

Female Executives in Rating Agencies and Bond Rating Quality

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ABSTRACT

This study investigates the influence of female executives in credit rating agencies on bond rating quality, using a sample of medium-term notes, corporate bonds, and enterprise bonds issued between 2010 and 2023. The findings reveal that a higher proportion of female executives in rating agencies is associated with improved bond rating quality. Relative to their male counterparts, female executives exhibit lower risk preferences, produce more objective and accurate ratings, and demonstrate greater attention to corporate sustainability and social responsibility. These tendencies encourage rating agencies to enhance the quality of information disclosure, thereby contributing to higher bond rating quality. Heterogeneity analysis indicates that this positive effect is more pronounced among bond-issuing firms that are non-state-owned, have lower credit ratings, or operate in industries with weaker competitive positions. Further analysis shows that the presence of female executives in rating agencies is associated with lower expected default probabilities for bonds. This study contributes to the existing literature by extending research on female executives to the rating agency context, introducing gender heterogeneity as a novel perspective for examining bond rating quality, and providing practical implications for regulators seeking to curb rating inflation and improve transparency, in alignment with China's 2021 credit rating reform.

Keywords: Female executives, Bond rating quality, Rating agencies

1.Introduction

Against the backdrop of continuous development and transformation in global financial markets, the bond market, as a critical component of the financial system, has grown increasingly prominent. Credit ratings, which serve as a foundational institutional arrangement in the bond market, play an essential role in its healthy functioning. Designed to assess bond credit risk, they provide key decision-making references for market participants such as investors and issuers. Moreover, credit ratings directly influence bond pricing, trading activity, and the efficiency of resource allocation within the market.

In recent years, while the bond market has continued to expand, defaults have occurred from

time to time. Rating quality is a crucial factor in determining whether credit ratings can effectively function as an early warning mechanism for bond default risks (Zhao et al., 2023). Currently, bond credit ratings operate under either an "issuer-pays" or an "investor-pays" model, with the former dominating the market. As bond issuance grows and rating business volumes increase, China's credit rating industry has made progress, yet certain issues persist, such as initial ratings being overly concentrated in high-grade categories and follow-up rating upgrades occurring more frequently than downgrades (Zhao et al., 2023). These phenomena suggest that the "issuer-pays" model often leads to inflated ratings. This is primarily because the issuer-pays model exacerbates both rating shopping by bond issuers and rating catering by credit rating agencies. Rating shopping refers to issuers soliciting ratings from multiple agencies to secure the most favorable credit grade (Bolton et al., 2012). Rating catering occurs when agencies distort ratings upward to attract more business from issuers (Flynn & Ghent, 2017). Both practices undermine the independence of rating agencies and significantly impair rating quality. Recognizing the severity of this issue, Chinese regulators have taken action. In August 2021, the People's Bank of China (PBOC), jointly with the National Development and Reform Commission (NDRC), the Ministry of Finance (MOF), the China Banking and Insurance Regulatory Commission (CBIRC), and the China Securities Regulatory Commission (CSRC), issued the Notice on Promoting the Healthy Development of the Credit Rating Industry in the Bond Market. This policy mandates that rating agencies strictly fulfill their role as "gatekeepers of risk" to ensure the stable development of the bond market. Against this backdrop, an in-depth investigation into bond credit rating quality becomes particularly imperative.

Against the backdrop of profound structural adjustments in the global labor market, the status of women in the workplace has undergone significant changes, and the traditional notion of "male superiority and female inferiority" has gradually waned. Historically, entrenched gender biases limited women's career advancement, with leadership roles predominantly occupied by men while women were expected to focus on domestic responsibilities. However, growing societal awareness of gender equality has dismantled the outdated "men work outside, women tend the home" paradigm, enabling more women to break through the glass ceiling and assume executive positions. As shown in Figure 1, the proportion of female executives in mid-market firms has exhibited a steady upward trajectory over the past five years. According to Grant Thornton's¹ 2025 Women in Business Report, the gender composition in corporate leadership is progressively improving globally. The survey reveals that women now hold 34% of senior management roles, marking a 0.5 percentage-point increase year-on-year. Notably, China's mid-market firms outperform both global and Asia-Pacific averages, with 35.3% female representation in executive positions, achieving a milestone where none of the surveyed firms reported zero female executives. This reflects meaningful progress toward more inclusive workplace ecosystems. The report further highlights that gender diversity not only fosters more inclusive corporate cultures but also enhances business performance, strengthens global

¹ Grant Thornton: Grant Thornton International Ltd (GTIL) is an international professional services network comprising independent member firms worldwide that deliver audit, tax, and advisory services. Since 2004, it has published the annual Women in Business Survey Report.

competitiveness, and generates significant positive economic impacts.

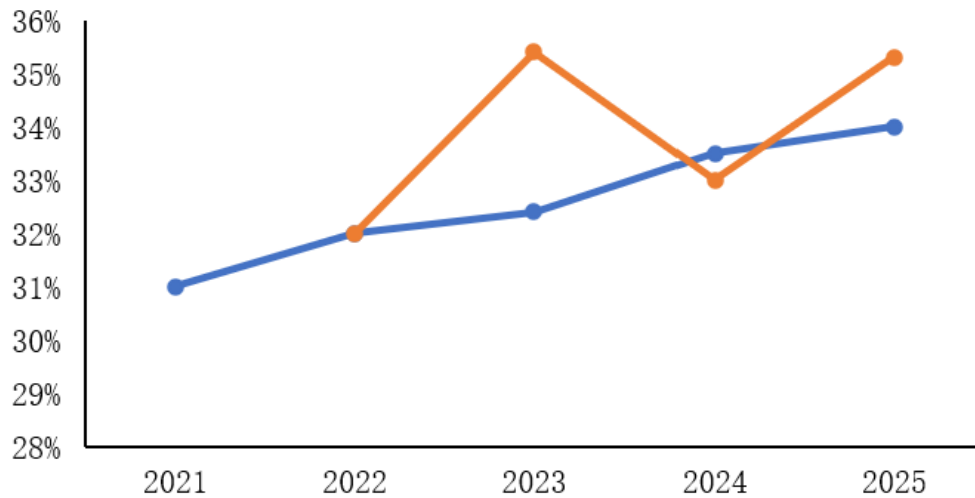


Figure 1. Trend chart of female executives

Note: The blue line represents the trend of the global proportion of women in executive roles; the orange line represents the trend of China's proportion of women in executive roles.

