ESG performance and corporate fraudulence: Evidence from China

Abstract: Using a large sample of Chinese public listed firms from 2014 to 2021, we examine whether firms' ESG performance inhibits corporate fraud. We find that high ESG performance mitigates corporate fraudulence. After conducting a series of robustness tests, the results remain unchanged. This negative relationship is more pronounced in non-SOE (non-state-owned enterprise) firms and firms that voluntarily disclose ESG information. The mechanism analysis suggests that high-quality ESG engagement improves firms' corporate governance performance and inhibits managerial myopia, which fosters good business ethics and mitigates corporate fraud. Overall, our findings provide addition evidence supporting the role of ESG in filling institutional voids in emerging economies. Our findings also provide significant policy implications for regulators and policy makers who seek to promote corporate information disclosure and mitigate corporate fraud risk.

Keywords: ESG performance; Corporate fraud; Information disclosure; Corporate governance; Managerial myopia

JEL classification: G10; G14; G30

1. Introduction

ESG performance, which measures the corporate performance on environmental, social, and governance (ESG) aspects, are in the fervent embrace of boardrooms, academia, regulators and investors. The Google search trends reveal that the search volume index of the phrase "ESG ratings" has increased more than tenfold in the past decade, particularly after 2017 (Tang et al., 2021). Prior studies have examined the influence of ESG engagement on corporate behavior and performance from several perspectives, including earnings management (Gelb and Strawser, 2001; Prior et al., 2008; Pathak and Gupta, 2022), financial performance (Nollet et al., 2016; Rajesh and Rajendran, 2020; Huang et al., 2020; Huang, 2021), corporate value (Ding et al., 2016; Wong et al., 2021), the cost of capital (Dhaliwal et al., 2014; Cheng et al., 2014; Fatemi et al, 2015; Hamrouni et al., 2020), credit ratings (Jiraporn et al., 2014), capital allocation efficiency (Bhandari and Javakhadze, 2017), stock price crash risk (Kim et al., 2014; Zhou et al., 2021), idiosyncratic risk (He et al., 2022a), green innovation (Hao and He, 2022), and default risk (Li et al., 2022; Do, 2022).

However, mixed evidence has been documented for the economic consequences of ESG engagement. Prior studies argue that firms engage in social responsibility activities for diverse reasons. On one hand, it could increase employee and customer recognition, thereby improving labor productivity and enhancing competitive advantage of firms' product (Hur et al., 2018). It could also help firms to gain more access to social resources, forge stable relationships with customers and the government (Sanchez, 2000), which helps to increase their market share and ultimately enhance corporate value to achieve sustainable development (Albuquerque et al., 2019). On the other hand, ESG engagement may also have a negative impact. Previous research has documented that the benefits of ESG engagement are shared by the managers, while the risks and costs are borne by shareholders (Barnea and Rubin, 2010). In addition, excessive social responsibility activities may distort capital allocation and damage the long-term development of the company (Bhandari and Javakhadze, 2017; Chintrakarn et al., 2020).

Meanwhile, due to less-developed macro and micro governance environment and relatively weak investor protection, Chinese listed firms are often plagued by serious agency problems and accused of corporate fraud and misconduct, such as false financial statement (Chen and Yuan, 2004), excessive related-party transactions (Jian and Wong, 2008), and tunneling of controlling shareholders (Jiang et al., 2010). Corporate fraud could lead to huge losses for many investors and even jeopardize the efficiency and stability of resource allocation in capital markets. Moreover, corporate fraud could be

contagious among companies (i.e., a cohort effect) (Chiu et al., 2013). Therefore, preventing corporate fraud is crucial to protect the interests of investors and maintain the sustainable development of financial markets (He et al., 2022b).

To bridge the gap between theory and practice on corporate fraud and extend the scope of extant literature on corporate ESG performance, this paper investigates the impact of ESG engagement on mitigating corporate fraud in the Chinese context. Our paper contributes to the literature on sustainable corporate finance in three ways. First, this paper adds to the empirical studies on the factors influencing corporate fraud. Different from the previous literature which mostly examines the internal and external monitoring mechanisms (Ren et al., 2021; Zaman et al., 2021; Zhang, 2018; Su et al., 2021), we explore this issue from the perspective of ESG engagement which improves corporate governance and promotes manager self-regulation. Second, this paper provides further empirical evidence regarding the impact of ESG engagement on corporate behavior and performance, particularly on non-financial performance. Theoretically, this paper enriches the literature on the driving factors of corporate fraud and the impact of ESG engagement on corporate fraud, and reveals the possible channels and mechanisms behind such relationships. Third and finally, this paper provides emerging market evidence in the context of the Chinese market by conducting empirical analysis regarding the motivation and economic consequences of ESG engagement of Chinese listed firms, which bears important reference values for other emerging countries with similar institutional characteristics.

In a concurrent paper, He et al. (2022b) similarly show that ESG engagement prevents managers' misconduct. Our paper differs from theirs by further showing that ESG performance not only inhibits managerial misconduct, but also has an inhibitory effect on other types of corporate fraud. We thus provide stronger evidence that high-quality ESG engagement benefits both shareholders and other stakeholders. Therefore, our study contributes to the extant literature on the economic and social consequences of ESG engagement by revealing the inhibitory effect of ESG performance on corporate fraud.

The rest of this paper proceeds as follows: Section 2 reviews the relevant literature and proposes the research hypotheses; Section 3 describes the data and outlines our research design; Section 4 presents main empirical findings and conducts a series of robustness tests; Section 5 includes subgroup analysis and further mechanism analysis; and Section 6 concludes.

2. Literature review and hypothesis development

2.1. Literature on corporate fraud

Corporate fraud and scandals have dominated headlines of global media over the past few decades (for example, from Enron scandal in U.S., to most recently, alleged fraud at Luckin Coffee, a US-listed Chinese company). Nearly one fifth of all listed firms in China has involved in financial fraud between 2007 and 2016 (Ren et al., 2021). A vast amount of research has examined the driving factors and consequences of corporate fraud, as well as the prevention and detection of fraud (See, for example, Karpoff et al., 2008a, 2008b; Gande and Lewis, 2009; Murphy et al., 2009; Hou and Moore, 2010; Khanna et al., 2015; Kong et al., 2019; Sun et al., 2021; Su et al., 2021; He et al., 2022b; among many others).

There are several strands of literature investigating the driving factors of corporate fraud. One strand of the literature studies managers' incentives to commit fraud, such as equity incentives (Hass et al., 2015a), tournament incentives (Hass et al., 2015b), etc. Another strand of the literature examines manager characteristics which facilitate fraudulent activities. For example, managers would be more likely to commit misconduct with more political connections and closer CEO-board network ties (Chidambaran et al., 2012; Khanna et al., 2015; Wu et al., 2016). The third strand of the literature investigates institutional, cultural, and corporate governance factors affecting the incidence of fraud, including board structure (Andreou et al., 2016; Yang et al., 2017), auditing quality (Callen and Fang, 2017; Coffee, 1986), supervisory board and independent directors (Ding et al., 2010; Kong et al., 2019), institutional ownership and state ownership (Hou and Moore, 2010; Wu et al., 2016; Gao and Yang, 2021), and corporate culture and business ethics (Biggerstaff et al. , 2014; Delaney and Sockell, 1992). The last strand of the literature focuses on the external monitoring (Wu et al., 2016; Kong et al., 2019; Ren et al., 2021; Zaman et al., 2021; Sun et al., 2021; He et al., 2022b). For example, Sun et al. (2021) explore the role of media, as an external monitoring mechanism, in detecting corporate fraud in China. Young and Peng (2013) find that analysts can detect corporate fraud effectively and their recommended revisions are helpful in detecting fraud. He et al. (2022b) explore the role of ESG engagement in mitigating corporate fraud, which is mediated through analyst coverage.

2.2. Literature on ESG engagement and corporate fraud

Stakeholder theory considers ESG to be a powerful intangible asset that helps to promote managers self-discipline (Gao et al., 2014; He et al., 2022b). However, ESG engagement can also be used as a management self-interest tool. For example, McWilliams et al. (2006) argue that ESG could be utilized as a managers' self-interest tool, and managers are likely to use corporate social responsibility (CSR) reports as a

self-interest tool for their personal reputation and future careers (Dai et al., 2019). Moreover, ESG engagement can also be a useful tool to cover up managerial misconduct (Hemingway and Maclagan, 2004). Prior et al. (2008) find that ESG engagement is positively related to firms' earnings management (EM) behavior. By proactively participating in ESG activities, firms gain reputation of active social responsibility, which in turn reduces the probability of fraud and violations being detected by stakeholders such as employees, customers, and investors, (Prior et al., 2008). Therefore, good ESG performance may reduce the probability of scrutiny from regulators and stakeholders by fostering a good corporate reputation, which reduces the cost of managerial misconduct and financial fraud and violations (He et al., 2022b).

Even though the arguments above generally support the view that ESG engagement may cover up fraudulent activities and induce corporate fraud, we hypothesize that high-quality ESG engagement enhances internal and external governance and promotes manager self-discipline, thereby discouraging manager misconduct and deterring firms from committing fraud, due to the following reasons. First, shareholder theory suggests ESG as a powerful intangible asset that helps to promote managers self-regulation and self-discipline (Gao et al., 2014). For example, Kim et al. (2012) document that firms with high ESG performance are less likely to have earnings manipulation. Pathak and Gupta (2022) show that ESG performance substantially reduces opportunistic firms' earnings management. Meanwhile, Kim et al. (2014) document that ESG information disclosure inhibits managers from withholding bad news. Liao et al. (2019) investigate the impact of corporate social responsibility (CSR) on corporate financial fraud in China and find that CSR scores are negatively associated with firms' fraudulent financial activities. Second, when managers undertake high-quality social responsibility, it fosters a corporate culture with high ethical standards and, consequently, high transparency in corporate governance, as a result of moral and ethical obligations (Gelb and Strawser, 2001; Hoi et al., 2013). Therefore, good corporate culture as an important informal institutional mechanism could enhance internal corporate governance and promote managers self-regulation, thereby mitigating corporate fraud. Last but not the least, high-quality ESG performance can foster a stricter external monitoring environment by attracting the attention of analysts and brokerage firms, which in turn inhibits managers from misconduct and fraud (He et al., 2022b). Based on the above analyses, we propose the following hypothesis:

H1. There is a negative association between a company's ESG performance and fraudulent activities.

3. Data and model specification

3.1. Data

We adopt all Chinese A-share firms listed in the Shanghai Stock Exchange and Shenzhen Stock Exchange from 2014 to 2021 as the initial research sample. The firm characteristics and financial data are drawn from China Stock Market & Accounting Research (CSMAR) database. In addition, corporate fraud and manager misconduct cases are obtained from Chinese Research Data Services (CNRDS). ESG ratings are obtained from Sino-Securities Index Information Service of the Wind database. The reason for choosing 2014 as the starting point of this study is that the ESG ratings data hasn't been made available until 2014. We take the following steps to clean our sample: (i) excluding the special treatment firms (i.e., ST and PT firms); (ii) excluding financial firms; and (iii) excluding the sample with abnormal or missing values.

3.2. Variables

3.2.1. ESG performance

The ESG rating data has become increasingly available from multiple data providers such as Bloomberg, Refinitiv, and Wind in China. In this study, we collect the ESG rating scores of Chinese listed firms published by Sino-Securities Index Information Service via the Wind database, as a measure of ESG performance. In addition, in the robustness test, we also resort to the ESG ratings provided by SynTao Green Finance, which is an independent consultancy that has launched its ESG rating system since 2015. A higher score indicates a better ESG performance. Here, ESG scores are transferred from C to AAA into 1 to 9, where 1 stands for the lowest ESG performance (C) and 9 stands for the highest ESG performance (AAA).

3.2.2. Corporate fraud

The data on alleged corporate fraud of Chinese listed firms is sourced from the Wind database. The cases of corporate fraud include the regulatory enforcement and sanctions to listed firms conducted by the Chinese regulatory authorities, including the China Securities Regulatory Commission (CSRC) and its regional offices, the Shanghai Stock Exchange and Shenzhen Stock Exchanges, the Ministry of Finance and its affiliated entities, and others (Sun et al., 2021). In fact, corporate fraudulence may involve the firm, its management, or its shareholders. The CSRC categorizes thirteen types of fraud, including illegal share buybacks, inflated profits, fabrication of assets, unauthorized change in use of funds, postponement/delays in disclosure, false statements, violations of fund provisions, major information omission, controlling shareholder's embezzlement, stock price manipulation, illegal loan guarantee, speculation, and others (Wu et al., 2016; Su et al., 2021).

