Proceedings of the 4th International Conference on Business and Policy Studies
DOI: 10.54254/2754-1169/2025.19807

The Impact of Female Executives on Corporate ESG Scores from the Perspective of Social Capital

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Abstract: As China's economy and society continue to evolve, women are increasingly shedding the constraints of traditional norms. Their self-awareness is on the rise, and they are gaining a more prominent voice across various societal sectors. The representation of female executives within top management teams is also seeing a notable increase. This research examines A-share listed companies from Shanghai and Shenzhen during the period from 2014 to 2022. Utilizing a framework grounded in social capital theory, the study investigates the impact that the proportion of female executives has on the ESG scores of these enterprises. The findings reveal that the presence of female executives significantly enhances the ESG performance of companies. This research contributes to the existing literature on ESG and offers valuable insights for the employment practices of listed companies as well as for governmental decision-making.

Keywords: Female executives, Enterprise ESG performance, Social capital theory, Influence.

1. Introduction

Currently, China is undergoing a significant phase of economic transformation aimed at achieving high-quality development, where green development is essential. High-quality development embodies the new development paradigm and integrates green practices into a universally accepted framework.[1]. At the same time, The goals of reaching peak carbon emissions and achieving carbon neutrality have been integrated into the broader framework of China's ecological civilization initiative, aiming to foster green economic growth. This underscores China's strong commitment to pursuing sustainable and environmentally friendly development. The social responsibility requirements brought about by green low-carbon development and sustainable development also accelerate the reshaping of the business philosophy of enterprises[2].In this framework, ESG has emerged as a prevalent investment philosophy and a guiding principle for businesses in China. The ESG score serves as a fundamental metric for assessing a company's sustainable development across three key areas: E (environment), S (social responsibility), and G (corporate governance). Since its introduction in 2004, this concept has gained widespread acceptance on a global scale. In contrast to conventional financial metrics, the ESG framework emphasizes the influence of businesses on environmental factors, social responsibility, and other external stakeholders. The research of soh et all found that companies that focus on ESG development will have a more positive impact on corporate reputation, investor attraction and green technology innovation. The performance of ESG factors has increasingly emerged as a crucial element for companies seeking to bolster their

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competitive edge, thereby gaining the broad acknowledgment of external stakeholders and securing resources essential for sustainable growth. [3].

Gender equality is one of the important indicators of the social dimension in the ESG evaluation system. It is also one of the United Nations Sustainable Development Goals (SDG). As society evolves and the economy progresses, the significance of women in the workforce is gaining recognition globally. As a result, the presence of female executives in leadership teams is on the rise, and their influence is increasingly shaping corporate strategies and behaviors. The involvement of women in decision-making processes introduces a broader range of perspectives, often bringing a nuanced approach that may surpass that of their male counterparts, particularly in certain areas. Furthermore, female leaders tend to exhibit a heightened sense of responsibility and ethical standards[4]. Prior research indicates that firms with a greater number of female executives often offer enhanced social benefits, demonstrate increased social responsibility, and deliver a safer, higher-quality customer experience. [5] Although the decision-making effect of female executives in the field of corporate governance has received extensive attention, there is little research on its impact on corporate ESG performance.

Drawing on the analysis presented, this study focuses on A-share listed companies in Shanghai and Shenzhen from 2014 to 2023. Through regression analysis, it conducts an empirical investigation into the correlation between female executives and corporate ESG scores. This research delves into how gender diversity among executives impacts a company's ESG performance, thereby enhancing understanding of the factors that influence corporate ESG performance.