Similarly, the influence of female executives in credit rating agencies warrants deeper examination. Research indicates that, compared to their male counterparts, female executives exhibit greater risk aversion, lower overconfidence, higher standards for information disclosure, and stronger emphasis on corporate social responsibility (CSR) and sustainable development (Peng & Wei, 2007; Huang & Kisgen, 2013). These traits may distinctively shape bond rating quality. Yet, empirical studies on how female executives in rating agencies affect rating outcomes remain scarce.

Given this research limitation, the focus of this study is specifically placed on the role of female executives within credit rating agencies. Specifically, we investigate whether increasing female representation in rating agency leadership improves bond rating quality and, if so, through what mechanisms this influence operates. By combining literature review and empirical analysis, we aim to enrich Upper Echelons Theory while offering actionable insights for optimizing executive team composition in rating agencies.

We make three contributions to the literature. First, we extend the research on female executives. Whereas prior studies have predominantly examined women's influence on corporate risk-taking, firm performance, and governance practices, little attention has been paid to their role in credit rating agencies. Our work bridges this gap by investigating the impact of female executives on bond rating quality, thereby offering both theoretical insights and practical foundations for future inquiry. Second, we introduce a novel perspective for evaluating bond rating quality. Existing literature on rating quality has largely concentrated on factors such as rating methodologies and executive background characteristics, with limited consideration of gender heterogeneity. By incorporating this dimension, we establish a new analytical framework that not only provides fresh academic perspectives but also yields actionable recommendations for improving governance within rating agencies. Our findings

are particularly relevant for regulators aiming to curb rating inflation and enhance market transparency, in line with the objectives of China's 2021 credit rating reform.

The research limitations of this paper include the following: First, due to the scarcity of existing literature on the impact of female executives in rating agencies on bond rating quality, the theoretical explanation of the underlying mechanisms through which female executives influence bond rating quality remains insufficient. Although this paper suggests that factors such as women's risk preferences and personality traits may play a role, it lacks a systematic theoretical framework to integrate these perspectives. Moreover, the poor integration among different theories makes it difficult to provide a comprehensive and in-depth explanation of actual phenomena. Second, this paper fails to elaborate on how the behaviors of female executives in rating agencies specifically translate into differences in rating outcomes. For example, what are the differences in work patterns between women and men during the rating process, and how is the time allocation of men and women distributed across various stages of credit rating? Third, this paper only uses the proportion of female executives in rating agencies as a measure of their impact on bond rating quality, which is a relatively simplistic variable selection. It overlooks other factors that may influence bond rating quality, such as the professional experience, educational background, and leadership abilities of female executives.

The remainder of this paper is structured as follows: Section 2 presents the literature review and hypotheses. Section 3 outlines the research design, including data sources and variable descriptions. Section 4 provides the empirical analysis. Section 5 concludes with the main findings of this study.

2. Literature Review and Hypothesis Development

2.1 Literature Review

2.1.1 Research on female executives

First, some studies have found that compared to men, women exhibit lower risk preferences and less overconfidence, enabling them to make decisions more suited to the current environment and thereby reducing the risks undertaken by firms. Peng and Wei (2007) and Huang and Kisgen (2013) both demonstrated in their research that male executives generally exhibit higher levels of overconfidence and risk preferences than female executives. These psychological and behavioral traits lead male executives to adopt more aggressive approaches in decision-making, resulting in higher risks for their firms. Boden and Nucci (2000) found in their study that women tend to be more cautious and conservative than men, displaying lower risk preferences. Francis et al. (2015) noted in their research that female CFOs are more risk-averse than their male counterparts. Perryman et al. (2016) discovered in their study that companies with higher gender diversity exhibit lower risk levels and better performance. Extending this line of inquiry, Treviño et al. (2026) demonstrated that female senior managers' greater risk aversion enhances organizational performance specifically in contexts with ample time for deliberation, while also revealing boundary conditions where this relationship may differ. Reddy et al. (2022) pointed out in their research that female board members take actions to reduce corporate risk when fulfilling their duties. Charness et al. (2012) also found in their study that women are more averse to financial risks than men. Additionally, Datta et al. (2021) found in

their research that women possess higher moral sensitivity, which can reduce corporate refinancing risks. Taking a different perspective, Mishra (2025a) showed that female board representation positively influences firm innovativeness in high-risk environments, as female directors alleviate managerial career concerns and encourage long-term R&D investments—suggesting that female leaders may facilitate rather than impede innovation under certain conditions. Smulowitz et al. (2025) further revealed a curvilinear relationship: moderate female board membership promotes patent activity through reduced risk aversion, while very high levels may shift aspirations toward risk mitigation, adding complexity to the conventional view that female directors are uniformly more risk-averse. Extending the focus to strategic corporate actions, Zhu and Li (2024) examined female leadership in Chinese state-owned enterprises and found that female chairs were more likely than male chairs to engage in acquisitions when operating in environments that encourage female agency, indicating that context plays a critical role in determining how gender affects risk-taking behavior.

