_AT* 5=*CASH_FLOW* 6=*INDUSTRY_SIGMA* 7=*LEVERAGE* 8=*SALES_GROWTH* 9=*MTB* 10=*NWC* 11=*CAPEX* 12=*ACQUISITION* 13=*RND* 14=*DIV_DUMMY* 15=*MNC* 16=*DUMMY_RATING* 17=*LN_FIRM_AGE*. Bold is significant at 5% level.

Table 4.3 Over-confidence impact on firms' level of cash holding (full sample)

CASH_RATIO	(1)	(2)	(3)	(4)	(5)	(6)
OVERCONFIDENCE1	0.011***	0.009**	0.007*			
	(2.686)	(2.111)	(1.822)			
OVERCONFIDENCE2				0.015***	0.017***	0.016***
				(4.974)	(5.382)	(5.046)
LN_AT	-0.012***	-0.013***	-0.018***	-0.010***	-0.012***	-0.016***
	(-5.129)	(-5.647)	(-7.256)	(-4.269)	(-4.762)	(-6.327)
CASH_FLOW	0.132***	0.135***	0.100***	0.145***	0.149***	0.114***
	(3.021)	(3.115)	(2.683)	(3.404)	(3.487)	(2.883)
INDUSTRY_SIGMA	0.041***	0.033***	-0.004	0.039***	0.031***	-0.002
	(4.951)	(3.785)	(-0.596)	(4.824)	(3.731)	(-0.318)
LEVERAGE	-0.216***	-0.213***	-0.186***	-0.203***	-0.199***	-0.172***
	(-10.143)	(-10.092)	(-8.934)	(-9.717)	(-9.640)	(-8.246)
SALES_GROWTH	0.012***	0.013***	0.011***	0.013***	0.014***	0.012***
	(3.156)	(3.311)	(3.100)	(2.861)	(3.048)	(2.972)
MTB	0.013***	0.014***	0.012***	0.017***	0.017***	0.016***
	(6.428)	(6.542)	(5.926)	(7.860)	(7.935)	(7.275)
NWC	-0.223***	-0.215***	-0.221***	-0.207***	-0.198***	-0.205***
	(-7.944)	(-7.682)	(-6.691)	(-8.551)	(-8.200)	(-7.243)
CAPEX	-0.899***	-0.832***	-0.735***	-0.908***	-0.833***	-0.743***
	(-15.734)	(-14.290)	(-12.657)	(-16.066)	(-14.432)	(-12.773)
ACQUISITION	-0.389***	-0.382***	-0.381***	-0.364***	-0.355***	-0.359***
	(-17.252)	(-16.934)	(-18.315)	(-16.478)	(-16.153)	(-17.395)
RND	0.685***	0.702***	0.428***	0.675***	0.691***	0.425***
	(12.815)	(12.961)	(7.675)	(12.222)	(12.357)	(7.530)
DIV_DUMMY	-0.048***	-0.044***	-0.029***	-0.048***	-0.045***	-0.030***
	(-9.003)	(-8.287)	(-5.161)	(-9.198)	(-8.418)	(-5.449)
MNC	0.002	0.003	0.008	-0.000	0.001	0.007
	(0.327)	(0.476)	(1.364)	(-0.013)	(0.136)	(1.057)
DUMMY_RATING	-0.018***	-0.014**	-0.008	-0.022***	-0.018***	-0.011*
	(-2.659)	(-2.075)	(-1.242)	(-3.349)	(-2.672)	(-1.767)
LN_FIRM_AGE	-0.013***	-0.015***	-0.015***	-0.014***	-0.016***	-0.015***
	(-3.238)	(-3.822)	(-3.744)	(-3.370)	(-3.995)	(-3.629)
FRCI	0.004	0.015**	0.024***	0.003	0.026***	0.029***
	(0.944)	(2.013)	(3.406)	(0.955)	(2.953)	(3.301)
CONSTANT	0.352***	0.349***	0.290***	0.334***	0.318***	0.272***
	(16.820)	(16.445)	(7.047)	(15.815)	(14.185)	(7.530)
YEAR FE	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y
N	14,005	14,005	14,005	14,903	14,903	14,903
ADJ. R^2	0.490	0.494	0.541	0.473	0.478	0.524

This table reports impact of CEO over-confidence on cash holdings. The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.4 Over-confidence impact on the cash adjustment speed (full sample)

DCASH	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
DEV	0.002***	0.002***	0.002***	0.190***	0.186***	0.202***	0.191***	0.190***	0.199***
	(3.662)	(3.590)	(3.610)	(14.819)	(14.235)	(13.544)	(8.162)	(8.162)	(7.709)
DEVOVER1				-0.081**	-0.079**	-0.086**			
				(-2.316)	(-2.294)	(-2.385)			
DEVOVER2							-0.113***	-0.115***	-0.117***
							(-3.580)	(-3.783)	(-3.492)
LN_AT	0.000	0.001**	0.001*	-0.005***	-0.005***	-0.006***	-0.004***	-0.004***	-0.005***
	(1.246)	(2.154)	(1.731)	(-6.915)	(-6.731)	(-7.128)	(-6.353)	(-5.985)	(-6.334)
CASH_FLOW	0.035***	0.035***	0.035***	0.031**	0.032**	0.027*	0.040**	0.042**	0.036*
	(12.801)	(12.572)	(12.368)	(2.251)	(2.385)	(1.895)	(2.209)	(2.308)	(1.831)
INDUSTRY_SIGMA	0.002	0.003*	0.010***	0.001	0.001	0.001	0.002	0.002	0.002
	(1.213)	(1.894)	(4.181)	(0.648)	(0.425)	(0.401)	(1.019)	(0.727)	(0.609)
LEVERAGE	-0.011***	-0.012***	-0.013***	0.013**	0.013**	0.019***	0.018***	0.018***	0.023***
	(-4.254)	(-4.342)	(-4.619)	(2.454)	(2.478)	(3.095)	(2.589)	(2.636)	(3.115)
SALES_GROWTH	-0.010***	-0.010***	-0.010***	-0.024***	-0.022***	-0.023***	-0.027***	-0.025***	-0.026***
	(-8.124)	(-7.987)	(-7.981)	(-4.797)	(-4.418)	(-4.391)	(-5.216)	(-4.842)	(-4.874)
MTB	0.003***	0.003***	0.003***	0.003***	0.003***	0.002***	0.002***	0.002***	0.002***
	(9.435)	(9.186)	(9.343)	(3.074)	(2.999)	(2.689)	(3.221)	(3.190)	(3.021)
NWC	-0.026***	-0.027***	-0.026***	-0.069***	-0.068***	-0.078***	-0.053***	-0.052***	-0.059***
	(-9.899)	(-10.066)	(-9.519)	(-9.267)	(-9.372)	(-8.172)	(-6.163)	(-6.149)	(-5.560)
CAPEX	-0.372***	-0.374***	-0.391***	-0.222***	-0.221***	-0.204***	-0.218***	-0.214***	-0.202***
	(-26.399)	(-26.000)	(-25.411)	(-7.139)	(-6.732)	(-5.247)	(-6.700)	(-6.224)	(-5.154)
ACQUISITION	-0.484***	-0.482***	-0.481***	-0.361***	-0.360***	-0.356***	-0.357***	-0.354***	-0.354***
	(-36.332)	(-36.254)	(-35.900)	(-14.894)	(-14.930)	(-13.799)	(-14.608)	(-14.616)	(-13.678)
RND	-0.053***	-0.053***	-0.051***	-0.070***	-0.069***	-0.116***	-0.053***	-0.052***	-0.096***
	(-10.140)	(-10.006)	(-8.767)	(-3.085)	(-2.961)	(-5.523)	(-2.861)	(-2.754)	(-5.113)
DIV_DUMMY	-0.004***	-0.004***	-0.004***	-0.013***	-0.012***	-0.010***	-0.011***	-0.011***	-0.009***
	(-4.254)	(-4.361)	(-4.396)	(-5.612)	(-5.474)	(-4.621)	(-5.403)	(-5.372)	(-4.685)
MNC	0.002***	0.002**	0.001	-0.010***	-0.010***	-0.009***	-0.010***	-0.010***	-0.009***
	(2.894)	(2.280)	(1.419)	(-4.650)	(-4.896)	(-4.166)	(-4.811)	(-5.219)	(-4.352)
DUMMY_RATING	0.007***	0.006***	0.006***	0.003*	0.003	0.004**	0.001	0.001	0.002
	(6.192)	(5.329)	(5.166)	(1.660)	(1.431)	(2.011)	(0.801)	(0.456)	(1.008)
LN_FIRM_AGE	0.001	0.002***	0.001**	0.005***	0.005***	0.005***	0.005***	0.005***	0.005***
	(1.643)	(2.969)	(2.085)	(4.330)	(4.684)	(4.220)	(3.944)	(4.633)	(4.098)
FRCI	-0.012***	-0.017***	-0.018***	-0.007***	-0.008*	-0.008*	-0.008***	-0.004	-0.005
	(-6.847)	(-4.865)	(-5.283)	(-3.293)	(-1.817)	(-1.701)	(-3.758)	(-0.847)	(-0.893)
CONSTANT	0.023***	0.020***	0.015	0.047***	0.046***	0.026	0.040***	0.033***	0.018
	(7.747)	(5.296)	(1.613)	(7.438)	(6.373)	(0.959)	(6.878)	(4.575)	(1.057)
YEAR FE	N	Y	Y	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y	N	N	Y
N	51,763	51,763	51,763	14,004	14,004	14,004	14,902	14,902	14,902
ADJ. R^2	0.0984	0.101	0.102	0.238	0.242	0.250	0.243	0.248	0.255