3.2.3. Control variable

Following previous literature on the influencing factors of corporate fraud (See, for instance, Chen et al., 2006; Wu et al., 2016; Yang et al., 2017; Kong et al., 2019; Chen et al., 2016; Chen et al., 2020; Su et al., 2021), we account for firm size (Size), book-to-market ratio (B/M), leverage ratio (Lev), Tobin's Q (Tobin_Q), return on assets (ROA), sales growth rate (Growth), and firm age (Age), at the firm's operating level. Previous studies have also documented the important role of institutional mechanisms in monitoring business operations and management of firms, shaping corporate values, and mitigating fraud risk (Kim and Lu, 2011; Wu et al., 2016). Therefore, we control for the firm's corporate governance and ownership characteristics, including the shareholding ratio of the top shareholder (Top1), the shareholding ratio of institutional investors (Inst), the number of board directors (Board), the percentage of independent directors on the board (Indep), duality of the board chairman and CEO (Dual), and whether the firm is audited by a Big 4 audit firm or one of its predecessors (Big4). For the underlying stock trading characteristics, we control for the stock turnover rate (Turnover), since a high turnover rate indicates more market attention which raises the firm's litigation risk (Wang et al., 2010).

Besides, we control for the firm's past fraudulent activities as it takes time to detect and reveal fraudulent activities (Su et al., 2021). Namely, we include a dummy variable (Fraud_lag) which equals 1 if a given firm had ever committed fraudulent activities in the past three years, and 0 otherwise. Last but not the least, high-quality ESG engagement could attract positive media coverage (Cahan, et al., 2015) and analyst attention (Gao et al., 2016), thereby creating a monitoring effect (He et al., 2022b). Therefore, to examine the effect of information environment on corporate fraud, we also control for the number of firm-specific news reports (News) and the number of analysts following a given firm (Analysts), as proxies for the degree of external monitoring (He et al., 2022b). The definition of all variables can be found in Table A1 in the Appendix.

3.3. Descriptive statistics

The summary statistics of the main dependent and explanatory variables are reported in Table 1. The mean value of corporate fraud dummy (Dfraud) is 0.244, indicating that about 24.4% of Chinese listed firms has ever committed fraud in each year. The mean value of ESG score (ESG) is 4.055 (i.e., approximately equal to BBB), with the minimum and maximum value of 1 and 7, indicating that the ESG performance varies greatly among Chinese listed firms. The average ESG score across industries suggest that the commercial, construction and mining industries have the highest ESG

performance. In addition, the descriptive statistics of other variables are also generally consistent with the previous literature (Dong et al., 2018; He et al., 2022b).

<Insert Table 1 about here>

The correlation coefficients of the main variables are shown in Panel B of Table 1. The Pearson correlation coefficients show that ESG performance and corporate fraud dummy (Dfraud) as well as the number of corporate fraud cases (Fraud) are significantly negatively correlated at the 1% significance level. This result indicates that higher corporate ESG performance is associated with less corporate fraud risk, which preliminarily verifies our Hypothesis H1. In addition, there is a strong correlation between corporate fraud and the main control variables, indicating that our selection of control variables is appropriate.

3.4. Benchmark model

To empirically examine the impact of ESG performance on corporate fraud of Chinese listed firms, we utilize the following probit/logistic model:

$$Dfraud_{i,t+1} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 Controls_{i,t} + Ind + Year + \varepsilon \quad (1)$$

where *i* indexes firms and *t* indexes years. The dependent variable (*Dfraud*) is a dummy variable which equals 1 if violations against the securities laws and regulations imposed by the CSRC, the Shanghai (Shenzhen) Stock Exchange, the Ministry of Finance, or other regulatory bodies, are recorded for firm *i* in year *t+1*, otherwise it equals 0. To deal with the reverse causality issue in the regression estimation, data on corporate fraud is one year ahead of other variables. *Ind* and *Year* stands for industry fixed effect and year fixed effect respectively. The variable of interest in the analysis is β_1, which indicates the relationship between ESG performance and the likelihood of committing corporate fraud in Chinese listed firms. We expect β_1 to be negative if ESG can inhibit corporate fraud. To minimize the effects of outliers, we winsorize all continuous variables at the 1% and 99% level respectively.

4. Empirical results

4.1. Baseline regression

In the baseline model specification, we control for a battery of variables which may affect the likelihood of committing corporate fraud according to prior literature (Su et al., 2021; He et al., 2022b). Table 1 reports the results regarding the impact of ESG performance on firms' fraudulent activities using the probit model and logit model respectively. The t-statistics are calculated based on standard errors adjusted for firm-

level clustering to account for any possible correlations between firms. The empirical results suggest that after controlling for other factors which may influence the incidence of corporate fraud, for one-point increase in the ESG score (i.e., from BBB to BB), the probability of firms' committing fraud decreases by around 10.4% to 17.4% on average, as shown in Columns (2) and (4) of Table 1. In addition, the average marginal effect (AME) of ESG on the probability of the incidence of corporate fraud is about 3%, which is significant at the 1% significance level. It indicates that high-quality ESG engagement significantly inhibits corporate fraudulence, which supports our Hypothesis 1. Our results are also consistent with the findings of He et al. (2022b) that high ESG engagement promotes manager self-discipline and fosters stricter monitoring environment, which inhibits managerial misconduct.

The signs of coefficients on the control variables are also basically consistent with the findings as documented in the previous literature. For example, larger firms are associated with higher propensity of enforcement actions against corporate fraud. Presumably, it is more difficult for larger firms to conceal fraud due to more public scrutiny and higher media attention (Kong et al., 2019; Su et al., 2021). In addition, firms with better financial performance and lower financial leverage are associated with less probability of committing corporate fraudulence. Besides, having more independent directors on board can significantly deter corporate fraud. However, more board directors are actually associated with a higher probability of committing corporate fraud. Interestingly, CEO duality has no impact on the incidence of corporate fraud. In addition, state-owned enterprises (SOEs) tend to have a lower probability of committing fraud compared to that of non-SOEs. However, we have to bear in mind that SOEs in developing countries may possess political privileges and are more likely to receive preferential treatment from the government and conceal their fraudulent activities (Kong et al., 2019).

Consistent with our expectations, for firms with stricter internal and external monitoring and more analyst attention, the probability of committing fraud is significantly lower, which suggests that corporate transparency and analysts' information integration can alleviate information asymmetry and deter corporate fraud (Milgrom 1981; Grossman and Hart, 1983; Firth et al., 2019). Finally, firm's past fraudulent activities have a long-lasting impact on the probability of committing fraud, which verifies the validity of controlling for firm's past fraudulent activities (Su et al., 2021).

<Insert Table 2 about here>

4.2. Robustness tests

The baseline regression result suggests that high-quality ESG performance inhibits corporate fraudulence. However, a series of endogeneity issues, such as omitted variable bias, sample selection bias, and reverse causality, can severely affect the estimation results. To address these concerns and examine the sensitivity of our empirical findings, we conduct the following robustness tests: (1) adopting alternative ESG ratings; (2) adopting alternative regression model; (3) differentiating various types of corporate fraud; (4) dealing with omitted variable bias by including firm-fixed effects; (5) addressing sample selection bias by adopting Heckman two-step and PSM regression; (6) adopting IV-2SLS regression with the concentration of PM2.5 as the instrumental variable; and (7) excluding firms in certain industries which are more susceptible to ESG risk.

4.2.1. Alternative ESG measure

Considering the fact that there are various ESG rating agencies in China and there may exist disagreements on ESG ratings among different ESG raters, we also use the ESG rating score provided by SynTao Green Finance for a robustness check. SynTao Green Finance is an independent consultancy which has launched its ESG rating system since 2015, and established the first ESG database for listed companies in China. The ESG ratings provided by SynTao Green Finance cover all listed companies in mainland China. Therefore, we re-estimate Eq. (1) after replacing ESG values with ESG scores provided by SynTao Green Finance (ST_ESG).

<Insert Table 3 about here>

As shown in Table 3, the results show that the coefficient on ST_ESG is significantly negative and the inhibitory effect of ESG performance on corporate fraud remains unchanged after controlling for a battery of control variables. The sign and magnitude of the control variables are also consistent with those in the baseline regression. These results confirm our conjecture about the inhibitory effect of ESG engagement on corporate fraud.

4.2.2. Alternative regression model

To control for the sensitivity of our results, we use the natural logarithm of one plus the number of fraud cases against securities laws and regulations (*Fraud*) for firm *i* in year *t+1* as the dependent variable, and re-estimate Eq. (1) using Tobit model as the values of independent variable are continuously distributed in positive values but take zero values with positive probability (He et al., 2022b). Similar results are obtained for the alternative regression model. For example, the empirical results as shown in Column (2) of Table 4 suggest that for one-point increase in the ESG score, the number of corporate fraud cases reported at the firm level decreases by 13.5% on average. The

results in Table 4 re-confirm our findings that high-quality ESG engagement significantly inhibits corporate fraudulence.

<Insert Table 4 about here>

4.2.3. Different types of corporate fraud

In this subsection, we test the effects of ESG performance on different types of corporate fraudulent activities. Namely, to further examine the relationship between ESG performance and corporate fraud, we categorize all reported fraud cases into four major types. The first type of corporate fraud is financial fraud (Financial), including inflated profits and fabrication of assets. The second type of fraud is management fraud (Management), which includes illegal share buybacks, unauthorized change in use of funds, controlling shareholder's embezzlement, insider trading, stock price manipulation, and illegal loan guarantee. The third type of fraud is disclosure fraud (Disclosure), which comprises delays in disclosure, false statements, and omission of major information. The last type of fraud includes all other fraudulent activities (Others).

<Insert Table 5 about here>

As shown in Table 5, the empirical results suggest that high-quality ESG engagement not only inhibits managerial misconduct, but also has an inhibitory effect on other types of corporate fraud. In fact, firm's ESG engagement has a significantly inhibitory effect on financial fraud (i.e., the magnitude of the coefficient on ESG is 0.210), followed by management fraud (0.194), disclosure fraud (0.166), and other fraudulent activities (0.152). Our results regarding the inhibitory effect of ESG performance on corporate fraud continue to hold after accounting for different types of corporate fraud. Therefore, this paper complements the study of He et al. (2022b) and provides stronger evidence that high-quality ESG engagement mitigates all types of corporate fraud and therefore benefits the stakeholders and society greatly.

4.2.4. Omitted variables

Although we have controlled for a broad set of control variables of firm characteristics in the above analyses, some omitted correlated variables that were not accounted for could bias our results (Jiang and Yuan, 2018; Su et al., 2021; He et al., 2022b). To mitigate this concern of potential omitted variable bias, we further include firm fixed effect to control for time-invariant, firm-specific unobservable variables.

<Insert Table 6 about here>

As shown in Table 6, the magnitudes of the coefficients on ESG are almost the same as those in Table 2. Therefore, we conclude that the results remain unchanged

after including firm fixed effects and the inhibitory effect of ESG engagement on corporate fraud is robust to omitted variable bias.

4.2.5. Sample selection bias

Considering that corporate ESG performance may be endogenous to the information environment and firm characteristics which also affect the possibility of committing corporate fraud, we address the potential sample selection bias issue using propensity score matching (PSM) model and the Heckman two-step sample selection model, respectively. Specifically, we apply two econometric tools developed to mitigate these selection biases – the propensity score matching (PSM) method to mitigate selection bias due to observables and the Heckman Inverse-Mills-ratio (IMR) method to address selection bias due to unobservables, both of which are widely applied in accounting and finance empirical research. Following He et al. (2022b), we define *Treat* as a dummy variable for the treatment group, specifically, the 30% quantile of ESG performance of Chinese listed firms is selected as the breakpoint in this study, i.e., firms with ESG scores greater than the 30% quantile are thus assigned into the treatment group, while the other firms remain in the control group.

<Insert Table 7 about here>

Columns (1) and (2) of Table 7 reports the results of propensity score matching (PSM) model. Here, all control variables are selected as matching variables, the propensity scores are calculated using Logit model, and 1:1 nearest neighbor matching is adopted to obtain the final control group sample. Column (1) of Table 7 reports the regression results of the first step, and Column (2) of Table 7 reports the results of the second-step of the propensity score matching (PSM) model. The coefficient of ESG is -0.193 which is statistically significant at the 1% significance level, reinforcing the perceptions that there is a negative relationship between ESG performance and corporate fraud. It supports the validity of our results by indicating that the inhibitory effect of ESG performance on corporate fraud is robust.

