

The Influence of External Pay Gap on Risk-Taking Level

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1 Introduction

Over the past four decades of reform and opening-up, China has undergone profound transformations in its income distribution system, evolving into a structure compatible with the socialist market economy. While rapid economic growth has lifted living standards, it has also intensified concerns over income inequality and widening pay disparities. Since 2005, the mandatory disclosure of executive compensation in listed companies has enhanced transparency, allowing executives to benchmark their pay and assess fairness, thereby influencing managerial behavior. Despite regulatory interventions—such as the salary limitation policies introduced by the Ministry of Finance (2009) and the CBRC (2010)—executive pay gaps within and across industries have continued to expand. Deloitte's research underscores this trend, revealing persistent increases in compensation disparities, particularly in sectors like utilities, where the pay gap surged by 99% between 2017 and 2019. These dynamics highlight the complex interplay between regulatory efforts, market forces, and corporate governance in shaping China's evolving executive compensation landscape, with implications for both economic equity and corporate performance.

Risk means new opportunities, but often it also means failure. According to the data from S&P Global, more than 230 companies filed for bankruptcy in the U.S. in 2023, more than twice as many as in 2022, including many large companies like Vice Media. Recently, the failure of three U.S. banks-Silicon Valley Bank, Signature Bank and First Trust Bank sparked a local banking crisis. In 2021, the risk event of China Evergrande Group had a large negative impact on the Chinese real estate market. In such an uncertain external environment, risk selection in business investment decisions has important implications for business development and economic growth. The concept of risk was first defined by Rosenbloom (1972), who defined risk as the uncertainty that something will be lost. Risk-taking behavior is an important part of corporate investment decisions, directly reflecting the tendency of firms to take risks in the process of chasing excess profits, reflecting the degree of firms' preference for high-yield, high-risk projects, and having a performance-creating effect (Boubakri et al., 2013). Positive risk-taking decisions at the micro level help enterprises seize favorable development opportunities and enhance their competitiveness. At the macro level, it promotes the acceleration of capital accumulation and enhances the efficiency of capital allocation.

The top management team (TMT) is a unique and vital asset within a company, significantly influencing strategic decision-making and execution. The executive team's characteristics and their role in strategic management have garnered considerable interest from scholars and business professionals. Executives' risk preferences, who are responsible for formulating and implementing corporate strategies, play a crucial role in determining the organization's risk-taking level. In modern corporations, the separation of ownership and management often leads to principal-agent issues. Within this framework, compensation agreements are key to addressing conflicts between management and shareholders and greatly influence corporate risk-taking behavior. When these contracts are ineffective, significant principal-agent issues arise, prompting management to avoid risk. This minimizes the likelihood of poor decisions and the consequent harm to personal reputations and rewards from high-risk choices (Xie and Chen, 2023).

The level and structure of compensation are two critical aspects of formulating executive pay. A well-designed executive compensation incentive system can effectively mitigate the principal-agent problem and reduce agency costs. Current studies on executive compensation primarily focus on the absolute level of executive pay. In comparison, the design of the pay structure may have a more significant impact on the organization. Executives are concerned not only with the absolute value of their pay but also with the gap between their pay and that of other employees. This gap reflects the fairness of income distribution and is a key element in the design of executive compensation structures. The distribution system for executive compensation is influenced by both the internal governance environment and business performance of the enterprise, as well as macroeconomic factors, industry characteristics, and cultural environment. The external compensation gap typically arises when there are differences in pay between executives in various areas, industries, and ownership structures.

However, the current literature on the relationship between executive compensation gaps and corporate risk-taking behavior lacks consensus. Additionally, the system of corporate executive compensation distribution and the mobility of the managerial market differ to some extent between state-owned and non-state-owned firms in China. SOE executives are not simply professional managers, they may be more focused on their own political development and may have a

very different attitude toward risk than executives in the private sector.

Meanwhile, the increasing involvement of women in executive roles introduces differing risk preferences and decision-making styles, which could moderate the relationships between executive pay disparities and corporate risk-taking behaviors. Hambrick and Mason's (1984) upper echelon theory posits that executive team members' personal traits shape firm strategy, a view reinforced by Bertrand and Schoar (2003), who found managerial characteristics often outweigh firm-specific factors in strategic decisions. In China, traditional gender norms have long restricted women's career progression, relegating many to middle management due to societal expectations and unequal domestic burdens, though evolving attitudes are gradually improving female representation in leadership. Modern governance increasingly values gender diversity, with research indicating women executives bring distinct perspectives, often exhibiting greater risk aversion (Adams & Ferreira, 2009) and fairness sensitivity (Carlsson et al., 2005; Faccio et al., 2016), which can temper corporate risk-taking. However, Zona et al. (2023) challenge stereotypes by demonstrating female family executives may take greater risks than males during performance slumps, highlighting the complexity of gender's role in executive decision-making. These findings underscore the need for nuanced research on how Chinese female leaders influence corporate strategy amid the nation's unique cultural and institutional context.

