CEO Pay Gap and Bank Risk: Evidence from Listed Commercial Banks in China

Ning Ding[a], Fahad Najeeb Khan[b], Yuze Gu[c]

a) School of Finance, Dongbei University of Finance and Economics, Dalian-CHINA.
b) PhD Scholar at the School of Finance, Dongbei University of Finance and Economics, Dalian, China, and Lecturer at the MFK Noon Business School, University of Sargodha, Sargodha-PAKISTAN.
c) Department of Management and Economics, Tianjin University, Tianjin-CHINA.

[b]Corresponding author.
E-mail address: fahad.najeeb@uos.edu.pk

ABSTRACT

This paper investigates the influence of the chief executive officer (CEO) pay gap on bank risk in a distinct corporate governance context where CEO compensation is exclusively limited to a cash-based salary plus a bonus. A sample of 37 Chinese listed banks from 2010 to 2022 uses a fixed effect regression model. Consistent with the tournament theory, the authors conjecture that the CEO pay gap (CPG), measured by the pay gap (PGAP) and the CEO pay slice (CPS), is significantly and positively associated with bank risk, measured by the inverse z-score. Results reveal heterogeneity, with a notable positive effect evident in the subsets of non-state-owned and large banks. The study results have been extensively validated through several robustness checks, including alternate measures of the CPG, bank risk, the 2SLS-IV approach, and excluding the COVID-19 period. The paper has important implications for unique corporate governance systems, such as those that prevail in the Chinese banking system, where the results may inform and influence corporate practices and regulatory decisions.

Brecha salarial de los directores ejecutivos y riesgo bancario: evidencia de bancos comerciales que cotizan en bolsa en China

RESUMEN

Este artículo investiga la influencia de la brecha salarial del director ejecutivo (CEO) sobre el riesgo bancario en un contexto distinto de gobierno corporativo donde la remuneración del CEO se limita exclusivamente a un salario en efectivo más una bonificación. Una muestra de 37 bancos chinos que cotizan en bolsa entre 2010 y 2022 utiliza un modelo de regresión de efectos fijos. De acuerdo con la teoría del torneo, los autores conjeturan que la brecha salarial de los CEO (CPG), medida por la brecha salarial (PGAP) y la porción salarial de los CEO (CPS), está significativa y positivamente asociada con el riesgo bancario, medido por la inversa z- puntaje. Los resultados revelan heterogeneidad, con un notable efecto positivo evidente en los subconjuntos de bancos grandes y no estatales. Los resultados del estudio se han validado ampliamente mediante varias comprobaciones de solidez, incluidas medidas alternativas de la GPC, el riesgo bancario, el enfoque 2SLS-IV y excluyendo el período COVID-19. El documento tiene implicaciones importantes para sistemas únicos de gobierno corporativo, como los que prevalecen en el sistema bancario chino, donde los resultados pueden informar e influir en las prácticas corporativas y las decisiones regulatorias.

1. Introduction

The issue of executive remuneration plans and bank risk has been a highly discussed subject since the 2008[1] financial crisis. The blame for this crisis has been placed on the shoulders of highly paid bank executives who were involved in excessive risk-taking (Bolton, Mehran, & Shapiro, 2015; Fahlenbrach & Stulz, 2011; Guo, Jalal, & Khaksari, 2015). After the crisis, some restrictions were placed on executive compensation, such as taking approval from shareholders (Crawford, 2021). Similarly, the Chinese central government also placed some restrictions, such as capping the proportion of executive pay to the mean pay of employees in centrally administered state-owned enterprises (SOEs) (Bae, Gong, & Tong, 2024). CEOs of banks in the U.S. and other countries receive stock-based compensation, such as stock options, along with a cash-based salary (Pathan, Haq, & Morgan, 2023), while stock-based compensation schemes for bank CEOs in China are forbidden and only cash salary plus bonus is allowed (Huang, 2023; Jiang, Yuan, & Zhang, 2023). CEO is already positioned atop the bank's hierarchy and receives the maximum salary (Baker, Jensen, & Murphy, 1988), whereas non-CEO executives have benefits in the form of a compensation difference from that of the CEO (Bebchuk, Cremers, & Peyer, 2011; Kini & Williams, 2012). The discrepancy in compensation between CEOs and non-CEO executives is referred to as tournament incentives in the literature on executive pay. These incentives drive non-CEO executives to exert more effort to succeed in the tournament and get promoted to CEO. Non-CEO executives usually take more risk for this purpose, which may translate into higher returns for the firm (Kini & Williams, 2012).

A limited amount of research has examined the impact of tournament incentives on risk-taking outside of China. For instance, Kini and Williams (2012) reported that tournament incentives significantly and positively influence non-financial firms' risk-taking, firm focus, leverage, and research and development intensity. Similarly, Han, Che, and He (2022) study on 2534 U.S. non-financial firms also found that a large gap between the CEO's and CFO's pay leads to an aggressive capital structure with higher-risk investments. The study by Ali, Iqbal, Malik, and Rahman (2024) and Pathan et al. (2023) on U.S. bank holding companies (BHCs) documents a significant negative influence of the CPG on bank risk-taking. However, there are significant differences between executive remuneration and governance practices at Chinese banks compared to U.S. banks (Conyon & He, 2011). For example, CEOs at U.S. banks are permitted to receive stock-based pay, such as stock options, as part of their remuneration, but the same is forbidden in Chinese banks, where CEOs only get a cash-based salary plus bonus. The authors explored this gap in the literature. We examined how the CPG would affect bank risk, specifically, bank insolvency risk (BIR), measured by the natural log of the inverse z-score in the absence of stock-based compensation. For this purpose, we take a sample of Chinese listed banks, as stock-based compensation is forbidden in the Chinese banking sector.

The study analyzed data from 37 Chinese listed banks from 2010 to 2022. The authors found that the CEO pay gap (CPG) measured by the PGAP and the CPS is significantly and positively related to the bank insolvency risk (also called bank

risk in this paper) proxied by the inverse z-score supporting the tournament theory. The results show that the impact of CPG on bank risk varies depending on the kind of bank. Specifically, non-state-owned banks (non-SOB) and large commercial banks have a considerable positive impact, whereas state-owned banks (S0B) and small commercial banks have no significant influence. The study results survive a battery of robustness tests such as an alternative measure of the CPG, i.e., pay gap number 2 (PGN2) (the proportion of the disparity between CEO pay and CFO pay to total CEO pay), as this measure also has a significant favorable influence on bank risk. To further verify results, the authors took earning volatility risk (EVR) as a measure of bank risk and regressed it on the CPG. Again, we found a statistically significant direct influence of CEO pay disparity on EVR.

To address the endogeneity issue, the authors employed the 2SLS-IV approach by taking the CFO, who is also a vice president of the bank, as an instrumental variable and still found a noteworthy positive influence of the CPG on bank risk, thus mitigating the effect of endogeneity. The emergence of COVID-19 in late 2019 has significantly impacted the risk level of the banking industry (Duan, El Ghoul, Guedhami, Li, & Li, 2021). Therefore, this paper excludes the years 2020, 2021, and 2022 from the sample to alleviate the effect of COVID-19 on banking risk. The CPG still significantly and positively influences bank risk, strengthening the paper's main findings.

This study makes two contributions to the extant literature. First, to the best of the author's knowledge, this is the first study that empirically explored the influence of the CPG on banking risk in the Chinese context, which has very different CEO compensation schemes and governance practices than the rest of the world. For instance, unlike banks in other countries, stock-based compensation is forbidden in the Chinese banking sector. Second, this is the first study in the financial sector to find a significant positive influence of the CPG on banking risk in support of the tournament theory. Earlier research by Ali et al. (2024) and Pathan et al. (2023) on U.S. banks found a significantly adverse influence of the CPG on bank risk mainly driven by the stock-based compensation gap, and there was no significant effect of the cash-based pay gap in the form of salary plus bonus. This study found the opposite result for Chinese listed banks, which allow only cash-based salaries plus bonuses to banking executives, and reported that the cash-based CPG also matters for banking executives.