This table reports the whole pattern of the over-confidence impact on the cash adjustment speed. The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.5 The adjustment speed of excess and insufficient cash

	(1)	(2)	(3)	(4)	(5)	(6)
DCASH	EXCESS CASH			INSUFFICIENT CASH		
DEV	0.001***	0.001***	0.001***	0.001	0.001	0.001
	(4.762)	(4.674)	(5.346)	(0.773)	(0.795)	(0.862)
LN_AT	0.006***	0.006***	0.006***	-0.002***	-0.002***	-0.002**
	(7.250)	(7.048)	(6.488)	(-2.787)	(-2.729)	(-2.062)
CASH_FLOW	0.050***	0.050***	0.048***	0.012**	0.012**	0.010**
	(8.571)	(8.432)	(8.044)	(2.429)	(2.358)	(2.018)
INDUSTRY_SIGMA	0.009**	0.008*	0.005	0.020***	0.019***	0.008
	(2.301)	(1.902)	(0.948)	(4.771)	(4.435)	(1.484)
LEVERAGE	0.022***	0.022***	0.021***	-0.064***	-0.064***	-0.062***
	(4.809)	(4.856)	(4.463)	(-9.494)	(-9.362)	(-8.763)
SALES_GROWTH	-0.029***	-0.028***	-0.028***	-0.009***	-0.009***	-0.010***
	(-9.967)	(-9.725)	(-9.812)	(-6.121)	(-6.182)	(-6.574)
MTB	0.000	-0.000	0.000	0.004***	0.004***	0.003***
	(0.221)	(-0.004)	(0.213)	(6.563)	(6.222)	(5.884)
NWC	-0.043***	-0.043***	-0.041***	-0.019***	-0.020***	-0.019***
	(-6.660)	(-6.760)	(-6.268)	(-4.353)	(-4.354)	(-4.074)
CAPEX	-0.275***	-0.275***	-0.297***	-0.232***	-0.230***	-0.220***
	(-13.035)	(-12.710)	(-12.586)	(-3.636)	(-3.566)	(-3.363)
ACQUISITION	-0.625***	-0.624***	-0.621***	-0.236***	-0.238***	-0.228***
	(-32.865)	(-32.857)	(-32.550)	(-5.078)	(-5.116)	(-4.823)
RND	-0.026**	-0.024**	-0.034**	-0.056***	-0.054***	-0.066***
	(-2.128)	(-1.987)	(-2.499)	(-5.948)	(-5.722)	(-6.462)
DIV_DUMMY	-0.008**	-0.007**	-0.006*	-0.019***	-0.019***	-0.017***
	(-2.423)	(-2.335)	(-1.886)	(-7.601)	(-7.392)	(-6.410)
MNC	-0.005*	-0.005**	-0.007***	-0.001	-0.001	0.001
	(-1.938)	(-2.076)	(-2.894)	(-0.460)	(-0.563)	(0.323)
DUMMY_RATING	0.005	0.005	0.004	0.001	0.001	-0.000
	(1.381)	(1.202)	(1.034)	(0.372)	(0.221)	(-0.115)
LN_FIRM_AGE	0.011***	0.012***	0.011***	-0.002	-0.003	-0.003*
	(5.305)	(5.582)	(4.994)	(-1.331)	(-1.346)	(-1.686)
FRCI	-0.012***	-0.020**	-0.018**	-0.016***	-0.030***	-0.028***
	(-3.359)	(-2.377)	(-2.083)	(-3.363)	(-3.427)	(-3.191)
CONSTANT	-0.071***	-0.073***	-0.053	0.078***	0.081***	0.058***
	(-8.799)	(-6.933)	(-1.242)	(11.916)	(10.545)	(3.292)
YEAR FE	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y
N	12,941	12,941	12,941	12,940	12,940	12,940
ADJ. R^2	0.191	0.193	0.198	0.059	0.061	0.063

This table reports the adjustment speed of original upper and lower quarter of observations. The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * P < 0.10, ** P < 0.05, *** P < 0.01

