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A Study on the Relationship between Female Executives and Corporate ESG Performance

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Abstract:

Based on relevant theories, Using data from A-share listed companies in Shanghai and Shenzhen between 2015 and 2021, this paper analyzes the influence of female executives on the improvement of corporate ESG performance through empirical methods. It is observed that an increased presence of female executives is strongly correlated with higher corporate ESG performance scores. Specifically, based on their own characteristics, Women in executive roles tend to have a better understanding of and response to stakeholder expectations,introduce the concept of flexible management into the enterprise, emphasize caring, communication and cooperation, and create an open and inclusive corporate atmosphere, so that employees are more actively involved in Sustainability-driven actions. They prioritize the company's long-term growth and its role in creating social value, often embedding ESG factors into their strategic plans. In addition, research shows that companies that value the opinions of female executives in their decision-making processes are able to optimize resource allocation and respond effectively to stakeholder needs. These findings provide theoretical support and practical guidance for enterprises in selecting and cultivating managerial talent, and emphasize the importance of female executives cultivating sustainable strategies and attaining CSR milestones.

Keywords: Women Power, ESG Performance, Corporate Executives,Corporate Social Responsibility

1. Introduction

At a time when the global economic landscape is undergoing profound changes and the notion of sustainable development is becoming more and more popular, companies are facing brand new challenges and opportunities. ESG are now essential measures of corporate sustainability and long-term value, and their performance profoundly affects corporate reputation, brand image, market competitiveness, financ-

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ing ability and long-term development prospects, and investors have also included corporate ESG performance as an important consideration in their investment decisions. At the same time, with the significant improvement of women's social status, women's participation in corporate top management has been increasing, and their unique management styles, mindsets, and values have made gender diversity an important part of corporate governance, which has drawn considerable focus from academics and the corporate world for its influence on corporate performance and sustainability. This study focuses on the relationship between the proportion of female executives and corporate ESG performance and its mechanism of action, through empirical analysis to test whether an increase in the proportion of female executives positively affects corporate ESG performance, and to uncover the theoretical logic and practical influences at play. At present, the connection between female executive representation and corporate ESG performance has yet to be clearly defined. Does a higher proportion of female executives improve a company's ESG performance?

What are the mechanisms behind this effect? To thoroughly investigate these questions, this study will apply the aforementioned theories to systematically analyze the correlation between the representation of women in executive roles and a company's ESG performance, as well as the mechanisms behind it, using empirical analysis of A-share listed companies in Shanghai and Shenzhen from 2015 to 2021.This paper aims to provide new research perspectives and practical guidance for academics and enterprises. At the academic level, it enriches and expands the application of related theories in the field of corporate ESG research, providing theoretical basis and empirical support for subsequent studies; at the practical level, it provides useful references for enterprises in the construction of executive teams and the formulation of sustainable development strategies, helping enterprises optimize the gender structure of their executive teams, improve their ESG performance, and reach the goal of sustainable growth. This study aims to help companies find a balance between economic growth and social responsibility, while also contributing to the sustainable development of society.

2. Literature review

2.1 Literature review of ESG performance

The ESG concept, which includes environmental efficiency, social responsibility, and governance quality, has gained increasing attention from researchers in recent years regarding its link to corporate performance.

Studies examining the economic effects of ESG performance consistently indicate that robust corporate ESG practices generally contribute positively to overall company performance. Li Jinglin et al. (2021) confirmed through empirical analysis that the overall ESG score of an enterprise and its three sub-dimensions exhibit a significant positive correlation with corporate performance, which strongly supports the idea that ESG practices positively contribute to value creation. Viewed from the standpoint of corporate value, it is proposed that good ESG performance can improve corporate value through various means, including alleviating financing challenges, boosting operational efficiency, and mitigating risks, thereby offering a strategic basis for optimizing ESG management to strengthen long-term competitiveness (Wang Linlin, 2022).This is also confirmed by the studies of Feng Yongjie (2022) and Bai Xiong (2022), who emphasized that good ESG performance can attract institutional investors to boost their shareholdings, thereby enhancing the firm's overall value, and even if the firm does not have a satisfactory operating performance in the short term, it may still be favored due to ESG factors.

