

ESG Disclosure and Internal Pay Gap: Empirical evidence from China

Abstract

This study aims to examine how ESG disclosure can modify the internal pay gap between executives and employees, especially green, high-tech, and SOE enterprises in China. We employed Bloomberg's ESG disclosure score from 2015 to 2019 to identify the U-shape relationship between ESG disclosure and the internal Pay gap (IPG), adopting the differentiation grouping method of green enterprises, high-tech enterprises, and State-owned enterprises (SOEs) to explore the impact of enterprise heterogeneity, providing more policy enlightenment on ESG performance. Our findings indicate a significant U-shaped relationship between ESG disclosure and the internal pay gap, and endogenous characteristics of green and high-tech enterprises have a positive moderating effect within this U-shaped relationship. These findings are statistically significant and consistent with transmissions with endogenous characteristics of the enterprises. Notably, the connectedness shows dynamic patterns by 2SLS and GMM regression, highlighting the risk of ESG disclosure being the shock transmitters to enterprise internal control. Our study is prone to benefit lawmakers, regulators, and firm executives responsible for analyzing and assessing the pay gap.

Keywords: ESG disclosure; Internal pay gap; State-owned enterprises; Green enterprises; High-tech enterprises, China

JEL classification: G18, G30, O30, O32

1. Introduction

As the global environment deteriorates and environmental, social, and governance (ESG) issues have shown strong domestic and international attention, addressing ESG challenges has become a key part of business strategy. Academic literature has been driven to examine the influence of enterprises' actions on ESG levels by the notion of a new business paradigm capable of incorporating the three-dimensional idea of sustainability (Elkington, 1994–2020). The idea of behaving responsibly has evolved in various ways over the years. Mainstream institutions have been paying more attention to ESG issues and sustainability since the turn of the millennium. In this regard, corporate sustainability is a strategic approach that aims to create stakeholder value as a critical internal control strategy by enhancing opportunities and managing the risks due to social and environmental issues. ESG information is inherent in implementing a corporate social responsibility (CSR) strategy, and the level of quality of sustainability reports prepared by companies may increase their credibility, which in turn affects stakeholder perceptions, thereby enhancing corporate reputation. However, ESG disclosure is voluntary but not arbitrary; the opinion contributes to ongoing disclosure, where debate on corporate governance mechanisms leads to more ESG disclosures and highlights the need for a new approach to these issues (Lagasio and Cucari, 2019). In this regard, ESG performance has received more attention in recent years as issues of climate change, labor conditions, and corporate responsibility have grown, and the construction of the financial ESG system is of great significance (Chen L. et al., 2023; Khurram et al., 2023).

Therefore, the stakeholders, i.e., investors, governments, regulatory agencies¹, and shareholders, have indicated a growing interest in ESG concerns (Escrig-Olmedo et al., 2013). Particularly with the emergence of the COVID-19 outbreak, worldwide investors' understanding and recognition of ESG and sustainable investing has increased, and global ESG investment has grown rapidly (Brzezarczyński et al., 2022; Chen L. et al., 2023; Lööf et al., 2022; Khan, 2022; Saini et al., 2022). The sustainable investment assets were over US\$30.7 trillion in 2018, a 34% increase from 2016 in developed countries or regions (GSA, 2018), reached US\$40 trillion (Baker, 2020) while reaching US\$1.87 trillion in China by 2019 (China SIF, 2019), as a 2.16% of the total global AUM market (Chen S. et al., 2022). Similarly, the global ESG investment continued to grow rapidly as Bloomberg Intelligence (2021) predicts that by 2025, total worldwide ESG assets would amount to US\$53 trillion, or more than 30% of the US\$140.5 trillion in total assets under management (AMU). Over the next two decades, according to Bank of America, US\$200 trillion will flow into ESG funds (Stevens, 2019). Accordingly, the various stock exchanges have taken measures to improve the level of ESG disclosure (Bizoumi et al., 2019)². Since 2016, recognized rating agencies (i.e., Moody's, S&P Global, and Scope) have focused their efforts on developing metrics that might represent a company's level of environmental and social responsibility (Tomo and Landi, 2017).³ For instance, ESG-related concerns were deemed crucial to the performance of businesses by over 93% of 1000 CEOs globally surveyed by the UN Global Compact in 2013 (UNs, 2019).⁴ Nowadays, more enterprises have realized that ESG is a key driver for competitive advantage (Aouadi and Marsat, 2018), lower cost of capital (Chen and Yang, 2020), reputation establishment (Buallay, 2019), enhanced corporate financial performance (Chen and Xie, 2022; Bolognesi and Burchi, 2023; Khan, 2022), increased transparency (Lin and Dong, 2018), generate positive market reactions (Gillan et al., 2021), improved operational efficiency (Filbeck et al., 2019), higher portfolio's risk-adjusted return (Jin, 2022; Broadstock et al., 2021; Pedersen et al., 2021; Neitzert and Petras 2022), and reducing firms' default risk (Wen et al., 2022; Li et al., 2022; Neitzert and Petras, 2022).

Based on the above background, the Chinese government and regulatory authorities place a high value on ESG problems and are constantly improving relevant legislation. The "Science and Technology Innovation Board Stock Listing Rules" of the Shanghai Stock Exchange, which was established in 2019, stipulated explicitly that ESG-related information disclosure was required. The HK Stock Exchange amended "How to Prepare ESG Reports" in 2020, and "The Green Finance Regulations of Shenzhen Special Economic Zones" compel firms to publish environmental data. In 2018, the "green investment guidelines" issued by the Asset Management Association of China (AMAC) further accelerated the development of ESG investment in public

¹ ESG policy rules and guidelines are highly valued by government departments and regulatory authorities worldwide. The European Union has established a "comply or explain" requirement for the mandatory ESG disclosure. However, "ESG Reporting Guide 1.0" and "ESG Reporting Guide 2.0" were released by the US Nasdaq Stock Exchange in 2017 and 2019, respectively, with the intention of offering guidelines on the disclosure of ESG information by listed firms and encouraging SME businesses to engage in ESG activities. On the other hand, "Listed Company Governance Guidelines" have been updated by the China Securities Regulatory Commission to explicitly and directly require listed firms to "disclose environmental information and social responsibility performance, i.e., participation in poverty alleviation," as well as "corporate governance related information."

² The World Federation of Exchanges (WFE) conducted a survey of global stock exchanges in 2020, and it found that 57% of them have published official ESG reporting guidance for listed firms. According to Hartzmark & Sussman (2019), financial markets demonstrate how investors as a whole positively consider ESG ratings when making capital allocation choices.

³ Rating agencies often employ their own research methodology, which are mostly based on companies reports, third-party research and publicly available data (Jackson et al., 2020).

⁴ ESG risk is a substantial credit factor for 33% of private sector issuers, according to Moody's 2019 report.

and private funds. The subsequent "fund industry development report 2020" showed that 73.94% of private fund managers had paid attention to ESG indicators. According to the Wind database, 102 ESG-based public funds were in China before December 2020, with an average yield of 45.18%. Further, after "carbon neutralization and carbon peak" target was written into the "14th five-year plan" and the "government work report" of China, this double carbon target has become a key driver of China's ESG system and green finance. For instance, the State-owned assets supervision and Administration Commission (SASAC) recently proposed the mandatory requirements of full ESG disclosure for all listed companies of state-owned enterprises (SOEs) by 2023. All of these exhibits how important it is for policies to be transparent about ESG information. China, a typical example of an emerging market, is steadily moving toward ESG issues as it shifts to high-quality growth. Therefore, research on this critical topic, which determines how corporate ESG actions are performed, has substantial theoretical and practical implications for improving China's economy's high-quality growth.

The pay gaps⁵ between executives and employees have gained significant attention from governments, investors, the general public, and social media. In this regard, the governments in both developed (i.e., the United States) and emerging countries (i.e., China) have recognized the value of fairness (Chao et al., 2016) and started to limit significant pay inequalities by imposing executive salary ceilings (Kuo et al., 2014). According to US Economic Policy Institute (EPI) report 2017, executive compensation has increased by 937%, while typical workers' annual salary increased by only 11.2% from 1978 to 2016.⁶ As part of the "Dodd-Frank Wall Street Reform and Consumer Protection Act" (enacted on July 21, 2010), the US Securities and Exchange Commission (SEC) adopted a rule on August 5, 2015, requiring publicly listed companies to disclose the pay gap between executives and regular employees. Similarly, with the continued expansion of the Chinese economy, executive's remuneration in Chinese enterprises is fast expanding, and corporate pay inequalities are broadening, i.e., the National Bureau of Statistics found the case while measuring the average annual income of urban workers in 2007, Ma Mingzhe (the chairman of Ping An Insurance Co.) earned around US\$ 9.3 million (about 66 million RMB), which is almost 2647 times the typical worker's wage.⁷ In this regard, the Chinese government and regulatory authorities have continued to develop rules to regulate the relative remuneration of SOE executives and employees; for instance, in 2002 (i.e., the executive remuneration cannot be more than 12 times the typical employee wage), in April 2009 (i.e., cannot be more than 5 times the average employee pay). Similarly, a wage reform plan for central enterprise principals was established in January 2015, limiting the ratio of executive pay to worker pay that has been reduced to approximately (8 times). According to Kong G. et al. (2020), rather than a fall in executive compensation, a rise in employee pay contributes most to narrowing the pay gap. As economic growth is the country's first and most crucial goal, intra-firm pay discrepancy has received significant attention from the Chinese

⁵ The pay gap measures how much chief executives are paid in relation to the average employee salary, it grows as competent and motivated executives are paid higher salaries and shrinks when employees are given higher salaries performance, however, is based on how productive executives and employees are in relation to their compensation.