Table 4.6 *OVERCONFIDENCE1* and adjustment speed of excess and insufficient cash

	(1)	(2)	(3)	(4)	(5)	(6)
DCASH	EXCESS CASH			INSUFFICIENT CASH		
DEV	0.199***	0.198***	0.206***	0.082*	0.079*	0.080*
	(5.060)	(5.043)	(4.916)	(1.882)	(1.786)	(1.764)
DEVOVER1	-0.112***	-0.111***	-0.113***	-0.012	-0.011	-0.012
	(-5.267)	(-5.136)	(-5.438)	(-0.603)	(-0.532)	(-0.557)
LN_AT	-0.005**	-0.004**	-0.006**	-0.008***	-0.008***	-0.009***
	(-2.269)	(-2.070)	(-2.340)	(-5.739)	(-5.691)	(-5.815)
CASH_FLOW	0.046**	0.049***	0.048**	0.040*	0.041*	0.041*
	(2.429)	(2.583)	(2.383)	(1.797)	(1.812)	(1.769)
INDUSTRY_SIGMA	-0.010	-0.010	0.002	0.006	0.007	0.005
	(-1.629)	(-1.623)	(0.295)	(1.246)	(1.503)	(0.873)
LEVERAGE	0.064***	0.066***	0.066***	-0.073***	-0.073***	-0.070***
	(5.518)	(5.663)	(5.270)	(-6.525)	(-6.272)	(-5.796)
SALES_GROWTH	-0.045***	-0.043***	-0.043***	-0.007	-0.006	-0.006
	(-5.224)	(-5.029)	(-5.090)	(-1.491)	(-1.310)	(-1.346)
MTB	-0.001	-0.001	-0.001	0.002	0.002	0.002
	(-0.657)	(-0.904)	(-0.432)	(1.265)	(1.192)	(0.887)
NWC	-0.088***	-0.091***	-0.101***	-0.067***	-0.067***	-0.079***
	(-3.249)	(-3.334)	(-2.961)	(-4.768)	(-4.705)	(-4.074)
CAPEX	-0.281***	-0.284***	-0.298***	-0.271***	-0.285***	-0.284***
	(-8.873)	(-8.426)	(-7.513)	(-3.273)	(-3.226)	(-2.945)
ACQUISITION	-0.537***	-0.535***	-0.532***	-0.201***	-0.202***	-0.197***
	(-18.570)	(-18.760)	(-17.998)	(-6.642)	(-6.344)	(-6.192)
RND	-0.069**	-0.067**	-0.082**	-0.077*	-0.077*	-0.121***
	(-2.263)	(-2.122)	(-2.169)	(-1.853)	(-1.853)	(-2.798)
DIV_DUMMY	-0.008*	-0.007	-0.005	-0.013***	-0.013***	-0.010***
	(-1.757)	(-1.615)	(-1.169)	(-4.745)	(-4.678)	(-3.642)
MNC	-0.009**	-0.009**	-0.009*	-0.004	-0.005	-0.004
	(-2.242)	(-2.293)	(-1.925)	(-1.244)	(-1.410)	(-1.186)
DUMMY_RATING	0.006	0.005	0.007	0.011***	0.010***	0.010***
	(1.288)	(0.998)	(1.379)	(3.435)	(3.048)	(3.181)
LN_FIRM_AGE	0.008**	0.009***	0.008**	0.004*	0.004*	0.003
	(2.433)	(2.998)	(2.325)	(1.722)	(1.888)	(1.472)
FRCI	-0.012**	-0.028**	-0.029**	-0.005	-0.009	-0.009
	(-2.308)	(-2.266)	(-2.260)	(-1.584)	(-1.080)	(-1.052)
CONSTANT	0.047**	0.048**	-0.089***	0.092***	0.095***	0.099***
	(2.385)	(2.306)	(-3.793)	(5.177)	(4.794)	(3.036)
YEAR FE	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y
N	3,501	3,501	3,501	3,501	3,501	3,501
ADJ. R^2	0.305	0.312	0.317	0.101	0.103	0.120

This table reports *OVERCONFIDENCE1* impact on the adjustment speed of upper and lower quarter of observations. The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.7 *OVERCONFIDENCE2* and adjustment speed of excess and insufficient cash

	(1)	(2)	(3)	(4)	(5)	(6)
DCASH	EXCESS CASH			INSUFFICIENT CASH		
DEV	0.272***	0.271***	0.276***	0.045*	0.046*	0.045*
	(10.001)	(10.037)	(9.629)	(1.769)	(1.790)	(1.649)
DEVOVER2	-0.200***	-0.199***	-0.199***	0.031	0.026	0.028
	(-6.919)	(-6.874)	(-6.703)	(1.588)	(1.265)	(1.393)
LN_AT	-0.003	-0.003	-0.004*	-0.006***	-0.006***	-0.007***
	(-1.635)	(-1.538)	(-1.875)	(-5.395)	(-5.186)	(-5.249)
CASH_FLOW	0.059***	0.061***	0.056***	0.037*	0.037**	0.036*
	(3.048)	(3.077)	(2.677)	(1.957)	(2.005)	(1.823)
INDUSTRY_SIGMA	-0.010*	-0.010*	0.000	0.005	0.006	0.003
	(-1.694)	(-1.774)	(0.038)	(1.162)	(1.587)	(0.682)
LEVERAGE	0.047***	0.048***	0.049***	-0.054***	-0.052***	-0.049***
	(4.597)	(4.750)	(4.488)	(-4.682)	(-4.409)	(-4.228)
SALES_GROWTH	-0.017	-0.014	-0.014	-0.009	-0.009	-0.009
	(-1.570)	(-1.355)	(-1.399)	(-1.115)	(-1.101)	(-1.103)
MTB	0.001	0.001	0.002	0.002	0.002	0.001
	(1.088)	(0.807)	(1.331)	(1.285)	(1.321)	(0.887)
NWC	-0.084***	-0.086***	-0.093***	-0.047***	-0.047***	-0.056***
	(-4.071)	(-4.126)	(-3.675)	(-4.482)	(-4.428)	(-3.975)
CAPEX	-0.267***	-0.263***	-0.271***	-0.255***	-0.266***	-0.253***
	(-8.351)	(-7.732)	(-7.255)	(-4.225)	(-4.115)	(-3.609)
ACQUISITION	-0.491***	-0.490***	-0.490***	-0.194***	-0.195***	-0.189***
	(-18.868)	(-18.801)	(-18.399)	(-6.255)	(-6.272)	(-5.634)
RND	-0.054*	-0.052*	-0.081**	-0.024	-0.024	-0.064
	(-1.852)	(-1.719)	(-2.145)	(-0.583)	(-0.593)	(-1.456)
DIV_DUMMY	-0.011***	-0.010***	-0.008**	-0.013***	-0.012***	-0.011***
	(-2.877)	(-2.584)	(-2.172)	(-5.323)	(-5.098)	(-4.332)
MNC	-0.011***	-0.011***	-0.010**	-0.005*	-0.005*	-0.005
	(-2.657)	(-2.794)	(-2.389)	(-1.707)	(-1.842)	(-1.565)
DUMMY_RATING	0.002	0.001	0.004	0.008**	0.006**	0.006**
	(0.511)	(0.294)	(0.780)	(2.525)	(2.028)	(2.081)
LN_FIRM_AGE	0.005	0.006**	0.005	0.004*	0.004**	0.004*
	(1.522)	(1.979)	(1.448)	(1.913)	(2.072)	(1.725)
FRCI	-0.011**	-0.011	-0.011	-0.005	0.003	0.001
	(-2.102)	(-0.649)	(-0.582)	(-1.593)	(0.580)	(0.167)
CONSTANT	0.044**	0.033	-0.073**	0.077***	0.068***	0.076***
	(2.523)	(1.350)	(-2.533)	(6.001)	(5.174)	(3.136)
YEAR FE	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y
N	3,726	3,726	3,726	3,725	3,725	3,725
ADJ. R^2	0.318	0.323	0.328	0.0878	0.0918	0.102

