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Corporate Governance in Chinese Real Estate Firms

Abstract

This study examines the role of corporate governance in Chinese real estate firms from 1999 to 2012. We find that the usual corporate governance mechanisms such as board independence and ownership structure are irrelevant in explaining the performance of these firms. Executive compensation serves as the only effective governance mechanism and is related to better future firm performance in terms of ROA. Interestingly, we also find that the change in executive compensation is increasingly related to past stock returns and less related to past firm performance in more recent years. Taken together, we find that the effective corporate governance mechanism in real estate industry is increasingly related to the financial market pricing signal, consistent with the Chinese government's continuous effort in reforming and liberalizing the market.

Keywords: Corporate Governance, Executive Compensation, Emerging Market, Agency Issues, Real Estate Company, China

JEL code: G3, G35, G38, R33

1. Introduction

Finance theory suggests that effective corporate governance mechanisms are essential to alleviate agency conflicts between shareholders and managers (Shleifer and Vishny, 1997). However, empirical results are often mixed on how and when corporate governance is associated with better firm performance and/or greater shareholder value. In a seminal study, Gompers, Ishii, and Metrick (2003) introduce a corporate governance index to capture different aspects of effective corporate governance, such as board structure and managerial ownership structure. Although a wide array of alternative governance tools are identified, their relevance significantly varies across countries even among developed economies. US style agency models of corporate governance focus on the maximization of shareholders' value, whereas German and Japanese agency models of corporate governance aim to maximize stakeholders' value. Gibson (2003) propose that a hybrid corporate governance system is suitable for emerging markets, such as China, where companies have to deal with great market uncertainty under less developed financial and legal infrastructure.

Extant corporate governance studies (e.g., Sirmans, 1999) not only posit that governance tools adapt to the country's specific legal and financial system but also suggest that governance techniques vary from industry to industry. For example, real estate companies may have different sets of effective governance mechanisms because real estate market is associated with imperfect information due to high transaction costs and illiquidity of the real assets (Sirmans, 1999; Fan, Huszar and Zhang, 2013). Prior empirical real estate studies of corporate governance primarily focus on Real Estate Investment Trusts (REITs) (Pennathur and Shelor, 2002; Ghosh and Sirmans, 2003; Lecomte and Ooi, 2013). REITs are required to pass on majority of revenues to enjoy tax benefits. Hence, the findings from these studies

may not be generalizable to countries with different tax laws, or applicable to real estate related firms without REIT structure.

More generalizable evidence of corporate governance on real estate firms is presented by Sing and Sirmans (2008), Edelstein, Qian and Tsang (2011), and Kohl and Schaefers (2012). Sing and Sirmans (2008) explore Singapore publicly listed real estate firms and firms with substantial real estate ownership and find supporting evidence for Sirmans (1999) hypothesis. Edelstein et al. (2011) find that real estate returns are closely related to the quality of a country's legal system and corporate governance system, and the relationship is more prominent in Asia-pacific region in recent years. Kohl and Schaefers (2012) focus on the real estate firms in Europe.

Our study aims to contribute to the real estate literature and more generally to corporate governance studies in emerging markets. Specifically, we examine the role of corporate governance in Chinese real estate firms from 1999 to 2012, with emphasis on the implementation of new corporate governance guidelines in 2006 and modernization of stock ownership. This area warrants attention because there is little insight on the effectiveness of newly developed guidelines and principles of corporate governance in China. The concern is that governance tools, developed based on Western practices, may not be applicable in the Chinese context, where the legal and financial infrastructure are still under development. Furthermore, the unprecedented growth and exuberance, in the nontransparent and illiquid real estate market, may further complicate effective corporate control (Chen et al., 2006; Ren and Fan, 2007; Rajagopalan and Zhang, 2008).

We summarize the main empirical findings as follows. First, we find that the usually effective corporate governance mechanisms, such as board independence and ownership structure have no impact on Chinese real estate firm performance. Instead, executive cash compensation is the only effective corporate governance mechanism that is related to better

future firm performance. Second, we find that the level of executive compensation is a function of firm size and age, suggesting that large (potentially state connected) corporations are in the best position to reward manager, “irrespective” of performance. More interestingly, the cross-sectional variation in the change of executive compensation is mainly explained by past stock returns. Other corporate governance measures (e.g., board composition) and accounting based performance measure (e.g., ROA) are relevant for executive compensation in the earlier years of our sample period but have lost their explanatory power in last six years. Overall, our findings suggest that effective corporate governance mechanism in Chinese real estate firms has become more dependent on stock market valuation rather than operating performance after 2006 when major reforms of corporate governance practices and stock market liberalization occurred. However, we are still hesitant to conclude that the market-based governance mechanism can always discipline Chinese real estate firms because the government continues to play a significant role in the real estate sector.

The remainder of this paper is organized as follows. Section 2 discusses the recent developments in the Chinese economy and the real estate sector. Section 3 presents our testable hypotheses on corporate governance in Chinese real estate firms. Section 4 describes the data and variables used. Section 5 presents the empirical findings and section 6 concludes.

2. Institutional Background of Chinese Listed Real Estate Firms

In the new Millennium, the modernization of Chinese financial market has been drastic. To regulate the development in securities and derivatives trading and support the informativeness of stock prices, the Chinese Securities Regulatory Commission (CSRC) has issued more than 300 new guidelines since 1992 (Lin, 2004). In the mid-1990s, two stock exchanges have been established to further promote economic growth. The majority of the over 1200 newly listed firms on these exchanges are re-organized from previous state-owned

enterprises (SOEs). For these firm, profitable spin-offs from the SOEs, a fraction of ownership was sold to the general public in form of tradeable shares while the government/state retained majority ownership (or controlling ownerships) with non-tradeable shares (Liu and Sun, 2006; Firth, Fung and Rui, 2007).

CSRC issued a guideline in April 2005 to reform the split share structure by converting the non-tradeable shares (non-floating shares) into tradeable (floating). By the end of 2006 most listed companies have completed the conversion allowing their shares to be more liquid and supporting informativness of share prices (Li, Wang, Cheung, Jiang, 2011; Lou, Wang, and Yuan, 2013). Most of these listed firms have a long-history of state-dominant decision making process and tend to have complex and opaque corporate ownership structure with strong links to the government. The direct and indirect government/state involvement in listed firms is likely to hinder or delay the adaptation of market based economy and the response to shareholders' interests.