⁶ According to a Bloomberg report (2017), the significant wage discrepancy is pervasive over the world, based on benchmark equities indices in 25 countries. Further, recently Bloomberg (2021) reports indicate executives' pay in the US grew by 1,322% while the typical worker pay grew by just 18.0% from 1978 to 2020. Similarly, according to a 2016 Stanford University study, 74% of Americans believe that CEO pay is excessive compared to that of their employees. Executive salaries climbed from 30 times that of regular employees between 1970 and 1990, according to Hall and Murph (2003), who used S&P500 corporations as their sample.

⁷ In China, the percentage of firms with pay gaps under five times is decreasing, but the percentage of firms with pay gaps above eight times rose from 10% to 24.53% (Zhang, 2008) and the pay gap difference between SOEs executives-employees reached 290,000 yuan in 2007—almost twice as much as it was in 2004 (Chen, Ma and Bu, 2014).

government, and local officials have made a strong case for ensuring social harmony and improving life (especially for low-income workers) one of their top priorities. Fairness is highly prized in China due to the socialist culture, and this standard can help lessen income disparities between firm executives and employees (Yao et al., 2023). Overall, widening firm pay gaps appears to be a global phenomenon.

This study contributes to the literature by offering the first piece of evidence about the U-shaped relationship between ESG disclosure and the internal pay gap. i.e., several other studies document a non-linear (U-shaped or inverted U-shaped) relationship between ESG disclosure and financial performance or firm value (Chen and Xie 2022; Wu and Chang 2022; Pu, 2022); ESG performance and growth options value, board gender diversity, portfolio excess returns, energy-adjusted firm efficiency (Gabriel et al., 2022; Zhang X. et al., 2022; Ren et al., 2022); ESG investment and extreme spillovers (Chen and Lin 2022); ESG and corporate financial performance (Xie et al., 2019); while few scholars revealed that internal pay gaps have a roughly U-shaped relationship with enterprise performance or productivity (Dai et al., 2017; Kuo et al., 2014; Luo et al., 2020), firm innovation (Xu et al., 2017) and internal control quality (Han et al., 2022). No prior study has examined how the ESG disclosure can modify the internal pay gap between executives and employees, especially green, high-tech, and SOE enterprises in China. So, according to our best knowledge, this study is the first to analyze the U-shape relationship between ESG disclosure and the internal pay gap in China. We employed Bloomberg's ESG disclosure score covering the period 2015–2019 to identify the U-shape relationship between ESG disclosure and internal Pay gap (IPG), adopting the differentiation grouping method of State-owned enterprises (SOE), Green enterprises, and High-tech enterprises to explore the impact of enterprise heterogeneity, providing more policy enlightenment on ESG performance. Our findings indicate a significant U-shaped relationship between ESG disclosure and the internal salary gap. Further, the endogenous features of the green and high-tech enterprises have a positive moderating effect within this U-shaped relationship. These findings are statistically significant and consistent with transmissions with endogenous characteristics of the enterprises. Particularly, the connectedness shows dynamic patterns by GMM and 2SLS regression, prominence the risk of ESG disclosure being the shock transmitters to enterprise internal control.

The remainder of this study is structured as follows: Section 2 explains the literature review and development of the relevant hypothesis, while Section 3 explains the methodology part, which includes sample selection and data sources, the definition of the main and control variables, model construction, and hypothesis testing. Section 4 demonstrates the empirical findings based on several regression analyses and robustness tests. Section 5 concludes the study with a summary of our findings and policy enlightenment with prospects.

2. Literature review and hypothesis development

According to the Resource Dependence Theory, influential stakeholders will be those with the ownership or control of resources crucial to the organization's success. If enterprises believe those influential stakeholders attach importance to the traits indicated by ESG ratings, they seem to be more inclined to "comply and implement" (Chen and Xie 2022). Further, strengthening investment in ESG performance can increase enterprise value (Peng and Isa, 2020), and ESG scores or rating has a positive association with financial performance (Chen L. et al., 2023; Naimy et al., 2021; Ahmad et al., 2021). Meanwhile, some studies suggest that in the long run, companies with good ESG practices will have lower costs of capital, less volatility, and less corruption and fraud. Moreover, the decisions of large companies and investors have a major impact on achieving the UN Sustainable Development Goals (SDG's). The literature revealed that firms' sustainable

performance is determined by the type of organization, media coverage, institutional ownership, shareholder activism, public visibility, and corporate governance practices (Grewal et al., 2019). Investors drive superior ESG performance, and companies have a greater ability to improve ESG performance and vitality. ESG disclosure is widely recognized as a crucial indicator of a company's sustainability, although the standard for these disclosures has not yet been reached. Rating agencies are getting more informed as the financial ramifications of ESG-related risks become more evident. The significance of ESG indicators has already been proved by instances such as share price declines and bankruptcy spurred on by disregarding ESG risk. Various efforts are already being suggested to include ESG concerns in business decision-making, with integrating reporting becoming a critical endeavor to align the corporate sector's value-generating operations with the SDGs.

ESG disclosure, integrated reporting, and compliance offer incentives for enterprises in the form of lower financing costs and enable them to time the debt markets (Gerwanski, 2020). Therefore, China proposes to be reviewed by the National Commission for Corporate Social Responsibility and to formulate norms for the National Securities Exchange and Financial Markets Commission. Sustainability accounting standards will make these provisions applicable to all businesses that transact domestically. Finally, government departments should establish information standards and mandatory reporting requirements and establish corresponding financial information norms through accounting standards; otherwise, that information will become the lack of financial information system. Some empirical evidence reported that ESG disclosure is positively associated with financial performance, leverage, and firm size (Gaio and Henriques 2018; Chen and Xie 2022), while others report that ESG disclosure has a significant positive effect on market performance but does not have a significant connection with firm financial performance (Buallay 2019). Moreover, several other studies document a non-linear (U-shaped or inverted U-shaped) relationship between ESG disclosure and financial performance, firm value (Chen and Xie 2022; Wu and Chang 2022); ESG performance and growth options value, board gender diversity, portfolio excess returns, energy-adjusted firm efficiency (Gabriel et al., 2022; Zhang X. et al., 2022; Ren et al., 2022); CSR and firm shareholder value, firm performance, firms systematic risk (Sun et al., 2019, Lahouel et al., 2022, Farah et al., 2021); ESG and corporate financial performance (Xie et al., 2019); ESG investment and extreme spillovers (Chen and Lin 2022).

Stakeholder theory considers the firm's engagement with its stakeholders, including employees, society, suppliers, and others (Freeman, 1984). As the most important stakeholder, employees are concerned about fairness and the pay gap (Carpenter and Sanders, 2004). Employees might feel exploited if they believe a substantial salary disparity exists between firm executives and employees (Cai et al., 2011). ESG disclosures motivate stakeholders (for example, employees) to pay careful attention to and often respond to negative ESG occurrences like unfair pay and wage arrears, compensation issues, chemical leaks, and workplace deaths. These factors, i.e., the pay gap, put pressure on firms to respond to employees' interests, ultimately benefiting employees. Human capital theory suggests that corporate governance should also pay attention to employee incentive programmes in addition to the agency problems between shareholders and top executives (Rajan et al., 2007). Equity theory (Adams, 1965) states that a wider executive employee pay gap increases employee feelings of unfairness and has a detrimental effect on employees' willingness to work. After the reform and opening up in China, the executive-employee pay gap increased as the market-oriented reform of enterprises progressed (Yao et al., 2023). The large compensation pay gap contradicts the distribution principle of economic equality and is averse to company performance (Luo et al., 2020), decreases market returns and firm value (Pan et al., 2022), reduces environmental and social performance (Mahmoudian and Jermias, 2022), reduces incentives and increase the executives' agency costs (Dai et al., 2017). Therefore, adjusting

executives' salaries and narrowing the executive-employee pay gap has emerged as a critical component of Chinese SOE compensation reform (Huang et al., 2022).

Employee incentives are crucial for the efficacy of internal control since employees are the system's primary executors (Guo et al. 2016). According to Zhang J. et al. (2020) and Kong, Huang and Ma (2023), companies that treat their employees fairly have a decreased risk of committing fraud. Some recent studies also revealed several factors that can reduce the internal pay gap, such as trust (Yan et al. 2022), board affiliation (Chen, Ma and Bu, 2014), political promotion incentives (Kong G. et al. 2020), anti-corruption campaign (Kong, Huang and Ma, 2023) and CSR disclosure requirements (Huang et al. 2022; Kong, Huang and Ma, 2023). Using a sample of publicly traded high-tech companies, Siegel and Hambrick (2005) found that big compensation gaps negatively impact business performance by impeding the senior management team's ability to exchange ideas and collaborate. However, Kong X. et al. (2022) and Xu et al. (2017) show that the executive-employee pay gap significantly increases firm innovation and reduces financial restatements (Zhang H. et al., 2018; Chai et al., 2022). On the other hand, several studies revealed that pay gaps between firm's executives and employees have a U-shaped relationship with enterprise performance or productivity (Dai et al., 2017; Kuo et al., 2014; Luo et al., 2020), firm innovation (Xu et al., 2017) and internal control quality (Han et al., 2022). However, the most recent research supports investigating the moderating factors that affect this association differently across firms (Magrizos et al., 2021). According to Xu et al. (2017), state ownership and employee, human capital has significant moderating effects on the relationship between the wage gap and enterprise innovation. Additionally, few researchers have examined the effects of the internal pay gap according to the different types of firms (Dai et al., 2017; Siegel and Hambrick, 2005; Xu et al., 2017; Rouen, 2020). Based on the above discussion, we propose the following hypothesis:

H1: There is a significant U-shaped relationship between ESG disclosure and the internal salary gap.