Investigations into the determinants influencing ESG performance has been extensively explored by scholars from multiple viewpoints. Li Xiaojing et al. (2022) take family firms as the research object and find that the degree of family involvement has a significant positive effect on the ESG performance performance of firms. In addition, Confucian culture and marketization index positively moderated the relationship between family involvement and firms' ESG performance. According to Campanella (2021), there is a notable positive relationship between the share of independent directors and the quality of ESG disclosures. This suggests that the involvement of independent directors enhances the clarity and reliability of ESG-related information disclosed by companies. McBrayer (2018) discovered that frequent CEO changes could negatively affect the sustainability of ESG disclosures. Stability in top management is crucial for ensuring the continuity and consistency of ESG reporting. Hui Zhang and Qunhui Huang (2022) found that mandatory and imitative isomorphic institutional pressures positively influence corporate ESG responsibility fulfillment, while normative isomorphic pressures have a significant negative effect on it. Zhang Zenglian and Deng Wenyueyang (2022) highlighted that local government debt significantly impacts firms' ESG performance, with this effect being more pronounced in non-state-owned firms, those with lower profitability, larger sizes, shorter years of establishment, higher marketization in the region, lower regional finance levels, and greater fiscal transparency. Additionally, Zhai Shengbao et al. found that media attention can notably enhance the quality of corporate ESG disclosures by improving internal controls and strengthening external oversight.

2.2 Literature Review on the Impact of Female Executives

Since the 20th century, with the significant improvement of women's social status globally, the role and influence of female executives in enterprises have gradually been highly emphasized by academics (Stultz, 1979). In the context of environmental and social responsibility research, gender diversity enhances corporate recognition of environmental conservation and societal accountability (Fernandez, 2014). Compared to male managers, women's stronger environmental consciousness makes them more suited to engage in strategic decisions related to environmental issues. Additionally, women tend to have a more acute awareness of risk (Schubert R, 1999), leading female managers to focus on minimizing the environmental impact of their decisions, rather than solely pursuing the company's strategic goals.

In terms of financial performance, Shrader et al. (1997), Ren and Wang (2010) argue that female executives, with their unique advantages of human and social capital, can bring diverse solutions and broaden decision-making horizons, which can enhance the efficiency of financial decision-making and profitability of the executive team, and Li and Liu (2012) empirically confirm that female CEOs have a significant role in reducing agency costs, enhancing information transparency, and decreasing the number of employees. Li Xiaorong and Liu Xing (2012) further confirm empirically the positive effects of female CEOs in reducing agency costs, enhancing information transparency, and reducing the risk of stock price crashes, especially when the external market environment is favorable or the CEO is older (Li Xiaorong, 2012). Finally, at the corporate governance level, female executives also play an irreplaceable role. Female executives can play a key role in lowering the occurrence of corporate violations, which enhance the overall quality of corporate governance (Lu Jun, 2015).Meanwhile, female executives are more sensitive to reputational damage and litigation risk and are more inclined to improve surplus quality to maintain corporate image (Srinidhi, 2011). These findings offer valuable insights for this paper to further explore the influence of gender factors in corporate management.

This paper focuses on the impact of the proportion of female executives on firms' ESG performance and its mechanism.

3. Research hypothesis

The goal of this study is to examine the connection between the proportion of female executives and corporate ESG performance by gradually constructing research hypotheses based on the top echelon theory, female caregiving theory, role congruence theory, stakeholder theory and stigma theory.

First, the top echelon theory argues that corporate strategic decisions and behaviors are deeply influenced by top executives' backgrounds, experiences, and personal traits. Female executives, as part of the top echelon of a firm, have different management styles and decision-making approaches than male executives. Specifically, female leaders usually show a greater sense of social responsibility and higher emotional empathy, which makes them more inclined to focus on ESG factors such as the firm's environment, social responsibility, and governance structure. It can be hypothesized that firms with a higher percentage of female executives may have better ESG performance, in line with the top echelon theory on the link between leadership characteristics and firm performance.

Next, the Feminine Caring Theory further complements this idea. This theory emphasizes that women are more concerned with the well-being of others, a spirit of cooperation, and caring in their decision-making, and especially tend to focus on social and environmental responsibility. This characteristic gives female executives a unique advantage in driving corporate ESG performance. Compared to male executives, women are more likely to prioritize corporate social impact, environmental protection, and employee well-being, thereby enhancing corporate performance in these areas. Therefore, from the perspective of women's caring theory, the greater the proportion of female executives, the more likely it is that the firm will exhibit better ESG performance.