The Chinese real estate industry has experienced rapid growth in recent decades. Given systematically low real interest rates, frequent government stimulus programs and limited investment alternatives, stock prices and property prices have kept on rising beyond sustainable levels (de Bondt et al. 2010). According to an IMF study (IMF, 2013), the nation-wide real estate market investment as a percentage of the total GDP has increased from about 5% to 12.55% from 1999 to 2012 (see Figure 1). Moreover, the total outstanding real estate loans have increased by five times from about RMB 2 trillion to 11.5 trillion, from 2005 to 2012. The growth indicates that there is an insatiable demand for housing which requires external financing (ECB, 2013).

[Insert Figure 1 and Figure 2]

In Figure 2, we show the annual change in average house price level changes in China. We can see that prices continue to rise, with the exception of 2009. The rise in housing price

continued to encourage more entrants into the industry. Indeed, we find that the number of publicly listed real estate companies experienced a significant growth, tripled from 41 firms to 132 firms by 2012 in our sample.¹

[Insert Figure 3]

Lastly, Figure 3 shows the increasing trend in aggregate net profits of real estate firms (for A shares and B shares combined), from about RMB 79 billion in 2000 to RMB 1.2 trillion by 2012 in our sample. Overall, the real estate market shows no sign of slowing, despite greater competition (e.g., over 130 companies) and numerous cooling measures that have been introduced by the government in recent years.

3. Hypotheses development

According to the agency theory, it is important to integrate performance-based corporate governance mechanisms to align shareholders' and managers' interests and facilitate value creation for all shareholders and/or stakeholders. In the first section, we develop testable hypotheses on the role of corporate governance in real estate firms. In the second section, we present our conjectures about executive compensation determinants in the context of the real estate industry in China which is still an emerging economy.

3.1. Corporate Governance and Firm Performance

First, we focus on the role of board structure and ownership structure as corporate governance measures in Chinese real estate firms. Numerous studies from developed economies argue that the presence of independent board directors, smaller board size, and independent board chairman can ensure better alignment of CEO's and shareholders' interests. Specifically, Dalton et al. (1998) and Forbes and Milliken (1999) show that outside directors, unrelated board members improve the independence and monitoring power of the board.

¹ The number of firms per year are not reported, the information is available upon request.

However, in the case of China where most large companies are spin-offs from SOEs and where government control is intertwined with the financial market, the “value enhancing role” of external board members is not clear. Tian and Lau (2001) find that in a relatively underdeveloped institutional market, such as China, the selection of truly motivated directors is inefficient and/or even independent board members cannot effectively carry out the major functions such as monitoring and advising (Adams and Ferreira, 2007). Most top managerial teams in SOEs are appointed for achieving political agenda, not for relevant industry or business expertise (Cao, Lemmon, Pan, Tian, Qian, 2012).

In 2006, the Chinese government revised corporate laws by clarifying a two-tiered board structure for Chinese firms as follows:

- 1) The board of directors, styled after the Anglo-Saxon model of corporate governance, oversees and aids management decision making, with a min of 30% independent directors.
- 2) Although the board of directors is the main decision-making authority, a supervisory board can overturn their decisions.

This two-tier board structure is a blend of the agency model, established in Anglo-Saxon economy, and the stakeholder model of corporate governance, established in German and Japan. It undoubtedly has duplication and overlapping functions in decision making and dilutes the authority of both boards and increases the administering costs for firms.

Besides board composition, board size and CEO’s role as chairman can also play important role in corporate governance. While larger boards may incentivize inside directors to reveal their superior information, these boards are also likely to have higher verification and coordination costs for outside directors and result in free rider problems (Raheja, 2005). Empirically, Yermack (1996) identifies a significant negative relationship between corporate performance and board size. However, larger board size can be valuable in Chinese firms

because it can facilitate the establishment of important political connections by appointing well connected board members. Interestingly, Chen, Fan and Wong (2007) find that political connection is associated with value destruction in newly listed Chinese firms.

Another major body of literature focuses on CEOs role in the board. Brickley et al. (1997) show when the CEO is not the chairman of the board, the improvement in corporate performance is often associated with greater information and agency costs in large US firms. Goyal and Park (2002) and Ghosh and Sirmans (2003) also find that the combination of the CEO and board chairman duties has a significantly inverse effect on firm performance, both in industrial and in real estate firms. In contrast, Tian and Lau (2001) show CEOs with dual positions are associated with improved performance in Chinese listed firms.

ROA is an important accounting-based indicator measuring a firm's profitability. This measure is less sensitive to market movement and sentiment than stock returns; thus, we rely on ROA in examining the value enhancing role of alternative corporate governance mechanisms. We formalize the following hypotheses about traditional corporate governance measures (such as board composition, board size, board chairman status) in relation with Chinese real estate firm performance as follows:

Hypothesis 1: Good corporate governance (proxied by smaller board, more independent directors and non-CEO chairman) are related to better future firm performance.

The reform of transforming SOEs into modern profitable corporations through a series of reform measures is one important target and component of economic reforms in China, while the government usually retains directly or indirectly a controlling ownership stake for the listed SOEs (Chen et al., 2006). While Sun and Tong (2003) find a negative effect of state ownership on firm performance in Chinese listed companies, political connection can be quite valuable in the real estate industry where land use allocation and land sale are often driven by political motivation. Recently, Haveman, Jia, Shi, and Wang (2013) argue that

while China experience great economics and financial reforms, in the absence of political reforms political connections actually become even more important in business success.

Financial economists also pay attention to the impact of CEO share ownership on firm performance. Inside ownership by managers is usually regarded as an effective device to align interests of outside shareholders with those of managers (Jensen and Meckling, 1976). However, Denis et al. (1997) find that greater top executive stock ownership share results in the less effective internal monitoring mechanisms. Ghosh and Sirmans (2003) provide complementary evidence that ownership share is negatively associated with the performance of REIT firms. Nonetheless, Chen et al. (2006) emphasize that in the emerging economy, such as China, main blockholders of Chinese listed firms are still state or state-related legal person institutions and consequently executive and managerial ownership is negligible. As a consequence, we suggest the following hypothesis:

Hypothesis 2: Higher level of state or CEO stock ownership is associated with worse future performance in Chinese listed real estate companies.

Last, we consider whether past executive compensation is associated with better firm performance in the future. That is, we test whether executives better incentivized by pay to do better job or with better pay less likely to expropriate perquisites from the company.

Hypothesis 3: Higher executive compensation is related with better future firm performance.

We are aware that executive compensation can be endogenously related to performance. For example, large firms enjoy better financial and political connection and therefore systematically outperform other firms and their CEOs receive larger compensation. To disentangle the effect of firm characteristics and effective corporate governance, we focus on the change in the executive compensation rather than the level. The change in compensation is less prone to the endogeneity issue arisen from firm size and political connections.