H2: The endogenous characteristic of state-owned enterprise has a positive moderating effect on the U-shaped relationship between ESG disclosure and the internal pay gap.

H3: The endogenous characteristics of green enterprise have a positive moderating effect on the U-shaped relationship between ESG disclosure and the internal pay gap.

H4: The endogenous characteristics of high-tech technology have a positive moderating effect on the U-shaped relationship between ESG disclosure and the internal pay gap.

3. Methodology

3.1. Sample and data

This paper constructs a panel data set based on a total of 3251 enterprises year samples of A-share listed companies in Shanghai and Shenzhen from 2015 to 2019. The data relating to finance and corporate governance are from CSMAR and wind databases, while the disclosure score of ESG is from the Bloomberg database. In order to ensure the reliability of the research samples, we conducted the following data processing: (1) excluding financial and real estate enterprises; (2) excluding ST, ST*, Pt, and IPO samples during the study period; (3) samples with missing core index data are eliminated; all continuous variables and other variables are winsorized by 1% and 99% to reduce the impact of outlier fluctuations on the research results.

3.2. Variables

3.2.1. Explained variables

Following Yin et al. (2022) and Han et al. (2022), we divide the "total remuneration of the top three executives" by 3 as the average remuneration of executives and divides the balance of "cash paid to and for employees" in the enterprise cash flow statement minus "total annual remuneration of directors, supervisors and executives" by the number of ordinary employees as the average remuneration of ordinary employees. The salary gap within the enterprise is equal to the ratio of senior executives' average salary to ordinary employees' average salary.

3.2.2. Explanatory variables

Since its debut in a United Nations report in 2006, environmental, social, and governance (ESG) criteria have shifted from the periphery into the mainstream. ESG performance has become a proxy for a company's resilience and risk management capabilities, but it also indicates and enhances the long-term value of a business. Prominent ESG rating agencies, for example, MSCI, Sustainalytics, Moody, and among others, have developed various ESG ratings to assess the ESG performance of companies, funds, and portfolios. However, different rating agencies usually publish different ESG rating results. The disagreement between ESG ratings introduces uncertainty into any decision based on ESG ratings, thus indicating a challenge for a wide spectrum of decision-makers. It supports the integration of ESG elements into practical solutions for companies and investors, but the concept is relatively new in emerging markets and China; in other words, people must overcome the difficulties that the European economic agenda is depressing financial performance. Reliable information wanted to be obtained, but the company's reporting system was imperfect. Investors have no experience with ESG etc. The challenge for China is that asset management is still a nascent industry, and these companies will continue to learn and develop (Ba, 2022). Unlike the industrial market, asset managers only trust asset managers and don't even know what ESG is. Investors who see the importance of these factors can finally find an opportunity to evaluate a company's performance (though not comprehensively), but there is still a lot of work to do. It will help clarify important business and strategic issues, and the largest multinational corporations support this type of work. This paper employed ESG disclosure proxy indicators of ESG performance. In order to reduce the deviation of data, the score of ESG information disclosure is processed by natural logarithms.

3.2.3 Moderating variables

3.2.3.1 Nature of corporate equity

State-owned enterprises (SOE) are classified according to the nature of enterprise equity in the CSMAR database. A dummy variable is used, taking a value of 1 when the enterprise is state-owned; otherwise, it is 0. We obtained 732 sample enterprises, including 368 state-owned enterprises.

3.2.3.2 Green enterprises

In line with the industry classification of the China Statistics Bureau, 22 sub-classifications of industries were screened due to the availability of relevant data. We further compared the 18 subcategories of (Chen L. et al., 2023) after the consolidation of analogous industries. The following sub-classification of industries was obtained as the treatment group of the green industry. Finally, we obtained 732 observations from 242

Environmental enterprises (EEs) and resource enterprises (REs) after removing samples of “other industries” (For detail of sub-categories of green enterprises, see Appendix, Table A1).

3.2.3.3 High-tech enterprises

The high-tech industry is a national strategic leading industry. The development of science and technology has brought profound changes to the development of the whole society, including both the manufacturing and service industries. The classification standard of the world organization for economic cooperation and development (OECD) divides the high-tech industry into six sub-categories (aerospace, computer, medicine, science, electrical, and communication equipment manufacturing). In addition, according to China's classification of high and new technology industries (service industries) (2018), the high and new technology service industry is divided into the following nine service industries: e-commerce services, information services, inspection, and testing services, R&D services, technology transfer services, environmental governance services, professional services, intellectual property services, and other high and new technology services. Drawing on the research of Wang (2020) and Han and Gu (2021), this paper classified the following 13 industries as high-tech industries. There are 732 enterprise samples, including 246 high-tech enterprises, and the proportion of each industry (see Appendix, Table A2).

3.2.4. Control variables

Drawing on the research of Kong X. et al. (2022), Han et al. (2022), Chu and Fang (2021), Nollet et al. (2016), we introduce a series of characteristic variables that affect the salary gap of enterprises, including company size, the concentration of the first shareholder, asset-liability ratio, fixed assets, return on total assets, financing constraints, Tobin Q, the board size, number of executives (see Appendix, Table A3). Meanwhile, year and industry-fixed effects are added to reduce the difference in research results between years and industries.

3.3. Panel regression model

3.3.1. Benchmark model

Based on the previous theoretical analysis results, this study establishes the following fixed effect panel regression model.

$$\text{InterPayGap}_{it} = \alpha_0 + \alpha_1 \text{ESG}_{it} + \sum \text{Control}_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (1)$$

Among them, InterPayGap_{it} is the internal salary gap indicator of the enterprise. ESG_{it} is the score of enterprise ESG information disclosure. Control_{it} represents a series of control variables. In order to reduce the impact of industry and year on the internal salary gap, in addition to individual effects, we also include industry fixed effects μ_i and year fixed effect γ_t . To eliminate the influence of enterprise characteristics that change with years and industries; ε_{it} is the random error term of the model.

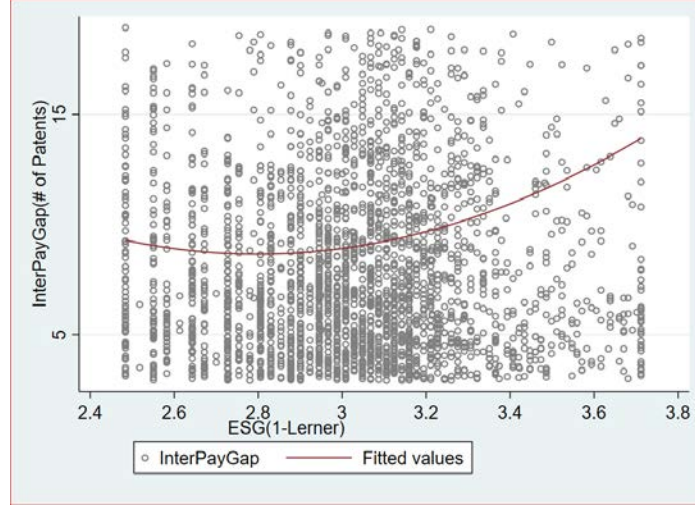


Fig 1. ESG disclosure and enterprise internal pay gap relationship chart

From the fitting curve between ESG information disclosure and enterprise salary gap in figure1, it can be seen that the above relationship may show a U-shaped relationship. Therefore, we expand the linear relationship between IPG and ESG in the model (1) and include the quadratic relationship, and then build the following model (Kong X. et al., 2022):

$$\text{InterPayGap}_{it} = \beta_0 + \beta_1 \text{ESG}_{it} + \beta_2 \text{ESG}_{it}^2 + \sum \text{Control}_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (2)$$

In order to verify the regulatory effect of enterprise characteristics on the U-shaped relationship between InterPayGap and ESG, the following econometric model is established based on the research of (Kumar et al. 2022; Kuo et al., 2014; Sun et al., 2019). Moderator in model (3) includes SOE, EERE, and TECH (Cahan et al., 2016; Chen L. et al., 2023).

$$\begin{aligned} \text{InterPayGap}_{it} = & \phi_0 + \phi_1 \text{ESG}_{it} + \phi_2 \text{ESG}_{it}^2 + \phi_3 \text{Moderator}_{it} \\ & + \phi_4 \text{ESG}_{it} \times \text{Moderator}_{it} + \phi_5 \text{ESG}_{it}^2 \times \text{Moderator}_{it} \\ & + \sum \text{Control}_{it} + \mu_i + \gamma_t + \varepsilon_{it} \end{aligned} \quad (3)$$

4. Empirical results

4.1. Descriptive statistics and correlations analysis

Table 1 reports the results of descriptive statistics. It can be seen that the average value of the internal compensation of the enterprise is 9.478, and the variance is 8.031, indicating that there is a large difference in the internal pay gap between the sample enterprises. The mean value of ESG is 3.036, and the variance is 0.272. The natural logarithm of the ESG disclosure score is processed during variable measurement, which reduces the deviation between samples. The average value of ESGSOE is 0.524, indicating that the sample of Chinese

enterprises is slightly more than non-state-owned enterprises. The average value of EERE is 0.33, and that of TECH is 0.395, indicating that green enterprises and high-tech enterprises account for a relatively low proportion in the sample. From the statistical results of the sample description, it can be seen that there are no abnormal values in the sample. The Pearson correlation coefficient between variables is reported in Table 2. The correlation coefficient between study variables is small, and there is no problem with multicollinearity (i.e., variance inflation factor, VIF test mean value is 1.37, which is less than the threshold value of 10), and further regression analysis can be carried out. The correlation between the variables SOE, EERE, TECH, and the independent variable ESG is significant at the level of 1%, indicating that the three may affect the performance of ESG, which preliminarily verifies the possibility of the hypothesis.