This table reports *OVERCONFIDENCE2* impact on the adjustment speed of upper and lower quarter of observations. The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.8 The excess cash dissipation test

$DDEV_{it+1}$	(1)	(2)	(3)	(4)	(5)	(6)
OVERCONFIDENCE1	-0.023**	-0.021**	-0.020**			
	(-2.388)	(-2.046)	(-2.057)			
OVERCONFIDENCE2				-0.016***	-0.016***	-0.018***
				(-2.683)	(-2.628)	(-2.734)
INDUSTRY_MEAN_DDEV	0.004	0.003	0.006	0.002	0.001	0.002
	(1.182)	(1.066)	(1.496)	(0.783)	(0.573)	(1.075)
CONSTANT	0.076***	0.042**	0.025	0.067***	0.040	0.134**
	(15.399)	(2.398)	(0.659)	(12.908)	(0.881)	(2.139)
YEAR FE	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y
N	3,037	3,037	3,037	3,189	3,189	3,189
ADJ. R^2	0.002	0.014	0.013	0.001	0.009	0.008

The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.9 The excess cash accumulation test

$DDEV_{it}$	(1)	(2)	(3)	(4)	(5)	(6)
L.OVERCONFIDENCE1	0.002	0.002	0.002			
	(0.164)	(0.198)	(0.188)			
L.OVERCONFIDENCE2				0.007	0.002	0.002
				(1.110)	(0.353)	(0.267)
L.INDUSTRY_MEAN_DDEV	0.003	0.005	0.004	0.001	0.003	0.002
	(0.621)	(0.865)	(0.746)	(0.249)	(0.627)	(0.460)
CONSTANT	-0.077***	-0.062*	-0.182**	-0.077***	-0.082**	-0.170***
	(-16.773)	(-1.836)	(-2.425)	(-11.962)	(-2.276)	(-2.807)
YEAR FE	N	Y	Y	N	Y	Y
IND48 FE	N	N	Y	N	N	Y
N	2,831	2,831	2,831	3,146	3,146	3,146
ADJ. R^2	-0.001	0.010	0.014	-0.000	0.005	0.005

The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.10 The effect of OVERCONFIDENCE on the cash dissipation directions when there is excess cash

	(1)	(2)	(3)	(4)	(5)	(6)
	FDPAYOUT	*FDINVESTMENT*	*FDDLTR_AT*	*FDPAYOUT*	*FDINVESTMENT*	*FDDLTR_AT*
OVERCONFIDENCE1	-0.002	0.009**	-0.003			
	(-0.921)	(2.009)	(-0.944)			
OVERCONFIDENCE2				0.001	0.016**	0.006
				(0.265)	(2.181)	(1.371)
LN_AT	0.002**	-0.008***	-0.002	0.002**	-0.009***	-0.002
	(2.029)	(-3.010)	(-1.453)	(2.565)	(-3.668)	(-1.624)
CASH_FLOW	-0.008	0.032	0.011	-0.016*	0.050	0.006
	(-0.987)	(0.805)	(0.910)	(-1.708)	(1.174)	(0.398)
INDUSTRY_SIGMA	0.005	-0.017	0.012	0.001	-0.014	0.009
	(0.950)	(-1.424)	(1.309)	(0.177)	(-1.282)	(1.041)
LEVERAGE	-0.019***	-0.044*	0.045***	-0.029***	-0.044**	0.049***
	(-3.549)	(-1.741)	(3.377)	(-4.570)	(-2.023)	(3.811)
SALES_GROWTH	0.006**	-0.014	0.007	0.010***	-0.005	0.008
	(2.282)	(-1.545)	(1.212)	(3.175)	(-0.400)	(1.399)
DIV_DUMMY	-0.008***	-0.009	-0.002	-0.009***	-0.007	0.001
	(-2.900)	(-1.518)	(-0.463)	(-3.367)	(-1.213)	(0.186)
FRCI	-0.038***	-0.067***	-0.002	-0.017	-0.078**	-0.000
	(-4.975)	(-3.875)	(-0.194)	(-1.499)	(-2.396)	(-0.027)
CONSTANT	-0.017	0.102***	-0.016	-0.026*	0.008	0.008
	(-1.615)	(3.285)	(-1.060)	(-1.944)	(0.141)	(0.240)
YEAR FE	Y	Y	Y	Y	Y	Y
IND48 FE	Y	Y	Y	Y	Y	Y
N	2,801	3,117	3,092	2,962	3,276	3,263
ADJ. R^2	0.054	0.047	0.006	0.058	0.048	0.011

This table reports the effect of OVERCONFIDENCE on the cash dissipation ways under the excess cash. The dissipation ways are the dividend payouts, the investment and the debt retirements. The dividend payouts include the cash dividend and the share repurchase. The investments include the acquisitions, capital expenditures and the research and developments. I also include the year and industry fixed effects in the regressions. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.11 Robustness check with GMM generated cash target level to reduce endogeneity

