

The Impact of CEO Characteristics on Real Earnings Management: Evidence from the US Banking Industry

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Abstract

Focusing on the US banking industry, this study investigates the impact of CEO characteristics on real activities manipulation achieved by changing the normal operational decisions purposely. Overall, our empirical results present a negative relationship between real earnings management (REM) and some CEO characteristics, including CEO tenure, the directorship on the audit committee and the level of diligence and concentration as well. In contrast, high CEO compensation is found to increase the real earnings management while the levels of pay-performance sensitivities have different influences on it at banks with CEO high (HPPS) and low (LPPS) pay-performance-sensitivity respectively. CEO experiences turns out to have a positive effect on earnings management at HPPS banks and a negative effect on LPPS. CEO power has a significant influence in HPPS bank's REM but it is not supported in LPPS banks. Holding other directorship has a significantly positive effect on earnings management at HPPS while it is not at LPPS bank. On the contrary, CEO's meeting attendance and total compensation have positively affected *REM* at LPPS but they are not at HPPS. Finally, we surprisingly found that only CEO experience and profession has a significantly moderate effect on bank's REM after financial crisis of 2008, however, all CEO characteristics have significant impacts on bank's earnings management before crisis. We conjecture that experienced CEOs are easy to window dressing the financial statements when facing serious financial crisis.

Keywords: CEO, earnings management, banks

JEL: M41, M49

1. Introduction

The chief executive officers (CEOs) are generally viewed as the most powerful person in an organization. They exercise authority over the corporate decisions, including financial information release, shaping the board, etc., and then, they are responsible for corporate performance. Because of CEO's responsibility of firm performance, it may raise the likelihood of manager's earnings management. Agency theory predicts that managers are motivated in pursuit of their own interests

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at the expense of shareholders' interests (Jensen, 1986). Therefore, the association between CEO's attitudes and firm's earnings management deserves further investigation.

Prior research has extensively documented that the CEO's characteristics, such as, tenure, experiences and profession, compensation and CEO power are related to earnings management (Klein, 2002; Fich and Shivdasani, 2006; Bergstresser and Philippon, 2006; Cornett et al., 2008; Laux and Laux, 2009; Chiu, Teoh and Tian, 2013). For example, a tenured CEO with more experiences and knowledge could enhance firm performances through the effective management and thus obtain a premium pay (Falato, Li, and Milbourn, 2015; Wang, Holmes, Oh, and Zhu, 2016), which may also decrease possibility of earnings management. And, excessive CEO power will generate ineffective monitoring and hence increase the chance of earnings management. Moreover, given the motivation to wealth maximization, CEOs are more likely to manage earnings when they have higher shareholdings or stock option tied to stock price (Aboody and Kasznik, 2000; Klein, 2002; Kedia, 2003; Cheng and Warfield, 2005; Shuto, 2007). However, these studies focus on non-financial industries and less address on the financial industry. As mentioned earlier, agency problem may aggravate manager's manipulation of reported earnings. We believe this is also true in financial industry. John and Qian (2003) indicate that banks are characterized by high-leverage capital structures and agency problems do occur in the banking industry. We thus argue that bank's CEOs are legitimately endowed with strong power so that they necessarily play an influential role in bank earnings management. In this study, we first design the research to investigate the impact of bank CEO characteristics on bank's earnings management.

Earnings management is to use the discretion in accounting principles that allows managers to manipulate reported earnings. Different from the literature on accrual-based earnings management in non-financial industries (e.g. Dechow, Sloan and Sweeney, 1995; Healy and Wahlen, 1999; Fields, Lyz and Vincent, 2001; Kothari, Leone and Wasley, 2005), bank's accrual-based earnings management measure is mainly based on Robb (1998), which is to estimate the abnormal loan losses provisions as the proxy of earnings management. This traditional earnings management based on accruals is more easily detected by auditors because it is subject to accounting methods or estimates required to explicitly explain in financial statements (Järvinen and Myllymäki, 2016). Therefore, Roychowdhury (2006) uses non-financial industries and provides evidence that managers would manipulate reported earnings through normal operational decision, such as price discounts offering, overproduction, and reduction of discretionary expenditures, etc. Besides, earnings models in the banking industry have been changed during past two decades from traditional net interests income by holding loans to non-interests income (i.e. fee-based income includes advisory, treasury, project financing, trade finance, wealth management, bank assurance, etc.) (Hale and Santos, 2009; Bord and Santos, 2012). Bank's non-interest income is rising since the (Big Bang) deregulation in 1986. Banks try to enhance multichannel experiences to engage customers and to meet their financial needs effectively. Jaffar, Mabwe and Webb (2014) has pointed out that "The UK banking industry has steadily moved from the traditional role of

financial intermediation and is increasingly relying on non-traditional business activities that generate fee income, dealings profit and other types of noninterest income.” Therefore, we attempt to use another new measure more attached to current revenue model in the banking industry, the real earnings management³ (REM, hereafter), as proxy of earnings management. Specifically, this REM measure considers the changes in the banking industry and fully integrates bank’s abnormal cash flows, abnormal discretionary expenses and abnormal loan losses provisions as well.

After the financial tsunami occurred in year 2008, bank CEO’s excessive compensation had been seriously challenged by the question whether bank CEOs duly do their job or get over pay from earnings manipulation. Accordingly, we also further examine how bank’s CEO characteristics are associated with bank’s earnings management considering different levels of CEO compensation.

Using this REM measure, our empirical findings suggest that CEO characteristics do have significant impacts on bank’s earnings management including CEO experience and profession, CEO power, CEO diligence and CEO compensation as well; and these impacts do differ between banks at high- and low- CEO pay sensitivity. We also found that CEO characteristics have different influences on bank’s REM during financial crisis period which only CEO experience and profession turns out to have significant effects on bank’s earnings management.

We contribute to the related literature on earnings management in the banking industry by two main reasons. First, past literature has generally addressed on the relationship between specific CEO’s characteristics and bank’s earnings management. We not only present further evidences but also consider as many CEO variables as possible for the comprehensiveness and examine which CEO characteristics have significant explanatory power for bank’s earnings management. Secondly and more importantly, except for usual accrual-based measure (abnormal loan loss provisions) as past earnings management adopted by the banking industry, we design a new measure, REM, as proxy of bank earnings management more attached to current revenue structure in the banking industry. This REM measure, fully considering both bank’s abnormal cash flows and abnormal discretionary expenses as well as traditional abnormal loan losses provisions, is contributive to capture more complete signals of earnings management taken by managers.

The remainder of the paper is organized as follows, the first section gives introduction, and the second section is to review related literature with a discussion of the research hypotheses, followed by the empirical models, and next, the main results are discussed, finally, conclusion is provided.

2. Literature Review and Hypotheses

2.1 Real earnings management

³ For convenient writing, this study uses “real earnings management” for those extant ones and interchanges with “real activities manipulation” or “real earnings manipulation”.

Prior literature on earnings management extensively focuses on accrual-based earnings management (e.g. Dechow, Sloan and Sweeney, 1995; Kothari, Leone and Wasley, 2005; Healy and Wahlen, 1999; Fields, Lyz and Vincent, 2001). However, executive REM has recently received research attention and derived a large body of theoretical and empirical works, especially following the publication of the dividend irrelevance hypothesis of Miller and Modigliani (1961). Comparative to accrual-based earnings management, using real activities manipulation as an earnings management device is unlikely to be detected by auditors and outsiders, thus, gives manager room of manipulation. According to Graham, Harvey and Rajgopal (2005), 78 percent of surveyed chief financial officers (CFOs) would proceed real activities manipulation⁴ to meet the earnings expectation of analysts and investors in avoidance of the severe market reaction.