Table 1 Descriptive statistics

Variable	N	Mean	Median	SD	Min	Max
InterPayGap	3253	9.478	6.859	8.031	1.529	41.48
ESG	3253	3.036	3.048	0.272	2.484	3.711
SOE	3253	0.524	1.000	0.500	0.000	1.000
EERE	3253	0.330	0.000	0.470	0.000	1.000
TECH	3253	0.395	0.000	0.489	0.000	1.000
SIZE	3253	23.25	23.15	1.098	21.22	26.07
LEV	3253	0.466	0.472	0.188	0.111	0.836
FA	3253	0.212	0.173	0.160	0.008	0.644
ROA	3253	0.047	0.040	0.050	-0.087	0.187
TOBINQ	3253	2.041	1.626	1.252	0.873	6.869
FIRST	3253	35.38	33.47	15.24	9.556	70.53
BOARD	3253	2.160	2.197	0.196	1.609	2.639
EXECUTIVE	3253	6.951	7.000	2.703	3.000	17.00

Notes: The table shows the summary statistics of the variables defined in Table 3.

Table 2 Correlation matrix

	InterPayGap	ESG	SOE	EERE	TECH	SIZE	LEV	FA	ROA	TOBINQ	FIRST	BOARD	VIF
InterPayGap	1												
ESG	0.114***	1											1.35
SOE	0.058***	-0.059***	1										1.04
EERE	-0.014	0.185***	-0.128***	1									1.22
TECH	0.044**	-0.059***	-0.040**	0.031*	1								1.15
SIZE	0.150***	0.433***	-0.033*	0.029*	-0.171***	1							2.02
LEV	0.001	0.199***	-0.034*	-0.0170	-0.230***	0.514***	1						1.8
FA	-0.022	0.200***	-0.068***	0.367***	-0.147***	0.131***	0.107***	1					1.26
ROA	0.202***	-0.056***	0.063***	0.025	0.099***	-0.091***	-0.450***	-0.076***	1				1.51
TOBINQ	0.047***	-0.278***	-0.025	-0.066***	0.221***	-0.489***	-0.429***	-0.179***	0.387***	1			1.75
FIRST	-0.116***	0.112***	-0.034*	0.111***	-0.169***	0.216***	0.072***	0.162***	0.109***	-0.080***	1		1.14
BOARD	0.054***	0.163***	-0.078***	0.091***	-0.071***	0.185***	0.109***	0.159***	-0.070***	0.156***	-0.025	1	1.10

EXECUTIVE	0.152***	0.206***	0.020	-0.022	0.102***	0.201***	0.081***	-0.010	0.020	-0.026	-	0.15	1.12
											0.033*	1***	

Notes: The t-statistics values are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All the above variables defined in Table 3.

4.2 Results of the regression analysis

4.2.1 ESG and Intra-company pay gap

Table 3 reports the panel hierarchical regression results of the impact of ESG disclosure scores on intra company pay gap (InterPayGap). Columns (1) and (3) report the linear relationship between ESG and the intra-company pay gap. The coefficients of ESG in column (1) and column (2) in the regression results are statistically significant at 4.146 (7.85) and 1.114 (2.03). Further, analyze the quadratic term model relationship between ESG and InterPayGap. Column (3) shows the non-linear relationship between ESG information disclosure and the internal salary gap. We find a significant U-shaped relationship between ESG information disclosure and InterPayGap. Specifically, the coefficient of the primary ESG in column (3) is -22.290 at the significance level of 1%, and the coefficient of the secondary ESG^2 is also highly statistically significant 3.817 at 1% level, which shows that there is a U-shaped relationship between ESG information disclosure and the internal salary gap of the enterprise, supporting hypothesis 1, that is, the increase of ESG information disclosure can reduce the internal salary gap of the enterprise, and the increase of ESG information disclosure will strengthen the internal salary gap of the enterprise beyond a certain extent (consistent with Chen and Xie 2022; Wu and Chang 2022; Huang et al. 2022; Luo et al., 2020; Dai et al., 2017; Dhifaoui et al., 2022; Kuo et al., 2014; Zhang X. et al., 2022; Xie et al., 2019). Further, through the U-test of the model shown in Table 4, it is calculated that the extreme point of ESG is 2.919504, and its value range is [2.48, 3.71]; that is, the extreme point is within the value range, and the original hypothesis can be rejected at the statistical level of 5% ($p > |t| = 0.0159$). At the same time, the slope in the result has a negative sign in the decline interval, and the 99% confidence interval does not contain 0 [2.0272518; 3.1078611], so we can prove again that the U-shaped relationship between ESG and InterPayGap is true. It indicates that there is a trade-off between the tournament and social comparison theory; the former prevails in situations with a small pay discrepancy (Sun and Habib, 2020), while the latter dominates in situations with a large pay gap (Han et al., 2022).

Table 3 ESG-InterPayGap relationship in linear and quadratic models: Fixed effects

VARIABLES	(1) InterPayGap	(2) InterPayGap	(3) InterPayGap
ESG	4.146*** (7.85)	1.114** (2.03)	-22.290*** (-2.91)
ESG ²			3.817*** (3.07)
SIZE		2.012*** (11.23)	1.968*** (10.96)
FIRST		-0.075*** (-8.05)	-0.075*** (-8.10)
LEV		1.730* (1.83)	1.642* (1.74)
FA		1.742* (1.75)	1.984** (1.99)
ROA		29.665*** (9.73)	29.871*** (9.81)

TOBINQ		0.182**	0.158**
		(2.54)	(2.20)
BOARD		1.108	1.204*
		(1.60)	(1.73)
EXECUTIVE		0.322***	0.326***
		(6.64)	(6.72)
Constant	-3.107*	-57.204***	-21.704*
	(-1.93)	(-10.39)	(-1.69)
Year fix	Yes	Yes	Yes
Industry fix	Yes	Yes	Yes
Obs	3,253	3,253	3,253
Adj.R2	0.155	0.254	0.256

Notes: The *t*-statistics values are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4 Results of the U-test

	Lower bound	Upper bound
Interval	2.483531	3.711353
Slope	-3.508592	6.162157
<i>t</i> -value	-2.279154	3.634845
$P > t $	0.011362	0.0001413

Notes: Overall test of the presence of a U shape: *t*-value =2.28 ; $P > |t| = 0.0114$

4.2.2. The moderating effect of corporate characteristics

Based on the U-shaped impact of ESG information disclosure on enterprises' internal salary gap, this paper explores the heterogeneity and characteristics of different enterprise nature show differences in the relationship between ESG information disclosure and the internal salary gap. This study further grouped the samples according to the nature of different enterprises and analyzed the performance of the U-shaped relationship between ESG information disclosure and the internal salary gap. Drawing on the research of relevant scholars (Chen L. et al., 2023; Guo et al., 2021; Huang et al., 2022; Dai et al., 2017; Khalfaoui et al., 2022; Xu et al., 2017; Siegel and Hambrick, 2005; Rouen, 2020; Luo et al., 2020), this paper classifies enterprises according to their equity nature, green nature, and technical nature. Table 5 reports the regression results of the relationship between quadratic models. In columns (2), (3), and (5), the regression coefficients of ESG are significantly negative, which are -13.957, -53.402, and -51.273, respectively, and the significant coefficients of ESG^2 are positive, which are 5.518, 9.200 and 8.770, respectively. However, in columns (1), (4), and (6), the coefficients of ESG and ESG^2 are not significant; that is, in non-state-owned enterprises, green enterprises, and high-tech enterprises, ESG information disclosure has a more significant positive "U" effect on the internal salary gap, with significant group differences (consistent with Luo et al., 2020; Han et al., 2022; Zhang, D. et al., 2023; Siegel and Hambrick 2005).

Table 5 ESG-InterPayGap relationship in quadratic models: Regression in groups

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	InterPayGap	InterPayGap	InterPayGap	InterPayGap	InterPayGap	InterPayGap
	SOE=1	SOE=0	EERE=1	EERE=0	TECH=1	TECH=0
ESG	-13.957 (-1.28)	-33.173*** (-2.93)	-53.402*** (-4.08)	-0.099 (-0.01)	-51.273*** (-4.63)	11.976 -1.13
ESG ²	2.532 -1.41	5.518*** -3.03	9.200*** -4.42	-0.103 (-0.06)	8.770*** -4.85	-1.775 (-1.03)
Constant	-45.556** (-2.48)	-8.183 (-0.43)	39.626* -1.77	-61.402*** (-3.75)	6.134 -0.32	-55.274*** (-3.17)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year fix	Yes	Yes	Yes	Yes	Yes	Yes
Industry fix	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,704	1,549	1,073	2,180	1,285	1,968
Adj.R2	0.291	0.252	0.307	0.253	0.262	0.293