Second, other studies have indicated that female executives have a positive impact on improving corporate performance. Li et al. (2021) also noted in their research that female executives can effectively enhance a company's competitiveness, operational efficiency, and financial performance. Hong and Kim (2022) found in their study that female executives positively contribute to increasing firm value. Similarly, Liu (2024) discovered in their research that a higher proportion of female executives helps enhance corporate value. Moreover, Luh and Kusi (2023) found in their study that women in executive positions positively influence the return on assets, net profit margin, and gross margin of listed companies. Yan et al. (2024) not only found in their research that female executives improve firms' ESG performance but also observed that this effect is more pronounced in corporate social responsibility performance. Recent research has further elucidated the mechanisms behind these performance effects. Dah et al. (2025) demonstrated that female CEOs enhance the role of ESG disclosures in increasing accounting transparency and reducing corporate risk-taking, with female-led ESG initiatives positively affecting both accounting and market performance. Tarigan et al. (2026) found that women's leadership positively influences firm value in emerging markets, offering novel insights into gender diversity's impact on corporate resilience during crisis periods—with the effect being most pronounced during the recovery phase of the COVID-19 pandemic. Long et al. (2025) provided evidence that female-led firms exhibited superior financial performance during the COVID-19 crisis, suggesting that behavioral differences in leadership become particularly significant in turbulent environments. Regarding boundary conditions, Wang and Wang (2025) showed that female chairpersons in Chinese family firms generally foster digital transformation, with management effectiveness serving as a mediating mechanism, yet financing constraints arising from risk avoidance create a counteracting constraining influence, revealing an important trade-off. Finally, Mishra (2025b) extended the performance literature to governance outcomes, finding that board gender diversity strengthens CEO pay-performance sensitivity, reduces total CEO compensation, and increases equity-based pay, suggesting that female directors enhance monitoring effectiveness and alter executive compensation structures to improve firm accountability.

2.1.2 Research on bond ratings

In China, bond ratings are primarily based on two models: the "issuer-pays" model and the "investor-pays" model, with the former being the dominant approach. However, the issuer-pays model has frequently led to rating inflation, undermining the quality of bond ratings. This issue has sparked intense debate among scholars. Similarly, Xia and Strobl (2012) compared rating data from Standard & Poor's (issuer-pays model) and Egan-Jones Ratings (investor-pays model), providing strong evidence that conflicts of interest under the issuer-pays model lead to overly optimistic corporate credit ratings. Extending this line of inquiry to China's institutional context, recent research by Shen et al. (2026) examines whether investor-pays ratings in China also suffer from biases. Using data from China's bond market, they find that while investor-pays agencies mitigate issuer-side conflicts, they may face distinct conflicts from the investor side, suggesting that the payment model alone does not eliminate rating biases and that governance arrangements matter critically. Similarly, Bonsall et al. (2024) investigate conflicts of interest in subscriber-paid credit ratings, providing complementary evidence that investor-pays models are not immune to incentive problems and that the effectiveness of any payment model depends on the specific institutional safeguards in place. Furthermore, Shen et al. (2026) reveal that biases persist even under the investor-pays model when investor-side preferences systematically influence rating outcomes, highlighting that the debate over payment models requires more nuanced consideration of governance mechanisms.

Furthermore, some scholars have found that rating inflation is driven by practices such as "rating catering" and "rating shopping." These unethical behaviors severely undermine the independence of rating agencies and significantly reduce rating quality. In fact, such actions directly lead to rating inflation, distort market resource allocation, and weaken the efficiency of financial markets. Flynn & Ghent (2017) found that new entrants in the rating market tend to assign looser and higher credit ratings compared to established rating agencies. As these new institutions expand their market share, rating inflation becomes increasingly evident, which is a typical manifestation of rating catering behavior. Similarly, Xia & Strobl (2012), as well as Jiang et al. (2012), concluded that rating catering is a major driver of inflated credit ratings. Recent research has further elucidated the mechanisms through which conflicts of interest and competitive pressures drive rating inflation. Herpfer & Maturana (2026) find that credit rating agencies are less likely and slower to downgrade firms with performance-sensitive debt when such downgrades would increase borrowing costs, and this effect is stronger when agencies rate their most profitable clients, providing direct evidence that conflicts of interest tied to client profitability drive rating inflation. Similarly, Li et al. (2024) investigates whether commercial ties influence ratings and find evidence consistent with rating catering behavior, demonstrating that agencies may adjust their ratings in response to business relationships with rated entities. Jiang (2026) provides further evidence using a novel synthetic controls approach to examine rating bias, finding that conflicts of interest systematically affect rating outcomes when agencies face strong commercial incentives. Wu et al. (2025), examining China's bond market, find that issuers' digital transformation affects bond rating quality, and their evidence suggests that rating agencies' responsiveness to issuer characteristics plays an important role in shaping rating outcomes, with

implications for understanding rating catering behavior in the Chinese context. Moreover, regulatory oversight or the lack thereof has been shown to interact with these conflicts of interest. Li et al. (2025) examines the impact of non-punitive regulation on credit ratings in China, finding that when credit rating agencies are subject to non-punitive regulation (such as warning letters or supervisory talks), they actually issue higher credit ratings rather than improving quality, indicating that such regulatory approaches can aggravate conflicts of interest and worsen rating inflation by inducing agencies to cater to clients to retain business. This counterintuitive finding underscores the complexity of regulating rating agencies and suggests that regulatory design must carefully consider how agencies respond to different enforcement mechanisms.

2.1.3 Literature review

A review of domestic and international literature reveals that scholars generally agree on the positive influence of female executives on corporate risk-taking, performance, and governance, while also recognizing that rating inflation undermines bond rating quality. Nevertheless, several research gaps persist. First, most existing studies on female executives are confined to their impact on corporate behaviors, with limited attention paid to how female executives in rating agencies shape bond rating quality. Second, the current literature on bond rating quality tends to focus on rating methodologies and the professional backgrounds of rating agency executives, yet rarely considers the role of gender heterogeneity among executives in influencing rating outcomes. Given these gaps, further academic inquiry into the presence of female executives in rating agencies and their implications for bond rating quality is both warranted and timely. This study not only offers a fresh perspective on the determinants of bond rating quality but also contributes to challenging workplace gender biases by enriching the literature on female leadership. Furthermore, it provides practical guidance for optimizing the composition of rating agency executive teams, thereby supporting the long-term stability and development of the bond market.