Traditional earnings management based on accruals is more easily detected by auditors because it is subject to accounting methods or estimates which are required to explicitly explain in financial statements (Järvinen and Myllymäki, 2016). In contrast, REM *per se* is neither relevant to the generally acceptable accounting principle (GAAP), nor required to explain by regulators. Roychowdhury (2006) demonstrated that managers would try to manipulate reported earnings through REM in terms of normal operational decision, such as price discounts offering, overproduction, and reduction of discretionary expenditures. Similarly, Beatty, Chamberlain and Magliolo (1995) used commercial banks sample and examined how banks achieve the regulatory capital, tax, and earnings goals through both accrual accounts and real operational transactions⁵. These real activities manipulations are usually targeted on short-term stock performances, but no beneficial to firm value or raising firm's cash flows, as shown in the measure of accrual-based earnings management (Roychowdhury, 2006; Bhojraj, Hribar, Picconi and McInnis, 2009; Baber, Kang and Li, 2011). Yet, extant literature documents that the management tends to use REM to meet the earnings targets, such as zero earnings or annual analyst forecasts as well as to avoid the negative market reactions from bad news, for example, the disclosure of material weakness in the internal controls (Roychowdhury, 2006; Järvinen and Myllymäki, 2016).

In addition to different measurements in earnings manipulation, there are also differences in timing and related costs between real and accrual-based earnings management. The REM must be realized during the fiscal year, as opposed to accrual-based earnings management that still has chance to manipulate after the end of the fiscal year. The other stream of literature investigates the trade-off effects between real and accrual-based earnings management (e.g. Barton, 2001; Cohen and Zarowin, 2010; Zang, 2012). The decision of choosing real or accrual-based earnings management depends on the relative costliness of these two while both real and accrual-based earnings management are costly (Cohen, Dey and Lys, 2008; Zang, 2012). Moreover, in order to achieve the purposeful goals, managers probably use multiple methods at the same time (Beatty,

⁴ Real activities manipulation includes the reduction of research and development (R&D) expense as well as advertising and maintenance expenditures, and the postponement of new projects.

⁵ These operating transactions used in Beatty et al. (1995) include pension settlement transactions, miscellaneous gains and losses due to asset sales and issuance of new securities.

1995). Different from most literature focusing on the traditional accruals-based earnings management, this study emphasizes on the executive behaviors of real earnings manipulation and further investigates the impact of CEO characteristics on real earnings manipulation.

2.2 CEO characteristics

The research on the critical role of CEO in corporate operation has attracted attention of academics and practices and is still being developed. Abundant studies investigate how the CEO characteristics affect corporate performances and risks (e.g. Mackey, 2008; Hambrick and Quigley, 2014; Bernile, Bhagwat and Rau, 2017). Although the actual manipulator of earnings management mainly comes from the CFOs, CEOs are regarded as the most powerful person for the policy of earnings released. CEOs definitely play a key role in financial reports.

Due to the self-interest motives, CEO incentive compensation gives rise to the widespread discussion whether an increase in earnings management is accompanied by CEO equity compensation, despite that results are mixed⁶ (e.g. Yermack, 1995; Bergstresser and Philippon, 2006, Laux and Laux, 2009; Armstrong, Larcker, Ormazabal and Taylor, 2013). Accordingly, this study attempts to focus on the following CEO characteristics and further examines their impacts on the executive behavior of REM.

First, we argue that the experience and profession of CEOs facilitate the effectiveness of management and the understanding of financial reporting procedures, in turn, contribute to firm performances. A tenured CEO accumulates sufficient knowledge and experience in business with the years of service and hence more likely enhances firm performances through the effective management and obtains a premium pay (Falato, Li, and Milbourn, 2015; Wang, Holmes, Oh, and Zhu, 2016). Cornett et al. (2008) further suggest that such increase in firm performance may reduce the usage of discretionary accruals, consistent with the finding of a lower level of earnings management in the later years than in the early years of CEOs service (Kuang, Qin, and Wielhouwer, 2014; Ali and Zhang, 2015). Moreover, the composition of audit committee is strictly required after the Sarbanes–Oxley Act of 2002 (SOX). DeZoort and Salterio (2001) document that audit committees with greater auditing knowledge are more likely to stand on the side of auditors when disputes between auditors and management occur. We thus argue that auditing quality will be improved by CEO also serving as an auditor committee member. Therefore, this study adopts both CEO tenure and the directorate of audit committee for the proxy of CEO experience and knowledge about the accounting adjustments, which is always involved in the reduction of accrual-based earnings management. This study accordingly expects the significantly negative association between CEO experience or profession and REM.

⁶ For example, Bergstresser and Philippon (2006) suggest that CEOs are apt to manipulate reported earnings, especially when their wealth is closely tied to firms' stock prices. However, the mechanism of corporate governance, including the board independence and institutional ownership, has the moderate effect on the relationship between CEO equity compensation and earnings management (Cornett, Marcus and Tehranian, 2008; Laux and Laux, 2009).

H1: The association between REM and CEO experience and profession is negative significantly.

Next, we argue that CEO excessive power will increase the possibility of REM. Previous studies widely use the CEO duality and shareholdings to measure CEO power in corporate strategies and decisions (e.g. Daily and Johnson, 1997; Combs, Ketchen, Perryman and Donahue, 2007). According to agency theory, the practice of CEO serving as both CEO and board chair, namely CEO duality, promotes CEO entrenchment by reducing board monitoring effectiveness. CEO duality restricts the information flow to other board directors and hence reduces board's oversight on managers and leads to poor firm performance (Fama and Jensen, 1983; Jensen, 1993; Tuggle, Sirmon, Reutzel, and Bierman, 2010). John and Qian (2003) also indicate that banks are characterized by high-leverage capital structures and agency problems do occur in the banking industry. We suggest that both the excessive CEO power and the ineffective monitoring due to CEO duality increase the chance of REM. Moreover, given the motivation to wealth maximization, CEOs are more likely to manage earnings when they have higher shareholdings or stock option tied to stock price (Aboody and Kasznik, 2000; Klein, 2002; Kedia, 2003; Cheng and Warfield, 2005; Shuto, 2007). Yet, some studies find that the powerful CEOs, measured by shareholdings, are conducive to information transparency and reduce earnings management (Jiraporn, Liu and Kim, 2014; Petrou and Procopiou, 2016). According to agency theory, this study expects that CEO power, proxied by CEO duality and shareholdings, exhibits significant and positive association with real activities manipulation.

H2: The association between REM and CEO power is positive significantly.

In the area of corporate governance, the regulator and academy have emphasized the importance on the effectiveness of audit committee, supporting that the frequent audit committee activities represent a sound mechanism of audit committee and thus reduce the occurrence of restatements (Public Oversight Board, 1993; Blue Ribbon Committee, 1999; Abbott, Parker and Peters, 2004). We argue that diligent CEOs have smooth communication with directors and outsiders, so the proper management is implemented in reported earnings. Specifically, we expect the frequent participation of CEOs in the meeting of board is associated with the decline in REM. Accordingly, we conjecture that the CEO multiple directorates are likely to distract their attention on individual firm, resulting in ineffectiveness of management and motoring. For example, Fich and Shivdasani (2006) and Chiu, Teoh and Tian (2013) show that the multiple directorships are associated with weak firm performance and earnings management contagion. Accordingly, we develop the third hypothesis about CEO diligence as followed.

H3: The association between REM and CEO diligence is negative significantly.

Finally, this study uses the total compensation and the directorate of CEOs on the compensation committee to measure the level of CEO's compensation in the motivation of REM. In the setting where the CEO compensation is closely tied to firm's stock price, CEOs will have

relatively high incentives to manipulate reported earnings or the timing of information release in order to pursue their own interests (Yermack, 1997; Bergstresser and Philippon, 2006). Therefore, it is plausible to expect that CEOs may be involved in REM to maximize their wealth. Also, Klein (2002) thinks that CEOs also serving the compensation committee could give CEOs the motivation and access to earnings management. Accordingly, the last hypothesis is developed as followed.

H4: The association between REM and CEO compensation is positive significantly.

3. Research Design

3.1 Models

In order to completely estimate the level of bank's REM, this study measures bank's earnings management by integrating the abnormal provision for loan/or asset losses, typically applied in the banking industry, and other measures of real activities manipulation into our new REM measure. There are three variables – abnormal provision for loan /or asset losses, abnormal cash flows and abnormal discretionary expenses, which are combined together for the REM measure. As shown in Robb (1998), the abnormal provision for loan/or asset losses of banks is estimated by the residuals of the following equation (1).

$$\frac{LLP_{i,t}}{TA_{i,t}} = \alpha_0 + \alpha_1 \frac{LLP_{i,t-1}}{TA_{i,t}} + \alpha_2 \frac{WO_{i,t}}{TA_{i,t}} + \alpha_3 \frac{WO_{i,t+1}}{TA_{i,t}} + \theta_{i,t} \quad (1)$$

where $LLP_{i,t}$ and $LLP_{i,t-1}$ are i bank's provision for loan/or asset losses to total assets in year t and t-1, respectively; $WO_{i,t}$ and $WO_{i,t+1}$ are i bank's net charge-offs to total assets in year t and t+1, respectively; $TA_{i,t}$ is total assets of i bank in year t. The estimated error term $\theta_{i,t}$ is the unexpected provision for loan/ or asset losses, namely the abnormal provision for loan/or asset losses for i bank in year t.

