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Running Title: Executives' pay-performance link in China

Executives' pay-performance link in China: Evidence from independent and gender-diverse compensation committees.

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Running Title: *Executives' Pay-Performance Link in China*

Executives' Pay-Performance Link in China: Role of Independent and Gender Diverse Compensation Committees

Abstract

Purpose: In this paper, we investigate whether an independent and gender-diverse compensation committee strengthens the relationship between top managers' pay and firm performance in Chinese companies. We also investigate whether the independent compensation committee composed of all male directors is effective in designing the optimal contract for executives.

Methodology: We use data from A-share listed companies on the Shenzhen and Shanghai stock exchanges from 2005 to 2015. As a baseline methodology, we use pooled ordinary least square (OLS) regression to draw inferences. In addition, cluster OLS regression, two-stage least square regression, the two-stage Heckman test, and the propensity score matching method are also used to control for endogeneity issues.

Results: We find evidence that an independent or gender-diverse compensation committee strengthens the link between top managers' pay and firm performance; that the presence of a woman on the compensation committee enhances the positive influence of committee independence on this relationship; that a compensation committee's independence or gender diversity are more effective in designing top managers' compensation in legal-person controlled firms than they are in state-controlled firms; that gender diversity on the compensation committee is negatively associated with top managers' total pay; and that an independent compensation committee pays top managers more.

Practice Implications: Our results highlight the role of an independent compensation committee in designing optimal contracts for top managers. We provide empirical evidence that a woman on the compensation committee strengthens its objectivity in determining top managers' compensation. Our finding supports regulatory bodies' recommendations regarding independent and women directors.

Social implications: Our findings contribute to the recent debate about gender equality around the globe. Given the discrimination against women, many regulatory bodies mandate a quota for women on corporate boards. Our study findings support the regulatory bodies' recommendations by highlighting the economic benefit of having women in top management positions.

Originality: This study contributes to literature by investigating the largely overlooked questions of whether having a gender-diverse or independent compensation committee strengthens the relationship between top managers' pay and firm performance; whether an independent compensation committee is more efficient in setting executives' pay when it is gender-diverse; and whether the effect of independent directors and female directors on top managers' compensation varies based on the firm's ownership structure. Overall, the main contribution of the study is that we provide robust empirical evidence in support of the managerial power axiom.

Keywords: Compensation committee, Gender diversity, Top managers' compensation, Top managers' pay-performance relationship.

JEL Classification: J16; M52; G39

1. Introduction:

The recent stratospheric increase in top management's compensation has attracted the attention of legislators, the media, and academics alike (e.g., Murphy 2012). Excessive compensation (e.g., Core et al. 2008; Bugeja et al. 2016), little or no relationship between compensation and firm performance (Gigliotti 2013; Usman et al. 2015), and the downward stickiness of compensation (e.g., Kim et al. 2017) have led to significant negative attention. Managerial power theory (Bebchuk et al. 2002; Bebchuk & Fried 2003, 2004, 2006) as it relates to managerial compensation has become a popular viewpoint among researchers and regulatory bodies. This theory proposes that managerial power over the board or the compensation committee leads to rent-extracting activities like increased compensation and no relationship or a weak relationship between pay and firm performance (See Bebchuk et al. 2002; Bebchuk & Fried 2003, 2004, 2006). However, the proponents of optimal contracting theory recognize that the interests of the managers and owners often do not converge, and seek to settle this issue by providing the incentive compensation that results in a stronger relationship between top managers' pay and firm performance. The optimal contracting theory proposes that boards of directors engage in arms-length bargaining with top managers to design contracts for top managers that can reduce agency issues. However, there is ample evidence that this process is broken because board members and compensation committee members face social, psychological and political pressure in decision-making (Devers et al. 2007; Finkelstein et al. 2009). Therefore, the managerial power theory is more popular now than optimal contracting theory. Fundamentally, the managerial power theory deepens the optimal contracting theory's assumptions by providing the managerial power argument as a reason for boards' failure to find optimal contracts (Van Essen et al. 2015).

The proponents of managerial power theory contend that an independent board or compensation committee facilitates arms-length transactions and leads to the objective determination of top managers' compensation. Therefore, one of the hallmarks of the code of best corporate governance around the globe (e.g., the Chinese Securities Regulation Committee in China) is the requirement for independent directors who are not under the influence of hiring managers. Independent board and compensation committees are considered essential for sound internal governance in general and particularly for top managers' optimal contracting, but this prescription has not been validated empirically (See Capezio et al. 2011). The majority of previous studies have reported no influence or a positive influence of compensation committee independence on CEO pay and no influence on the relationship between CEO pay and firm performance (See, e.g., Main & Johnston 1993; Anderson & Bizjak 2003; Capezio et al. 2011; Gregory & Smith 2012; Conyon, 2014). Similarly, few existing studies in the context of China report that neither the compensation committee presence nor the independence limits the CEO pay or strengthen the CEO pay-performance link (e.g. Zhu et al., 2009; Chen et al., 2010; Conyon and He, 2011 & 2012; Luo and Jackson, 2012; Chen et al., 2014; Usman et al., 2018) except few (e.g., Luo, 2015). However, a common limitation of the most studies conducted in the Chinese context is that they only focus on the association between the presence of compensation committee and CEO pay (e.g.,; Chen et al., 2010; Conyon and He, 2011 & 2012; Luo and Jackson, 2012; Chen et al., 2014) rather than the association between compensation committee structure and executives pay (e.g., Zhu et al., 2009; Usman et al., 2018). Therefore, we revisit the question concerning whether or not an independent compensation committee limits the top managers' total compensation, and strengthens the relationship between top managers pay and firm performance in China.

Another issue that has arisen concerns women directors on the board. Policymakers and legislators around the world market are encouraging the representation of women on the board through persuasion and/or legislative quotas. For example, Terjesen et al. (2016) documented that sixteen countries' codes of corporate governance encourage female representation on boards (e.g., Australia, Canada, Sweden, the United Kingdom, Pakistan), while in fourteen countries female representation on boards is mandatory for publically listed companies and state-owned firms (e.g., Belgium, France, India, Italy, Norway, Spain). Even in other countries, the proportion of females on boards is increasing. For example, in the US the proportion of females rose from 5.6 percent in 1990 to 12.3 percent in 1999 (Farrell & Hersch 2005) and to 16.9 percent in 2014 (Catalyst Census 2014). In China, the proportion of female directors is also increasing, rising from 9.1 percent in 2005 to 14.0 percent in 2015 (See Table 2).

Given the increased attention to the issue of female directors from legislators around the globe, several studies have investigated whether female directors affect boards' efficiency and their committees' functioning (e.g., Adams & Ferreira 2009; Nielsen & Huse 2010; Aldamen et al. 2016; Bugeja et al. 2016). However, the question concerning whether the presence of woman on compensation committees facilitates the objective determination of top managers' compensation has been overlooked by previous studies, with the few exceptions (e.g., Bugeja et al., 2016; Strobl et al., 2016; Usman et al., 2018). However, the findings of these limited studies were inconsistent. For example Usman et al., (2018) and Bugeja et al. (2016) reported that the gender diverse compensation committee limits the CEO pay, while Strobl et al. (2016) did not find such evidence. Given the inconsistent findings and paucity of studies in this emerging field, the second objective of this study is to determine whether a gender-diverse compensation committee limits top managers' total compensation and strengthens the relationship between their pay and firm performance.