2.2 Hypothesis Development

Based on the aforementioned literature, female executives can generate significant positive impacts on firms, yet their capabilities are often underestimated. This raises an important question: how might female executives in rating agencies influence bond rating quality?

First, studies reveal that women in modern workplaces continue to contend with the lingering effects of traditional patriarchal norms. Steffan (2024) documents persistent gender biases and pay disparities in corporate settings, which contribute to the underrepresentation of female executives. Although rating agencies have relatively few independent directors, the proportion of female executives within their leadership teams serves as a reflection of the degree of gender bias embedded in these institutions. A higher proportion of female executives signals a more gender-equitable organizational culture that genuinely harnesses women's capabilities—consistent with the notion that "women hold up half the sky." The inherent prudence and risk-averse tendencies of female executives may help mitigate corporate risks, curb rating inflation, and thereby enhance rating quality. Accordingly, this study anticipates that rating agencies with greater female executive representation

will produce higher-quality ratings and face fewer regulatory penalties.

Second, Upper Echelons Theory posits that managerial characteristics shape organizational behavior through strategic decision-making preferences. Since its introduction, scholarly attention has progressively shifted toward examining diversity characteristics within management teams, with numerous empirical studies confirming the positive effects of team heterogeneity on firm development. Notably, existing literature highlights significant differences between female and male decision-makers in management styles, particularly in enhancing information disclosure transparency and strengthening commitments to sustainability—differences that ultimately steer firms toward more sustainable development. Given that female executives place greater emphasis on information quality, prudent development, and social responsibility, they are more likely to conduct thorough analyses and produce objective, reliable ratings that protect investor interests and uphold rating agency credibility, thereby fostering institutional sustainability. Thus, this study contends that female executives in rating agencies can improve rating accuracy and comprehensiveness, consequently enhancing bond rating quality.

In summary, compared to their male counterparts, female executives in rating agencies exhibit greater prudence and conservatism, which may help reduce rating inflation while improving the quality of information disclosure. Their heightened focus on sustainable development and corporate social responsibility guides firms toward healthier growth trajectories, renders rating information more accurate and reliable, and thereby indirectly elevates bond rating quality. Consequently, this study proposes that female executives in rating agencies positively influence bond rating quality and establishes the following research hypothesis, H1:

H1: The higher the proportion of female executives in rating agencies, the higher the bond rating quality.

3. Research Design

3.1 Data Sources and Sample Selection

This study focuses on medium-term notes, enterprise bonds, and corporate bonds issued during the period from 2010 to 2023. The financial data of bond-issuing enterprises and bond characteristic data are all sourced from the Wind database. Data concerning female executives in rating agencies were manually collected and compiled from the official websites of rating agencies and the Securities Association of China. After data processing, we obtained a final sample of 3,774 bonds with 18,655 credit rating observations. To avoid the impact of extreme values, this paper applies a 1% and 99% winsorization to the data of continuous variables.

3.2 Variable Definitions

3.2.1 Independent variable

The first independent variable in this study is the proportion of female executives in rating agencies. By reviewing relevant materials on the official websites of credit rating agencies and the Securities Association of China, the total number of executives and the number of female executives

in credit rating agencies from 2010 to 2023 were obtained. The proportion of female executives was then calculated. Here, "executives" refer to individuals holding senior management positions in credit rating agencies.

The second independent variable in this study is the number of female executives in rating agencies. The number of female executives in credit rating agencies from 2010 to 2023 was obtained by examining relevant materials on the official websites of credit rating agencies and the Securities Association of China.

3.2.2 *Dependent variable*

The first dependent variable in this study is YY rating discrepancy. The YY Rating Discrepancy refers to the difference between the annual average credit rating assigned by "issuer-paid" rating agencies and the credit rating score assigned by YY Rating, a domestic Chinese credit rating agency. Due to potential upward bias in issuer-paid ratings, there may be discrepancies between these ratings and those issued by YY Rating. Therefore, the YY Rating Discrepancy is used to measure bond rating quality—the lower the discrepancy, the higher the bond rating quality, and vice versa.

The second dependent variable in this study is credit rating. This study adopts issuer credit ratings and follows the quantitative approach of Afonso et al. (2007) to assign numerical values: the lowest grade (C) is assigned a value of 1, CC is assigned 2, and so on, with the highest grade (AAA) assigned 20. The assigned credit ratings are then averaged annually—higher values indicate better credit ratings.

The third dependent variable in this study is expected default probability. This variable is calculated using the KMV model.

3.2.3 *Mechanism variables*

The first mechanism variable in this study is risk-taking level. CRT measures the risk-taking level of credit rating agencies. A higher value indicates a greater willingness to take risks, meaning the rating agency has a stronger preference for risk exposure.

The second mechanism variable in this study is information disclosure quality. Tran represents the quality of information disclosure by rating agencies. A higher value indicates better transparency and higher-quality disclosures.

3.2.4 *Control variables*

The control variables in this study are defined and denoted in Table 1. We select and categorize the following control variables: The first category consists of firm-level characteristic variables, including corporate cash holdings, fixed asset ratio, financial leverage, asset turnover ratio, operating revenue growth rate, cash-to-income ratio, asset size, and profitability. The second category comprises industry-level characteristic variables, including firms' competitive position in the industry and the Herfindahl-Hirschman Index. The third category includes macroeconomic variables, including provincial GDP per capita and GDP growth rate. Additionally, dummy variables include firm ownership, year, industry, province, and bond.