In addition to the abnormal provision for loan/or asset losses, managers could manipulate reported earnings through the regular operational decisions such as abnormal cash flows and discretionary expenditures, including advertising expenses, general and administrative expenses. Thus, this study adds the other measures of real activities manipulation into our new REM measure for the banking industry in response to the trend of increasing non-traditional business activities mentioned by Jaffar, Mabwe and Webb (2014). In the original studies on REM (Roychowdhury, 2006; Cohen et al., 2008), researchers take account of three abnormal items, including the abnormal cash flows, discretionary expenses and production costs, to capture the behavior of real earnings manipulation. This study excludes the abnormal production costs from our measure of REM for the banking industry because the banking industry is a service industry instead of a manufacturing industry. The abnormal cash flows and discretionary expenses are derived from the following equations respectively, as shown in Roychowdhury (2006).

$$\frac{CFO_{i,t}}{TA_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t-1}} + \alpha_2 \frac{REV_{i,t}}{TA_{i,t-1}} + \alpha_3 \frac{\Delta REV_{i,t}}{TA_{i,t-1}} + \gamma_{i,t} \quad (2)$$

$$\frac{DISEXP_{i,t}}{TA_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t-1}} + \alpha_2 \frac{REV_{i,t-1}}{TA_{i,t-1}} + \delta_{i,t} \quad (3)$$

where $CFO_{i,t}$ in equation (2) is cash flow from operations of i bank in year t ; $TA_{i,t-1}$ is total assets of i bank in year $t-1$; $REV_{i,t}$ is the total revenue of i bank during year t ; $\Delta REV_{i,t}$ is the change in revenue of i bank in year t ; the estimated $\gamma_{i,t}$ is the estimated error term, used as the measure of the abnormal cash flows for i bank. And, $DISEXP_{i,t}$ in equation (3) is the discretionary expenditures of i bank in year t , defined as the sum of advertising expenses, and selling, general and administrative expenses; the estimated $\delta_{i,t}$ is the estimated error term, namely the abnormal discretionary expenses for i bank. Specifically, our real earnings management variable, REM , is measured by the sum of the abnormal provision for loan/or asset losses, the abnormal cash flows and the abnormal discretionary expenses, respectively estimated by Equations (1), (2) and (3).

According our hypotheses, we argue that CEO characteristics will have significant impacts on the behavior of real earnings manipulation in the banking industry and the empirical model is established in equation (4).

$$\begin{aligned} REM = & \alpha_0 + \alpha_1 TEN + \alpha_2 AGC + \alpha_3 DUAL + \alpha_4 SHARE + \alpha_5 LOWATT + \alpha_6 OUTB \\ & + \alpha_7 TOTC + \alpha_8 CNC + \alpha_9 AGE + \alpha_{10} GEN + \alpha_{11} B_{size} + \alpha_{12} B_{ten} \\ & + \alpha_{13} B_{share} + \alpha_{14} B_{outb} + \alpha_{15} B_{ind} + \alpha_{16} MB + \alpha_{17} SIZE + \alpha_{18} ROA \\ & + \alpha_{19} LEV + \alpha_{20} CAPR + \alpha_{21} BigN + Year\ dummies + \varepsilon \end{aligned} \quad (4)$$

where REM is defined as above; TEN is the natural logarithm of number of years the CEO had held the position; AGC equals to one if the CEO is also served as the director of audit or governance⁷ committee, and zero otherwise. These two variables about CEO experience and profession (TEN and AGC) are predicted to improve the quality of earnings and thus decline in REM . Besides, $DUAL$ equals to one if the CEO serves both as a bank's CEO and board chair, and zero otherwise; $SHARE$ is measured as the proportion of the bank's equity held by the CEO. As abovementioned, CEO power, measured by $DUAL$ and $SHARE$, is predicted to be positively associated with REM . $LOWATT$ equals to one for the CEO attendance in board meeting less than 75 percent of the annual total meetings and zero otherwise, and $OUTB$, the number of directorships held by CEOs in the other firms, are expected to positively increase REM , suggesting that the quality of earnings will be impaired when the CEO spends less time in corporate business. Finally,

⁷ The governance committee, responsible for conducting the board's governance review and monitoring compliance with corporate governance guidelines, is shown associated with lower discretionary accounting accruals (Huang, Lobo and Zhou, 2005). Therefore, based on its similarity to the audit committees, this study designs the AGC variable as one when the CEO holds the membership in audit committee or governance committee and zero otherwise.

following Cadman, Carter and Hillegeist (2010), *TOTC* is natural logarithm of CEO total compensation, including salary, bonus, change in pension and deferred compensation, the fair value of the equity grants and other compensation in thousands of dollars. The other variable about CEO compensation motivation, *CNC*, is defined as one if the CEO serves in compensation or nomination⁸ committee and zero otherwise and expected to deteriorate reported earnings, i.e. positively associate with *REM*. Moreover, this study also considers the CEO age (*AGE*) and gender (*GEN*) for the completeness of CEO information.

Past literature indicates that the mechanism of board of directors has significant influences on the extent of earnings management (Klein, 2002; Laux and Laux, 2009) so this study takes the following five variables related to the board of directors into consideration. *B_size*, is the total number of directors in the board; *B_ten* is the average tenure of directors; *B_share* is the average shareholding of directors; *B_outb* is the average number of directorships held by the directors in the other firms, and *B_ind* is the percentage of independent directors in the board. Moreover, following prior research (Watts and Zimmerman, 1986; Roychowdhury, 2006; Chi, Lisic, and Pevzner, 2011; Zang, 2012), we add the ratio of market value to book value (*MB*) to control bank's growth rate, the natural logarithm of total assets (*SIZE*) to control the relative firm size in the banking industry, returns on total assets (*ROA*) to control business performance, the ratio of total liabilities to total assets (*LEV*) and the appointment of big audit firms (*BigN*) to control the potential influence on earnings management, and year indicators to capture the time-specific effect. Finally, regarding the banking industry applied in this study, we include the ratio of Tier 1 capital to risk-adjusted assets (*CAPR*) to control the risk of banks. The detailed definitions of variables are presented in Appendix.

In order to compare our new REM measure specific to the banking industry with the typical measure of earnings management, we replace the dependent variable *REM* in Equation (4) with accrual-based earnings management (*EM*) in Equation (5), which is measured by the abnormal provision for loan/or asset losses of banks estimated from model (1). The other variables in Equation (5) are the same as those in Equation (4).

$$\begin{aligned}
 EM = & \beta_0 + \beta_1 TEN + \beta_2 AGC + \beta_3 DUAL + \beta_4 SHARE + \beta_5 LOWATT + \beta_6 OUTB \\
 & + \beta_7 TOTC + \beta_8 CNC + \beta_9 AGE + \beta_{10} GEN + \beta_{11} B_{size} + \beta_{12} B_{ten} \\
 & + \beta_{13} B_{share} + \beta_{14} B_{outb} + \beta_{15} B_{ind} + \beta_{16} MB + \beta_{17} SIZE + \beta_{18} ROA \\
 & + \beta_{19} LEV + \beta_{20} CAPR + \beta_{21} BigN + Year\ dummies + \mu
 \end{aligned} \tag{5}$$

3.2 Data

⁸ One of the nomination committee authorities is to release the list of candidates of chairman, directors and so on based on candidates' skills. Of course, the candidates include the directors in compensation committees. Therefore, we suggest that the motivation from the directorship of compensation and nomination committees, to some extent, is similar and thus the *CNC* variable is equal to one when the CEO is the director of compensation committee or nomination committee.

