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RESEARCH ARTICLE

Salary Gaps and Commercial Credit Financing in Chinese-Listed Firms: Roles of Ownership and Performance

Yameng Hou[1], Leo Delaric Manansala[2*], Xiaomei Yin[3]

[1]De La Salle University- Dasmarinas, DBB-B City of Dasmariñas Cavite, Philippines
Email: 308813882@qq.com
[2]De La Salle University- Dasmarinas, DBB-B City of Dasmariñas Cavite, Philippines
Email: ldmanansala@dlsud.edu.ph
[3]INTI International University, Kampung Baharu, Nilai, Negeri Sembilan, Malaysia
Email: 1204445475@qq.com

CORRESPONDING AUTHOR (*):
Leo Delaric Manansala
(ldmanansala@dlsud.edu.ph)

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ABSTRACT

Efficient access to financing is crucial for corporate sustainability, yet internal governance's impact on commercial credit financing remains underexplored in emerging markets. This study employed secondary data to investigate the influence of salary gaps on commercial credit financing and firm performance using a seven-year panel dataset of A-share listed firms on the Shanghai and Shenzhen Stock Exchanges from 2014 to 2020. The study examines the effect of executive salary gaps on commercial credit financing, considering the mediating role of financing performance and the moderating effect of ownership structure. Panel regression analysis, bootstrap mediation testing, propensity score matching (PSM), and two-stage least squares (2SLS) were applied to ensure robustness and address endogeneity. Findings reveal that salary gaps significantly affect commercial credit financing. Moderate pay differentials improve financing capacity, whereas excessive disparities weaken financing outcomes. Financing performance, measured by return on equity, partially mediates the relationship, suggesting that compensation structures influence financing through their effect on firm profitability. Ownership structure moderates the relationship, with stronger effects observed in private and mixed-ownership firms than in state-owned enterprises. Robustness tests confirm the stability of the findings. The study highlights the importance of balanced compensation design, effective governance, and diversified financing channels in improving financing efficiency, and provides implications for corporate management and financing policy in emerging markets.

Contribution/Originality: This study contributes to corporate finance research by linking executive salary gaps, commercial credit financing, and firm performance within a unified framework for China's A-share market. Unlike prior studies that focus on debt or equity financing, it highlights the underexplored role of trade credit and the mechanisms through which internal compensation structures influence external

financing outcomes. By integrating mediating (financing performance) and moderating (ownership structure) factors, the study provides novel insights into how governance, pay design, and firm type jointly shape financing efficiency, offering actionable guidance for managers and policymakers in emerging market contexts.

1. Introduction

Funds serve as the essential resource in any enterprise operations, and having an adequate supply of funds is not just a necessity but a prerequisite for ensuring the seamless development of production and operational activities. Therefore, the challenge of securing financing sources has become one of the most pressing concerns in the realm of corporate financial management. As an essential component of modern financial decision-making, the primary objective of financing activities is to fulfill the firm's need for funds both before and during operations, which is often becomes the first consideration for management when formulating strategic plans (Ding et al., 2021; Novitskaya & Alimuradov, 2023). In recent years, the connection between executive compensation structures and firm financing outcomes gained seemingly increasing attention in corporate finance research, particularly in emerging markets where institutional arrangements may differ significantly from those in developed economies (He et al., 2022; Feng, 2023; Niu et al., 2024). In China, the world's second-largest economy, the interaction between property rights structure, salary gaps, and commercial credit financing presents a complex and unique phenomenon that deserves closer investigation.

When firms conduct financing activities, they inconveniently categorize funding sources into internal and external financing. Internal financing, which includes retained earnings and depreciation funds accumulated within the firm. External financing consists of debt and equity obtained from its investors or creditors. Given that internal financing relies on profitability and firm scale, it is commonly limited by the level of internal accumulation (Wang, 2023; Huang, 2025; Martinez & Roberts, 2023) and often demands a long period to support expansion or technological upgrading, which may limit the speed of development (Gao, 2023). In contrast, external financing allows firms to gather capital more quickly and flexibly to cater to their operational and investment needs. The ability of listed firms to raise funds efficiently through the capital market provides the economic foundation for maintaining stable production and operation and for enhancing competitiveness (Ren et al. 2019; Zhang et al., 2023).

Since 1978, China's corporate financing has changed a lot. In the early days, firms could rely mainly on internal sources and government loans, which resulted to limited financing channels (Bai et al., 2023; Guo & Xu, 2021). With the gradual development of the market economy, and financing options became more diversified, which created a fiercer competition. By the late 1990s, state-owned enterprises were drowning in debt, with liabilities that were simply impressive at 63.74% in 1998 (He, 2022). Entering the 21st century, external financing for listed firms expanded continuously alongside capital market development. By 2024, social financing surpassed 400 trillion yuan, which may indicate an overwhelming reliance on diverse funding sources (People's Bank of China, 2024; State Council Information Office, 2023; State Council Information Office, 2025). The ongoing growth of these sources clearly shows that listed firms maintain strong demand for capital and are increasingly relying on the market to support long-term development.

Despite the expansion of financing channels, the debt-to-asset ratio of Chinese listed firms remains relatively low by international standards, which more likely show a persistent preference for equity financing (Feng & Liu, 2024; Wang et al., 2023; Du, 2021; Huang & Wang, 2018). Compared with debt, equity financing does not come with the burden of fixed interest payments or principal repayment, which may reduce short-term financial pressure, but excessive reliance may dilute ownership and could weaken corporate governance. In contrast, debt financing introduces repayment obligations and creditor supervision that can limit managerial discretion while increasing financial risk. Firms, therefore, must balance financing cost, control, and risk when selecting financing methods (Odhiambo et al., 2024). However, creditor governance in China remains relatively weak due to the ever-strong government influence over banking institutions, which often reduces the disciplinary role of debt financing (Ming, 2024; He, 2022; Li & Huang, 2022). Additionally, the bond market has not fully met corporate financing needs, as its limited scale, insufficient credit bond products, and imperfect trading mechanisms could reduce liquidity and capital allocation efficiency (Zhang & Wu, 2024; Cheng & Guo, 2023). These structural constraints may increase financing costs and weaken the effectiveness of traditional financing channels.

In this context, commercial credit financing has emerged as an important supplement to traditional financing channels. Commercial credit, first discussed by Meltzer (1960, cited in Bai et al., 2021, and Li et al., 2024) is defined as short-term funding obtained through trade credit arrangements like accounts payable and accounts receivable. During the early stage of capital market development, it served as a key funding source for many firms. With economic globalization, commercial credit has transformed from a mere financing tool into a mechanism a powerful tool that strengthen economic ties among firms in domestic and international markets (Benguria & Ederington, 2023; Markiv et al 2024; Amarnadh & Moparthi, 2024). In developed economies, commercial credit accounts for a significant share of corporate financing, reaching about 8% in the United States, 17.9% in Japan, 15.5% in France, 8.2% in Germany, and 5.7% in the United Kingdom (Lian & Pu, 2024). This highlights the importance of commercial credit in modern corporate operations. In China, with increasing market becoming increasingly open and initiatives such as the Belt and Road strategy taking shape, commercial credit has played a growing role in facilitating trade cooperation, sustaining liquidity, and improving operating efficiency.

A large body of research shows that commercial credit financing can be a powerful tool for overcoming financing constraints. Kong et al. (2021) revealed that commercial credit serves as vital substitute to bank lending when firms encounter credit restrictions, while Sun (2023) illustrated that supply-chain-based credit may mitigate financing difficulties for small and medium-sized enterprises. Li and Huang (2023) emphasized that commercial credit often emerges as the principal funding source when bank loans are insufficient. Nevertheless, Chinese listed firms may still face significant financing constraints. Since the 2008 global financial crisis, financial institutions have tightened lending criteria, which resulted to higher financing costs and limited credit availability (Ju & Wang, 2019). Commercial credit also involves risks, such as delayed payments and opportunistic default, which may disrupt supply-chain relationships. Compared with developed economies, China's debt, equity, and commercial credit systems are still in transition, and weak credit discipline in certain firms reduces financing efficiency. Consequently, improving financing effectiveness remains a pressing challenge for listed companies.

Among the internal factors influencing financing outcomes, compensation structure, particularly the salary gap between executives and employees, has attracted growing attention. Based on the economic man hypothesis, appropriate financial incentives may enhance effort and productivity, which may improve profitability and financing capacity (Zheng et al., 2024; Ma, 2023; Palacín-Sánchez & Ramírez-Herrera, 2022). However, an excessive pay disparity may reduce employee motivation, increase conflict, and decrease organizational cohesion, which can ultimately harm the performance and financing outcomes (Olafsen, 2024; Wang et al., 2024). Empirical evidence in China suggests that the effect of salary gaps is context-dependent. Olafsen (2024) reported adverse effects of excessive wage disparity on morale and productivity, while Zhao et al. (2019) linked pay gaps to technological innovation, and Zhou et al. (2024) demostrated that external executive pay disparity can affect innovation in mixed-ownership firms, which underscores the importance of ownership structure in shaping the consequences of compensation design.

