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Review

THE IMPACT OF THE TOP MANAGEMENT TEAM FAULTLINES ON ENVIRONMENT, SOCIAL AND GOVERNANCE PERFORMANCE OF LISTED COMPANIES

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Abstract. At present, the research focus on Environment, Social and Governance (ESG) is mainly on the economic consequences of ESG performance, and research on the influencing factors of ESG overall performance is lacking. The top management team plays a decisive role in the decision of ESG investment. To improve ESG performance and promote sustainable development of enterprises. This research explores the influence of different types of top management team faultlines on the ESG performance by using the panel fixed effects model from 2015 to 2019 for the samples of 347 listed enterprises in China, and tests the moderating effect of management incentives. Results show that the relationship-type top management team faultlines is positively correlated with the ESG performance, whereas the task-type faultlines is negatively correlated with the ESG performance. Management compensation incentive will weaken the positive effect of the relationship-type faultlines on the ESG performance, and the moderating effect of the task-type faultlines on the ESG performance is insignificant. Management equity incentive will strengthen the positive effect of the relationship-type faultlines on the ESG performance and weaken the negative effect of the task-type faultlines. Our findings provide a new perspective for how to improve the ESG performance of listed companies by the optimization of corporate governance structure.

Keywords: top management team, faultlines, ESG performance, management incentive.

JEL Classification: M14.

Introduction

The massive emissions of greenhouse gases cause global warming and frequent occurrence of extreme weather, Global environmental issues are increasingly prominent. At present, resources, ecology, environment and other issues have become the main bottleneck restrict-

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ing economic and social development, Countries worldwide are paying increasing attention to sustainable development (Caliskan et al., 2021). The coordinated development of society, economy, population, resources and environment has become the core issue of the current international community. And traditional financial reporting cannot meet the risk assessment requirements of the company's internal control (Munteanu et al., 2021). In 2015, the United Nations Summit on sustainable development adopted the 2030 agenda for sustainable development, calling for a comprehensive solution to the environmental, economic and social problems in 2015–2030. As a result, the concept of Environment, Social and Governance (ESG) has been widely disseminated. ESG includes three responsibility levels of environment, social responsibility, and governance, and it is an important indicator of enterprise self-discipline and supervision, is also the development of the concept of corporate social responsibility (Rozsa et al., 2022). In recent years, ESG investment has developed rapidly, with an increase of 34% in the world from 2016 to 2018. Enterprise ESG performance has attracted the attention of government regulators, investors, and listed companies, and it has gradually become the focus of research. Research shows that improving ESG performance is the effectiveness of enhancing its sustainable development ability, which helps improve the financial reporting quality (Şeker & Şengür, 2021) and the enterprise value (Fatemi et al., 2018; Ionescu et al., 2019; Goicoechea-Larracoechea et al., 2021; Karoui & Nguyen, 2022). Countries worldwide also attach great importance to the social benefits (Lu et al., 2021). Especially, in China, many enterprises, especially listed enterprises, fail to actively fulfill their ESG responsibilities, invest in the ESG field, and realize the importance of ESG responsibilities. The overall ESG performance level of enterprises is low. How to improve ESG performance is particularly important for enterprise development and the whole society.

The rise of ESG responsibility investment has restructured the investment concept of investors, As the main body of ESG responsibility performance, enterprises have become the consensus of all walks of life to strengthen the sense of responsibility, guide responsibility investment and form a sustainable business model. With the improvement of ESG responsibility performance awareness and ability of enterprises, enterprises should perform ESG responsibility has been promoted to a strategic level. Scholars have carried out a lot of theoretical and empirical research on this, However, most of the relevant studies focus on the economic consequences of enterprises fulfilling ESG responsibilities. At present, there no unified conclusion is available on the factors affecting ESG performance, mainly because the ESG performance evaluation system is imperfect, and the evaluation standards are inconsistent. Most scholars have studied from a single dimension in ESG, such as social responsibility (Chen & Ha, 2021; Dhar et al., 2022), or explore the factors affecting ESG information disclosure, such as mandatory disclosure policy (Lokuwaduge & Heenetigala, 2017), investor sentiment, and market regulation (Mei et al., 2020; Javed et al., 2020). Many studies have been conducted on enterprise ESG performance. However, the answer to the following questions remains unclear. How can the overall enterprise ESG performance be truly evaluated in the context of China? What are the internal key factors affecting the ESG performance of Chinese enterprises, especially listed enterprises? How can the ESG performance of Chinese listed enterprises be promoted?

Relevant empirical studies have shown that a correlation exists between educational background, gender, and other management characteristics and (CSR) performance (Lu et al., 2020). The top management team is the main strategic decision maker of enterprises, the differences top management team in gender, education, age, educational background, and other characteristics can lead to team faultlines, which efficiency of the entire top management team (Molleman, 2005; Yin et al., 2023). Therefore, this study starts with internal executive teams to study the internal drivers of ESG performance.

In view of this, this paper investigates the internal relationship between the decision making of the top management team and ESG performance. It mainly discusses two questions: (1) From the perspective of enterprise strategic decision making, do different types of top management team faultlines affect the ESG performance of listed enterprises? (2) The management incentive mechanism is an important embodiment of the level of corporate governance. It can achieve the goals of the management team members and the corporate goals to the greatest extent. Can the management incentive measures effectively improve the ESG performance of listed companies? In view of the above two problems, this paper takes Chinese listed enterprises as the research object. Based on the research on the heterogeneity of management characteristics and considering the superposition effect brought by heterogeneity, this study introduces the concept of faultlines, evaluates ESG, and uses a linear regression analysis method to establish the relationship model among management incentive, the faultlines of management team, and the ESG performance of listed enterprises. This paper attempts to reveal the effects of different types of top management team faultlines on the overall ESG performance of listed enterprises and the regulatory effect of top management incentive. In this manner, this study provides a new perspective on the factors affecting ESG performance and a decision-making reference for improving the ESG performance of listed enterprises in China and enhancing the corporate governance structure.

The contribution of this paper is reflected in three aspects. (1) This study takes the enterprise ESG as a whole and discusses its performance influencing factors. ESG includes three responsibility levels of environment, society, and governance. Most of the relevant studies are conducted from a single dimension of ESG. In addition, most scholars have studied the economic consequences of ESG performance, such as corporate financial performance, stock premium, and institutional investors' decision making. Few studies have been conducted on the factors affecting ESG performance. This paper takes ESG as a more comprehensive evaluation index, uses natural language processing (NLP) technology in analysing the ESG report of enterprises to measure it, and discusses its influencing factors. (2) Introduce social classification theory into corporate governance research has realized cross-research in different research fields, enriched the upper echelon theory. From the perspective of executive motivation, the intermediary buffer model built can more clearly understand how executive motivation affects the ESG performance of enterprises by adjusting the mobility of the executive team, and help to more systematically and comprehensively understand the mechanism of the executive team fracture zone, At the same time, it also expands a new perspective of the boundary conditions of the effect of the faultlines of the senior management team on organizational performance. (3) Under the strategy of strengthening the country with talents and the concept of high-quality development, the key to promoting high-quality develop-

ment of the economy is that senior executives work together and uphold the concept of long-term development. This paper points out the importance of the construction of enterprise senior management team, which can provide strong evidence and scientific basis for the government to guide and promote corporate governance reform.

The remainder this paper is arranged as follows. Section 1 proposes the theoretical hypotheses on the relationship among management incentive, top management team faultlines, and enterprise ESG performance by investigating the existing literature. Section 2 collects the relevant data involved in the research, selects the alternative variables of the research problem, and constructs the relevant linear regression equation. Section 3 analyses the empirical results of the correlation regression equation and tests the research hypotheses. According to the test results, Section 4 further discusses the relationship between the top management team faultlines and the ESG performance of listed enterprises from the perspective of corporate governance and the regulatory role of the management incentive mechanism on the ESG performance of listed enterprises. The last section presents the research conclusion, management inspiration, and prospects of this paper.