Columns (3) and (4) of Table 7 reports the results of the Heckman two-step sample selection model. Specifically, the inverse Mills ratio (IMR) calculated based on the first step regression is then added into the original model. Column (4) of Table 7 reports the results regarding the second-stage regression, and the coefficient on ESG is -0.030, which is significantly negative at the 1% significance level. Most of the coefficients on control variables are consistent with our conjectures. Furthermore, the coefficient on the inverse Mills ratio (IMR) is significant and negative, which implies that the unobserved factors that motivate firms to engage in ESG activities are negatively related to corporate fraud. Overall, these results are consistent with our expectations,

indicating that our findings are robust to sample selection bias.

4.2.6. Instrumental variable (IV) and 2SLS regression

To further solve the reverse causality issue, we employ the two-stage least squares (2SLS) regression and adopt annual average concentration of PM2.5 in prefecture-level cities of the province where firm *i*'s headquarter resides as an instrument for firm *i*'s ESG performance.[1] Specifically, on one hand, institutional and environmental factors are important determinants of ESG performance (Shin et al., 2023). On the other hand, environmental conditions at the city-level should have no direct impacts on corporate fraud. In fact, Chen et al. (2018) show that cities with a high proportion of mandatory CSR reporting firms experience a greater reduction in both the amount of industrial wastewater discharge and the level of sulfur dioxide (SO2) emission after China's CSR disclosure mandate in 2008. Therefore, we utilize the concentration of PM2.5 at the city level as a proxy for firm's ESG performance.

<Insert Table 8 about here>

Table 8 reports the results of IV-2SLS regression which utilizes concentration of PM2.5 as an instrumental variable. As shown in Column (1) of Table 8 for the first-stage regression results, the coefficient of the instrumental variable on ESG scores is significantly negative at the 1% significance level, indicating the significant association between the instrument and the endogenous variable. Intuitively, poor environment indicates a lower requirement of social responsibility. Therefore, the sign of coefficient on the instrumental variable is consistent with our expectations. In addition, the results of the weak instrumental variable test show that the F-statistic is 210.3, which is significantly larger than the critical value at the 5% significance level, indicating that our instrumental variable is valid, i.e., neither under-identified nor weakly identified. Column (2) of Table 8 reports the results of the second-stage regression, where we regress the predicted value of ESG score from the first-stage regression on one-year-ahead corporate fraud. The coefficient on ESG score is still significantly negative at the 5% significance level, and the coefficients on the control variables are quantitatively similar to those in the baseline regression reported in Table 2. Therefore, the results of Table 8 indicates that ESG performance has an inhibitory effect on corporate fraud, even after controlling for potential endogeneity concerns using instrumental variable

[1] Since 2012, China has adopted the Ambient Air Quality Standard and began to develop a national Air Reporting System that now includes 945 sites in 190 cities. These stations report hourly via the internet, and focus on six pollutants: particulate matter < 2.5 microns (PM2.5), particulate matter < 10 microns (PM10), sulfur dioxide (SO2), nitrogen dioxide (NO2), ozone (O3), and carbon monoxide (CO). The 2.5 in PM2.5 refers to the size of the pollutant, in micrometers (microns). (Rohde and Muller, 2015).

method.

4.2.7. Excluding certain industries

Brammer and Pavelin (2006, p.438) argue that "since industry environments are correlated with significant pressure from institutional, and other, stakeholders", the effects of ESG performance on corporate fraud can be expected to vary across industry sectors. For example, certain environmentally sensitive industries tend to exhibit better ESG performance. These industries tend to disclose more information in order to protect their reputation, supporting legitimacy theory and stakeholder theory (Garcia et al., 2017). Because environmental reputation is more likely to be an important resource for companies whose operations are subject to greater political scrutiny relative to their environmental performance, following Cho et al. (2012), we exclude those firms belonging to the basic materials, mining, and utility industries and re-estimate Eq. (1) using Logit and Probit model respectively. The results as shown in Columns (1) and (2) of Table 9 remain unchanged, i.e., the signs and magnitudes of the coefficients on ESG as well as on the control variables are similar to those in the baseline regression of Table 2, therefore we verify that our results are not biased by including certain ESG risk-sensitive industries.

<Insert Table 9 about here>

5. Further analyses

We next run several cross-sectional analyses. In particular, we test whether the relationship between firms' ESG performance and corporate fraud depends on the type of ownership control and the voluntariness of ESG disclosure. We also test the long-term impact of ESG engagement on mitigating corporate fraud. In the end, we conduct several mechanism analyses to better understand the relationship between ESG performance and corporate fraud risk.

5.1. SOE vs. Non-SOE firms

The relationship between the nature of state ownership and corporate misconduct has also been studied in the literature in the context of state-owned enterprises in China (Gao and Yang, 2021; Shi et al., 2020; Su et al., 2021). Su et al. (2021) reveal that state-owned enterprises (SOEs) have a lower probability of committing corporate fraud. Compared to SOEs, non-SOE firms have limited access to resources, which may induce them to violate the rules to overcome institutional barriers and gain extra benefits (Gao and Yang, 2021). Therefore, we empirically examine the impact of ESG engagement on corporate fraud in Chinese SOEs and non-SOEs separately.

<Insert Table 10 about here>

As is shown in Table 10, we find that ESG engagement plays a more important role in mitigating corporate fraud in non-SOEs than in SOEs, which is consistent with the common view of opaque information environment and inadequate corporate governance among non-SOEs in China (Wu et al., 2016; Su et al., 2021). Therefore, ESG would be more important in filling the institutional voids in non-SOEs. However, we have to bear in mind that SOEs in developing countries enjoy tremendous political privileges and are more likely to receive preferential treatment, such as bailouts during financial distress, being exempt from fraud inspections and enforcement actions, which might bias our results (Kong et al., 2019).

5.2. Mandatory vs. voluntary ESG disclosure

Beginning from fiscal year 2008 onward, the Shanghai Stock Exchange (SSE) has mandated companies of the "SSE Corporate Governance Segment", companies issuing foreign shares which are listed abroad, and financial companies to disclose the social responsibility-related information in their annual reports, while the other listed firms are encouraged to publish their corporate social responsibility reports. The Shenzhen Stock Exchange (SZSE) requires listed companies which are constituents of the SZSE 100 Index to prepare annual corporate social responsibility reports, while encourages other listed companies to disclose their social responsibility information. Compared to firms that are mandated to publish CRS reports, firms that voluntarily disclose ESG information tend to have higher ethical standards and stronger self-disciplined managers (He et al., 2022b). Therefore, we conjecture that ESG engagement plays more important role in shaping corporate culture and facilitating corporate governance mechanism in firms that voluntarily disclose ESG information.

<Insert Table 11 about here>

Table 11 reports the results of the subgroup analysis based on ESG disclosure type, i.e., whether the firm discloses its ESG report voluntarily or mandatorily. It can be seen that the coefficient of ESG is significantly negative at the 1% significance level for the voluntary disclosure group as shown in Column (1) and (2), while Column (3) and (4) in Table 11 shows that the coefficient on ESG is insignificant for the mandatory disclosure group. This indicates that our main findings of the negative association between ESG performance and future corporate fraud are more pronounced for the firms which voluntarily disclose their ESG reports. Compared to companies that are mandated to disclose ESG information, firms with voluntary ESG information disclosure can better promote manager self-discipline and facilitate the corporate

governance mechanism to fulfill the monitoring function.

5.3. The long-term impact of ESG engagement on corporate fraud

Although the engagement in ESG could help a firm to build long-term relationships with its stakeholders, enhance its internal governance quality, and cultivate good corporate culture and business ethics, it requires sizable investments and strong managerial commitment, and the aggregate benefit could take years to be achieved (Hillman and Keim, 2001). To examine the long-term impact of ESG engagement on corporate fraud, we follow previous literature to estimate the three-year-ahead incidence of firm-level fraud as shown in Eq. (1), for firm *i* in year *t* (Asante-Appiah and Lambert, 2022). Namely, *Dfraud_3* is defined as the three-year-out cumulative incidence of corporate fraudulent activities for years *t+1*, *t+2*, and *t+3*.

<Insert Table 12 about here>

Table 12 reports the results regarding the long-term impact of ESG engagement on corporate fraud. The results are consistent with our expectations, i.e., the magnitudes of the coefficients on ESG are larger compared to those of one-year-ahead firm-level fraud incidences as shown in Column (1) and (2) of Table 2, which suggests that ESG performance exerts a stronger effect in the long term. The results also indicate that ESG engagement should be considered as long-term oriented which takes time to deliver benefits to the stakeholders.

5.4. Different pillars of ESG

In this subsection, we test the heterogeneous effects of the three dimensions of ESG score on future corporate fraud. Namely, we separately examine the effect of all three dimensions of ESG scores (i.e., E-score, S-score, and G-score) on the probability of corporate fraud, which are also sourced from the Sino-Securities Index Information Service.

<Insert Table 13 about here>

Table 13 reports the results regarding the heterogenous impacts of the three dimensions of ESG ratings on corporate fraud using Probit and Logit model respectively, which are quantitatively similar to those reported in Table 2. It shows that the social responsibility component (S-score) exerts the strongest inhibitory effect on corporate fraud in the context of Chinese listed firms, followed by corporate governance (G-score) and environmental component (E-score). That is, the magnitude of the coefficient on S-score is more than twice that on E-score. In addition, the significance

of the coefficients on control variables are similar across different columns in Table 13. The results are generally consistent with our conjectures that high-quality ESG engagement inhibits corporate fraud mainly through the channel of improved business ethics and corporate governance.

5.5. Mechanism analysis

In this subsection, we seek to identify the potential channels through which ESG performance mitigates corporate fraudulence. Namely, based on the previous study which shows that the quality of ESG engagement could significantly inhibit manager misconduct through corporate governance mechanisms and managers' self-discipline (Gao et al., 2014; He et al., 2022b), we test the mechanisms from the perspective of corporate governance quality and corporate culture (i.e., managerial myopia). Here, we use a two-step regression to examine the compound effect of ESG performance on corporate governance (culture) and corporate fraud. In the first step, ESG performance is regressed on either corporate governance quality or managerial myopia measure. In the second step, a multivariate linear regression regarding the association among ESG performance, the mediator, and corporate fraud is fully conducted. Specifically, the following mediating effect model proposed by Baron and Kenny (1986) and Baran and Forst (2015) is utilized:

$$Mediator_{i,t+1} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_2 Controls_{i,t} + \epsilon \quad (2)$$

$$Dfraud_{i,t+1} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 Mediator_{i,t+1} + \beta_3 Controls_{i,t} + \varepsilon \quad (3)$$

Here, *mediator* indicates the mediating variable to be examined, i.e., CGI indicator or managerial myopia (Myopia), and the definitions of the control variables are the same as those in our baseline model of Eq. (1). Following Hayes (2009) and He et al. (2022b), we also conduct Bootstrap test for verifying the mediating effect.

5.5.1. ESG and corporate governance quality

To test whether ESG performance deters firms from committing fraud through improved corporate governance, we resort to corporate governance quality indicator. To comprehensively measure corporate governance quality of Chinese listed firms, we develop the Corporate Governance Indicator (CGI). Namely, the CGI is a comprehensive measure obtained from combining a wide set of corporate governance quality indicators, including ownership structure, board structure, managerial behavior, information disclosure quality, and business ethics, all of which are the key principles of corporate governance (Jiang and Yuan, 2018; Tang et al., 2023).

Following Jiang and Yuan (2018) and Tang et al. (2023), the twelve variables we adopt are the proportion of shares held by the largest shareholder (Top1), institutional holdings (InstHold), managerial holdings (MHold), sum of the proportion of shares held by the top 10 shareholders, excluding the largest shareholder (S-Index), dummy for state-owned enterprise (SOE), ratio of independent directors on the board (Indep), the number of directors on the board (Board), dummy for unqualified opinion (Unqualified), dummy for cross-listed company (Cross-listing), dummy for adopting one of the Big 4 accounting firms (Big4), the number of analysts following (Analyst), and the amount of donations in CNY (Donation). For the definitions of the governance indicators, please refer to Table A2 in the Appendix. Among the above twelve variables, the first set of variables (Top1, InstHold, MHold, S-Index, Indep, Board, Cross-listing, Big4, Analyst, and Donation) are expected to have a positive impact on governance quality, while the second set of variables (SOE and Unqualified) exert a negative impact on governance (Jiang and Yuan, 2018). Specifically, for each year, we sort all the firms based on each of the first nine variables in descending order, while for the second set of variables, it is sorted in ascending order. Then we obtain the ranking of all firms accordingly for each variable. We thus divide the number of rankings by the total number of observations in each year and multiply the corresponding measure by 100 to obtain a normalized value, ranging from 0 to 100. Then a firm's CGI is constructed as the equally weighted average of the rankings for the twelve variables accordingly. Therefore, a higher value of firm's CGI indicates better corporate governance performance in each year (Wang et al., 2022). The results of CGI suggest that medical, mining, and utility industries exhibit better corporate governance performance in China.