3.2 Determinants of Executive Compensation

Given that executive compensation plays an important role in understanding the performance of listed real estate companies, we also investigate the important determinants of the executive compensations. We consider three categories of variables: (1) firm past performance; (2) board composition; and (3) ownership structure variables. Below we discuss the expected effect on compensation for each category.

To mitigate agency problems between firm owners and managers, performance linked contracts are usually designed for developed countries in order to align shareholders' and managers' interest. Murphy (1985) provides some evidence that corporate performance drives executive remuneration after controlling for firm and individual-specific characteristics. However, other studies (e.g., Jensen and Murphy, 1990; Rosen, 1992) find at best weak relationship between executive compensation and firm performance. Relevant real estate studies (Pennathur and Shelor, 2002; Ghosh and Sirmans, 2005) find that stock returns, market based performance indicator, are significantly and positively related to changes in executive compensations.

In China, performance-based component in executive compensation packages has been only introduced in 1992 under the executive compensation reform. The implementation of this reform has been rather slow due to extensive state ownership and indirect/direct government control in the financial system (Kato and Long, 2005). Thus, cash bonus compensation for performance is only partially adopted (Kato and Long, 2005) while stock options compensation packages have yet to be adopted market-wide.

In the context of real estate firms, Pennathur and Shelor (2002) find that REITs stock returns, changes in real estate investment, and changes in operating cash flows can explain the changes in REITs CEO compensation. Ghosh and Sirmans (2005) find that board structure such as board size and the percentage of older outside directors are also related to

the changes in REITs CEO compensation. This result demonstrates how the monitoring role of board mitigates agency problems in REITs firms. Based on extent corporate governance studies, we construct the following hypothesis concerning executive compensation in conjunction with firm performance in the context of Chinese real estate firms:

Hypothesis 4: Executive compensation in Chinese real estate companies is significantly and positively associated with past firm performance.

The governance literature finds that different aspects of ownership structure play an important role in determining the cross-section variation of executive compensation. For example, CEO stock ownership, measured by the percentage of outstanding shares owned by the CEO, significantly positively related to CEO compensation. Kato and Long (2005) suggest that the relationship between firm performance and executive compensation is weaker in firms with significant government ownership. In a sample of listed Chinese firms, where state ownership is dominant, Li et al. (2007) show that state ownership is significantly and negatively associated with executive compensation, while CEO's stock ownership is significantly positively associated with compensation.

In addition to the ownership structure variables, Core et al. (1999) also show that CEO compensation is significantly negatively related to the percentage of inside directors on the board, but significantly positively related to board size. Nevertheless, Tian and Lau (2001) find no evidence of value added of outside directors' in the Chinese institutional context. In contrast, more recently Li et al. (2007) find that there is a significant positive impact of the higher percentage of outside directors in the board on CEO compensation. In addition, the phenomenon of CEO duality has been fairly common in Chinese listed companies, suggesting that there may not be enough cross-sectional variation to detect any significant relation with CEO compensation. Taken together, we formulate the following hypothesis about the role of ownership and board composition in executive compensation:

Hypothesis 5: *Executive compensation in Chinese real estate firms can be explained by ownership composition and board structure.*

4. Data

4.1. Data Description

For our empirical analysis, we collect both financial and corporate governance data for China's listed real estate companies from the China Stock Market and Accounting Research (CSMAR) Financial Database. The database is compiled by Shenzhen GTA Information Technology Co. and is the most comprehensive database of listed Chinese firms. While the data coverage goes back to the beginning of 1990s, we restrict our analysis to the sample period of 1999 to 2012, when executive compensation and ownership information becomes readily available for most firms.²

[Insert Table 1]

4.2. Corporate Governance Measures

In order to measure board independence, we use board size (i.e., number of board directors), the number of outside directors who sit on the board, and CEO/chairman duality measures (i.e., the CEO also acts as the chairman of the board). Table 1 shows that the average board size is about 9, with 3.2 outside directors. While in the aggregate board size there was no significant change throughout the sample period, we do note a slight increasing trend in the number of outside directors in Panel B of Table 1. Addressing "entrenched" board structure, we note that about 30% of our sample observations, the CEO serves a dual role, and also acts as the chairman of the board.

One of our main ownership structure measures, the ratio of state-owned shares to total

² The CSMAR database has been employed by recent studies such as Bai et al. (2004), Kato and Long (2005) and Liu and Lu (2007).

shares, is about 14.7% on average. We also note a trend here consistent with privatization, as the average state-ownership, about 23.8% during the earlier part of the sample (1999-2006), declines to 8.9% during the later part (2007-2012). In contrast, we find only an insignificant increase in CEO ownership from 21.7% to 25.9% in comparing the 1999-2006 and 2007-2012 sample periods. We use the CEO ownership dummy variable, which equals 1 if the CEO owns at least some fraction of the shares. In more than half the sample, CEO ownership is economically negligible. Thus, analyzing the effect of CEO ownership (as % of the total shares) would be likely driven by the extreme outliers where CEO ownership is high.

In China, stock options have not yet become an extensively used compensation form (Firth et al. 2006), and cash compensation is still the dominant form of executive compensation and makes up the largest component of total executive compensation (Kato and Long, 2005). Top executive compensation in Chinese listed firms has been required to disclose in the annual reports since 1998, and is usually the total cash compensation including three components—base salary, bonuses, and commissions. We rely on the total cash compensation of top three executives (the three highest-paid executives) from CSMAR, as it is the most readily available. Table 1 shows that the average compensation of the three highest-paid executives of Chinese real estate companies has experienced tremendous growth during our sample period. Based on the average *LogExeccomp* of 11.9 in earlier years and 13.01 in later years, the executive compensation grew from approximately RMB 54,000 to RMB 450,000, reflecting an almost tenfold increase.

4.3 Control Variables

Tian and Lau (2001) argue that firm age and size are important in understanding the performance and corporate governance mechanisms of Chinese enterprises. Compared with those younger firms, older Chinese firms are usually richer and/or have greater industry experience but maybe more affected by the traditional operation and management styles. As a

result, firm age can probably produce significant impact on corporate performance and governance mechanisms. Firm age and firm size are generally strongly correlated, and similar arguments can be made with firm size. In our sample, the average firm age is 14 years, and the firm size is RMB 2.4 billion. These two control variables are especially of interest in examining CEO compensation because larger companies' are generally more likely to offer larger compensation packages given the bigger resource base and better growth opportunities, and potentially better government connections (see, e.g., Firth et al. 2006).