Table 1. Variable definitions

Variable	Symbol	Definition
Dependent variable		
YY rating discrepancy	<i>DIFF_YY</i>	The annual average difference between credit ratings issued by "issuer-paid" rating agencies and credit rating scores issued by the Chinese domestic rating agency "YY Rating"
Credit rating	<i>CREDIT RATING</i>	Based on entity ratings, numerical values are assigned to credit ratings, then the annual average is calculated from these assigned values
Expected default probability	<i>EDF</i>	Calculated using the KMV model
Independent variable		
Proportion of female executives in rating agencies	<i>FEMALE EXECUTIVE</i>	Ratio of female executives to total executives in rating agencies
Number of female executives in rating agencies	<i>FEMALE EXECUTIVE_NUM</i>	Number of Female Executives in Rating Agencies
Control variables		
Leverage ratio	<i>LEV</i>	Ratio of liabilities to total assets at period-end (%)
Asset scale	<i>SIZE</i>	Natural logarithm of total company assets (yuan)
Cash holding level	<i>CASH</i>	Ratio of cash and tradable financial assets to total assets
Profitability	<i>ROA</i>	Ratio of EBIT to total assets (%)
Operating income growth rate	<i>GROWTH</i>	(Current period operating income - Prior period operating income) / Prior period operating income (%)
Asset turnover ratio	<i>AT</i>	Sales revenue divided by total assets (%)
Fixed assets ratio	<i>TANGIBLE</i>	Ratio of fixed assets to total assets
Cash-to-Revenue ratio	<i>TTM</i>	Cash received from sales and services / Operating revenue (%)
Industry competitive position	<i>POSITION</i>	Company's sales revenue as a percentage of total industry sales revenue in the same year
Herfindahl-	<i>HHI</i>	Concentration in the rating market per rating

Hirschman index		agency-year unit, calculated as the sum of squared market shares of rating agencies within an industry-year
Provincial GDP per capita	<i>PER GDP</i>	Provincial GDP per capita: Total GDP (100 million yuan) / Total population (10,000 people)
GDP Growth Rate	<i>GDP GROWTH</i>	GDP growth rate
Mechanism variables		
Information Disclosure Quality	<i>TRAN</i>	Based on Shenzhen Stock Exchange disclosure quality ratings: Fail (1), Pass (2), Good (3), Excellent (4)
Risk-Taking Level	<i>CRT</i>	Logarithm of annualized standard deviation of weekly returns
Dummy variables		
Enterprise Ownership	<i>SOE</i>	1 if the issuer is a state-owned enterprise, 0 otherwise
Year	<i>YEAR</i>	Year dummy variable for bond issuance
Industry	<i>INDUSTRY</i>	Industry dummy variable (based on the issuer's sector)
Province	<i>PROVINCE</i>	Provincial dummy variable (based on the issuer's location)
Bond	<i>BOND</i>	Bond-specific dummy variable

4. Empirical Results

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics of key variables. The mean value of YY rating discrepancy (Diff_YY) is 4.902, indicating a certain degree of divergence between the two rating systems. The average proportion of female executives in rating agencies is 0.398, suggesting that female representation in senior management remains relatively low. The mean financial leverage ratio of sampled enterprises stands at 61.729%, demonstrating that most firms carry debt exceeding half of their capital structure, with the maximum value reaching 91.639%, reflecting significant financial risk exposure. The average credit rating score of 18.628 reveals that the majority of bond-issuing enterprises maintain relatively high entity credit ratings.

Table 2. Descriptive statistics of variables

VarName	Obs	Mean	SD	Min	Median	Max
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Diff_YY	12934	4.902	3.162	-1	4	16
FemaleExecutive	18655	0.398	0.089	0.143	0.405	0.522
Size	18631	24.766	1.545	21.603	24.623	28.298
Cash	17585	0.120	0.072	0.013	0.106	0.401
ROA	18623	2.537	4.206	-15.189	2.367	15.324
AT	18624	0.557	0.509	0.048	0.419	3.468
Tangible	18624	0.238	0.213	0.001	0.179	0.747
Position	18603	0.104	0.147	0.001	0.045	0.787
HHI	18655	0.161	0.136	0.051	0.114	0.796
PerGDP	18655	10.473	5.041	2.862	9.415	20.028
GDPGrowth	18655	7.181	4.038	0.120	6.531	19.935
Growth	18621	9.644	27.289	-51.151	7.555	122.949
TTM	16859	102.927	22.185	49.600	103.543	198.764
Lev	18624	61.729	14.767	22.769	63.516	91.639
EDF	18080	0.088	0.236	0.000	0	0.999
CreditRating	18655	18.628	1.488	14.000	19	20
CRT	18336	-3.065	0.405	-3.991	-3.076	-2.060
Tran	18655	2.576	1.544	0	3	4
FemaleExecutive_num	18655	11.062	6.387	2	10	24

4.2 Regression Analysis

To examine the impact of female executives on bond rating quality, this study constructs the following model based on the research methodology of Yang and Liu (2022):

$$Diff_YY = \alpha_0 + \alpha_1 FemaleExecutive + \sum \alpha_i Controls_i + \varepsilon(1)$$

In Model (1), i denotes different control variables, ε represents the random disturbance term, and Controls refers to the set of control variables. Model (1) controls for bond-level, year, and industry fixed effects.

Table 3 presents the regression results. Column (1) excludes control variables, while Column (2) includes them. The coefficients for Female Executive are -1.368 and -1.304, respectively, both statistically significant at the 1% level. These results clearly demonstrate that as the proportion of female executives in rating agencies increases, the YY rating discrepancy decreases, thereby improving the quality of bond credit ratings.

Additionally, the regression results for the control variables in Model (1) generally align with expectations. Size exhibits a significantly negative relationship with Diff_YY, indicating that larger firms are more effective in reducing rating discrepancies, leading to higher bond rating quality. Lev is significantly positive, suggesting that firms with higher debt-to-asset ratios have larger Diff_YY, implying lower bond rating quality. Cash is significantly negative, meaning that firms with higher cash reserves tend to have greater Diff_YY, associated with lower rating quality.

To further investigate the direct impact of female executives on credit ratings, this study constructs Model (2):

$$\text{Credit Rating} = \alpha_0 + \alpha_1 \text{Female Executive} + \sum \alpha_i \text{Controls}_i + \varepsilon(2)$$

Here, i denotes different control variables, and ε represents the random disturbance term. In Model (2), the dependent variable is Credit Rating, measured by the issuer's credit rating, while the independent variable remains Female Executive. The control variables and fixed effects are consistent with those in Model (1).