2. Literature examination, conceptual framework, and research proposition

2.1. Research on the influencing factors of enterprise ESG performance

The theory of sustainable development shows that the survival and progress of human beings are closely related to the environment in which we live, and maintaining the sustainability of the environment is crucial to all mankind. Enterprise ESG performance not only has a positive impact on corporate reputation, but also increases its strategic investment value, thus promoting the transformation of enterprises to green sustainable development [6]. Lately, there's been a surge of scholarly interest in the elements that drive ESG performance. Yet, the sheer diversity and complexity of these factors have led to a somewhat fragmented academic landscape. Most studies indicate that a multitude of variables contribute to a company's ESG standing.In Fang's 2023 study, a selection of Chinese corporations listed between 2011 and 2021 were analyzed to examine how digitization affects their Environmental, Social, and Governance (ESG) metrics. The findings indicate that companies' embrace of digital transformation has notably enhanced their ESG environmental performance[7]. In examining the effects of company size and ESG performance, Drempetic etc. discovered that company size significantly enhances ESG performance scores[8]. Naseer etc. investigated how the risks associated with climate change and financial flexibility influence ESG performance. Their research revealed that while climate change poses a detriment to corporate value, it positively affects ESG performance. Additionally, they found that financial flexibility plays a moderating role by alleviating risks and enhancing value.[9].

2.2. The impact of female executives ' participation on corporate ESG scores

Existing biological and sociological studies have shown that there are inherent physiological differences between the sexes, and there is a higher concentration of monoamine oxidase in women, which can stimulate women 's awareness of risk aversion[10]. Therefore, when the top management team makes strategic decisions with a risky nature, female executives are more conservative and stable than men, and are more inclined to make robust decisions related to the enterprise's sustainable

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growth. According to the theory of social roles, the social roles divided in society form the stereotype of society. Women are often considered to play a more compassionate and caring role because they have the responsibility to raise a family and take care of children[11].

At the same time, based on the ethics of female caring, men and women have different ethical reasoning methods. The method of male ethical reasoning is: abstract logical analysis based on universal moral principles; The female ethical reasoning method is more inclined to apply a reasoning method that focuses on the actual relationship and emotion, and analyzes the details of the event situation(Nel Noddings,1984). Therefore, in the face of decision-making problems, female executives have ' empathic care ', higher moral level, more compliance with social rules and systems, and more social responsibility than men, which is more conducive to corporate social responsibility[12]. Numerous studies have validated the influence of female executives on corporate social responsibility outcomes. For example, Byron and Post found that companies with more women on the board tend to have higher social responsibility scores[13]. Nicolò et al. discovered that a higher percentage of female directors in European publicly traded firms enhances the quality of ESG information disclosure.[14]. Consequently, female executives are more likely than their male counterparts to enhance the company's ESG score.

Based on the above analysis, this paper proposes hypotheses:

H1:Female executives are conducive to improving the ESG score of enterprises.

H2:Female executives are conducive to improving the score of environmental responsibility.

H3:Female executives are conducive to improving the score of social responsibility.

H4:Female executives are conducive to improving the score of governance responsibilities.

2.3. Analysis and Application of Social Capital Theory

Social capital theory originated in the 1920 s and gradually developed in the 1970 s and 1980 s. is a theoretical framework widely used in social sciences. Nahapiet and Ghoshal posit that individuals, groups, and organizations alike acquire both tangible and intangible assets through their social exchanges and relationships with others. Concurrently, they introduce a multi-faceted approach to assessing social capital, encompassing three distinct dimensions: the structural, the relational, and the cognitive.[15].

Structural social capital describes the frequency of interaction between network members, including the diversity of relational capital, the acquisition of social networks and external resources. Female executives often have different professional backgrounds and social networks, which can bring new information and resources to enterprises, especially in the field of ESG.

Relational social capital emphasizes interpersonal relationships between individuals in social networks, such as trust, reciprocity, etc[16]. The presence of female executives can promote a more inclusive corporate culture and help build more open and trusted internal relationships. Within the enterprise, this may be reflected in higher teamwork and employee satisfaction; outside the enterprise, this may be reflected in a stronger cooperative relationship with stakeholders. Such trust and cooperation, for example, can lead companies to better implement and report on their ESG strategies, especially on the social (S) side.

Cognitive social capital emphasizes the common view of things, common values and common language formed by individuals. It is the ability of the subject to share, exchange and integrate knowledge [17]. Female executives tend to pay more attention to the company's performance in environmental and social responsibility, which may reflect a broader corporate culture and vision, that is, emphasis on sustainable development and social contribution. This shared values and vision can motivate companies to take more actions to improve their ESG performance, such as increasing investment in environmental protection, improving working conditions, strengthening corporate governance, etc.