Executive age is another important concern in many studies looking at the determinants of executive compensation due to executive career development (Li et al. 2007). Ryan and Wiggins (2001) explore the complex relation between managerial horizon and executive compensation. Their results provide supportive evidence that executive age has a significant impact on the structure of executive compensation. Finally, given that the personal characteristics of corporate executives usually play an important role in affecting their managerial performance (e.g., Rapaport, 1995; Mohan and Ruggiero, 2003), we also include the gender of executive as a control variable.

5. Empirical Results

To explore the effectiveness of corporate governance in Chinese listed real estate firms, we employ panel data regression analysis research method.³ Two major categories of panel data regression models are fixed-effect and random-effect models. Our Hausman test specification test results significantly reject most of the null hypotheses that there is no correlation between the explanatory variables and the error terms, as we test whether fixed-effect or random effect model is more suitable. This implies that the fixed-effect estimator is likely to be preferred. However, the fixed-effect model cannot compute the impact of time-invariant explanatory

³ Multivariate linear regression analysis has been usually utilized in the previous literature to investigate the corporate governance-related issues of various categories of listed firms due to the shortage of corporate governance data with time.

variables, while the random-effect model can estimate such impact. Hence, we employ both models in our empirical analyses. We control for time and fixed effects in the first model.

5.1. Corporate Governance and Firm Performance

In analyzing the relation between corporate governance and firm performance, we use return-on-asset (ROA) as the key performance measure. We primarily rely on the accounting based performance measure, ROA, because it is less sensitive to investor sentiment and market frictions (informational and technology frictions) that are still prevalent in the Chinese stock market. In Chinese stock exchanges, the trading is dominated by retail traders and there are regular policy changes, as well as permanent restrictions on foreign trading that result in temporarily or permanent mispricing (e.g., uninformative stock returns). We predict performance for the next year using corporate governance measures and firm characteristics information from the previous year. In Table 2, we adopt three regression models to examine the role of board structure (*BoardVar*), ownership (*OwnerVar*), and compensation (*Execcomp*) respectively. In model 4, we include all these governance measures in one regression model to test which one is the most effective corporate governance measure.

$$\text{Model 1: } ROA = \alpha + \sum \beta_i \text{BoardVar} + \sum \theta_k \text{ControlVar} + \varepsilon$$

$$\text{Model 2: } ROA = \alpha + \sum \gamma_j \text{OwnerVar} + \sum \theta_k \text{ControlVar} + \varepsilon$$

$$\text{Model 3: } ROA = \alpha + \lambda \text{Execcomp} + \sum \theta_k \text{ControlVar} + \varepsilon$$

$$\text{Model 4: } ROA = \alpha + \sum \beta_i \text{BoardVar} + \sum \gamma_j \text{OwnerVar} + \lambda \text{Execcomp} + \sum \theta_k \text{ControlVar} + \varepsilon$$

[Insert Table 2]

Table 2 shows that the past executive compensation is the only significant corporate governance measure that is positively related to future firm performance in Chinese real estate companies. We do not find any significant relationship between board structure and firm performance. The state ownership is only weakly related with ROA under random-effect

model in Panel B but not under fixed-effect model in Panel A. The insignificant role of state ownership is not that surprising because state ownership is relatively low in our sample firms in comparison with other industries in China.

Among the control variables, we find that larger firms have lower ROA which is almost by construction as ROA is calculated based on revenues relative to asset base and for larger firms, with larger asset base this measure tends to be lower.

Overall, we only find support for Hypothesis 3 but not for Hypothesis 1 or 2. We find no significant relationship between firm performance with board size, number of independent directors, CEO duality, state ownership and CEO ownership. This implies that executive compensation is the only effective corporate governance measure that improves the management efficiency of the listed real estate companies by aligning the interests of shareholders with those of executives. We will explore in details the drivers of executive compensation in the next section to better understand why this governance measure works.

5.2. Determinants of Executive Compensation

We explore the determinants of executive compensations (EC) in this section. We examine both the level (in Table 3) and the changes (in Table 4) in EC for the top three executives in Chinese real estate firms. We adopt ROA and stock returns as the accounting-based and the market-based performance measures respectively to test Hypothesis 4 and 5. In Models 5 and 6, we consider the two alternative measures separately:

Model 5-6:

$$EC_t = c + \alpha_1 Stock\ Ret + \sum \eta_i BoardVar + \sum \Psi_j OwnerVar + \sum \rho_k ControlVar + \varepsilon$$

$$EC_t = c + \alpha_2 ROA + \sum \eta_i BoardVar + \sum \Psi_j OwnerVar + \sum \rho_k ControlVar + \varepsilon$$

In Model 7, we consider the two measures together to understand which measure is more important in determining CEO compensation changes.

$$EC_t = c + \alpha_1 StockRet + \alpha_2 ROA + \sum \eta_i BoardVar + \sum \Psi_j OwnerVar + \sum \rho_k ControlVar + \varepsilon$$

In case of the stock return measure, we separate the positive and negative stock returns because the compensation packages are usually sticky. It is more difficult to reduce CEO compensation for bad past stock return but it is quite a norm to reward managers for good stock performance. Table 3 reports the regression results for the determinants of EC.

[Insert Table 3]

Table 3 shows that the level of EC is primarily a function of firm characteristics. The top three executives who include CEO in larger and older companies receive higher compensation on average. We also find that the level of EC is related to past year stock performance. Model 7 shows that the positive coefficient on the *PosStockRet* is statistically significant at 1% significance level. This is the first time in the literature that documents that in Chinese real estate firms, executives are rewarded for good past stock performance with higher cash compensation. The significant positive coefficient is similar under fixed-effect or random-effect models. Moreover, the negative coefficient on the *NegStockRet* is statistically significant at 10% significance level in Model 7 under random-effect model. This result implies that in underperforming firms the compensation packages are smaller compared to well performing firms, on average. We find support for Hypothesis 4.

However, we do not find any support for Hypothesis 5. There is no significant relation between board structure or ownership structure and EC. This result is similar to our earlier results that these corporate governance measures do not predict better firm performance, casting doubts on the effective governance role of board and ownership structure.

To reduce the endogeneity concern, we re-run the test by employing the change in executive compensation as the dependent variable. The results are reported in Table 4.

[Insert Table 4]

Similar to the earlier results, we still find that the change in EC is significantly related to

stock returns from 1999 to 2012 in Chinese real estate firms. We also find that EC is sticky as the positive change in EC is related to positive past stock return but EC is not reduced when the past stock return is negative. In sum, we find that top executive compensation packages are short sighted, adjusted explicitly based on past positive stock returns.

We do not find any significant relationship between the change of EC and accounting-based performance measure, such as ROA or Tobin's Q. We also do not find any significant relationship between the change of EC and board structure under random-effect model. Again, these results suggest that Hypothesis 5 is not supported.