	(1)	(2)	(3)	(4)	(5)	(6)
DCASH	FULL SAMPLE			EXCESS CASH		
GMMDEV	0.586***	0.500***	0.528***	0.703***	0.837***	0.900***
	(34.147)	(18.884)	(26.348)	(8.555)	(14.101)	(15.944)
GMMDEVOVER1		-0.015			-0.060	
		(-0.489)			(-1.233)	
GMMDEVOVER2			-0.119***			-0.243***
			(-3.634)			(-4.399)
LN_AT	0.003***	-0.004***	-0.003***	0.007***	-0.002	-0.001
	(8.032)	(-4.883)	(-3.907)	(7.255)	(-1.194)	(-0.332)
CASH_FLOW	0.035***	0.059***	0.046***	0.057***	0.096***	0.091***
	(11.480)	(4.079)	(3.384)	(8.936)	(5.418)	(5.158)
INDUSTRY_SIGMA	0.005**	0.003	0.003	-0.001	0.002	-0.000
	(2.263)	(0.967)	(1.034)	(-0.216)	(0.268)	(-0.067)
LEVERAGE	-0.054***	-0.021***	-0.025***	-0.021***	0.011	-0.005
	(-14.957)	(-3.177)	(-4.091)	(-3.153)	(0.936)	(-0.462)
SALES_GROWTH	-0.007***	-0.013***	-0.011**	-0.023***	-0.030***	-0.014*
	(-5.111)	(-2.804)	(-2.078)	(-6.607)	(-4.301)	(-1.871)
MTB	0.004***	0.004***	0.004***	0.002**	0.001	0.002
	(11.255)	(5.147)	(5.277)	(2.149)	(0.713)	(1.510)
NWC	-0.035***	-0.070***	-0.065***	-0.040***	-0.083***	-0.083***
	(-11.397)	(-8.949)	(-8.564)	(-5.923)	(-3.885)	(-4.212)
CAPEX	-0.423***	-0.433***	-0.411***	-0.549***	-0.665***	-0.656***
	(-27.531)	(-18.950)	(-19.428)	(-14.830)	(-14.389)	(-14.614)
ACQUISITION	-0.489***	-0.472***	-0.467***	-0.716***	-0.696***	-0.685***
	(-39.705)	(-25.664)	(-26.411)	(-31.477)	(-26.437)	(-26.933)
RND	0.010	-0.018	-0.010	0.046***	0.060*	0.056
	(1.434)	(-0.813)	(-0.518)	(2.818)	(1.696)	(1.643)
DIV_DUMMY	-0.004***	-0.001	-0.001	0.000	0.006	0.005
	(-3.993)	(-1.008)	(-1.102)	(0.095)	(1.468)	(1.176)
MNC	0.009***	0.005***	0.005***	0.014***	0.019***	0.019***
	(7.767)	(2.994)	(3.054)	(3.713)	(3.928)	(4.085)
DUMMY_RATING	0.001	0.006***	0.005***	-0.003	0.008*	0.006
	(1.064)	(3.309)	(2.665)	(-0.731)	(1.712)	(1.273)
LN_FIRM_AGE	0.004***	0.007***	0.006***	0.005**	0.007*	0.005
	(4.897)	(6.696)	(6.174)	(1.987)	(1.955)	(1.446)
FRCI	-0.013***	-0.011***	-0.008**	-0.017	-0.025**	-0.027**
	(-3.908)	(-2.584)	(-2.080)	(-1.613)	(-2.199)	(-2.077)
CONSTANT	-0.017	0.015	0.020	-0.005	-0.069***	0.067**
	(-1.283)	(0.664)	(1.622)	(-0.064)	(-3.354)	(2.194)
N	44,037	12,975	13,899	10,651	3,191	3,423
ADJ. R^2	0.198	0.256	0.252	0.256	0.352	0.347

This table is the robustness check using GMM to predict the cash target ratio. The new cash target is used to calculate new deviations to run the robust check regressions. The first three models are the results for the whole sample. The latter three models are the results for the upper quantile of the sample. The dependent variable is the cash ratio and the independent variables include firm characteristics. Year and industry dummies (based on 48 industries categories) are included to control for year and industry fixed effects. T-values based on standard errors robust to clustering by the firm are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Table 4.12 First lag of regression to reduce the risk of endogeneity

DCASH	(1)	(2)	(3)
DEV	0.002***	0.259***	0.348***
	(6.415)	(6.009)	(10.319)
DEVOVER1		-0.157***	
		(-5.415)	
DEVOVER2			-0.268***
			(-10.153)
L.LN_AT	0.004***	-0.002	-0.001
	(3.322)	(-0.932)	(-0.582)
L.CASH_FLOW	0.014**	-0.021	-0.007
	(2.062)	(-0.905)	(-0.339)
L.INDUSTRY_SIGMA	0.005	-0.007	-0.004
	(0.778)	(-0.782)	(-0.483)
L.LEVERAGE	0.037***	0.038***	0.034***
	(6.248)	(2.589)	(2.829)
L.SALES_GROWTH	-0.002	-0.003	-0.002
	(-1.570)	(-0.725)	(-0.399)
L.MTB	-0.001*	-0.003*	0.000
	(-1.821)	(-1.869)	(0.048)
L.NWC	0.007	-0.024	-0.011
	(0.996)	(-0.766)	(-0.467)
L.CAPEX	0.056**	0.056	0.064
	(2.430)	(1.343)	(1.564)
L.ACQUISITION	-0.053*	-0.118***	-0.091**
	(-1.818)	(-2.583)	(-2.212)
L.RND	0.086***	0.150***	0.101***
	(5.355)	(4.266)	(3.315)
L.DIV_DUMMY	-0.003	-0.009*	-0.012***
	(-0.804)	(-1.711)	(-2.733)
L.MNC	-0.014***	-0.005	-0.003
	(-4.419)	(-0.945)	(-0.665)
L.DUMMY_RATING	-0.006	-0.000	-0.001
	(-1.305)	(-0.008)	(-0.093)
L.LN_FIRM_AGE	0.011***	0.014***	0.007*
	(4.464)	(3.648)	(1.830)
L.FCRI	0.020*	0.011	0.010
	(1.651)	(0.792)	(0.691)
CONSTANT	-0.118	-0.165***	-0.051*
	(-1.579)	(-6.877)	(-1.749)
YEAR FE	Y	Y	Y
INDUSTRY FE	Y	Y	Y
OBSERVATIONS	10,651	3,191	3,423
R2_A	0.0358	0.110	0.168

DCASH is the dependent variable first difference of cash level. DEV is the cash deviation which is the target cash level minus the first lag of cash level. I take first lag of the control variables in the regression. I do not further take the first lag of DEV and relative interaction term because DEV contains the first lag of cash level. I do not need to take lags twice. The results here are consistent with test results in previous tables. T STATISTICS IN PARENTHESES, * P < 0.10, ** P < 0.05, *** P < 0.01

Appendix for Chapter 4

Appendix 4.1 Variable definitions

DEFINITION OF VARIABLES	
CASH_RATIO	*CASH_RATIO=CHE/AT*. Firm's cash holdings divided by firm's total asset.
OVERCONFIDENCE1	Option based CEO over-confidence measure. The calculation is discussed in Methodology.
OVERCONFIDENCE2	Investment based CEO over-confidence measure. The calculation is discussed in Methodology.
LN_AT	Firm size. Natural logarithm of firm's total asset. *LN_AT=LN(AT)*.
CASH_FLOW	*CASH_FLOW=(OIBDP- XINT- TXT- DVC)/AT*. Cash flow is measured as earnings after interest, dividends and taxes but before depreciation divided by the total asset.
INDUSTRY_SIGMA	This is the measure of the industry cash flow risk.
LEVERAGE	*LEVERAGE=(DLTT+DLC)/AT*. Long term debt plus debt in current liabilities divided by the total asset.
SALES_GROWTH	*SALES_GROWTH=(SALE-L.SALE)/L.SALE.*
MTB	*MTB=(AT-CEQ+CSHO*PRCC_F)/AT*. This is the market to book ratio.
NWC	*NWC=(WCAP-CHE)/AT*. This is the net working capital.
CAPEX	*CAPEX=CAPX/AT*. This is the capital expenditure.
ACQUISITION	*AQUISITION=AQC/AT*. This is the merger and acquisition amount divided by the total asset.
RND	*RND=XRD/AT*. This is the research and development divided by the total asset.
DIV_DUMMY	This is the dividend dummy. It equals one if there is dividend payment, otherwise 0.
MNC	This is the foreign sales percentage indicator.
DUMMY_RATING	This is a dummy for the public debt issuance right. It equals one if a firm is rated by the rating agencies, otherwise 0.
LN_FIRM_AGE	This is the natural logarithm of firms listing time.
FRCI	Financial crisis dummy equals one if the year is 2007 or 2008.