1. Literature review and research hypotheses

1.1. ESG performance theory

ESG is composed of three parts: environment, social responsibility, and corporate governance. It aims to emphasize the close integration of the business elements in the process of enterprise development, namely, people, environment, and business. Friede et al. (2015) found that enterprise ESG has a nonnegative correlation with the company's financial performance. Therefore, enterprises should pay more attention to the control and scoring of environment, social responsibility, and corporate governance. Some scholars have also emphasized that the frequency, quantity, mode, and quality of ESG information disclosure will have a certain effect on enterprise value. In the long run, the content of ESG information disclosure will have a significantly positive influence on enterprise performance. At present, ESG information disclosure is mostly based on the measures of government supervision and legal restriction. Braam et al. (2016) reported that relevant legal provisions are an important consideration for the disclosure of CSR information, and the regulatory authorities play an important role in improving the quality of CSR information disclosure. Therefore, incentives for environmental reporting policy would influence firms' riskiness, perceived transparency levels as well as the ability to access capital markets (Hussain et al., 2022). Mei et al. (2020) found that government regulation can effectively promote ESG information disclosure by enterprises, and this effect is more significant in private enterprises. Camilleri (2015) claimed that some mandatory documents require enterprises to disclose social responsibility information within the EU, which makes the quality and quantity of CSR information disclosure in EU countries generally high. Krueger et al. (2021) also emphasized that considerable differences exist in the focus of ESG information disclosure in different industries. Generally, the current relevant research shows that the proper improvement of ESG performance and information disclosure of enterprises is conducive to the growth of their own value. Regard-

ing the economic consequences of ESG investment, no relatively unified conclusion is available on the factors affecting ESG performance. At the early stage of the study, most scholars have measured enterprise ESG performance by whether they disclose ESG reports, which reduces the accuracy of ESG performance evaluation to a certain extent. This paper is the first to theoretically clarify the relationship among the three dimensions of ESG and then more accurately explores the factors affecting ESG performance.

The environmental performance in ESG emphasizes the relationship between the environmental performance and the company's future income, that is, whether a good environmental performance can improve the company's profits. At present, research on the environmental level of ESG has not formed a quantifiable and complete system. Yan (2019) reported that the evaluation score of the environmental level in ESG can represent the enterprise's technical and sustainable development abilities to a certain extent. It helps identify the investment risks of enterprises. Tian and Tian (2021) discussed the influence path of corporate environmental responsibility perception on employees' pro-environmental behaviour. They claimed that corporate environmental responsibility perception can enhance employees' awareness of pro-environmental behaviour by enhancing moral reflection and harmonious environmental protection passion, thereby realizing the green development of enterprises. ESG's social responsibility performance emphasizes that the production and operation activities of enterprises do not seek to maximize the interests of enterprises or shareholders, but to pursue the long-term interests of society. In 1924, British scholar Sheldon first proposed the concept of CSR. In the 1990s, scholars from various countries began to pay attention to CSR. At present, most scholars have also investigated the social responsibility dimension in ESG, focusing on the information disclosure and performance of CSR. Fontana et al. (2015) sorted and analysed the relevant documents of CSR disclosure. They found that the company's refusal to disclose social responsibility information is mostly caused by the personal purpose of enterprise managers. García-Sánchez et al. (2020) and Zahra et al. (2022) also concluded that the top management team will influence the quality and detail of enterprise information disclosure. Corporate governance performance mainly refers to the relevant measures and organizational structure to alleviate the principal–agent problems of enterprises, that is, whether enterprises can establish a sound and reasonable incentive and restriction mechanism. Corporate governance is divided into three levels, namely, the relationship among the board of directors, top management, and enterprise owners, and the process of guiding and controlling the company's operations. Corporate governance refers to the mechanism of intervening in the company's operation and management through the discourse power held by the enterprise's ownership. A good corporate governance structure can effectively alleviate agency conflicts, reduce agency costs, and further improve the enterprise's value (Du Plessis et al., 2018; Baysinger & Butler, 1985). The corporate governance structure will have a positive effect on the company's business performance. In addition, some scholars have often introduced corporate governance-related factors, such as internal control and CEO power when studying CSR. Therefore, from another perspective, the internal governance environment is also an important factor affecting CSR performance.

The three elements of environment, social responsibility, and corporate governance are interrelated, mutually promoted, and mutually infiltrated. The three elements are insepara-

ble and constitute the overall enterprise ESG performance. The previous literature review also shows that people are indispensable and alternative elements in the process of fulfilling enterprise ESG responsibilities, and they are important factors affecting enterprise ESG performance. It provides a theoretical basis for the later research on the relationship between the characteristics of top management team and ESG performance.

1.2. Relationship between top management team faultlines and ESG performance

The formation of the team faultlines is based on the similarity attraction theory and the social classification theory. Lau and Murnighan (1998) proposed that when there exist differences in characteristics among team members, virtual boundaries will exist among members, which will divide them into small teams. The division within the team leads to the formation of faultlines within the team. The strength of each faultlines is different. This faultlines should be determined according to the way of division and the similarity of the characteristics of the members in the subteam. Thatcher and Patel (2012) summarized and analyzed the relevant literature on faultlines and concluded that the existence of faultlines would affect group decision making, performance, and emotional performance. Ndofor et al. (2015) and Qu and Liu (2017) also proved that the existence of faultlines will reduce the work efficiency of the whole team. Georgakakis et al. (2017), Li and Jones (2019) combined the team faultlines with the research on top management team. They found that the greater the gap between the management teams is, the greater the contradictions, obstacles, and competition among the subteams will be, resulting in the reduction of the performance of decision making and output. Hutzschenreute and Horstkotte (2013) further divided the faultlines into physiological characteristic faultlines, such as gender and age, and social task faultlines, such as educational background and working time according to population characteristics. The author found that the physiological characteristic faultlines has a negative effect on organizational strategy, and the social task faultlines has a positive impact on organizational strategy. Similarly, Richard et al. (2019) selected enterprise sample data from 2003 to 2015 for empirical research. The author found that the relationship-type top management team faultlines negatively affects strategic changes, whereas the task-type faultlines has a positive effect. In addition, Ji and Li (2019) found differences on the effects of the different types of top management team faultlines on performance by investigating the interactive memory system among team members.

The studies on top management team faultlines are concentrated in two aspects, that is, the influence of the faultlines on the team's strategic decision-making process and its effect on the team output results and efficiency. The literature review shows that the generation of top management team faultlines will affect the decision-making results and efficiency of the entire top management team and then affect enterprise performance and strategy. Different types of faultlines have different effects on enterprise performance and strategy. Therefore, according to the classification of Hutzschenreute and Horstkotte (2013), this paper divides top management team faultlines into relationship- and task-type faultlines. It further discusses the internal relationship between the two types of top management team faultlines and enterprise ESG performance.