The subsequent sections of the paper are structured as follows: The second section contains information about the relevant literature and hypotheses of the study. The third section discusses the paper's methodology, including the baseline regression model and measurement of the study variables. The fourth section contains the result analysis and discussion of the baseline regression, summary statistics, heterogeneity analysis, and robustness tests. The last section contains the paper's conclusion.

2. Literature review

2.1. CPG and its influencing factors

Previous studies have reported that internal and external factors influence the within-firm executives' pay gap. For instance, Chen, Ezzamel, and Cai (2011) document that higher state ownership is negatively associated with the pay gap for Chinese listed firms. However, firm performance measured by earnings per share is positively related to the pay gap.

---

[1]Also referred to as the global financial crisis, began with the housing market bubble caused by too many mortgage-backed securities bundling high-risk loans, which started the financial catastrophe. Reckless lending caused massive loan defaults, which caused several financial institutions to collapse and demand government bailouts.

Chen, Ma, and Bu (2014) "studied the impact of effective board monitoring on the pay gap among Chinese enterprises and found that non-salaried directors nominated by block shareholders are more successful at reducing the within-firm pay gap than salaried directors because they are more independent and better prepared to oversee executives". Kong, Zhang, Wang, Yang, and Liu (2023) found that CEO political promotion in Chinese SOE significantly reduces the pay gap within the firm. Similarly, Bu, Zhang, and Lin (2016) reported that political promotion expectations narrow the salary gap within Chinese firms mainly due to the executives' acceptance of lower salary payments. Ding, Jia, Wilson, and Wu (2015) observed that CEOs with political connections obtain higher excess remuneration from non-SOE but not from SOE. Chizema, Liu, Lu, and Gao (2015) argued that politically connected board members are negatively related to top executives' compensation and pay gaps. Kong, Huang, and Ma (2023) reported that "the external governance factor, such as the anti-corruption campaign launched after the 18th National Congress of the Communist Party of China, has reduced the excessive executive-employee pay gap within Chinese firms". Jin, Li, and Liang (2023) found that firm exposure to a more robust Confucian culture (collectivist culture) is believed to be linked with lower CEO pay and a lower CPG in China. Various regulations imposed by the Chinese government also influence the pay gap for SOE. For example, Bae et al. (2024) document that the 2009 pay restriction policy significantly reduced CEO pay at centrally administered SOEs in China compared to firms not subject to the restriction. The performance of these firms also dropped after the pay restriction. Similarly, Jiao, Sun, and Liu (2024) reported that the 2014 pay ceiling order imposed in Chinese SOE banks significantly reduced executive-employee pay disparity. CEO tenure (CEOTEN) also influences the CPG because it indicates the executive influence over the board (Chen et al., 2011). Longer-tenured CEOs may pursue personal goals (Ryan & Wiggins, 2001) and raise their pay. Byrd, Cooperman, and Wolfe (2010) document that bank CEOs with tenure of more than six years result in a positive association between CEO pay and outside director tenure.

2.2. Relevant literature and theoretical background

One of the primary reasons for the 2008 financial crisis was the excessive risk-taking by highly paid bank executives. After the 2008 financial crisis, authorities imposed some modest restrictions on the compensation of bank executives. For example, the U.S. Securities and Exchange Commission (SEC) requires corporations to obtain approval from shareholders on executive pay packages (Crawford, 2021). Prior research has shown inconsistent findings on the correlation between executive remuneration and risk propensity, with some studies indicating a positive connection and others documenting a negative association. For example, in popular agency theory, Jensen and Meckling (1976) point out that, unlike shareholders, CEOs are reluctant to take on risky projects as they cannot diversify their risk.

Consequently, to convince CEOs to take higher risks, shareholders compensate CEOs with higher incentives to ensure the alignment of the CEO's and shareholders' interests, resulting in increased shareholder returns. According to Chen, Steiner, and Whyte (2006), the design of CEO remuneration packages has been seen to incentivize risk-taking behavior while including stock options as a compensation component, which also encourages risk-taking. Furthermore, it is worth noting that there is a correlation between risks and returns.

Consequently, the risk-taking endeavors undertaken by CEOs may also be advantageous to shareholders since they have the potential to earn higher returns. Similarly, the study conducted by DeYoung, Peng, and Yan (2013) also demonstrates a positive link between increased pay-for-risk incentives and higher levels of risk within the U.S. banking sector. Different compensation packages may trigger distinct responses among CEOs, with the state of the business cycle shaping these responses. For instance, Kolm et al. (2016) and Eufinger and Gill (2017) found that bank CEOs get into stock option incentives and make risk-seeking decisions to increase their portfolio. However, a study by Ongena, Savaser, and Ciamarra (2022) states that in recessions, the motivation of bank executives to adopt risky strategies is related to an elevated risk-taking level within the bank. Few other studies also confirmed the positive effect of CEO remuneration on risk-taking (Coles, Daniel, & Naveen, 2006; Ellul & Yerramilli, 2013; Kashyap, Rajan, & Stein, 2008).

Some scholarly evidence suggests a negative correlation between CEO incentives and risk-taking behavior. For instance, Lambert, Larcker, and Verrecchia (1991) suggested an inverse relationship between equity-based pay and risk-taking. Equity-based options are forbidden in the Chinese banking system. CEOs are given a fixed cash-based salary plus bonus, which may discourage them from taking more risks because they have nothing to gain if the bank performs well while taking higher risks. According to Pathan (2009), there exists a difference in the risk-taking behavior of managers who get paid via wage and salary contracts compared to those who are remunerated through stock and stock options. One may posit that CEOs who get a set salary plus bonus may exhibit risk-averse tendencies and lack adequate motivation to engage in excessive risk-taking since their gains are small in the event of extraordinary performance. Lee, Wang, and Zhang (2023) also document the negative impact of executives' compensation on bank systemic risk.

As discussed in executive compensation studies, the pay gap pertains to the disparity in compensation between the CEO and other executives who do not hold the CEO position. Two theories link bank CEOs' pay gap with their risk-taking. First, "the tournament theory indicates that a wider CEO pay disparity improves the personal payout for the non-CEO executive who 'wins the tournament' to become the next CEO" (Goel & Thakor, 2008; Lazear & Rosen, 1981). This theory predicts that "the non-CEO executives, such as the CFO, may be motivated by the larger pay disparity to take more risks by choosing more aggressive policies because such choices have the potential to produce higher outcomes (e.g., greater returns on equity for shareholders), which, in turn, provide the CFO with a higher likelihood of promotion to the CEO position" (Kubick & Masli, 2016). Han et al. (2022) provide evidence that the CEO-CFO pay gap encourages aggressive financial (aggressive capital structure) and investment policies that support high-risk investments. Similar findings were reported by Kini and Williams (2012), who document that the pay gap is positively related to high stock price volatility, leverage, firm focus, and volatility of cash flows. Jia (2018) also found that the remuneration gap between CEOs and non-CEOs was directly related to stock price crash risk. Non-CEO executives might differentiate themselves from their rivals by engaging in banks that involve high levels of risk but also provide great returns. This approach may be prevalent in banks with high financial leverage, which, in extreme circumstances, are bailed out by the government (Pathan et al., 2023).