Notes: The *t*-statistics values are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Based on the significant between-group differences in the grouping regression, we use SOE, EERE, and TECH as moderator variables to test the moderating effect of different corporate properties on the U-shaped relationship between ESG information disclosure and intra-company pay gaps. Table 6 reports the results of the moderating effect of firm attributes. The coefficients of $ESG \times SOE$ and $ESG^2 \times SOE$ in column (1) are insignificant, indicating that the nature of corporate equity has no significant moderating effect on the U-shaped relationship between ESG information disclosure and internal compensation gaps, and Hypothesis 2 does not hold. The State-owned Assets Supervision and Administration Commission (SASAC) recently put forward a clear requirement that listed companies of central enterprises should prioritize the disclosure of ESG reports by 2023. It may lead to the fact that most companies with relatively complete ESG information disclosure are SOE enterprises, and the proportion of SOEs in the research sample is more than 50%. The moderating effect of equity nature is not significant. The coefficient of $ESG \times EERE$ in column (3) is significantly negative (-76.409), and the coefficient of $ESG^2 \times EERE$ is significantly positive (12.884), indicating that EERE has a positive adjustment to the U-shaped relationship between ESG information disclosure and internal pay gaps in enterprises, in other words, the upward and downward trends of the U-shaped curve between ESG information disclosure and the internal salary gap in green companies are steeper, supporting Hypothesis 3 (consistent with Xu et al., 2017). Similarly, the coefficient of $ESG \times TECH$ in column (5) is significantly negative (-59.218), and the coefficient of $ESG^2 \times TECH$ is significantly positive (10.072), indicating that the nature of enterprise technology has a U-shaped relationship between ESG information disclosure and internal salary gap within the enterprise (Dai et al., 2017; Zhang, D. et al., 2023; Siegel and Hambrick 2005; Xu et al., 2017). The positive

moderating effect, the upward and downward trend of the U-shaped curve between ESG information disclosure and the internal salary gap in high-tech enterprises, is steeper, supporting Hypothesis 4.

Table 6 The result of the moderating effect of the nature of the enterprise

VARIABLES	(1) InterPayGap	(2) InterPayGap	(3) InterPayGap
ESG	-30.159*** (-3.36)	-22.447** (-2.46)	-23.839*** (-2.64)
ESG ²	5.175*** (3.57)	3.798** (2.57)	4.128*** (2.83)
SOE	0.780** (2.54)		
ESG×SOE	-11.441 (-0.66)		
ESG ² ×SOE	2.140 (0.76)		
EERE		0.689 (0.14)	
ESG×EERE		-76.409*** (-4.04)	
ESG ² ×EERE		12.884*** (4.21)	
TECH			-1.247*** (-2.95)
ESG×TECH			-59.218*** (-3.44)
ESG ² ×TECH			10.072*** (3.57)
Constant	-12.622 (-0.84)	-21.919 (-1.43)	-17.649 (-1.18)
Control	Yes	Yes	Yes
Year/Industry FE	Yes	Yes	Yes
Obs	3253	3253	3253
Adj. R ²	0.262	0.267	0.268

Notes: The t-statistics values are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.2.3. The Environmental Protection Tax Law, ESG disclosure and InterPayGap

4.2.3.1. Difference-in-Differences (DID) model

On December 25, 2016, the "Environmental Protection Tax Law" was issued, which changed environmental protection from fees to taxes, marking a new stage of China's governance in the field of environmental protection. Introducing the Environmental Protection Tax Law will effectively promote enterprises to strengthen environmental protection measures, promote the transformation of enterprises to the direction of green and sustainable development, and accelerate the realization of economic and environmental

benefits. The Outline of the 14th Five-Year Plan for Building an Ecological Civilization elevates green development into a national development strategy and clearly points out that enterprises should be relied on to promote the greening of industries. Enterprises need to use the guidance of the Environmental Protection Tax Law to take effective environmental protection measures to achieve the goal of green development and sustainable development.

Our study takes the introduction of the Environmental Protection Tax Law as an opportunity and uses the data of A-share listed companies in Shanghai and Shenzhen from 2015 to 2019 to construct a difference-in-difference (DID) model. Set 2017 and later as the policy's implementation point, assign the value of POST to 1, and assign the value of POST to 0 before 2017. To construct the experimental group and the control group, we take the green and high-tech listed enterprises as the experimental group (value TREAT is 1) while the non-green and non-high-tech listed enterprises as the control group (value TREAT is 0). See the following model for details.

$$ESG_{it} = \alpha_0 + \alpha_1 TREAT_i \times POST_t + \sum Control_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (4)$$

$$InterPayGap_{it} = \alpha_0 + \alpha_1 TREAT_i \times POST_t + \sum Control_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (5)$$

Among them, POST represents the impact of the policy, and TREAT distinguishes the experimental group from the control group. The coefficient α_1 before the interaction term TREAT \times POST is the value which is our primary focus, which significantly represents the significant impact of the policy implementation.

4.2.3.2. Benchmark of DID model

We used the DID model in order to address the endogenous issues and assess policy outcomes (i.e., its eliminates heterogeneity and avoids the influence of endogeneity to a large extent). We conducted an empirical test on the relationship between Environmental Protection Tax Law, ESG and InterPayGap under the green and high-tech enterprises group, as shown in Table 7. In a natural experiment, we classified the varied policy impacts on the "treated" vs. "control" groups. The above equation Model 4 analyzed the impact of implementing the Environmental Protection Tax Law on the ESG disclosure of the experimental group. Column (1) represents the experimental group of green industries, while column (2) of high-tech industries. The complete regression results in columns (1) and (2) show that the interaction terms $_diff$ are 1.473 and 1.214, respectively (after controlling correlation fixed effects and enterprise characteristic variables), which are significantly positive at 1% and 5%. These results indicate that introducing the Environmental Protection Tax Law has a significant positive effect on the ESG performance of green and high-tech enterprises. However, the above equation Model 5 analyzes the impact of implementing the Environmental Protection Tax Law on the InterPayGap of the experimental group, and the grouping of columns (3) and (4) is the same as that of Model 4. The regression results in columns (3) and (4) indicate that the interaction terms $_diff$ are -1.466 and -1.259, respectively, at the level of 1% and 5%, after controlling the correlation fixed effects and enterprise characteristic variables. These results show that the introduction of Environmental Protection Tax Law has a significant negative effect on the InterPayGap of green and high-tech enterprises.

Table 7 Results of DID test

VARIABLES	(1)	(2)	(3)	(4)
	ESG	ESG	InterPayGap	InterPayGap
	EERE=1	TECH=1	EERE=1	TECH=1
TREAT	1.407*** (0.382)	0.306 (0.401)	0.399 (0.436)	1.256** (0.472)
POST	0.850** (0.294)	0.914** (0.327)	0.557 (0.337)	0.426 (0.393)
_diff	1.473*** (0.492)	1.214** (0.508)	-1.466*** (0.560)	-1.259** (0.607)
SIZE	2.309*** (0.141)	2.460*** (0.151)	1.340*** (0.161)	1.633*** (0.181)
LEV	-1.522 (0.810)	-1.790* (0.870)	1.368 (0.921)	1.444 (1.044)
FA	3.985*** (0.797)	5.674*** (0.800)	0.247 (0.907)	0.041 (0.959)
ROA	-4.731 (2.783)	-3.841 (2.960)	35.987*** (3.164)	35.906*** (3.552)
TOBINQ	-0.083 (0.119)	-0.100 (0.128)	0.409** (0.136)	0.373* (0.154)
FIRST	0.004 (0.008)	0.005 (0.009)	-0.085*** (0.009)	-0.099*** (0.010)
BOARD	0.366 (0.610)	1.622* (0.650)	1.202 (0.694)	1.360 (0.780)
EXECUTIVE	0.356*** (0.044)	0.284*** (0.047)	0.278*** (0.050)	0.285*** (0.057)
Constant	-36.243*** (3.253)	-41.922*** (3.472)	-26.703*** (3.701)	-33.387*** (4.164)
Year/Industry FE	Yes	Yes	Yes	Yes
N	3253	3253	3253	3253
Adj. R^2	0.215	0.188	0.109	0.105

Notes: Standard errors are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.2.3.3. PSM-DID

We use the propensity score matching and difference in differences model (PSM-DID) to mitigate endogeneity, reduce sample selection bias, and ensure that the treatment and control groups are comparable. Drawing from Latorre et al. (2018) and Wang et al. (2019), eight control variables in the variable definition table were selected as covariables for nearest neighbor matching. According to the results of Table 8, the impact of the Environmental Protection Tax Law on corporate ESG disclosure and InterPayGap before propensity score matching is significantly different. The mean treatment effect test after PSM indicates that the ATT values corresponding to ESG after matching are 7.500 and 2.980, and those corresponding to InterPayGap are -2.190 and 2.370, respectively. This demonstrates that the average treatment effect is significant and that significant differences remain between the treatment and control groups after matching. As a result, introducing the Environmental Protection Tax Law has a greater impact on the green and high-tech industries than others.

Table 8 Average treatment effect

Variable	Sample	Treated	Controls	Difference	S.E.	T-Statistics	
ESG	EERE	Unmatched	23.213	20.833	2.380	0.227	10.490
		ATT	23.042	21.051	1.991	0.266	7.500
	TECH	Unmatched	21.265	21.848	-0.583	0.222	-2.630
		ATT	21.721	20.984	0.737	0.247	2.980
InterPayGap	EERE	Unmatched	8.919	9.758	-0.839	0.298	-2.810
		ATT	9.312	10.062	-0.750	0.343	-2.190
	TECH	Unmatched	10.314	8.925	1.389	0.287	4.850
		ATT	10.288	9.485	0.804	0.339	2.370

Table 9 shows the regression results of the impact of the Environmental Protection Tax Law on corporate ESG disclosure and InterPayGap after near neighbor matching. It can be seen from columns (1) and (2) that the interaction term *_diff* has a significant positive impact on the ESG performance of the experimental group of green industry and high-tech enterprises, with the coefficients of 1.008 and 0.938, both at the level of 5%. Columns (3) and (4) show that the interaction item *_diff* has a significant negative effect on the InterPayGap of the experimental group of green industry and high-tech enterprises, with the coefficients of -1.479 and -1.486, respectively, both at the level of 5%. The regression results of PSM-DID in Table 9 are highly consistent with the benchmark model.