Table 3 presents the regression results for Model (2). The findings show that the coefficient for Female Executive is -0.105, significant at the 10% level in Column (3) (excluding control variables), and the coefficient for Female Executive is -0.198, significant at the 1% level in Column (4) (including control variables). These results clearly indicate that a higher proportion of female executives in rating agencies leads to lower credit ratings, effectively mitigating inflated ratings and thereby improving bond rating quality.

Table 3. Benchmark regression results

	(1) <i>DIFF_YY</i>	(2) <i>DIFF_YY</i>	(3) <i>CREDITRATING</i>	(4) <i>CREDITRATING</i>
<i>FEMALEEXECUTIVE</i>	-1.368*** (-4.845)	-1.304*** (-4.087)	-0.105* (-1.661)	-0.198*** (-3.063)
<i>SIZE</i>		-0.860*** (-6.134)		0.915*** (47.276)
<i>CASH</i>		-3.460*** (-5.220)		-0.070 (-0.688)
<i>ROA</i>		0.007 (0.814)		-0.004** (-2.221)
<i>AT</i>		0.005 (0.023)		0.232*** (7.277)
<i>TANGIBLE</i>		-2.540*** (-4.130)		0.123 (1.514)
<i>POSITION</i>		-3.431*** (-3.461)		-1.689*** (-10.068)
<i>HHI</i>		-0.926 (-1.013)		0.571*** (3.756)
<i>PERGDP</i>		-0.169*** (-3.535)		0.009* (1.673)
<i>GDPGROWTH</i>		-0.045*** (-3.806)		0.001 (0.325)
<i>GROWTH</i>		-0.005***		-0.001***

		(-5.581)		(-5.870)
<i>TTM</i>		-0.013***		-0.002***
		(-10.951)		(-10.098)
<i>LEV</i>		0.029***		-0.019***
		(5.419)		(-23.409)
<i>_cons</i>	5.492***	30.178***	18.655***	-2.688***
	(46.975)	(8.728)	(731.216)	(-5.616)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes
N	12424	10323	18213	15448
R ²	0.772	0.773	0.913	0.924
Adj. R ²	0.698	0.692	0.893	0.906

4.3 Heterogeneity Analysis

To examine how the proportion of female executives affects bond rating quality across different sample categories, we conduct a heterogeneity analysis based on Model (1).

4.3.1 Firm ownership

The sample is divided into two groups based on ownership type. Columns (1) and (2) in Table 4 present the regression results for non-state-owned enterprises (non-SOEs) and state-owned enterprises (SOEs), respectively. The results show that the negative effect of female executives on the YY rating discrepancy is more pronounced in non-SOEs than in SOEs. This suggests that increasing the proportion of female executives in rating agencies is more effective in reducing Diff_YY and improving bond rating quality for non-SOEs.

4.3.2 Credit rating

The sample is split into two groups based on credit rating scores: one with ratings below 19 and the other with ratings of 19 or higher. Columns (3) and (4) in Table 4 report the regression results for these subgroups. The results indicate that the mitigating effect of female executives on Diff_YY is stronger for bonds with lower credit ratings. This implies that increasing female executive representation in rating agencies is particularly effective in reducing rating discrepancies and enhancing rating quality for lower-rated bonds.

4.3.3 Industry competitive position

Using the ratio of a firm's sales revenue to the total industry sales revenue in the same year (Position), we divide the sample into two groups: firms with a ratio below 0.045 (weaker competitive position) and those with a ratio of 0.045 or higher (stronger competitive position). Columns (5) and (6) in Table 4 display the regression results. The analysis reveals that the negative impact of female executives on Diff_YY is more significant for firms with weaker competitive positions. This indicates

that increasing the proportion of female executives in rating agencies is more effective in reducing rating discrepancies for firms facing greater competitive challenges.

To assess whether the differences between subgroup regression results are statistically significant, we employ the Chow test. As shown in Table 4, all p-values are below 0.01, confirming that the heterogeneity across subgroups is statistically significant.

Table 4. Heterogeneity analysis results

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>DIFF_</i> <i>YY</i> <i>SOE=1</i>	<i>DIFF_</i> <i>YY</i> <i>SOE=0</i>	<i>DIFF_YY</i> <i>CREDIT</i> <i>RATING</i> <19	<i>DIFF_YY</i> <i>CREDIT</i> <i>RATING</i> >=19	<i>DIFF_YY</i> <i>POSITION</i> <0 .045	<i>DIFF_YY</i> <i>POSITION</i> >=0.045
<i>FEMALEEXECUTIVE</i>	-0.445	-	-	0.490	-2.897***	-0.008
		2.977* **	2.752***			
	(-1.397)	(-3.725)	(-4.499)	(1.466)	(-5.500)	(-0.022)
P-Value		0		0		0
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes
N	5349	4811	4265	5993	2854	7469
R ²	0.833	0.739	0.650	0.837	0.748	0.768
Adj. R ²	0.773	0.634	0.514	0.778	0.652	0.686

4.4 Mechanism Analysis

4.4.1 Risk preference

Compared to men, women have lower risk appetite and stronger risk aversion awareness. In the bond rating process, female executives leverage their gender-specific traits to pay more attention to potential risks. As a result, they devote more time and effort to collecting issuer information and conduct more thorough evaluations of issuers' financial conditions, credit profiles, and industry prospects. When assessing complex bonds with higher inherent risks, female executives tend to make more conservative judgments to avoid overconfidence-induced rating inflation, thereby improving bond rating quality and ensuring ratings more accurately reflect the bonds' true risk profiles. To test these findings, this study constructs Model (3).

$$CRT = \alpha_0 + \alpha_1 Female\ Executive + \sum \alpha_i Controls_i + \varepsilon(3)$$

Here, i represents different control variables. Model (3) uses risk-taking level (CRT) as the dependent variable (specific calculation method shown in Table 1), while maintaining the same independent variables, control variables, and fixed effects as Model (1). Columns (1) in Table 5 presents the regression result with CRT as the dependent variable. The result consistently shows that Female Executive is significantly negative, indicating that female executives in rating agencies significantly suppress the organization's risk-taking level. This demonstrates that compared to their male counterparts, female executives tend to be more cautious and conservative, making more objective and reliable credit ratings, thereby reducing bond rating inflation and improving bond rating quality - findings that are consistent with the above conclusions.