Despite increased attention from legislators, practitioners, and academics, researchers have failed to recognize the role of compensation committee independence in a gender-diversity framework, so we wonder whether we can be confident that an independent compensation committee composed of all male directors is independent of hired managers. Therefore, our third objective is to determine whether the impact of compensation committee independence on executives' total pay and on the link between pay and firm performance is more pronounced when the compensation committee has female directors.

We make three substantial conceptual and empirical contributions by extending the literature in three ways. First, the main contribution of the study is that, we provide robust empirical evidence in support of the managerial power axiom (Bebchuk et al. 2002; Bebchuk & Fried 2003, 2004, 2006). We reconcile inconclusive results on whether an independent compensation committee strengthens the relationship between top managers' pay and firm performance link (e.g., Newman & Mozes 1999; Capezio et al. 2011; Kent et al. 2016) by first time considering the conditions under which independent compensation committee is effective in reinforcing this link. Thus, we contribute to the literature by considering and providing first evidence that an independent compensation committee is efficient in setting executives' pay when it is gender-diverse than when it is not.

Second, this study contributes to the literature by providing empirical evidence from an emerging economy (China). Like other emerging economies, the Chinese market is less developed than many Western countries. Many economists have suggested that the markets and organizations of developed and developing countries have basic structural and institutional differences that limit the generalizability of findings from the research to developing economies (Ghosh, 2006).

According to Fan et al. (2011), knowledge about how executives in developing markets are being compensated and promoted is limited. Therefore, we choose China, the world's largest developing economy and the second-largest economy, thereby adding to the limited but growing literature investigating the role of compensation committee structure on executives pay outside of the developed economies.

China's listed firms have a unique institutional background that may influence decisions related to executives' pay contracts. For instance, in China the concentrated ownership is apparent and investor protection and governance structures are weaker than the developed countries. The real controlling power in the majority of companies lies with the state or the legal individual owners. These governance and institutional differences may affect the compensation committee's efficiency and their decisions about top management's compensation. Therefore, we consider the unique Chinese institutional factors while examining the governance role of independent and gender diverse compensation committees on designing the compensation contracts of top management, because the researchers argue that the most promising governance research should focus on understanding the institutional context in which the governance occurs (e.g. Davis, 2005). However, executive compensation and corporate governance literature generally overlook the within country institutional factors, focusing instead on behavioral perspectives and economic theories (Judge et al., 2008). Similarly, the boardroom gender diversity literature ignores institutional factors when exploring the effect of gender diversity on firm governance or performance. There are few studies which consider the effect of cross-country institutional contingencies on firm governance (e.g. Van Essen et al., 2012, 2013). Therefore, the researchers have suggested that top managers' pay varies from country to country because of the differences in their institutional backgrounds, such as ownership structures, governance structures, and regulatory frameworks (e.g., Conyon & Murphy 2000). The general conclusion of these studies is that different institutional contingencies (for example corporate governance codes, legal systems, and government rules and regulations) influence the cross-country differences in corporate governance and CEO compensation designs (Usman et al., 2018). We complement these studies by exploring how within country institutional factors influence the governance role of independent and female directors in setting the executives' pay contracts. Thus, we contribute to institutional theory by providing novel insight to the existing literature by showing that the effect of independent and female directors on top managers' compensation varies by the type of ownership.

Third, we contribute toward the limited literature on gender diverse compensation committees and CEO pay (e.g. Bugeja et al., 2016; Strobl et al., 2016) by not only investigating the effect of a gender diverse compensation committee on top managers total pay, but also on top managers' pay-performance link (Usman et al., 2018). In addition, we contribute to the literature by focusing on top management team compensation rather than focusing only on CEO pay, because a majority of previous studies on executive compensation only focused on CEO pay (e.g., Gregory & Smith 2012; Conyon 2014; Bugeja et al., 2016; Strobl et al., 2016 Usman et al., 2018). However, in our robustness test we also investigated the effect of independent and gender diverse compensation committees on CEO pay and the CEO pay-performance link.

Fourth, the significance of our study stretches beyond bridging this gap because we provide empirical evidence on two trends in the world market that encourage or require an independent compensation committee and female presence on the board. Because of this attention, it is imperative to investigate the role of independent directors and female directors on internal governance processes at the board and subcommittees levels.

2. Theoretical background and hypotheses development

Traditional agency theory posits that firms' owners should offer performance-based compensation to their agents while gauging the degree to which firm performance is sensitive to compensation (Hartzell & Starks 2003; Schultz et al. 2013). Of course, owners do not set their top managements' compensation directly; instead, the board of directors delegates its compensation committee to do so on the shareholders' behalf. Therefore, it is the compensation committee's responsibility to engage in arm's-length bargaining with top managers regarding their pay and to design optimal contracts independently that can reduce agency issues. In contrast to agency theory, managerial power theory argues that boards of directors often fail to engage in arm's-length bargaining because of social, political, and psychological influences (Devers et al. 2007; Finkelstein et al. 2009) and that they may act in favor of top managers because of their managerial power. In line with the managerial power theory, several studies have found that managers receive more pay when they are powerful (e.g., Abed et al. 2014; Van Essen et al. 2015). Therefore, proponents of the managerial power theory contend that structural arrangements for the board and the compensation committee are essential in order to improve internal monitoring and the design of optimal contracts for top managers. For example, a compensation committee that is dominated by executive directors can dilute the committee's independence and lead to ineffective decision-making regarding top managements' compensation contracts. Therefore, code of best corporate governance around the globe recommends that companies' compensation committees be dominated by independent directors (e.g., CSRC 2005). In line with this prescription, Kent et al. (2016) documented that an independent compensation committee strengthens the relationship between CEO pay and firm performance, but most other studies do not support this prescription (e.g., Conyon 1997; Newman & Mozes 1999; Capezio et al. 2011). Therefore, we reinvestigate this issue, expecting that such independence not only restricts top managers' total pay but also strengthens the link between their pay and firm performance. We hypothesize:

H1: An independent compensation committee is negatively associated with top managers' total compensation.

H2: An independent compensation committee strengthens the relationship between top managers' pay and firm performance.

Another feature of the compensation committee's composition is gender diversity, which has been overlooked by the literature. However, the research on corporate boards' gender diversity and firm performance is growing. The published limited studies on compensation committees' gender diversity and CEO pay does not explicitly develop the theoretical framework (See Bugeja et al., 2016; Strobl et al., 2016; Usman et al., 2018) Therefore, we focus on three theoretical approaches—traditional agency theory, managerial power theory, and stakeholder theory—to associate gender diversity on compensation committees with top managers' pay.

Traditional agency theory is the theory researchers' use most commonly to justify how gender diversity can contribute to boards' effectiveness and firm performance (Terjesen et al. 2009). This theory suggests that the board of directors play a critical monitoring and controlling role to address agency issues (Fama & Jensen 1983; Reguera-Alvarado et al. 2017). One of the prevailing assumptions of this theory is that the board's independent directors will act independently from the executive directors to safeguard the shareholders' interest. Studies on the association between gender diversity on the corporate board and corporate governance have found that gender diversity in the boardroom improves the board's

independence (Carter et al. 2010). For example, Adams & Ferreira (2009) argued that female directors improve the board's monitoring because they are not in the "old boys club." The authors also found that female directors improve male directors' attendance, that women participate more in monitoring than male directors do, that a female presence on the board increases the sensitivity of CEO turnover to stock returns, and that female directors demand more audit efforts. Other studies have found that a high proportion of women directors on the board improve strategic control (Nielsen & Hus 2010) and earnings quality (Srinidhi et al. 2011). To summarize, women directors are tough monitors (Adams & Ferreira 2009), increase the board's independence (Carter et al. 2010; Lucas- Pérez et al. 2015), reduce costs associated with agency issues (Reguera-Alvarado et al. 2017), and improve the corporate governance processes (Hillman et al. 2002; Adams & Ferreira 2009). It stands to reason, then, that a woman on the compensation committee will improve the committee's effectiveness and increase the likelihood that the committee will tie top managements' compensation to firm performance.