Our sample contains 73 banking institutions with SIC code 6020, 6035 and 6036 during period 2004 to 2007. The sample selection process and yearly distribution are tabulated in Table 1. We start in fiscal year 2004 because it is the first year of operating cash flow available in Compustat. And, we end the sample year at 2007 to avoid the influence of financial crisis of 2008; however, we also examine the model during financial crisis from year of 2008 to 2009 as a comparison to the results before crisis.

All financial data are available in Compustat from 2004 to 2007 and CEO's compensation data are collected from ExecuComp, resulting in 926 bank-year observations. CEO characteristics including tenure shareholdings, attendant frequency and other firm's board serving are collected from RiskMetrics. After merging the data of CEO characteristics with financial and compensation data and excluding outliers from the sample, we end up with 180 observations as our final sample.

4. Results

4.1 Descriptive statistics

Panel A of Table 2 reports the descriptive statistics for all variables used in this study. The natural logarithm value of CEO's directorship tenure (*TEN*) is 2.461 on average, namely 14.267 years, showing that CEOs generally possess abundant directorate experiences. About 11.7 and 8.9 percent of CEOs also serve on the auditing or corporate governance committees (*AGC*) and compensation or nominating committees (*CNC*), respectively. In terms of CEO power, about 81.1 percent of CEOs simultaneously serves as chairman of the director board (*DUAL*); however, their shareholdings are not high (the mean of *SHARE* is only 1.978 percent)⁹. Moreover, most CEOs dutifully attend the meeting of boards (*LOWATT*) and unlikely hold a lot of additional directorships (*OUTB*) (the means of *LOWATT* and *OUTB* are 0.006 and 0.078, respectively). Finally, the untabulated mean and median of CEOs' age (*AGE*) are 59.6 and 60 years old (the mean and median of *AGE* are 2.722 and 3.000, respectively), and there are only two banks with female CEOs (the mean of *GEN* is 0.011) in our sample.

The pay-performance sensitivity of managerial compensation structures implies different CEO's risk-taking behavior which might relate to CEO's incentives of earnings management. Therefore, we further separate the sample into high and low pay-performance-sensitivity (HPPS and LPPS, hereafter) subsamples and do the bivariate test of all hypothesized variables between HPPS and LPPS shown in Panel B of Table 2. The Panel B of Table 2 indicates that CEOs at HPPS have significantly longer tenure than those CEOs at LPPS, consistent with the findings of Fahlenbrach (2009). Moreover, CEOs with the high pay-performance sensitivity are more likely to serve the board chairman simultaneously and also hold additional directorships compared to those CEOs with the low pay-performance sensitivity. As expected, CEOs at HPPS are

⁹ Jensen and Murphy (1990) also report trivial ownership levels held by CEOs.

significantly paid higher than those CEOs at LPPS. Above tests suggest that the impact of CEO characteristics on bank's earnings management deserves the further investigation in terms of HPPS and LPPS.

<PLEASE INSERT TABLE 2 HERE>

Table 3 presents the correlation matrix of variables used in the regression analysis. Two dependent variables (*REM* and *EM*) are expectedly correlated to the other hypothesized variables. Regarding CEO characteristics, only the gender of CEO is significantly associated with *REM* and *EM* without controlling other variables. While the Pearson and Spearman correlation coefficients between *SHARE* and *B_share* are 0.752 and 0.700, respectively, and the Pearson correlation coefficient between *SIZE* and *B_outb* is 0.741, all the other coefficients are less than 0.652. The viral infectivity factors of all the variables are also less than 10, suggesting that multicollinearity problem is not serious.

<PLEASE INSERT TABLE 3 HERE>

4.2 Empirical Results

The empirical results in Table 4, using robust regression estimation, illustrate the association between the CEO characteristics and two types of earnings management measured by *REM* and the traditional accrual-based measure (*EM*) as Robb (1998). The higher adjusted R square of *REM* model with a value of 0.19 compared to 0.16 of *EM* model tells that the new measure of earnings management, *REM*, could be more completely interpreted by CEO characteristics in the banking industry than the traditional accrual-based measure, *EM*.

Regarding the CEO experience and profession, both the coefficients of *TEN* and *AGC* have significantly negative association with earnings management. CEO's tenure (*TEN*) is negatively associated with *REM* and *EM* at 1% and 5% levels of significance, respectively (-0.0156, p-value < 0.01 at *REM*; -0.0105, p-value < 0.05 at *EM*). If CEO serves as a director in audit/governance committee (*AGC*), the earnings management will be also mitigated significantly (-0.0292, p-value < 0.05 at *REM*; -0.0245, p-value < 0.05 at *EM*). Above results indicate that CEO experience and profession help to reduce earnings management in the banking industry, confirming our hypothesis 1. The empirical results of CEO power, proxied by *DUAL* and *SHARE*, partially support our hypothesis 2. Only CEO duality (*DUAL*) is shown harmful to quality of reported earnings based on the significantly positive coefficients on *DUAL* (0.0147, p-value < 0.1 at *REM*; 0.0147, p-value < 0.1 at *EM*). The coefficients of *SHARE* are not significant in the influence of earnings management.

As expected as our hypothesis 3, our empirical results present the statistically positive association between earnings management and CEO's diligence (*LOWATT* and *OUTB*) in both *REM* and *EM* models, meaning that reported earnings could be managed when CEOs attend board meetings less frequently (value of dummy variable *LOWATT*=1) and when CEOs hold more than

two directorships in other firms (value of dummy variable *OUTB*=1). These results suggest that the quality of earnings is likely weakened when CEOs are not diligent and less focused on a specific bank. Moreover, CEO compensation is positively associated with earnings management based on the coefficients of *TOTC* and *CNC* (coefficients of *TOTC*=0.0200 and *CNC*=0.0395 at *REM* model with both p-values < 0.01; coefficients of *TOTC* =0.0154 with a p-value < 0.01, *CNC*=0.0346 with a p-value < 0.05 at *EM* model). These results reveal that greater CEO's compensation and the directorate in compensation committee will significantly increase earnings management, confirming our hypothesis 4.

In summary, above results generally support the significant influence of CEO characteristics in bank's earnings management.

<PLEASE INSERT TABLE 4 HERE>

In view of the results of bivariate tests shown on Table 2, we extend the inference of hypothesis 4, that is, we argue that the extent of earnings management is closely related to CEO's compensation structure. Therefore, we investigate the association between CEO characteristics and the behavior of real activities manipulation, subject to CEO pay-performance sensitivities. As shown in Table 5, we split the sample into high- (HPPS) and low- (LPPS) pay-performance-sensitivity banks and re-examine the effect of CEO characteristics on earnings management. We find that there are significantly different determinants in bank's earnings management between these two subsamples in terms of CEO experiences, CEO power, CEO diligence and CEO compensation as well. Regarding CEO experiences measured by tenure (*TEN*), we interestingly find a significantly positive and negative relationship to REM with respective to HPPS and LPPS banks (HPPS coefficient of *TEN* = 0.0482, p-value < 0.01; LPPS coefficient of *TEN* = -0.0180, p-value < 0.01). These results indicate that CEOs in banks with high pay-performance-sensitivity will involve in more real activities manipulation when they have longer tenures while longer tenured CEOs will decrease earnings manipulation in low pay-performance-sensitivity banks. We conjecture that CEOs in HPPS banks tend to closely link their compensation with tenure which motivates them to manipulate earnings for maximizing their wealth than those CEOs in LPPS banks. Therefore, the *TEN* results shown in Table 5 present significantly opposite direction. As to the CEO power, we find the CEO shareholding coefficient (*SHARE*) is significantly and positively associated with REM (0.0154, p-value < 0.01) in HPPS banks while it is not significant in LPPS banks (0.0020, p-value > 0.1), implying that higher CEO's shareholding in HPPS banks will worsen the earnings quality because it may enhance high pay-performance-sensitivity CEO's power in corporate decision and impair earnings quality. For low pay-performance-sensitivity CEO, our results do not provide any significant evidence of earnings management even CEO power gets stronger.

Besides, we also find other different results between HPPS and LPPS banks. CEO's diligence measured by CEO's holding other directorships (*OUTB*) turns out to significantly and positively

relate to earnings manipulation in HPPS banks; again, not significance in LPPS banks. This indicates that CEOs in HPPS banks cannot stay their attentions on management if they serve more directorships in other banks so to decrease reported earnings quality while it is not true in LPPS banks. This implies that HPPS banks need more CEO's diligence than LPPS banks do. Regarding CEO compensation, the coefficients of *TOTC* variable in Table 5 show the significantly positive relationship with REM in LPPS banks (0.0133, p-value < 0.05), but, no significance in HPPS banks (0.0001, p-value > 0.1), suggesting that LPPS banks cannot rely on giving CEO incentive compensation to maintain earnings quality since higher pay to CEO in LPPS banks will raise the extent to manage earnings.