Based on the above analyses, this dissertation incorporates executive pay gap, nature of ownership, executive gender and corporate risk-taking level into the same research framework. And it takes 2013~2022 Shanghai and Shenzhen A-share listed companies as the samples to study the impact of external executive pay gap on corporate risk-taking level, as well as the moderating effect of the nature of ownership and the gender of executives on the relationship between the two.

2 Theoretical Analysis and Hypotheses

2.1 Hypotheses

Traditional rational choice theory assumes individuals act purely rationally, focusing on absolute gains and losses. However, social comparison theory reveals that real-world decision-making is shaped not only by economic motives but also by social preferences. People assess their earnings not just in absolute terms but also through comparisons with others, especially when objective benchmarks are lacking (Messick & Sentis, 1985). Studies show pay fairness influences collaboration and corporate performance (O'Rieny et al., 1988).

In practice, boards use industry pay benchmarks to set executive compensation, providing a reference for social comparison. Executives generally resist below-average pay, perceiving it as a sign of low competence or contribution. Pay above the industry average boosts satisfaction and risk-taking, while below-average pay fosters dissatisfaction and risk aversion—impacting strategic decisions and long-term growth.

Fairness perception is key point, if executives view their pay as unfair relative to peers or effort, motivation declines, potentially triggering demands for adjustment. This effect is strongest among top managers, as pay ties closely to career identity and satisfaction. Social comparison theory explains how executive compensation influences corporate risk-taking. When pay exceeds industry averages, executives experience "social gains," enhancing satisfaction and status (Zhang, 2016). Initially, this may foster risk aversion to protect their premium compensation. However, as the pay gap widens, the perceived risk of falling below peers diminishes (Wang et al., 2014), incentivizing riskier projects to maintain reputation and bargaining power for further raises. Boards, unable to distinguish skill from luck in outcomes, often reward such behavior, reinforcing risk-taking. Conversely, below-average pay places executives in a "loss" state, triggering efforts to restore equity through high-risk strategies. While failure has limited downside given low baseline pay, success can significantly boost compensation and career prospects. Thus, larger pay gaps below industry averages increase risk appetite as executives seek to overcome perceived disadvantage.

This dynamic underscores the critical role of fairness perceptions in shaping executive behavior and corporate strategy, supporting hypothesis H2.1.

H2.1: Whether executive compensation levels are above or below industry averages, external pay gaps promote higher levels of corporate risk-taking.

Research on corporate governance reveals significant variations in executive compensation systems across firms with different ownership structures, particularly between Chinese state-owned enterprises (SOEs) and private enterprises, leading to divergent incentive effects from external pay gaps. In SOEs, strict policy-imposed salary caps reduce executives' sensitivity to pay levels, as they prioritize non-monetary incentives like power, reputation, and political promotion (Chen et al., 2009). These restrictions create a perceived "fairness" that diminishes the impact of external pay disparities on risk-taking behaviors, further compounded by SOE executives' dual "political-business" roles, where political advancement outweighs monetary gains (Yu et al., 2013). Conversely, private enterprises operate under market-driven mechanisms, where managers leverage performance-based reputations to secure higher compensation and mobility. Liu et al. (2012)

highlights how this market signaling fosters competition, incentivizing performance-driven risk-taking and enabling firms to recruit optimal managerial talent. The external labor market's emphasis on track records encourages skill development and industry-wide innovation, contrasting sharply with SOEs' constrained incentive structures. These dynamics underscore the hypothesis that ownership type fundamentally shapes the relationship between external pay gaps and executive behavior. Based on the above analysis, hypothesis H2.2 is proposed.

H2.2: The positive impact of the external pay gap on corporate risk-taking level is more pronounced in non-state-owned firms, regardless of whether executive compensation levels are higher or lower than the industry average.

Hambrick and Mason's (1984) upper echelons theory posits that executives' decisions reflect their cognitive frameworks, with gender differences significantly influencing corporate risk-taking behaviors. As female executives gain prominence in leadership, research reveals three distinct impacts: First, they demonstrate stronger ethical standards and supervisory effectiveness, as evidenced by Adams et al. (2009), who found female directors enhance board independence and reduce agency costs in U.S. firms. Second, their risk-averse tendencies are well-documented; Sun et al. (2016) confirmed women's greater caution in uncertain scenarios, often favoring conservative strategies. Third, female executives exhibit heightened sensitivity to pay equity, with Carlsson et al. (2005) showing they perceive unfair compensation more acutely than male counterparts—a phenomenon linked to reduced work motivation when pay disparities exist. These traits create dual effects: in high-risk environments, female leadership mitigates overinvestment through prudent decision-making and counters male overconfidence, enriching strategic diversity. However, their strong fairness orientation may backfire if pay gaps persist, potentially undermining morale and operational stability. The complex interplay suggests that while women's risk aversion benefits corporate governance, compensation structures must address equity concerns to fully harness their leadership potential. Thus, in light of the previous discussion on the relationship between executive pay disparities and corporate risk-taking level, and considering the impact of gender differences, the following hypothesis H2.3 is proposed:

H2.3: Companies with a higher proportion of female executives exhibit a relatively weaker positive impact of external executive pay disparities on risk-taking levels.