The second theory is the CEO power theory, which states

that a wider CPG shows that the incumbent CEO has sufficient influence inside the corporation to justify a higher salary and perks. Powerful CEOs want to safeguard these financial benefits and their human capital, which is unique to the company. They may achieve this by decreasing the company's exposure to hazards to a level that matches their risk appetite. Bebchuk et al. (2011) found CEO pay disparity indirectly associated with profitability, stock returns, and firm value. Chen, Huang, and Wei (2013) found it negatively related to the cost of equity capital. The negative relationship between CPG and risk-taking has been verified in U.S. bank holding companies (BHCs) (Pathan et al., 2023). Similarly, Ali et al. (2024) investigated the managerial pay disparity (CEO pay disparity with other employees and top executives) and insolvency risk for U.S. BHCs from 1992-2018. In confirmation of CEO power theory, they found a negative relation between pay disparity and insolvency risk.

Empirical research suggests a positive association between CPG and risk-taking in non-financial firms. For instance, Phan, Simpson, and Nguyen (2017) found that tournament-based compensation given to executives encourages non-financial firms to take more risks, which translates into higher value for shareholders with more significant cash flow uncertainty. Similarly, Kini and Williams (2012) discovered a positive correlation between tournament incentives and the propensity of firms to take risks. Han, Che, and He (2022) study on 2534 U.S. non-financial firms also found that a large gap between the CEO's and CFO's pay leads to an aggressive capital structure with high-risk investments.

Past research has mixed results for financial firms on the influence of the executive pay gap on firm risk. For example, Kini and Williams (2012), in a separate examination of financial firms, document that the gap between the CEO pay and the median pay of all vice presidents is positively related to risk-taking. In contrast, Pathan et al. (2023) use a sample of 189 U.S. BHCs from 1992 to 2014 and document that a large CEO pay disparity is associated with lower risk-taking, greater financial transparency, and enhanced financial performance. Similarly, Ali et al. (2024) investigated the managerial pay disparity and default risk for U.S. BHCs from 1992-2018. They revealed that higher pay disparity between CEOs and other top managers is associated with lower default risk. A study by Bai and Elyasiani (2013) of 132 BHCs during the sample period of 1992-2008 also documented a negative relationship between CEO pay disparity and bank risk-taking (volatility of ROA and z-score). Corporate governance measures are very strong at U.S. banks (Abdelbadie & Salama, 2019), but this is not true for Chinese banks. Further, there are significant differences between the pay schemes for CEOs of banks in the U.S. and China, such that only cash-based salaries and bonuses are allowed to bank CEOs in China (Boateng, Nguyen, Du, & Kwabi, 2022), while the U.S. banking sector also offers equity-based compensation such as stock and stock options in addition to cash-based salary (Pathan et al., 2023). These differences make the Chinese banking sector an exciting case for studying the influence of the CPG on banking risk.

Several researchers investigated the influence of executive pay on various firm decisions, specifically for Chinese-listed firms. For example, Banker, Bu, and Mehta (2016) document that executive pay premiums in the form of a pay gap are positively associated with the performance of non-financial listed firms in China. Luo (2015) pointed out that there is a U-shaped relationship between the executive internal and external pay gap and stock price crash risk for non-financial listed firms in China. This relationship is more pronounced

for non-SOE and firms where fairness in compensation is low. Jiao et al. (2024) examined the effect of executive-employee pay disparity on bank misconduct in non-privately held banks in China. They document that the "2014 pay ceiling order" has significantly reduced the executive-employee pay disparity, and these banks engaged in more misconduct activities. Lee, Wang, and Zhang (2023) document a negative impact of executives' salary compensation measured by the natural log of the top-three executive's salaries on bank systemic risk. Wang, He, Ma, and Chang (2024) reported a positive influence of executive short-term compensation measured by the sum of the top-three executive's compensation on the risk of Chinese small and medium size banks. However, they document an adverse effect of the long-term compensation measured by executive shareholding on bank risk. Huang (2023) and Jiang et al. (2023) also document a positive influence of bank executive compensation on the risk-taking of Chinese listed banks. Studies discussed above ignored the pay gap between the bank CEO and other non-CEO executives and its influence on bank risk for Chinese-listed banks, which have very different pay structures from those of the rest of the world. Therefore, this study explores this research gap and investigates the influence of the CPG on banking risk, specifically default risk.

Research documents that "tournament contestants have different risk tolerance based on their relative position (Ehrenberg & Bognanno, 1990). Contestants in the lower rank (other non-CEO executives) are more likely to take additional risks because potential gains outweigh potential losses if they win the tournament (promotion to the CEO rank)". However, "those in the top rank (CEO) who hold the most influence over the corporate decisions, may behave in risk-averse manner with a rise in the PGAP because their pay could be decreased if the risky strategy fails (Bai & Elyasiani, 2013)".

On the one hand, if CEO power theory dominates, a greater disparity in CEO compensation will be correlated with reduced risk within the banking sector because CEOs want to protect their financial benefits and their jobs. Further, CEOs in Chinese banks only receive a cash-based salary plus bonus, and there is a restriction on the stock-based options pay, which may result in risk-averse behavior among these CEOs. Conversely, tournament theory posits that a more significant disparity in CEO compensation will incentivize non-CEO executives to undertake more calculated risks and exert more effort in pursuit of advancement to the CEO position. Based on the relevant literature, arguments, and the opposite prediction under the two competing theories, null and alternative hypotheses can be stated below:

H_0: The CPG is not related to BIR.

H_1: The CPG is positively/negatively related to BIR.

3. Research methodology

3.1. Baseline regression

The following model is the study baseline regression model.

$$BIR_{i,t} = \alpha + \beta_1 CPG_{i,t} + \beta_{it} Controls_{it} + \lambda_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

Where $BIR_{i,t}$, and $CPG_{i,t}$ indicate the bank i's risk and CPG in year t, respectively. Controls indicate several control variables that influence bank risk. λ_i and δ_t are bank-fixed

effects and year-fixed effects, respectively. $\varepsilon_{i,t}$ is the disturbance/error term. We expect β_1 to be positive (negative) if the tournament (CEO power) theory dominates.

3.2. Data sample and sources

This study uses data from listed Chinese commercial banks for 2010-2022 to measure the impact of CPGs on bank risk. CEO remuneration data was unavailable before 2005, and we excluded 2007, 2008, and 2009 to eliminate the effect of the financial crisis. Therefore, our data period begins in 2010. We excluded some banks due to the unavailability of the relevant data, and the final sample contains only 37 listed Chinese commercial banks, of which 9 were SOB and 28 were non-SOB. Further, 12 banks were large, and 25 were small based on the median bank size (the natural log of total assets). These banks together represent about 80% of the total assets in the Chinese banking industry. This study used the China Securities Market and Accounting Research (CSMAR)[2] and China Research Data Service Platform (CNRDS) databases to extract the relevant data.

3.3. Bank insolvency risk as a dependent variable

This paper uses the natural log of the inverse z-score as an indicator of BIR (also called bank risk in this paper), consistent with the approach recommended by Laeven and Levine (2009) and Pathan et al. (2023). The z-score is calculated by dividing the total of the bank's return on assets (ROA) and equity-to-asset ratio (capital ratio) by the standard deviation (SD) of ROA. It quantifies the level of bankruptcy risk (Méndez, Pathan, & Durand, 2024; Roy, 1952), with a higher number indicating greater stability for the bank. To simplify the understanding of BIR, we calculated the inverse of the z-score. Specifically, a greater value of the inverse z-score implies a higher level of insolvency risk, while a lower value indicates a lower level of risk. This paper employs earnings volatility risk (EVR) as a robustness check, calculated as the SD of ROA. A five-year rolling window SD of ROA is utilized for this purpose, as well as the z-score calculation.