The proponents of managerial power theory argue that an independent board or compensation committee increases the likelihood that top managers' compensation will be determined objectively (See Bebchuk et al. 2002; Bebchuk & Fried 2003, 2004, 2006). Given the qualities of women directors, we expect that the presence of a woman on the compensation committee improves the committee's independence and monitoring, thereby limiting the top managers' power over the committee regarding their pay. Therefore, we expect that a gender-diverse committee is negatively associated with top managers' total compensation and is positively related to the relationship between top managers' pay and firm performance.

An extension of agency theory is stakeholder theory, which proposes that the board of directors safeguards the interests of both shareholders and stakeholders (Freeman 1984). This approach contends that, since it is managers' fiduciary duty to protect the long-term interests of all stakeholders (Evan and Freeman, 1988), the board's composition should be adjusted to reflect the stakeholder's expectations (Huse & Rindova 2001). Similarly, Hillman et al. (2001) suggested that having women directors on the board can help the company to understand its stakeholders and to manage its relationship with them. Studies have found that female directors are more sensitive to social and environmental issues (Williams 2003), so they can improve the company's performance in this area, along with the firm's reputation among its wider stakeholders (See Bear et al. 2010). Studies have also documented that gender diversity in the boardroom is positively associated with corporate social responsibility (e.g., Francoeur et al. 2008; Setó-Pamies, 2015) and that firms that are more socially responsible are more likely to recognize the demotivating potential of significant pay gaps between the workers and top management (Wade et al. 2006). Socially responsible firms are also more likely to be interested in sharing the value the company creates with all stakeholders, rather than only with top management (Higginson & Clough 2010). These arguments suggest that presence of a woman on a firm's compensation committee will result in spending less on top managements' pay, focusing instead on performance-based compensation.

Therefore, in alignment with the agency theory, managerial power theory, and stakeholder theory, we expect that a gender-diverse compensation committee not only limits the CEO's total pay but also strengthens the link between top managers' pay and firm performance. We hypothesize that:

H3: The presence of a woman on the compensation committee is negatively associated with top managers' compensation.

H4: The presence of a woman on the compensation committee strengthens the relationship between top managers' pay and firm performance.

Studies on the independence of compensation committees and executive pay have failed to decode the economic effectiveness of an independent compensation committee. For example, most studies have reported that an independent compensation committee does not limit the CEO's compensation and does not increase the sensitivity of his or her pay to firm performance (See Main & Johnston 1993; Anderson & Bizjak 2003; Capezio *et al.* 2011; Gregory & Smith 2012; Conyon 2014). Similarly, Capezio *et al.* (2011) concluded their literature review by saying that the prescription to have an independent compensation committee is based on the faith of the regulatory bodies and is not an empirically validated fact. Moreover, Conyon (2014) and Kent (2016) concluded that the literature on compensation committees' independence is still inconclusive. However, none of the previous studies have considered the role of compensation committee independence within a gender-diversity framework, so an independent compensation committee that is composed of only male directors may not be truly independent. For example, Terjesen *et al.* (2016 p. 453) observed:

“A large board of directors with few women directors may be interpreted as being selected by the executive management network or as a sign that internal agents (executive officers) wield significant power over the selection of outside agents. ... In reality, a board with a gender imbalance may be independent of the executive management to the same degree as a gender-diverse board, but the lack of women increases doubts from appointed directors, shareholders, and any stakeholders who interact with the firm regarding the board's independence.”

Therefore, we expect that the influence of an independent compensation committee on top managers' total compensation and on the relationship between top managers' pay and firm performance will be more pronounced when there is at least one female director on the compensation committee. Therefore, we hypothesize that:

H5: The negative effect of compensation committee independence on top managers' total compensation is greater when the compensation committee is gender-diverse.

H6: The positive effect of compensation committee independence on the relationship between top managers' pay and firm performance relationship is greater when the compensation committee is gender-diverse.

3. Methodology

3.1. Data source and sample

We use data from all A-share firms listed on the Shenzhen and Shanghai stock exchanges for a period of eleven years from 2005 to 2015. The study period starts in 2005 because, before this year, the Chinese Securities Regulation Committee (CSRC) regulations did not require firms to disclose top managers' pay separately. Data regarding the variables is obtained from the Chinese Stock Market and Accounting Research (CSMAR) database. Our initial sample was 20,271 firm-year observations. We excluded firm-years in which firms had no board compensation committee because our focus is on compensation committee. We also dropped firm-years for which data regarding the variables were missing. Thus, our final usable sample is reduced to 11,051 firm-year observations. Details about the sample are provided in Table 2.

3.2. Variables

In our study, top managers' compensation refers to the average pay of top managers—that is, the CEO and executive directors. Following in the footsteps of previous studies on top management's compensation, we use top managers' total cash compensation as our dependent variable (e.g., Conyon & He 2011, 2012). Despite new CSRC (2005) regulations that introduced equity incentives to top management, equity compensation in China is still rare (Conyon & He 2012). To reduce the difference in top management's pay across firms and the effect of heteroscedasticity, we use the log of top managers' average total cash compensation.

In alignment with previous studies, we use return on assets (*ROA*) to measure firm performance (e.g., Conyon 2014; Kent et al. 2016; Kim et al. 2017; Siddique et al., 2019). We define committee independence as the proportion of independent directors on the compensation committee (*CIND*) (e.g., Conyon & Peck 1998). We measure gender diversity on the compensation committee in two ways: As a dummy variable (*FDUMMY*) that is equal to 1 if at least one woman director is a member of the compensation committee (and 0 otherwise) and as a continuous measure (*FPRO*) that is defined as the proportion of female directors on the compensation committee (See Bugeja et al. 2016; Usman et al., 2018). As in most of the literature on top management compensation, we control for corporate governance, ownership structure, and firm economic variables (e.g., Bugeja et al. 2016; Kent et al. 2016; Usman et al., 2018).

Corporate governance controls include CEO role duality (*CDUAL*), CEO tenure (*CTENUR*), board size (*BS*), board independence (*BI*), and compensation committee size (*CCS*). CEO duality and CEO tenure are manifestations of managerial power and are positively associated with CEO compensation (Bebchuk & Fried 2004). Board size and board independence are included, as larger boards and independent boards can monitor top management's actions more closely (See Lipton & Lorsch 1992; Daily & Schwenk 1996). Similarly, the compensation committee size is included because it is expected that a larger committee is more effective in setting top managers' compensation. Ownership-structure variables include the percentage of the CEO's equity holdings (*CSH*), the percentage of institutional shareholdings (*ISH*), and state-owned enterprises (*SOE*). CEO equity ownership can help to alleviate agency issues (Ozkan 2007). We control for institutional shareholding because institutional investors are considered to be effective in monitoring top management's actions, with the result that top managers have less influence over their pay (Bebchuk & Fried 2004). In line with the approach of Chinese scholars, we also control for state-owned enterprises (See Zhang et al. 2016). The firm economic variables include firm size (*FS*), financial leverage (*FL*), and book-to-market ratio (*BM*). A detailed description of each variable is given in Table 1.

[Insert Table 1 about here.]