2.2 Variables

This study uses quantitative analysis to examine the effects of executive external compensation gaps on risk-taking level of firms, as well as to test the moderating effect of the nature of ownership (state-owned or non-state-owned firms), and then to test the moderating effect of gender of executives (female executives or male executives) on this effect. The use of STATA helps ensure that data analysis is replicable and free from biases that might be introduced through manual manipulation.

2.2.1 Dependent Variable: Corporate Risk-Taking Level (Risk)

The main measures of corporate risk-taking level in previous studies include earnings volatility, stock return volatility, gearing, likelihood of firm survival, and capital expenditures. Given the high volatility of the Chinese stock market, firms' earnings volatility is widely used to measure risk-taking level. Therefore, in this dissertation, firms' earnings volatility during the observation period is used to measure the level of corporate risk-taking (Risk). The standard deviation of the return on assets (ROA) for the sample businesses is calculated using the rolling year approach. This method considers each three-year period as an observation period.

$$Risk_{in} = \sqrt{\frac{1}{N-1} \sum_{n=1}^N (ROA_{in} - \frac{1}{N} \sum_{n=1}^N ROA_{in})^2} \quad (1)$$

2.2.2 Independent Variables: Executive External Pay Gap (ExGap)

This study draws on the method of defining the external pay gap of Li et al. (2014), using the average compensation of the top three executives of the enterprise as a proxy variable for executive compensation, and calculating the average top three compensation of executives in the same industry with the same property rights, and measuring the external pay gap by the ratio of the above two.

$$ExGap = \frac{\text{Average compensation of top three executives}}{\text{Average top three compensation of executives in the same industry}} \quad (2)$$

The study utilizes financial data sourced from the China Stock Market & Accounting Research Database (CSMAR), together with the annual reports of listed firms. The data on executives of listed companies is also sourced from the China Stock Market & Accounting Research Database (CSMAR).

Table 1 Variable Summary

Variable Name	Notation	Formula
Risk-taking level	Risk	In the analysis above
External pay gap for executives	ExGap	In the analysis above
Property Rights	SOE	1 if the listed company is a SOE, 0 otherwise.
Gender of executives	Femaleratio	Percentage of women in the executive team
Gearing Ratio	Lev	Ratio of total liabilities to total assets of the enterprise at the end of the period
Firm Size	Size	Natural logarithm of the total value of the enterprise's assets at the end of the period
Return on Assets	ROA	Net profit / (Total assets closing balance + Total assets opening balance)/2
Sales Growth Rate	Salegrow	Ratio of the change in sales of the enterprise in the current year to the sales of the previous year
Percentage of Independent Directors	Indratio	Number of independent directors / Total number of board members
Managers' shareholding Ratio	Mh	Number of shares held by managers as a percentage of total share capital
Years of Business Establishment	Age	Years of business establishment
Industry	Industry	Industry dummy variables
Year	Year	Year dummy variables

This paper examines A-share listed companies in Shanghai and Shenzhen from 2013 to 2022, employing a selection process that removes certain types of firms to ensure the quality and relevance of the data. Firstly, financial listed companies are excluded due to their unique capital structures and regulations. Secondly, companies that have been marked as ST (special treatment) due to financial distress or other reasons are also omitted. Furthermore, firms with missing data or apparent anomalies in crucial financial ratios (such as a gearing ratio over 1) are removed from consideration. Additionally, companies with zero or negative executive compensation are excluded, and only those with more than three executives are selected for analysis.

The fixed effect model of this dissertation is expressed as the following model.

$$Risk_{it} = \beta_0 + \beta_1 ExGap_{it} + \sum \beta_n Controls_{it} + \varepsilon_{it} \quad (3)$$

3 Analysis of Empirical Results

The empirical analysis of executive external compensation gap and corporate risk-taking level follows a similar methodology to the analysis of executive internal compensation gap and risk-taking level. It focuses on data from Shanghai and Shenzhen A-share listed enterprises, excluding the financial industry. After removing missing data, the analysis includes 29,724 observations from a sample of 4,330 enterprises spanning the period from 2013 to 2022. The data in this section mostly originates from the CSMAR (China Stock Market Accounting Research) database.