From the perspective of capital demand, financing decisions are largely made by corporate management, and the success of financing activities depends on the firm's operational performance. Employee motivation, cooperation, and responsibility, which are influenced by compensation structures, directly affect productivity and profitability, thereby shaping the firm's ability to obtain financing. From the perspective of capital supply, external stakeholders such as creditors, investors, and suppliers evaluate the firm's creditworthiness based on observable performance indicators disclosed in financial reports. Changes in profitability, cash flow, and debt-repayment capacity influence the willingness of external parties to provide funds. Therefore, internal incentive mechanisms indirectly affect financing outcomes by altering the firm's operating performance and risk profile. Despite its importance, the role of salary gaps in influencing financing behavior, especially commercial credit financing, has not been sufficiently explored in existing research.

The relationship between executive salary gaps and financing performance can be explained through behavioral, tournament, and agency theories. Behavioral theory posits that excessive pay disparities reduce employee motivation, cooperation, and morale, ultimately weakening corporate performance and financial outcomes (Mao & Peng, 2022; Zheng et al., 2024; Zhou et al., 2024). Empirical evidence confirms that large gaps within top management teams correlate with lower financing efficiency, higher debt costs, and reduced access to external capital (Chen & Yuan, 2022; Kim & Jang, 2023; Wang et al., 2024). Tournament theory, in contrast, suggests that moderate salary gaps incentivize executives to compete for higher positions, improving resource allocation and capital acquisition under certain conditions (Lazear & Rosen, 1981; Yin et al., 2024; Liu & Zhang, 2023; Xu & Wang, 2024). Agency theory explains these dynamics by highlighting the role of executive compensation in aligning managerial and shareholder interests while managing debt agency costs, monitoring, and residual losses (Jensen & Meckling, 1976; Zhang & Wu, 2021; Bai et al., 2021). Overall, excessive executive pay gaps can undermine financing performance via behavioral and agency mechanisms, whereas moderate gaps can enhance incentives. Effective internal governance, fair compensation, and targeted incentive structures are therefore critical to balancing motivation, risk, and financial efficiency (Titus & O'Brien, 2022; Weng & Ma, 2022).

Corporate ownership structure plays a critical moderating role in the relationship between salary gaps and financing performance. Ownership determines access to resources, governance quality, and financing constraints. State-owned enterprises

(SOEs) typically benefit from government support, lower financing costs, and preferential credit access, which can reduce the motivational impact of salary gaps on managerial behavior. In contrast, private firms operate under stronger market discipline and tighter financing constraints, making internal incentive mechanisms more consequential for shaping executive decisions and financing outcomes (Chen., et al, 2023; Song & Wu, 2022; Zheng, 2024). Recent studies on mixed-ownership reforms show that changes in ownership can alter wage structures and firm performance, while government oversight of executive compensation continues to influence operational efficiency (Ren et al., 2021; Lou & Gao, 2023). Ownership type also affects the implementation of national policies and regulatory support, implying that the effect of salary gaps on commercial credit financing may differ across firm types (Shi & Yan, 2020; Wang & Li, 2023). Based on this, linking corporate ownership, salary gaps, and commercial credit financing levels can be considered as a continuing topic to explore.

Based on the above discussion, this study aims to examine the impact of salary gaps on commercial credit financing of Chinese listed firms, considering the moderating role of corporate property rights and the mediating role of financing performance. Existing studies have mainly analyzed compensation structure and firm performance separately or focused on traditional financing channels such as debt and equity, while relatively little attention has been given to commercial credit financing within an integrated analytical framework. By combining tournament theory, behavioral theory, agency theory, and corporate governance theory, this research seeks to provide a more comprehensive understanding of how internal compensation arrangements interact with ownership characteristics to influence external financing outcomes in China's unique institutional environment.

2. Research Methods

2.1. Data and sample

This study employed secondary data to investigate the influence of salary gaps on commercial credit financing and firm performance, using a seven-year panel dataset of A-share listed firms on the Shanghai and Shenzhen stock exchanges from 2014 to 2020. Sample selection adhered to the industry classifications outlined in the Guidelines for the Industry Classification of Listed Firms introduced by China Securities Regulatory Commission in 2012 and classification method conducted by Yang et al. (2015) and Banker et al. (2016) to ensure the scientific validity, reliability, and generalizability of the empirical analysis.

To enhance data quality and mitigate potential biases, several exclusion criteria were applied. Firms in the financial sector were omitted due to their distinct accounting treatments and regulatory requirements. Observations for firms subject to ST, *ST, or PT designations were removed to prevent distortions in the results, and records with missing or incomplete financial data were also excluded (Chang & Manansala, 2025). Additionally, outliers that could disproportionately affect regression outcomes were eliminated. Following these procedures, the final sample included 19,411 firm-year observations representing 2,773 unique businesses, provides a robust and representative basis for examining the relationships among salary gaps, financing performance, and commercial credit financing in Chinese-listed firms.

2.2. Variable measurement

All variables were defined following prior literature to ensure reliability, comparability, and consistency of empirical results to examine the relationship between salary gaps and commercial credit financing.

2.2.1. Dependent variable

Commercial credit financing reflects the level of financing obtained through trade credit in business operations, following Chen and Ma (2018) and Fang and Chu (2019). It is measured as:

$$Comcredit = \frac{Accounts\ payable + Notes\ payable - Prepayments}{Operating\ Cost}$$

To capture the relative financing advantage within the industry, the commercial credit financing level is adjusted using the industry-year median following Qi et al. (2022):

$$Comcreditd = Comcredit - Median(Comcredit)_{industry,year}$$

This adjusted indicator reflects the firm's relative financing position compared with other firms in the same industry and year.

2.2.2. Independent variables

The independent variables are the internal and external salary gaps, which capture compensation inequality within the firm and relative to the external labor market.

To improve measurement accuracy and better reflect the characteristics of China's A-share market, the calculation of internal and external salary gap variables was refined following prior methodology. For internal salary gap indicators (CEORg, CEOempRg), executive and employee compensation statistics were standardized by excluding non-recurring and non-cash compensation items to ensure consistent comparison of pay disparities within firms. For external salary gap variables (CEOdmed, CEOempdmed), the industry–year median adjustment method was refined by removing extreme firm observations within each industry to prevent distortion of benchmark values caused by outliers.

Internal salary gap reflects wage dispersion within the organizational hierarchy. Following Xu et al. (2024) and Ni et al. (2023), executive team salary gap is the average compensation of core executives is calculated as the mean compensation of the three highest-paid directors, supervisors, and senior executives:

$$Corepay = \frac{Total\ compensation\ of\ top\ three\ executives}{3}$$

The average compensation of non-core executives is computed as:

$$NonCorepay = \frac{Total\ executive\ compensation - Top\ 3\ compensation}{(No.of\ executives - 3)}$$

The salary gap within the executive team is measured as:

$$CEORg = \frac{Corepay}{NonCorepay}$$

For executive–employee salary gap, the study follows Zhang and He (2023) computation of the average salary of employees, which is calculated as:

$$Employeepay = \frac{Cash\ paid\ to\ employees + Ending\ payable - Beg.\ payable - Exec.pay}{(Total\ employees - Executives)}$$

The salary gap between executives and employees is:

$$CEOempRg = \frac{Average\ Executive\ Pay}{Ave\ Employeepay}$$

These indicators reflect the degree of vertical pay inequality within the firm.

On the other hand, external salary gap measures the deviation of firm compensation from industry norms. Following Qian and Zhu (2017), the deviation of executive pay from the industry median is measured as:

$$CEOdmed = \frac{Firm\ executive\ gap - Median\ gap_{industry,year}}{Median\ gap_{industry,year}}$$

For external executive–employee salary gap:

$$CEOempd = \frac{Firm\ exec - employee\ gap - Median\ gap_{industry,year}}{Median\ gap_{industry,year}}$$

These variables reflect the competitiveness of the firm's compensation structure in the external labor market.

2.2.3. Mediating and Moderating Variables

The mediating variable is financing performance, which captures the firm's operating efficiency and profitability. Following standard corporate finance literature, financing performance is measured using return on equity (ROE) where, ROE=Net profit/Average shareholders' equity. ROE is used to examine whether salary gaps influence commercial credit financing indirectly through firm performance.

The moderating variable is property ownership, which reflects the governance and institutional characteristics of the firm. Firms are classified as state-owned or privately owned (SOE=1 if state-owned, 0 otherwise). This variable is used to test whether ownership structure moderates the relationship between salary gap and commercial credit financing.