3.3. Variables' descriptive statistics

Table 2 illustrates the descriptive statistics. Panel A of Table 2 shows the descriptive statistics for gender diversity in the boardroom, gender diversity on the compensation committee, and the proportion of independent directors on the compensation committee by year. The percentage of firms that have at least one female director on their boards increased from 63.3 percent in 2005 to 75.5 percent in 2015. Similarly, the average proportion of women directors increased from 9.9 percent in 2005 to 14.0 percent in 2015. The percentage of firms with gender-diverse compensation committee was 32.7 percent in 2005 as compared to 45.8 percent in 2015. Panel B of Table 2 shows the descriptive statistics for all

variables for the whole sample. The average proportion of female directors on the compensation committee in the full sample is 14 percent, and the average proportion of independent directors on the compensation committee in the full sample is 66 percent. This voluntary increase in female representation on China's corporate boards indicates recognition of women's distinct managerial skills and controlling abilities. The average board size of China's listed firms during the sample period is 10.17, out of which 38 percent are independent directors. Table 3 shows the correlations between the variables, as the correlation coefficients between all the independent variables except gender diversity (0.883) are less than 0.50. Therefore, to mitigate the possibility of multicollinearity, we estimated the regression separately for each measure of gender diversity.

[Insert Table 2 about here.]

[Insert Table 3 about here.]

3.4. Model estimation

We first investigate the impact of an independent or gender-diverse compensation committee on top managers' total pay by estimating equation 1. To determine whether an independent or gender-diverse compensation committee moderates the relationship between top managers' pay and firm performance, we estimate equation 2. To determine the influence of an independent compensation committee on top managers' total compensation and on the relationship between top managers' pay and firm performance within a gender-diversity framework, we run equations 1 and 2 for firms with and without gender-diverse compensation committees, respectively. Similar to previous studies on the compensation committee independence and gender diversity (see Newman & Mozes 1999; Bugeja et al. 2016; Kent et al. 2016), we use Ordinary Least Square (OLS) regression as a baseline methodology to estimate equations (1) and (2):

$$TMP_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 CIND_{it} + \beta_3 C_Female_{it} + \sum_{i=1}^n \beta_n Controls_{it} + \varepsilon_{it} \quad (1)$$

$$TMP_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 CIND_{it} + \beta_3 C_Female_{it} + \beta_4 ROA * CIND_{it} + \beta_5 ROA * C_Female_{it} + \sum_{i=1}^n \beta_n Controls_{it} + \varepsilon_{it} \quad (2)$$

Where *TMP* is the log of the average total pay of firms' top managers; *ROA* is return on assets; *CIND* is a proxy for an independent compensation committee; *C_Female* refers to measures of compensation committees' gender diversity (*FDUMY* and *FPRO*); *Controls* refers to corporate governance, ownership structure, and firm economic control variables (*CDUAL*, *CTENUR*, *BS*, *BI*, *CCS*, *ISH*, *CSH*, *SOE*, *FS*, *FL*, and *BM*). A detailed description of each variable is given in Table 1.

4. Results and Discussion

Table 4 reports the results concerning the impact of an independent and a gender-diverse compensation committee on top managers' total pay and on the link between top managers' pay and firm performance. The table provides the results on the influence of firm performance, compensation committee independence, and gender diversity on top managers' total pay. The coefficient of *ROA* remains positive and significant, indicating that there is a positive relationship between top managers pay and firm performance in Chinese firms. This result validates other studies that have also reported on this positive relationship (e.g., Conyon & He 2011, 2012; Zhang et al. 2016).

The coefficient of gender diversity measures (*FDUMY* and *FPRO*) is negative and significant. These results support our third hypothesis, that the compensation committee's gender diversity limits top managers' total compensation. Bugeja et al. (2016) also reported a negative association between the compensation committee gender diversity and CEO compensation. The coefficient of compensation committee independence (*CIND*) remains positive and significant in the first two models in Table 4. This result does not support our first hypothesis, as it suggests that the independence of compensation committee increases the top managers' compensation, nor does the finding support our arguments related to the agency theory, the managerial power theory and the effectiveness of an independent compensation committee. This conclusion is in line with the conclusion of other studies that have found a positive or insignificant association between the compensation committee's independence and CEO's total compensation (e.g., Main & Johnston 1993; Anderson & Bizjak 2003; Capezio et al. 2011; Gregory & Smith 2012; Conyon 2014). However, it is too early to conclude that independent compensation committees are ineffective. Conclusions should be drawn only after addressing the overlooked question concerning whether an independent compensation committee design optimal contracts for top managers that can strengthen the relationship between top managers' pay and firm performance? Therefore, in line with a few earlier studies (e.g., Conyon 1997; Capezio et al. 2011; Kent et al. 2016), we investigate the influence of the compensation committee's independence on the relationship between top managers' pay and firm performance.

Table 4 shows the results of our central question on whether an independent or gender-diverse compensation committee strengthens the link between top managers' pay and firm performance. The interaction variable between gender diversity measures and firm performance (*ROA_FDUM* and *ROA_FPRO*) and that between the compensation committee independence measure and firm performance (*ROA_CNID*) remain positive and highly significant. These results support our second and fourth hypotheses, that an independent compensation committee or the gender-diverse compensation committee strengthens the link between top managers' pay and firm performance.

A few studies have also reported that the compensation committee independence is positively associated with the relationship between CEO pay and firm performance (Conyon & Peck 1998; Kent et al. 2016). However, our findings contradict the results of majority of previous studies (e.g., Conyon 1997; Newman & Mozes 1999; Capezio et al. 2011). In line with the managerial power theory, our results suggest that an independent compensation committee facilitates the objective of designing the optimal compensation contract for top managers' and that such a committee will pay top managers for performance. Regarding the compensation committee's gender diversity, our results validate the finding of previous studies that have reported that women directors may improve corporate internal governance by monitoring the top managers' actions and decisions (e.g., Gul et al. 2008; Adam & Ferreira 2009; Gul et al. 2011). In our study, the presence of women on the compensation committee improves the committee's effectiveness and its ability to design optimal contracts for top managers. These findings support the agency theory and managerial power theory which suggest that the presence of women directors on the compensation committee improves the committee's independence and objectivity in designing the optimal pay contracts for the top management. Moreover, these findings also support our arguments based on the stakeholder theory which suggest that presence of a woman on a firm's compensation committee will result in spending less on top managements' pay, focusing instead on performance-based compensation.

Table 5 shows the results as they relate to hypotheses 5 and 6. The coefficient of *CNID* remains positive in firms with an all-male compensation committee and those with at least one female on their compensation committee. Moreover, a *Chi2*

test of the difference between the coefficients further assures us that there is no significant difference between *CNID* coefficients. These results do not support our third hypothesis. However, the coefficient of *ROA_CNID* is insignificant in all-male compensation committees and positive and significant in gender-diverse compensation committees, indicating that an independent compensation committee is not effective in designing optimal contracts unless it is gender-diverse. This finding supports our sixth hypothesis, that the effect of a compensation committee's independence on the relationship between top managers' pay and firm performance is stronger when the compensation committee is gender-diverse. These findings also support the results of Terjesen et al. (2016), who reported that independent directors are more productive in the sense of firm performance when the board is gender-balanced. Moreover, these findings reconcile the majority of previous studies that reported no influence of an independent compensation committee on the relationship between top managers' pay and firm performance (e.g., Conyon 1997; Newman & Mozes 1999; Capezio et al. 2011) by providing gender diversity as a condition under which independent committees design optimal contracts for top managers.