3.1 Descriptive Statistics

To mitigate the undue influence of outliers on the model outcomes, a winsorization process is applied, setting the trimming parameters to 1%. This procedure adjusts the extreme values to fit within a reasonable range, thereby ensuring that the model's results are not overly affected by anomalies.

Table 2 Descriptive Statistics (External)

Variable	Obs	Mean	Std. Dev.	Min	Max
Risk	29724	0.0327	0.0452	0.0006	0.2739
Exgap	29724	0.3179	0.2273	0.0533	1.3767
SOE	29724	0.3516	0.4775	0	1.0000
Femaleratio	29724	0.1714	0.1691	0	0.6667
Lev	29724	0.4181	0.2054	0.0577	0.9136
Salegrow	29724	0.1645	0.4196	-0.594	2.6359
Size	29724	22.2198	1.3093	19.8126	26.3017
Mh	29724	0.1238	0.1858	0	0.6778
Age	29724	2.8941	0.3278	1.9459	3.5264
Indratio	29724	0.3775	0.0533	0.3333	0.5714
ROA	29724	0.0399	0.0683	-0.2538	0.2269

Table 2 summarizes the statistical characteristics of key variables in the sample firms. The average risk-taking level is 0.0327 (range: 0.0006 – 0.2739), with significant cross-firm variation (high standard deviation). The executive external compensation gap shows substantial volatility (mean: 0.3179; range: 0.0533–1.3767; SD: 0.2273). Financial controls reveal: average asset-liability ratio = 0.4181 (moderate, with inter-firm differences), sales growth = 16.45%, and ROA = 3.99%, indicating robust operations. Governance variables exhibit wide disparities: management shareholding ranges from 0% to 67.78%, while independent director proportions are stable (mean: 0.3775; SD: 0.0683). Female executive representation varies markedly (0%–66.67%) across firms.

3.2 Correlation Analysis

Table 3 presents Pearson correlation coefficients for key variables. The executive external compensation gap (ExGap) and corporate risk-taking (Risk) show a significant negative correlation (coefficient: 0.0681, $p < 0.01$), suggesting that lower ExGap is associated with higher Risk—contrary to hypothesis H3.4. However, further regression analysis is needed to confirm this relationship after controlling for covariates. Control variables Lev, Mh, Age, and Indratio are positively correlated with Risk, while Salegrow, Size, and ROA exhibit significant negative correlations. The absence of multicollinearity (all coefficients < 0.6) supports the validity of the selected controls, allowing progression to subsequent analyses.

Table 3 Correlations Analysis (External)

Variables	(Risk)	(Exgap)	(SOE)	(Femalera- tio)	(Lev)	(Salegrow)	(Size)	(Mh)	(Age)	(Indratio)	(ROA)
Risk	1.0000										
Exgap	-0.0681***	1.0000									
SOE	-0.1380***	0.0534***	1.0000								
Femalera - tio	0.0332***	-0.0290***	-0.1678***	1.0000							
Lev	0.0332***	0.1023***	0.2932***	-0.0995***	1.0000						
Salegrow	-0.0141**	0.0411***	-0.0674***	0.0014	0.0229***	1.0000					
Size	-0.1574***	0.3909***	0.3998***	-0.1463***	0.4902***	0.0374***	1.0000				
Mh	0.0151***	-0.0946***	-0.4602***	0.0882***	-0.3189***	0.0456***	-0.3795***	1.0000			
Age	0.0229***	0.0249***	0.2305***	0.0220***	0.1740***	-0.0535***	0.1724***	-0.2705***	1.0000		
Indratio	0.0349***	-0.0302***	-0.0599***	0.0470***	-0.0037	-0.0097*	-0.0024	0.0773***	-0.0206***	1.0000	
ROA	-0.2983***	0.1614***	-0.1089***	0.0150***	-0.3867***	0.2595***	-0.0085	0.1924***	-0.1155***	-0.0163***	1.0000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

3.3 Regression Analysis of Risk-Taking Level and External Executive Compensation Gap

This study examines the relationship between the executive external compensation gap (ExGap, independent variable) and corporate risk-taking (Risk, dependent variable, measured by profit volatility). Regression analyses (random and fixed effects models) reveal a significant positive correlation: ExGap coefficients are 0.0108 (random effects, $p < 0.01$) and 0.0098 (fixed effects, $p < 0.01$), suggesting that higher executive pay relative to industry peers encourages risk-taking. This aligns with social comparison theory, where pay superiority places executives in a "gain" state, reducing risk aversion and motivating high-risk, high-return strategies. Conversely, below-average pay may trigger compensatory risk-taking to address perceived inequities. The fixed-effects model ($R^2 = 0.1532$) controls for industry/year heterogeneity, outperforming the random-effects model ($R^2 = 0.1239$), with both F-tests (525.17 and 504.91) confirming model significance.