To sum up, our findings not only confirm the importance of CEO characteristics in bank's earnings management but also further discover that CEO characteristics have different influences in earnings management at banks with high and low CEO pay-performance-sensitivity.

<PLEASE INSERT TABLE 5 HERE>

5. Additional Tests

To additionally examine the association between CEO's characteristics and real and accrual-based earnings management, we use different estimation - the OLS regression shown in Table 6 and a different sample period - financial crisis period shown in Table 7.

As shown in Table 6, the results are similar as those in Table 4 to confirm that CEO characteristics do have significant impacts on bank's earnings management but the adjusted R squares in Table 6 are lower than those derived from the robust regression models in Table 4.

<PLEASE INSERT TABLE 6 HERE>

Moreover, the financial crisis of 2008 is the worst financial crisis since the Great Depression of the 1930s and indeed has substantial influences on bank's management ever since. The crisis resulted in banking panics, the collapse of large financial institutions and downturns in stock markets spilled over the world. Thus, we use financial crisis period of 2008 to 2009 to additionally test the association between CEO's characteristics and real earnings management in Table 7. Table 7 presents the results during financial crisis and allows us to compare with those in Table 4 before crisis.

We interestingly find quite different evidences during the financial crisis shown in Table 7 from those results before crisis in Table 4. During the financial crisis period, only CEO's experience and profession, measured by *TEN* and *AGC*, significantly affect bank's earnings management in a way of opposite signs from the results before crisis in Table 4. The results before crisis in Table 4 show tenured CEO helps to mitigate earnings management during non-crisis period. In contrast, the coefficient of *TEN* in Table 7 (0.0100, p-value < 0.05) is positively

associated with REM, suggesting that experienced CEO will tactfully know how to manipulate earnings during the crisis period. Also, past literature evidenced that tenured CEOs likely overstate earnings in their final years of service in order to boost their pays (Chen 2004; Kalyta, 2009), which might cause tenured CEO involved in earnings management during financial crisis.

The second different findings during the crisis period are the directorship on audit or governance committee (AGC). As shown in Table 7, it is reported to be significantly positive with REM at a coefficient of 0.0310 (p -value < 0.05), which is opposite to the results before crisis in Table 4. This indicates that CEO's directorship in audit or governance committee during the financial crisis is unable to function as a monitor like it serves to help reduce earnings management during regular periods. We conjecture that a directorship in audit or governance committee allow CEOs to window dressing the financial statements when facing serious financial crisis, which causes greater earnings management during crisis.

In summary, we significantly found that CEO's experience and profession cannot help banks to mitigate earnings management during the financial crisis, but, it does enhance bank's quality of earnings during the non-crisis period.

6. Conclusion

The CEO's power and responsibility of firm performance may cause manager's earnings management. Following agency problems proposed by Jensen (1986), it deserves further addressing the association between CEO's attitudes and firm's earnings management. We argue that CEO's characteristics, such as, experience and profession, power to corporate business, diligence and compensation motivation are related to bank's earnings management. John and Qian (2003) point out that banks as a regulated industry are characterized with high-leverage and agency problems do occur in the banking industry. During the financial tsunami occurred in year 2008, bank CEO's excessive compensation had been seriously challenged by the question whether bank CEOs duly do their job or get over compensation from earnings manipulation. Accordingly, we examine how bank's CEO characteristics are associated with bank's earnings management using US commercial banks during 2004 to 2007, and additionally test the association using data after the financial crisis during 2008 to 2009 as a comparison. In view of questioning bank CEO's over-pay, we also examine the association considering different levels of CEO compensation.

Past literature in the measure of bank's earnings management mainly applies accrual-based earnings management in terms of abnormal loan loss provisions based on Robb (1998). This traditional measure focusing on net interest income is more easily detected by auditors because it is subject to accounting methods or estimates required to explicitly explain in financial statements. Moreover, the banking industry has steadily moved from the traditional role of financial intermediation and increasingly relies on non-traditional business activities that generate fee income, dealings profit and other types of noninterest income. Therefore, we contribute to use a

new measure more attached to current revenue model in the banking industry, the real earnings management (REM), combining bank's abnormal cash flows, abnormal discretionary expenses and abnormal loan losses provision, as proxy of earnings management.

As expected, our empirical findings support the significant influence of CEO characteristics in bank's earnings management including CEO experience and profession (Hypothesis 1), CEO power measured by *DUAL* (Hypothesis 2), CEO diligence (Hypothesis 3) and CEO compensation (Hypothesis 4) as well. Among these, CEO power and compensation have positive effects on bank's earnings management; CEO experience and profession and diligence negatively affect bank's earnings management. Our findings not only confirm the importance of CEO characteristics in bank's earnings management but also further discover that CEO characteristics have different influences in earnings management at banks with high and low CEO pay-performance-sensitivity. To a certain extent, CEO characteristics are as expected to have impacts on both HPPS and LPPS bank's earnings management except for *TEN* which turns out to have a positive effect in HPPS banks and a negative effect in LPPS banks. CEO power has significant influence in HPPS bank's REM while it is not supported in LPPS banks. Regarding to CEO diligence and compensation, both have different impacts on earnings management. Holding other directorship (*OUTB*) has a significant effect on REM at HPPS while it is not at LPPS. On the contrary, CEO's meeting attendance (*LOWATT*) and CEO's directorship in compensation or nomination committee (*CNC*) have affected REM at LPPS while they are not at HPPS.

As to the results during the financial crisis, we surprisingly found that only CEO experience and profession has a significantly positive effect on bank's REM while all CEO characteristics have impacts on bank's earnings management during regular periods. We conjecture that CEO experience facilitates them to window dressing the financial statements when facing serious financial crisis.

To our knowledge, this study is firstly documented in related literature in bank's earnings management not only in the measure of earnings management but also in the empirical findings of high vs. low CEO pay-performance-sensitivity and of the regular periods vs. the financial crisis period. Those results should provide valuable reference to policy decision makings and bank management.

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TABLE 1
Sample Selection and Yearly Distribution

	Number of Observations				Total
	2004	2005	2006	2007	
All available data of banks in Compustat	231	231	232	232	926
Missing compensation data in ExecuComp					
Missing CEO data in RiskMetrics	(153)	(154)	(186)	(166)	(659)
Missing financial data	(61)	(64)	(43)	(62)	(40)
1% outliers	(9)	(11)	(5)	(22)	(47)
Final sample	51	53	37	39	180

TABLE 2
Descriptive Statistics

Panel A Descriptive Statistics for Variables					
Variables	Mean	Median	1st Quartile	3rd Quartile	Std. Deviation
<i>TEN</i>	2.461	2.639	2.079	2.996	0.715
<i>AGC</i>	0.117	0.000	0.000	0.000	0.322
<i>DUAL</i>	0.811	1.000	1.000	1.000	0.393
<i>SHARE</i>	1.978	0.803	0.223	2.518	3.606
<i>LOWATT</i>	0.006	0.000	0.000	0.000	0.075
<i>OUTB</i>	0.078	0.000	0.000	0.000	0.269
<i>TOTC</i>	7.847	7.809	7.078	8.454	0.943
<i>CNC</i>	0.089	0.000	0.000	0.000	0.285
<i>AGE</i>	2.722	3.000	2.000	4.000	1.078
<i>GEN</i>	0.011	0.000	0.000	0.000	0.105
<i>B_size</i>	12.383	12.000	10.000	15.000	3.596
<i>B_ten</i>	10.291	10.250	8.025	12.444	3.295
<i>B_share</i>	0.461	0.312	0.117	0.521	0.575
<i>B_outb</i>	0.537	0.333	0.100	0.815	0.562
<i>B_ind</i>	0.742	0.769	0.667	0.818	0.117
<i>MB</i>	2.113	1.982	1.598	2.589	0.762
<i>SIZE</i>	9.837	9.524	8.802	10.720	1.365
<i>ROA</i>	0.012	0.012	0.009	0.014	0.004
<i>LEV</i>	0.905	0.906	0.894	0.922	0.024
<i>CAPR</i>	9.604	9.445	8.410	10.665	1.798
<i>BigN</i>	0.656	1.000	0.000	1.000	0.477