Table 9 Results of the PSM-DID

VARIABLES	(1)	(2)	(3)	(4)
	ESG	ESG	InterPayGap	InterPayGap
	EERE=1	TECH=1	EERE=1	TECH=1
TREAT	1.469*** (0.390)	-0.152 (0.366)	0.850 (0.558)	1.487** (0.491)
POST	1.013** (0.366)	0.784* (0.332)	0.498 (0.529)	0.340 (0.461)
<i>_diff</i>	1.008** (0.509)	0.938** (0.471)	-1.479** (0.735)	-1.486** (0.649)
Constant	-31.961*** (3.577)	-35.961*** (3.317)	-24.620*** (5.170)	-37.098*** (4.615)
Control	Yes	Yes	Yes	Yes
Year fix	Yes	Yes	Yes	Yes
Industry fix	Yes	Yes	Yes	Yes
N	1825	2275	1825	2275
adj. R2	0.253	0.233	0.122	0.122

Notes: Standard errors are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.2.3.4. Bootstrapped test

In some cases, standard error parameter estimation can be problematic. Therefore, Bootstrapped is used for the robust test, and the regression results are shown in Table 10. In columns (1) and (2), it can be seen that in the experimental group of green and high-tech enterprises, the regression coefficients of the interaction term

_diff are 0.950 and 0.676, respectively, which are significantly positive at the level of 5% and 10%, indicating that the introduction of the Environmental Protection Tax Law has a significant positive effect on the ESG performance of green and high-tech enterprises. In columns (3) and (4), it can be seen that in the experimental group of green and high-tech enterprises, the regression coefficients of InterPayGap's interaction term _diff are -0.898 and 0.806, respectively, which are significantly negative at the 10% level. It shows that the Environmental Protection Tax Law policy has a significant negative effect on the InterPayGap of green and high-tech enterprises. The test result of Bootstrapped robust was consistent with the benchmark model, which further supported the benchmark regression result.

Table 10 Results of the Bootstrapped

VARIABLES	(1)	(2)	(3)	(4)
	ESG	ESG	InterPayGap	InterPayGap
	EERE=1	TECH=1	EERE=1	TECH=1
TREAT	1.272*** (0.296)	-0.018 (0.316)	0.455 (0.461)	0.664 (0.398)
POST	0.902*** (0.244)	1.027*** (0.252)	0.405 (0.361)	0.306 (0.360)
_diff	0.950** (0.455)	0.676* (0.401)	-0.898* (0.518)	-0.806* (0.487)
Constant	-34.554*** (2.564)	-34.465*** (2.643)	-28.339*** (4.640)	-28.350*** (4.154)
Control	Yes	Yes	Yes	Yes
Year fix	Yes	Yes	Yes	Yes
Industry fix	Yes	Yes	Yes	Yes
N	3253	3253	3253	3253
adj. R2	0.256	0.240	0.113	0.113

Notes: Standard errors are reported in parentheses as * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.3. Robustness test

Since there may be endogeneity problems caused by reverse causality between ESG information disclosure and the internal salary gap of enterprises, so in order to better alleviate the impact of endogeneity problems, we adopt the instrumental variable method (two-stage least squares method; 2SLS) to try to weaken the endogeneity problem impact. Referring to the practice of Hs and Fei (2021) and Ang et al. (2022), this paper selects the one-stage lag variable of ESG_{-1} and the one-stage lag variable of the quadratic term ESG^2_{-1} as instrumental variables for two Stage model estimation, its correlation regression, and test results show (see Table 11), in the estimation results of the first stage of column (1) and (2), the regression coefficients of instrumental variables ESG_{-1} and ESG^2_{-1} are respectively significant at the 5% and 1% levels, the Kleibergen-Paap LM F statistic is 442.17, and the corresponding p-value is 0, indicating that the instrumental variable can be identified, and the Cragg -Donald Wald F statistic 2355.82 is much higher than 10, indicating that it does not exist Weak instrumental variable problem. In the second-stage model estimation results, the ESG coefficient of the explanatory variable estimated based on the instrumental variable is significantly negative, and

the coefficient of the quadratic term ESG^2 is significantly positive; that is, there is a U-shaped relationship between ESG information disclosure and the internal salary gap of enterprises (consistent with Chen and Xie 2022; Wu and Chang 2022; Huang et al. 2022; Luo et al., 2020; Dai et al., 2017; Kuo et al., 2014; Xie et al., 2019; Xu et al., 2017). It is consistent with the original results and can better weaken the impact of endogeneity problems.

Table 11 Robustness test of the 2SLS method

VARIABLES	First		Second
	(1) ESG	(2) ESG ²	(3) InterPayGap
ESG _{t-1}	0.409** (2.52)	-2.473** (-2.53)	
ESG ² _{t-1}	0.077*** (2.98)	1.294*** (8.28)	
ESG			-29.589** (-2.17)
ESG ²			5.097*** (2.28)
Constant	0.391** (1.53)	0.600 (0.39)	-6.845 (-0.31)
Control	Yes	Yes	Yes
Year fix	Yes	Yes	Yes
Industry fix	Yes	Yes	Yes
Obs	2,522	2,522	2,522
Kleibergen-Paap rk LM	442.17		
Cragg-Donald Wald F	2355.82		
Kleibergen-Paap Wald rk F	1191.63		

Notes: First: The *t*-statistics in parentheses; Second: Robust z-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1

According to the first stage results of the 2SLS method, instrumental variables can be identified, and there is no weak instrument issue. We further conduct dynamic panel data estimation by the two-step generalized method of moments (GMM) method, and the regression results of Table 12 are highly consistent with the main test.

Table 12 Robustness test of the GMM method.

VARIABLES	(1) InterPayGap	(2) InterPayGap
ESG	3.085* (1.91)	-14.2087** (-2.52)
ESG ²		2.4150*** (2.79)
Control	Yes	Yes

Year fix	Yes	Yes
Industry fix	Yes	Yes
Obs	2,522	2,522
AR (1)	0.000	0.000
AR (2)	0.471	0.470
Hansen	1.000	1.000

*Notes: The t-statistics values are reported in parentheses as * <math>p<0.1</math>, ** <math>p<0.05</math>, *** <math>p<0.01</math>*

5. Conclusions

This study explores the effects of ESG disclosures on the internal pay gap between executives and employees by taking samples of Chinese A-share listed companies in Shanghai and Shenzhen and using Bloomberg's ESG disclosure score from 2015 to 2019. The results indicate a significant U-shaped relationship between ESG disclosure and the internal salary gap. Both endogenous characteristics of green and high-tech firms have a positive moderating effect within this U-shaped relationship. These findings are statistically significant and consistent transmissions with endogenous characteristics of the enterprise. Specifically, the connectedness exhibits dynamic patterns by 2SLS and GMM regression highlighting the risk of ESG disclosure being the shock transmitters to enterprise internal control. The results of this study should therefore be of interest to legislators, the public, regulators, special-interest groups, and others. The findings also have obvious consequences for policymakers regarding furthering global economic integration.

Sustainable and socially responsible investments have become a major issue for investors worldwide (Khurram et al., 2023). Corporate sustainability is a strategic approach aiming to create stakeholder value as critical for creating goodwill for businesses, enhancing opportunities, and managing the risks due to economic, social, and environmental developments (Chen L. et al., 2023). Therefore, investors are trying to chart the course of the future through ESG orientation. Today, it is not possible for institutions to convince their stakeholders about the continuity of their activities and their potential to fulfill their obligations only through their financial results. Sustainable performance and reliable data sharing are crucial to attracting long-term investors. At present, an increasing number of institutional investors now recognize that ESG performance offers long-term financial benefits. Therefore, investors have started giving more importance to investigating the link behind non-financial information, including ESG disclosures, to understand companies' connections with risks and opportunities. Along with this trend, it has become even more important and necessary for companies to create value for all stakeholders and to share information about their value-creation process with their investors and other stakeholders. Asset owners encourage asset managers to integrate into the economic agenda, and governments should create tax incentives to promote long-term growth. The management committee should support the executive director with a long-term perspective. The authors believe that our findings will help academics who want to do more research in this relatively unexplored field, as well as top managers and corporate bodies that want to develop an effective compensation plan.

Funding

This work was supported by the China State owned Assets and Enterprises Research Institute and the China Postdoctoral Science Foundation (2023M733037).

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Acknowledgements

We would like to thank for the valuable comments and suggestions by the participants at IFABS 2023 Oxford Conference (organized by Saïd Business School, University of Oxford, UK), 13th Financial Markets & Corporate Governance International Conference 2023 (organized by Deakin University, Australia) and Edinburgh world-class workshop in Finance 2023 (organized by Business School, University of Edinburgh, UK).