Control variable results include:

Lev (debt ratio): Mixed effects—negative in random effects (-0.0040, $p < 0.05$) but positive in fixed effects (0.0050, $p < 0.01$), reflecting industry-specific leverage strategies.

Salegrow: Strong positive correlation (0.0085 random, 0.0077 fixed; $p < 0.01$), linking sales growth to risk capacity.

Size: Negative coefficients (-0.0060 random, -0.0062 fixed; $p < 0.01$), as larger firms diversify risk.

Mh (management shareholding): Positive only in random effects (0.0032, $p < 0.05$), suggesting alignment with shareholder interests varies by firm context.

Firm age: Positive in random effects (0.0034, $p < 0.01$), indicating younger firms' growth-driven risk appetite.

Indratio (independent directors): Positive in both models (0.0261 random, 0.0204 fixed; $p < 0.01$), implying board diversity fosters risk-taking.

ROA: Strong negative correlation (-0.2219 random, -0.2104 fixed; $p < 0.01$), as profitable firms prioritize stability.

The findings underscore compensation design's critical role in shaping risk behavior, particularly in competitive

industries. Firms must balance pay equity, industry benchmarks, and governance controls (e.g., independent directors) to align executive incentives with long-term strategic goals.

Table 4 Regression Analysis of Main Relationship (External)

Project	(1)	(2)
VARIABLES	Risk	Risk
Exgap	0.0108*** (9.0600)	0.0098*** (8.2659)
Lev	-0.0040** (-2.5734)	0.0050*** (3.1868)
Salegrow	0.0085*** (13.8090)	0.0077*** (12.5890)
Size	-0.0060*** (-24.3380)	-0.0062*** (-24.2300)
Mh	0.0032** (2.1605)	0.0001 (0.0822)
Age	0.0034*** (4.3208)	0.0007 (0.8350)
Indratio	0.0261*** (5.6509)	0.0204*** (4.4643)
ROA	-0.2219*** (-51.9968)	-0.2104*** (-49.6819)
Constant	0.1523*** (26.5960)	0.1627*** (26.7554)
Year dummy variable	uncontrolled	controlled
Industry dummy variables	uncontrolled	controlled
Observations	29,724	29,724
R-squared	0.1239	0.1532
F	525.1715	504.9126

Table 5 Outcome of Main Relationship (External)

Variable	Random Effects Model	Fixed Effects Model
External Pay Gap		
Coefficient	Positive and significant at 1%	Positive and significant at 1%
Industry Dummies	Not controlled	Controlled
Year Dummies	Not controlled	Controlled
Hypothesis H3.4	Confirmed	Confirmed
Research question	Question 2	Question 2
Explanation	Higher compensation compared to industry peers motivates top-level managers to adopt assertive business strategies for greater rewards When compensation falls below industry averages, executives undertake high-risk projects to address pay inequities	Higher compensation compared to industry peers motivates top-level managers to adopt assertive business strategies for greater rewards When compensation falls below industry averages, executives undertake high-risk projects to address pay inequities

4 Analysis of the Moderating Effect of Property Rights

This study examines the relationship between executive external compensation gap (ExGap) and corporate risk-taking (Risk), while investigating the moderating roles of state ownership (SOE) and executive gender. ExGap measures pay disparities between a firm's executives and industry peers, while Risk reflects corporate willingness to pursue uncertain, high-return ventures, measured through earnings volatility. Using both random and fixed effects models, the analysis reveals a significant negative moderating effect of SOE: the interaction term SOE*ExGap shows coefficients of -0.0059 ($p < 0.01$) in random effects and -0.0040 ($p < 0.10$) in fixed effects models, indicating state ownership weakens the positive ExGap-Risk relationship. This stems from fundamental differences in China's SOEs versus private firms - SOE executives face government-imposed pay caps, bureaucratic promotion systems, and political oversight that diminish compensation incentives and foster risk aversion. In contrast, private firms' market-driven compensation directly links pay to performance, motivating executives to pursue riskier, high-reward strategies. The fixed effects model, controlling for industry/year variations, confirms these findings' robustness. Results support hypothesis H2.2, demonstrating how SOEs' unique institutional environment (including pay restrictions and dual executive roles as politicians-businesspeople) attenuates compensation incentives' effectiveness compared to private firms, where market mechanisms strengthen the

ExGap-Risk relationship. These findings highlight how ownership structure fundamentally shapes executive risk-taking responses to compensation differentials.