However, female executives face social expectations of gender roles in the actual decision-making process, a challenge that can be explained through role congruence theory. According to this theory, individual behavior is influenced by social role expectations, and female leaders may face more external challenges due to the "misalignment" between gender and leadership roles. Nevertheless, female executives are known for their adaptability and resilience, often being credited with advancing corporate social responsibility and governance performance. In particular, their leadership in areas such as environmental protection and social responsibility often leads to positive changes, establishing a positive link between the proportion of female executives and corporate ESG performance.

From the standpoint of stakeholder theory, corporate decisions should consider not only the interests of shareholders but also the needs of other stakeholders. Female executives, who typically possess a stronger sense of social responsibility, are more attuned to the expectations of

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stakeholders such as employees, customers, and the government. As a result, they are more likely to implement actions that address these stakeholders' needs, thereby improving the firm's ESG performance, particularly in the areas of social responsibility and governance structure.

Finally, stigma theory provides additional insight into how female executives influence corporate ESG performance. According to the stigma theory, firms communicate their commitment to social responsibility and sustainable development through the "signal" of female executives. The presence of female executives in a company sends a positive signal to the outside world that the company focuses on social responsibility, environmental protection, and transparent governance, and such a signal helps to enhance the company's social reputation and market competitiveness. Therefore, an increase in the proportion of female executives may be positively associated with corporate performance in ESG. In conclusion, based on the theoretical analysis above, this paper presents the following hypotheses:

H1: The higher the proportion of female executives, the better the performance of enterprises in ESG performance.

4. Research design

4.1 . Sample Selection and Data Sources

This paper studies the impact of female executives on corporate ESG scores, and selects A-share listed companies in Shanghai and Shenzhen from 2015 to 2021 as samples. On this basis, in order to improve the reliability of the sample data, the samples are secondarily screened: in view of the specificity of the accounting treatment of financial and insurance enterprises, ST, *ST and PT samples are excluded, insolvent samples are excluded, as well as those with a significant amount of missing data. To minimize the impact of outliers, all continuous variables are shrink-tailed by 1% at both ends. After the above processing, the final data of 1973 samples are obtained. The data on corporate ESG performance is sourced from Bloomberg's ESG performance rating scores for listed companies, while the percentage of female executives and all control variables are obtained from the CSMAR database.

4.2 . Variable Definition and Model Construction

4.2.1 . Variable Definition

Explained variable: corporate ESG performance (ESG). This paper adopts Bloomberg's comprehensive score of ESG performance of listed companies.

Explanatory variables: female executives of enterprises (FER). Drawing on the literature of Zhu Jigao (2012) and Li Jinglin and Yang Tie (2019), FER is represented by the ratio of female executives to the total number of executives.

Control variables: Other control variables included in the regression model are the gearing ratio (Lev), the return on assets (ROA), and the return on equity (ROE).the size of the firm (Size), Ratio of independent directors (Indep), the age of the firm's establishment (Age).

Table 1 variables Description

Variable Name	Variable Meaning	Calculation Method
ESG	ESG Performance	Bloomberg Information's Comprehensive ESG Performance Score for Listed Companies
E	Environmental Performance	Bloomberg's Environmental Responsibility Performance Score for Listed Companies
S	Social Responsibility Performance	Bloomberg LP's Social Responsibility Performance Score for Listed Companies
G	Corporate Governance Performance	Bloomberg's Corporate Governance Performance Score for Listed Companies
FER	Percentage of Female Executives	Female Executives/Total Executives
Lev	Gearing Ratio	Total Liabilities/Total Assets
ROA	Total Assets Net Profit Margin	Net Profit/Total Assets
ROE	Net Assets Return on Equity	Net Profit/Net Assets
Size	Enterprise Size	The total assets of the enterprise are taken as the natural logarithm
Indep	Ratio of independent directors	Number of independent directors/total number of board members
Age	Years of company establishment	Year of company establishment plus 1 to take the natural logarithm

4.2.2 . Model Construction

In order to evaluate the influence of female executives on corporate ESG performance, this paper sets up the following model:

$$ESG_{i,t} = \alpha_0 + \alpha_1 EO_{i,t} + \sum \alpha_2 Controls_{i,t} + Year + Industry_i + \epsilon_{i,t} \quad (1)$$

Where the explanatory variable ESG is the firm's ESG performance; the explanatory variable FER is the firm's percentage of female executives variable, Controls represents the control variable, Year is a yearly dummy variable; Industry is the firm's individual fixed effect.