<Insert Table 14 about here>

Then we use the two-step regression to test whether high-quality engagement in ESG could promote corporate governance quality and inhibit corporate fraud. Column (1) of Table 14 reports the results about the effect of ESG performance on corporate fraud, and Column (2) of Table 14 reports the results regarding the impact of ESG on corporate governance quality. The results show that ESG engagement promotes and facilitates the corporate governance's role in mitigating corporate fraud, which is consistent with the findings of Gao et al. (2014). Specifically, in Column (3) of Table 14, the coefficient on ESG is significantly negative at the 1% significance level, and the coefficient on CGI is also significant and negative at the 10% significance level. Overall, the inhibitory effect of ESG performance on corporate fraud remains unchanged, after controlling for the corporate governance mechanism which mediates the negative relationship between corporate ESG performance and corporate fraud.

5.5.2. ESG and managerial myopia

High-quality engagement in ESG could promote manager self-discipline and inhibit managerial myopia (He et al., 2022b). Theoretically, ESG practices cultivate corporate culture of long-term orientation and foster good business ethics, which inhibits corporate fraud. To empirically investigate this channel, we resort to textual analysis techniques, which have been becoming increasingly popular in finance and accounting study, to measure management myopia. Specifically, we refer to the content analysis of Management Discussion and Analysis (MD&A) section in firms' annual financial reports to measure managerial myopia. Based on the Chinese vocabulary developed by Hu et al. (2021), we divide the frequency of short-term oriented words by the total number of words in the MD&A section to measure managerial myopia (Myopia).[2]

Here, we employ the measure of managerial myopia based on the textual analysis developed by Brochet et al. (2015) and Hu et al. (2021), which is calculated as the frequency of short-term oriented words that appear in MD&A section in firms' annual financial reports, divided by the total number of words in MD&As. That is, the more frequently managers use short-term oriented words, the more likely they behave myopically (Sheng et al., 2022). When firms are in greater need for external funds to finance their operations or investments, managers are more likely to behave myopically in order to boost market valuation, which may cause fraudulent activities (Baker and Wurgler, 2002; Garel, 2017). Therefore, we empirically test whether high-quality engagement in ESG could promote manager self-discipline and inhibit managerial myopia.

<Insert Table 15 about here>

Column (1) of Table 15 reports the results regarding the effect of ESG performance on corporate fraud, and Column (2) reports the results regarding the impact of ESG on managerial myopia. The results show that ESG does inhibit managerial myopia. Column (3) of Table 15 reports the results of the second step regression examining the combined impact of ESG and managerial myopia on corporate fraud. The results show that the coefficient of ESG is −0.173, which is significantly negative at the 1% significance level, while the coefficient on managerial myopia becomes insignificant.

[2] According to Hu et al. (2021), the short-term oriented words include: within days ("天内", "日内", "数天"), within months ("数月"), within this year ("年内"), as soon as possible ("尽快"), right away ("立刻", "马上"), moment ("契机"), pressure ("压力"), challenge ("考验", "严峻考验"), immediately ("随即", "即刻", "在即"), no later than ("最晚", "最迟"), at the moment ("之际", "关头", "恰逢", "来临之际", "适逢", "遇上", "正逢", "之时"), just before ("前夕"), difficulty/trouble ("难度", "困境"), double pressure/dual pressure ("双重压力"), inflation pressure ("通胀压力").

However, the inhibitory effect of ESG performance on corporate fraud remains unchanged. The p-value of the Bootstrap test is 0.001, which is significant at the 1% significance level, indicating that managerial myopia, i.e., managers' attitude and approach towards relevant corporate decision-making in the future, mediates the negative relationship between corporate ESG performance and corporate fraud as documented in our baseline regression. Therefore, ESG engagement promotes manager self-discipline by inhibiting their myopia, i.e., the tendency of managers with short horizon to make decisions sub-optimally, which in turn counteracts corporate fraudulence.

6. Conclusion and policy implication

Different from previous literature that focuses exclusively on the impact of ESG on corporate financial performance (Rajesh and Rajendran, 2020; Huang et al., 2020; among many others), we investigate the impact of ESG engagement on firms' non-financial performance, such as corporate fraudulence, and provide strong evidence that high-quality ESG engagement mitigate the likelihood of corporate fraudulence and this negative effect is more pronounced for non-SOE firms and firms that voluntarily disclose social responsibility information. Theoretically, firms might attempt to earn a good reputation vital for their sustainable development and social legitimacy by catering to the stakeholders' demand for ESG initiatives, which actually enhances the internal and external governance of firms, promotes manager self-regulation and mitigate corporate fraudulence. Therefore, our study adds to the growing literature on ESG and its implications on firms and investors. Namely, we focus on the role of ESG engagement in mitigating corporate fraudulence and provide new, robust evidence about the economic and social consequences of ESG engagement. We also complement prior studies on corporate fraud by identifying a new ESG factor that has an inhibitory effect on firms' fraudulent activities.

Our new evidence regarding the impact of ESG on firms and stakeholders contributes to the debate over the value of ESG in academic studies in accounting and finance and bears important practical and policy implications as well. The results suggest that high-quality ESG engagement is helpful in mitigating the risk of corporate fraud, particularly for non-SOE firms and firms that voluntarily disclose ESG information, which will provide some insights into the regulatory framework aiming at ensuring fair information disclosure and promoting investor protection, particularly in the context of emerging markets.

This study can be extended in several ways. First, future studies can extend the findings of this study by constructing new measures of corporate fraud, i.e., using

texture analysis to analyze the nature and content of corporate fraud and to better investigate the relationship between ESG performance and corporate fraud. Second, this research can be extended to other developed and developing countries. An international study can help us to understand mechanisms underlying the relationship between ESG performance and corporate fraudulence around the world. For example, studies could investigate the role of a country's cultural and institutional environments as external contingency factors in the relationship between corporate ESG performance and corporate fraud. Last but not the least, future research could examine how economic and policy uncertainty influences corporate ESG performance and the resulting impact on corporate fraudulence.

References

Albuquerque, R., Koskinen, Y., & Zhang, C. (2019). Corporate social responsibility and firm risk: Theory and empirical evidence. Management Science, 65(10), 4451–4469. https://doi.org/10.1287/mnsc.2018.3043

Andreou, P. C., Antoniou, C., Horton, J., & Louca, C. (2016). Corporate governance and firm-specific stock price crashes. European Financial Management, 22, 916–956.

Asante-Appiah, B., & Lambert, T. A. (2022). The role of the external auditor in managing environmental, social, and governance (ESG) reputation risk. Review of Accounting Studies, forthcoming. https://doi.org/10.1007/s11142-022-09706-z

Baran, L., & Forst, A., 2015. Disproportionate insider control and board of director characteristics. Journal of Corporate Finance, 35, 62-80.

Barnea, A., & Rubin, A. (2010). Corporate social responsibility as a conflict between shareholders. Journal of Business Ethics, 97(1), 71–86. https://doi.org/10.1007/s10551-010-0496-z

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51(6), 1173–1182.

Bhandari, A., Javakhadze, D. 2017. Corporate social responsibility and capital allocation efficiency, Journal of Corporate Finance, 43, 354-377.

Biggerstaff, L., Cicero, D. C., & Puckett, A. (2014). Suspect CEOs, unethical culture, and corporate misbehavior. Journal of Financial Economics, 117(1), 98–121.

Brammer, S. J., Pavelin, S. (2006). Corporate reputation and social performance: The importance of fit. Journal of Management Studies, 43(3), 435-455.

Brochet, F., Loumioti, M., Serafeim. G. (2015). Speaking of the short-term: disclosure horizon and managerial myopia. Rev. Accounting Stud., 20(3), 1122-1163.

Cahan, S. F., Chen, C., Chen, L., & Nguyenc, N. H. (2015). Corporate social responsibility and media coverage. Journal of Banking & Finance, 59, 409–422. https://doi.org/ 10.1016/j.jbankfin.2015.07.004

Callen, J. L., & Fang, X. H. (2017). Crash risk and the auditor-client relationship. Contemporary Accounting Research, 34, 1715–1750.

Chen, D., Wang, F., & Xing, C. (2020). Financial reporting fraud and CEO pay-performance incentives. Journal of Management Science and Engineering, 6(2), 197–210.

Chen, G., Firth, M., & Gao, D. N. (2006). Ownership structure, corporate governance, and fraud: Evidence from China. Journal of Corporate Finance, 12(3), 424–448. https://doi.org/10.1016/j.jcorpfin.2005.09.002

Chen, J., Cumming, D., Hou, W., & Lee, E. (2016). Does the external monitoring effect

of financial analysts deter corporate fraud in China. Journal of Business Ethics, 134(4), 727–742. https://doi.org/10.1007/s10551-014-2393-3

Chen, K. C., & Yuan, H. (2004). Earnings management and capital resource allocation: Evidence from China's accounting-based regulation of rights issues. The Accounting Review, 79, 645–665.

Chen, X., Harford, J., & Li, K. (2007). Monitoring: Which institutions matter? Journal of Financial Economics, 86, 279–305.

Chen, Y.-C., Hung, M., & Wang, Y. (2018). The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China, Journal of Accounting and Economics, 65(1), 169-190. https://doi.org/10.1016/j.jacceco.2017.11.009

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. Strategic Management Journal, 35(1), 1-23.

Chidambaran, N. K., Kedia, S., & Prabhala, N. R. (2012). CEO-director connections and corporate fraud. Fordham University School of Business Research Paper.

Chintrakarn, P., Jiraporn, P., Tong, S., Jiraporn, N., & Proctor, R. (2020). How do independent directors view corporate social responsibility (CSR)? Evidence from a quasi-natural experiment. Financial Review, 55(4), 697–716.

Chiu, P.-C., Teoh, S. H., & Tian, F. (2013). Board interlocks and earnings management contagion. The Accounting Review, 88(3), 915–944. https://doi.org/10.2139/ssrn.1723714

Cho, C. H., Guidry, R. P., Hageman, A. M., Patten, D. M. (2012). Do actions speak louder than words? An empirical investigation of corporate environmental reputation. Accounting, Organizations and Society, 37, 14-25.

Coffee, J. C. (1986). Understanding the plaintiff's attorney: The implications of economic theory for private enforcement of law through class and derivative actions. Columbia Law Review, 86, 669–727.

Delaney, J., & Sockell, D. (1992). Do company ethics training programs make a difference? An empirical analysis. Journal of Business Ethics, 11(9), 719–727.

Dhaliwal, D., Li, O. Z., Tsang, A., & Yang, Y. G. (2014). Corporate social responsibility disclosure and the cost of equity capital: The roles of stakeholder orientation and financial transparency. Journal of Accounting and Public Policy 33 (4), 328–355.

Ding, S., Jia, C., Li, Y., & Wu, Z. (2010). Reactivity and passivity after enforcement actions: Better late than never. Journal of Business Ethics, 95, 337–359.

Ding, D. K., Ferreira, C., & Wongchoti, U. (2016). Does it pay to be different? Relative CSR and its impact on firm value. International Review of Financial Analysis, 47, 86–98. https://doi.org/10.1016/j.irfa.2016.06.013

Do, T. K. (2022). Corporate social responsibility and default risk: International

evidence, Finance Research Letters, 44, 102063. https://doi.org/10.1016/j.frl.2021.102063

Dong, W., Han, H., Ke, Y., & Chan, K. C. (2018). Social trust and corporate misconduct: Evidence from China. Journal of Business Ethics, 151(2), 539–562. https://doi.org/ 10.1007/s10551-016-3234-3

Fatemi, A., Fooladi, I., & Tehranian, H. (2015). Valuation effects of corporate social responsibility. Journal of Banking & Finance, 59, 182–192. https://doi.org/10.1016/ j.jbankfin.2015.04.028

Firth, M., Lin, C., Wong, S. M., & Zhao, X. (2019). Hello, is anybody there? Corporate accessibility for outside shareholders as a signal of agency problems. Review of Accounting Studies, 24, 1317–1358.

Garel, A. (2017). Myopic market pricing and managerial myopia. Journal of Business Finance & Accounting (9-10). doi:10.1111/jbfa.12262.