Panel B Comparison of High Pay-Performance-Sensitivity (HPPS) Firms versus Low Pay-Performance-Sensitivity (LPPS) Firms

Variables	HPPS		LPPS		Difference	
	Mean	Median	Mean	Median	t-test	z-test
<i>TEN</i>	2.641	2.708	2.406	2.639	0.235**	0.069
<i>AGC</i>	0.143	0.000	0.109	0.000	0.034	0.000
<i>DUAL</i>	0.905	1.000	0.783	1.000	0.122**	0.000*
<i>SHARE</i>	1.504	0.742	2.122	0.819	-0.618	-0.077
<i>LOWATT</i>	0.000	0.000	0.007	0.000	-0.007	0.000
<i>OUTB</i>	0.143	0.000	0.058	0.000	0.085	0.000*
<i>TOTC</i>	8.724	8.902	7.580	7.557	1.144***	1.345***
<i>CNC</i>	0.071	0.000	0.094	0.000	0.023	0.000
<i>AGE</i>	2.905	3.000	2.667	3.000	0.238	0.000
<i>GEN</i>	0.000	0.000	0.015	0.000	-0.015	0.000
<i>B_size</i>	13.595	13.500	12.015	12.000	1.580**	1.500**
<i>B_ten</i>	9.690	9.125	10.473	10.545	-0.783	-1.420*
<i>B_share</i>	0.312	0.266	0.507	0.322	-0.195***	-0.056**
<i>B_outb</i>	0.610	0.348	0.514	0.333	0.096	0.015
<i>B_ind</i>	0.748	0.750	0.740	0.769	0.008	-0.019
<i>MB</i>	2.021	1.910	2.141	2.005	-0.119	-0.095
<i>SIZE</i>	10.434	10.099	9.655	9.403	0.780***	0.696**
<i>ROA</i>	0.011	0.012	0.012	0.012	-0.001	0.000
<i>LEV</i>	0.902	0.903	0.906	0.906	-0.004	-0.003
<i>CAPR</i>	9.187	9.005	9.731	9.670	-0.544**	-0.665*
<i>BigN</i>	0.714	1.000	0.638	1.000	0.076	0.000
N	42		138			

*, **, *** Denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on a two-tailed test for variables.

Test for differences in the means and medians are based on pooled t-test and z-test, respectively.

We show the descriptive statistics of full sample period includes fiscal years 2004 to 2007 in Panel A, and compare the means and medians of the high and low pay-performance-sensitivity subsamples in Panel B.

All variables are defined in Appendix.

TABLE 3
Pearson (Spearman) Correlation Matrix

Variables	<i>REM</i>	<i>EM</i>	<i>TEN</i>	<i>AGC</i>	<i>DUAL</i>	<i>SHARE</i>	<i>LOWATT</i>	<i>OUTB</i>	<i>TOTC</i>	<i>CNC</i>	<i>AGE</i>	<i>GEN</i>	<i>B_size</i>	<i>B_ten</i>	<i>B_share</i>	<i>B_outb</i>	<i>B_ind</i>	<i>MB</i>	<i>SIZE</i>	<i>ROA</i>	<i>LEV</i>	<i>CAPR</i>	<i>BigN</i>
<i>REM</i>	1.000	NA	-0.114	-0.012	0.065	-0.031	0.083	-0.000	0.041	0.103	-0.034	0.194***	-0.090	-0.091	-0.065	-0.019	0.061	-0.049	-0.045	-0.101	0.064	-0.003	-0.068
<i>EM</i>	NA	1.000	-0.118	-0.003	0.062	-0.054	0.100	-0.044	0.017	0.121	-0.049	0.177**	-0.111	-0.089	-0.079	-0.031	0.080	-0.005	-0.071	-0.039	0.047	0.041	-0.066
<i>TEN</i>	-0.080	-0.063	1.000	-0.098	0.326***	0.297***	-0.089	0.103	0.238***	-0.133*	0.223***	0.076	0.036	0.396***	0.105	0.051	-0.018	-0.042	0.124*	-0.037	0.078	-0.118	0.015
<i>AGC</i>	-0.065	-0.037	-0.167**	1.000	0.043	-0.189**	0.206***	0.218***	0.089	0.434***	0.174**	-0.039	0.091	-0.113	-0.147**	0.225***	0.051	0.013	0.211***	0.072	-0.071	-0.050	-0.101
<i>DUAL</i>	0.053	0.053	0.249***	0.043	1.000	0.006	0.036	0.087	0.167**	0.101	0.364***	0.051	0.166**	0.178**	-0.205***	0.146*	0.102	0.049	0.240***	-0.014	0.129*	-0.214***	0.098
<i>SHARE</i>	0.022	0.007	0.417***	-0.475***	0.001	1.000	-0.038	-0.141*	0.004	-0.167**	-0.130*	0.025	-0.254***	0.297***	0.752***	-0.097	-0.190**	0.031	-0.233***	0.018	0.068	0.069	0.0192
<i>LOWATT</i>	0.091	0.096	-0.101	0.206***	0.036	-0.078	1.000	-0.022	0.027	-0.023	-0.050	-0.008	0.138*	0.065	-0.021	0.034	-0.172**	0.056	0.021	0.122	-0.060	0.026	0.054
<i>OUTB</i>	0.044	0.030	0.095	0.218***	0.087	-0.311***	-0.022	1.000	0.235***	-0.018	0.191**	-0.031	0.345***	-0.115	-0.167**	0.495***	0.122	-0.092	0.451***	0.030	-0.052	-0.208***	-0.051
<i>TOTC</i>	0.081	0.083	0.203***	0.097	0.185**	-0.071	0.040	0.204***	1.000	-0.031	0.070	-0.099	0.300***	-0.020	-0.093	0.395***	-0.048	0.113	0.569***	0.282***	0.012	-0.197***	0.089
<i>CNC</i>	0.018	0.034	-0.171**	0.434***	0.101	-0.426***	-0.023	-0.018	-0.029	1.000	0.081	-0.033	0.124*	-0.002	-0.130*	0.021	0.032	0.010	0.031	0.125*	-0.084	0.056	-0.102
<i>AGE</i>	0.005	-0.017	0.204***	0.171**	0.370***	-0.135*	-0.057	0.192***	0.074	0.067	1.000	-0.022	0.238***	0.128*	-0.128*	0.138*	0.001	-0.140*	0.275***	-0.102	0.025	-0.216***	0.095
<i>GEN</i>	0.148**	0.144*	0.081	-0.039	0.051	0.102	-0.008	-0.031	-0.101	-0.033	-0.031	1.000	-0.115	0.078	0.018	-0.003	-0.037	-0.059	-0.058	-0.087	0.162**	-0.207***	-0.146*
<i>B_size</i>	-0.050	-0.075	0.011	0.128*	0.175**	-0.458***	0.120	0.345***	0.288***	0.137*	0.239***	-0.141*	1.000	-0.012	-0.423***	0.252***	-0.027	-0.032	0.465***	0.118	-0.155**	-0.079	-0.069
<i>B_ten</i>	-0.091	-0.074	0.472***	-0.124*	0.167**	0.330***	0.088	-0.142*	-0.045	0.001	0.149**	0.105	-0.030	1.000	0.279***	-0.184**	-0.111	0.167**	-0.122	0.109	0.169**	0.021	0.170**
<i>B_share</i>	-0.042	-0.043	0.169**	-0.194***	-0.153**	0.700***	-0.008	-0.321***	-0.183**	-0.152**	-0.178**	0.098	-0.543***	0.368***	1.000	-0.132*	-	0.012	-0.353***	0.039	-0.087	0.186**	0.091
																							0.339***
<i>B_outb</i>	0.004	0.035	0.038	0.193***	0.116	-0.392***	0.061	0.393***	0.424***	0.079	0.033	0.038	0.280***	-0.166**	-0.391***	1.000	0.153**	0.033	0.741***	0.179**	0.023	-0.231***	-0.069
<i>B_ind</i>	-0.021	0.011	-0.058	0.100	0.054	-0.208***	-0.126*	0.150**	-0.022	0.061	-0.002	-0.044	0.005	-0.161**	-0.305***	0.136*	1.000	0.052	0.066	-0.028	0.066	-0.073	-0.114
<i>MB</i>	-0.068	-0.025	-0.014	-0.006	0.023	0.015	0.078	-0.105	0.115	0.048	-0.107	-0.070	0.001	0.171**	0.119	0.082	0.058	1.000	-0.093	0.573***	0.402***	0.243***	-0.123
<i>SIZE</i>	-0.014	-0.006	0.200***	0.196***	0.284***	-0.368***	0.042	0.402***	0.589***	0.042	0.278***	-0.052	0.462	-0.046	-0.491***	0.652***	0.083	-0.052	1.000	0.111	0.073	-0.419***	0.017
<i>ROA</i>	-0.099	-0.029	-0.013	0.057	-0.028	-0.166**	0.111	0.018	0.275***	0.174**	-0.120	-0.118	0.114	0.066	-0.119	0.255***	-0.016	0.551***	0.117	1.000	-0.144*	0.194***	0.064
<i>LEV</i>	0.026	0.004	0.054	-0.089	0.133*	0.181***	-0.096	-0.106	0.010	-0.125*	0.022	0.170**	-0.301***	0.123	0.195***	-0.027	0.036	0.412***	0.029	-0.159**	1.000	-0.247***	-0.066
<i>CAPR</i>	-0.052	-0.003	-0.130*	-0.031	-0.215***	0.022	0.044	-0.224***	-0.211***	0.081	-0.197***	-0.180**	-0.035	0.069	0.188**	-0.181**	-0.025	0.312***	-0.480***	0.229***	-0.228***	1.000	-0.063
<i>BigN</i>	-0.046	-0.032	0.019	-0.101	0.098	0.090	0.054	-0.051	0.080	-0.102	0.103	-0.146*	-0.057	0.164**	0.097	-0.046	-0.112	-0.127*	0.043	0.078	-0.076	-0.097	1.000