4.4.2 Information disclosure quality

Compared to men, women possess innate traits such as gentleness and benevolence, which enable female executives to foster more democratic management practices, smoother communication, and effective integration of cross-departmental information, thereby enhancing interdepartmental collaboration. Moreover, female executives typically pay greater attention to detail and demonstrate stronger social responsibility awareness. In the process of information collection, consolidation, and analysis, they impose stricter requirements on rating teams to ensure the accuracy of underlying data, minimizing errors or omissions. Consequently, female executives place greater emphasis on the authenticity, objectivity, fairness, and comprehensiveness of information disclosure. They help prevent false or selective disclosure driven by conflicts of interest or other distorting factors, thereby promoting more accurate and complete information disclosure. This includes demanding broader and more precise corporate information coverage, such as financial conditions and operational risks. By improving the quality of information disclosure and enhancing the accuracy of rating-relevant information, female executives ultimately elevate bond rating quality. To empirically validate these conclusions, this study constructs Model (4).

$$Tran = \alpha_0 + \alpha_1 Female\ Executive + \sum \alpha_i Controls_i + \varepsilon(4)$$

Here, i represents different control variables; Information disclosure quality serves as the dependent variable. Column (2) of Table 5 presents the regression results. The results show that Female Executive is significantly positive at the 1% level, demonstrating that female executives in rating agencies significantly improve information disclosure quality. This leads to more accurate and comprehensive rating-related information, thereby enhancing bond rating quality.

Table 5. Mechanism analysis results

	(1) CRT	(2) TRAN
<i>FEMALEEXECUTIVE</i>	-0.141*** (-3.360)	0.340*** (2.810)
Control Variables	Yes	Yes
Year FE	Yes	Yes

Industry FE	Yes	Yes
Bond FE	Yes	Yes
N	15189	15448
R ²	0.550	0.737
Adj. R ²	0.442	0.675

4.5 Analysis of Economic Consequences

To further examine the impact of female executives in rating agencies on bond rating quality, this section investigates whether bonds rated by agencies with a higher proportion of female executives exhibit lower default risks compared to other bonds with the same credit rating. This study constructs Model (5), where the expected default probability serves as the dependent variable and the proportion of female executives as the independent variable. The fixed effects remain consistent with Model (1), while the control variables include those from Model (1) with the addition of credit rating.

$$EDF = \alpha_0 + \alpha_1 Female\ Executive + \sum \alpha_i Controls_i + \varepsilon(5)$$

Here, i denotes different control variables. Table 6 presents the regression results. Column (1) excludes control variables while Column (2) includes them, with both specifications demonstrating a significantly negative relationship between the proportion of female executives in rating agencies and expected default probability. These results indicate that, compared to bonds with identical credit ratings, those rated by agencies with higher female executive representation exhibit significantly lower expected default probabilities (significant at the 1% level). This finding further confirms that increasing female executive representation in rating agencies contributes to enhanced bond rating quality.

Table 6. Economic consequences analysis results

	(1) <i>EDF</i>	(2) <i>EDF</i>
<i>FEMALEEXECUTIVE</i>	-0.087*** (-3.294)	-0.126*** (-4.412)
Control Variables	No	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Bond FE	Yes	Yes
N	17623	14966
R ²	0.410	0.440
Adj. R ²	0.274	0.305

4.6 Robustness Tests

To verify the reliability of our main findings, we conduct robustness checks on Model (1).

4.6.1 Altering fixed effects

To mitigate endogeneity concerns, we modified the fixed effects specifications in Model (1). As shown in Table 7, Column (1) excludes control variables while Column (2) includes them. Both specifications show that Female Executive remains statistically significant and negative at the 1% level, demonstrating the robustness of our findings.

4.6.2 Alternative independent variable

We construct Model (6) to test robustness using an alternative independent variable. Here, we replace the proportion of female executives with the absolute number of female executives, while keeping the dependent variable, control variables, and fixed effects consistent with Model (1). Table 7 presents the regression results. This comprehensive testing approach addresses potential specification concerns and enhances confidence in our findings regarding female executives' impact on bond rating quality.

$$Diff_YY = \alpha_0 + \alpha_1 Female_Executive_num + \sum \alpha_i Controls_i + \varepsilon(6)$$

Here, in Column (3) without control variables, female executive_num is significantly negative at the 1% level with a coefficient of -0.014. In Column (4) including control variables, female executive_num remains significantly negative with a coefficient of -0.011. These findings confirm that our core conclusions are robust to alternative model specifications.

Table 7. The results of changing fixed effects and changing independent variables

	(1)	(2)	(3)	(4)
	<i>DIFF_YY</i>	<i>DIFF_YY</i>	<i>DIFF_YY</i>	<i>DIFF_YY</i>
<i>FEMALEEXECUTIVE</i>	-1.368*** (-4.845)	-1.304*** (-4.087)		
<i>FEMALEEXECUTIVE_NUM</i>			-0.014*** (-3.207)	-0.011** (-2.212)
Control Variables	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	No	No
N	12424	10323	12424	10323
R ²	0.772	0.773	0.771	0.773
Adj. R ²	0.698	0.692	0.697	0.691

4.6.3 Sample restriction

The study restricted the sample to medium-term notes, corporate bonds, and enterprise bonds

issued during 2019-2023 while maintaining Model (1)'s specification (identical independent/dependent variables, controls, and fixed effects). Column (1) and Column (2) in Table 8 show the regression results: the coefficient for female executive proportion remains significantly negative at the 1% level. This demonstrates that our conclusions hold even with sample adjustments, further confirming result robustness.