Gao, F., Dong, Y., Ni, C., & Fu, R. (2016). Determinants and economic consequences of non-financial disclosure quality. The European Accounting Review, 25(2), 287–317. https://doi.org/10.1080/09638180.2015.1013049

Gao, F., Lisic, L. L., & Zhang, I. X. (2014). Commitment to social good and insider trading. Journal of Accounting and Economics, 57(2–3), 149–175. https://doi.org/10.1016/j. jacceco.2014.03.001

Gao, Y., & Yang, H. (2021). Does ownership matter? Firm ownership and corporate illegality in China. Journal of Business Ethics, 168, 431–445. https://doi.org/ 10.1007/s10551-019-04264-y

Garcia, A.S., Mendes-Da-Silva, W., Orsato, R., 2017. Sensitive industries produce better ESG performance: evidence from emerging markets. J. Clean. Prod. 150, 135–147. https://doi.org/10.1016/j.jclepro.2017.02.180.

Gelb, D. S., & Strawser, J. A. (2001). Corporate social responsibility and financial disclosures: An alternative explanation for increased disclosure. Journal of Business Ethics, 33(1), 1–13. https://doi.org/10.1023/A:1011941212444.

Grossman, S., & Hart, O. (1983). An analysis of the principal-agent problem. Econometrica, 51, 7–45.

Hamrouni, A., Uyar, A., & Boussaada, R. (2020). Are corporate social responsibility disclosures relevant for lenders? Empirical evidence from France. Management Decision 58(2), 267-279.

Hass, L. H., Müller, M. A., & Vergauwe, S. (2015b). Tournament incentives and corporate fraud. Journal of Corporate Finance, 34, 251–267.

Hass, L. H., Tarsalewska, M., & Zhan, F. (2015a). Equity incentives and corporate fraud in China. Journal of Business Ethics, 138, 723–742.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the

new millennium. Communication Monographs, 76(4), 408–420. https://doi.org/10.1080/ 03637750903310360

He F., Du, H., & Yu, B. (2022b). Corporate ESG performance and manager misconduct: Evidence from China. International Review of Financial Analysis, 82, 102201. doi:10.1016/J.IRFA.2022.102201.

He, F., Qin, S., Liu, Y., & Wu, J. (2022a). CSR and idiosyncratic risk: evidence from ESG information disclosure. Finance Research Letters, 49, 102936. https://doi.org/10.1016/j. frl.2022.102936.

Hemingway, C. A., & Maclagan, P. W. (2004). Managers' personal values as drivers of corporate social responsibility. Journal of Business Ethics, 50(1), 33–44. https://doi. org/10.1023/B:BUSI.0000020964.80208.c9

Hillman, A. J., Keim, G. D., (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line? Strategic Manage. J., 22, 125–139.

Hoi, C. K., Wu, Q., & Zhang, H. (2013). Is corporate social responsibility (CSR) associated with tax avoidance? Evidence from irresponsible CSR activities. The Accounting Review, 88(6), 2025–2059. https://doi.org/10.2308/accr-50544

Hou, W., & Moore, G. (2010). Players and referee roles held jointly: The effect of state ownership on China's regulatory enforcement against fraud. Journal of Business Ethics, 95, 317–335.

Hu, N., Xue, F., Wang, H. (2021). Does managerial myopia affect long-term investment? Based on text analysis and machine learning (In Chinese). Management World, 37(5), 139-156.

Huang, D. Z. (2021). Environmental, social and governance (ESG) activity and firm performance: a review and consolidation. Accounting & Finance 61(1), 335-360.

Huang, K., Sim, N., & Zhao, H. (2020). Corporate social responsibility, corporate financial performance and the confounding effects of economic fluctuations: A meta-analysis. International Review of Financial Analysis, 70, 101504. https://doi. org/10.1016/j.irfa.2020.101504

Hur, W. M., Moon, T. W., & Ko, S. H. (2018). How employees' perceptions of CSR increase employee creativity: Mediating mechanisms of compassion at work and intrinsic motivation. Journal of Business Ethics, 153, 629–644. https://doi.org/ 10.1007/s10551-016-3321-5

Jian, M. J., & Wong, T. J. (2008). Propping through related-party transactions. Review of Accounting Studies, 15(1), 70–105.

Jiang, G., Lee, C. M. C., & Yue, H. (2010). Tunneling through intercorporate loans: The China experience. Journal of Financial Economics, 98, 1–20.

Jiang, X., & Yuan, Q. (2018). Institutional investors' corporate site visits and corporate innovation. Journal of Corporate Finance, 48, 148–168.

Shin, J., Moon, J.J., & Kang, J. (2023). Where does ESG pay? The role of national culture in moderating the relationship between ESG performance and financial performance. International Business Review, 32(3), 102071, https://doi.org/10.1016/j.ibusrev.2022.102071.

Karpoff, J. M., Scott Lee, D., & Martin, G. S. (2008a). The cost to firms of cooking the books. Journal of Financial and Quantitative Analysis, 43, 581–612.

Karpoff, J. M., Scott Lee, D., & Martin, G. S. (2008b). The consequences to managers for cooking the books. Journal of Financial Economics, 88, 193–215.

Khanna, V., Kim, E. H., & Lu, Y. (2015). CEO connectedness and corporate fraud. The Journal of Finance, 70(3), 1203–1252.

Kim, E. H., & Lu, Y. (2011). CEO ownership, external governance, and risk-taking. Journal of Financial Economics, 102, 272–292.

Kim, Y., Li, H., & Li, S. (2014). Corporate social responsibility and stock price crash risk. Journal of Banking & Finance, 43, 1–13. https://doi.org/10.1016/j.jbankfin.2014.02.013

Kim, Y., Park, M. S., & Wier, B. (2012). Is earnings quality associated with corporate social responsibility? The Accounting Review, 87(3), 761–796. https://doi.org/10.2308/accr-10209

Kong, D., Xiang, J., Zhang, J., & Lu, Y. (2019). Politically connected independent directors and corporate fraud in China. Accounting and Finance, 58, 1347–1383.

Li, H., Zhang, X., & Zhao, Y. (2022). ESG and Firm's Default Risk. Finance Research Letters. 47(b), 102713.

Liao, L., Chen, G., & Zheng, D. (2019). Corporate social responsibility and financial fraud: evidence from China. Accounting and Finance, 59(5), 3133-3169.

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. Journal of Finance, 57, pp. 1-32

McWilliams, A., Siegel, D., & Wright, P. (2006). Corporate social responsibility: Strategic implications. Journal of Management Studies, 43(1), 1–18. https://doi.org/10.1111/j.1467-6486.2006.00580.x

Milgrom, P. R. (1981). Good news and bad news: Representation theorems and applications. Bell Journal of Economics, 12(2), 380–391.

Murphy, D. L., Shrieves, R. E., & Tibbs, S. L. (2009). Determinants of the stock price reaction to allegations of corporate misconduct: Earnings, risk, and firm size effects. Journal of Financial and Quantitative Analysis, 43, 581–612.

Nollet, J., Filis, G., & Mitrokostas, E. (2016). Corporate social responsibility and financial performance: A non-linear and disaggregated approach. Economic Modelling 52(B), 400-407.

Jiraporn, P., Jiraporn, N., Boeprasert, A., & Chang, K. (2014). Does corporate social

responsibility (CSR) improve credit ratings? Evidence from geographic identification. Financ. Manag., 43(3), pp. 505-531.

Pathak, R., & Gupta, R. D., (2022). Environmental, social and governance performance and earnings management – the moderating role of law code and creditor's rights. Finance Research Letters, 47(A), 102849.

Prior, D., Surroca, J., & Tribo, J. A. (2008). Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. Corporate Governance: An International Review, 16(3), 160–177. https://doi.org/10.1111/j.1467-8683.2008.00678.x

Rajesh, R., & Rajendran, C. (2020). Relating Environmental, Social, and Governance scores and sustainability performances of firms: An empirical analysis. Business strategy and the environment 29(3), 1247-1267.

Ren, L., Zhong, X., & Wan, L. (2021). Missing analyst forecasts and corporate fraud: Evidence from China. Journal of Business Ethics. https://doi.org/10.1007/s10551-021-04837-w

Rohde, R. A., & Muller, R. A. (2015) Air pollution in China: Mapping of concentrations and sources. PLoS ONE, 10(8): e0135749. https://doi.org/10.1371/journal.pone.0135749

Sanchez, C. M. (2000). Motives for corporate philanthropy in El Salvador: Altruism and political legitimacy. Journal of Business Ethics, 27(4), 363–375. https://doi.org/ 10.1023/A:1006169005234

Sheng, X., Guo, S., & Chang, S. (2022). Managerial myopia and firm productivity: Evidence from China. Finance Research Letters, 49, 103083.

Shi, W., Aguilera, R., & Wang, K. (2020). State ownership and securities fraud: A political governance perspective. Corporate Governance: An International Review, 28(2), 157–176. https://doi.org/10.1111/corg.12313

Su, F., Feng, X., & Tang, S. (2021). Do site visits mitigate corporate fraudulence? Evidence from China. International Review of Financial Analysis, 78, 101940.

Sun, Y., Sun, X., & Wu, W. (2021). Who detects corporate fraud under the thriving of the new media? Evidence from Chinese-listed firms. Accounting and Finance, 61, 1313–1343.

Tang, D. Y., Yan, J., & Yao, Y. 2021. The determinants of ESG ratings: Rater ownership matters. Proceedings of Paris December 2021 Finance Meeting EUROFIDAI – ESSEC.

Tang, S., He, L., Su, F. & Zhou, X. (2023). Does Directors' and Officers' Liability Insurance improve corporate ESG Performance? Evidence from China. SSRN Working Paper.

Wang, S.Q., Lai, S., Pi, S., & Anderson, H., 2022. Does directors' and officers' liability

insurance induce empire building? Evidence from corporate labor investment. Pacific-Basin Finance Journal, 73, 101753.

Wang, T. Y., Winton, A., & Yu, X. (2010). Corporate fraud and business conditions: Evidence from IPOs. Journal of Finance, 65(6), 2255–2292. https://doi.org/10.1111/ j.1540-6261.2010.01615.x

Wong, W. C., Batten, J. A., Ahmad, A. H., Mohamed-Arshad, S. B., Nordin, S., & Adzis, A. A. (2021). Does ESG certification add firm value? Finance Research Letters, 39, 101593.

Wu, W., Johan, S. A., & Rui, O. M. (2016). Institutional investors, political connections, and the incidence of regulatory enforcement against corporate fraud. Journal of Business Ethics, 134, 709–726.

Yang, D., Jiao, H., & Buckland, R. (2017). The determinants of financial fraud in Chinese firms: Does corporate governance as an institutional innovation matter? Technological Forecasting and Social Change, 125, 309–320.

Young, S. M., & Peng, E. Y. (2013). An analysis of accounting frauds and the timing of analyst coverage decisions and recommendation revisions: Evidence from the US. Journal of Business Finance & Accounting, 40, 399–437.

Zaman, R., Atawnah, N., Baghdadi, G. A., & Liu, J. (2021). Fiduciary duty or loyalty? Evidence from co-opted boards and corporate misconduct. Journal of Corporate Finance, 102066. https://doi.org/10.1016/j.jcorpfin.2021.102066

Zhang, J. (2018). Public governance and corporate fraud: Evidence from the recent anticorruption campaign in China. Journal of Business Ethics, 148, 375–396. https://doi. org/10.1007/s10551-016-3025-x

Zhou, F., Zhu, J., Qi, Y., Yang, J., & An, Y. (2021). Multi-dimensional corporate social responsibilities and stock price crash risk: Evidence from China. International Review of Financial Analysis, 78, 101928. https://doi.org/10.1016/j. irfa.2021.101928

Tables

Table 1. Descriptive statistics

This table reports descriptive statistics for the main variables used in this study. Summary statistics is reported in Panel A, and the correlation matrix in reported in Panel B. The sample period is from 2014 to 2021 for all the variables except for *Dfraud*, which is one year ahead of other variables. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Panel A: Summary statistics

Variables	N	Mean	Median	Std Dev	Min	P25	P75	Max
ESG	14620	4.055	4.000	1.152	1.000	3.000	5.000	7.000
Dfraud	14620	0.244	0.000	0.430	0.000	0.000	0.000	1.000
Fraud	14620	0.245	0.000	0.471	0.000	0.000	0.000	1.946
Size	14620	22.621	22.445	1.360	20.087	21.652	23.427	26.596
BM	14620	0.646	0.643	0.255	0.134	0.450	0.842	1.194
Lev	14620	0.481	0.484	0.339	0.076	0.193	0.622	0.897
Tobin_Q	14620	2.239	1.724	1.565	0.858	1.273	2.576	9.905
ROA	14620	1.958	1.800	3.144	-9.553	0.548	3.500	11.790
Growth	14620	0.029	0.028	0.056	-0.196	0.008	0.054	0.210
Age	14620	12.012	11.000	7.543	0.000	5.000	19.000	27.000
Top1	14620	0.338	0.314	0.148	0.086	0.221	0.437	0.741
Inst	14620	0.449	0.470	0.240	0.010	0.259	0.637	0.914
Board	14620	2.375	2.398	0.265	1.609	2.197	2.565	2.996
Indep	14620	0.390	0.375	0.101	0.000	0.333	0.444	0.667
Dual	14620	0.031	0.000	0.174	0.000	0.000	0.000	1.000
SOE	14620	0.400	0.000	0.490	0.000	0.000	1.000	1.000
Big4	14620	0.078	0.000	0.269	0.000	0.000	0.000	1.000
Turnover	14620	6.076	4.649	4.850	0.510	2.624	8.084	25.445
Fraud_lag	14620	0.219	0.000	0.414	0.000	0.000	0.000	1.000
News	14620	4.290	4.304	0.702	2.639	3.784	4.787	5.793
Analysts	14620	1.405	1.386	1.170	0.000	0.000	2.398	3.761