Appendix 4.2 Hausman test for panel data

	COEFFICIENTS			
	(b)	(B)	(b-B)	SQRT(DIAG(V_b-V_B))
DEPENDENT VARIABLE: DCASH	FE	RE	DIFFERENCE	S.E.
DEV	0.002	0.002	0.000	0.000
LN_AT	0.001	0.001	0.000	0.000
CASH_FLOW	0.035	0.035	0.000	0.000
INDUSTRY_S~A	0.010	0.003	0.007	0.002
LEVERAGE	-0.013	-0.012	-0.001	0.000
SALES_GROWTH	-0.010	-0.010	0.000	0.000
MTB	0.003	0.003	0.000	0.000
NWC	-0.026	-0.027	0.000	0.000
CAPEX	-0.391	-0.374	-0.017	0.003
ACQUISITION	-0.481	-0.482	0.002	0.001
RND	-0.051	-0.053	0.002	0.001
DIV_DUMMY	-0.004	-0.004	0.000	0.000
MNC	0.001	0.002	-0.001	0.000
DUMMY_RATING	0.006	0.006	0.000	0.000
LN_FIRM_AGE	0.001	0.002	-0.001	0.000
FCRI	-0.018	0.003	-0.021	.

YEAR DUMMY INCLUDED

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(36) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 63.27

Prob>chi2 = 0.0033

(V_b-V_B is not positive definite)

The results of Hausman tests show that I need to use the fixed effect for the regressions. I therefore use the year and industry fixed effect in the regressions.

Chapter 5 CONCLUSION

I conduct three studies in Chapter 2, Chapter 3 and Chapter 4 to examine how executive ownership and CEO over-confidence can affect corporate policies including accounting strategy, dividend payout policy and cash strategy. Many papers argue that the executive ownership is related to the corporate governance and the agency problems (Denis et al., 1997; Holderness et al., 1999; McConnell and Servaes, 1990, 1995; McConnell et al., 2008; Morck et al., 1988; Shuto and Takada, 2010; Zhou, 2001). I undertake my investigations among the Chinese-listed firms which are regarded as having weak corporate governance and weak legal systems (Jiang et al., 2010; Zhang et al., 2014). The features[23] of the Chinese-listed firms are the trigger for me to identify the differences in how corporate policies like accounting strategy and dividend payout policy is related to executive ownership in China and in the developed countries, such as the US. Therefore, I investigate how the executive ownership can affect accounting conservatism in Chapter 2 and dividend tunnelling in Chapter 3.

In Chapter 2, I discuss the relationship between accounting conservatism and executive ownership in China. To further clarify that accounting conservatism is not purely against management's and dominant shareholder's interest. I provide the explanations as follows. Ball (2001) and Watts (2003) suggest that accounting conservatism helps to establish the rules if there is more than one financial reporting alternative, which allows the reporting to be fair and objective. Initially, accounting conservatism is recognized as

[23] The features are mentioned at the start of Chapter 3. The references and citations are in Chapter 3 first six paragraphs. First, the Chinese firms do not face enough external governance mechanisms. Second, minority shareholders have little impact on the firm and cannot monitor cases of misconduct efficiently. Third, the weak legal system in China cannot regulate the tunnelling behaviours effectively. Fourth, the controlling shareholders' trading behaviours are highly restricted, which pushes them towards dividend tunnelling. Fifth, China, as a developing market, has a weaker corporate governance environment compared to the developed markets.

a branch of accounting which requires a high degree of verification before making a legal claim to any profit as it requires recognition of all probable losses as they are discovered and most expenditures as they incurred (Watts, 2003). Furthermore, Watts (2003) documents that more accounting conservatism can recognize more "allowance for doubtful accounts", which can provide shareholders with a more accurate picture of firm receivables under protection (Jackson and Liu, 2010). Accounting conservatism employed by shareholders allows a firm's resources to cover potential uncollectible receivables. Ball (2001) argues that accounting conservatism can monitor firms' investment decisions because asymmetric verifiability of accounting conservatism can help shareholders to constrain managers' behaviour of investing negative NPV (net present value) projects. Aa a result, accounting conservatism can help to constrain managers' intentions to overstate the firm's performance with a large amount of credit sales which generate too many uncollectible receivables (Ball, 2001; Ball and Shivakumar, 2005; Givoly et al., 2007; Watts, 2003). Shuto and Takada (2010) also argue that accounting conservatism is a useful tool to address agency problems between managers and shareholders. As a result, shareholders do not perceive that accounting conservatism only has disadvantages for firm value maximization. Instead, accounting conservatism can help shareholders to monitor managers' potential misconduct and value-destroying decisions.

In Chapter 3, I discuss potential dividend tunnelling in China. There is no conflict between the results in Chapter 3 and Chapter 2. The increase in tunnelling behaviour by controlling shareholder does not conflict with the finding that the increase in executive ownership can increase the shareholders' demand for accounting conservatism. There

are two types of agency costs. The first one is the agency cost between controlling shareholders and minority shareholders caused by tunnelling activities. The second one is the agency cost between managers and shareholders. Firstly, since most firms in China have high ownership concentration (Jiang et al., 2010; Zhang et al., 2014), controlling shareholders can expropriate minority shareholders through tunnelling, and the agency cost between them increases. The dominant controlling shareholders may have a strong impact on manager's behaviour and decision making (Chen et al., 2006). Secondly, accounting conservatism as a monitoring mechanism can reduce the agency cost between managers and shareholders (Ball, 2001; Ball and Shivakumar, 2005; Givoly et al., 2007; Shuto and Takada, 2010; Watts, 2003). Therefore, when executive ownership exceeds a threshold level, the increase in executive ownership leads to the increase in shareholders' demand for conservatism to protect shareholders' wealth. I provide a more detailed explanation below.

The management team is a puppet in the listed firms in China[24] (Zhang et al., 2014). Due to the high ownership concentration of Chinese listed firms, controlling shareholders may have a strong impact on managers' behaviour and decision making (Chen et al., 2006). If controlling shareholders want to use the dividend to tunnel the firm resources for themselves, it would be very difficult to stop them inside a firm in China since Lv et al. (2012) proved that the unbalanced ownership structure with

[24] The managers are nearly puppets because the controlling shareholders have dominant control over the firms in China (Zhang et al., 2014). The control is reflected in the firms' board composition and the executive incentives. Cullinan et al. (2012) indicate that the controlling shareholders can affect board composition by nominating board members. Those nominated and those who successfully remain on the firms' board may be affiliated with the controlling shareholders. Cullinan et al. (2012) find that, in their sample, the affiliated directors occupy almost 40% of the board seats. Therefore, even though the board contains the supervisory directors, they do not conduct effective monitoring in the decision-making process (Firth et al., 2006). Furthermore, the controlling shareholders have a decisive role in determining executive incentive packages including the cash compensation and the stock incentives. Firth et al. (2006) and Conyon and He (2011) point out that the executives' remuneration, appointments and dismissals are in the charge of controlling shareholder in Chinese market.

dominant controlling shareholders in Chinese-listed firms could change the role of dividend from shareholders' benefit to a tunnelling method. In other words, controlling shareholders may put pressure on the managers to collude with them for conducting divided tunnelling. Therefore, there is a positive relationship between executive ownership and dividend tunnelling.