3.4. CPG as independent variable

Following Talavera, Yin, and Zhang (2021), Bebchuk et al. (2011), Kale, Reis, and Venkateswaran (2009), and Hu, Pan, and Tian (2013), this study adopted two proxies to measure the CPG. First, the gap between CEO compensation and the median compensation of non-CEO executives is calculated to capture the pay disparity. It is termed the pay gap (PGAP), and its logarithmic value is used in the regression analysis. Second, CPS is employed, which refers to the proportion of the pay received by the bank's top three executives, counting the CEO, allocated to the CEO (Xu & Zou, 2019). Unlike Pathan et al. (2023) and Bebchuk et al. (2011), who used the top five executives' compensation, this paper adjusted the denominator to consider only the top three executives' compensation because the Chinese bank's annual reports only disclose the remuneration of the top three managers. Further, CEO pay/compensation includes only cash-based salary plus bonus, as compensation based on stock and stock options is

forbidden in the Chinese banking system (Huang, 2023; Jiang et al., 2023). As a robustness test, we use PGN2, which is computed as the CEO's total pay minus the remuneration of the second highest-paid manager, usually the CFO of the bank, divided by the CEO's total pay (Hu et al., 2013; Pathan et al., 2023).

3.5. Control variables

This study includes several control factors that influence bank risk, as shown by previous studies (Hu et al., 2013; Pathan et al., 2023). First, as a measure of firm size (FS), this study took the natural logarithm of total assets because economies of scale might potentially enhance the ability to undertake higher levels of risk, including several aspects such as mitigating the danger of growing too large and hence too significant to fail. Large firms may have more effective risk management strategies that help them reduce overall firm risk. Equity-to-assets ratio also referred to as the capital ratio (CR), and the ratio of market value to book value, known as a charter value (CV), have been identified as critical factors in assessing risk-taking behavior (Keeley, 1990). As the level of CV and/or stockholder equity at stake increases, the propensity for engaging in risky activities is expected to decrease. Board size (BS) and loan loss provision ratio (LLPR) were also controlled following Jiang et al. (2023) and Pathan et al. (2023), respectively. Several CEO-specific controls such as CEO total compensation (CEOTC), tenure (the number of years served in the CEO position), age, and

Table 1. Variables proxies

Type	Variable	Abbreviation	Proxy
Dependent variables	Bank insolvency risk	BIR	Natural log of 1/((ROA+CR)/SD of ROA).
	Earnings volatility risk	EVR	SD of net income to total assets ratio. SD is computed over a 5-year rolling window.
Independent variables	Pay gap	PGAP	Log (CEO total pay minus median pay of other non-CEO executives)
	CEO pay slice	CPS	CEO's total pay / total pay of the bank's top three executives including CEO.
	Pay gap number 2	PGN2	(Total pay of CEO minus total pay of CFO)/Total pay of CEO).
Control variables	Firm size	FS	Natural log of total assets.
	Capital ratio	CR	Total equity to total assets ratio (%).
	Charter value	CV	Equity market value plus liabilities book value divided by the total assets book value, also called Keeleys Q.
	Loan loss provision ratio	LLPR	Natural log (total loan loss provision as a percent of total loans).
	Board size	BS	Natural log of the total number of board of directors.
	CEO total compensation	CEOTC	Log of the sum of the CEO's salary and bonuses.
	CEO tenure	CEOTEN	The number of years served in the CEO position.
	CEO age	CEOAGE	CEO age in years.
	CEO gender	CEOGEN	A dummy variable is set to 1 if the CEO is female and 0 otherwise.

Note: This table contains variable types, variable names, abbreviations, and variable proxies. CEOTC does not include stock options because these are prohibited in the Chinese banking sector.

---

[2]The China Stock Market & Accounting Research Database (CSMAR) is a comprehensive finance and economic research database. Based on academic research demands, Shenzhen CSMAR Data Technology Co., Ltd. created CSMAR to meet worldwide professional standards and adapt to China's peculiarities. Database query: Select a date range, company code, and data fields from 4000+ tables to export data to Excel, etc.

gender as proxy for the CEO level of risk aversion are taken (Kini & Williams, 2012; Ongena et al., 2022; Wu et al., 2025). Following the standard practice in earlier studies (Han et al., 2022; Kini & Williams, 2012; Pathan et al., 2023), we include controls for year and bank-fixed effects in the model. Table 1 contains the definitions of the variables.

4. Empirical analysis and discussion

4.1. Descriptives

The descriptive statistics of the sampled banks are shown in Table 2. The authors used the inverse of the z-score as BIR, and its average value of -4.76 for the sampled banks is low, suggesting that Chinese banks have lower default risk on average. Further, there are variations in default risk as the minimum and maximum values are -7.21 and -2.75, respectively. The average (median) value of the EVR measured by the S.D. of ROA is 0.09 (0.07), which indicates that Chinese banks have managed their earnings risk well. PGAP, on average, is 21,19052 CNY, nine times higher than the average pay gap of 250,868, as Hu et al. (2013) reported during 2005-2010. This indicates that the CPG has increased significantly over time. The mean (median) value of the CPS is 0.28 (0.33), indicating that the CEO pay is 28 (33) percent of the top three executives pay on average over the sampled period 2010-2022, which is somehow lower than the average CPS of 37 percent and 35 percent for U.S. banks reported by the studies of Pathan et al. (2023) and Bebchuk et al. (2011), respectively. This is also lower than the CPS of 34.2% in non-financial listed firms in China, as reported by Xu and Zou (2019). PGN2 average value is 0.38, indicating that the pay difference between CEO and CFO as a proportion of CEO pay is 38 percent. These figures suggest that bank CEOs in China have lower compensation compared to the U.S. bank CEOs. C.R. has an average (median) value of 7.27 (7.30) with minimum and maximum values of 3.41 and 10.33, respectively, indicating that, on average, only 7.27% of the total assets are financed by equity, which shows that there is a high leverage in Chinese listed banks. The average C.R. is 0.98, indicating that 98% of the bank value is attributed to its C.R., which is very good. On average, there are 17.14 directors in Chinese listed banks, indicating that the B.S. is large. CEOTC has a mean value of 1859692 CNY, which is higher than the average value of 448,546, as Hu et al. (2013) reported, indic-

ating that CEO pay has increased over time. CEOTEN, on average, assumes a value of 3.11 years, shorter than those at U.S. banks. CEOAGE, on average, is 53 years old, and the majority of the CEOs in Chinese banks are males (CEOGEN mean=0.044). F.S. and loan LLPR, on average, assume values of 28.50 and 1.07, respectively.

4.2. Baseline regression results

Equation 1 is estimated using the fixed effect model based on the result of Haussmann's test, and the corresponding results are presented in Table 3. Both the measures of the CPG, i.e., PGAP (Column 1: $\beta = 0.342$, p-value < 0.05) and CPS (Column 2: $\beta = 0.959$, p-value < 0.05), have a statistically significant favorable influence on BIR which leads to the rejection of H0, i.e., the CPG does not affect bank risk and acceptance of an alternative hypothesis (H1). The results indicate that banks with large CPG have higher insolvency risk, which suggests that the tournament theory dominates the CEO power theory in the case of Chinese-listed commercial banks where only cash-based salaries and bonuses are allowed to the CEO.

Bank-level control variables exhibit statistical significance and have the anticipated signs as indicated by the existing literature (Huang, 2023; Kini & Williams, 2012; Pathan et al., 2023), which indicates that an increase in FS, CR, and CV reduces BIR while an increase in LLPR and BS enhances BIR. CEO level controls are largely insignificant except gender, which positively influences BIR. All the explanatory variables account for 73.3 percent and 73.2% of the variation in the BIR with F-values of 9.989 and 9.955 (significant at 1% level) when we employ PGAP and CPS as independent variables, respectively, suggesting that the regression model is a strong fit.