*, **, *** Denote statistical significance at the 10, 5, and 1 percent levels, respectively (two-tailed). Pearson (Spearman) correlations are above (below) the diagonal. The correlation between *REM* and *EM* is shown as NA because these two variables are applied to the different models. The sample period includes fiscal years 2004 to 2007. All variables are defined in Appendix.

TABLE 4

The Association between CEO's Characteristics and earnings management (*REM* and *EM*)

Independent Variables	Pred. Sign	<i>REM</i>		<i>EM</i>	
		(derived from Equation (4))		(derived from Equation (5))	
		Coeff.	Chi-Square	Coeff.	Chi-Square
<i>Intercept</i>		-0.1531	0.48	-0.1304	0.37
<i>TEN</i>	(-)	-0.0156***	5.96	-0.0105**	2.82
<i>AGC</i>	(-)	-0.0292**	4.58	-0.0245**	3.36
<i>DUAL</i>	(+)	0.0147*	1.74	0.0147*	1.81
<i>SHARE</i>	(+)	0.0010	0.32	0.0005	0.11
<i>LOWATT</i>	(+)	0.1050**	4.13	0.1147**	5.15
<i>OUTB</i>	(+)	0.0267**	2.73	0.0208*	1.74
<i>TOTC</i>	(+)	0.0200***	15.89	0.0154***	9.76
<i>CNC</i>	(+)	0.0395***	7.13	0.0346**	5.69
<i>AGE</i>	?	0.0043	1.19	0.0033	0.73
<i>GEN</i>	?	0.0925*	6.30	0.0887*	6.05
Control variables:					
<i>B_size</i>		-0.0018	1.39	-0.0022*	2.16
<i>B_ten</i>		0.0008	0.27	0.0001	0.00
<i>B_share</i>		0.0003	0.00	-0.0002	0.00
<i>B_outb</i>		0.0004	0.00	0.0000	0.00
<i>B_ind</i>		0.0395	1.28	0.0363	1.13
<i>MB</i>		-0.0082	0.92	-0.0039	0.22
<i>SIZE</i>		-0.0063	1.28	-0.0042	0.59
<i>ROA</i>		-1.0920	0.63	-0.2896	0.05
<i>LEV</i>		0.1111	0.23	0.0849	0.14
<i>CAPR</i>		0.0025	1.04	0.0032*	1.73
<i>BigN</i>		-0.0472***	7.27	-0.0468***	7.48
Year dummy		Included		Included	
Adj. R ²		0.19		0.16	
N=180					

The dependent variables, *REM* and *EM*, are separately estimated from Equations (4) and (5), and the results are derived from the sample period including fiscal years 2004 to 2007. All continuous variables are deleted at the 0.5th and 99.5th percentiles to reduce the effect of outliers. All variables are defined in Appendix.

***, **, * Denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on a one-tailed test for variables with a directional expectation and two-tailed for variables with no directional expectation.

TABLE 5
Comparison between High and Low Pay-Performance-Sensitivity Banks

Independent Variables	Pred. Sign	Dependent variable = <i>REM</i>			
		HPPS		LPPS	
		Coeff.	Chi-Square	Coeff.	Chi-Square
<i>Intercept</i>		0.5506***	8.32	0.0707	0.08
<i>TEN</i>	(-)	0.0482***	21.13	-0.0180***	7.28
<i>AGC</i>	(-)	-0.0218*	2.34	-0.0487***	8.01
<i>DUAL</i>	(+)	-0.0039	0.06	0.0111	0.90
<i>SHARE</i>	(+)	0.0154***	17.33	0.0020	1.29
<i>LOWATT</i>	(+)	Not applicable		0.1395***	6.82
<i>OUTB</i>	(+)	0.0596***	13.72	0.0247	1.39
<i>TOTC</i>	(+)	0.0001	0.00	0.0133**	3.90
<i>CNC</i>	(+)	0.0534***	18.60	0.0357**	3.83
<i>AGE</i>	?	-0.0157***	8.48	0.0085**	3.67
<i>GEN</i>	?	Not applicable		0.1025***	7.92
Control variables:					
<i>B_size</i>		-0.0055***	9.95	-0.0029**	2.83
<i>B_ten</i>		-0.0031**	3.44	0.0008	0.21
<i>B_share</i>		-0.0642**	3.95	-0.0037	0.08
<i>B_outb</i>		-0.0006	0.00	0.0022	0.03
<i>B_ind</i>		-0.0229	0.25	0.0190	0.25
<i>MB</i>		0.0413***	19.24	-0.0004	0.00
<i>SIZE</i>		0.0080**	2.96	-0.0019	0.08
<i>ROA</i>		-2.6206**	3.67	-3.2276**	3.15
<i>LEV</i>		-0.6929***	14.68	-0.1010	0.14
<i>CAPR</i>		0.0046*	2.27	0.0038*	2.05
<i>BigN</i>		-0.0307**	2.93	-0.0386**	4.68
Year dummy		Included		Included	
Adj. R ²		0.57		0.23	
N=		42		138	

Table 5 shows the results of the high and low pay-performance-sensitivity subsamples defined by their levels of pay-performance sensitivities, and there are no estimated coefficients of *LOWATT* and *GEN* due to their identical values of zero in the HPPS subsample. All the results are derived from the regression model (4), where the dependent variable is *REM*, and applied to the sample period including fiscal years 2004 to 2007. All variables are defined in Appendix.

***, **, * Denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on a one-tailed test for variables with a directional expectation and two-tailed for variables with no directional expectation.

All continuous variables are deleted at the 0.5th and 99.5th percentiles to reduce the effect of outliers.