The control variables behave in keeping with earlier studies on top managers' compensation (e.g., Bugeja et al. 2016; Kent et al. 2016; Zhang et al. 2016). Of the corporate governance controls, *DUAL*, *CTENUR*, and *CCS* are consistently positive and significant in all models. The positive coefficient of CEO duality and CEO tenure support the managerial power argument that managerial power is related to higher compensation for top managers. The positive coefficient *CCS* suggests that a larger compensation committee compensates its top managers more than a smaller committee does. All the ownership-structure variables remain significant in all models reported in Table 4. The *CSH* and *SOE* remain negative, and *ISH* remains positive. Therefore, ownership by the CEO or the state is negatively associated with top managers' compensation, while institutional ownership is associated with increased compensation. Among the firm economic controls, *FS* remains significantly positive, while *BM* remains significantly negative in all models. These results support the notion that larger firms and firms with high growth opportunities pay more to their top managers.

To summarize, we find that the presence of female directors on the compensation committee not only limits the top managers' total compensation (e.g., Bugeja et al. 2016) but also strengthens the link between top managers' pay and firm performance. We also find that an independent compensation committee is positively associated with top managers' total compensation and the relationship between top manager's pay and firm performance (e.g., Conyon & Peck 1998; Kent et al. 2016). In addition, we find that an independent compensation committee is more effective in designing optimal contracts when it is gender-diverse. Overall, our findings support the managerial power theory and agency theory that an independent compensation committee is effective in independently setting top managers' compensation and that the presence of a woman on the compensation committee improves the committee's effectiveness in setting the top managers' compensation and strengthens the independent directors' effectiveness.

[Insert Table 4 about here.]

[Insert Table 5 about here.]

4.1. Additional analysis (*Whether the effect of independent directors and female directors on top managers' compensation varies based on the ownership structure or not?*)

Given the distinct nature of Chinese companies ownership structure, the question arises concerning whether the effect of independent directors and female directors on top managers' compensation varies based on the firm's ownership structure.

The ownership structure is highly concentrated in Chinese firms, and the real power in most companies lies with the state owners or legal-person owners. Controlling shareholders may elect their preferred delegates on the boards and use them to their benefit, sometimes at the cost of minority shareholders (Liu et al. 2014), but both state and legal-person owners have distinct management motives. For example, state firms may have social, political, or multiple objectives, such as employment growth or gender equality, rather than profit maximization (Conyon & He 2011). In contrast, legal-person owners have strong motives for profit maximization and, therefore, strong incentives to monitor the board's managerial activities (Liu et al. 2014).

As different dominant owners have different motives, we seek to determine whether independent directors and women directors on the compensation committee have the same influence on top managers' compensation under different ownership structures. We split our sample into two subsamples: state-owned firms and legal-person owned firms. The state subsample includes firms with state ownership but no legal-person ownership, so the state has power over the selection of independent directors and female directors. In the legal-person owner subsample, the firms have legal ownership but no state ownership, so the legal-person owners have power over the selection of board of directors. Table 6 portrays the results of the state subsample and the legal-person subsample.

The coefficient of *CFD* is insignificant in model 1 for the state subsample, while it is negative and significant for the individual subsample in model 3. These results indicate that the presence of women directors on the compensation committee limits the top managers' compensation in legal-person owned firms but not in state owned firms. However, the coefficient of *ROA_CFD* in model 2 and 3 remains positive, indicating that gender-diverse compensation committees effectively link top managers' pay to firm performance in both legal-person owned and state owned firms. The *CNID* coefficient remains positive and significant in both subsamples in models 1 and 3, indicating that independent compensation committees increase top managers' compensation in both types of firms. However, the coefficient of *ROA_CNID* is insignificant in model 2 and significant and positive in model 4, indicating that independent compensation committees effectively links top managers' pay with firm performance in legal-person-controlled firms but not in state-controlled firms.

Taken together, our results suggest that the compensation committee's independence or gender diversity is more effective in designing top managers' compensation in legal-person-controlled firms than it is in state-controlled firms.

[Insert Table 6 about here.]

4.2. Robustness checks

4.2.1. *Alternative Measure*

To check the robustness of our findings, we use alternative measures for the compensation committee's gender diversity, compensation committee's independence, and top managers' compensation. We replace the gender-diversity measures with the number of female directors on the compensation committee (*FNUM*). We replace the compensation committee's independence measure with *CINDM* and *CINDF*, where *CINDM* is dummy variable that equals 1 if the firm has a higher proportion of independent directors on its compensation committee than the sample median, and 0 otherwise. *CINDF* is also a dummy variable that equals 1 if all the compensation committee members are independent directors and 0 otherwise. In line with earlier studies on top managements' compensation, we replace our dependent variable *TMP* with

CEOP, where *CEOP* is measured as the log of CEO total cash compensation. For parsimony, we report only the result of the moderating effect of these new measures on the relationship between top managers' pay and firm performance. Models 1 and 2 (Table 7) illustrate the results for the *CEOP* measure. Similar to the *TMP* results, the coefficients of *ROA_FDUM*, *ROA_FPRO*, and *ROA_CIND* remain positive and highly significant for the *CEOP* models. These results are consistent with our previous findings that the compensation committee's independence or gender diversity strengthens the link between top managers' pay and firm performance. Models 3 and 4 (Table 7) show the results for alternative measures of compensation committees' independence and gender diversity. The coefficient of the interaction variables of the new measures of the compensation committee's gender diversity and independence with firm performance (*ROA_CINDM*, *ROA_CINDF*, and *ROA_FNUM*) remain positive and significant, which further validates our previous findings that the gender-diverse or independent compensation committee strengthens the link between top managers' pay and firm performance. We also used the Blau index (Blau 1977) and the Shannon index (Shannon 1948) as a comprehensive measure of the compensation committee diversity, and our findings remain consistent. For reasons of parsimony, the results for Blau index and Shannon index measures are not reported.

4.2.2. Endogeneity

There may be the case that our OLS results are misleading due to endogeneity. For example, in some cases, a stronger relationship between top managers' pay and firm performance is due to the other characteristics of firms (i.e., due to different board structure, ownership structure, and firm economic condition) rather than gender diversity or independence of compensation committees. Therefore, these firm characteristics are associated with the stronger relationship between top managers' pay and firm performance. In addition, someone may argue that female presence is an endogenous choice variable for the firm, and that firms that are better governed, and put larger emphasis on having optimal compensation contracts in place, may also be more likely to appoint women to their boards and to the compensation committee. That is, those firms with larger female presence are potentially inherently different from firms with no females, or a low female share. To deal with these issues, we follow the related literature (Bugeja et al., 2016; Usman et al., 2018) and use two different statistical methodologies (two-stage least square regression and propensity score matching method).

4.2.2.1. Two-stage least square regression

Following the Usman et al. (2018) we used the lagged values of compensation committee's gender-diversity measures as instrument variables, then the contemporaneous industry mean of compensation committees gender-diversity measures, and finally both lagged values of compensation committee's gender diversity and the industry mean of compensation committee's gender diversity measures are used as instrument variables. For brevity, we report only the results for the *CFD* and *CIND* measures in model 5 (Table 7). Again, the interaction variables *ROA_CIND* and *ROA_CFD* remain significantly positive, indicating that the compensation committee's independence and gender diversity strengthens the relationship between top managers' pay and firm performance. As robustness checks, we used all other measures of compensation committees' gender diversity and independence but for brevity we only report the result of one measure of compensation committee gender diversity and independence.

4.2.2.2. Propensity score matching method

The propensity-score-matching (PSM) method allows us to control for firms without gender diverse compensation committees and without high proportion of independent directors on compensation committee that probable have no observable differences in characteristics from those firms with gender diverse compensation committee and with high proportion of independent directors on compensation committees. So the companies in each pair of matched companies are nearly indistinguishable from one another except for two variables (i.e., compensation committee gender diversity and independence).