Panel B: Correlation matrix

	ESG	Dfraud	Fraud	Size	BM	Lev	Tobin_Q	ROA	Growth	Age	Top1
ESG	1										
Dfraud	-0.227***	1									
Fraud	-0.252***	0.915***	1								
Size	0.270***	-0.090***	-0.088***	1							
BM	0.130***	-0.064***	-0.54***	0.648***	1						
Lev	-0.037***	0.040***	0.038***	0.508***	0.448***	1					
Tobin_Q	-0.125***	0.043***	0.037***	-0.469***	-0.765***	-0.357***	1				
ROA	0.236***	-0.158***	-0.183***	0.011	-0.215***	-0.358***	0.147***	1			
Growth	0.243***	-0.151***	-0.176***	0.115***	-0.104***	-0.180***	0.056***	0.846***	1		
Age	-0.001	-0.028***	-0.028***	0.381***	0.303***	0.335***	-0.173***	-0.139***	-0.076***	1	
Top1	0.124***	-0.135***	-0.138***	0.240***	0.167***	0.074***	-0.137***	0.137***	0.135***	0.000	1
Inst	0.146***	-0.127***	-0.132***	0.482***	0.247***	0.207***	-0.147***	0.097***	0.124***	0.262***	0.551***
Board	-0.017**	-0.008	-0.001	0.249***	0.189***	0.154***	-0.131***	-0.076***	-0.044***	0.176***	-0.005
indep	0.043***	-0.052***	-0.066***	-0.103***	-0.150***	-0.094***	0.149***	0.050***	0.032***	-0.081***	0.013
Dual	0.028***	0.009	0.009	0.105***	0.053***	0.061***	-0.028***	-0.033***	-0.024***	0.062***	-0.061***
SOE	0.127***	-0.139***	-0.150***	0.355***	0.307***	0.261***	-0.212***	-0.093***	-0.041***	0.449***	0.267***
Big4	0.147***	-0.084***	-0.083***	0.365***	0.163***	0.090***	-0.096***	0.067***	0.089***	0.065***	0.164***
Turnover	-0.124***	0.063***	0.064***	-0.416***	-0.294***	-0.188***	0.214***	-0.009	-0.037***	-0.327***	-0.160***
Fraud_lag	-0.211***	0.176***	0.185***	-0.035***	-0.006	0.075***	0.015*	-0.137***	-0.124***	0.071***	-0.120***
News	0.133***	0.009	0.001	0.341***	-0.093***	0.095***	0.129***	0.111***	0.138***	0.004	0.092***
Analysts	0.276***	-0.091***	-0.107***	0.333***	-0.133***	-0.069***	0.099***	0.417***	0.385***	-0.129***	0.082***

	Inst	Board	indep	Dual	SOE	Big4	Turnover	Fraud_lag	News	Analysts
Inst	1									
Board	0.179***	1								
indep	-0.082***	-0.083***	1							
Dual	-0.003	0.072***	-0.024***	1						
SOE	0.429***	0.229***	-0.080***	-0.042***	1					
Big4	0.275***	0.082***	-0.011	0.072***	0.135***	1				
Turnover	-0.344***	-0.124***	0.113***	-0.031***	-0.218***	-0.149***	1			
Fraud_lag	-0.099***	0.024***	-0.025***	0.029***	-0.057***	-0.059***	-0.003	1		
News	0.176***	0.041***	0.136***	0.023***	0.033***	0.210***	0.078***	-0.024***	1	
Analysts	0.179***	-0.007	0.042***	0.035***	-0.069***	0.193***	-0.114***	-0.104***	0.459***	1

Table 2. ESG performance and firms' fraudulent activities – Main regression

This table reports the results regarding the impact of ESG performance on corporate fraud of Chinese listed firm based on Eq. (1), utilizing Logit and Probit model respectively. Columns (2) and (4) include all the control variables. In addition, we control for industry and year fixed effects to capture unobserved heterogeneity across industries and the influence of unobservable time-invariant factors. Here, *ESG_AME* indicates the average marginal effect (AME) of ESG on the probability of the incidence of corporate fraud. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	Logit		Probit	
Dfraud	(1)	(2)	(3)	(4)
ESG	-0.321***	-0.174***	-0.191***	-0.104***
	(0.020)	(0.023)	(0.012)	(0.014)
ESG_AME	-0.057***	-0.029***	-0.058***	-0.030***
	(0.004)	(0.004)	(0.004)	(0.004)
Size		0.087**		0.048*
		(0.043)		(0.025)
BM		-0.382*		-0.232*
		(0.210)		(0.122)
Lev		0.336*		0.210**
		(0.171)		(0.101)
Tobin_Q		0.004		0.002
		(0.027)		(0.016)
ROA		-0.056***		-0.033***
		(0.017)		(0.010)
Growth		-1.486*		-0.836*
		(0.853)		(0.499)
Age		-0.005		-0.003
		(0.004)		(0.003)
Top1		-1.074***		-0.637***
		(0.205)		(0.119)
Inst		-0.146		-0.087
		(0.140)		(0.082)
Board		0.222**		0.135**
		(0.097)		(0.056)
Indep		-0.644**		-0.372**
		(0.257)		(0.151)
Dual		-0.088		-0.054
		(0.171)		(0.100)
SOE		-0.684***		-0.398***
		(0.063)		(0.036)
Big4		-0.453***		-0.248***
		(0.116)		(0.063)
Turnover		-0.000		-0.000

		(0.006)		(0.004)
Fraud_lag		0.344***		0.206***
		(0.056)		(0.033)
News		0.007		0.008
		(0.052)		(0.030)
Analysts		-0.129***		-0.076***
		(0.029)		(0.017)
Constant	0.791***	-0.916	0.465***	-0.504
	(0.185)	(0.802)	(0.113)	(0.467)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	11,068	10,748	11,068	10,748
Pseudo-R2	0.055	0.095	0.056	0.096

Table 3. Robustness test – Alternative ESG measure

This table reports the regression results of Eq. (1) after replacing the explanatory variable with the ESG rating score provided by SynTao Green Finance (ST_ESG). We control for industry and year fixed effects to capture unobserved heterogeneity across industries and the influence of unobservable time-invariant factors. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**Logit**	**Probit**
Dfraud	(1)	(2)
ST_ESG	-0.167***	-0.099***
	(0.060)	(0.033)
Size	-0.030	-0.013
	(0.104)	(0.059)
BM	-1.084**	-0.571**
	(0.448)	(0.253)
Lev	1.204***	0.646**
	(0.465)	(0.266)
Tobin_Q	-0.032	-0.014
	(0.066)	(0.037)
ROA	-0.059	-0.032
	(0.038)	(0.022)
Growth	-1.354	-0.761
	(2.031)	(1.150)
Age	-0.020**	-0.011**
	(0.009)	(0.005)
Top1	-1.391***	-0.784***
	(0.450)	(0.252)
Inst	-0.278	-0.166
	(0.324)	(0.187)
Board	0.562***	0.334***
	(0.204)	(0.117)
Indep	-0.768	-0.436
	(0.565)	(0.321)
Dual	-0.243	-0.144
	(0.273)	(0.153)
SOE	-0.939***	-0.523***
	(0.132)	(0.074)
Big4	-0.123	-0.069
	(0.166)	(0.090)
Turnover	0.028*	0.015
	(0.017)	(0.010)
Fraud_lag	0.468***	0.275***
	(0.123)	(0.072)

News	-0.029	-0.017
	(0.108)	(0.062)
Analysts	-0.324***	-0.182***
	(0.062)	(0.035)
Constant	2.005	1.006
	(2.129)	(1.205)
Industry FE	YES	YES
Year FE	YES	YES
Observations	2,890	2,890
Pseudo-R2	0.169	0.170

Table 4. Robustness test – Alternative regression model

This table reports the results regarding the impact of ESG performance on corporate fraud of Chinese listed firms by adopting an alternative measure of corporate fraud as the dependent variable. Here, *Fraud* stands for the natural logarithm of one plus firm *i*'s fraud cases against securities laws and regulations in year *t*+1. Correspondingly, we use Tobit model to ensure unbiased and consistent estimation, as the values of independent variable are continuously distributed in positive values but take zero values with positive probability. We control for industry and year fixed effects to capture unobserved heterogeneity across industries and the influence of unobservable time-invariant factors. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**Tobit**	
Fraud	(1)	(2)
ESG	-0.255***	-0.135***
	(0.016)	(0.017)
Size		0.070**
		(0.031)
BM		-0.293**
		(0.149)
Lev		0.230*
		(0.122)
Tobin_Q		0.001
		(0.019)
ROA		-0.040***
		(0.012)
Growth		-1.169*
		(0.600)
Age		-0.004
		(0.003)
Top1		-0.820***
		(0.146)
Inst		-0.088
		(0.100)
Board		0.170**
		(0.069)
Indep		-0.460**
		(0.184)
Dual		-0.101
		(0.122)
SOE		-0.538***
		(0.045)
Big4		-0.340***
		(0.079)

Turnover		0.001
		(0.004)
Fraud_lag		0.265***
		(0.040)
News		0.003
		(0.037)
Analysts		-0.099***
		(0.021)
Constant	0.619***	-0.770
	(0.141)	(0.570)
Industry FE	YES	YES
Year FE	YES	YES
N	11,068	10,748
R-squared	0.044	0.076

Table 5. Robustness test – Fraud types

This table reports the results regarding the impact of ESG performance on different types of corporate fraud, using the Logit model. Namely, we categorize all reported corporate fraud cases into four major types. The first type of corporate fraud is financial fraud (Financial fraud), including inflated profits and fabrication of assets. The second type of fraud is management fraud (Management Fraud), which includes illegal share buybacks, unauthorized change in use of funds, controlling shareholder's embezzlement, insider trading, stock price manipulation, and illegal loan guarantee. The third type of fraud is disclosure fraud (Disclosure fraud), including delays in disclosure, false statements, and omission of major information. The last type of fraud includes all other fraudulent activities (Other Fraud). In addition, we control for industry and year fixed effects to capture unobserved heterogeneity across industries and the influence of unobservable time-invariant factors. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**Financial fraud**	**Management fraud**	**Disclosure fraud**	**Other fraud**
	(1)	(2)	(3)	(4)
ESG	-0.210***	-0.194***	-0.166***	-0.152***
	(0.039)	(0.033)	(0.028)	(0.027)
Size	0.244***	0.046	0.099*	0.071
	(0.076)	(0.063)	(0.053)	(0.052)
BM	-0.655*	-0.204	-0.088	-0.311
	(0.368)	(0.308)	(0.258)	(0.252)
Lev	0.069	-0.015	0.318	-0.019
	(0.281)	(0.242)	(0.204)	(0.201)
Tobin_Q	0.060	0.001	0.022	-0.043
	(0.043)	(0.038)	(0.032)	(0.033)
ROA	-0.049*	-0.025	-0.055***	-0.060***
	(0.026)	(0.023)	(0.019)	(0.019)
Growth	-3.276**	-1.368	-2.144**	-1.714*
	(1.415)	(1.236)	(1.008)	(1.012)
Age	-0.012	-0.009	0.005	0.003
	(0.008)	(0.006)	(0.005)	(0.005)
Top1	-1.070***	-1.072***	-0.776***	-1.087***
	(0.366)	(0.300)	(0.252)	(0.248)
Inst	-0.326	-0.014	-0.240	0.047
	(0.240)	(0.194)	(0.171)	(0.167)
Board	0.484***	0.330**	0.212*	0.000
	(0.167)	(0.139)	(0.117)	(0.114)
Indep	-0.634	-0.941**	-0.605*	-0.245
	(0.450)	(0.367)	(0.315)	(0.302)
Dual	-0.055	0.025	-0.120	-0.151
	(0.291)	(0.241)	(0.213)	(0.203)