2.2.4. Control Variables

To isolate the effect of salary gaps on commercial credit financing, several firm-level control variables are included. Control variables include firm size (FSize)= *ln(total*

assets), firm age (Fage)= *ln(years since establishment + 1)*, tangible assets ratio (TAratio)= *(total assets – intangible assets – goodwill) / total assets*, Equity concentration (Share1) = *shareholding ratio of largest shareholder,* Dual role (Duality) = *1 if chairman = CEO, 0 otherwise,* Board size (Board)= *ln(number of directors),* Independent director ratio (IDratio)= *independent directors / board size*, Leverage (Lev) = *total liabilities / total assets,* year fixed effects, and industry fixed effects. These variables control for differences in governance, financial structure, and macroeconomic conditions that may affect financing behavior.

2.3. Analytical Procedures

Following the methodological framework of Chen and Ma (2018) and Fang and Chu (2019), this study examines the impact of salary gaps on commercial credit financing using panel data regression techniques. Control variables related to firm characteristics, governance structure, and financial conditions are included to reduce omitted-variable bias and to ensure the robustness of the empirical estimates. All statistical analyses were conducted using Stata 15.0, SPSS 22.0, and MS Excel.

To test Hypothesis 1 (H1), examining the effect of salary gaps on commercial credit financing, both Fixed Effects Model (FEM) and Random Effects Model (REM) were initially estimated:

$$Comcredit_{i,t} = \alpha_o + \alpha_1 Gap_{i,t} + \sum \alpha_q \, Control_{i,t} + \sum Year + \sum Ind. + \varepsilon_{i,t}$$

where $Comcredit_{i,t}$ represents the commercial credit financing level of firm i in year t, $Gap_{i,t}$ denotes internal or external salary gaps, and $Control_{i,t}$ includes firm-level characteristics. Year and industry fixed effects control for temporal and sectoral variations. The Hausman test was employed to determine the appropriate model. Results indicated that the fixed-effects specification was preferred, controlling for unobserved time-invariant heterogeneity across firms.

Hypothesis 2 (H2) posits that corporate property ownership moderates the effect of salary gaps on commercial credit financing. To test this, an interaction term between salary gap and ownership type was included:

$$Comcredit_{i,t} = \beta_o + \beta_1 Gap_{i,t} + \beta_2 SOE_{i,t} + \beta_3 (Gap_{i,t} \, X \, SOE_{i,t}) + \sum Control_{i,t} + \sum Year + \sum Ind. + \varepsilon_{i,t}$$

A statistically significant β_3 indicates that the relationship between salary gaps and commercial credit financing differs by firm ownership.

To examine the mediating role of corporate performance in the relationship between executive salary gaps and commercial credit financing, stepwise regression was employed. This approach follows a sequential procedure, first testing the effect of the salary gap on firm performance (ROE), then the effect of the salary gap on commercial credit financing (CCF), and finally the combined model including both salary gap and ROE to estimate the indirect (mediated) effect. Unlike fixed effects models (FEM) or standard regressions for direct effects, the stepwise method emphasizes the mediation path rather than controlling for unobserved firm-specific heterogeneity. The mediation test follows a sequential estimation procedure using the following regression equations.

Step 1: Test the effect of salary gap on ROE.

$$ROE_{i,t} = \alpha_o + \alpha_1 Gap_{i,t} + \alpha_2 Control_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

Step 2: Total Effect of Salary Gap on Commercial Credit Financing

$$CCF_{i,t} = \beta_o + \beta_1 Gap_{i,t} + \beta_2 Controls_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

where $CCF_{i,t}$ denoted the commercial credit financing level (Comcredit / Comcreditd).

Step 3: Mediation Model (Salary Gap + ROE → CCF)

$$CCF_{i,t} = \gamma_o + \gamma_1 Gap_{i,t} + \gamma_2 ROE_{i,t} + \gamma_3 Controls_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

This equation tests the presence of mediation by examining the coefficients obtained from the sequential regression models. Mediation is supported when the coefficient of firm performance in the final regression, γ_2, is statistically significant ($\gamma_2 \neq 0$), indicating that ROE has a direct effect on commercial credit financing (CCF). In addition, the coefficient of the salary gap variable in the mediation model, γ_1, is compared with the corresponding coefficient in the total effect model, β_1. If the absolute value of the coefficient decreases after including the mediator, that is $|\gamma_1| < |\beta_1|$, this suggests the existence of an indirect effect through firm performance. When the coefficient $\gamma_1$becomes statistically insignificant after the inclusion of ROE, full mediation is indicated, meaning that the effect of the salary gap on commercial credit financing operates entirely through corporate performance. However, if γ_1 remains statistically significant but its magnitude is reduced, partial mediation is inferred, indicating that the salary gap affects commercial credit financing both directly and indirectly through firm performance.

Step 4: Bootstrap Test for Indirect Effect

To verify the significance of the mediating effect, bootstrap resampling was applied:

$$Indirect\ Effect = (\alpha_1 x\ \gamma_2)$$

Bootstrap confidence intervals were generated using repeated resampling:

$$CI_{bootstrap} = [Lower, Upper]$$

If the confidence interval does not include zero, the mediating effect is significant.

To ensure the validity and reliability of the empirical results, several diagnostic tests were conducted. Pearson correlation analysis was first performed to examine linear relationships among variables and identify potential multicollinearity, which was further assessed using the Variance Inflation Factor (VIF). To address potential endogeneity, Propensity Score Matching (PSM) was applied by dividing firms into high-, medium-, and low-salary-gap groups and performing nearest-neighbor matching to reduce self-selection bias. Additionally, instrumental variable two-stage least squares (2SLS) regression using lagged salary gap variables was employed to mitigate reverse

causality (Sheng et al., 2019; Liang, 2019; Lu et al.,2024), and future-period commercial credit financing was incorporated to control for simultaneity bias.

3. Results

To lay the groundwork for the analysis, descriptive statistics and diagnostic test results are first examined. Valuable insights into the characteristics of the data are provided, and the validity of the subsequent findings is ensured.

Table 1 reports the descriptive statistics for all variables used in the analysis based on 19,411 firm-year observations from 2014 to 2020. Focusing on the primary variables of the study, the mean value of commercial credit financing (Comcredit) is 2.074 with a standard deviation of 3.361, indicating substantial variation in firms' reliance on supplier credit. The relative measure of commercial credit (Comcreditd) has a mean of 0.550 and a standard deviation of 2.824, suggesting that firms differ considerably from industry benchmarks in their use of trade credit. The large dispersion in these variables confirms that commercial credit financing varies widely across firms, making it suitable as the dependent variable in the regression analysis.

Table 1: Descriptive Statistics (n = 19,411, 2014–2020)

Variable	Mean	SD	Min	Max	p25	p50	p75
Comcreditd	0.550	2.824	-17.59	23.89	-0.705	0.00070	1.144
Comcredit	2.074	3.361	-5.275	20.91	0.370	1.210	2.769
CEORg	3.020	0.469	0	4.695	2.715	2.954	3.242
CEOempRg	4.819	3.413	0.957	20.80	2.719	3.873	5.708
CEOdmed	0.198	0.802	-2.999	5.659	-0.229	-0.0119	0.327
CEOempdmed	0.217	0.846	-0.880	19.32	-0.300	-0.00044	0.448
SOE	0.334	0.472	0	1	0	0	1
ROE	0.0454	0.211	-2.159	2.583	0.0207	0.0620	0.112
Lev	0.426	0.202	0.0590	0.884	0.265	0.417	0.576
Share1	0.339	0.143	0.0879	0.726	0.227	0.318	0.433
Board	2.116	0.193	1.609	2.565	1.946	2.197	2.197
IDratio	0.376	0.0531	0.333	0.571	0.333	0.364	0.429
Duality	0.284	0.451	0	1	0	0	1
FSize	22.28	1.2800	19.52	1. 26.43	21.38	22.1374	23.01
FAge	6.959	0.289	1.946	13.611	2.773	2.996	3.178
Current Ratio	2.320	2.181	0.264	18.75	1.154	1.652	2.613
TAratio	0.915	0.100	0.442	1.000	0.899	0.951	0.976

Regarding the key explanatory variables, the internal salary gap measured by CEORg has a mean of 3.020 (SD = 0.469), indicating that core executives earn significantly more than non-core executives on average, although the variation across firms is moderate. The executive-employee salary gap (CEOempRg) shows a mean of 4.819 with a much larger standard deviation of 3.413, implying considerable inequality between executives and ordinary employees in some firms. For external salary gaps, CEOdmed has a mean of 0.198 (SD = 0.802) and CEOempdmed has a mean of 0.217 (SD = 0.846), suggesting that, on average, firms' compensation structures are close to the industry-year median, but with substantial heterogeneity. These results indicate that both internal and external

salary gaps vary significantly across firms, which may influence stakeholder perceptions of governance quality and risk, thereby affecting access to commercial credit financing.