1.2.1. Relationship-type top management team faultlines and ESG performance

The relationship-type faultlines is an invisible organizational structure based on the demographic background of the management personnel and due to the differences in age and gender. The relationship between the heterogeneity of management team members' characteristics and corporate performance has always been the focus of international research. However, few studies have been conducted on enterprise ESG performance, most of which have focused on the characteristics of managers and CSR. Zhu and Chen (2020) proposed a mechanism model of the heterogeneity of management characteristics and social responsibility, and believed that the age, educational background, and other characteristics of the management team are positively correlated with the performance of CSR. Suárez-Rico et al. (2018) also emphasized that the older the senior managers are, the better the quality of CSR information disclosure of enterprises will be. Chung et al. (2015) proposed that a strong faultlines is generated in the team due to the difference in gender characteristics, and this gender faultlines will reduce the loyalty and team cohesion of employees. Zhu and Deng (2017) found that female managers can inhibit excessive investment and improve CSR performance when studying the relationship between female managers and CSR performance. Ruobing et al. (2021) used the financial data of listed companies in Shenzhen and Shanghai Stock Exchanges to empirically analyse the effect of the gender structure of management and board of directors on company performance. The regression results show that the proportion of female directors, senior managers, and supervisors has a significant and positive effect on the market value of enterprises. The higher the proportion of female managers is, the higher the risk aversion, the stricter the control of operating costs, the higher the innovation and market orientation, and the higher the possibility of fulfilling social responsibilities will be, verifying the relevant conclusions of Zhu and Deng (2017). In addition, Rashid et al. (2020) introduced CEO power to study CSR. The research results showed that CEO power is negatively related to the level of CSR disclosure. There exists a significant correlation between management characteristics and enterprise ESG performance. Moreover, Tian et al. (2021) indicated that given China's special social culture and historical environment, management teams in China form a faultlines different from other countries. Chinese top management teams are more likely to form multiple sub teams in the relationship-type faultlines. The deep root of team conflict is that they have different social identities. The unbalanced faultlines formed due to the heterogeneity of team members' identities makes entrepreneurial teams prone to concession-type conflicts. According to Maslow's hierarchy of needs theory, older senior managers pay more attention to the long-term development and social image of the company at this stage. In addition, under the Chinese background, when the older managers have a higher position in the team and a greater voice, the negative effects caused by gender and age gap are smaller. Therefore, under the Chinese background, the relationship-type top management team faultlines has a positive effect on enterprise ESG performance. Thus, the following assumption is proposed:

H1: In the context of China, the relationship-type top management team faultlines can promote the improvement of the ESG performance of listed companies.

1.2.2. Task-type top management team faultlines and ESG performance

The task-type top management team faultlines is formed due to differences in tenure, education, and other characteristics. Brown et al. (2017) proposed the viewpoint based on information decision making and diversification theory. They believed that the cognitive level of managers is related to their education level. Given their different education levels, there exist differences in their cognitive level and thinking mode. Such differences are more likely to lead to the division of the team into different subgroups, which directly determine the strategic decision of the enterprise. In terms of environmental responsibility, Wu and Zhang (2018) claimed that the more professional and experienced the top management team members are, the longer they have been on the job, and the more effective the performance and implementation of environmental responsibility can enhance the enterprise value. In terms of social responsibility, He (2018) confirmed that the higher the educational background and the longer the term of office of top management team members in Chinese manufacturing enterprises are, the more effective the CSR performance will be. Some studies have also found that the influence of top management term on CSR performance is not constant, and obvious differences exist in their effects in various industries. Zacharias et al. (2015) studied the social performance data of enterprises in different industries and found that different professional backgrounds of the top management team have opposite effects on the social performance of enterprises. In terms of corporate governance, Li and Wang (2019) claimed that the large difference in cultural level will cause great obstacles, leading to contradictions and differences within the company. Lin and Yang (2019) discussed the influence of the term cycle of senior managers on the audit opinions of the annual reports of enterprises. Corporate governance is mainly a mechanism for intervening in the company's operation and management through the discourse power held by enterprise managers. Senior managers with different office terms and educational backgrounds may have different degrees of conflicts and differences in the process of implementing ESG, thereby affecting enterprise ESG performance. Based on the above analysis, the following assumptions are made on the relationship between task-type top management team faultlines and enterprise ESG performance:

H2: Task-type top management team faultlines will inhibit the improvement of the ESG performance of listed companies.

1.3. Relationship between management incentive and ESG performance

Management incentive is a method in the enterprise governance system. Scholars in various countries agree that the management incentive mechanism can effectively alleviate the principal–agent problem and reduce the agency cost. Its role is to improve the enthusiasm of managers and guide them to automatically achieve or even exceed the corporate development goals and social entrusted responsibility goals in the process of enterprise management. Liu and Zhang (2017) reported an inevitable relationship among corporate governance, social responsibility information disclosure, and enterprise value. The empirical results showed that different corporate governance factors affect the social responsibility information disclosure of listed companies in China's heavy pollution industry to a certain extent. In addition, social

responsibility information disclosure is not conducive to the short-term profits of enterprises but can increase their long-term value. Li (2016) emphasized that top management members will form value and cognitive bias due to differences in gender, age, and other characteristics. In addition, the incentive mechanism will affect the management decision of the top management team by influencing such differences in value and cognition. Various incentive methods have different effects. Short-term incentives can quickly improve the financial performance of enterprises in a short time. Monetary compensation with significant short-term incentive measures is also the choice of most enterprises at present. Long-term incentives can effectively reduce the risks caused by the uneven ethics of senior managers and the agency cost caused by information asymmetry. Such incentives can also promote the top management team members to consciously form the concept of ownership and make the top management team members pay more attention to the long-term development and interests of the company. Therefore, from the perspective of corporate governance, management incentive can achieve the business objectives more by influencing enterprise managers; thus, it has a regulatory role on enterprise ESG performance.

1.3.1. Relationship between salary incentive and ESG performance

The short-term incentive is mainly salary incentive. Karim et al. (2018) found that the social performance of enterprises is negatively correlated with the proportion of cash compensation but positively correlated with the proportion of equity compensation. The reason may be that the rapid growth of enterprise financial performance in the short term is more likely to bring about the increase in personal remuneration. However, some scholars hold opposing opinions. Hong et al. (2016) indicated that the remuneration incentive of managers can improve the CSR performance of the company. Cavaco et al. (2020) and Blanes et al. (2021) showed that a positive correlation exists between CSR and management compensation. The inclusion of CSR in the remuneration incentive plan of managers has a negative effect on the financial performance of enterprises, but it can improve the CSR performance. Tsang et al. (2021) further confirmed that incorporating CSR standards into management compensation can promote enterprise innovation through enterprise data in 30 countries. Xie and Liu (2016) took the company's charitable donation as the starting point and found that salary incentive will encourage managers to actively lead enterprises to engage in charitable activities and improve its corporate social image. Some studies have also indicated that managers of state-owned enterprises may even cover up the fact that the corporate performance is not high by pursuing CSR, and the correlation between management compensation and corporate performance is weakened. Therefore, the relationship between salary incentive and CSR performance is affected by the heterogeneity of enterprises. From the perspective of top management team decision making, Zhu et al. (2014) indicated that salary gap will aggravate the internal contradictions of the management, and the salary incentive of the management does not play a regulatory role on the heterogeneity of the management and the innovation investment of the company. From the perspective of gender heterogeneity, Li and Wang (2019) found that the gender difference of top management team members has a significantly negative effect on the R&D performance of enterprises, and the management compensation incentive will strengthen this negative effect. As a short-term incentive, no unified conclusion

has been found on whether the salary incentive directly affects enterprise ESG performance. However, it can effectively influence the decision-making differences caused by the demographic background characteristics of the top management team, thereby weakening the positive effect of the relationship-type top management team faultlines on enterprise ESG performance. It may also strengthen the negative effect of the task-type top management team faultlines on enterprise ESG performance, with a regulatory effect. Accordingly, the following assumptions are proposed:

H3a: Management compensation incentive will weaken the positive effect of the relationship-type top management team faultlines on the ESG performance of listed companies.

H3b: Management compensation incentive will strengthen the negative effect of task-type top management team faultlines on the ESG performance of listed companies.

1.3.2. Relationship between equity incentive and ESG performance

Improving enterprise ESG performance is a long-term investment, which has a slow effect in the short term. Therefore, long-term equity incentive is also needed to continue to play its role. From the perspective of stakeholders, management equity incentive, as an effective means to combine the "common interests" of the company with the welfare of the managers, can combine part of the interests of the managers with the overall interests of the shareholders, encourage managers to actively promote CSR, and make the decisions of the management team consistent with the long-term business objectives of the enterprise. Li et al. (2013) showed that management compensation incentives in Chinese state-owned enterprises can improve CSR performance, but relevant data show that management equity is unrelated to CSR performance. Chen (2017) believed that R&D investment can effectively promote the improvement of enterprise performance, management equity incentive can strengthen this positive effect, and management compensation incentive has no significant regulatory effect on the relationship between the two. Jouber (2019) emphasized that equity incentive can effectively improve CSR performance. Therefore, the relationship between equity incentive and CSR performance is unclear. Many studies have confirmed the correlation between management equity incentive and corporate ESG at three levels. However, most of these studies have investigated the three dimensions separately, and only few studies have measured ESG as an overall variable. In addition, from the perspective of top management team decision making, equity incentive can reduce short-term decision-making behaviour, improve the enthusiasm of top management team for corporate ESG responsibility performance, and further strengthen the positive effect of top management team on enterprise ESG performance. Li and Wang (2019) also claimed that the gender difference of top management team members has a significantly negative effect on enterprise R&D performance, and equity incentive will weaken this negative effect. Equity incentive will further strengthen the positive effect and weaken the negative effect of top management team on enterprise ESG performance. Therefore, the following assumptions are proposed:

H4a: Management equity incentive can strengthen the positive effect of the relationship-type top management team faultlines on the ESG performance of listed companies.