SOE	-0.639***	-0.968***	-0.752***	-0.580***
	(0.113)	(0.098)	(0.077)	(0.075)
Big4	-0.567**	-0.467**	-0.577***	-0.553***
	(0.242)	(0.187)	(0.156)	(0.149)
Turnover	0.015	0.001	0.005	0.004
	(0.011)	(0.009)	(0.008)	(0.007)
Fraud_lag	0.429***	0.005	0.287***	0.412***
	(0.091)	(0.082)	(0.067)	(0.065)
News	-0.167*	-0.028	-0.067	0.030
	(0.090)	(0.075)	(0.063)	(0.061)
Analysts	-0.149***	-0.063	-0.156***	-0.119***
	(0.050)	(0.042)	(0.036)	(0.035)
Constant	-5.808***	-1.613	-2.155**	-1.541
	(1.432)	(1.187)	(0.994)	(0.968)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	10,695	10,748	10,742	10,748
Pseudo-R2	0.1027	0.0702	0.0868	0.0817

Table 6. Robustness test – Firm fixed effect

This table reports the results regarding the impact of ESG performance on corporate fraud of Chinese listed firms, where Column (1) reports the results using logistic regression model and Column (2) reports the results using the probit model. We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. In addition, we control for firm fixed effect to take account of the influence of firm-specific time-invariant unobservable factors. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**Logit**	**Probit**
Dfraud	(1)	(2)
ESG	-0.176***	-0.105***
	(0.027)	(0.016)
Size	0.096*	0.054*
	(0.052)	(0.030)
BM	-0.410	-0.253*
	(0.260)	(0.149)
Lev	0.297	0.186
	(0.219)	(0.128)
Tobin_Q	0.003	0.001
	(0.030)	(0.017)
ROA	-0.057***	-0.033***
	(0.018)	(0.011)
Growth	-1.524	-0.852
	(0.938)	(0.544)
Age	-0.005	-0.003
	(0.006)	(0.003)
Top1	-1.095***	-0.651***
	(0.267)	(0.153)
Inst	-0.103	-0.063
	(0.183)	(0.107)
Board	0.225**	0.135**
	(0.113)	(0.066)
Indep	-0.620**	-0.358**
	(0.273)	(0.160)
Dual	-0.058	-0.038
	(0.174)	(0.101)
SOE	-0.694***	-0.404***
	(0.084)	(0.048)
Big4	-0.457***	-0.248***
	(0.162)	(0.086)
Turnover	0.001	0.001
	(0.007)	(0.004)
Fraud_lag	0.318***	0.191***

	(0.066)	(0.039)
News	-0.018	-0.008
	(0.060)	(0.035)
Analysts	-0.122***	-0.071***
	(0.036)	(0.021)
Constant	-0.973	-0.535
	(1.016)	(0.585)
Industry FE	YES	YES
Year FE	YES	YES
Firm FE	YES	YES
N	10,748	10,748
Pseudo-R2	0.0989	0.0996

Table 7. Robustness test – PSM and Heckman two-step sample selection model

This table reports the results regarding the impact of ESG performance on corporate fraud of Chinese listed firms, by utilizing PSM procedure and Heckman two-step model. Here, *Treat* is a dummy variable for the treatment group, specifically, the 30% quantile of ESG performance of Chinese listed firms is selected as the breakpoint in this paper, firms with ESG scores greater than the 30% quantile are assigned into the treatment group, while the other firms remain in the control group. Columns (1) and (2) report the results using PSM procedure, where Column (1) presents the results using Logit regression model, and Column (2) shows the results of the regression based on the matched samples. Columns (3) and (4) reports the results using Heckman two-step sample selection model, where Column (3) presents results of the first-stage regression and Column (4) presents the second-stage regression results. *IMR* indicates inverse-Mills-ratio. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Variables	PSM model		Heckman two-step model	
	Treat	Dfraud	Treat	Dfraud
	(1)	(2)	(3)	(4)
ESG		-0.193***		-0.030***
		(0.034)		(0.004)
IMR				-0.700***
				(0.269)
Size	0.297***	0.154**	0.025	0.033***
	(0.033)	(0.068)	(0.025)	(0.008)
BM	0.144	-0.437	-0.226*	-0.210***
	(0.159)	(0.325)	(0.121)	(0.049)
Lev	-1.603***	0.012	0.313***	0.245***
	(0.135)	(0.260)	(0.100)	(0.063)
Tobin_Q	-0.085***	0.017	0.008	0.007
	(0.019)	(0.042)	(0.016)	(0.005)
ROA	0.045***	-0.078***	-0.034***	-0.032***
	(0.013)	(0.025)	(0.010)	(0.006)
Growth	1.824***	-1.411	-0.947*	-0.858***
	(0.676)	(1.279)	(0.498)	(0.218)
Age	-0.021***	-0.001	-0.001	-0.002**
	(0.003)	(0.007)	(0.003)	(0.001)
Top1	0.192	-0.496	-0.621***	-0.562***
	(0.169)	(0.310)	(0.119)	(0.110)
Inst	-0.348***	-0.369*	-0.067	-0.072***
	(0.116)	(0.211)	(0.082)	(0.027)
Board	-0.470***	0.341**	0.159***	0.138***
	(0.079)	(0.149)	(0.056)	(0.031)
Indep	1.044***	-0.825**	-0.446***	-0.388***
	(0.202)	(0.403)	(0.150)	(0.085)
Dual	0.263	0.017	-0.071	-0.062**

	(0.120)	(0.268)	(0.100)	(0.030)
SOE	0.593***	-0.759***	-0.438***	-0.394***
	(0.050)	(0.097)	(0.036)	(0.072)
Big4	0.159*	-0.406**	-0.255***	-0.223***
	(0.095)	(0.195)	(0.063)	(0.047)
Turnover	-0.011**	0.013	0.001	0.000
	(0.005)	(0.009)	(0.004)	(0.001)
Fraud_lag	-0.684***	0.258***	0.240***	0.212***
	(0.045)	(0.082)	(0.033)	(0.040)
News	0.038	-0.044	0.013	0.008
	(0.036)	(0.079)	(0.030)	(0.008)
Analysts	0.221***	-0.058	-0.090***	-0.079***
	(0.024)	(0.045)	(0.017)	(0.015)
Constant	-4.382***	-2.325*	-0.501	0.836***
	(0.628)	(1.279)	(0.466)	(0.210)
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
N	14,624	4,163	10,749	10,748
Adj./pseudo-R2	0.106	0.087	0.091	0.099

Table 8. Robustness test – Instrumental variable (IV) approach

This table reports the results regarding impact of ESG performance on firms' fraudulent activities by utilizing an instrumental variable (IV) approach. In particular, we use the annual average concentration of PM2.5 in prefecture-level cities of the province where firm *i*'s headquarter resides as an instrument for firm *i*'s ESG performance. The second-stage regression is then conducted for the outcome equation of interest after replacing the endogenous variable of ESG performance with its predicted values. We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**ESG**	**Dfraud**
	(1)	(2)
ESG		-0.606**
		(0.310)
PM2.5	-0.002***	
	(0.001)	
Size	0.219***	-0.107
	(0.015)	(0.114)
BM	-0.037	-0.191
	(0.070)	(0.139)
Lev	-0.966***	0.938*
	(0.061)	(0.499)
Tobin_Q	-0.048***	0.043
	(0.009)	(0.031)
ROA	0.022***	-0.046***
	(0.006)	(0.015)
Growth	1.263***	-1.769**
	(0.297)	(0.817)
Age	-0.019***	0.010
	(0.001)	(0.010)
Top1	-0.010	-0.584***
	(0.072)	(0.142)
Inst	-0.191***	0.044
	(0.051)	(0.132)
Board	-0.241***	0.292**
	(0.035)	(0.131)
Indep	0.670***	-0.919**
	(0.093)	(0.402)
Dual	0.110**	-0.140
	(0.050)	(0.133)
SOE	0.404***	-0.675***
	(0.022)	(0.205)

Big4	0.085**	-0.347***
	(0.034)	(0.086)
Turnover	-0.009***	0.008
	(0.002)	(0.007)
Fraud_lag	-0.415***	0.455**
	(0.021)	(0.188)
News	-0.044**	0.038
	(0.018)	(0.041)
Analysts	0.147***	-0.175**
	(0.010)	(0.073)
Constant	0.031	-0.484
	(0.279)	(0.529)
Year FE	YES	YES
Industry FE	YES	YES
N	14,069	10,360
R-squared	0.254	
Pseudo R2		0.229

Table 9. Robustness test – Excluding certain industries

This table reports the results regarding the impacts of ESG performance on corporate fraud, by excluding those firms belonging to the basic materials, mining, and utility industries. We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	Logit	Probit
Dfraud	(1)	(2)
ESG	-0.176***	-0.106***
	(0.025)	(0.015)
Size	0.105**	0.060**
	(0.045)	(0.026)
BM	-0.308	-0.190
	(0.219)	(0.127)
Lev	0.277	0.174*
	(0.178)	(0.105)
Tobin_Q	0.017	0.009
	(0.027)	(0.016)
ROA	-0.057***	-0.033***
	(0.017)	(0.010)
Growth	-1.505*	-0.862*
	(0.873)	(0.513)
Age	-0.008*	-0.005*
	(0.005)	(0.003)
Top1	-0.917***	-0.547***
	(0.215)	(0.126)
Inst	-0.236	-0.143*
	(0.146)	(0.086)
Board	0.211**	0.129**
	(0.101)	(0.059)
Indep	-0.726***	-0.420***
	(0.266)	(0.156)
Dual	-0.058	-0.039
	(0.176)	(0.103)
SOE	-0.644***	-0.374***
	(0.066)	(0.038)
Big4	-0.378***	-0.208***
	(0.119)	(0.066)
Turnover	-0.005	-0.002
	(0.007)	(0.004)
Fraud_lag	0.362***	0.217***
	(0.058)	(0.035)

News	0.021	0.018
	(0.054)	(0.031)
Analysts	-0.129***	-0.076***
	(0.030)	(0.018)
Constant	-1.321	-0.764
	(0.847)	(0.495)
Industry FE	YES	YES
Year FE	YES	YES
N	9,593	9,593
Pseudo_R^2	0.089	0.089

Table 10. Subgroup analysis – SOE vs. Non-SOE

This table reports the results of subgroup analysis, which is performed based on firm's ownership type (i.e., SOE firms versus non-SOE firms). We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. = Dfraud	**SOE**		**Non-SOE**	
	Logit	Probit	Logit	Probit
	(1)	(2)	(3)	(4)
ESG	-0.162***	-0.093***	-0.181***	-0.109***
	(0.043)	(0.024)	(0.028)	(0.017)
ESG_AME	-0.020***	-0.021***	-0.036***	-0.036***
	(0.005)	(0.005)	(0.005)	(0.005)
Size	-0.040	-0.018	0.184***	0.107***
	(0.076)	(0.042)	(0.054)	(0.032)
BM	-0.542	-0.331	-0.216	-0.124
	(0.374)	(0.207)	(0.264)	(0.157)
Lev	0.518*	0.292*	0.090	0.071
	(0.312)	(0.177)	(0.212)	(0.127)
Tobin_Q	-0.119**	-0.065**	0.057*	0.034*
	(0.059)	(0.033)	(0.031)	(0.019)
ROA	-0.056*	-0.030*	-0.059***	-0.0345***
	(0.032)	(0.018)	(0.020)	(0.012)
Growth	-0.370	-0.265	-2.067*	-1.209*
	(1.363)	(0.779)	(1.128)	(0.671)
Age	-0.012	-0.007	-0.006	-0.004
	(0.008)	(0.004)	(0.006)	(0.003)
Top1	-1.557***	-0.853***	-0.457*	-0.283*
	(0.408)	(0.224)	(0.252)	(0.151)
Inst	-0.826**	-0.456**	-0.088	-0.046
	(0.394)	(0.219)	(0.153)	(0.091)
Board	0.329*	0.184*	0.185	0.113
	(0.179)	(0.099)	(0.117)	(0.070)
Indep	-1.351***	-0.744***	-0.306	-0.173
	(0.504)	(0.278)	(0.304)	(0.182)
Dual	-0.383	-0.192	-0.090	-0.060
	(0.385)	(0.208)	(0.193)	(0.116)
Big4	-0.242	-0.124	-0.553***	-0.322***
	(0.174)	(0.091)	(0.158)	(0.091)
Turnover	0.002	0.003	0.002	0.001
	(0.014)	(0.008)	(0.007)	(0.004)
Fraud_lag	0.486***	0.279***	0.269***	0.164***