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In conclusion, this research develops a three-dimensional framework of corporate social capital for female executives, grounded in social capital theory. Through the perspective of social capital, we can better understand the relationship network structure, relationship quality and corporate culture of female executives for enterprises, to thoroughly assess their effects on corporate environmental responsibility, social responsibility, and governance, collectively referred to as the ESG score.

3. Research design

3.1. Sample selection and data sources

This study uses A-share listed firms from Shanghai and Shenzhen as research samples covering the period from 2012 to 2023. On this basis, the following samples are eliminated: ST, PT, * ST companies ; companies with asset-liability ratio greater than 1 ; companies with a listing age of less than 1 year ; the companies with missing data also deleted the data with a median value of 0 of the selected influencing factors affecting the proportion of female executives in the enterprise, and finally obtained 3697 valid data. The enterprise ESG score data is taken from the Bloomberg terminal, and the female executive data is manually collected by consulting the annual report of the listed company, and SPSS26 is used for data processing and analysis.

3.2. Variable Definition

3.2.1. Dependent Variable

ESG performance score. In order to evaluate the ESG performance of China 's A-share listed companies, refer to the self-rated score (Bloomberg ESG index) provided by the third-party rating Bloomberg terminal. The score can be subdivided into three dimensions: environmental BloombergE, social responsibility BloombergS and corporate governance BloombergG. The higher the score, the better the ESG performance of the enterprise.

3.2.2. Independent Variable

This study employs the ratio of female executives as a gauge to assess female representation within the executive ranks. The figure is derived by dividing the count of female execs by the overall number of executives. Among them, executives include board members, general managers, deputy general managers, financial directors, marketing directors, technical directors, etc.

3.3. Model Construction

Reference to the study of Altunbas et al [18], This paper constructs the following ordinary least squares (OLS) regression model to analyze the impact of female executives on the performance of ESG.

$$BloombergE = \alpha_0 + \beta_0 \%FManagers + \varepsilon$$

$$BloombergS = \alpha_1 + \beta_1 \%FManagers + \varepsilon$$

$$BloombergG = \alpha_2 + \beta_2 \%FManagers + \varepsilon$$

Among them, BloombergE, BloombergS and BloombergG respectively represent the performance scores of enterprises in three aspects : environment, social responsibility and corporate governance. % FManagers represents the proportion of female executives in the total number of corporate executives, and ε represents the error.

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4. Empirical Results and Analysis

4.1. Linear Regression Analysis

The specific results of linear regression are shown in Table 1.

Table 1: ols linear regression results table

Dependent Variable	Independent Variable	B	S.E	T-test	P-value
BloombergE	constant term	10.8509	0.5436	19.96	0.000**
	%FManagers	39.0057	2.7491	14.19	0.000**
	R^2=0.05141 F=201.3 p-value=0.000				
BloombergS	constant term	14.5253	0.2771	52.42	0.000**
	%FManagers	31.7708	1.4012	22.67	0.000**
	R^2=0.1219 F=514.1 p-value=0.000				
BloombergG	constant term	71.2765	0.3837	185.748	0.000**
	%FManagers	5.8374	1.9404	3.008	0.00264**
	R^2=0.002173 F=9.05 p-value=0.002645				

*The variable coefficient is significant at the 95% confidence level, **The variable coefficient is significant at the 99% confidence level

From the above table 1 ols linear regression results table can be seen, the model formula is :

$$BloombergE = 10.8509 + 39.0057 \times \%\text{FManagers} + \varepsilon$$

$$BloombergS = 14.5253 + 31.7708 \times \%\text{FManagers} + \varepsilon$$

$$BloombergG = 71.2765 + 5.8374 \times \%\text{FManagers} + \varepsilon$$

In the regression equation with BloombergE as the dependent variable : the regression coefficient value of the proportion of female executives is 39.0057 (t=14.19,p=0.000<0.05),TThis indicates that the percentage of women in executive roles will greatly enhance the BloombergE score. At the same time, the regression equation passed the F test.(F=201.3,P-value=0.000<0.05),It can be considered that the regression model as a whole is significant, can verify the hypothesis H2