Table 3. CPG and BIR

	(1) BIR	(2) BIR
PGAP	0.342** (0.144)	
CPS		0.959** (0.425)
FS	-1.054*** (0.295)	-1.108*** (0.294)
CR	-0.155*** (0.058)	-0.162*** (0.059)
CR	-4.483* (2.604)	-4.360* (2.609)
LLPR	0.590*** (0.173)	0.596*** (0.173)
BS	0.400** (0.185)	0.460** (0.187)
CEOTC	-0.021 (0.200)	-0.188 (0.247)
CEOTEN	-0.008 (0.019)	-0.011 (0.018)
CEOAGE	0.007 (0.012)	0.009 (0.012)
CEOGEN	0.462** (0.225)	0.383* (0.227)
Constant	26.665*** (8.617)	29.707*** (8.462)
Bank and year-fixed effects	Yes	Yes
R-square	0.733	0.732
F-statistic	9.989	9.955
Prob(F-statistic)	0.000	0.000
Obs.# banks	270/37	270/37

Note: This table displays the output of the regression equation (1) employing the OLS method, including fixed effects for bank and year. PGAP and CPS are used as independent variables. Table 1 contains the variable definitions. Standard errors (SEs) are shown below the coefficients in brackets. 10%, 5%, and 1% significance are represented by *, **, and ***, respectively.

Table 2. Summary statistics

Type	Variable	Mean	Median	SD	Min	Max
Risk variables	BIS	-4.76	-4.77	0.72	-7.21	-2.75
	EVR	0.09	0.07	0.06	0.01	0.35
CPG variables	PGAP (¥)	2119052	1937150	1010915	4200.00	7570000
	CPS	0.29	0.34	0.11	0.06	0.60
	PGN2	0.38	0.34	0.75	-4.33	1.00
Control variables	FS	28.50	28.60	1.52	25.42	31.31
	CR	7.25	7.29	1.14	3.41	10.33
	CV	0.98	0.98	0.03	0.91	1.08
	LLPR	1.07	1.06	0.33	0.00	1.62
	BS(Number)	17.14	17.00	3.55	8.00	33.00
	CEOTC(¥)	1859692	1200000	1699549	185100	8700000
	CEOTEN	3.11	2.50	2.49	0.08	11.50
	CEOAGE	53.16	54.00	4.51	41.00	64.00
	CEOGEN	0.044	0.000	0.206	0.000	1.000

Note: This table displays the descriptives of the variables. BIR is computed as the natural log of the inverse z-score. FS and LLPR are expressed in logarithmic form, BS in numbers, PGAP in CNY, and CEOTC in CNY. Variables definitions can be found in Table 1.

4.3. Heterogeneity analysis

To investigate the effect of CEO pay disparity on bank risk (specifically, we focus on the risk of bank insolvency for subset analysis), this study categorizes the whole sample

into two subsets: SOB and non-SOB. This division is necessary since the effect of the CPG may differ between these two groups of banks. Table 4 displays the outcomes of re-estimation of the regression equation (1). Columns (1) and (2) indicate that PGAP (β = -0.020, p-value > 0.05) and CPS (β = -0.381, p-value > 0.05) have no significant effect on the BIR of SOB. At the same time, there is a significant positive effect of PGAP (Column 3: β = 0.444, p-value < 0.05) and CPS (Column 4: β = 1.406, p-value < 0.05) on BIR in the case of non-SOB. This finding suggests that CEOs of SOB, who usually do not have profit motives, do not take higher risks, mainly due to their higher pay. On the other hand, non-SOB CEOs are motivated by the higher pay gap to take additional risks to enhance bank profitability.

Table 4. Heterogeneity analysis based on the bank ownership type

	State-owned banks		Non-state-owned banks	
	(1)	(2)	(3)	(4)
PGAP	-0.020 (0.471)		0.444** (0.170)	
CPS		-0.381 (0.518)		1.406** (0.547)
Control variables	Controlled	Controlled	Controlled	Controlled
Bank and year-fixed effects	Taken	Taken	Taken	Taken
R-square	0.883	0.884	0.754	0.754
F-statistic	11.201***	11.360***	8.733***	8.718***
Obs	73	73	197	197

Note: This table presents the heterogeneity analysis of banks based on ownership type. BIR is the outcome variable. SEs are shown below the coefficients in brackets. 10%, 5%, and 1% significance are represented by *, **, and ***, respectively.

Literature suggests that "large commercial banks take more risks than small banks, have better strategies to manage risks, are more diversified, enjoy economies of scale benefits, and have better access to the capital markets" (Pathan et al., 2023; DeYoung et al., 2013). CEO compensation plans that include incentives for risk-taking are more successful in bigger banks than in smaller ones (DeYoung et al., 2013). To test this phenomenon, the authors rerun the regression equation (1) by splitting the overall sample into large and small banks based on the median bank size and present the results in Table 5. Remember that BIR is used as a dependent variable. Results suggest that the PGAP (Column 1: β = 0.380, p-value < 0.01) and CPS (Column 2: β = 0.831, p-value < 0.05) have a significant positive effect on the BIR of larger banks, and there is an insignificant effect for smaller banks (see column 3 and column 4).

Table 5. Heterogeneity analysis based on bank size

	Large banks		Small banks	
	(1)	(2)	(3)	(4)
PGAP	0.380*** (0.113)		0.380 (0.307)	
CPS		0.831** (0.373)		1.020 (0.963)
Control variables	Controlled	Controlled	Controlled	Controlled
Bank and year-fixed effects	Taken	Taken	Taken	Taken
R-square	0.844	0.835	0.837	0.836
F-statistic	14.740***	13.742***	7.849***	7.802***
Obs	135	135	135	135

Note: This table presents the heterogeneity analysis of banks based on bank size. The outcome variable is the BIR. SEs are shown below the coefficients in brackets. 10%, 5%, and 1% significance are represented by *, **, and ***, respectively.

4.4. Robustness

4.4.1. Alternative measures of CPG and bank risk

As a robustness test, first, this study measures the CPG alternatively as the CEO's total pay minus the CFO's pay, divides this difference by the CEO's total pay, and calls this new measure the PGN2 (Pathan et al., 2023). Second, the bank risk is measured as the EVR, i.e., the SD of ROA. This measure is computed over a rolling window of five years. Table 6 displays the results of re-estimating the regression equation (1). Column (1) indicates that the PGN2 significantly influences BIR at the 5% significance level. A one-proportion increase in the PGN2 will increase the BIR by 0.10. Column (2) shows that the PGAP significantly influences EVR (β = 0.025, p-value < = 0.05). There is a 2.5% rise in the EVR, with every percentage point widening the CEO pay disparity. Column (3) indicates that the second pay gap measure, i.e., CPS, also significantly and positively influences EVR (β = 0.010, p-value < 0.05). The results remain consistent when using an alternate measure of the CPG and bank risk, which underlines the robustness of this study's findings.

Table 6. Alternative measures of CPG and bank risk

	BIR	EVR	
	(1)	(2)	(3)
PGAP		0.025** (0.012)	
CPS			0.010** (0.041)
PGN2	0.100** (0.048)		
FS	-1.093*** (0.299)	-0.084*** (0.011)	-0.132*** (0.023)
CR	-0.142** (0.060)	-0.001 (0.004)	-0.002 (0.005)
CV	-4.741* (2.655)	-0.513*** (0.176)	-0.191 (0.205)
LLPR	0.599*** (0.176)	0.022 (0.014)	0.033** (0.014)
BS	0.439** (0.190)	0.017** (0.015)	0.030** (0.015)
CEOTC	-0.033 (0.190)	0.001 (0.015)	-0.018 (0.019)
CEOTEN	-0.006 (0.019)	-0.001 (0.001)	-0.001 (0.001)
CEOAGE	0.004 (0.012)	0.0007 (0.0009)	0.0007 (0.0009)
CEOGEN	0.375* (0.191)	0.041** (0.019)	0.031* (0.018)
Constant	30.173*** (8.598)	2.713*** (0.444)	3.975*** (0.663)
Bank and year-fixed effects	Taken	Taken	Taken
R-square	0.725	0.640	0.709
F-statistic	9.661***	8.636***	8.880***
Obs.# banks	270/37	270/37	270/37

Note: This table indicates the regression results based on alternative measures of the CPG, i.e., PGN2, and bank risk, i.e., EVR. Variable definitions are given in Table 1. SEs are shown below the coefficients in brackets. 10%, 5%, and 1% significance are represented by *, **, and ***, respectively.