References

- Adams, J. S. (1965). Inequity in social exchange. In *Advances in experimental social psychology*, 2, 267-299.
- Ahmad, N., Mobarek, A., & Roni, N. N. (2021). Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis. *Cogent Business & Management*, 8(1), 1900500.
- Ang, R., Shao, Z., Liu, C., Yang, C. H., & Zheng, Q. R. (2022). The relationship between CSR and financial performance and the moderating effect of ownership structure: Evidence from Chinese heavily polluting listed enterprises. *Sustainable Production and Consumption*, 30, 117-129.
- Aouadi, A., & Marsat, S., (2018). Do ESG controversies matter for firm value? Evidence from international data. *Journal of Business Ethics*, 151 (4), 1027-1047.
- Baker, S. (2020). Global ESG-data driven assets hit \$40.5 trillion. *Pensions & Investments*, Chicago. <https://www.pionline.com/esg/global-esg-data-driven-assets-hit-405-trillion>.
- Bizoumi, T., Lazaridis, S., & Stamou, N., (2019). Innovation in stock exchanges: Driving ESG disclosure and performance. *Journal of Applied Corporate Finance*. 31 (2), 72-79.
- Bolognesi, E., & Burchi, A. (2023). The impact of the ESG disclosure on sell-side analysts' target prices: The new era post Paris agreements. *Research in International Business and Finance*, 64, 101827.
- Broadstock, D. C., Chan, K., Cheng, L. T., & Wang, X. (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. *Finance research letters*, 38, 101716.
- Brzezczynski, J., Gajdka, J., Pietraszewski, P., & Schabek, T. (2022). Has the Risk of Socially Responsible Investments (SRI) Companies Stocks Changed in the COVID-19 Period? International Evidence. *Finance Research Letters*, 102986.
- Buallay, A. (2019). Between cost and value: Investigating the effects of sustainability reporting on a firm's performance. *Journal of Applied Accounting Research*, 20 (4), 481-496.
- Buallay, A., (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*. 30 (1), 98-115.

- Cahan, S. F., De Villiers, C., Jeter, D. C., Naiker, V., & Van Staden, C. J. (2016). Are CSR disclosures value relevant? Cross-country evidence. *European Accounting Review*, 25(3), 579-611.
- Cai, Y., Jo, H., & Pan, C. (2011). Vice or virtue? The impact of corporate social responsibility on executive compensation. *Journal of Business Ethics*, 104(2), 159-173.
- Carpenter, M. A., & Sanders, W. G. (2004). The effects of top management team pay and firm internationalization on MNC performance. *Journal of Management*, 30(4), 509-528.
- Chen, H. Y., & Yang, S. S. (2020). Do investors exaggerate corporate ESG information? Evidence of the ESG momentum effect in the Taiwanese market. *Pacific-Basin Finance Journal*, 63, 101407.
- Chai, S., Chu, W., Zhang, Z., Abedin, M.Z. (2022). Dynamic nonlinear connectedness between the green economy, clean energy, and stock price: The impact of the COVID-19 pandemic. *Annals of Operations Research*, <https://doi.org/10.1007/s10479-021-04452-y>
- Chen, L., Khurram, M. U., Gao, Y., Abedin, M. Z., & Lucey, B. (2023). ESG disclosure and technological innovation capability of the Chinese listed Companies. *Research in International Business and Finance*, 101974.
- Chen, S., Han, X., Zhang, Z., Zhao, X., & Li, Z. (2022). ESG investment in China: Doing well by doing good. *Pacific-Basin Finance Journal*, 101907.
- Chen, S., Ma, H., & Bu, D. (2014). Board affiliation and pay gap. *China Journal of Accounting Research*, 7(2), 81-100.
- Chen, Y., & Lin, B. (2022). Quantifying the extreme spillovers on worldwide ESG leaders' equity. *International Review of Financial Analysis*, 102425.
- Chen, Z., & Xie, G. (2022). ESG disclosure and financial performance: Moderating role of ESG investors. *International Review of Financial Analysis*, 83, 102291.
- Chu, J., & Fang, J. (2021). Economic policy uncertainty and firms' labor investment decision, *China Finance Review International*, 11 (1), 73-91.
- Dai, Y., Kong, D., & Xu, J. (2017). Does fairness breed efficiency? Pay gap and firm productivity in China. *International Review of Economics & Finance*, 48, 406-422.
- Dhifaoui, Z., Khalfaoui, R., Jabeur, S.B., Abedin, M.Z. (2022). Exploring the effect of climate risk on agricultural and food stock prices: Fresh evidence from EMD-Based variable-lag transfer entropy analysis. *Journal of Environmental Management*, 326, Article No. 116789
- Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California Management Review*, 36(2), 90-100.
- Elkington, J. (2012), *Sustentabilidade: Canibais com Garfo e Faca*, M. Books do Brasil Editora Ltda, São Paulo.
- Escrig - Olmedo, E., Muñoz - Torres, M. J., & Fernández - Izquierdo, M. Á. (2013). Sustainable development and the financial system: Society's perceptions about socially responsible investing. *Business Strategy and the Environment*, 22(6), 410-428.
- Farah, T., Li, J., Li, Z., & Shamsuddin, A. (2021). The non-linear effect of CSR on firms' systematic risk: International evidence. *Journal of International Financial Markets, Institutions and Money*, 71, 101288.
- Filbeck, A., Filbeck, G., & Zhao, X. (2019). Performance assessment of firms following sustainability ESG principles. *The Journal of Investing*, 28(2), 7-20.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.
- Gabriel de la F., Margarita O., Pilar V., (2022). The value of a firm's engagement in ESG practices: Are we looking at the right side? *Long Range Planning*, 55(4), 102143.
- Gaio, C., & Henriques, R. (2018). Are large firms more profitable than small and medium firms in the European Union? *The European Journal of Management Studies*, 23(1), 25-48.

- Gerwanski, J. (2020). Does it pay off? Integrated reporting and cost of debt: European evidence. *Corporate Social Responsibility and Environmental Management*, 27(5), 2299-2319.
- Gillan, S.L., Koch, A., Starks, L.T., 2021. Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance*. 66 (3), 101889.
- Grewal, J., Riedl, E. J., & Serafeim, G. (2019). Market reaction to mandatory nonfinancial disclosure. *Management Science*, 65(7), 3061-3084.
- Guo, H., Pan, Z., & Tian, G. G. (2021). State ownership and the risk - reducing effect of corporate derivative use: Evidence from China. *Journal of Business Finance & Accounting*, 48(5-6), 1092-1133.
- Guo, J., Huang, P., Zhang, Y., & Zhou, N. (2016). The effect of employee treatment policies on internal control weaknesses and financial restatements. *The Accounting Review*, 91(4), 1167-1194.
- Hall, B. J., & Murphy, K. J. (2003). The trouble with stock options. *Journal of economic perspectives*, 17(3), 49-70.
- Han, X., Xu, H., Zhang, C., Shen, Y., & Lu, X. (2022). Will the Narrowing Pay Gap in Chinese State-owned Enterprises Improve Internal Control Quality?. *Emerging Markets Finance and Trade*, 1-15.
- Hartzmark, S. M., & Sussman, A. B. (2019). Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance*, 74(6), 2789-2837.
- Huang, H., Yu, L., & Zhang, J. (2022). Mandatory CSR Disclosure and Pay Gap: Evidence from China. *Emerging Markets Finance and Trade*, 1-32.
- Huang, W., Luo, Y., Wang, X. H., Xiao, L. F. (2022). Controlling shareholder pledging and corporate ESG behavior. *Research in International Business and Finance*, 61, 13.
- Jackson, G., Bartosch, J., Avetisyan, E., Kinderman, D., & Knudsen, J. S. (2020). Mandatory non-financial disclosure and its influence on CSR: An international comparison. *Journal of Business Ethics*, 162(2), 323-342.
- Jin, I. (2022). Systematic ESG risk and decision criteria for optimal portfolio selection. *The Journal of Portfolio Management*, 48(10), 206-225.
- Khurram, M. U., Xie, W., Mirza, S. S., & Tong, H. (2023). Green bonds issuance, innovation performance, and corporate value: Empirical evidence from China. *Heliyon*, 9(4).
- Khalfaoui, R., Wali, S.M., Viviani, J.L., Jabeur, S.B., Abedin, M.Z., Lucey, B. (2022). How do climate risk spillover and uncertainty affect US stock markets? *Technological Forecasting & Social Change*, 185, Article No. 122083
- Kong, G., Huang, J., & Ma, G. (2023). Anti-corruption and within-firm pay gap: Evidence from China. *Pacific-Basin Finance Journal*, 102041.
- Kong, G., Kong, T. D., & Lu, R. (2020). Political promotion incentives and within-firm pay gap: Evidence from China. *Journal of Accounting and Public Policy*, 39(2), 106715.
- Kong, X., Jiang, F., & Zhu, L. (2022). Business strategy, corporate social responsibility, and within-firm pay gap. *Economic Modelling*, 106, 105703.
- Kumar, A., Gupta, J., & Das, N. (2022). Revisiting the influence of corporate sustainability practices on corporate financial performance: An evidence from the global energy sector. *Business Strategy and the Environment*, 23.
- Kuo, H. C., Lin, D., Lien, D., Wang, L. H., & Yeh, L. J. (2014). Is there an inverse U-shaped relationship between pay and performance?. *The North American Journal of Economics and Finance*, 28, 347-357.