For the matching subsample of firms with gender-diverse compensation committees, we followed Bugeja et al. (2016) and Usman et al. (2018) in basing our matching on the probability that a firm has at least one woman director on their compensation committees (*FDUM*) based on all control variables (i.e., corporate governance, ownership structure, and firm economic control variable), the percentage of women directors on the board and compensation committee characteristics. For compensation committees' independence, matching is based on the probability that there is a greater proportion of independent directors in a firm than the sample's median (*CINDM*) based on all control variables (i.e., corporate governance, ownership structure, and firm economic control variable) and compensation committee size.

The results of the PSM method are reported in Table 8. The first two models provide the results on the influence of compensation committee independence or gender diversity on the relationship between top managers' pay and firm performance for the whole matched subsample. Again the interaction variables *ROA_FDUM* and *ROA_CINDM* remain positive and significant which further validates the OLS findings reported in Table 4. The last two columns provide the results on the influence of the compensation committee's independence on the link between top managers' pay and firm performance for firms with and without compensation committees' gender diversity. The coefficient of *ROA_CIND* remains positive and highly significant in model 3 and 4. This result contradicts our findings reported in Table 5. This indicates that an independent compensation committee is effective in strengthening the link between top manager's pay and firm performance whether the compensation committee is gender-diverse or not. However, the coefficient of *ROA_CIND* is higher in firms having at least one female director on the compensation committee as compared to all male directors committee. Further, the *Chi2* test of coefficient difference validates that coefficients are significantly different. Taken together, these results also support our sixth hypothesis that the positive impact of the compensation committee's independence on the relationship between top manager's pay and firm performance is higher in firms having the gender-diverse compensation committee.

4.2.3. Further robustness test

To further confirm our results and to check the possible issue of selection bias, we also applied a two-stage Heckman (1976) procedure to investigate the possibility of sample-selection bias. In the first stage, using logit regression we find the determinants of compensation committee gender diversity by including all control variables (i.e. corporate governance, ownership structure and firm economic controls) as independent variables. From this stage we calculated the inverse mills ratio and included this ratio as an independent variable in our main regression. This mills ratio remains insignificant, which indicates that there is no such issue.

In addition, as we have observations from several years for each company, it may be the case that the observations are not sufficiently independent, and our OLS results may be misleading. Therefore, we followed Huber's (1967) formula, and again our main findings remain consistent after clustering standard errors by company.

Finally, as the study uses the log of top managers' total cash compensation as the dependent variable (because equity compensation is rare in China), as a cleaner test we exclude those few firms that do offer equity compensation before retesting our all hypotheses. Again our results remain consistent. For brevity, we do not report the results of two-stage Heckman regression and cluster OLS regression. However, the entire robustness test for all alternative measures and statistical techniques can be provided on request.

[Insert Table 7 about here.]

[Insert Table 8 about here.]

5. Summary and conclusion

Our results indicate that the presence of a woman on a compensation committee increases the committee's effectiveness in objectively setting top managers' compensation. Gender diversity on a compensation committee not only limits top managers' total compensation but also strengthens the link between top managers' pay and firm performance. In line with Kent et al. (2016), we also find that an independent compensation committee is positively associated with top managers' total compensation and with the relationship between top managers' pay and firm performance. In addition, our results suggest that the presence of a woman on a compensation committee enhances the positive influence of committee independence on the link between top managers' pay and firm performance. Overall, our results support the managerial power theory (Bebchuk et al. 2002; Bebchuk & Fried 2003, 2004, 2006) by arguing that a compensation committee with all male directors may not be sufficiently independent. Moreover, we reconcile the majority of extant studies by providing empirical evidence that support the perspectives of agency theory and managerial power theory that an independent compensation committee strengthens the relationship between top managers' pay and firm performance when it is gender-diverse. As Terjesen et al. (2016 p. 453) argued, a gender-imbalanced board signals that top managers have power over the selection of outside directors. Therefore, there is the possibility that an independent compensation committee with all-male directors is not truly independent of top managers and cannot tie top managers' pay to firm performance. Our results also support the notion that an independent compensation committee is more effective when it is gender-diverse than when it is not. In addition, given the unique ownership structure in China, we investigate whether the effect of independent directors and female directors on top managers' compensation varies based on the firm's ownership structure. We find that an independent or gender-diverse compensation committee is more effective in legal-person-controlled firms than it is in state-controlled firms. All of our results remain consistent when we used alternative measures and alternative statistical methodologies.

Our findings have policy implications because of our focus on two recent trends toward recommending an independent compensation committee and female directors on the board. Our results accentuate the role of an independent compensation committee in designing optimal contracts for top managers. Moreover, we provide empirical evidence that the presence of a woman on the compensation committee strengthens the committee's effectiveness in objectively determining top managers' compensation. Our finding supports the recommendations of regulatory bodies around the

world regarding the compensation committees' independence and boardroom gender diversity. More specifically, the compensation committee's independence and gender diversity can improve the weak governance structure in China. In addition, our findings also provide strong implication for managerial practices by highlighting the important role of compensation committee's gender-diversity and independence in designing the optimal contracts for the top management.

Our findings are subject to certain limitations. We use data from an emerging economy, so the same question should be investigated in developed countries and other developing countries before our results can be generalized. Similar to earlier study on the compensation committees' gender diversity, our study uses data from a country where gender diversity on boards is not mandatory. Therefore, the same question should be investigated in an institutional setting where it is mandatory to have gender diversity on the board because forced gender diversity on corporate boards may have counterproductive results, as compared to voluntary gender diversity. In addition, we consider only top managers' cash compensation because of the unavailability of top managers' equity compensation information in China. Therefore, an opportunity remains to investigate whether a gender-diverse compensation committee leads to a higher proportion of equity compensation as part of top managers' total compensation.

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Table 1: Measurement of variables

Abbreviation	Description
Panel A: top managers’ total pay, firm performance, compensation committee’s independence, and gender diversity measures	
<i>TMP</i>	Defined as the log of the average pay of executive directors’ (including CEOs’) total cash compensation.
<i>CEOP</i>	Defined as the log of the CEO’s total cash compensation.
<i>ROA</i>	Measured as return on assets, defined as net profit divided by total assets.
<i>CIND</i>	Defined as the proportion of independent directors on the compensation committee.
<i>CINDM</i>	A dummy variable that equals 1 if the firm has a higher proportion of independent directors on the compensation committee than the sample’s median and 0 otherwise.
<i>CINDF</i>	A dummy variable that equals 1 if all the compensation committee members are independent directors and 0 otherwise.
<i>FDUMMY</i>	A dummy variable that equals 1 if at least one female director is a member of the compensation committee, and 0 otherwise.
<i>FPRO</i>	Defined as the proportion of female directors on the compensation committee.
<i>FNUM</i>	Defined as the number of female directors on the compensation committee.
Panel B: Corporate governance, ownership structure, and firm economic control variables measurement.	
<i>CDUAL</i>	A dummy variable that equals 1 if the CEO and the chairperson of the board are the same person.
<i>CTENUR</i>	Defined as the number of years the CEO has served as CEO of the firm.
<i>BS</i>	Defined as the number of directors on the board.
<i>BI</i>	Defined as the proportion of independent directors on the board.
<i>CCS</i>	Defined as the number of directors on the compensation committee.
<i>CSH</i>	Defined as the percentage of the firm shares held by the CEO.
<i>ISH</i>	Defined as the percentage of firm shares held by institutional investors.
<i>SOE</i>	A dummy variable that equals 1 if the firm is affiliated with a central or local government and 0 otherwise.
<i>FS</i>	Defined as the log of total sales.
<i>FL</i>	Defined as total debt divided by total assets.
<i>BM</i>	Defined as the book value of shareholders’ equity divided by the market value.