4.4.2. The 2SLS-IV estimation and exclusion of the Covid-19 period

To address the potential issue of endogeneity, this study employs a 2SLS-IV regression. Following Pathan et al. (2023) and Kini and Williams (2012), the authors use the CFO, who is also a vice president, as an instrumental variable.

Table 7. The 2SLS-IV approach and COVID-19 period exclusion

	(1) 1st stage PGAP	(2) 2nd stage BIR	(3) 1st stage CPS	(4) 2nd stage BIR	(5) Exclude Covid-19 period	
PGAP		3.045** (1.450)			0.617** (0.301)	
CPS				2.947*** (1.112)		1.333*** (0.463)
CFO is VP	0.084** (0.040)		0.087*** (0.014)			
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank and year-fixed effects	Taken	Taken	Taken	Taken	Taken	Taken
F-Statistic	3.120***	5.563***	5.999***	9.060***	12.599***	12.486***
Weak identification test (Cragg-Donald)	35.31***		40.645***			
R-square	0.594	0.640	0.645	0.705	0.768	0.816
Obs.# banks	270/37	270/37	270/37	270/37	169/26	169/26

Note: This table indicates the results based on the 2SLS-IV model. The CFO, who also holds the position of vice president, has been used as an instrumental variable in the first-stage analysis, taking on the binary values of 1 and 0. The number of observations in column (5) has been reduced to 169 due to excluding the COVID-19 period, i.e., 2020, 2021, and 2022. SEs are shown below the coefficients in brackets. 10%, 5%, and 1% significance are represented by *, **, and ***, respectively.

This dummy variable has a value of 1 when the CFO is also a vice president and a value of 0 otherwise. This instrument is expected to be positively related to the variable of interest, i.e., the pay gap, but unrelated to bank risk. Table 7, columns (1) and (2), report the results of the 2SLS-IV technique when PGAP is employed as a proxy for the CPG. First-stage results in column (1) indicate that the instrumental variable, i.e., CFO is vice president, is significantly and positively related to the PGAP ($\beta = 0.084$, p-value < 0.05), and the model passes the weak identification test by Cragg and Donald at the significance level of 1%. Therefore, we gain confidence in using the CFO, also a vice president, as an instrument for the PGAP in the second-stage regression. The results are robust as the instrumental pay gap has a significant favorable effect on BIR (Column 2: $\beta = 3.045$, p-value < 0.05) in the second stage of the 2SLS-IV approach. Similarly, columns (3) and (4) present the results of the 1st stage and 2nd stage when CPS is used as a proxy for the pay gap. The instrumental variable has a significant relationship with CPS in the 1st stage (Column 3: $\beta = 0.087$, p-value < 0.01) and also passes the weak identification test. In the 2nd stage, the instrumental variable positively and significantly influences BIR (Column 4: $\beta = 2.947$, p-value < 0.01). Therefore, the results are free from any endogeneity issue.

COVID-19 has influenced both financial and non-financial firms equally, and variations in firm earnings have been reported during this non-normal situation (Duan et al., 2021). To isolate the effect of the CPG on bank risk, the authors eliminated the years 2020, 2021, and 2022 from the analysis due to the influence of COVID-19 and re-estimated the regression equation (1). Table 7 column (5) reports the results, which show that PGAP ($\beta = 0.617$, p-value < 0.05) and CPS ($\beta = 1.333$, p-value < 0.01) still have a significant positive influence on BIR, further verifying the robustness of the results.

4.5. Discussion

Findings indicate that banks with large CPG have higher insolvency risk, which suggests that the tournament theory dominates the CEO power theory in the case of Chinese-listed commercial banks where only cash-based salaries and bonuses are allowed to the CEO. This contradicts the findings of Ali et al. (2024) and Pathan et al. (2023), who reported a negative link between CEO pay disparity and banking risk for U.S BHCs and who also suggest that the main reason for such a negative relationship is the non-cash pay gap, such as stock and stock options. Stock-based compensation is not allowed for CEOs in the Chinese banking sector, and they receive only cash-based salaries plus bonuses. The presence of a substantial pay disparity between CEOs and non-CEO executives in Chinese banks has a notable and beneficial impact on the level of risk taken by the latter. This suggests that non-CEO executives are driven by the competitive nature of the pay gap, which serves as a tournament incentive, and therefore adopt a strategy of engaging in higher-risk activities. This finding is consistent with the studies of Kini and Williams (2012) and Han et al. (2022), who report that the pay disparity leads to aggressive risk policies mainly due to the tournament incentives for the non-CEO executives who try to win the tournament to get promotion to the rank of CEO. This paper further found that tournament incentives have a notable effect on risk in non-SOB, in line with the study of Hu et al. (2013). This finding suggests that CEOs of SOB, which usually don't have profit motives, don't take higher risks mainly due to the higher pay offered to them. On the other hand, the CEOs of non-SOBs are motivated by the higher pay gap to take on additional risks, aiming to boost profitability. In line with the findings of DeYoung et al. (2013) and Pathan et al. (2023), the authors also found that incentives in the form of a cash pay gap are more successful in bigger banks than in smaller ones because bigger banks have better risk management strategies, are more diversified, and enjoy economies of scale benefits.

5. Conclusion, implications, and future research

5.1. Conclusion

The government imposed several salary caps on bank executives after the financial crisis of 2008, as these executives' excessive risk-taking led to the financial crisis. For example, China introduced a pay regulation policy in 2009 for centrally administered SOEs, restricting executives' pay. This has had an equal impact on the salaries of CEOs and non-CEO executives. In the executive compensation literature, CPG refers to the pay disparity between the CEO and non-CEO executives. There are two competing theories. First, CEO power theory advocates that there is an inverse relationship between the CPG and bank risk-taking. CEOs have much authority to make risk-averse policies to preserve their lucrative job perks. Second, tournament theory posits that a greater disparity in CEO compensation will incentivize non-CEO executives to undertake more calculated risks and exert more effort in pursuit of advancement to the CEO rank. We investigate the influence of the CPG during 2010-2022 on bank risk for the Chinese listed commercial banks. Unlike U.S. com-

mercial banks, only cash-based salaries plus bonuses are allowed to bank executives in China. This makes this study distinct from the study of Pathan et al. (2023) and other earlier studies on the said phenomenon. Our findings validate the tournament hypothesis by demonstrating the CPG's substantial and favorable influence on bank risk. We further divided the banks based on ownership type and bank size and found that the CPG has a significant positive relationship with bank risk only in non-SOB and large banks, while there is an insignificant effect for SOB and small banks. SOBs have non-profit motives, while non-SOBs take more risks to maximize profits. Large banks have better pay packages and better risk management strategies, are more diversified, enjoy economies of scale benefits, and have better access to capital markets, which helps them take more risk. The study results have been extensively validated through several robustness checks, including alternate measures of the CPG, bank risk, and the 2SLS-IV approach. The positive influence of the CPG on banking risk still holds after excluding the COVID-19 period of 2020, 2021, and 2022 from the sample.