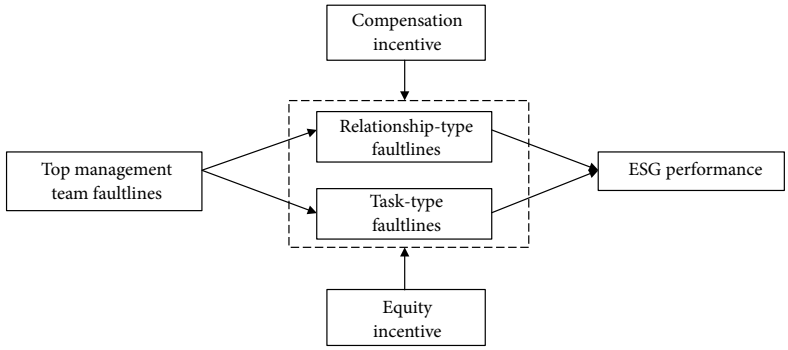

Figure 1. Theoretical relationship model

H4b: Management equity incentive can weaken the negative effect of the task-type top management team faultlines on the ESG performance of listed companies.

Based on the above analysis, the theoretical framework of this paper is shown in Figure 1.

2. Methodology

2.1. Variable measurement

2.1.1. Top management team faultlines

According to the literature analysis, the traditional four characteristics of gender, age, employment, and educational background are used to describe the top management team faultlines, which is further divided into task- and relationship-type faultlines. The top management team faultlines can be measured qualitatively and quantitatively. This paper chooses the quantitative method proposed by Thatcher et al. (2003) to calculate the internal division degree of the team and obtain the specific faultlines strength (*Fau*). In the relationship-type faultlines, the age and gender of the top management team members are selected to measure the strength of the faultlines. Age is treated as a continuous variable, and the gender is treated as a categorical variable, expressed by "0" and "1". In the task-type faultlines, two characteristics of the term of office and educational background of the top management team members are selected to measure the strength of the faultlines. The term of office is treated as a continuous variable. The educational background is treated as a categorical variable, which is divided into "junior college and below", "junior college", "undergraduate", "master's degree" and "doctor's degree", with values of 1–5, respectively. According to the "dichotomy model" proposed by Lau and Murnighan (1998), management is divided into two sub teams according to different characteristics, with no less than two members in each group. On this basis and Thatcher's calculation formula and considering the continuous and categorical variables, *Fau* is calculated as follows:

$$Fau_g = \frac{\sum_{j=1}^{q}\sum_{k=1}^{2} n_k^g + (\overline{x}_{jk} - \overline{x}_j)^2}{\sum_{j=1}^{q}\sum_{k=1}^{2}\sum_{i=1}^{n_k^g} (\overline{x}_{ijk} - \overline{x}_j)^2}, \; g = 1, 2, 3, ..., S, \tag{1}$$

where n represents the number of members in the team, q denotes the number of features involved in the calculation, and S represents the number of ways in which the team is divided into sub teams under feature q, where $S = 2n - 1$. n_k^g represents the number of members in subgroup k under classification mode g, $\overline{x}_{jk}$ denotes the average value of managers in subgroup k on feature j, $\overline{x}_j$ is the average value of all management characteristics j, and $\overline{x}_{ijk}$ is the value of the characteristic j of manager i in subgroup k.

Given that the selected characteristic index includes continuous and categorical variables, the paper refers to Thatcher's (2003) variable scaling method, that is, the education and gender variables are expressed in the form of virtual variables. At the same time, to reduce the inaccuracy caused by inconsistent variables, the virtual and categorical variables are set to the same number, and the spacing between variables is standardized. The value of the faultlines is the maximum value of the strength of the faultlines under all possible groupings (g types), *max* (*Fau*), whose value range is (0–1). The larger the value is, the stronger the strength of the faultlines will be.

2.1.2. ESG performance

As for ESG performance evaluation, no unified scoring system with high recognition is available at present, and most scoring institutions give the scoring grades rather than specific scoring values. This paper uses the relatively mature and stable NLP technology and the analogical emotional analysis method to measure the ESG performance of listed enterprises. NLP technology is a bridge between human and computer language, and emotion analysis is a commonly used method. First, we need to build an emotion dictionary and classify and define the words in the dictionary. Then, the text to be analysed is pre-processed. The computer will match the processed text with the part of speech in the emotional dictionary based on a text matching method. If the words are successfully matched with the words in the dictionary, then the corresponding weight will be processed. The weight of positive words is addition, the weight of negative words is subtraction, and the final output result is used to judge whether the text belongs to positive, negative, or neutral emotion. The information in the ESG-related reports to be judged in this paper is based on the positive and negative events in enterprise ESG performance. It is similar to emotional analysis, but the difference is that it is based on different dictionaries. Therefore, by analogy with affective analysis, this paper builds a corpus related to ESG performance, gives weights to positive and negative words in the text, and finally obtains the ESG performance of the sample enterprises.

The specific operations are as follows. First, obtain the ESG-related announcements of the sample enterprises. Second, establish the ESG-related corpus. Based on emotion analysis research, classify the parts of speech of ESG-related corpora are classified; read many ESG reports and reference English corpora to obtain and determine the key fields; and finally, construct a Chinese corpus containing 4330 key fields, including 3610 positive key fields and 720 negative key fields. Finally, the review the samples automatically, and obtain the ESG performance scores of the sample enterprises.

2.1.3. Management incentive

The current nonmonetary incentives are difficult to obtain and quantify. Thus, this paper selects monetary incentives, namely, short- and long-term and salary incentives, as the adjustment variables. Salary incentive refers to the monetary reward that the enterprise promises to senior managers, including salary and bonus; it is a short-term incentive mode, generally taking one year as a stage. This paper uses the natural logarithm of the total annual salary of the senior managers of the enterprise to measure the salary incentive. Equity incentive is a long-term incentive for enterprises based on certain equity of directors, supervisors, and senior managers. Given the different enterprise sizes, there exists a large gap in the number of equities held by senior managers. Therefore, the ratio of the number of equities held by senior managers to the total number of shares of the enterprise is selected to represent equity incentive by using the measurement method commonly used by scholars in various countries in empirical research.

2.1.4. Control variables

To ensure the accuracy of the research on the effect of top management team faultlines on enterprise ESG performance, the enterprise size, team size, company age, and equity concentration are taken as control variables with reference to relevant studies. Table 1 presents the specific variable definitions.