Control variables also show meaningful variation across firms. The average firm size (FSize) is relatively large, and the tangible asset ratio (TAratio) is high, indicating strong collateral capacity that may facilitate access to external financing. Ownership concentration, measured by the shareholding ratio of the largest shareholder (Share1), is relatively high, suggesting that many firms are characterized by a dominant shareholder structure. In addition, approximately one-third of the sample consists of state-owned enterprises (SOE), reflecting the institutional characteristics of Chinese listed firms. Board governance variables, including board size (Board), independent director ratio (IDratio), and CEO duality (Duality), exhibit noticeable dispersion, indicating differences in internal monitoring mechanisms. Financial characteristics such as leverage (Lev), and liquidity (Curatio) also vary substantially across firms, suggesting heterogeneity in financial structure and operating performance. The variation observed in these control variables confirms the necessity of including them in the regression models to isolate the effect of salary gaps on commercial credit financing.

Overall, the descriptive statistics demonstrate sufficient variability in commercial credit financing, salary gaps, governance structure, and firm characteristics, providing an appropriate empirical basis for examining the effect of executive salary gap on commercial credit financing in the subsequent regression analysis.

3.1. Impact of Salary Gap on the Commercial Credit Financing

Understanding the effect of the salary gap on commercial credit financing requires first verifying that the model assumptions are satisfied. The diagnostic tests discussed previously are performed, providing a reliable foundation for the subsequent hypothesis testing. Table 2 presents the correlation coefficient matrix among the main research variables. The results indicate that both the median external salary gap of the executive team (CEOdmed) and the median external salary gap between executives and employees (CEOempdmed) are negatively correlated with commercial credit financing (Comcreditd). Similarly, internal salary gaps, measured as CEORg (executive team relative internal gap) and CEOempRg (executive–employee internal gap), are significantly negatively correlated with commercial credit financing.

Table 2: Correlation Coefficient Matrix of Research Variables

Variable	Comcredit	Comcreditd	CEORg	CEOempRg	CEOdmed	CEOempd med	ROE
Comcredit	1	0.839***	-0.053***	-0.044***	-0.021***	-0.029***	0.103***
Comcreditd		1	-0.031***	-0.015**	-0.016**	-0.011	0.073***
CEORg			1	-0.005	0.921***	-0.005	-0.088***
CEOempRg				1	-0.005	0.938***	-0.042***
CEOdmed					1	-0.01	-0.039***

CEOempd med	1	-0.033***
ROE		1

The negative correlations provide preliminary support for H1, suggesting that higher salary disparities, both internally among executives and externally between executives and employees, are associated with lower levels of commercial credit financing. Positive correlations between firm size, ROE, and Comcredit indicate that larger and more profitable firms are better able to obtain trade credit.

To verify independence among explanatory variables, the Variance Inflation Factor (VIF) was calculated (Table 3). All VIF values are below 2.2, with corresponding 1/VIF values close to 1, confirming that multicollinearity is not a concern.

Table 3: Multicollinearity Analysis Results

Variables	**VIF**	**1/VIF**
CEORg	1.03	0.97
CEOempRg	1.15	0.87
CEOdmed	1.02	0.98
CEOempdmed	1.10	0.91
SOE	1.37	0.73
ROE	1.04	0.96
Lev	2.19	0.46
Share1	1.13	0.88
Board	1.140	0.88
IDratio	1.02	0.98
Duality	1.12	0.89
FSize	1.60	0.63
FAge	1.09	0.92
Current Ratio	1.80	0.56
TAratio	1.10	0.91
Mean VIF	1.26	

The Hausman test was conducted to determine whether fixed effects (FE) or random effects (RE) models are appropriate. Table 4 summarizes the results.

Table 4: Hausman Test Results for Model Selection

Variable	χ^2	*p*-value	Model preferred
CEOdmed	45.31	.000	FE
CEOempdmed	70.33	.000	FE
CEORg	160.43	.000	FE
CEOempRg	245.99	.000	FE

The results show that all models strongly reject the null hypothesis of RE, indicating that the FE model is more suitable. This controls for unobserved, time-invariant firm-specific heterogeneity, such as corporate culture and governance practices.

The regression results in Table 5 indicate that both internal salary gaps (CEOdmed, CEOempdmed) and external salary gaps (CEORg, CEOempRg) have negative coefficients, suggesting that larger pay disparities reduce access to commercial credit. These effects

are statistically significant, with CEOempdmed, CEORg, and CEOempRg significant at the 1% level, and CEOdmed significant at the 5% level. This provides empirical support for H1, implying that firms with greater salary inequality, whether among executives or between executives and employees, face more constraints in obtaining trade credit.

Table 5: Baseline Multivariate Regression Results of Salary Gap on Commercial Credit Financing

Variable	(1) Comcreditd	(2) Comcreditd	(3) Comcredit	(4) Comcredit
CEOdmed	-0.0596**	–	–	–
	(-2.4487)			
CEOempdmed	–	-0.117***	–	–
		(-5.0334)		
CEORg	–	–	-0.202***	–
			(-4.8162)	
CEOempRg	–	–	–	-0.0287***
				(-4.8335)
Share1	0.791***	0.808***	0.710***	0.741***
	(5.5757)	(5.6993)	(5.0030)	(5.2251)
TAratio	0.266**	0.300***	0.268**	0.305***
	(2.5195)	(2.8325)	(2.5379)	(2.8723)
IDratio	-0.322	-0.442	-0.219	-0.464
	(-0.8738)	(-1.2072)	(-0.5923)	(-1.2670)
Duality	-0.0534	-0.0572	-0.0640	-0.0647
	(-1.1961)	(-1.2819)	(-1.4341)	(-1.4497)
Lev	4.386***	4.425***	4.349***	4.386***
	(40.7750)	(41.0405)	(40.4166)	(40.6361)
Constant	-2.002***	-2.035***	0.122	-0.359
	(-7.3091)	(-7.4365)	(0.4154)	(-1.3122)
Year, industry	YES	YES	YES	YES
Observations	19,411	19,411	19,411	19,411
R^2	0.0962	0.0971	0.3613	0.3614
Adj R^2	0.0924	0.0933	0.359	0.359
F	293.2	296.7	290.4	290.4

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

Among the control variables, ownership concentration (Share1) and total assets ratio (TAratio) are positively associated with commercial credit, indicating that strong governance structures and larger firm size enhance credit accessibility. Leverage (Lev) also exhibits a highly significant positive effect, reflecting that firms with greater borrowing capacity are more likely to attract trade credit. Conversely, IDratio and duality show negative but statistically insignificant coefficients, suggesting that their impact on credit access is limited in this sample.

The models demonstrate moderate explanatory power, with adjusted R^2 ranging from 0.092 to 0.359, and the F-statistics are highly significant, confirming the joint significance of the regressors. Inclusion of year and industry fixed effects further accounts for unobserved temporal and sector-specific factors, improving the robustness of the results. Overall, the baseline regressions consistently confirm that salary gaps adversely affect commercial credit financing, while control variables perform as

expected, providing robust evidence in support of H1 across all four specifications of salary gaps.

To ensure the validity and reliability of the baseline findings, a series of robustness tests were conducted. Table 6 reports the results of PSM to address potential self-selection bias and verify that the observed effects of salary gaps on commercial credit are not driven by differences in firm characteristics. Four specifications of salary gaps are examined: internal gaps (CEOdmed, CEOempdmed) and external gaps (CEORg, CEOempRg), both in absolute and relative terms.

Table 6: Robustness Check - Propensity Score Matching Results

Variable	(1) Comcreditd	(2) Comcreditd	(3) Comcredit	(4) Comcredit
CEOdmed	-0.195 (-6.1910)	–	–	–
CEOempdmed	–	-0.109*** (-4.3001)	–	–
CEORg	–	–	-0.493*** (-10.0355)	–
CEOempRg	–	–	–	-0.0262*** (-4.0444)
Constant	-1.702*** (-5.3821)	-1.948*** (-6. 1647)	1.457*** (4.0548)	-0.299 (-0.9552)
Controls	YES	YES	YES	YES
Year, industry	YES	YES	YES	YES
Observations	12,946	12,946	12,946	12,946
R^2	0.1180	0.1167	0.3460	0.3417
Adj R^2	0.112	0.111	0.342	0.338
F	225.9***	222.2***	225.0***	219.5***

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

According to Table 6, the effect of salary gaps on commercial credit remains robust after propensity score matching. The coefficients for CEOempdmed, CEORg, and CEOempRg are negative and statistically significant ($p < .01$), while CEOdmed retains a negative but statistically insignificant effect ($p > .10$) in the matched sample. These results indicate that firms with larger internal or external salary disparities continue to experience reduced access to commercial credit, supporting H1. The magnitudes of the coefficients, particularly for CEORg (-0.493) and CEOempdmed (-0.109), highlight meaningful economic effects, suggesting that external pay gaps between executives and the broader market have a stronger influence on trade credit than internal gaps.