This study's novelty and originality lie in its application within the Chinese context, which has very different governance practices that add valuable insights to the existing literature. It makes two contributions to the academic literature. First, to the best of our knowledge, this is the first study that empirically explored the influence of the CPG on banking risk in the Chinese context, which has very different CEO compensation schemes and governance practices than the rest of the world. For instance, unlike banks in other countries, stock-based compensation is forbidden in the Chinese banking sector. Second, this is the first study in the financial sector to find a significant positive effect of the CPG on banking risk, supporting the tournament theory. Previous research by Ali et al. (2024) and Pathan et al. (2023) on U.S. BHCs found a significant adverse impact of the CPG on risk, which is mainly driven by stock-based compensation, and there was no significant effect of the cash-based pay gap in the form of salary plus bonus. We found the opposite result for Chinese listed banks, which allow only cash-based salaries plus bonuses to banking executives. We reported that the cash-based CPG also matters for banking executives.

5.2. Implications

The study results have important implications for commercial banks in unique corporate governance settings like China. Cash-based CPG in salary plus bonuses also plays a vital role in executive risk-taking behavior, and commercial banks must consider this factor in their decision-making. Policymakers must consider the CPG compensation structure to control the banking sector's insolvency risk. A higher CPG results in increased banking risk. Therefore, regulatory restrictions must be placed on the banking executives' pay levels to cope with the increased default risk. The bank CEO's pay must align with that of other non-CEO executives. The board of directors and shareholders can alter banks' risk-taking behavior by adjusting the CPG. Policymakers should pay attention to the non-SOB and large banks, as this study reports a significant positive influence of the CPG on BIR for these two types of banks. This paper's findings provide listed banks with more profound knowledge about the significance of corporate governance structure (specifically pay structure) in determining the banking risk.

5.3. Future research

This study has some limitations, which offer valuable avenues for future research. For example, our study only covers the cash-based CPG as stock-based compensation is prohibited in the Chinese banking sector. Therefore, if stock-based compensation, such as stock options, is allowed in the future, then its effects on bank risk must be checked in future studies. Future studies may compare U.S. commercial banks' CPG with Chinese commercial banks to investigate its effect on banking risk.

Funding

Conflicts of interest

The authors certify that they have no competing interests.

Acknowledgments

References

Abdelbadie, R. A., & Salama, A. (2019). Corporate governance and financial stability in US banks: Do indirect interlocks matter? *Journal of Business Research, 104*, 85-105. https://doi.org/10.1016/j.jbusres.2019.06.047

Ali, S., Iqbal, J., Malik, I., & Rahman, D. (2024). Does managerial pay disparity influence BHC default risk? *International Review of Economics & Finance, 92*, 1250-1269. https://doi.org/10.1016/j.iref.2024.02.032

Bae, K.-H., Gong, Z., & Tong, W. H. S. (2024). Restricting CEO pay backfires: Evidence from China. *Journal of Business Finance & Accounting, 51*(5-6), 1015-1045. https://doi.org/10.1111/jbfa.12741

Bai, G., & Elyasiani, E. (2013). Bank stability and managerial compensation. *Journal of Banking & Finance, 37*(3), 799-813. https://doi.org/10.1016/j.jbankfin.2012.10.026

Baker, G. P., Jensen, M. C., & Murphy, K. J. (1988). Compensation and Incentives: Practice vs. Theory. *The Journal of Finance, 43*(3), 593-616. https://doi.org/10.1111/j.1540-6261.1988.tb04593.x

Banker, R. D., Bu, D., & Mehta, M. N. (2016). Pay Gap and Performance in China. *Abacus, 52*(3), 501-531. https:

//doi.org/10.1111/abac.12082

Bebchuk, L. A., Cremers, K. M., & Peyer, U. C. (2011). The CEO pay slice. *Journal of Financial Economics, 102*(1), 199-221. https://doi.org/10.1016/j.jfineco.2011.05.006

Boateng, A., Nguyen, V. H. T., Du, M., & Kwabi, F. O. (2022). The impact of CEO compensation and excess reserves on bank risk-taking: the moderating role of monetary policy. *Empirical Economics, 62*(4), 1575-1598. https://doi.org/10.1007/s00181-021-02086-4

Bolton, P., Mehran, H., & Shapiro, J. (2015). Executive Compensation and Risk Taking. *Review of Finance, 19*(6), 2139-2181. https://doi.org/10.1093/rof/rfu049

Bu, D., Zhang, C., & Lin, T. (2016). Will political promotion expectation decrease the pay gap in state-owned enterprises in China? *China Journal of Accounting Studies, 4*(1), 53–78. https://doi.org/10.1080/21697213.2016.1144969

Byrd, J., Cooperman, E. S., & Wolfe, G. A. (2010). Director tenure and the compensation of bank CEOs. *Managerial Finance, 36*(2), 86-102. https://doi.org/10.1108/03074351011014523

Chen, C. R., Steiner, T. L., & Whyte, A. M. (2006). Does stock option-based executive compensation induce risk-taking? An analysis of the banking industry. *Journal of Banking & Finance, 30*(3), 915-945. https://doi.org/10.1016/j.jbankfin.2005.06.004

Chen, J., Ezzamel, M., & Cai, Z. (2011). Managerial power theory, tournament theory, and executive pay in China. *Journal of Corporate Finance, 17*(4), 1176-1199. https://doi.org/10.1016/j.jcorpfin.2011.04.008

Chen, Z., Huang, Y., & Wei, J. (2013). Executive pay disparity and the cost of equity capital. *The Journal of Financial and Quantitative Analysis, 48*(3), 849-885. http://www.jstor.org/stable/43303824

Chen, S., Ma, H., & Bu, D. (2014). Board affiliation and pay gap. *China Journal of Accounting Research, 7*(2), 81-100. https://doi.org/10.1016/j.cjar.2014.03.001

Chizema, A., Liu, X., Lu, J., & Gao, L. (2015). Politically connected boards and top executive pay in Chinese listed firms. *Strategic Management Journal, 36*(6), 890-906. https://doi.org/10.1002/smj.2253

Coles, J. L., Daniel, N. D., & Naveen, L. (2006). Managerial incentives and risk-taking. *Journal of financial economics, 79*(2), 431-468. https://doi.org/https://doi.org/10.1016/j.jfineco.2004.09.004

Conyon, M. J., & He, L. (2011). Executive compensation and corporate governance in China. *Journal of Corporate Finance, 17*(4), 1158-1175. https://doi.org/10.1016/j.jcorpfin.2011.04.006

Crawford, K. (2021). *The atlas of AI: Power, politics, and the planetary costs of artificial intelligence*: Yale University Press. https://yalebooks.yale.edu/book/9780300264630/atlas-of-ai/

DeYoung, R., Peng, E. Y., & Yan, M. (2013). Executive compensation and business policy choices at U.S. commercial banks. *Journal of Financial and Quantitative Analysis, 48*(1), 165-196. https://doi.org/10.1017/S0022109012000646

Ding, S., Jia, C., Wilson, C., & Wu, Z. (2015). Political connections and agency conflicts: the roles of owner and manager political influence on executive compensation. *Review of Quantitative Finance and Accounting, 45*(2), 407-434. https://doi.org/10.1007/s11156-014-0441-9

Duan, Y., El Ghoul, S., Guedhami, O., Li, H., & Li, X. (2021). Bank systemic risk around COVID-19: A cross-country

analysis. *Journal of Banking & Finance, 133*, 106299. https://doi.org/10.1016/j.jbankfin.2021.106299

Ehrenberg, R. G., & Bognanno, M. L. (1990). Do Tournaments Have Incentive Effects? *Journal of Political Economy, 98*(6), 1307-1324. *http://dx.doi.org/10.1086/261736*

Ellul, A., & Yerramilli, V. (2013). Stronger risk controls, lower risk: evidence from U.S. bank holding companies. *The Journal of Finance, 68*(5), 1757-1803. https://doi.org/https://doi.org/10.1111/jofi.12057