In the regression equation with BloombergS as the dependent variable : the regression coefficient value of female executives is 31.7708 (t=22.67,p=0.000<0.05),This indicates that the percentage of female executives will greatly enhance the BloombergS score. At the same time, the regression equation passed the F test.(F=514.1,P-value=0.000<0.05),It can be considered that the regression model as a whole is significant, Can verify the hypothesis H3

In the regression equation with BloombergG as the dependent variable : the regression coefficient value of the regression coefficient value of the proportion of female executives is 5.8374 (t=3.008,p=0.00264<0.05),It means that the proportion of female executives will have a significant positive impact on Bloomberg G score. At the same time, the regression equation passed the F test.(F=9.05,P-value=0.002645<0.05),It can be considered that the regression model as a whole is significant, Can verify the hypothesis H4.

The summary analysis indicates that the percentage of female executives positively influences the BloombergS, BloombergE, and BloombergG scores, confirming Hypothesis H1.

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5. Research conclusions and implications

5.1. Research conclusions

Based on the sample of Shanghai and Shenzhen A-share listed companies from 2012 to 2023, this paper explores the impact of female executives on the performance of ESG, and takes the perspective of social capital theory as the theoretical framework. The research indicates that female leaders can notably elevate an organization's ESG rating, a trend most pronounced in environmental and governance aspects. In terms of structural social capital, when the proportion of female executives in enterprises is high, enterprises may be more involved in different external organizations or initiatives, such as female leadership networks, environmental and social responsibility alliances. This kind of network participation can help companies obtain more resources and information, and improve their performance in environment (E), society (S) and governance (G). In terms of relational social capital, female executives are more likely to establish open and trusted internal relationships and promote a more inclusive corporate culture. Female executives may be inclined to support fairer and more responsible business practices, which can enhance corporate performance in terms of governance (G). This practice includes transparency, anti-corruption measures, and fair treatment of employees and communities, which helps companies obtain higher ESG scores. In terms of cognitive social capital, female executives tend to pay more attention to the company's performance in environmental and social responsibility, that is, they attach importance to sustainable development and social contribution. In addition, in a leadership team with more female executives, diversity and inclusiveness are often stronger, and employees and external stakeholders may be more likely to identify with the values and goals of the company, which helps to establish a common sense of responsibility and identity, thereby improving the overall ESG performance of the company.

5.2. Countermeasures And Suggestions

First of all, at the enterprise level, establish a scientific and perfect selection and employment mechanism. In the process of recruitment and promotion, enterprises should abandon gender stereotypes, fairly evaluate women 's business talents and cognitive characteristics, strive to build a gender-diversified executive team, and realize the complementarity of male executives and female executives in terms of personality, to enhance decision-making effectiveness and foster the sustainable growth of businesses. Secondly, enterprises should further improve ESG performance and incorporate the improvement of ESG performance into their strategic planning.In recent times, the shift towards digital transformation has become crucial for women leaders in enhancing ESG performance. As a result, businesses ought to expedite their digital transformation efforts and consistently elevate their understanding of ESG principles.

At the government level, it is necessary to strengthen publicity and education and public opinion guidance to eliminate gender bias and discrimination. The government can promote the implementation of the principle of equality between men and women by formulating and implementing relevant policies. Break the phenomenon of gender discrimination and ' glass ceiling ' faced by women in the workplace. At the same time, encourage enterprises to set up female executive positions, provide them with a stage to play their talents, and give full play to the important role of female talents in economic construction. Secondly, the government should speed up the construction of enterprise green innovation system. Furthermore, the government should expedite the establishment of a green innovation framework for businesses, continuously enhancing the development of green finance. By tailoring policies to align with the economic development levels and digital finance maturity of various regions, it can motivate companies to prioritize green innovation. This approach would encourage investments in sustainable and environmentally friendly initiatives, ultimately leading to improved ESG performance among Chinese enterprises.

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