Moreover, all control variables are included, and their inclusion slightly improves model fit. Year and industry fixed effects are retained to account for time- and sector-specific factors that may affect credit access. Adjusted R^2 ranges from 0.111 to 0.342, demonstrating moderate explanatory power, and the F-statistics are highly significant ($p < .01$), confirming the models' joint significance. The number of observations decreases from 19,411 in the baseline regression to 12,946 due to the matching process, which ensures comparability between treated and control firms.

The PSM results reinforce the baseline findings, showing that the negative relationship between salary gaps and commercial credit is robust to self-selection concerns. Firms with greater pay disparities, whether internal or external, are consistently at a disadvantage in securing trade credit, providing strong support for H1 even after controlling for observable firm characteristics.

Table 7 presents the results of two-stage least squares (2SLS) using lagged salary gaps to address concerns of endogeneity, with results consistently showing negative and significant relationships, further supporting H1.

Table 7: Robustness Check – 2SLS (Instrumental Variable Regression) Results

Variable	(1) CEOdmed	(2) CEOempdmed	(3) Comcreditd	(4) Comcreditd
CEOdmed	–	–	–0.0361* (–1.843)	–0.117* (–1.773)
L.CEOdmed	0.625*** (64.687)	–	–	–
L3.CEOdmed	0.0904*** (9.365)	–	–	0.0655*** (7.102)
CEOempdmed	–	–	–0.157*** (–4.796)	–0.0347*** (–4.334)
L.CEOempdmed	–	0.740*** (87.289)	–	0.797*** (94.610)
L3.CEOempdmed	–	0.125*** (14.838)	–	0.454*** (14.035)
Constant	–0.287*** (–3.121)	–0.016 (–0.221)	–1.857** (–4.328)	–0.716* (–1.650)
Controls	YES	YES	YES	YES
Year, industry FE	YES	YES	YES	YES
Observations	8,613	8,613	8,613	8,613
Adj. R^2	0.4305	0.7611	0.1128	0.367
F-statistic	16.23***	243.02***	–	–
Sargan	–	–	0.1352	5.1644**

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

The 2SLS regression confirms that salary gaps negatively affect commercial credit financing, even after addressing potential endogeneity. In particular, the coefficients for CEOempdmed and CEOdmed remain negative and statistically significant at conventional levels ($p < .05$ or $p < .01$), supporting H1. The negative effect is stronger for external gaps (CEOempdmed), indicating that pay disparities relative to the market significantly reduce firms' access to trade credit.

Moreover, the lagged values of salary gaps (L.CEOdmed, L3.CEOdmed, L.CEOempdmed, L3.CEOempdmed) are highly significant in the first-stage regressions, suggesting strong instruments. The Sargan test confirms instrument validity in most specifications ($p > 0.05$), indicating no evidence of overidentification. All control variables are included, and year and industry fixed effects account for unobserved time- and sector-specific heterogeneity.

In terms of fitness of the model, the Adjusted R^2 values range from 0.113 to 0.761, reflecting differences between first- and second-stage regressions. The F-statistics for

the first-stage regressions are highly significant ($p < .001$), confirming the relevance of the instruments.

Overall, the 2SLS results strengthen the baseline findings by mitigating endogeneity concerns. Firms with larger internal or external executive pay gaps face consistently reduced access to commercial credit, and the results are robust to instrumented specifications.

3.2. Moderating Effect of Property Ownership on the Relationship Between Salary Gaps and Commercial Credit Financing

The study hypothesized whether property ownership moderates the impact of salary gaps on a firm's access to commercial credit (H2). Specifically, it tests if the presence or concentration of property ownership amplifies or attenuates the negative effect of internal and external salary disparities on commercial credit financing. To assess this, interaction terms between salary gap variables and property ownership indicators are included in the regression models. The analysis is conducted using baseline regressions, followed by robustness and endogeneity checks to ensure that the moderating effect is not confounded by firm size, leverage, or industry- and time-specific factors. Table 8 presents the regression results examining the moderating effect of property ownership on the relationship between salary gaps and commercial credit financing (CCF). The analysis distinguishes between state-owned enterprises (SOEs) and private firms, with the key independent variables being CEOdmed (external salary gap among executives), CEOempdmed (external salary gap between executives and employees), CEORg (internal salary gap among executives), and CEOempRg (internal executive–employee gap). Controls for firm characteristics, year, and industry fixed effects are included in all specifications. The SUEST (Seemingly Unrelated Estimation) test is reported to evaluate whether the coefficients differ significantly across ownership types.

Table 8: Moderating Effect of Property Ownership on the Relationship Between Salary Gap and Commercial Credit Financing

Variable	SOE	Private	SOE	Private	SOE	Private	SOE	Private
CEOdmed	-0.0120	-0.101***						
	(-0.2302)	(-3.9826)						
CEOempdmed			-0.133***	-0.0611**				
			(-2.6823)	(-2.4597)				
CEORg					0.0761	-0.340***		
					(-0.0835)	(-7.8357)		
CEOempRg							-0.041***	-0.0107*
							(-3.2120)	(-1.6974)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year, industry	YES	YES	YES	YES	YES	YES	YES	YES
Observations	6,482	12,929	6,482	12,929	6,482	12,929	6,482	12,929
Adj. R^2	0.0992	0.106	0.100	0.106	0.371	0.356	0.372	0.353
F	76.97	202.7	78.52	200.9	75.14	208.1	76.98	197.4
SUEST(χ^2)	0.0000		0.0000		0.0000		0.0000	

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

The results indicate that in SOEs, the external executive–employee salary gap (CEOempdmed) significantly reduces CCF (β = −0.133, p < .01), reflecting heightened sensitivity to equity and cohesion signals. The internal executive–employee gap (CEOempRg) is also negative and significant (β = −0.041, p < .01). In private firms, CEOempdmed remains negative and significant, though smaller in magnitude (β = −0.061, p < .05), while CEOempRg is marginally significant (β = −0.011, p < .10). These findings suggest that suppliers and financiers perceive executive–employee pay disparities as governance signals, with SOEs more affected by executive–employee equity and private firms by broader compensation structures.

Conversely, external salary gaps among executives themselves (CEOdmed) negatively impact CCF only in private firms (β = −0.101, p < .01), and internal executive pay gaps (CEORg) are significant exclusively in private firms (β = −0.340, p < .01). This indicates that in market-driven contexts, internal executive pay inequality is more salient to external financiers, potentially signaling agency problems or managerial opportunism.

The SUEST test confirms that the differences in coefficients between SOEs and private firms are statistically significant (χ^2 = 0.0000), supporting the interpretation that property ownership moderates the impact of salary gaps on commercial credit financing. Overall, these results provide clear empirical support for H2, demonstrating that the negative effect of salary gaps on CCF varies by ownership type: SOEs are more sensitive to executive–employee disparities, whereas private firms are more responsive to internal executive pay gaps.

To ensure that the observed moderating effects are not driven by sample selection or endogeneity, PSM was conducted (Table 9).

Table 9: Propensity Score Matching Results: Effect of Property Ownership on Salary Gap and Commercial Credit Financing

Variable	SOE	Private	SOE	Private	SOE	Private	SOE	Private
CEOdmed	-0.167**	-0.234***						
	(-2.3314)	(-7.0248)						
CEOempdmed			-0.120**	-0.0534*				
			(-2.1910)	(-1.8846)				
CEORg					-0.312***	-0.620***		
					(-2.6864)	(-12.040)		
CEOempRg							-0.036***	-0.00911
							(-2.5885)	(-1.270)
Constant	-1.126	-1.736***	-1.393*	-1.987***	1.252	1.926***	0.0463	-0.297
	(-1.4850)	(-5.1546)	(-1.8420)	(-5.8963)	(1.4306)	(5.0709)	(0.0617)	(-0.8879)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year, industry	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,708	9,236	3,708	9,236	3,708	9,236	3,708	9,236
R^2	0.1335	0.1454	0.1334	0.1411	0.3481	0.3711	0.3480	0.3612
Adj R^2	0.115	0.138	0.115	0.134	0.334	0.366	0.334	0.356
F	50.38	170.1	50.27	161.7	48.24	187.9	48.14	161.5

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

The PSM results highlight the impact of property ownership on the relationship between executive salary gaps and CCF. Across both SOEs and private firms, most salary gap measures exhibit a negative relationship with CCF, indicating that larger pay disparities generally reduce a firm's ability to access trade credit. For SOEs, the external executive–employee salary gap (CEOempdmed) has a significant negative effect on CCF ($\beta = -0.120$, $p < 0.05$), and the internal executive–employee gap (CEOempRg) is also negative and significant ($\beta = -0.036$, $p < 0.01$), suggesting that wider gaps between executives and employees are interpreted as governance or equity risks, thereby weakening the firm's creditworthiness. In private firms, the effects are generally stronger for executive-focused disparities. External salary gaps among executives themselves (CEOdmed) are significantly negative ($\beta = -0.234$, $p < 0.01$), and internal executive salary gaps (CEORg) are also strongly negative ($\beta = -0.620$, $p < 0.01$), indicating that internal pay inequality is particularly salient in market-driven firms, where suppliers and financiers may view it as a signal of managerial opportunism or agency problems. The external executive–employee gap (CEOempdmed) in private firms is negative but less pronounced ($\beta = -0.053$, $p < 0.10$), while the internal executive–employee gap (CEOempRg) is marginally negative ($\beta = -0.009$, not statistically significant). These patterns suggest that SOEs are more sensitive to executive–employee equity signals, reflecting their normative expectations around fairness and cohesion, whereas private firms respond more strongly to pay disparities within the executive team itself. Overall, the PSM results provide robust evidence that property ownership moderates the effect of salary gaps on commercial credit financing, and the use of PSM strengthens the confidence that these relationships are not driven by self-selection bias in the sample. Next, the study applied 2SLS to address potential endogeneity of salary gaps (Table 10). Lagged salary gaps serve as instruments, and Sargan tests confirm instrument validity.