Under entrenchment theory, when executive ownership is above a threshold, the increase in executive ownership leads to managers pursuing their own interests instead of the shareholders' interests (Morck et al., 1988). It is because management entrenchment theory argues that executives with the ownership above the threshold are less likely to be effectively monitored by the board of directors and market discipline (Lafond and Roychowdhury, 2008; Morck et al., 1988; Shuto and Takada, 2010). As a consequence, the executives' entrenchment behaviour increases agency costs between executives and shareholders and in turns reduces firm value. As a result, shareholders' demand for accounting conservatism is higher to monitor executives' behaviour, because accounting conservatism is considered as a monitoring mechanism to reduce agency cost between executives and shareholders (Ball, 2001; Ball and Shivakumar, 2005; Givoly et al., 2007; Shuto and Takada, 2010; Watts, 2003). Therefore, the increase in shareholders' demand for conservatism can prevent firm resources from being abused by managers.

Chen et al. (2009) provide an example of dividend tunnelling in China, the case of Ufida Software Company (code 600588), which is listed on the Shanghai Stock Exchange. In May 2001, Mr Wang Wenjing, Ufida's controlling shareholder, exchanged

the software company's net assets (net book value of RMB 83.84 million, of which Mr Wang was entitled to 73.6%, or RMB 61.70 million) for 75 million non-tradable shares during the IPO. Meanwhile, minority shareholders had to pay RMB 917 million in cash for the 25 million tradable shares. The price of the tradable shares was RMB 36.68 per share, which was much higher than the price of RMB 1.12 per share enjoyed by Mr Wang. In April 2002, the company announced a huge cash dividend payment of RMB 60 million. This single dividend payment created an implied dividend yield of more than 50% for Mr Wang, but less than 2% for minority shareholders. Moreover, between the IPO and April 2007, the total accumulated dividend payments amounted to RMB 477 million, of which Mr Wang was entitled to RMB 264 million, for an accumulated implied dividend yield of 428% (71% annually) for Mr Wang but only around 13% (2.2% annually) for those holding tradable shares. At the same time, the post-IPO company's ROE consistently fell below 10%, except 2006, which was far below its level before the IPO. Obviously, the high-dividend policy of Ufida was not due to the performance of the company itself, but to other factors such as tunnelling.

In Chapter 4, I investigate the influence of the CEO over-confidence on the cash adjustment speed in the US market. I choose the US market for the study because of the availability of top managers' over-confidence data. I want to carry out relevant research on the Chinese markets, but over-confidence data is not available for the Chinese listed companies. In particular, Chinese listed firms rarely use equity option compensations. However, research in the US (a developed market) can help me to learn that China (developing market) may have similar problems such as CEOs' behavioural influence on firm policy. The US is the world's leading developed country, while China is the

largest developing country in the world. The size of the economies in the two countries are comparable, and thus if I study the relationship between cash adjustment and CEO over-confidence in the US, the scale of my findings are comparable to what may also happen in China. I study the US-listed firms first and may leave the study for the Chinese market for the future.

I present the summary and conclusions of my research results and implications for practice in the following section. In addition, I also discuss the possible limitations in my thesis and suggest possible future research directions.

5.1 Findings and implications

5.1.1 Chapter 2 Executive ownership and accounting conservatism

In Chapter 2, the study examines the relationship between executive ownership and accounting conservatism in China. The sample period covers 11 years from 2005 to 2015. I collect the data for the listed firms from the CSMAR database. In this chapter, I find that the relationship between the executive ownership and accounting conservatism is a U-shape curve in China, which is different from the previous studies undertaken in developed countries. The U-shape relationship between the executive ownership and accounting conservatism can be explained by the incentive alignment theory when the executive ownership is lower than the threshold (Lafond and Roychowdhury, 2008) and the entrenchment theory when the executive ownership is higher than the threshold (Shuto and Takada, 2010). When the executive ownership is low, the executive ownership is treated as the method to reduce the agency cost from the separation of the

executive management and their ownership explained by the incentive alignment theory. Accounting conservatism is a substitute for the increase of the executive ownership to reduce the agency cost. Therefore, when there is an increase in the executive ownership, there is a reduction in the shareholders' demand for accounting conservatism. However, when the executive ownership is higher than the threshold, the management entrenchment theory argues that the executives with high levels of ownership are less likely to be effectively monitored by the board of directors and the market discipline (Lafond and Roychowdhury, 2008; Morck et al., 1988; Shuto and Takada, 2010). Therefore, the shareholders' demand for accounting conservatism is needed to offset the agency cost against management entrenchment.

I also obtain the target value of the executive ownership and generate the deviation of the executive ownership from the target value. The evidence shows that there is a positive relationship between the executive ownership deviation and the change of the executive ownership. Therefore, the results indicate that the executive ownership can reverse to the target level. I also examine the influence of the executive ownership deviation on accounting conservatism and find that the executive ownership deviation has a significantly positive relationship with accounting conservatism. My results show that the sensitivities of accounting conservatism and the executive ownership deviation are different when the executive ownership is above or below the target level. I find evidence that the Chinese firms' weak corporate governance feature can make the entrenchment theory dominant when the executive ownership is beyond the target level.

I examine the influence of the analyst coverage on the relationship between the

executive ownership deviation and accounting conservatism. The analyst coverage is recommended as a method to reduce the agency cost (Dyck et al., 2010; Jensen and Meckling, 1976; Yu, 2008). My results indicate that the sensitivity between the executive ownership and the shareholders' demand for accounting conservatism is reduced at a certain level of executive ownership deviation. Therefore, the analyst coverage is a method that can be employed to reduce the agency cost in my study.

I make several contributions to the literature. Firstly, I find the U-shaped relationship between executive ownership and accounting conservatism in China. Secondly, I first examine the influence of the executive ownership deviation on accounting conservatism and find there is a positive relationship. Thirdly, in China, I find executive ownership can reverse to the target value. Fourthly, I am the first to find that the influence of analyst coverage on the relationship between executive ownership and accounting conservatism is negative.