Table 1. Variable definitions (sources: collected by myself)

Type of Variable	Variable Name	Variable Code	Variable Meaning
Dependent variable	ESG performance	*ESGP*	ESG performance is obtained by the above evaluation system
Independent variable	Relationship-type faultlines	*BDF*	Age and gender faultlines of senior top management team
	Task-type faultlines	*TRF*	Tenure and education faultlines of senior top management team
Moderator variable	Compensation incentive	*PAY*	Logarithm of total Compensation of top management
	Equity incentive	*STOCK*	Shareholding ratio of top management = Total shares held by management / Total shares
Control Variable	Company size	*SIZE*	Logarithm of total assets
	Team size	*TSIZE*	Number of top management team members
	Company age	*AGE*	Logarithm of company age
	Ownership concentration	*OC*	Total shareholding ratio of top ten shareholders

2.2. Data source

To facilitate data collection, this paper takes Chinese listed companies as the research object. According to the 2020 ESG rating analysis report issued by Shangdao Ronglv, the number of ESG reports issued by listed companies in China's A-share market increased from 371 in

2009 to 1021 in 2020, with a steady increase, as shown in Figure 2. By 2020, the listed companies that disclosed ESG reports accounted for about 27% of the total, including 259 listed companies in the Shanghai and Shenzhen 300 Index, accounting for more than 86%. Thus, most companies in the constituent stocks of China's Shanghai and Shenzhen 300 Index have disclosed ESG-related reports, which is representative. Therefore, this paper selects the ESG information disclosure of listed companies in China's Shanghai and Shenzhen 300 Index from 2016 to 2019 as the sample data. Relevant data on CSR performance and management are included, whereas the constituent stocks, St stocks, and shell stocks that have entered the Shanghai Shenzhen 300 Index in recent years are excluded. In addition, the dichotomy model proposed by Lau and Murnighan is used to measure the top management team faultlines. This method divides the team into two sub teams with no less than two team members. Therefore, the samples with less than four top management team members are also excluded from the data in this paper, and a total of 347 samples are finally obtained.

In terms of the measurement of the top management team faultlines, this paper uses the traditional four characteristics of gender, age, employment, and educational background to describe. The top management characteristic data of the sample enterprises are substituted into Formula (1) to obtain the strength data of the top management team faultlines. In terms of the ESG performance measurement of listed enterprises and combined with the Chinese corpus related to ESG performance constructed above, we give weight to the positive and negative words in the text and finally obtain the ESG performance data of the sample enterprises through automatic evaluation of the samples. In this paper, the output value is specified between 0 and 1, and the basic value is set to 0.6; thus, each output value will not be lower than 0.6. After the PDF files of the sample ESG-related reports are converted into TXT format, the text review system created above is used to review the relevant ESG reports of the Shanghai and Shenzhen 300 component companies from 2015 to 2019, and a total of 1016 reports are finally reviewed. Particularly, the sample comprises 173 consecutive enterprises, and the specific score statistics are shown in Table 2. From the review results, the disclosure

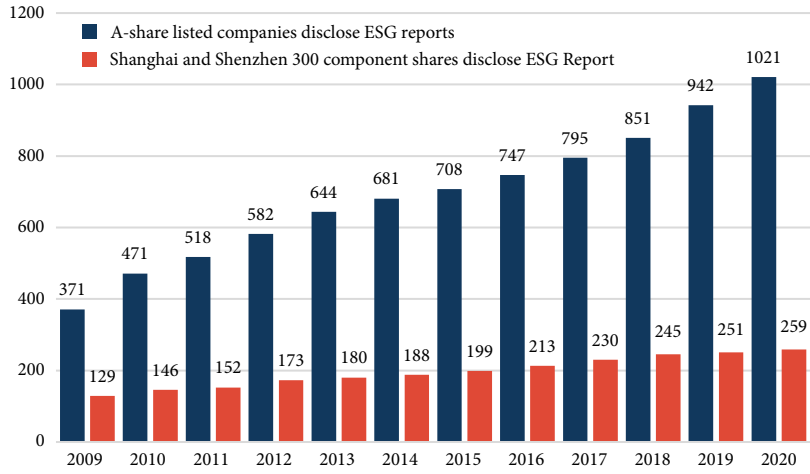

Figure 2. Disclosure of ESG reports of listed companies in China from 2009 to 2020 (sources: 2020 ESG rating analysis report)

Table 2. ESG performance evaluation result table (sources: collected by myself)

ESGP	2015	2016	2017	2018	2019	count (%)
<0.6499	–	–	–	–	–	0(0%)
0.6500–0.6999	5	6	1	5	4	21(2.1%)
0.7000–0.7499	38	43	46	28	30	185(18.2%)
0.7500–0.7999	89	86	83	74	99	431(42.4%)
0.8000–0.8499	38	44	50	68	81	281(27.7%)
0.8500–0.8999	7	7	17	21	41	93(9.2%)
>0.9000	–	–	–	3	2	5(0.4%)
Total	177	186	197	199	257	1016(100%)

status of the 300 constituent stocks of Shanghai and Shenzhen has improved year by year, and the quality of disclosure has been steadily improved. The number of enterprises in high segments has increased year by year, and the number of enterprises in low segments has steadily decreased. The evaluation results and the results given by the current rating agencies are basically consistent with the market development status, which also shows that the concept of ESG is developing rapidly in China. The data of management incentive and control variables are calculated according to the variable definitions listed in Table 1. In addition, this paper uses CSMAR and Wind database as the data source. The data are minorized to the extent of 1%, and Stata 15.1 is used as the data processing software.

2.3. Model construction

According to the nature of the data, the fixed-effect regression model in panel data analysis is used to test the relationship between the top management team faultlines, top management incentive, and enterprise ESG performance. First, the relationship between the relationship- and task-type top management team faultlines and the ESG performance of listed companies is tested to verify H1 and H2. The model is set as follows:

$$ESGP = \beta_0 + \beta_1 BDF + \beta_2 Contr + \mu_i; \quad (2)$$

$$ESGP = \beta_0 + \beta_1 TRF + \beta_2 Contr + \mu_i, \quad (3)$$

where *ESGP* is the ESG performance of listed enterprises, *BDF* is the relationship-type top management team faultlines, *TRF* is the task-type top management team faultlines, and *Contr* is the relevant control variable. The same symbols in the following represent the same variables.

Second, the adjustment effect of the adjustment variable management compensation incentive is tested to verify H3a and H3b. The model is set as follows:

$$ESGP = \beta_0 + \beta_1 BDF + \beta_2 PAY + \beta_3 PAY \times BDF + \beta_4 Contr + \mu_i; \quad (4)$$

$$ESGP = \beta_0 + \beta_1 TRF + \beta_2 PAY + \beta_3 PAY \times TRF + \beta_4 Contr + \mu_i, \quad (5)$$

where pay is the adjustment variable of management compensation incentive, and the interaction terms *PAY * BDF* and *PAY * TRF* of compensation incentive and relationship- and task-type faultlines are used to test the adjustment effect of compensation incentive.

Finally, the adjustment effect of the adjustment variable management equity incentive is tested to verify H4a and H4b. The model is set as follows:

$$ESGP = \beta_0 + \beta_1 BDF + \beta_2 STOCK + \beta_3 STOCK \times BDF + \beta_4 Contr + \mu_i; \quad (6)$$

$$ESGP = \beta_0 + \beta_1 TRF + \beta_2 STOCK + \beta_3 STOCK \times TRF + \beta_4 Contr + \mu_i, \quad (7)$$

where stock is the regulatory variable of management equity incentive, and the interaction terms *STOCK*BDF* and *STOCK*TRF* of equity incentive and relationship- and task-type faultlines are used to test the regulatory effect of equity incentive.

3. Result analysis

3.1. Sample descriptive analysis

According to the dichotomous model, the team is divided into two sub teams with no less than two people. After removing the samples with vacancy value and team number less than four, a total of 347 sample values are obtained in this paper. The descriptive statistics of samples are shown in Table 3.

Table 3. Descriptive statistics of samples (sources: collected by myself)

Variable	N	Mean	P50	SD	Min	Max
ESGP	347	0.790	0.787	0.045	0.685	0.884
TRF	347	0.689	0.642	0.174	0.383	0.998
BDF	347	0.890	0.947	0.112	0.559	0.997
PAY	347	16.310	16.260	0.723	14.86	18.000
STOCK	347	0.040	0.038	0.094	0.001	0.414
SIZE	347	24.340	24.300	1.484	21.410	28.180
TSIZE	347	8.706	8.000	3.225	4.000	18.000
AGE	347	18.340	18.000	4.959	8.000	32.000
OC	347	67.130	68.260	16.090	25.970	98.550

Overall, the standard deviation of ESG performance of the sample enterprises is small, and the ESG performance of most enterprises is near the average level. The strength value of the relationship-type faultlines of the sample enterprises is generally large, indicating that the gender and age differences among the managers are obvious. In comparison with the task-type faultlines, the strength value is a little smaller, but generally greater than 0.6, indicating that the managers of the sample enterprises still have large differences in terms of tenure and educational background.