Table 10: Instrumental Variable Regression Results: Effect of Salary Gap on Commercial Credit Financing by Property Ownership

Variable	(1) SOE	(2) SOE	(3) Private	(4) Private
CEOdmed	–	0.606***	–	0.625***
		(37.61)		(49.76)
L3.CEOdmed	–	0.0708***	–	0.107***
		(4.54)		(8.45)
CEOempdmed	–	0.709***	–	0.736***
		(48.43)		(68.30)
L3.CEOempdmed	–	0.179***	–	0.104***
		(11.88)		(9.95)
CEOempdmed	–0.196***	–	–0.0930**	–
	(–2.90)		(–2.54)	
CEOdmed (endog)	0.0303	–	–0.0877**	–
	(0.31)		(–1.997)	
Constant	–0.467***	0.0226	–1.765***	–1.884***
	(–2.72)	(0.18)	(–3.45)	(–3.65)
Controls	YES	YES	YES	YES
Year, Industry	YES	YES	YES	YES
Observations	2,965	2,965	5,383	5,383
Adj. R^2	0.416	0.755	0.104	0.103
F-statistic	23.80***	200.53***	23.80***	200.53***
Sargan (p-value)	1.047 (0.3062)	–	0.3789 (0.538)	–

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

Table 10 presents the instrumental variable regression results examining the effect of salary gaps on commercial credit financing (CCF) by property ownership type. For state-owned enterprises (SOEs), the 2SLS results show that the median external salary gap between executives and employees (CEOempdmed) is significantly negative (β = –0.196, p < .01), indicating that a wider executive–employee pay disparity reduces access to trade credit. Similarly, the lagged instruments for CEOdmed and CEOempdmed are significantly positive, confirming strong relevance of the instruments. The Sargan test is insignificant (p = 0.3062), supporting the validity and exogeneity of the instruments.

For private firms, the median external salary gap of executives and employees is also significantly negative (β = –0.093, p < .05), consistent with the SOE results but at a smaller magnitude. Notably, the lagged CEOdmed and CEOempdmed are highly significant (p < .01), indicating strong instrument relevance. The Sargan test (p = 0.5382) confirms no over-identification problems.

Overall, these results reinforce the robust negative effect of executive–employee salary gaps on commercial credit financing, and the split by ownership highlights that the effect is generally stronger in SOEs than private firms. The diagnostic tests (F-statistics and Sargan chi-square) indicate strong and valid instruments, mitigating endogeneity concerns.

3.3. Mediating Role of Financing Performance in the Relationship Between Salary Gap and Commercial Credit Financing

The study's Hypothesis 3 (H3) explores whether firm performance, measured by ROE, mediates the relationship between executive salary gaps and commercial credit financing (CCF). The underlying premise is that disparities in executive and employee compensation may influence corporate performance, which in turn affects the firm's ability to secure trade credit. To test this, the study employs multiple methods, including PSM and 2SLS regressions to provide a comprehensive assessment of the mediating mechanism.

Table 11 reports the results of the stepwise regression analysis used to test the mediating role of financing performance (ROE) in the relationship between executive salary gap and commercial credit financing. Models (1)–(4) examine the effect of salary gap variables on firm performance (ROE), while Models (5)–(8) estimate the effect of salary gap variables on commercial credit financing (Comcredit and Comcreditd). In the final models, ROE is included to determine whether firm performance mediates the relationship between salary gap and commercial credit financing.

In Models (1)–(4), the salary gap variables show significant negative effects on firm performance. The internal executive salary gap (CEORg) has a significant negative impact on ROE (β = −0.038, p < .01), indicating that a larger disparity among executives reduces firm performance. Similarly, the executive–employee salary gap (CEOempRg) also negatively affects ROE (β = −0.002, p < 0.01). The external salary gap relative to the industry benchmark (CEOdmed) shows a significant negative effect on ROE (β = −0.009, p < 0.01), and the executive–employee external gap (CEOempdmed) likewise reduces firm performance (β = −0.005, p < 0.01). These results suggest that excessive compensation disparity weakens internal cohesion, reduces managerial efficiency, and ultimately harms corporate performance.

Table 11. Mediating Role of Financing Performance in the Impact of Salary Gap on Commercial Credit Financing Level

Variable	Model 1 ROE	Model 2 ROE	Model 3 ROE	Model 4 ROE	Model 5 Comcredit	Model 6 Comcredit	Model 7 Comcreditd	Model 8 Comcreditd
CEORg	-0.038*** (-11.83)				-0.146*** (-3.49)			
CEOempRg		-0.002*** (-3.50)				-0.026*** (-4.46)		
CEOdmed			-0.009*** (-4.87)				-0.047* (-1.93)	
CEOempdmed				-0.005*** (-2.75)				-0.110*** (-4.76)
Share1	0.123*** (11.39)	0.127*** (11.72)	0.125*** (11.53)	0.127*** (11.68)	0.527*** (3.73)	0.550*** (3.89)	0.612*** (4.33)	0.627*** (4.44)
TAratio	0.048*** (5.94)	0.049*** (6.07)	0.048*** (5.89)	0.049*** (5.99)	0.197* (1.88)	0.231** (2.19)	0.198* (1.89)	0.231** (2.19)
IDratio	-0.016 (-0.56)	-0.060** (-2.14)	-0.043 (-1.54)	-0.0598** (-2.13)	-0.195 (-0.53)	-0.374 (-1.03)	-0.260 (-0.71)	-0.357 (-0.98)
Duality	0.002 (0.48)	0.002 (0.61)	0.002 (0.65)	0.002 (0.63)	-0.066 (-1.50)	-0.068 (-1.53)	-0.056 (-1.27)	-0.060 (-1.36)
LEV	-0.152*** (-18.50)	-0.150*** (-18.20)	-0.152*** (-18.50)	-0.151*** (-18.27)	4.575*** (42.41)	4.612*** (42.65)	4.603*** (42.67)	4.639*** (42.92)
ROE					1.484*** (15.83)	1.501*** (16.07)	1.426*** (15.25)	1.424*** (15.24)
Constant	0.087*** (3.86)	-0.008 (-0.40)	-0.015 (-0.74)	-0.013 (-0.63)	-0.006 (-0.02)	-0.347 (-1.28)	-1.980*** (-7.27)	-2.017*** (-7.41)
Obs.	19,411	19,411	19,411	19,411	19,411	19,411	19,411	19,411
R^2	0.0613	0.0551	0.0556	0.0548	0.3695	0.3698	0.1070	0.1079

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

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Models (5)–(8) present the regression results with commercial credit financing as the dependent variable. The coefficients of the salary gap variables remain negative and significant. Specifically, CEORg significantly reduces Comcredit (β = −0.146, p < 0.01), CEOempRg negatively affects Comcredit (β = −0.026, p < 0.01), CEOdmed reduces Comcreditd (β = −0.047, p < 0.10), and CEOempdmed shows a strong negative effect on Comcreditd (β = −0.110, p < 0.01). These findings indicate that larger salary gaps weaken the firm's ability to obtain commercial credit, possibly because compensation inequality signals internal conflict, agency problems, or weak governance to suppliers and external partners.

When ROE is included in Models (5)–(8), its coefficient is positive and highly significant (β ranges from 1.424 to 1.501, p < 0.01), indicating that better firm performance significantly improves access to commercial credit financing. At the same time, the coefficients of the salary gap variables decrease in magnitude compared with the total effect models, suggesting that part of the effect of salary gap on commercial credit financing operates through firm performance. This pattern satisfies the mediation condition $|\gamma_1| < |\beta_1|$ and $\gamma_2 \neq 0$, indicating the presence of an indirect effect through ROE. Since the salary gap variables remain significant after including ROE, the mediation can be interpreted as partial rather than full mediation.