5. Empirical results and analysis

5.1 . Descriptive statistical analysis

Table 2 reports the descriptive statistics of the main variables of the sample firms. The mean and median of the explanatory variable corporate ESG performance variable (ESG) are 33.306 and 30.933, respectively, with a standard deviation of 8.180, and the minimum and maximum values are 9.917 and 71.180, respectively, indicating that there is a large variability in corporate ESG performance among the sample firms. The mean and median values of the explanatory variable, the proportion of female executives (FER), are 0.179 and 0.167, respectively, with a standard deviation of 0.106. The minimum and maximum values are 0.000 and 0.500, respectively, suggesting considerable variation in the proportion of female directors on the boards of listed companies. Additionally, the values for the other control variables fall within a reasonable range.

Table 2 Descriptive Statistics

Variables	Mean	Median	Standard Deviation	Minimum	Maximum
ESG	33.306	30.933	8.180	9.917	71.180
E	12.207	6.765	14.477	0.000	73.815
S	16.183	14.299	7.789	0.000	51.088
G	71.408	72.246	6.862	40.548	90.217
FER	0.179	0.167	0.106	0.000	0.500
Lev	6.511	0.592	10.315	0.052	26.430
ROA	0.168	0.059	0.242	-0.353	0.901
ROE	0.068	0.062	0.109	-0.819	0.406
Size	28.355	33.330	17.259	-0.602	57.140
Indep	11.795	3.135	15.288	2.079	60.000
Age	3.225	3.219	0.151	2.639	3.611

5.2 . Regression analysis

The regression analysis results in Table 3 indicate that the percentage of female executives (FER) has a significant positive impact on corporate ESG performance, with a regression coefficient of 8.328, a t-value of 4.866, and a p-value of 0.000. This suggests that a higher proportion of female executives is associated with better ESG performance, thereby supporting H1.The size of the corporation (Size) has a significant positive effect on ESG performance, with a regression coefficient of 0.584, with a t-value of 5.041 and a p-value of 0.000, indicating that larger firms usually perform better in ESG. Total Net Asset Profitability (ROA) and Return on Equity (ROE) also have a notable positive influence on ESG performance with regression coefficients of 6.916 ($t = 3.561$, $p = 0.000$) and 0.241 ($t = 6.548$, $p = 0.000$), respectively, which suggests that the more profitable a firm is, the better its ESG performance. However, the impact of Lev on ESG is insignificant ($t = 0.180$, $p = 0.857$), suggesting that financial leverage does not significantly influence firms' ESG performance. The regression coefficient for the proportion of independent directors (Indep) on ESG performance is -0.122, with a t-value of -2.227 and a p-value of 0.027. This suggests a significant negative relationship between the proportion of independent directors and ESG performance, potentially reflecting the influence of governance structure independence on ESG outcomes. Finally, the ef-

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fect of the company's age of incorporation (Age) on ESG is insignificant (t = 1.195, p = 0.233), illustrating a weak correlation.

Table 3 Regression results

Model		Unstandardized coefficient		Standardized coefficient	t	Significance
		B	standard error	Beta		
1	(Constant)	25.082	1.48		16.946	0.000
	FER	8.328	1.704	0.108	4.886	0.000
	Size	0.584	0.116	0.736	5.041	0.000
	Lev	0.313	1.737	0.009	0.18	0.857
	ROA	6.916	1.765	0.092	3.918	0.000
	ROE	0.241	0.037	0.508	6.548	0.000
	Indep	-0.122	0.06	-0.227	-2.039	0.042
	Age	2.461	2.059	0.046	1.195	0.233
a Dependent variable: ESG score						

6. Conclusions and Implications

This paper addresses the impact of the proportion of female executives on the ESG performance of enterprises. In order to verify the hypotheses, this paper uses data from A-share listed companies in Shanghai and Shenzhen between 2015 and 2021 as the research sample, conducting both a detailed descriptive analysis and multiple regression analysis. Building on the empirical tests, the research results are discussed and analyzed in depth, considering the specific context of female executives and the industry characteristics of the firms. Finally, the following conclusions are drawn.

First, the positive relationship between the proportion of female executives and corporate ESG performance is evident. Leveraging their unique leadership qualities, female executives are more adept at understanding and responding to the needs of stakeholders, thereby driving superior performance in ESG domains. Second, the injection of flexible management concepts. Female executives often introduce flexible management concepts into their companies, which emphasize care, communication and cooperation. In ESG practice, flexible management helps to create an open and inclusive corporate atmosphere, so that employees can participate more actively in the sustainable development of the enterprise. For example, when carrying out social responsibility activities, female executives can organize employees to participate in community services in a more humane way, which enhances employees' sense of social responsibility and the social image of the enterprise.