Table 6 Regression Analysis of Moderating Effect (SOE, External)

Project	(1)	(2)
VARIABLES	Risk	Risk
Exgap	0.0105*** (7.2695)	0.0091*** (6.3608)
SOE	-0.0107*** (-11.2043)	-0.0103*** (-10.7796)
SOEExgap	-0.0059*** (-2.6451)	-0.0040* (-1.7924)
Lev	-0.0024 (-1.5466)	0.0061*** (3.8415)
Salegrow	0.0076*** (12.4158)	0.0069*** (11.3834)
Size	-0.0047*** (-18.7309)	-0.0051*** (-19.5384)
Mh	-0.0070*** (-4.4308)	-0.0082*** (-5.2722)
Age	0.0050*** (6.4072)	0.0030*** (3.6146)
Indratio	0.0221*** (4.8222)	0.0178*** (3.9327)
ROA	-0.2204*** (-52.0091)	-0.2091*** (-49.6603)
Constant	0.1258*** (21.5846)	0.1374*** (22.1510)
Year dummy variable	uncontrolled	controlled
Industry dummy variables	uncontrolled	controlled
Observations	29,724	29,724
R-squared	0.1368	0.1632
F	470.8018	444.3753

t-statistics in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 7 Outcome of Moderating Effect (SOE, External)

Variable	Random Effects Model	Fixed Effects Model
Main Relationship	Positive and significant at 1%	Positive and significant at 1%
Interaction Coefficient (SOE)	Negative and significant at 1%	Negative and significant at 10%
Moderating Effect	Negative	Negative
Hypothesis H3.5	Confirmed	Basically Confirmed
Research question	Question 3 (external)	Question 3 (external)
Explanation	The form of state-owned property rights diminishes the positive impact of the xternal pay gap on corporate risk-taking level	The form of state-owned property rights diminishes the positive impact of the external pay gap on corporate risk-taking level

5 Analysis of the Moderating Effect of Executive Gender Differences

This regression analysis aims to investigate the correlation between the disparity in external compensation of a firm's executives (ExGap) and the level of risk-taking by the firm (Risk). The study specifically examines the impact of the proportion of female executives in the firm (Femaleratio) as a potential moderating variable on this correlation. The executive compensation gap is commonly perceived as a component of executive incentives that aim to encourage executives to adopt more daring company initiatives by providing them with greater potential benefits. Nevertheless, it is crucial to consider the involvement of female executives and their potential moderating influence when examining the impact of this mechanism. Previous studies have demonstrated that women generally display higher levels of risk aversion in their decision-making processes.

This study employed random effects and fixed effects models to evaluate the data and investigate the correlation between ExGap and Risk, while also considering the moderating influence of Femaleratio. The analysis controlled for industry and annual variations. In the random effects model, the coefficient for the interaction term between Femaleratio and ExGap is -0.0000. This suggests that the moderating impact of this interaction on Risk is not statistically significant. In

the fixed effects model, the findings indicate a comparable pattern with a coefficient of -0.0001 for the interaction term, which is once again not statistically significant. These findings suggest that the percentage of women in executive positions does not have a substantial impact on the link between the pay gap among executives and the level of risk-taking in corporations, even when considering the impacts of industry and year.

Table 8 Regression Analysis of Moderating Effect (Gender, External)

Project	(1)	(2)
VARIABLES	Risk	Risk
Exgap	0.0108*** (9.0035)	0.0098*** (8.2229)
Femaleratio	0.0025* (1.7142)	0.0016 (1.1027)
c_Femaleratioc_EXGap	-0.0000 (-0.0147)	-0.0001 (-0.3522)
Lev	-0.0039** (-2.5224)	0.0051*** (3.2316)
Salegrow	0.0084*** (13.7917)	0.0077*** (12.5762)
Size	-0.0060*** (-24.0247)	-0.0062*** (-23.9996)
Mh	0.0031** (2.0935)	0.0001 (0.0400)
Age	0.0033*** (4.2074)	0.0007 (0.8097)
Indratio	0.0258*** (5.5658)	0.0201*** (4.4106)
ROA	-0.2219*** (-51.9832)	-0.2104*** (-49.6761)
Constant	0.1512*** (26.2584)	0.1619*** (26.4423)
Year dummy variable	uncontrolled	controlled
Industry dummy variables	uncontrolled	controlled
Observations	29,724	29,724
R-squared	0.1240	0.1532
F	420.4467	404.0629