- Lagasio, V., & Cucari, N. (2019). Corporate governance and environmental social governance disclosure: A meta - analytical review. *Corporate Social Responsibility and Environmental Management*, 26(4), 701-711.
- Lahouel, B. B., Zaied, Y. B., Managi, S., & Taleb, L. (2022). Re-thinking about U: The relevance of regime-switching model in the relationship between environmental corporate social responsibility and financial performance. *Journal of Business Research*, 140, 498-519.
- Latorre, M. C., Yonezawa, H., & Zhou, J. (2018). A general equilibrium analysis of FDI growth in Chinese services sectors. *China Economic Review*, 47, 172-188.
- Li, H., Zhang, X., & Zhao, Y. (2022). ESG and Firm's Default Risk. *Finance Research Letters*, 102713.
- Lin, K. C., & Dong, X. (2018). Corporate social responsibility engagement of financially distressed firms and their bankruptcy likelihood. *Advances in Accounting*, 43, 32-45.
- Löf, H., Sahamkhadam, M., & Stephan, A. (2022). Is Corporate Social Responsibility investing a free lunch? The relationship between ESG, tail risk, and upside potential of stocks before and during the COVID-19 crisis. *Finance Research Letters*, 46, 102499.
- Luo, J. H., Xiang, Y., & Zhu, R. (2020). When are pay gaps good or bad for firm performance? evidence from China. *Management and Organization Review*, 16(5), 1030-1056.
- Magrinos, S., Apospori, E., Carrigan, M., & Jones, R. (2021). Is CSR the panacea for SMEs? A study of socially responsible SMEs during economic crisis. *European Management Journal*, 39(2), 291-303.
- Mahmoudian, F., & Jermias, J. (2022). The influence of governance structure on the relationship between pay ratio and environmental and social performance. *Business Strategy and the Environment*, 31(7), 2992-3013.
- Naimy, V., El Khoury, R., & Iskandar, S. (2021). ESG versus corporate financial performance: Evidence from East Asian firms in the industrials sector. *Studies of Applied Economics*, 39(3).
- Neitzert, F., & Petras, M. (2022). Corporate social responsibility and bank risk. *Journal of Business Economics*, 92(3), 397-428.
- Nollet, J. , Filis, G. , & Mitrokostas, E. (2016). Corporate social responsibility and financial performance: a non-linear and disaggregated approach. *Economic Modelling*, 52(JAN.PT.B), 400-407.
- Pan, Y., Pikulina, E. S., Siegel, S., & Wang, T. Y. (2022). Do equity markets care about income inequality? Evidence from pay ratio disclosure. *The Journal of Finance*, 77(2), 1371-1411.
- Pedersen, L. H., Fitzgibbons, S., & Pomorski, L. (2021). Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics*, 142(2), 572-597.
- Peng, L. S., & Isa, M. (2020). Environmental, social and governance (ESG) practices and performance in Shariah firms: agency or stakeholder theory? *Asian Academy of Management Journal of Accounting & Finance*, 16(1).
- Pu, G. (2022). A non-linear assessment of ESG and firm performance relationship: evidence from China. *Economic Research-Ekonomska Istraživanja*, 1-17.
- Rajan, R., Servaes, H., & Zingales, L. (2000). The cost of diversity: The diversification discount and inefficient investment. *The journal of Finance*, 55(1), 35-80.
- Ren, C., Ting, I. W. K., Lu, W. M., & Kweh, Q. L. (2022). Nonlinear effects of ESG on energy-adjusted firm efficiency: Evidence from the stakeholder engagement of apple incorporated. *Corporate Social Responsibility and Environmental Management*, 29(5), 1231-1246.
- Rouen, E. (2020). Rethinking measurement of pay disparity and its relation to firm performance. *The Accounting Review*, 95(1), 343-378.

- Saini, N., Singhania, M., Yadav, M. P., Hasan, M., & Abedin, M. Z. (2022). Non-financial disclosures and sustainable development: A scientometric analysis. *Journal of Cleaner Production*, 135173.
- Siegel, P. A., & Hambrick, D. C. (2005). Pay disparities within top management groups: Evidence of harmful effects on performance of high-technology firms. *Organization Science*, 16(3), 259-274.
- Stevens, P. (2019). Your complete guide to investing with a conscience, a \$30 trillion market just getting started. CNBC News. Available at: <https://www.cnbc.com/2019/12/14/your-complete-guide-to-socially-responsible-investing.html>.
- Sun, S. L., & Habib, A. (2020). Determinants and consequences of tournament incentives: A survey of the literature in accounting and finance. *Research in International Business and Finance*, 54, 101256.
- Sun, W., Yao, S., & Govind, R. (2019). Reexamining corporate social responsibility and shareholder value: The inverted-U-shaped relationship and the moderation of marketing capability. *Journal of Business Ethics*, 160(4), 1001-1017.
- Tomo, A., & Landi, G. (2017). Behavioral issues for sustainable investment decision-making. *International Journal of Business and Management*, 12(1), 1-10.
- Wang, H., Chen, Z., Wu, X., & Nie, X. (2019). Can a carbon trading system promote the transformation of a low-carbon economy under the framework of the porter hypothesis?— Empirical analysis based on the PSM-DID method. *Energy policy*, 129, 930-938.
- Wen, H., Ho, K. C., Gao, J., & Yu, L. (2022). The fundamental effects of ESG disclosure quality in boosting the growth of ESG investing. *Journal of International Financial Markets, Institutions and Money*, 81, 101655.
- Wu, K. S., & Chang, B. G. (2022). The concave–convex effects of environmental, social and governance on high-tech firm value: Quantile regression approach. *Corporate Social Responsibility and Environmental Management*, 29(5), 1527-1545.
- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance?. *Business Strategy and the Environment*, 28(2), 286-300.
- Xu, M., Kong, G., & Kong, D. (2017). Does wage justice hamper creativity? Pay gap and firm innovation in China. *China Economic Review*, 44, 186-202.
- Yao, W., Yang, H., Qian, Y., & Xu, W. (2023). Does minimum wages affect executive compensation?— Evidence from China. *Pacific-Basin Finance Journal*, 102080.
- Yin, L., Tao, Y. Q., & Wang, M. (2022). Trust and pay gap: Quasi-natural experimental evidence from China. *Finance Research Letters*, 48, 8.
- Zhang, D., Pan, L., Liu, L., & Zeng, H. (2023). Impact of executive pay gap on environmental, social, and governance disclosure in China: Is there a strategic choice?. *Corporate Social Responsibility and Environmental Management*.
- Zhang, H., Huang, H. J., & Habib, A. (2018). The effect of tournament incentives on financial restatements: Evidence from China. *The International Journal of Accounting*, 53(2), 118-135.
- Zhang, J., Wang, J., & Kong, D. (2020). Employee treatment and corporate fraud. *Economic Modelling*, 85, 325-334.
- Zhang, X., Zhao, X., & He, Y. (2022). Does it pay to be responsible? The performance of ESG investing in China. *Emerging Markets Finance and Trade*, 1-28.
- Zhang, Z. (2008). An empirical analysis of the effect of company internal pay gap on company future operating performance. *Account. Res*, 9, 81-87.

Appendix

Table A1 Sub-categories of green enterprises.

N	Code	Industry	No. of firms	Percent (%)
1	A01, A03, A04, A05	Agriculture, forestry, animal, and fishery	11	4.55%
2	B06, B08, B09, B11	Mining industry	15	6.20%
3	C22	Papermaking and paper products	9	3.72%
4	C23	Printing and recording media copying	4	1.65%
5	C25	Oil and gas processing, cooking, and nuclear fuel processing	4	1.65%
6	C26	Chemical materials and products	57	23.55%
7	C27	Pharmaceutical products	53	21.90%
8	C28	Chemical fibers	6	2.48%
9	C29	Rubber and plastic products	10	4.13%
10	C30	Non-metallic mineral products	18	7.44%
11	C31	Metallurgy industry of black metals	11	4.55%
12	C32	Metallurgy industry of nonferrous metals	21	8.68%
13	C34	General equipment manufacturing	1	0.41%
14	D44	Electric power and hot power production	17	7.02%
15	D45	Gas production and supply industry	2	0.83%
16	D46	Waste resources and materials recycling and processing	2	0.83%
17	N77	Ecological protection and environmental management	1	0.41%
TOTAL			242	100%

Table A2 Subcategories of the high-tech enterprises.

N	Code	Industry	No. of firms	Percent (%)
1	C26	Chemical raw materials and chemical products manufacturing	51	20.73%
2	C27	Pharmaceutical industry	45	18.29%
3	C35	Special equipment manufacturing	25	10.16%
4	C37	Manufacturing of railway, marine, aerospace, and other transportation equipment	6	2.44%
5	C39	Computer communications and other electronic equipment manufacturing	62	25.20%
6	C40	Instrument manufacturing	5	2.03%
7	I63	Telecommunications, radio, television and satellite transmission services	7	2.85%
8	I64	Internet and related services	10	4.07%
9	I65	inspection and testing services	27	10.98%
10	M73	Research and experimental development	1	0.41%
11	M74	Professional technology service	5	2.03%
12	M75	Science and technology extension and application services	1	0.41%
13	N77	Ecological protection and environmental management	1	0.41%
TOTAL			246	100%

Table A3 Variable definition

Type	Symbol	Variable	Description
Explained variable	InterPayGap	Intra-firm pay gap	Average Executive Compensation/Average Employee Compensation
Explanatory variable	ESG	ESG disclosure	Ln (ESG scores from 0 to 100)
Moderator	SOE	Nature of corporate equity	State-owned enterprises=1, Else=0
	EERE	Green industry	Green enterprise=1, Else=0
	TECH	High-tech industry	High-tech enterprise=1, Else=0
Control variable	SIZE	Firm size	The natural log of total assets
	LEV	Asset-liability ratio	Total liabilities/Total assets
	FA	Fixed assets	Fixed assets/Total assets

ROA	Return on total assets	Net Profit/Total Asset
TobinQ	Tobin's Q-value	Company market capitalization/Total assets
FIRST	First shareholder concentration	The ownership of the largest shareholder
BOARD	Board directors	Number of the board directors
Executive	Senior executives	Number of senior executives