At the same time, this flexible approach to management helps foster a more harmonious relationship between the company and its external stakeholders, helping to cultivate a supportive external environment for the implementation of the enterprise's ESG strategy. Third, long-term value-oriented strategy development. Female executives tend to prioritize the long-term stability and social value creation of the company, which makes them more likely to integrate ESG factors into long-term strategic planning. They are capable of adopting a macro and long-term perspective, effectively balancing the company's short-term interests with its long-term sustainability goals. For example, in corporate investment decisions, female executives will consider the environmental and social impacts of projects and prioritize investment projects with good ESG performance, thereby enhancing the long-term competitiveness and social reputation of the company. This long-term, value-driven strategy enables companies to achieve sustainable growth in a dynamic and unpredictable market environment, while also gaining the recognition of investors and society.

Based on the above findings, in order to improve the ESG performance of enterprises and give full play to the positive role of female executives in the development of enterprises, the following aspects can be taken into account: in optimizing the gender structure of the executive team, enterprises should improve the recruitment and promotion mechanism, set fair, just and diversified criteria when recruiting to avoid gender bias, and set a certain percentage of female executives as the recruitment target, and at the same time, establish transparent and quantifiable promotion mechanisms, provide training and training for female employees, and establish a transparent and quantitative mechanism to ensure that female employees are well trained and have a good working environment. At the same time, a transparent and quantifiable promotion mechanism should be established to provide training and development opportunities for female employees; a supportive corporate culture should also be created to eliminate gender discrimination and stereotypes in the workplace, and diversified training and exchange activities for women's career development should be carried out, as well as the establishment of a mentorship program for female executives. In terms of strengthening the application of flexible management concepts, it is necessary to conduct training courses on flexible management concepts for all managers of the company, promote successful cases and set up internal awards; establish multi-level communication channels, strengthen communication with employees and external stakeholders, and solve problems and understand needs in a timely manner. When promoting the formulation of long-term value-oriented strategies, it is necessary to strengthen ESG awareness training, provide relevant courses for executives and managers, and invite experts to provide consultation and guidance; establish an ESG strategic planning system, incorporate ESG factors into long-term strategies, formulate goals and plans, and set up a performance evaluation system and link it to performance appraisal; establish ESG evaluation standards and processes in investment decisions, and actively involve female executives in decision-making. It also establishes ESG assessment standards and processes in investment decision-making, actively involves female executives in decision-making, guides the selection of projects with good ESG performance, and strengthens communication with investors to demonstrate results.

Drawing from the above findings, the following insights emerge: First, optimize the gender structure of the executive team. When recruiting executives, companies should set fair, just and diversified recruitment criteria to avoid gender bias and provide equal competition opportunities for women. A certain percentage of female executives can be set as the recruitment target to attract outstanding female talents to join, and a transparent and quantifiable promotion mechanism can be established to ensure that female employees will not be hindered in their career development due to gender factors. Provide more training and development opportunities for female employees to help them improve their management ability and professional skills and increase the possibility of promotion to senior management. At the same time, enterprises should create a corporate culture of respect and tolerance for women and eliminate gender discrimination and stereotypes in the workplace. By carrying out diversified training and organizing women's career development exchange activities, all employees can raise their awareness of and attach importance to gender equality. Second, strengthen the application of flexible management concepts. Provide all managers with training courses on the concept of flexible management, so that they can understand the importance and application of flexible management in ESG practice. Through case studies and simulation exercises, managers are helped to master the skills of flexible management, such as effective communication, teamwork, and employee care. Promote successful cases of flexible management within the company and encourage managers to actively apply the concept of flexible management. Internal awards can be set up to recognize teams and individuals with outstanding performance in flexible management and to stimulate the enthusiasm and creativity of managers. Third, establish communication and feedback mechanism. Open up multi-level and diversified communication channels, strengthen the communication and cooperation between the enterprise and external stakeholders, and establish long-term and stable cooperative relationships. Female executives can utilize their communication advantages to have in-depth exchanges with suppliers, customers, communities and other stakeholders, understand their expectations and needs, and work together to promote the enterprise's ESG practices.

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