3.2. Correlation analysis

In this paper, Pearson correlation test is used to examine the multicollinearity between variables. The results are shown in Table 4. The correlation coefficient between variables is mostly less than 0.3, indicating no serious multicollinearity problem among the variables. Particu-

larly, the correlation coefficient between the task-type top management team faultlines and the ESG performance of listed companies is −0.140, which is significant at the 1% level. This result preliminarily indicates that the task-type top management team faultlines is negatively related to the ESG performance of the company, and it preliminarily confirms the hypothesis mentioned above. The correlation coefficient between the relationship-type top management team faultlines and enterprise ESG performance is 0.090, which is positively correlated and significant at the 10% level, which is also consistent with the previous inference. Company size (*SIZE*), team size (*TSIZE*), and enterprise age (*AGE*) have a significantly positive effect on enterprise ESG performance. Ownership concentration (*OC*) is negatively related to enterprise ESG performance, indicating that the more concentrated enterprise ownership is, the more unfavorable it will be to improve enterprise ESG performance. The coefficients of management compensation incentive and relationship-type and task-type top management team faultlines are negative, and the management compensation incentive and task-type faultlines are significant at the 1% level. This result preliminarily verifies that management compensation has a negative regulatory effect on the relationship between the top management team faultlines and enterprise ESG performance, and the coefficients of management equity incentive and relationship- and task-type top management team faultlines are positive. This finding preliminarily verifies that the management equity incentive has a positive regulatory effect on the relationship between the top management team faultlines and enterprise ESG performance.

Table 4. Correlation coefficient of variables (sources: collected by myself)

	ESGP	*TRF*	*BDF*	*PAY*	*STOCK*	*SIZE*	*TSIZE*	*AGE*	*OC*
ESGP	1								
TRF	−0.140***	1							
BDF	0.090*	0.076	1						
PAY	0.158***	−0.198***	−0.029	1					
STOCK	−0.073	0.032	0.030	0.124**	1				
SIZE	0.151***	−0.079	−0.160***	0.173***	−0.343***	1			
TSIZE	0.086	−0.288***	−0.145***	0.431***	0.081	0.186***	1		
AGE	0.130**	−0.022	0.071	0.192***	−0.075	−0.110**	−0.031	1	
OC	−0.070	0.236***	−0.044	−0.289***	−0.162***	0.393***	−0.118**	−0.207***	1

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

3.3. Multiple regression analysis

3.3.1. Inspection of top management team faultlines and its relationship with ESG performance

The sample data are substituted into Models (1) and (2) for regression, and the regression results are shown in Table 5. In Model (1), the regression coefficient of the relationship-type top management team faultlines is 0.048, which is positively related to enterprise ESG performance, and it is significant at the 5% level, which verifies the H1. Moreover, this result

Table 5. Regression results of the relationship between top management team faultlines and enterprise ESG performance (sources: collected by myself)

Variables	(1)	(2)
TRF		−0.036** (−2.22)
BDF	0.048** (2.08)	
SIZE	0.004** (2.52)	0.003* (1.89)
TSIZE	0.001 (1.50)	0.001 (0.72)
AGE	0.001*** (2.77)	0.001*** (2.88)
OC	0.000 (0.95)	0.000 (1.45)
Constant	0.591*** (12.58)	0.681*** (15.19)
Observations	347	347
adj_R2	0.0507	0.0538

Note: Robust t-statistics in parentheses, *** p <0 .01, ** p < 0.05, * p < 0.1.

shows that the greater the proportion of female members in the top management team is, the better the enterprise ESG performance will be. At the same time, in the context of China's humanistic society, older members tend to have more prestige and can hold more voice in the team, thereby weakening the strength of the faultlines caused by age and gender and reducing the negative effect of the relationship-type faultlines on enterprise ESG performance. In Model (2), the regression coefficient of the task-type top management team faultlines is −0.036, which is negatively correlated with enterprise ESG performance and is significant at the 5% level, which verifies the H2. When the internal members of the team have cognitive differences due to their educational background and other characteristics, resulting in the formation of faultlines, the internal members of the sub team have a higher degree of identification with the subgroup than the external sub teams. This condition makes enterprise's decisions on ESG performance less effective.

3.3.2. Test of regulatory effect of management incentive

The sample data are substituted into Models (3) and (4) for regression, and the regression results are shown in Table 6. In the models, the adjustment effect of salary incentive is tested by the intersection term of management salary incentive and top management team faultlines. The results show that the regression coefficient of the interaction term of salary incentive and relationship-type top management team faultlines is −0.095, which is significantly negative at the 10% level, and the coefficient of relationship-type top management team faultlines is 0.049, which is significantly positive at the 5% level. This result shows that the management compensation incentive will significantly weaken the positive effect of the relationship-type top management team faultlines on enterprise ESG performance. Therefore, H3a is assumed to be true.

Table 6. Regression results of the relationship among top management team faultlines, management compensation incentive, and enterprise ESG performance (sources: collected by myself)

Variables	(1)	(2)
TRF		−0.036** (−2.20)
*PAY*TRF*		0.010 (0.10)
BDF	0.049** (2.07)	
*PAY*BDF*	−0.095* (−0.90)	
PAY	−0.007 (−0.36)	−0.003 (−0.16)
SIZE	0.004** (2.27)	0.003* (1.72)
TSIZE	0.001 (1.44)	0.001 (0.72)
AGE	0.001*** (2.71)	0.001*** (2.84)
OC	0.000 (0.96)	0.000 (1.38)
Constant	0.637*** (14.47)	0.658*** (14.87)
Observations	347	347
adj_R2	0.0460	0.0483
F	3.260	3.676

Note: Robust t-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The regression coefficient of the interaction item between salary incentive and task-type top management team faultlines is 0.010, and the coefficient of the task-type top management team faultlines is −0.036. The two coefficients are opposite, but the regression coefficient of the interaction item is insignificant, indicating that the management salary incentive cannot significantly strengthen the negative effect of the task-type faultlines on enterprise ESG performance. Therefore, H3b is not true. Salary incentive will cause the top management team to pay more attention to the short-term benefits of the enterprise to obtain higher salary rewards, thereby ignoring and reducing enterprise ESG performance. The empirical results also show that the team decision-making conflicts and differences caused by the task-type top management team faultlines cannot be resolved by salary incentive.

The sample data are substituted into Models (5) and (6) for regression, and the regression results are shown in Table 7. The models also use the intersection term of management equity incentive and top management team faultlines to test the adjustment effect of equity incentive. The results show that the regression coefficient of the interaction term of equity incentive and relationship-type top management team faultlines is 0.088, which is significantly positive at the 5% level, and the coefficient of the relationship-type top management team faultlines is 0.043, which is significantly positive at the 10% level. The result shows that

equity incentive, a regulatory variable, can significantly strengthen the positive effect of relationship-type top management team faultlines on enterprise ESG performance. Therefore, H4a is assumed to be true.

The regression coefficient of the interaction between equity incentive and task-type top management team faultlines is 0.044, which is significantly positive at the 10% level. Contrary to the coefficient of task-type top management team faultlines, management equity incentive will weaken the negative effect of task-type top management team faultlines on enterprise ESG performance. Therefore, H4b is established. In addition, the empirical results show that the larger the proportion of senior managers is, the greater the strength of the top management team faultlines and the better the enterprise ESG performance will be. When senior managers hold the equity of the company, the objectives of the enterprise and senior managers tend to be the same, thereby weakening the conflicts among members and improving the decision-making efficiency and enterprise ESG performance.