t-statistics in parentheses*** p<0.01, ** p<0.05, * p<0.1

This discovery offers a crucial viewpoint for comprehending the significance of gender diversity in senior leadership. Although previous literature has indicated that female executives may lean towards implementing more cautious risk management strategies, this study's findings indicate that the mere presence of female executives does not have a substantial influence on the specific connection between compensation incentives and corporate risk-taking level. There might be other factors contributing to the lack of significance in the moderating influence of executive gender. The executive pay gap is primarily influenced by factors such as a company's internal structure, governance model, performance objectives, and the credentials and performance of individual executives. The correlation between these parameters and executives' gender is often weak, but their connection to business strategy and market environment is more significant. Hence, the potential influence of a higher percentage of female executives on the remuneration system could be restricted, particularly considering the presence of established compensation rules and performance evaluation frameworks. Furthermore, a company's approach to risk-taking is shaped by other variables, such as market circumstances, competitive tactics, industry standards, and the regulatory environment. It is important to note that these considerations are not exhaustive. Although the decision-making style of the executive team has a role, simply changing the gender makeup is not enough to drastically impact a company's general willingness to take risks. The potential impact of increasing gender diversity on risk assessment may be diminished or modified in reality due to factors such as corporate culture, approaches to teamwork, and leadership styles. Therefore, a higher percentage of female executives may not necessarily be successful in mitigating the correlation between disparities in income and the willingness to take risks. Moreover, in terms of statistical and empirical research, if the study does not discover a substantial moderating impact of the proportion of female executives on this relationship, it could be attributed to inadequate sample sizes, constraints of the research design, or the inherent intricacy of the relationship between the variables. The empirical findings can be influenced by the data's quality, the analytical approach, and the selection of explanatory factors. The various factors that influence the proportion of female executives are diverse and complex. However, their impact on the relationship between the external executive compensation gap and corporate risk-taking level is not significant. This

could be attributed to the interaction and coverage of multiple factors, as well as the influence of the external environment and internal policies on this dynamic. Regarding management practices, this discovery implies that companies should take into account that gender diversity may not have a direct impact on the connection between compensation incentives and risk-taking tendency when developing executive compensation and incentive schemes. Companies can prioritize the integration of risk-taking decision-making processes by optimizing their remuneration structure and implementing other management techniques. Furthermore, this implies that in order to advance gender equality and enhance gender diversity in managerial positions, companies may need to enhance risk management by implementing a comprehensive approach rather than merely focusing on modifying gender ratios.

Table 9 Regression Analysis of Moderating Effect (Gender, External)

Variable	Random Effects Model	Fixed Effects Model
Main Relationship	Positive	Positive
Interaction Coefficient (Gender)	Not statistically significant	Not statistically significant
Hypothesis 3.6	Not confirmed	Not confirmed
Research question	Question 4 (external)	Question 3 (external)
Explanation	The percentage of women in executive positions does not have a substantial impact on the link between the external pay gap and the level of risk-taking in corporations	The percentage of women in executive positions does not have a substantial impact on the link between the external pay gap and the level of risk-taking in corporations

6 Robustness Testing

This regression study investigates the influence of the executive external compensation gap (ExGap) on the business risk-taking level (Risk). The executive external compensation gap refers to the disparity between the average compensation of a company's executive team and the average compensation of executive teams in other companies within the same industry. This gap indicates whether the executive compensation is relatively high or low compared to the industry average. On the other hand, risk-taking level (Risk) is a measure of a company's willingness to take risks, and it is calculated as the three-year rolling standard deviation of a company's return on total assets (ROA). A higher value for Risk indicates greater earnings volatility and a greater ability to take risks. To ensure the reliability of the research findings, this dissertation initially performs regression analyses using two models: the random effects model and the fixed effects model. Both models yield similar results, suggesting that the regression findings in this chapter are reasonably robust.

In addition, this study conducted further analysis to examine the impact of disparity in executive remuneration (ExGap) on business risk-taking level (Risk) and to establish the reliability of the results. The study also replaced the dependent variable Risk and conducted an extra test to confirm the findings. During this test, the initial measure of risk assessment, which is the three-year rolling standard deviation of the company's return on total assets (ROA), is also substituted with the three-year rolling standard deviation of the return on equity (ROE). The subsequent section showcases the outcomes of the regression analysis using the fixed-effects model with this alternative measure.

When used the three-year rolling standard deviation of return on equity (ROE) as a metric for assessing business risk, the coefficient on ExGap retains its positive value and is statistically significant at the 1% level of significance. This implies that companies with greater disparities in the external remuneration of their executives are more likely to engage in riskier behavior. This aligns with the tournament hypothesis, which suggests that executives are more inclined to make risky judgments in order to get greater reward incentives. The outcomes obtained after substituting the risk assessment indicators align with the outcomes of the initial model, hence strengthening the dependability of the study's conclusions. This demonstrates the uniformity of the impact of the disparity in executive compensation on company risk-taking level, regardless of whether the risk is measured using three-year rolling standard deviation of return on assets or three-year rolling standard deviation of return on equity.

In the robustness test, the original risk measure was replaced. The fixed-effects model revealed that the coefficient of the effect of the external compensation gap (ExGap) of executives on the level of risk taking (Risk) of the firms is positive and statistically significant at the 1% level. This finding supports the hypothesis that firms with a larger external compensation gap are more likely to adopt a high-risk strategy. Upon further analysis, it is found that the coefficient of the interaction term SOEExGap between state-owned enterprise (SOE) ownership and executive compensation gap (ExGap) is negative and statistically significant at the 1% level. This indicates that the positive impact of ExGap on corporate risk-taking level is significantly reduced in SOEs. This could be attributed to the stricter risk control and focus on stable operations in SOEs.