Next, we perform further robustness tests on our results by taking into account a major regulatory change in the Chinese financial market in 2006. The reform of company act was implemented in 2006. The new corporate guidelines may affect the corporate governance mechanisms after 2006. Hence, we split our sample into two subsample periods at 2006. Table 5 performs the same tests as Table 4 by splitting our sample into two sub-periods.

[Insert Table 5]

Results from Panel A and Panel B of Table 5 suggest that past stock returns become more important corporate governance measures in more recent years after the reform. Positive returns are associated with an increase in the future executive compensation. In the earlier sample period (from 1999 to 2006) shown in Panel B under random-effect model, we do not find any significant relationship between stock returns and the change in executive compensation while it is significant under fixed-effect model in Panel A.

Taken it together, our results from Table 4 and 5 suggest that stock returns are used to adjust executive compensation in Chinese real estate firms. However, we are cautious about drawing further conclusion on the effectiveness of using past stock returns to compensate executives. The Chinese stock exchanges, the financial system and the legal system are still in transition (e.g., not fully open for foreign competition and not fully adopted international

reporting standards). Thus, governance tools may be further improved when the market further opens up and competition becomes stronger in the executives labor market.

6. Conclusion

China is the world's largest emerging economy and its corporate governance system is attracting much attention from both academics and practitioners. This study examines different aspects of corporate governance such as board structure, ownership structure and executive compensations, in Chinese real estate firms. Although the corporate governance system in the unique Chinese institutional context is usually characterized as a state-dominated ownership structure, we find little effects of state ownership on the performance of Chinese real estate firms. We also find little evidence that board structure effectively disciplines management as board structure (such as number of independent directors) is mandated. Interestingly, we find that executive compensation is the single, most important corporate governance mechanism for better firm performance during the later years, suggesting a growing importance of compensation packages.

We find that the most important driver for executive compensation is past stock returns in recent years whereas traditional valuation measure, such ROA, is not important. This finding suggests that the current corporate governance mechanism in real estate firms appears to depend heavily on short-term value-creation signals, rather than long-term signals.

Overall, we identify unique features in Chinese real estate firms' corporate governance. The executive cash compensation has been an effective governance tool in fostering growth in these firms while the state ownership and board structure play a minor role in disciplining managers. The real estate industry seems to quickly utilize financial market information to discipline managers instead. Our findings provide supporting evidence for continued reforms in corporate governance in Chinese firms (e.g., using stock options to compensate managers).

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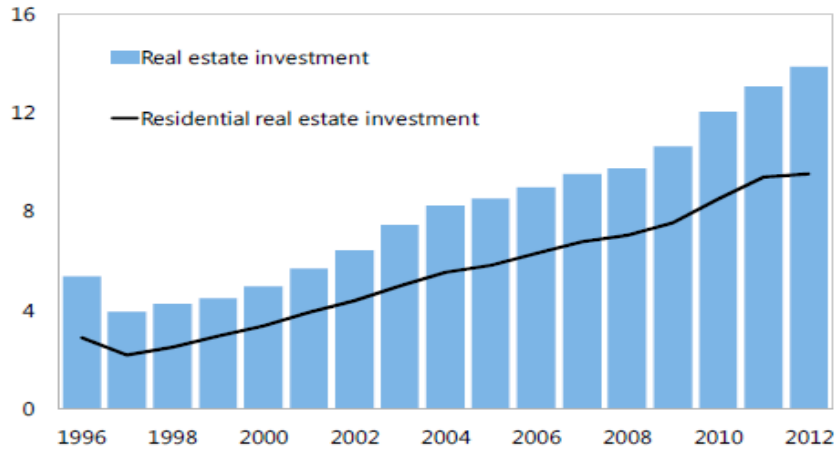
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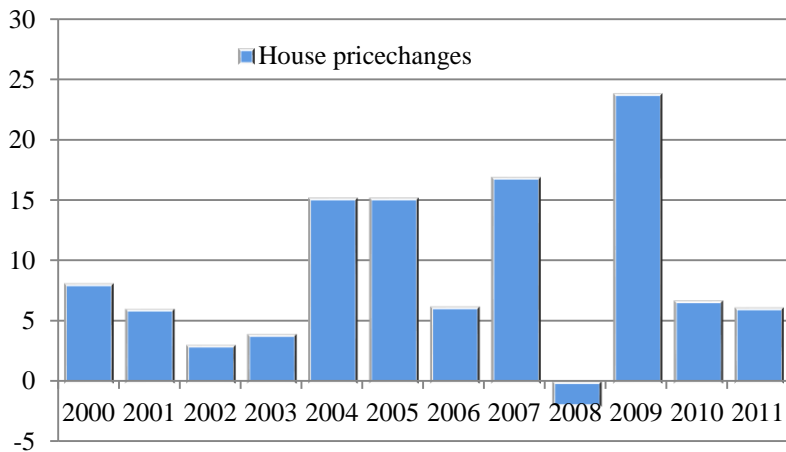
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Figure 1. Investment in Real Estate Sector as a Percentage of GDP



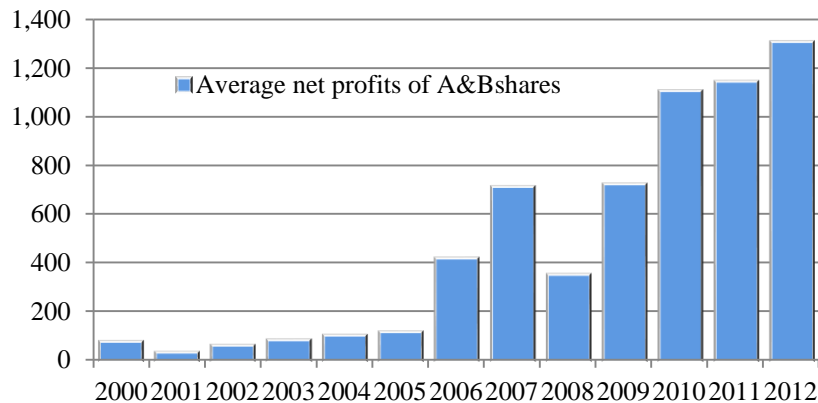
Source: IMF, 2013 country studies series

Figure 2. Average Annual Change in House Price Value in China



Source: Milkenin Institute calculations based on Chinese national Bureau of Statistics,

Figure 3. Average Net Profit of Listed Chinese Real Estate Firms (in Million RMB)