Table 7. Regression results of the relationship among top management team faultlines, management equity incentive, and enterprise ESG performance (sources: collected by myself)

Variables	(1)	(2)
TRF		–0.037** (–2.33)
*STOCK*TRF*		0.044* (2.32)
BDF	0.043* (1.91)	
*STOCK*BDF*	0.088** (2.28)	
STOCK	0.006 (1.44)	0.011*** (2.75)
SIZE	0.003* (1.71)	0.002 (1.16)
TSIZE	0.001 (0.78)	–0.000 (–0.22)
AGE	0.001** (2.14)	0.001** (2.12)
OC	0.000 (1.45)	0.000** (2.53)
Constant	0.669*** (15.29)	0.686*** (16.15)
Observations	347	347
adj_R2	0.0752	0.0766
F	5.855	5.782

Note: Robust t-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

3.4. Robustness test

3.4.1. Alternative variable method

With the continuous deepening of the heterogeneity of management characteristics and the research results of top management team faultlines, the influence of increasing personal characteristics of management members on the development of enterprises has been confirmed, such as professional background, part-time work, and psychological and emotional employment. To a certain extent, the more comprehensive the characteristics included in the measurement of top management team faultlines is, the more accurate the results of the faultlines will be, because the superimposed influence of the characteristics of members can be considered more comprehensively. To test the stability of the results, the part-time situation of the top management team is added to the measurement of the task-type faultlines, and the regression results are shown in Table 8. The results show that the regression coefficient

Table 8. regression results after adding the employment status to the faultlines measurement of the top management team (sources: collected by myself)

Variables	(1)	(2)	(3)	(4)	(5)	(6)
TRF		−0.046** (−2.10)		−0.056** (−2.83)		−0.037* (−2.31)
BDF	0.036** (2.22)		0.049** (2.07)		0.043* (1.91)	
*STOCK*BDF*					0.088** (2.28)	
*PAY*TRF*				0.011 (0.10)		
PAY			−0.007 (−0.36)	−0.033 (−0.21)		
*PAY*BDF*			−0.095 (−0.90)			
*STOCK*TRF*						0.038* (2.42)
STOCK					0.006 (1.44)	0.011** (2.75)
SIZE	0.003* (1.89)	0.004* (2.53)	0.004** (2.27)	0.002* (1.69)	0.003* (1.71)	0.002 (1.15)
TSIZE	0.001 (0.72)	0.001 (1.36)	0.001 (1.44)	0.001 (0.52)	0.001 (0.78)	−0.000 (−0.22)
AGE	0.001*** (2.88)	0.001** (2.64)	0.001*** (2.71)	0.001*** (1.84)	0.001** (2.14)	0.001** (2.52)
OC	0.000 (1.45)	0.000 (0.95)	0.000 (0.96)	0.000 (1.38)	0.000 (1.45)	0.000** (3.35)
Constant	0.681*** (15.19)	0.587** (12.58)	0.637*** (14.47)	0.558* (15.87)	0.669*** (15.29)	0.654*** (17.15)
Observations	347	347	347	347	347	347
adj_R2	0.0538	0.0512	0.0460	0.0363	0.0752	0.0676
F	4.994	4.234	3.260	3.894	5.855	5.420

Note: Robust t-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

of the task-type faultlines is significantly negative whether the characteristic variable of part-time us added or not, which indicates that the negative effect of task-type top management team faultlines on enterprise ESG performance has not changed. After Models (4) and (6), the part-time characteristic variable is added, and the interaction coefficient of the task-type faultlines with salary and equity incentives is significant and does not change with the positive and negative directions, which to a certain extent verifies the robustness of the results.

3.4.2. Tool variable method

The previous research results show that different types of top management team faultlines will have a significant effect on enterprise ESG performance. However, in the case of poor economic benefits and poor management, the reduction of enterprise ESG performance may deepen the strength of top management team faultlines. Therefore, the instrumental variable method is used to verify whether there exists a reverse causal relationship between the two. In this paper, the two-stage least squares method is used. First, different types of top management team faultlines lagging the first stage are selected as the tool variables, and the rationality of the tool variables is verified. Through the test, the Cragg–Donald Wald F value of the task-type faultlines is 123.87, and that of the relationship-type faultlines is 164.104. Both pass the weak tool variable test. The regression results of the first stage are shown in Table 9. The different types of top management team faultlines lagging the first stage are all significant at the 1% level. In the second stage of regression, as shown in Table 10, the regression coefficient of the relationship-type top management team faultlines is significantly positive at the 10% level, and that of the task-type faultlines is significantly negative at the 10% level, which is consistent with the research results. These results indicate no significant reverse causal relationship between the top management team faultlines and enterprise ESG performance.

Table 9. phase I regression results (sources: collected by myself)

Variables	(1) *BDF*	(2) *TRF*
FTRF		0.505*** (11.13)
FBDF	0.571*** (12.81)	
SIZE	–0.003 (–0.88)	–0.009 (–1.48)
TSIZE	–0.002 (–1.45)	–0.010*** (–4.03)
AGE	0.001 (1.27)	–0.002 (–1.16)
OC	0.000 (0.10)	0.001** (2.19)
Constant	0.457*** (4.53)	0.588*** (4.25)
Observations	311	311
adj_R2	0.343	0.359
F	37.08	39.58

Note: Robust t-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 10. phase II regression results (sources: collected by myself)

Variables	(1) *ESGP*	(2) *ESGP*
TRFHAT	−0.048* (−1.71)	
BDFHAT		1.000* (1.71)
SIZE	0.003* (1.78)	−0.000 (−0.00)
TSIZE	0.000 (0.53)	−0.000 (−0.00)
AGE	0.001*** (2.99)	−0.000 (−0.00)
OC	0.000 (1.61)	−0.000 (−0.00)
Constant	0.691*** (13.63)	−0.000 (−0.00)
Observations	311	311
adj_R2	0.0461	0.0461
F	4.338	4.338

Note: Robust t-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4. Discussion

Based on the test and analysis of the above research hypotheses, except for H3b, the other hypotheses are supported by the empirical analysis results. That is, the top management team faultlines significantly affects the ESG performance of listed enterprises, which is consistent with the conclusion that the top management team will influence the quality of information disclosure of enterprises put forward by García-Sánchez et al. (2020) and Zahra et al. (2022). This finding also illustrates the significant effect of enterprise ESG information disclosure on enterprise performance from the side, which is consistent with the views of Amel and Serafeim (2018), Zhang et al. (2020), and He et al. (2022). At the same time, it also verifies the view that the existence of top management team faultlines will reduce the decision-making performance of the management team, as proposed by Georgakakis et al. (2017) and Li and Jones (2019). The different types of top management team faultlines have different effects on the ESG performance of listed companies, which verifies the research conclusions of Richard et al. (2019) and Ji and Li (2019). In addition, the measures of top management incentive can effectively regulate the effect of top management team faultlines on enterprise ESG performance, further illustrating the importance of a good corporate governance structure.

Firstly, according to the empirical research results (Table 5), a positive correlation exists between relationship-type top management team faultlines and enterprise ESG performance, that is, the larger the relationship-type top management team faultlines is, the better the enterprise ESG performance will be, thereby confirming H1. The relationship-type faultlines is formed among team members due to age, gender, and other characteristics. The results of

this study confirm the conclusion that the age of top management team is positively related to CSR performance proposed by Zhu and Chen (2020) and Suárez-Rico et al. (2018). At the same time, due to the large age gap and the increase in the number of female managers, the top management team pays more attention to the sustainable development and long-term benefits of enterprises, which is conducive to the ESG-related decisions of listed enterprises, which is consistent with the empirical results of Zhu and Deng (2017) and Ruobing et al. (2021). In addition, the research conclusion confirms the view of Richard et al. (2019) that the relationship-type top management team faultlines has a negative effect on strategic change, that is, the larger the relationship faultlines is, the smaller the strategic change of the enterprise will be. The task-type faultlines is negatively correlated with enterprise ESG performance, that is, the task-type top management team faultlines will reduce enterprise ESG performance. The different terms of office and educational backgrounds of top management team members lead to different opinions and ideas. Although differences can broaden the decision-making process of the entire top management team, they will encounter communication barriers and the trust among them will be reduced, resulting in low decision-making efficiency. Thus, H2 is verified. This conclusion verifies the cognitive decision-making theory proposed by Brown et al. (2017). It is also consistent with the conclusion of Li and Jones (2019) and verifies the view of Li (2016) that the higher the educational background and the longer the term of office of the top management team members is, the more effective CSR performance will be.