Table 2: Descriptive statistics

Panel A: Descriptive statistics for proportion of independent directors on the compensation committee, and female representation on the board and compensation committee by year

Year	No. of Firms	No. of firms with female director(s) on boardroom (percentage)	Proportion of females directors on the board	No. of firms with female director(s) on compensation committee (percentage)	Proportion of females directors on compensation committee	Proportion of independent directors on compensation committee
2005	248	157(63.3%)	.099	81(32.7%)	.109	.633
2006	340	208(61.2%)	.099	107(31.5%)	.106	.645
2007	483	308(63.8%)	.107	176(36.4%)	.116	.653
2008	594	380(64.0%)	.103	204(34.3%)	.112	.654
2009	800	517(64.0%)	.109	299(37.4%)	.124	.652
2010	1032	700(67.8%)	.116	412(39.9%)	.132	.661
2011	1349	938(69.5%)	.120	534(39.6%)	.135	.661
2012	1575	1120(71.1%)	.125	636(40.4%)	.141	.666
2013	1587	1154(72.7%)	.129	643(40.5%)	.147	.670
2014	1674	1241(74.1%)	.134	691(41.3%)	.153	.668
2015	1369	1034(75.5%)	.140	627(45.8%)	.167	.672
Total	11051	7757(68.0%)	.116	4410(39.9%)	.141	.658

Panel B: Descriptive statistics for total sample ($N = 11051$)

Variables	Minimum	Maximum	Mean	Std. Deviation
<i>TMP</i>	7.14	15.62	12.25	0.88
<i>ROA</i>	-48.32	4.84	0.04	0.48
<i>FDUM</i>	0.00	1.00	0.40	0.49
<i>FPRO</i>	0.00	1.00	0.14	0.19
<i>CIND</i>	0.00	1.00	0.66	0.12
<i>DUAL</i>	0.00	1.00	0.23	0.42
<i>CTENUR</i>	0.00	19.00	3.03	2.81
<i>BS</i>	5.00	26.00	10.17	2.49
<i>BI</i>	0.20	0.80	0.38	0.07
<i>CCS</i>	1.00	8.00	3.48	0.99
<i>CSH</i>	0.00	0.79	0.03	0.10
<i>ISH</i>	0.00	87.89	7.39	10.29
<i>SOE</i>	0.00	1.00	0.50	0.50
<i>FS</i>	9.04	28.67	21.32	1.47
<i>FL</i>	0.01	96.96	0.49	1.16
<i>BM</i>	0.00	16.15	0.97	1.03

The percentage of firms that have female directors on their boards and compensation committees is reported in parentheses. The N is small in initial years because compensation committee was not common in Chinese firms in early years. For a detailed description of variables, see Table 1.

Table 3: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.TMP	1															
2. <i>FDUM</i>	.009	1														
3. <i>FPRO</i>	.012	.883**	1													
4. <i>CIND</i>	.076**	-.044**	.013	1												
5. <i>ROA</i>	.054**	.010	.009	-.002	1											
6. <i>DUAL</i>	.108**	.018	.036**	.012	-.014	1										
7. <i>CTENUR</i>	.212**	.028**	.039**	.035**	.014	.116**	1									
8. <i>BS</i>	-.073**	.028**	-.015	-.033**	-.008	-.093**	-.019*	1								
9. <i>BI</i>	.161**	-.001	.014	.086**	.001	.084**	.130**	-.046**	1							
10. <i>CCS</i>	-.012	.130**	-.030**	-.377**	.006	-.113**	-.026**	.205**	-.062**	1						
11. <i>CSH</i>	.105**	.006	.032**	.017	.017	.453**	.129**	-.111**	.104**	-.123**	1					
12. <i>ISH</i>	.025**	.016	.006	-.011	.017	-.030**	-.055**	.024*	-.064**	.033**	-.063**	1				
13. <i>SOE</i>	-.232**	-.028**	-.066**	.055**	-.006	-.286**	-.139**	.190**	-.125**	.159**	-.335**	.124**	1			
14. <i>FS</i>	.294**	-.024*	-.050**	.069**	.045**	-.152**	.043**	.211**	.013	.111**	-.175**	.098**	.300**	1		
15. <i>FL</i>	-.046**	-.010	-.013	-.002	-.468**	-.001	-.033**	.014	.000	.009	-.054**	-.006	.034**	-.008	1	
16. <i>BM</i>	.023*	-.024*	-.039**	.053**	-.018	-.124**	-.023*	.128**	-.028**	.070**	-.162**	-.026**	.273**	.459**	.073**	1

*, ** Correlation is significant at 5% and 1% respectively. For a detailed description of variables see Table 1.

Table 4: Impact of independent or gender diverse compensation committee on top managers pay and top managers pay-performance link ($N = 11051$).

	Model 1	Model 2	Model 3	Model 4
<i>FDUM</i>	-.010*(-1.70)	-	-.038**(-2.47)	-
<i>FPRO</i>	-	-.024*(-01.67)	-	-.108***(-2.77)
<i>CIND</i>	.492***(7.63)	.492***(7.63)	.426***(6.21)	.431***(6.28)
<i>ROA</i>	.049***(3.05)	.049***(3.05)	-1.262***(-2.61)	-1.205***(-2.50)
<i>ROA_FDUM</i>	-	-	.681***(5.10)	-
<i>ROA_FPRO</i>	-	-	-	2.061***(5.56)
<i>ROA_CIND</i>	-	-	1.958***(2.70)	1.872***(2.59)
<i>DUAL</i>	.091***(4.84)	.091***(4.83)	.091***(4.88)	.092***(4.90)
<i>CTENUR</i>	.019***(6.67)	.019***(6.67)	.019***(6.63)	.019***(6.63)
<i>BS</i>	-.040***(-13.34)	-.040***(-13.35)	-.040***(-13.31)	-.040***(-13.29)
<i>BI</i>	.911***(8.78)	.911***(8.78)	.909***(8.77)	.911***(8.78)
<i>CCS</i>	.063***(7.88)	.062***(7.85)	.063***(7.85)	.062***(7.83)
<i>CSH</i>	.134(1.61)	.134(1.61)	.122(1.47)	.119(1.43)
<i>ISH</i>	.003***(4.14)	.003***(4.13)	.003***(4.03)	.003***(4.01)
<i>SOE</i>	-.442***(-26.30)	-.442***(-26.30)	-.437***(-26.01)	-.438***(-26.05)
<i>FS</i>	.276***(45.92)	.276***(45.91)	.272***(44.99)	.272***(44.95)
<i>FL</i>	.004(.61)	.004(.61)	.004(.57)	.004(.59)
<i>BM</i>	-.062***(-7.08)	-.062***(-7.08)	-.056***(-6.42)	-.056***(-6.42)
<i>Industry & year dummies</i>	included	included	included	included
<i>Constant</i>	6.204***(44.69)	6.207***(44.63)	6.325***(45.00)	6.329***(45.00)
<i>F-value</i>	81.42***	81.42***	79.73***	79.83***
<i>Adjusted R²</i>	33.1%	33.1%	33.3%	33.3%
<i>N</i>	11051	11051	11051	11051

*, **,*** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses. The dependent variable is *TMP* and this table demonstrates the results of first four hypotheses. For a detailed description of variables see Table 1.