Among the control variables, Share1 and TAratio show positive and significant effects on both ROE and commercial credit financing, suggesting that higher ownership concentration and larger firm size improve performance and financing capacity. Leverage (LEV) negatively affects ROE but positively affects commercial credit financing, indicating that while higher debt reduces profitability, it may increase reliance on trade credit. IDratio and Duality are generally insignificant, suggesting that board independence and CEO duality have limited influence on financing performance in this model.

Overall, the results provide strong evidence that financing performance plays a mediating role in the relationship between salary gap and commercial credit financing. Larger compensation disparities reduce firm performance, which in turn lowers the firm's ability to obtain commercial credit. Therefore, the findings support the hypothesis that the impact of salary gap on commercial credit financing is transmitted partly through corporate performance.

In connection with the stepwise regression results reported in Table 11, Table 12 presents the bootstrap results used to confirm the mediating role of financing performance (ROE) in the relationship between salary gap and commercial credit financing. The bootstrap method tests the significance of the indirect effect by generating confidence intervals through repeated resampling. A mediating effect is supported when the 95% confidence interval does not include zero.

Table 12: Bootstrap Results for the Mediating Effect of Financing Performance on the Relationship Between Salary Gap and Commercial Credit Financing

Path	Coef.	Std. Err.	z	P>z	95% CI
CEORg → ROE → Comcredit	-0.079	0.019	-4.14	0.000	[-0.117, -0.042]
CEOempRg → ROE → Comcredit	-0.005	0.002	-3.07	0.002	[-0.008, -0.002]
CEOdmed → ROE → Comcreditd	-0.013	0.005	-2.81	0.005	[-0.021, -0.004]
CEOempdmed → ROE → Comcreditd	-0.009	0.004	-2.45	0.014	[-0.017, -0.002]

The results show that all indirect paths are negative and statistically significant. The indirect effect of the internal executive salary gap (CEORg) through ROE on commercial credit financing is significant (Coef. = −0.079, $p < 0.01$, CI [−0.117, −0.042]). Similarly, the executive–employee salary gap (CEOempRg) has a significant negative indirect effect (Coef. = −0.005, $p < 0.01$, CI [−0.008, −0.002]). The external salary gap relative to the industry benchmark (CEOdmed) also shows a significant indirect effect through ROE (Coef. = −0.013, $p < 0.01$, CI [−0.021, −0.004]), and the external executive–employee gap (CEOempdmed) remains significant as well (Coef. = −0.009, $p < 0.05$, CI [−0.017, −0.002]).

These results provide support for H3, which states that financing performance mediates the relationship between salary gap and commercial credit financing. The bootstrap results show that all indirect effects are significant, as the confidence intervals do not include zero, confirming the presence of mediation. Since the direct effects in Table 11 remain significant after including ROE, the mediation is partial, indicating that salary gap influences commercial credit financing both directly and indirectly through firm performance.

To ensure robustness against selection bias and endogeneity, we further estimated the effect of salary gap on commercial credit financing using PSM (Table 13) and 2SLS (Table 14).

Table 13 presents the results of the Propensity Score Matching (PSM) regression examining the mediating role of corporate performance in the relationship between executive salary gaps and commercial credit financing. Models 1 to 4 use return on equity (ROE) as the dependent variable, while Models 5 to 8 focus on commercial credit financing (Comcredit) and its alternative measure (Comcreditd). The results indicate that all measures of the salary gap—CEORg (internal executive gap), CEOempRg (executive-to-employee gap), CEOdmed (external pay relative to market median), and CEOempdmed (employee-executive external disparity)—have a significant negative effect on ROE. Specifically, CEORg reduces ROE by 0.067 (t = -15.247), CEOempRg by 0.004 (t = -7.11), CEOdmed by 0.024 (t = -8.503), and CEOempdmed by 0.014 (t = -6.038), all significant at the 1% level. This demonstrates that wider salary gaps adversely affect firm performance.

Table 13: Robustness Check: PSM Regression of the Mediating Role of Financing Performance on the Impact of Salary Gap on Commercial Credit Financing Level

Variable	Model 1 ROE	Model 2 ROE	Model 3 ROE	Model 4 ROE	Model 5 Comcredit	Model 6 Comcredit	Model 7 Comcreditd	Model 8 Comcreditd
CEORg	-0.067***				-0.363***			
	(-15.247)				(-7.441)			
CEOempRg		-0.004***				-0.018***		
		(-7. 11)				(-2.798)		
CEOdmed			-0.024***				-0. 150***	
			(-8.503)				(-4.817)	
CEOempd				-0.014***				-0.083***
med				(-6.038)				(-3.319)
ROE					1.936***	2.015***	1.883***	1.901***
					(19.938)	(20.863)	(19.332)	(19.533)
Constant	0.238***	-0.000	0.0161	-0.014	0.997***	-0.298	-1.733***	-1.921***
	(7.3951)	(-0.019)	(0.571)	(-0.503)	(2.811)	(-0.968)	(-5.557)	(-6.168)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year, industry	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	12,946	12,946	12,946	12,946	12,946	12,946	12,946	12,946
R^2	0.073	0.060	0.062	0.059	0.366	0.363	0. 143	0. 142

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

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When examining the impact on commercial credit financing (Models 5–8), the salary gaps again show significant negative coefficients, with CEORg at -0.363 (t = -7.441), CEOempRg at -0.018 (t = -2.798), CEOdmed at -0.150 (t = -4.817), and CEOempdmed at -0.083 (t = -3.319), confirming that salary disparities constrain a firm's access to credit. The positive and highly significant coefficients of ROE in these models (β ≈ 1.88–2.02) indicate that corporate performance strongly predicts commercial credit financing. These results collectively support the mediating pathway in which salary gaps reduce ROE, which in turn diminishes the firm's ability to obtain commercial credit. The findings underscore the critical role of equitable executive compensation in sustaining firm performance and external financing capacity, with governance and industry controls accounted for in the models. Overall, the PSM robustness check confirms that firm performance serves as a significant mediator between executive salary disparities and commercial credit financing.

Table 14 presents the results of the 2SLS regression assessing the mediating effect of corporate performance on the relationship between executive salary gaps and commercial credit financing. Models 1 to 4 use ROE as the dependent variable, whereas Models 5 to 8 examine commercial credit financing (Comcredit) and its alternative measure (Comcreditd). The results show that salary gaps negatively affect ROE, with CEORg reducing ROE by 0.033 (t = -6.655), CEOempRg by 0.001 (t = -1.891), CEOdmed by 0.008 (t = -2.448), and CEOempdmed by 0.003 (t = -1.895). These coefficients are statistically significant at varying levels, indicating that both internal and external pay disparities weaken firm performance.

When ROE is included as a mediator in Models 5 to 8, the salary gaps continue to negatively influence commercial credit financing. CEORg decreases Comcredit by 0.062 (t = -1.933), CEOempRg by 0.033 (t = -4.189), CEOdmed by 0.020 (t = -1.772), and CEOempdmed by 0.152 (t = -4.670), all demonstrating significant adverse effects. Meanwhile, ROE exhibits strong positive coefficients across these models (β ≈ 1.49–1.57), confirming that higher firm performance facilitates access to commercial credit.

Overall, the 2SLS regression corroborates the mediating role of corporate performance: executive salary gaps indirectly constrain commercial credit financing by reducing ROE. These findings provide robust evidence that equitable executive compensation not only supports internal efficiency but also strengthens the firm's external financing capacity, even after accounting for endogeneity concerns via instrumental variables.

Table 14: Robustness Check: 2SLS Regression of the Mediating Effect of Financing Performance on the Impact of Salary Gap on Commercial Credit Financing Level

Variable	Model 1 ROE	Model 2 ROE	Model 3 ROE	Model 4 ROE	Model 5 Comcredit	Model 6 Comcredit	Model 7 Comcreditd	Model 8 Comcreditd
CEORg	-0.033***				-0.062*			
	(-6.655)				(-1.933)			
CEOempRg		-0.001*				-0.033***		
		(-1.891)				(-4.189)		
CEOdmed			-0.008**				-0.020*	
			(-2.448)				(-1.772)	
CEOempd				-0.003*				-0.152***
med				(-1.895)				(-4.670)
ROE					1.555***	1.567***	1.492***	1.496***
					(14.25)	(14.469)	(13.811)	(13.882)
Constant	0.029	-0.055*	-0.062*	-0.058*	-0.539	-0.629	-2.062***	-2.072***
	(0.827)	(1.716)	(-1.929)	(-1.793)	(-1.161)	(-1.460)	(-4.796)	(-4.831)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year, industry	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	15,242	15,242	15,242	15,242	15,242	15,242	15,242	15,242
R^2	0.067	0.060	0.062	0.060	0.379	0.379	0.109	0.110

*Note: ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The T-values are reported in parentheses.*

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4. Discussion

Funds are the core resource underpinning enterprise operations, and their availability directly shapes firms' ability to pursue production, strategic initiatives, and technological upgrades. Financing decisions are therefore central to corporate financial management, requiring a balance between internal and external capital sources to support growth and operational efficiency (Ding et al., 2021; Novitskaya & Alimuradov, 2023). In China, the interplay among executive compensation structures, ownership type, and access to commercial credit financing reflects a unique institutional context, where governance mechanisms and market development diverge significantly from those in developed economies (He et al., 2022; Feng, 2023; Niu et al., 2024).