Secondly, according to the empirical research results (Table 6), the management compensation incentive will weaken the positive effect of the relationship-type top management team faultlines on enterprise ESG performance and has a negative regulatory effect. This finding verifies the view that the incentive mechanism affects the management decision of the management team, as proposed by Liu et al. (2017), thereby verifying H3a. As a short-term incentive, salary incentive makes team members pay more attention to the immediate economic benefits, which will aggravate the internal contradictions of the management and deepen the decision-making differences caused by the age and gender heterogeneity of the top management team. This research conclusion is similar to that of Karim et al. (2018), but it is not completely consistent with that of Hong et al. (2016), Cavaco et al. (2020), and Blanes et al. (2021). The possible reason is that the focus of the research is different. This paper mainly discusses the regulatory role of management compensation incentive, rather than the direct effect on enterprise performance. The regulatory effect of management compensation incentive on the relationship between task-type faultlines and enterprise ESG performance is insignificant, thereby verifying H3b. This finding is similar to the conclusion of Zhu et al. (2014), that the management salary incentive does not play a role in regulating the heterogeneity of the management. Thus, the salary incentive, as a short-term incentive mechanism of the enterprise, has certain limitations, but it does not exclude the influence of the heterogeneity of the enterprise. There exist significant differences in the selection mechanism, experience requirements, social status, and decision making of senior managers in enterprises with different property rights. As a result, the emphasis on enterprise operation and management is different.

Thirdly, according to the empirical research results (Table 7), the management equity incentive can effectively regulate the influence of top management team faultlines on enterprise ESG performance and has a positive regulatory effect. Management equity incentive will strengthen the positive effect of relationship-type faultlines on enterprise ESG performance and weaken the negative effect of task-type faultlines on enterprise ESG performance. Thus, H4a and H4b are verified, which are consistent with the view that good corporate governance will weaken the negative effect of the background characteristics of managers on enterprise performance and value proposed by Liu and Zhang (2017) and Li and Wang (2019). The finding also verifies the conclusion that equity incentive can improve CSR performance, as proposed by Jouber (2019). As a typical long-term incentive mechanism, equity incentive makes top management team members pay more attention to the long-term development and interests of the company, helps retain talents, and is also the first choice of listed companies. The empirical results also fully verify the significant regulatory effect of the equity incentive on the ESG performance of listed enterprises and highlight the applicability of the equity incentive system.

This study takes the enterprise ESG as a whole and examines the impact of executive background and team faultlines on corporate social responsibility, environmental protection, and corporate internal governance decisions, emphasizing the importance of executives as corporate decision-makers, and further enriching relevant research on the impact of executive team diversity on organizational performance. At the same time, from the perspective of executive motivation, the study systematically and comprehensively analyzes the mechanism of executive team fracture zones, expanding a new perspective on the boundary conditions of the effect of executive team fracture zones on organizational performance.

Conclusions

Based on the information disclosure data of 347 listed companies in China's Shanghai and Shenzhen 300 Index from 2016 to 2019, this paper discusses the relationship between the top management team faultlines and the ESG performance of listed companies. It also discusses the regulatory effect of top management incentive on the relationship between the top management team faultlines and the ESG performance of listed companies from the perspective of corporate governance. The following conclusions are drawn.

(1) There exists a significant correlation between the top management team faultlines and the ESG performance of listed enterprises. Obvious differences exist in the effects of different types of top management team faultlines on the ESG performance of listed companies. Particularly, the relationship-type top management team faultlines is positively related to ESG performance, whereas the task-type top management team faultlines is negatively related to ESG performance. That is, the differences in characteristics such as age and gender of the management personnel of listed enterprises will improve the ESG performance of listed enterprises. Conversely, the differences in characteristics such as education and tenure of the management personnel will reduce the ESG performance of listed enterprises.

(2) As a corporate governance system, management incentive plays a regulatory role in the relationship between the top management team faultlines and the ESG performance

of listed enterprises. Particularly, salary incentive will weaken the positive role of relationship-type top management team faultlines on the ESG performance of listed enterprises. The regulatory effect on the relationship between task-type top management team faultlines and the ESG performance of listed enterprises is insignificant. Equity incentive will strengthen the positive effect of the relationship-type faultlines on the ESG performance of listed enterprises and weaken the negative effect of the task-type top management team faultlines on the ESG performance of listed enterprises. As market investors pay increasing attention to enterprise ESG performance, the top management team plays an important role as the decision-making brain of enterprises. A good governance structure and reasonable team configuration are crucial.

This study takes the enterprise ESG as a whole and discusses its performance influencing factors. And introduce social classification theory into corporate governance research has realized cross-research in different research fields, enriched the upper echelon theory. Finally points out the importance of the construction of enterprise senior management team, which can provide strong evidence and scientific basis for the government to guide and promote corporate governance reform.

Managerial implications

As the strategic decision-maker of an enterprise, the impact of its different characteristics and backgrounds on corporate performance has also been an important part of corporate governance research. The senior management team is one of the main bodies of corporate governance, and its internal will also have a further impact on the decision-making effectiveness of the team due to the differences in cognition, education, values and age and gender. The in-depth study of the impact of different types of top management team faultlines on enterprise ESG performance is particularly important for how to optimize senior management team selection and subsequent governance, and improve enterprise value. The managerial implications of the above conclusions are as follows.

(1) Under the background of talent power and high-quality development strategy, enterprises should realize the importance of establishing competitive advantages in human resources, actively study the concept of team faultlines, and try to avoid the phenomenon of excessive accumulation of senior managers' characteristics when selecting and hiring senior executives, enrich the universality of the features of the senior management team, and avoid serious senior management team faultlines.

(2) Fully consider the characteristics of team members and reasonably configure the top management team. According to the research results of this paper, the stronger the relationship-type faultlines is, the better the enterprise ESG performance will be. Therefore, in the process of top management age and gender allocation, enterprises should consciously increase the proportion of female managers, give play to the advantages of female managers' carefulness and strong sense of responsibility, and pay attention to the age ratio. Different age groups have different perspectives on enterprise development, which can easily promote the formation of scientific decisions. However, from the perspective of task-type faultlines, an extremely large gap in education and tenure will affect the improvement of enterprise ESG performance.

(3) Reasonably implement incentive measures for senior managers. Establish and improve the executive supervision and incentive mechanism, Clarify the responsibilities of each senior manager, prevent the split behavior among senior managers, and form the assessment management model of "combining the rewards and punishment". Therefore, when formulating the management incentive system, it can also focus on the long-term strategic development of the enterprise.

Research limitations and future directions

This paper expands the research on the influencing factors of enterprise ESG performance. The research conclusion has important theoretical and practical significance for listed enterprises to reasonably allocate top management teams and improve ESG performance. However, this study still has some limitations. For example, ESG performance is a new concept, and its sample size is not large. There exist few descriptions of the characteristics of a management team, and the measurement of variables is not comprehensive enough. On the other hand, this study was conducted in China, compared to the relatively complete ESG evaluation system in developed countries, China's ESG research and practice started relatively late, and there is a lack of unified standards for ESG evaluation. Therefore, data acquisition does not fully reflect the true situation. The next research directions are (1) the measurement of top management team faultlines. In this paper, the widely used Fau algorithm is adopted. At present, some scholars consider the strength and distance of the faultlines when calculating it. The calculation results are more accurate and comprehensive, which is the development direction of the faultlines measurement method in the future. (2) At present, there exists no unified standard for ESG index evaluation, and establishing a standard and authoritative ESG evaluation method is the direction of future efforts. (3) Explore research on differences in ESG performance between developed and other developing countries to improve the universality of research.

Conflict of interest

The authors declare that they have no conflicts of interest.

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