4.6.4 Cluster-Robust standard errors

Given potential correlations among bonds rated by the same agency, we re-estimated Model (1) with agency-level clustered standard errors. Columns (3) and (4) in Table 8 show the regression results: Female Executive remains significantly negative at the 5% level, indicating high estimation precision and reinforcing our findings' reliability.

4.6.5 Placebo test

To rule out spurious regression, we conducted a placebo test by randomly reassigning female executive proportions while keeping other variables unchanged. Table 8 presents the results: Columns (5)-(6) show coefficients (0.031 and 0.047) with insignificant absolute values markedly smaller than those in Table 3. This confirms that the observed negative relationship between Female Executive and Diff_YY is non-random, providing robust evidence for our conclusions.

Table 8. The results of changing samples, cluster-robust standard errors, and placebo tests

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>DIFF_YY</i>	<i>DIFF_YY</i>	<i>DIFF_YY</i>	<i>DIFF_YY</i>	<i>DIFF_YY</i>	<i>DIFF_YY</i>
<i>FEMALEEXECUTIVE</i>	-1.140*** (-3.676)	-1.103*** (-3.081)	-1.368** (-2.418)	-1.304** (-2.389)	0.031 (0.854)	0.047 (1.125)
Control Variables	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes
N	10850	8836	12424	10323	12424	10323
R ²	0.802	0.805	0.772	0.773	0.771	0.772
Adj. R ²	0.728	0.723	0.698	0.692	0.697	0.691

5. Conclusions, Recommendations, and Future Directions

The core argument of this study is that the gender composition of leadership in credit rating agencies serves as an important determinant of bond rating quality, with female executives playing a positive role through their lower risk preferences and stronger commitment to information transparency and social responsibility.

5.1 Research Conclusions

Using data from medium-term notes, corporate bonds, and enterprise bonds over the period

2010–2023, this study examines the impact of female executives in credit rating agencies on bond rating quality. The empirical findings are threefold. First, a higher proportion of female executives in rating agencies is associated with narrower YY rating discrepancies, signaling improved bond rating quality. Specifically, relative to their male counterparts, female executives exhibit lower risk appetite, stronger awareness of social responsibility, and greater emphasis on the accuracy and comprehensiveness of rating information. These attributes contribute to elevating the quality of information disclosure by rating agencies, mitigating overconfidence-driven rating inflation, and rendering ratings more objective and reliable, thereby enhancing overall rating quality. Second, heterogeneity analysis indicates that the positive effect of increasing the proportion of female executives on bond rating quality is more pronounced among non-state-owned enterprises, issuers with lower credit ratings, and firms operating in industries with weaker competitive positions. Third, for bonds carrying the same credit rating, those rated by agencies with a higher proportion of female executives demonstrate superior rating quality and are associated with lower default probabilities.

5.2 Recommendations

This study demonstrates that female executives in rating agencies can effectively improve bond rating quality and indirectly promote the healthy development of the bond market. Therefore, the following recommendations are proposed.

5.2.1 *For research on bond rating quality*

While existing studies have primarily focused on the impact of rating methodologies or executive backgrounds on rating quality, this paper extends the research by analyzing the role of female executive characteristics in shaping bond rating quality. Future research could further investigate how the traits of female executives function throughout the bond rating process. For instance, scholars may explore whether female executives exhibit distinct working patterns compared to their male counterparts, or whether their time allocation across different rating stages differs significantly. Such inquiries would enrich and diversify the current understanding of how female executives influence rating quality.

5.2.2 *For the composition of rating agency executive teams*

The findings suggest that increasing the proportion of female executives significantly improves bond rating quality, underscoring the importance of female representation in leadership. Rating agencies should therefore optimize the composition of their executive teams by appropriately increasing the share of female executives. Such measures not only enhance rating quality but also introduce a broader range of perspectives, management styles, and professional backgrounds, thereby fostering healthier organizational development. In recruitment and promotion processes, agencies should eliminate gender bias, adopt fair and merit-based standards, and give priority to candidates' experience, expertise, and leadership capabilities. In addition, agencies should establish diversified executive training programs to strengthen professional skills and decision-making abilities, while fully leveraging the complementary strengths of both genders to improve rating quality and promote market stability.

5.2.3 For regulatory authorities

Regulators should strengthen oversight of rating agencies to standardize their practices. This includes establishing robust regulatory frameworks to ensure transparent and objective rating processes, as well as monitoring the composition of executive teams with respect to gender diversity and professional qualifications. Agencies should be required to disclose such information for public scrutiny. Furthermore, regulators should implement supervision and accountability mechanisms for rating quality, imposing strict penalties on agencies that exhibit significant rating deficiencies. Such measures would incentivize continuous quality improvement and promote the overall health of the industry.

5.2.4 For bond issuers

When selecting rating agencies, issuers should consider not only reputation but also the diversity and expertise of the executive team. Choosing agencies with balanced gender representation and strong professional standards can lead to more accurate and objective ratings. In addition, issuers should strengthen their internal management and improve the quality of information disclosure to provide rating agencies with reliable data, thereby further contributing to the enhancement of rating quality.

5.3 Future Directions

This study has several limitations that point to future research directions. Future research could explore the specific behavioral mechanisms through which female executives influence rating processes at a more granular level, such as how their work patterns and time allocation differ from those of male counterparts across various stages of credit rating. Additionally, future studies could incorporate more nuanced variables beyond the proportion of female executives, including their professional experience, educational background, leadership styles, and tenure, to provide a more comprehensive understanding of how executive characteristics shape rating quality. Cross-country comparative studies would also be valuable to examine whether the effects documented in China's rating market hold in different institutional and cultural contexts.

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Conflicts of Interest

The authors confirm that there are no conflicts of interest.

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