Source: CSMAR Series of GTA Research Service Center

Table 1. The Summary Statistics of Chinese Real Estate Firms

This table reports the summary statistics of variables used in this analysis from 1999 to 2012. *ROA* is the annual return on asset in decimal. *StockRet* is the annual stock return in decimal place. *Board_size* is the number of board members. *Outside_directors* is the number of board members who are not non-firm related. *D_CEO_chairman* is a dummy variable that equals one if the CEO is the chairman of the board and zero otherwise. *State_ownership* and *CEO_ownership* are the fraction of state versus CEO ownership of the total shares outstanding. *D_CEOowner* is a dummy variable that equals one if the CEO has some ownership stake in the firm and zero otherwise. *Firm_age* is the age of the firm since its establishment in years. *Logsize* is the natural logarithm of the firm's total assets. *Gender* is a dummy variable that equals one if the CEO is a male and 0 otherwise. *CEOage* is the age of the CEO in years. *LogCEOage* is the natural logarithm of the age of the CEO. *LogExeccomp* is the natural logarithm of the total executive compensation of the top three executives as reported in CSMAR in Chinese Yuan. Panel A reports the summary statistics of the variables for the entire sample from 1999 to 2012. Panel B reports the summary statistics of the variables for the two subperiods: 1999-2006 and 2007-2012 respectively.

Panel A: Overall Sample

Variables	Obs	Mean	Std. Dev.	Min	Max
ROA	951	0.022	0.168	-3.206	2.339
StockRet	951	0.204	0.879	-0.903	5.582
Board_size	951	9.128	2.187	3.000	20.000
Outside_directors	951	3.240	0.912	0.000	8.000
D_CEO_chairman	951	0.304	0.460	0.000	1.000
State_ownership	951	0.147	0.222	0.000	0.798
CEO_ownership	951	0.003	0.023	0.000	0.276
D_CEOowner	951	0.243	0.429	0.000	1.000
Firm_age	951	14.737	4.597	4.000	30.000
Logsize	951	21.667	1.411	15.418	26.414
Gender	951	0.820	0.108	0.444	1.000
CEOage	949	46.842	3.317	36.833	59.632
LogExeccomp	951	12.585	1.089	9.170	16.355

Panel B: Two Subperiods

Earlier years: 1999-2006 (368 obs)					Later years: 2007-2012 (583 obs)				
Variables	Mean	Std. Dev.	Min	Max	Variable	Mean	Std. Dev.	Min	Max
ROA	0.007	0.201	-3.206	0.514	ROA	0.040	0.140	-0.635	2.339
StockRet	0.012	0.574	-0.825	5.151	StockRet	0.325	1.007	-0.903	5.582
Board_size	9.087	2.023	3.000	15.000	Board_size	9.154	2.286	4.000	20.000
Outside_directors	2.995	0.919	0.000	5.000	Outside_directors	3.395	0.873	2.000	8.000
D_CEO_chairman	0.304	0.461	0.000	1.000	D_CEO_chairman	0.304	0.460	0.000	1.000
State_ownership	0.238	0.245	0.000	0.750	State_ownership	0.089	0.184	0.000	0.798
CEO_ownership	0.217	0.413	0.000	1.000	CEO_ownership	0.259	0.438	0.000	1.000
D_CEOowner	0.000	0.001	0.000	0.024	D_CEOowner	0.005	0.029	0.000	0.276
Firm_age	11.704	3.528	4.000	24.000	Firm_age	16.652	4.141	5.000	30.000
Logsize	21.096	1.000	17.967	23.814	Logsize	22.028	1.511	15.418	26.414
Gender	0.834	0.105	0.500	1.000	Gender	0.811	0.109	0.444	1.000
LogCEOage	3.818	0.076	3.606	4.023	LogCEOage	3.861	0.062	3.666	4.088
LogExeccomp	11.906	0.976	9.170	14.982	LogExeccomp	13.013	0.928	9.721	16.355

Table 2. The Impact of Corporate Governance role on Real Estate Firm Performance

This table reports the significance of corporate governance in affecting real estate firm performance. The dependent variable is the firm performance measure, return on asset (ROA). The key independent variables are corporate governance measures such as board composition (board size, number of outside directors, and CEO duality dummy), ownership structure (state and CEO ownership) and executive compensation (LogExeccomp). Other control variables include firm age, firm size, CEO's gender, and CEO age that are defined in Table 1. All corporate governance measures and firm controls are based on information from the previous year. The panel regression analyses cluster the standard errors by firm. The firm fixed effect is used in Panel A whereas the firm random effect is used in Panel B. We denote statistical significance of 1 percent, 5, percent and 10 percent with ***, ** and * respectively.

	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
	Fixed effect regression model				Random effect regression model			
Board structure (BoardVar)								
Board_size	-0.002			-0.001	-0.001			-0.001
	(-0.47)			(-0.37)	(-0.54)			(-0.64)
Outside_directors	-0.011			-0.013	0.001			-0.005
	(-1.01)			(-1.17)	(0.15)			(-1.01)
D_CEO_chairman	-0.026			-0.027	-0.026*			-0.025
	(-1.18)			(-1.20)	(-1.66)			(-1.64)
Ownership								
State_ownership		0.055*		0.053*		0.013		0.024
		(1.92)		(1.91)		(0.60)		(1.19)
D_CEOowner		0.019		0.018		0.006		0.004
		(1.34)		(1.43)		(0.56)		(0.45)
Compensation								
LogExeccomp			0.025*	0.028*			0.032**	0.034**
			(1.67)	(1.71)			(2.67)	(2.69)
Controls								
Firmage	0.008*	0.008*	0.003	0.005	0.002*	0.003*	0.000	0.001
	(1.99)	(2.41)	(0.69)	(1.04)	(1.99)	(2.32)	(0.62)	(1.00)
Logsize	-0.021*	-0.022*	-0.030*	-0.030*	-0.005	-0.005	-0.021	-0.022
	(-1.82)	(-1.84)	(-2.16)	(-2.14)	(-0.48)	(-0.50)	(-1.42)	(-1.47)
Gender	-0.049	-0.019	0.005	-0.005	-0.049	-0.044	-0.006	-0.021
	(-0.60)	(-0.24)	(0.06)	(-0.06)	(-0.90)	(-0.76)	(-0.10)	(-0.34)
LogCEOage	0.087	0.071	0.112	0.075	0.229	0.225	0.183	0.178
	(0.38)	(0.31)	(0.47)	(0.34)	(1.31)	(1.28)	(1.18)	(1.15)
Constant	0.132	0.122	-0.110	0.018	-0.719	-0.727	-0.622	-0.589
	(0.15)	(0.13)	(-0.11)	(0.02)	(-1.38)	(-1.37)	(-1.26)	(-1.23)
Observations	951	951	951	951	951	951	951	951
AdjR-squared	0.019	0.017	0.019	0.030	0.011	0.010	0.017	0.024