Table 5: Impact of independent compensation committee on top managers pay and top manager's pay and pay-performance link for firm with and without women directors on the compensation committee

	All Males Sample		Some Females Sample	
	Model 1	Model 2	Model 3	Model 4
<i>CIND</i>	.450***(5.59)	.423***(4.93)	.589***(5.44)	.441***(3.82)
<i>ROA_CIND</i>	-	.790(0.91)	-	4.973***(3.68)
<i>ROA</i>	.047***(2.85)	-.479(-0.83)	.745***(5.52)	-2.430***(-2.78)
<i>DUAL</i>	.087***(3.50)	.086***(3.48)	.080***(2.80)	.083***(2.89)
<i>CTENUR</i>	.021***(5.34)	.021***(5.35)	.017***(4.05)	.831***(3.93)
<i>BS</i>	-.042***(-10.54)	-.042***(-10.54)	-.037***(-8.14)	-.037***(-8.08)
<i>BI</i>	.977***(7.22)	.975***(7.20)	.833***(5.15)	.818***(5.06)
<i>CCS</i>	.059***(5.46)	.059***(5.45)	.065***(5.40)	.066***(5.53)
<i>CSH</i>	.249**(2.27)	.249**(2.26)	.009(0.07)	-.003(-0.02)
<i>ISH</i>	.002**(2.56)	.002**(2.54)	.003***(3.06)	.003***(3.02)
<i>SOE</i>	-.469***(-21.38)	-.469***(-21.39)	-.396***(-14.97)	-.397***(-15.04)
<i>FS</i>	.289***(37.37)	.289***(37.38)	.248***(25.17)	.246***(25.04)
<i>FL</i>	.009(1.29)	.009(1.30)	-.029(-1.21)	-.027(-1.11)
<i>BM</i>	-.062***(-5.50)	-.061***(-5.48)	-.038***(-2.65)	-.037***(-2.53)
<i>Industry & year dummies</i>	included	included	included	included
<i>Constant</i>	5.289***(13.05)	5.305***(13.07)	6.192***(19.80)	6.307***(20.09)
<i>F-value</i>	53.16***	52.39***	34.25***	34.03***
<i>Adjusted R²</i>	34.48%	34.48%	32.55%	32.75%
<i>N</i>	6,641	6,641	4,410	4,410

*, **,*** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses. The dependent variable is *TMP* and this table demonstrates the results of last two hypotheses. For a detailed description of variables see Table 1.

Table 6: Impact of gender diverse or independent compensation committee on top managers' pay-performance link for State controlled firms and Legal-Person controlled firms (additional test)

	State Subsample		Legal-person Subsample	
	Model 1	Model 2	Model 3	Model 4
<i>FDUM</i>	.018(0.84)	-.001(-0.07)	-.0464**(-2.47)	-.065***(-3.15)
<i>CIND</i>	.560***(6.83)	.528***(5.95)	.317***(2.95)	.201*(1.77)
<i>ROA</i>	.181**(2.23)	-.589(-0.73)	.0368**(2.42)	-1.806***(-3.05)
<i>ROA_FDUM</i>	-	.618***(2.95)	-	.387**(2.16)
<i>ROA_CIND</i>	-	1.035(0.86)	-	2.767*** (3.11)
<i>Industry & Year dummies</i>	included	included	included	included
<i>Governance ownership & economic controls</i>	included	included	included	included
<i>(Constant)</i>	4.97***(12.98)	5.03***(13.11)	5.275***(14.64)	5.396***(14.91)
<i>F-value</i>	41.49***	40.42***	38.83**	37.91***
<i>Adjusted R²</i>	31.58%	31.67%	30.81%	30.94%
<i>N</i>	5,529	5,529	5,522	5,522

*, **,*** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses. The dependent variable is *TMP*. This table show the results of the question concerning whether the effect of an independent or gender-diverse compensation committee varies by ownership type. For a detailed description of variables, see Table 1.

Table 7: Impact of gender diverse or independent compensation committee on top managers' pay-performance link using alternative measures of variables (robustness checks)

	Alternative Measures				2-SLS
	Model 1 <i>CEOP</i>	Model 2 <i>CEOP</i>	Model 3 <i>TMP</i>	Model 4 <i>TMP</i>	Model 5 <i>TMP</i>
<i>FDUM</i>	-.060***(-4.02)	-	-	-	-.065***(-3.11)
<i>FPRO</i>	-	-.175***(-4.57)	-	-	-
<i>FNUM</i>	-	-	-.017(-1.51)	-.019*(-1.69)	-
<i>CINDM</i>	-	-	.051***(1.98)	-	-
<i>CNFI</i>	-	-	-	.115***(3.65)	-
<i>CIND</i>	.220***(3.30)	.226***(3.38)	-	-	.464***(4.01)
<i>ROA</i>	-1.782***(-3.77)	-1.708***(-3.63)	.041(2.52)	0.041**(2.55)	-1.695***(-3.07)
<i>ROA_FDUM</i>	.701***(5.35)	-	-	-	.638***(4.46)
<i>ROA_FPRO</i>	-	2.025***(5.55)	-	-	-
<i>ROA_CIND</i>	2.726***(3.84)	2.616***(3.70)	.412***(4.01)	.440***(4.30)	2.585***(3.12)
<i>ROA_FNUM</i>	-	-	-	-	-
<i>ROA_CINDM</i>	-	-	1.813***(5.26)	-	-
<i>ROA_CNFI</i>	-	-	-	1.761***(4.31)	-
<i>Industry & Year dummies</i>	included	included	included	included	included
<i>Governance ownership & economic controls</i>	included	included	included	included	included
<i>(Constant)</i>	7.670*** (56.19)	7.680*** (56.23)	5.584*** (16.16)	5.547*** (16.06)	7.607*** (44.72)
<i>F-value</i>	62.13***	62.21***	79.40***	79.41***	3392.05
<i>Adjusted R²</i>	27.6%	27.6%	33.19%	33.19%	26.96%
<i>N</i>	11051	11051	11051	11051	8,931

*, **,*** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses. In first two models the dependent variables is *CEOP*, while in preceding models the dependent variables is *TMP*. This table demonstrates the results of robustness test of hypotheses 2 and 4. For a detailed description of variables, see Table 1.

Table 8: Impact of compensation committee independence and gender diversity on top managers' pay-performance link using propensity score matching method (robustness checks)

	Model 1	Model 2	Model 3 All Males	Model 4 Some Females
<i>FDUM</i>	.053(.111)	-.034**(-2.06)	-	-
<i>CINDM</i>	0.068*(1.89)	-	-	-
<i>CIND</i>	-	.108*** (3.32)	.562*** (4.83)	.448*** (3.88)
<i>ROA</i>	.737** (2.49)	-.073*** (-3.03)	-2.870*** (-2.72)	-2.425*** (-2.77)
<i>ROA_FDUM</i>	-	.407*** (3.08)	-	-
<i>ROA_CIND</i>	-	2.807*** (5.97)	3.778** (2.39)	4.949*** (3.65)
<i>ROA_CINDM</i>	1.035** (2.29)	-	-	-
<i>Industry & Year dummies</i>	included	included	included	included
<i>Governance ownership & economic controls</i>	included	included	included	included
<i>(Constant)</i>	6.463*** (10.58)	6.305*** (16.38)	4.063*** (11.30)	5.507*** (15.24)
<i>F-value</i>	21.35***	65.69***	43.57***	33.45***
<i>Adjusted R²</i>	35.05%	33.08%	38.70%	32.49%
<i>N</i>	2,452	8,768	4,384	4,384

*, **, *** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses. The dependent variable is *TMP* and this table demonstrates the results of robustness test of hypotheses 2, 4 and 6. For a detailed description of variables see Table 1.