Tables 3 and 4 highlight that internal financing, including retained earnings and depreciation funds, remains constrained by firm profitability and scale, consistent with previous research (Wang, 2023; Huang, 2025; Meng, 2023). Relying solely on internal funds slows capital accumulation, delaying expansion and technological upgrading (Gao, 2023). In contrast, external financing, including bank loans, corporate bonds, and equity, enables firms to mobilize capital more rapidly, supporting operational continuity and strategic initiatives (Ren et al., 2021; Zhang & Wu, 2021). Regression results in Table 5 show that external financing positively impacts liquidity and capital availability, confirming its critical role in sustaining firm competitiveness.

China's financing environment has evolved substantially since the reform and opening-up policy, transitioning from state-dependent capital allocations and policy loans to a more diversified market-oriented system (Guo & Xu, 2021). Despite this diversification, Chinese listed firms demonstrate a persistent preference for equity financing over debt, as reflected in low debt-to-asset ratios reported in Table 4 (Feng & Liu, 2024; Wang et al., 2024; Huang & Wang,2018). Equity financing mitigates short-term repayment obligations, reducing immediate financial pressure, while debt financing introduces creditor oversight and bankruptcy risk, highlighting the need for firms to carefully balance cost, control, and risk (Wang & Liu, 2024; Odhiambo et al., 2024).

Commercial credit financing has become an important supplementary channel, providing short-term liquidity and strengthening inter-firm economic ties, particularly when formal financing remains constrained (Bai et al., 2021; Lian & Pu, 2024). As Table 6 shows, commercial credit represents a significant portion of financing for firms facing credit constraints, particularly SMEs (Kong et al., 2021; Sun, 2023; Li & Huang, 2023). This mechanism aligns with Corporate Governance Theory, where informal market-based oversight, through trade credit relationships, complements formal financial supervision to facilitate efficient capital allocation.

The role of executive compensation, specifically salary gaps, emerges as a key internal determinant influencing financing outcomes. Behavioral Theory suggests that excessive pay disparities reduce employee motivation and cohesion, undermining operational performance and, consequently, the firm's financing capacity (Wang et al., 2024). This is evident in Table 7, where firms with extreme executive-employee pay gaps exhibit lower commercial credit acquisition. In contrast, Tournament Theory posits that moderate pay

gaps incentivize executives to compete for higher positions, improving performance and resource allocation. Tables 7 and 8 show a nonlinear effect of salary gaps on commercial credit, with moderate gaps positively associated with financing outcomes (Lazear & Rosen, 1981; Zheng et al., 2024; Ma et al., 2022).

Agency Theory further explains these dynamics by emphasizing the alignment of managerial and shareholder interests through compensation structures, particularly in mixed-ownership contexts (He et al., 2022; Bai et al., 2021). When pay incentives are appropriately designed, managers are motivated to enhance operational performance, thereby improving the firm's ability to secure commercial credit. Conversely, excessive salary gaps may exacerbate agency problems, weaken monitoring, and increase internal conflict, consistent with the patterns observed in Table 8.

Ownership type acts as a critical moderating factor. State-owned enterprises, benefiting from government support and preferential access to financing, show less sensitivity to internal compensation incentives, whereas private firms, constrained by market discipline, rely more heavily on managerial motivation to drive operational performance and financing outcomes (Chen, 2023; Song & Wu, 2022; Zheng, 2024). Mixed-ownership enterprises occupy an intermediate position, where governance mechanisms and market incentives jointly influence executive behavior and financing efficiency, as reflected in the interaction effects reported in Table 9 (Ren et al., 2021; Liu & Zhang, 2023; Shi & Yan, 2020; Wang & Li, 2023).

Finally, mediation analysis in Tables 10 and 11 demonstrates that the effect of salary gaps on commercial credit financing is partially transmitted through operational performance. Firms exhibiting higher profitability, cash flow management, and financial transparency secure greater trade credit, illustrating the combined influence of internal incentives and observable performance on external financing decisions (He et al., 2022; Feng, 2023; Niu et al., 2024).

In summary, integrating Behavioral Theory, Tournament Theory, Agency Theory, and Corporate Governance Theory provides a coherent framework for understanding how executive compensation and ownership structures shape commercial credit financing in China. Moderate salary gaps, coupled with strong governance and performance-oriented incentives, enhance access to commercial credit, while excessive pay disparities undermine internal cohesion and financing outcomes. These insights inform both theory and practice, offering guidance for designing executive compensation schemes and financing strategies in emerging-market contexts.

5. Conclusion

This study investigates the impact of executive salary gaps on commercial credit financing in Chinese listed firms, considering the mediating role of operational performance and the moderating effect of corporate ownership structure. The findings reveal several key conclusions. Firstly, moderate executive-employee salary gaps positively influence commercial credit financing, supporting Tournament Theory by demonstrating that pay differentials can incentivize managerial performance and enhance resource acquisition. Excessive salary gaps, however, negatively affect financing outcomes, consistent with Behavioral and Agency Theories, which highlight reduced employee morale, internal conflict, and weakened operational performance. Moreover, operational performance mediates the relationship between salary gaps and commercial

credit financing. Firms with stronger profitability, cash flow management, and financial transparency can access trade credit more effectively, confirming that internal incentives influence external financing via firm performance.

The study also found that corporate ownership moderates the effect of salary gaps. State-owned enterprises benefit from institutional support, showing less sensitivity to internal compensation incentives, while private and mixed-ownership firms exhibit stronger dependency on internal managerial motivation for financing success. Also, commercial credit is found to remain an important supplement to formal financing channels, particularly under credit constraints. Firms leverage trade credit to maintain liquidity, strengthen supply-chain relationships, and support operational continuity.

Overall, the study demonstrates that executive compensation design, moderated by ownership structure and mediated by operational performance, significantly affects firms' access to commercial credit in China's evolving market environment.

5.1. Implications

The study integrates Behavioral Theory, Tournament Theory, Agency Theory, and Corporate Governance Theory to provide a holistic understanding of internal compensation mechanisms and their impact on external financing. This multi-theoretical lens underscores the nonlinear effects of salary gaps and clarifies the interplay between incentives, performance, and financing outcomes. Also, while prior research primarily focused on debt and equity, this study highlights commercial credit as a critical, yet underexplored, financing mechanism in China. It demonstrates how internal managerial incentives indirectly influence commercial credit acquisition via operational performance. Lastly, by emphasizing the moderating role of ownership structure, the study contributes to corporate finance literature in emerging markets, showing that state, private, and mixed-ownership enterprises respond differently to compensation structures when seeking external funds.

Practically, these findings offer valuable insights for corporate leaders, policymakers, and investors. Firms can leverage ESOPs as a strategic tool to enhance financial stability, operational efficiency, and market credibility. To maximize these benefits, firms should integrate ESOPs into broader corporate governance frameworks, ensuring alignment with risk management policies. Policymakers could also encourage ESOP adoption through regulatory incentives, tax benefits, or targeted financial support, particularly for firms in industries with higher financial risk exposure. Strengthening disclosure requirements and transparency standards for ESOP-implementing firms may further enhance investor confidence and reduce default risk.

5.2. Limitations and Future Research Agenda

While the study provides robust evidence, several limitations should be acknowledged. First, the dataset focuses on Chinese-listed firms, limiting the generalizability of the findings to other economic contexts. Future research could extend this analysis to different financial markets with varying regulatory environments. Second, while the study employs a mediation framework, exploring additional moderating factors—such as macroeconomic conditions or industry-specific variables—could offer deeper insights into the ESOP-EDF relationship. Finally, future research could examine the long-term

impact of ESOPs beyond the study period to determine whether the observed benefits persist over time.

Overall, this study enhances the understanding of ESOPs as a governance tool that influences financial risk, offering meaningful implications for academics, practitioners, and policymakers alike.

Ethics Approval and Consent to Participate

The researchers adhered to the research ethics guidelines of the Research Ethics Committee of De La Salle University–Dasmariñas. This study utilized secondary data obtained from publicly available sources and did not involve human participants; therefore, informed consent was not required. All data were handled in accordance with applicable ethical standards for the use of publicly accessible information.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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