Table 3. The Level of Executive Compensation and Corporate Governance Measures

This table reports the regression analysis on the level of executive compensation. The dependent variable, *Log_Execcomp*, is the natural logarithm of the executive compensation (for top three executives) reported in Chinese Yuan. The key independent variables are firm performance measures (NegStockRet, PosStockRet, and ROA) and two sets of corporate governance measures including board composition (board size, number of outside directors, and CEO duality dummy), and ownership structure (state and CEO ownership). Other control variables include firm age, firm size, CEO's gender, and CEO age that are defined in Table 1. All corporate governance measures and firm controls are based on information from the previous year. The panel regression analyses cluster the standard errors by firm. The firm fixed effect is used in Panel A whereas the firm random effect is used in Panel B. We denote statistical significance of 1 percent, 5, percent and 10 percent with ***, ** and * respectively.

	(5)	(6)	(7)	(5)	(6)	(7)
	LogExeccomp			LogExeccomp		
	Fixed effect regression model			Random effect regression model		
Performance measures						
NegStockRet	-0.093 (-1.47)		-0.100 (-1.56)	-0.101 (-1.57)		-0.111* (-1.68)
PosStockRet	0.062*** (2.94)		0.060*** (2.85)	0.072*** (3.31)		0.070*** (3.19)
ROA		0.175* (1.69)	0.168* (1.68)		0.236** (2.06)	0.226** (2.05)
Boardstructure (BoardVar)						
Board_size	0.002 (0.09)	-0.000 (-0.02)	-0.000 (-0.01)	-0.005 (-0.27)	-0.008 (-0.41)	-0.007 (-0.38)
Outside_directors	0.035 (0.99)	0.031 (0.88)	0.031 (0.87)	0.072** (2.20)	0.070** (2.21)	0.068** (2.15)
D_CEO_chairman	0.013 (0.20)	0.015 (0.23)	0.017 (0.26)	0.011 (0.16)	0.013 (0.20)	0.015 (0.23)
Ownership (OwnerVar)						
State_ownership	0.177 (0.99)	0.164 (0.91)	0.163 (0.90)	0.003 (0.02)	-0.035 (-0.21)	-0.031 (-0.19)
D_CEOowner	-0.010 (-0.09)	-0.017 (-0.17)	-0.011 (-0.11)	0.030 (0.33)	0.027 (0.30)	0.032 (0.35)
Controls						
Firmage	0.138*** (10.59)	0.138*** (10.50)	0.136*** (10.38)	0.101*** (8.64)	0.098*** (8.41)	0.096*** (8.33)
Logsize	0.350*** (6.91)	0.356*** (7.23)	0.356*** (7.28)	0.429*** (9.77)	0.441*** (10.98)	0.439*** (10.97)
Gender	-1.110** (-2.45)	-1.124** (-2.49)	-1.098** (-2.43)	-1.157*** (-2.80)	-1.163*** (-2.83)	-1.136*** (-2.77)
LogCEOage	-1.235* (-1.89)	-1.176* (-1.80)	-1.221* (-1.88)	-0.582 (-0.97)	-0.458 (-0.76)	-0.507 (-0.85)
Constant	8.581*** (3.32)	8.325*** (3.20)	8.450*** (3.27)	4.922** (2.05)	4.318* (1.80)	4.483* (1.88)
Observations	951	951	951	951	951	951
R-squared	0.646	0.646	0.648	0.638	0.636	0.6386

Table 4. The Change of Executive Compensation and Corporate Governance Measures

This table reports the regression analysis on the change of executive compensation. The dependent variable, $\Delta Execcomp$, is the change in the natural logarithm of the executive compensation (for top three executives) reported in Chinese Yuan. The key independent variables are firm performance measures (NegStockRet, PosStockRet, and ROA) and two sets of corporate governance measures including board composition (board size, number of outside directors, and CEO duality dummy), and ownership structure (state and CEO ownership). Other control variables include firm age, firm size, CEO's gender, and CEO age that are defined in Table 1. All corporate governance measures and firm controls are based on information from the previous year. The panel regression analyses cluster the standard errors by firm. The firm fixed effect is used in Panel A whereas the firm random effect is used in Panel B. We denote statistical significance of 1 percent, 5, percent and 10 percent with ***, ** and * respectively.

	(5)	(6)	(7)	(5)	(6)	(7)
	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$
	Fixed effect regression model			Random effect regression model		
Performance measures						
NegStockRet	-0.021 (-0.28)		-0.021 (-0.29)	-0.008 (-0.11)		-0.010 (-0.14)
PosStockRet	0.066*** (2.77)		0.066*** (2.78)	0.064*** (2.78)		0.063*** (2.76)
ROA		0.030 (0.56)	0.015 (0.29)		0.054 (1.15)	0.038 (0.80)
Boardstructure (BoardVar)						
Board_size	0.008 (0.52)	0.006 (0.43)	0.007 (0.50)	0.018** (2.08)	0.017** (1.96)	0.018** (2.09)
Outside_directors	-0.041 (-1.56)	-0.040 (-1.53)	-0.041 (-1.57)	-0.040* (-1.93)	-0.038* (-1.86)	-0.041** (-1.97)
D_CEO_chairman	-0.051 (-1.22)	-0.051 (-1.17)	-0.051 (-1.21)	-0.026 (-0.96)	-0.022 (-0.81)	-0.025 (-0.93)
Ownership (OwnerVar)						
State_ownership	0.090 (0.90)	0.087 (0.86)	0.088 (0.88)	0.086* (1.65)	0.079 (1.47)	0.085 (1.63)
D_CEOowner	-0.000 (-0.00)	-0.005 (-0.09)	-0.000 (-0.00)	-0.013 (-0.43)	-0.015 (-0.47)	-0.014 (-0.45)
Controls						
Firmage	-0.009 (-1.16)	-0.007 (-0.88)	-0.009 (-1.14)	0.001 (0.33)	0.002 (0.50)	0.001 (0.32)
Logsize	0.032 (1.14)	0.029 (1.00)	0.033 (1.14)	0.015 (1.60)	0.014 (1.56)	0.015 (1.60)
Gender	0.127 (0.49)	0.093 (0.36)	0.128 (0.50)	0.024 (0.19)	0.024 (0.18)	0.028 (0.22)
LogCEOage	-0.673 (-1.45)	-0.648 (-1.40)	-0.671 (-1.45)	-0.591*** (-3.11)	-0.595*** (-3.13)	-0.595*** (-3.13)
Constant	2.107 (1.27)	2.120 (1.26)	2.095 (1.26)	2.023*** (2.92)	2.063*** (2.96)	2.039*** (2.95)
Observations	951	951	951	951	951	951
R-squared	0.027	0.017	0.027	0.023	0.014	0.023