Additional examination finds that the Femaleratio, which represents the proportion of female executives, is utilized as a metric for assessing gender disparities among executives when evaluating executive gender differences as a

moderating factor. The coefficients for the key impacts ExGap and Risk are positively and significantly significant at the 1% level of statistical significance. The coefficients for the interaction terms of Femaleratio and InGap are statistically significant at the 10% level, while we typically only consider significance at the 5% level. This finding indicates that the percentage of women in executive positions does not have a substantial impact on the connection between the pay gap among executives and the level of risk-taking in corporations, as shown in the sample and model used in this study. This robustness test confirms the findings of the previous empirical analysis, which shown that the difference in executive compensation significantly affects the level of risk taken by enterprises. Furthermore, the inclusion of the percentage of female executives as a moderating variable did not yield a statistically significant moderating effect in this analysis. This suggests that both females and males may exhibit similar behavioral patterns in risk-taking within executive decision-making, or that their influence is not substantial enough to demonstrate a significant distinction in the presence of other uncontrolled factors.

Table 10 Robustness Testing (External)

Project	(1)	(2)	(3)
VARIABLES	Risk2	Risk2	Risk2
Exgap	0.0224*** (7.2679)	0.0266*** (7.1825)	0.0225*** (7.3042)
SOE		-0.0119*** (-4.7699)	
SOEExgap		-0.0218*** (-3.7890)	
Lev	0.1920*** (48.5095)	0.1932*** (48.8530)	0.1919*** (48.4303)
Salegrow	0.0210*** (13.3161)	0.0197*** (12.4995)	0.0210*** (13.3082)
Size	-0.0180*** (-27.0094)	-0.0161*** (-23.6472)	-0.0180*** (-26.9089)
Mh	-0.0032 (-0.8260)	-0.0162*** (-4.0179)	-0.0031 (-0.8022)
Age	0.0043** (1.9740)	0.0082*** (3.7623)	0.0044** (2.0085)
Indratio	0.0357*** (3.0202)	0.0318*** (2.6911)	0.0362*** (3.0568)
ROE	-0.3422*** (-70.3474)	-0.3411*** (-70.2865)	-0.3422*** (-70.3363)
Femaleratio			-0.0017 (-0.4340)
c_Femaleratioc_EXGap			0.0012* (1.9019)
Constant	0.3750*** (23.6507)	0.3300*** (20.3398)	0.3753*** (23.5130)
Observations	29,698	29,698	29,698
R-squared	0.2932	0.2969	0.2933
F	1	1	1

t-statistics in parentheses*** p<0.01, ** p<0.05, * p<0.1

7 Conclusion

This paper aims to examine the correlation between the disparity in executive external compensation and enterprise risk-taking level. To achieve this, the study considers the average executive compensation of companies within the same industry and with similar property rights as the reference point. The empirical findings of this study indicate that the external compensation gap has a positive correlation with business risk-taking, regardless of whether executive remuneration is higher or lower than the industry average. More precisely, when the external pay gap exceeds the industry average, it can mitigate managers' risk-averse behavior, thereby enhancing the firm's risk-taking propensity. And when the external pay gap is below the industry average, it can also motivate managers to pursue higher risks, which also promotes the firm's risk-taking behavior.

Nevertheless, at state-owned enterprises (SOEs), this favorable relationship is repressed. The limited compensation for executives in state-owned enterprises (SOEs) and their preference for political advancement over market competition result in their increased reliance on recognition from government departments. Consequently, this weakens the incentive

for them to take risks, despite the existence of a compensation gap in the external market. Furthermore, augmenting the ratio of female executives does not have a substantial impact on the degree of risk-taking within companies. The reason for this might be attributed to the fundamental nature of top management roles, which necessitate the capacity to manage intricate and high-stakes decision-making responsibilities. Consequently, individuals occupying these positions tend to have a higher tolerance for risk, irrespective of their gender. As a result, female executives are prone to have risk attitudes that are comparable to those of males, and the disparity in risk preferences between the two genders is not substantial. Furthermore, a company's decisions about risk-taking are significantly impacted by factors such as corporate culture, strategy, and governance structure, which can have a more substantial effect than gender. Although the inclusion of female executives may alter the dynamics of a team and their approach to decision-making, it does not inevitably result in a substantial shift in levels of risk-taking. Executives have the ability to modify their behavior in order to meet the expectations and requirements of their position. This may involve making changes in their willingness to take risks. Additionally, any reported variations in behavior between genders may be impacted by factors such as how the sample was chosen, the specific characteristics of the business, differences across countries, or the methods used in the research.

About the Author

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