TABLE 6

The Association between CEO's Characteristics and Real Earnings Management as well as Accrual-based Earnings Management from OLS Regression Models

Independent Variables	Pred. Sign	Dependent variable:			
		<i>REM</i>		<i>EM</i>	
		(derived from Equation (4))		(derived from Equation (5))	
		Coeff.	t-value	Coeff.	t-value
<i>Intercept</i>		0.0507	0.21	0.0507	0.21
<i>TEN</i>	(-)	-0.0171***	-2.41	-0.0142**	-2.01
<i>AGC</i>	(-)	-0.0291**	-1.91	-0.0275**	-1.82
<i>DUAL</i>	(+)	0.0171*	1.37	0.0167*	1.35
<i>SHARE</i>	(+)	0.0016	0.85	0.0012	0.62
<i>LOWATT</i>	(+)	0.0990**	1.72	0.1089**	1.90
<i>OUTB</i>	(+)	0.0238*	1.32	0.0146*	0.82
<i>TOTC</i>	(+)	0.0168***	2.99	0.0144***	2.58
<i>CNC</i>	(+)	0.0372**	2.25	0.0374**	2.28
<i>AGE</i>	?	0.0010	0.22	0.0010	0.22
<i>GEN</i>	?	0.0864**	2.10	0.0816**	2.00
Control variables:					
<i>B_size</i>		-0.0025	-1.49	-0.0027*	-1.62
<i>B_ten</i>		0.0004	0.26	0.0001	0.07
<i>B_share</i>		-0.0099	-0.70	-0.0110	-0.78
<i>B_outb</i>		-0.0008	-0.07	0.0001	0.00
<i>B_ind</i>		0.0425	1.09	0.0478	1.23
<i>MB</i>		-0.0002	-0.02	0.0003	0.03
<i>SIZE</i>		-0.0048	-0.77	-0.0047	-0.76
<i>ROA</i>		-2.3734	-1.55	-1.3905	-0.91
<i>LEV</i>		-0.0609	-0.24	-0.0631	-0.25
<i>CAPR</i>		0.0024	0.86	0.0031*	1.12
<i>BigN</i>		-0.0403**	-2.07	-0.0382**	-1.97
Year dummy		Included		Included	
Adj. R ²		0.12		0.10	
N=180					

*, **, *** Denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on a one-tailed test for variables with a directional expectation and two-tailed for variables with no directional expectation.
All continuous variables are deleted at the 0.5th and 99.5th percentiles to reduce the effect of outliers.
The results are derived from OLS regression models where dependent variables are *REM* and *EM*, separately, and applied to the sample period including fiscal years 2004 to 2007.
All variables are defined in Appendix.

TABLE 7
The Association between CEO's Characteristics and Real Earnings Management after
Financial Crisis of 2008

Independent Variables	Pred. Sign	<i>REM</i>	
		(derived from Equation (4))	
		Coeff.	t-value
<i>Intercept</i>		0.5302	6.81
<i>TEN</i>	(-)	0.0100**	3.34
<i>AGC</i>	(-)	0.0310**	4.18
<i>DUAL</i>	(+)	0.0072	0.39
<i>SHARE</i>	(+)	0.0004	1.08
<i>LOWATT</i>	(+)	-0.0082	0.05
<i>OUTB</i>	(+)	-0.0018	0.01
<i>TOTC</i>	(+)	0.0012	0.03
<i>CNC</i>	(+)	-0.0058	0.23
<i>AGE</i>	?	-0.0044	1.01
<i>GEN</i>	?	Not applicable	
Control variables:			
<i>B_size</i>		0.0020	0.47
<i>B_ten</i>		0.0004	0.26
<i>B_share</i>		-0.0023	1.71
<i>B_outb</i>		-0.0143	0.00
<i>B_ind</i>		-0.0510	4.72
<i>MB</i>		-0.0084	3.82
<i>SIZE</i>		-0.0291***	1.12
<i>ROA</i>		1.9593***	2.72
<i>LEV</i>		-0.0521	0.26
<i>CAPR</i>		-0.0031	0.00
<i>BigN</i>		-0.0095**	0.07
Year dummy		Included	
Adj. R ²		0.58	
N=		82	

The results are derived from robust regression models where dependent variables are *REM*, and applied to the sample period including fiscal years 2008 to 2009. All continuous variables are deleted at the 0.5th and 99.5th percentiles to reduce the effect of outliers. All variables are defined in Appendix.

*, **, *** Denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on a one-tailed test for variables with a directional expectation and two-tailed for variables with no directional expectation.

APPENDIX
Definition of Variables

Variables	Definition
<i>REM</i>	<p>The sum of abnormal cash flows, abnormal discretionary expense, and abnormal provision for loan or asset losses.</p> <p>The abnormal cash flows are derived from the model of Roychowdhury (2006) as followed.</p> $\frac{CFO_{i,t}}{TA_{i,t}} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t}} + \alpha_2 \frac{REV_{i,t}}{TA_{i,t}} + \alpha_3 \frac{\Delta REV_{i,t}}{TA_{i,t}} + \varepsilon_{i,t}$ <p>where $CFO_{i,t}$ is cash flow from operations of i bank in year t; $TA_{i,t}$ is total assets of i bank in year t; $REV_{i,t}$ is the revenue of i bank during year t; $\Delta REV_{i,t}$ is the change in revenue of i bank in year t; $\varepsilon_{i,t}$ is error term, namely the abnormal cash flows for i bank.</p> <p>The abnormal discretionary expense is also derived from the model of Roychowdhury (2006) as followed.</p> $\frac{DISEXP_{i,t}}{TA_{i,t}} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t}} + \alpha_2 \frac{REV_{i,t}}{TA_{i,t}} + \delta_{i,t}$ <p>where $DISEXP_{i,t}$ is the discretionary expenditures of i bank in year t, defined as the sum of advertising expenses, and selling, general and administrative (SG&A) expenses; $\delta_{i,t}$ is error term, namely the abnormal discretionary expense for i bank.</p> <p>And, the abnormal provision for loan or asset losses is estimated from the model of Robb (1998) as followed.</p> $\frac{LLP_{i,t}}{TA_{i,t}} = \alpha_0 + \alpha_1 \frac{LLP_{i,t-1}}{TA_{i,t}} + \alpha_2 \frac{WO_{i,t}}{TA_{i,t}} + \alpha_3 \frac{WO_{i,t+1}}{TA_{i,t}} + \theta_{i,t}$ <p>where $LLP_{i,t}$ is i bank's provision for loan or asset losses to total assets in year t; $LLP_{i,t-1}$ is i bank's provision for loan or asset losses to total assets in year t-1; $WO_{i,t}$ is i bank's net charge-offs to total assets in year t; $WO_{i,t+1}$ is i bank's net charge-offs to total assets in year t+1; $\theta_{i,t}$ is error term, namely the abnormal provision for loan or asset losses for i bank.</p>
<i>EM</i>	Earnings management, measured by abnormal provision for loan or asset losses as abovementioned.
<i>TEN</i>	Natural logarithm of CEO's tenure.
<i>AGC</i>	1 if CEO is an audit or governance committee director; 0 otherwise.
<i>DUAL</i>	1 if CEO also holds the position of the chairman of the board; 0 otherwise.
<i>SHARE</i>	The percentage of shares held by CEO.
<i>LOWATT</i>	1 if the number of attended <75% of meetings; 0 otherwise.
<i>OUTB</i>	1 if CEO also holds the other two directorships; 0 otherwise.

<i>TOTC</i>	Natural logarithm of total compensation, which is the sum of salary, bonus, other annual compensation, restricted stock grants, long-term incentive plan payouts, all other compensation, and value of options exercised.
<i>CNC</i>	1 if CEO is an compensation or nominate committee director; 0 otherwise.
<i>AGE</i>	The percentile rank of the age of CEOs.
<i>GEN</i>	1 if CEO is female; 0 otherwise.
<i>CRIS</i>	Financial crisis of 2008; 1 for fiscal year after 2008 and 0 otherwise;
<i>PPS</i>	1 if the ratio of CEO's total compensation to earnings per share is greater than upper quartile for individual year; 0 otherwise.
<i>B_size</i>	The number of board directors.
<i>B_ten</i>	The average years of service of board members.
<i>B_share</i>	The average percent of shares held by board directors.
<i>B_lowatt</i>	The average number of attended <75% of meetings.
<i>B_outb</i>	The average number of outside directorship(s) held by board directors.
<i>B_ind</i>	The percent of independent board directors.
<i>MB</i>	The ratio of market value of equity to book value of equity.
<i>SIZE</i>	The logarithm of total assets.
<i>ROA</i>	Net income scaled by total assets.
<i>LEV</i>	Total liabilities scaled by total assets.
<i>CAPR</i>	Risk-adjusted capital ratio - Tier 1 capital.
<i>BigN</i>	1 if big 4 audit firms; 0 otherwise.
<i>Year dummy</i>	1 for specific fiscal year; 0 otherwise.