Eufinger, C., & Gill, A. (2017). Incentive-Based Capital Requirements. *Management science, 63*(12), 4101-4113. http://www.jstor.org/stable/45149193

Fahlenbrach, R., & Stulz, R. M. (2011). Bank CEO incentives and the credit crisis. *Journal of Financial Economics, 99*(1), 11-26. https://doi.org/10.1016/j.jfineco.2010.08.010

Goel, A. M., & Thakor, A. V. (2008). Overconfidence, CEO selection, and corporate governance. *The Journal of Finance, 63*, 2737-2784. https://doi.org/10.1111/j.1540-6261.2008.01412.x

Guo, L., Jalal, A., & Khaksari, S. (2015). Bank executive compensation structure, risk-taking and the financial crisis. *Review of Quantitative Finance and Accounting, 45*(3), 609-639. https://doi.org/10.1007/s11156-014-0449-1

Han, F., Che, X., & He, E. (2022). Impact of pay disparities between chief executive officers and chief financial officers on corporate financial and investment policies. *Journal of International Financial Management & Accounting, 33*(1), 57-82. https://doi.org/10.1111/jifm.12142

Hu, F., Pan, X., & Tian, G. (2013). Does CEO pay dispersion matter in an emerging market? Evidence from China's listed firms. *Pacific-Basin Finance Journal, 24*, 235-255. https://doi.org/10.1016/j.pacfin.2013.07.003

Huang, Q. (2023). Executive compensation and bank risk in China. *Economics and Business Letters, 12*(1), 62-67. https://doi.org/10.17811/ebl.12.1.2023.62-67

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305-360. https://doi.org/https://doi.org/10.1016/0304-405X(76)90026-X

Jia, N. (2018). Tournament incentives and stock price crash risk. *Accounting Horizons, 32*(3), 101–121. https://doi.org/10.2308/acch-52120

Jiang, Y., Yuan, C., & Zhang, J. (2023). Does executive compensation mechanism balance performance with risk-taking? Evidence from China's banking system. *Kybernetes*. https://doi.org/10.1108/K-09-2022-1251

Jiao, A., Sun, R., & Liu, C. (2024). Restricting Pay Gap Backfires: The Case of Bank Misconduct. *Finance Research Letters, 61*, 104981. https://doi.org/10.1016/j.frl.2024.104981

Jin, Z., Li, Y., & Liang, S. (2023). Confucian culture and executive compensation: Evidence from China. *Corporate Governance: An International Review, 31*(1), 33-54. https://doi.org/10.1111/corg.12434

Kale, J. R., Reis, E., & Venkateswaran, A. (2009). Rank-Order Tournaments and Incentive Alignment: The Effect on Firm Performance. *The Journal of Finance, 64*(3), 1479-1512. https://doi.org/10.1111/j.1540-6261.2009.01470.x

Kashyap, A., Rajan, R., & Stein, J. (2008). Rethinking capital regulation. *Proceedings - Economic Policy Symposium - Jackson Hole,* 431-471. https://EconPapers.repec.org/

RePEc:fip:fedkpr:00014

Keeley, M. C. (1990). Deposit Insurance, Risk, and Market Power in Banking. *The American Economic Review, 80*(5), 1183-1200. *http://www.jstor.org/stable/2006769*

Kini, O., & Williams, R. (2012). Tournament incentives, firm risk, and corporate policies. *Journal of Financial Economics, 103*(2), 350-376. https://doi.org/10.1016/j.jfineco.2011.09.005

Kolm, J., Laux, C., & Lóránth, G. (2016). Bank regulation, CEO compensation, and boards. *Review of Finance, 21*(5), 1901-1932. https://doi.org/10.1093/rof/rfw046

Kong, G., Huang, J., & Ma, G. (2023). Anti-corruption and within-firm pay gap: Evidence from China. *Pacific-Basin Finance Journal, 79*, 102041. https://doi.org/10.1016/j.pacfin.2023.102041

Kubick, T. R., & Masli, A. N. S. (2016). Firm-level tournament incentives and corporate tax aggressiveness. *Journal of Accounting and Public Policy, 35*(1), 66-83. https://doi.org/https://doi.org/10.1016/j.jaccpubpol.2015.08.002

Laeven, L., & Levine, R. (2009). Bank governance, regulation and risk-taking. *Journal of Financial Economics, 93*(2), 259-275. https://doi.org/10.1016/j.jfineco.2008.09.003

Lambert, R. A., Larcker, D. F., & Verrecchia, R. E. (1991). Portfolio Considerations in Valuing Executive Compensation. *Journal of Accounting Research, 29*(1), 129-149. https://doi.org/10.2307/2491032

Lazear, E. P., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy, 89*(5), 841-864. http://www.jstor.org/stable/1830810

Lee, C.-C., Wang, Y., & Zhang, X. (2023). Corporate governance and systemic risk: Evidence from Chinese-listed banks. *International Review of Economics & Finance, 87*, 180-202. https://doi.org/https://doi.org/10.1016/j.iref.2023.04.023

Luo, Y. (2015). CEO power, ownership structure, and pay performance in Chinese banking. *Journal of Economics and Business, 82*, 3-16. https://doi.org/10.1016/j.jeconbus.2015.04.003

Méndez, C., Pathan, S., & Durand, R. (2024). Do women directors impact the cost of bank financing? Evidence from Australia. *Revista de Contabilidad-Spanish Accounting Review, 27*, 110-129. https://doi.org/10.6018/rcsar.478341

Ongena, S., Savaer, T., & ili Ciamarra, E. (2022). CEO incentives and bank risk over the business cycle. *Journal of Banking & Finance, 138*, 106460. https://doi.org/10.1016/j.jbankfin.2022.106460

Pathan, S. (2009). Strong boards, CEO power and bank risk-taking. *Journal of Banking & Finance, 33*(7), 1340-1350. https://doi.org/10.1016/j.jbankfin.2009.02.001

Pathan, S., Haq, M., & Morgan, J. (2023). CEO Pay Gaps and Bank Risk-Taking. *European Accounting Review, 32*(4), 935-964. https://doi.org/10.1080/09638180.2022.2043761

Phan, H. V., Simpson, T., & Nguyen, H. T. (2017). Tournament-Based Incentives, Corporate Cash Holdings, and the Value of Cash. *Journal of Financial and Quantitative Analysis, 52*(4), 1519-1550. https://doi.org/10.1017/S0022109017000503

Roy, A. D. (1952). Safety First and the Holding of Assets. *Econometrica, 20*(3), 431-449. https://doi.org/10.2307/1907413

Ryan, H. E., & Wiggins, R. A. (2001). The influence of firm- and manager-specific characteristics on the structure of executive compensation. *Journal of Corporate Finance, 7*(2), 101-123. https://doi.org/10.1016/S0929-1199(00)00021-3

Talavera, O., Yin, S., & Zhang, M. (2021). Tournament incentives, age diversity and firm performance. *Journal of Empirical Finance, 61*, 139-162. https://doi.org/10.1016/j.jempfin.2021.01.003

Xu, J., & Zou, L. (2019). The impact of CEO pay and its disclosure on stock price crash risk: evidence from China. *China Finance Review International, 9*(4), 479-497. https://doi.org/10.1108/CFRI-10-2018-0138

Wang, W., He, L., Ma, J., & Chang, C. P. (2024). Executive compensation, equity structure and risk-taking in Chinese banks. *Economic Change and Restructuring, 57*(3), 124. https://doi.org/10.1007/s10644-024-09701-1

Wu, S., Zhu, J., & Wu, T. (2025). The impact of CEO founder and CEO age on new ventures performance: A quantile regression analysis for US IPOs. *Revista de Contabilidad-Spanish Accounting Review, 28*(1), 3-17. https://revistas.um.es/rcsar/article/view/553941/379201