Table 5. The Subsample Analysis on the Change of Executive Compensation

This table shows the subsample regression on the change of executive compensation from 1999 to 2006 and 2007 to 2012 respectively. The dependent variable, $\Delta Execcomp$, is the change in the natural logarithm of the executive compensation (for top three executives) reported in Chinese Yuan. The key independent variables are firm performance measures (NegStockRet, PosStockRet, and ROA) and two sets of corporate governance measures including board composition (board size, number of outside directors, and CEO duality dummy), and ownership structure (state and CEO ownership). Other control variables include firm age, firm size, CEO's gender, and CEO age that are defined in Table 1. The panel regression analyses cluster the standard errors by firm. The firm fixed effect is used in Panel A whereas the firm random effect is used in Panel B. We denote statistical significance of 1 percent, 5, percent and 10 percent with ***, ** and * respectively.

Panel A. Subsample regression analyses of change in executive compensation with fixed-effect

	(5)	(6)	(7)	(5)	(6)	(7)
	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$	$\Delta Execcomp$
	1999-2006			2007-2012		
Performance measures						
NegStockRet	0.268 (1.33)		0.244 (1.19)	-0.061 (-0.86)		-0.067 (-0.95)
PosStockRet	-0.177 (-0.63)		-0.181 (-0.65)	0.063*** (2.78)		0.065*** (2.96)
ROA		0.099* (1.66)	0.079 (1.32)		-0.088 (-0.66)	-0.119 (-0.89)
Boardstructure (BoardVar)						
Board_size	0.043** (2.51)	0.042** (2.47)	0.043** (2.50)	0.008 (0.70)	0.011 (0.93)	0.008 (0.70)
Outside_directors	-0.057* (-1.86)	-0.054** (-2.00)	-0.060* (-1.94)	-0.041 (-1.24)	-0.044 (-1.31)	-0.040 (-1.20)
D_CEO_chairman	-0.060 (-0.97)	-0.050 (-0.79)	-0.057 (-0.91)	-0.009 (-0.29)	-0.006 (-0.19)	-0.011 (-0.36)
Ownership (OwnerVar)						
State_ownership	0.124 (1.06)	0.143 (1.20)	0.117 (0.99)	0.084 (0.91)	0.105 (1.09)	0.084 (0.90)
D_CEOowner	-0.022 (-0.37)	-0.023 (-0.38)	-0.026 (-0.42)	-0.013 (-0.36)	-0.016 (-0.45)	-0.013 (-0.36)
Controls						
Firmage	0.003 (0.34)	0.004 (0.44)	0.004 (0.38)	-0.003 (-0.73)	-0.005 (-1.03)	-0.003 (-0.70)
Logsize	-0.007 (-0.20)	-0.006 (-0.17)	-0.010 (-0.28)	0.011 (1.14)	0.007 (0.63)	0.010 (0.98)
Gender	0.144 (0.47)	0.137 (0.44)	0.163 (0.52)	0.032 (0.26)	0.055 (0.43)	0.030 (0.24)
LogCEOage	-0.653* (-1.85)	-0.665* (-1.80)	-0.633* (-1.74)	-0.588** (-2.37)	-0.642** (-2.49)	-0.565** (-2.25)
Constant	2.456** (2.01)	2.406* (1.94)	2.437** (1.98)	2.235** (2.47)	2.588*** (2.79)	2.177** (2.39)
Observations	368	368	368	583	583	583
R-squared	0.042	0.028	0.042	0.027	0.016	0.028

Panel B. Subsample regression analyses of change in executive compensation with random-effect

	(5)	(6)	(7)	(5)	(6)	(7)
	$\Delta\text{Execcomp}$	$\Delta\text{Execcomp}$	$\Delta\text{Execcomp}$	$\Delta\text{Execcomp}$	$\Delta\text{Execcomp}$	$\Delta\text{Execcomp}$
	1999-2006			2007-2012		
Performance measures						
NegStockRet	0.268 (1.33)		0.244 (1.19)	-0.061 (-0.86)		-0.067 (-0.95)
PosStockRet	-0.177 (-0.63)		-0.181 (-0.65)	0.063*** (2.78)		0.065*** (2.96)
ROA		0.099* (1.66)	0.079 (1.32)		-0.088 (-0.66)	-0.119 (-0.89)
Boardstructure (BoardVar)						
Board_size	0.043** (2.51)	0.042** (2.47)	0.043** (2.50)	0.008 (0.70)	0.011 (0.93)	0.008 (0.70)
Outside_directors	-0.057* (-1.86)	-0.054** (-2.00)	-0.060* (-1.94)	-0.041 (-1.24)	-0.044 (-1.31)	-0.040 (-1.20)
D_CEO_chairman	-0.060 (-0.97)	-0.050 (-0.79)	-0.057 (-0.91)	-0.009 (-0.29)	-0.006 (-0.19)	-0.011 (-0.36)
Ownership (OwnerVar)						
State_ownership	0.124 (1.06)	0.143 (1.20)	0.117 (0.99)	0.084 (0.91)	0.105 (1.09)	0.084 (0.90)
D_CEOowner	-0.022 (-0.37)	-0.023 (-0.38)	-0.026 (-0.42)	-0.013 (-0.36)	-0.016 (-0.45)	-0.013 (-0.36)
Controls						
Firmage	0.003 (0.34)	0.004 (0.44)	0.004 (0.38)	-0.003 (-0.73)	-0.005 (-1.03)	-0.003 (-0.70)
Logsize	-0.007 (-0.20)	-0.006 (-0.17)	-0.010 (-0.28)	0.011 (1.14)	0.007 (0.63)	0.010 (0.98)
Gender	0.144 (0.47)	0.137 (0.44)	0.163 (0.52)	0.032 (0.26)	0.055 (0.43)	0.030 (0.24)
LogCEOage	-0.653* (-1.85)	-0.665* (-1.80)	-0.633* (-1.74)	-0.588** (-2.37)	-0.642** (-2.49)	-0.565** (-2.25)
Constant	2.456** (2.01)	2.406* (1.94)	2.437** (1.98)	2.235** (2.47)	2.588*** (2.79)	2.177** (2.39)
Observations	368	368	368	583	583	583
R-squared	0.042	0.038	0.042	0.027	0.016	0.028