5.1.2 Chapter 3 Executive ownership and dividend tunnelling

In Chapter 3, I investigate the relationship between the dividend tunnelling and the executive ownership and also consider the internal and external factors which can affect the relationship. The data are obtained from the CSMAR database. The research sample is from 2005 to 2015. The sample contains all the listed firms in China but excludes financial firms. In order to prove that the dividend is not paid rationally according to the firms' financial positions, I make further regressions on the abnormal dividend payouts. The results of these regressions can help me confirm that the dividend payout strategy is

a tunnelling method in China. My results show that the executive ownership concentration can lead to the increases of both the dividend payouts and the abnormal dividend payouts. The regression related to the abnormal dividend payout reveals that the executive ownership concentration can make the firms pay more than expected dividends to the controlling shareholders. The over-payment of the dividend can restrict the fund for future investment. Therefore, the minority shareholders in China do not regard the dividend payouts as protection. However, the minorities' actions can worsen the existing shareholder imbalance because they sell their shares to the firms' insiders or controlling shareholders who can benefit from the ownership concentration.

When I consider the internal factors, my results also show that the executives are aligned with the controlling shareholders' interests to issue more than expected dividends when the executive ownership increases, and also show that the dividend tunnelling has a negative relationship with the traditional tunnelling methods. The results further indicate that more firms are motivated to use the concealed tunnelling methods such as dividend tunnelling, since the CSRC has taken actions to stop inter-corporate loan tunnelling. Furthermore, I find that the state ownership concentration can help to increase the dividend tunnelling opportunity.

The external monitoring via the analyst coverage is more effective to regulate the executives' and the controlling shareholders' behaviours. The results in this chapter show that the analyst coverage can reduce the sensitivity between the executive ownership and the dividend tunnelling. Therefore, I derive several implications from the results. Firstly, if the firms need to strengthen their internal corporate governance to

reduce the potential tunnelling behaviour, it is better to first reduce the state control and the concentrated ownership structure. Secondly, from the external view, the monitoring power of the analyst coverage needs to be improved. Since the internal corporate governance is not well designed, the external monitoring has even greater importance to regulate the firms. Therefore, the regulators need to encourage more third-party investigations and monitoring in the financial market.

In this chapter, I make several contributions. Firstly, my research is the first attempt to fill the gap in the literature concerning the relationship between dividend tunnelling and executive ownership. I find that the cash dividend itself is a channel for tunnelling activities. Chen et al. (2009) show that some Chinese firms use high dividends to move proceeds of the IPO to the controlling shareholders. However, they focus on dividend tunnelling occurring in IPOs but do not consider continuous expropriation by the controlling shareholders' use of dividend payouts. Lv et al. (2012) find evidence that the dividend payout is a tunnelling method in the Chinese market but do not investigate the relationship between dividend payout strategy and executive ownership. I am also the first to use abnormal dividend payouts to investigate the relationship between dividend tunnelling and executive ownership. The advantage of using abnormal dividend payout is that I can directly argue that dividend payouts extract more than expected dividends to the controlling shareholders in China. Secondly, I contribute to the literature by studying the influences of internal factors, like the ownership concentration, tunnelling of the other receivables and government ownership, on the sensitivity between dividend payouts and executive ownership. Thirdly, I contribute to the field by investigating the influence of analyst coverage on the sensitivity between dividend tunnelling and

executive ownership. This is consistent with the finding of Ding et al. (2013) that analyst coverage is an effective external monitoring mechanism to improve corporate governance.

5.1.3 Chapter 4 CEO over-confidence and cash adjustment speed

In Chapter 4, I examine the relationship between the CEO over-confidence and the cash adjustment speed. I download the data for this chapter from COMPUSTAT and EXECUCOMP to obtain the information of US-listed firms. The sample keeps the data from 1993 to 2014. I use two over-confidence measures to test the relationship between the CEO over-confidence and the cash adjustment speed.

I design the research in three parts. Firstly, I test how the over-confident CEOs affect the firms' cash levels. The regression results reveal that the CEOs are very sensitive to the cash level deduction because they are more likely to increase the firm cash level to remain in an adequate cash environment to avoid extraordinary monitoring from other forms of financing. The results support the idea of Deshmukh et al. (2013) that the over-confident managers save cash for their discretionary use. Heaton (2002) also points out that the over-confident CEOs do not have preferences for external funds and prefer cash for financing.

Secondly, I introduce the cash adjustment speed and test whether the over-confident CEOs have consistent actions to reduce the cash reversal to the target level when the firms have excess cash or insufficient cash. However, under the pressure of retaining a

reasonable cash level, the over-confident CEOs cannot make over-reserves of the cash. Therefore, they reduce the adjustment speed of the cash to keep their discretionary power when there is excess cash in the firms. In other words, the over-confident CEOs can keep excessive cash by reducing the future cash dissipation. More importantly, I show that the cash is not stored for accumulation purposes but for future dissipation under the influence of CEO over-confidence.

In the third part, my results show that the reserved cash is used in future investment rather than for dividend payouts or debt retirements. Therefore, my research shows that the over-confident CEOs are likely to reduce the cash dissipation to store more cash for their discretionary use in the investments when there is excess cash.

In this chapter, I have three contributions. Firstly, I find that cash adjustment speed is negatively related to CEO over-confidence. Secondly, if there is excess cash, I find that over-confident CEOs are more likely to reduce firms' cash adjustment speed. However, if there is insufficient cash, CEO over-confidence does not have a significant effect on firms' cash adjustment speed. Thirdly, the cash reserved by over-confident CEOs is for future dissipation in the future investments projects rather than dividend payouts or debt retirements.

5.2 Limitations and future studies

I need to point out the limitations and the possible directions for modifications in the summary and conclusion. The first limitation of the research is the number of the

countries investigated. In Chapter 2 and Chapter 3, I focus on the Chinese-listed firms. Although the Chinese market is important in the emerging economy, it cannot reveal the general pattern of all the other emerging markets. Therefore, future studies can consider the other major emerging market countries and draw comparisons between them. Secondly, the shortage of the CEO over-confidence data in China restricts my research to compare the influence of the CEO over-confidence on the cash adjustment between the US and China. In the future, I can undertake surveys and hand-collect the data from the Chinese firms in order to draw comparisons. Thirdly, my research does not consider the private sectors of both China and the US because of the lack of publicly available data. If further researchers need to capture the whole economic view of a certain country, it is necessary to consider the private sectors. The fourth limitation of the research is that I focus on the non-financial listed firms in both the US and China. The accounting rules are different in the financial listed firms and the non-financial listed firms. I opted for simplicity and excluded the financial listed firms. Therefore, future research can study the same topics in the financial listed firms.

Apart from the above limitations, I find my research needs to focus on some macroeconomic event such as policy and regulation changes, and thus my studies may be limited to just firm level. Government policy and regulation modifications and their influences on the firms are important because they can change the business environment in a certain market and can affect all the firms. For example, when I study the relationship between cash adjustment speed and CEO over-confidence, my research can be more attractive if I include the concurrent event in the US which can affect cash adjustment speed, such as regulations of cross-border M&As, changes of tax laws and

trading laws. However, I am not familiar with laws and regulations in the US, and thus I cannot efficiently find an accessible resource to obtain relative data. In the future, I can consider this aspect and make further studies. I also notice that I need to consider both positive and negative effects of CEO over-confidence. To mitigate the negative effects of CEO over-confidence, I need to consider the external monitoring mechanism, independent board member's duty and institutional investors' participation in firm operations. I can take them into considerations in my future studies.

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