	(0.100)	(0.057)	(0.068)	(0.041)
News	0.125	0.070	-0.031	-0.014
	(0.088)	(0.049)	(0.066)	(0.039)
Analysts	-0.139***	-0.080***	-0.113***	-0.067***
	(0.054)	(0.030)	(0.035)	(0.021)
Constant	2.016	0.998	-3.532***	-2.083***
	(1.389)	(0.775)	(1.035)	(0.618)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	4,520	4,520	6,225	6,225
Pseudo_R^2	0.116	0.116	0.065	0.065

Table 11. Subgroup analysis – Voluntary vs. mandatory disclosure

This table reports the results of subgroup analysis, which is performed based on whether the firm issues ESG reports voluntarily or mandatorily (i.e., voluntary versus mandatory disclosure). We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. = Dfraud	**Voluntary**		**Mandatory**	
	Logit	Probit	Logit	Probit
	(1)	(2)	(3)	(4)
ESG	-0.178***	-0.107***	-0.035	-0.018
	(0.025)	(0.015)	(0.077)	(0.044)
ESG_AME	-0.032***	-0.032***	-0.004	-0.004
	(0.004)	(0.004)	(0.009)	(0.009)
Size	0.140***	0.081***	0.008	-0.001
	(0.049)	(0.029)	(0.123)	(0.069)
BM	-0.435*	-0.267**	-0.519	-0.218
	(0.230)	(0.135)	(0.592)	(0.330)
Lev	0.201	0.132	1.180*	0.621*
	(0.180)	(0.107)	(0.642)	(0.360)
Tobin_Q	0.015	0.008	-0.046	-0.016
	(0.028)	(0.017)	(0.092)	(0.049)
ROA	-0.060***	-0.036***	-0.041	-0.021
	(0.017)	(0.010)	(0.060)	(0.033)
Growth	-1.736*	-0.973*	0.142	-0.075
	(0.908)	(0.534)	(2.661)	(1.509)
Age	-0.007	-0.004	-0.015	-0.007
	(0.005)	(0.003)	(0.014)	(0.008)
Top1	-1.009***	-0.604***	-1.367**	-0.730**
	(0.221)	(0.129)	(0.637)	(0.351)
Inst	-0.126	-0.071	-0.532	-0.327
	(0.146)	(0.086)	(0.547)	(0.306)
Board	0.161	0.100	0.608**	0.353**
	(0.104)	(0.061)	(0.282)	(0.157)
Indep	-0.584**	-0.342**	-0.541	-0.306
	(0.274)	(0.162)	(0.794)	(0.439)
Dual	0.070	0.040	-0.779*	-0.430*
	(0.190)	(0.114)	(0.443)	(0.235)
SOE	-0.654***	-0.382***	-0.784***	-0.444***
	(0.069)	(0.040)	(0.170)	(0.096)
Big4	-0.351**	-0.206**	-0.356*	-0.174
	(0.146)	(0.082)	(0.212)	(0.112)
Turnover	0.007	0.000	0.006	0.009

	(0.006)	(0.004)	(0.027)	(0.015)
Fraud_lag	0.306***	0.185***	0.560***	0.324***
	(0.059)	(0.035)	(0.176)	(0.102)
News	0.014	0.011	0.110	0.077
	(0.055)	(0.033)	(0.162)	(0.090)
Analysts	-0.100***	-0.059***	-0.424***	-0.231***
	(0.031)	(0.018)	(0.090)	(0.050)
Constant	-2.018**	-1.169**	-0.045	-0.075
	(0.926)	(0.546)	(2.356)	(1.321)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	8,820	8,820	1,903	1,903
Pseudo_R^2	0.081	0.081	0.166	0.167

Table 12. The long-term impact of ESG engagement on corporate fraud

This table reports the results regarding the long-term impact of ESG performance on firms' fraudulent activities of Chinese listed firms. Specifically, we estimate the incidence of three-year-out future firm-level fraud (Dfraud_3) for each category of ESG engagement. *Dfraud_3* is defined as the 3-year cumulative incidence of corporate fraudulent activities. We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**Logit**	**Probit**
Dfraud_3	(1)	(2)
ESG	-0.188***	-0.242***
	(0.011)	(0.018)
Size	0.032*	0.051
	(0.019)	(0.031)
BM	-0.270***	-0.430***
	(0.090)	(0.148)
Lev	0.228***	0.398***
	(0.078)	(0.129)
Tobin_Q	-0.004	-0.004
	(0.011)	(0.018)
ROA	-0.020***	-0.031***
	(0.007)	(0.012)
Growth	-0.431	-0.764
	(0.381)	(0.627)
Age	0.001	0.001
	(0.002)	(0.003)
Top1	-0.660***	-1.083***
	(0.092)	(0.151)
Inst	-0.053	-0.085
	(0.065)	(0.105)
Board	0.070	0.115
	(0.045)	(0.073)
Indep	-0.200*	-0.333*
	(0.119)	(0.195)
Dual	0.103	0.178*
	(0.064)	(0.105)
SOE	-0.355***	-0.578***
	(0.028)	(0.046)
Big4	-0.254***	-0.422***
	(0.046)	(0.077)
Turnover	0.002	0.003
	(0.003)	(0.005)

Fraud_lag	0.253***	0.412***
	(0.027)	(0.044)
News	0.042*	0.068*
	(0.023)	(0.038)
Analysts	-0.059***	-0.096***
	(0.013)	(0.022)
Constant	0.500	0.844
	(0.358)	(0.587)
Industry FE	YES	YES
Year FE	YES	YES
Firm FE	YES	YES
N	10,748	10,748
Pseudo-R2	0.0989	0.0996

Table 13. The impact of different pillars of ESG

This table reports the results regarding the heterogenous impact of all three ESG dimensions on firms' fraudulent activities of Chinese listed firms. Specifically, we estimate the effect of E-score, S-score, and G-score on corporate fraud using Logit and Probit model separately. We control for industry and year fixed effects to capture unobserved heterogeneity across industries and years. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	**Logit**	**Probit**	**Logit**	**Probit**	**Logit**	**Probit**
Dfraud	(1)	(2)	(3)	(4)	(5)	(6)
E-score	-0.073***	-0.043***				
	(0.021)	(0.012)				
S-score			-0.172***	-0.102***		
			(0.023)	(0.014)		
G-score					-0.137***	-0.082***
					(0.018)	(0.011)
Size	0.062	0.034	0.087**	0.049*	0.074*	0.041
	(0.043)	(0.025)	(0.043)	(0.025)	(0.043)	(0.025)
BM	-0.373*	-0.229*	-0.384*	-0.234*	-0.366*	-0.223*
	(0.209)	(0.121)	(0.210)	(0.122)	(0.210)	(0.122)
Lev	0.520***	0.319***	0.336**	0.211**	0.234	0.148
	(0.170)	(0.100)	(0.171)	(0.101)	(0.174)	(0.103)
Tobin_Q	0.011	0.005	0.005	0.002	0.016	0.008
	(0.027)	(0.016)	(0.027)	(0.016)	(0.027)	(0.016)
ROA	-0.060***	-0.035***	-0.056***	-0.032***	-0.053***	-0.031***
	(0.016)	(0.010)	(0.016)	(0.010)	(0.017)	(0.010)
Growth	-1.658*	-0.933*	-1.491*	-0.842*	-1.610*	-0.903*
	(0.853)	(0.499)	(0.854)	(0.500)	(0.855)	(0.500)
Age	-0.003	-0.002	-0.005	-0.003	-0.002	-0.001
	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
Top1	-1.059***	-0.629***	-1.074***	-0.636***	-1.051***	-0.621***
	(0.205)	(0.119)	(0.205)	(0.119)	(0.205)	(0.119)
Inst	-0.127	-0.074	-0.145	-0.086	-0.103	-0.063
	(0.139)	(0.082)	(0.140)	(0.082)	(0.140)	(0.082)
Board	0.263***	0.158***	0.221**	0.135**	0.198**	0.121**
	(0.096)	(0.056)	(0.097)	(0.056)	(0.097)	(0.057)
Indep	-0.747***	-0.438***	-0.644**	-0.373**	-0.566**	-0.324**
	(0.256)	(0.150)	(0.257)	(0.151)	(0.258)	(0.151)
Dual	-0.102	-0.062	-0.086	-0.053	-0.086	-0.053
	(0.170)	(0.100)	(0.171)	(0.100)	(0.171)	(0.100)
SOE	-0.744***	-0.433***	-0.684***	-0.398***	-0.653***	-0.378***
	(0.062)	(0.036)	(0.063)	(0.036)	(0.063)	(0.037)
Big4	-0.470***	-0.258***	-0.455***	-0.249***	-0.427***	-0.231***

	(0.115)	(0.063)	(0.116)	(0.063)	(0.116)	(0.063)
Turnover	0.000	0.000	-0.000	-0.000	0.001	0.001
	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)
Fraud_lag	0.399***	0.239***	0.344***	0.206***	0.320***	0.192***
	(0.055)	(0.033)	(0.056)	(0.033)	(0.056)	(0.034)
News	0.018	0.014	0.008	0.008	-0.002	0.003
	(0.051)	(0.030)	(0.052)	(0.030)	(0.052)	(0.030)
Analysts	-0.150***	-0.088***	-0.129***	-0.076***	-0.134***	-0.078***
	(0.029)	(0.017)	(0.029)	(0.017)	(0.029)	(0.017)
Constant	-1.045	-0.577	-0.933	-0.516	-0.423	-0.206
	(0.801)	(0.466)	(0.802)	(0.467)	(0.807)	(0.469)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
N	10,748	10,748	10,748	10,748	10,748	10,748
Pseudo-R2	0.091	0.092	0.095	0.096	0.095	0.096

Table 14. Mechanism analysis – Corporate Governance Indicator (CGI)

This table reports the results regarding the impact of ESG performance on corporate fraud of Chinese listed firms, by examining the mediating effect of corporate governance. We utilize the Corporate Governance Indicator (CGI) to measure corporate governance quality. We control for industry fixed effect and year fixed effect to capture for unobserved heterogeneity across industries and the influence of unobservable time-invariant factors. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	Dfraud	CGI	Dfraud
	(1)	(2)	(3)
ESG	-0.174***	0.315***	-0.172***
	(0.023)	(0.061)	(0.023)
CGI			-0.009*
			(0.005)
Size	0.087**	0.866***	0.090**
	(0.043)	(0.124)	(0.043)
BM	-0.382*	0.634	-0.370*
	(0.210)	(0.546)	(0.210)
Lev	0.336*	-0.461	0.316*
	(0.171)	(0.504)	(0.172)
Tobin_Q	0.004	0.173**	0.004
	(0.027)	(0.067)	(0.027)
ROA	-0.056***	0.240***	-0.055***
	(0.016)	(0.040)	(0.016)
Growth	-1.490*	-1.528	-1.474*
	(0.854)	(2.003)	(0.854)
Age	-0.005	-0.237***	-0.007
	(0.004)	(0.015)	(0.004)
Top1	-1.074***	5.512***	-1.013***
	(0.205)	(0.640)	(0.208)
Inst	-0.146	9.465***	-0.057
	(0.140)	(0.449)	(0.147)
Board	0.222**	-0.529**	0.299***
	(0.097)	(0.238)	(0.105)
Indep	-0.644**	0.689	-0.402
	(0.257)	(0.604)	(0.286)
Dual	-0.088	-0.054	-0.085
	(0.171)	(0.396)	(0.171)
SOE	-0.684***	-5.137***	-0.740***
	(0.063)	(0.209)	(0.069)
Big4	-0.453***	5.588***	-0.400***
	(0.116)	(0.312)	(0.119)

Turnover	-0.000	-0.077***	-0.001
	(0.006)	(0.015)	(0.006)
Fraud_lag	0.344***	-0.179	0.343***
	(0.056)	(0.138)	(0.056)
News	0.007	0.597***	0.009
	(0.052)	(0.138)	(0.052)
Analysts	-0.129***	1.323***	-0.106***
	(0.029)	(0.075)	(0.031)
Constant	-0.916	21.345***	-0.873
	(0.802)	(2.399)	(0.803)
Observations	10,748	10,748	10,748
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adj./pseudo-R2	0.095	0.509	0.095

Table 15. Mechanism analysis – Managerial myopia

This table reports the results regarding the impact of ESG performance on corporate fraud of Chinese listed firms, by examining the mediating effect of managerial myopia. We utilize the frequency of short-term oriented words divided by the total number of words in the MD&A section in firms' annual reports to measure managerial myopia (Myopia). We control for industry fixed effect and year fixed effect to capture for unobserved heterogeneity across industries and the influence of unobservable time-invariant factors. The standard errors shown in parentheses are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10% significance level respectively.

Dep. Var. =	Dfraud	Myopia	Dfraud
	(1)	(2)	(3)
ESG	-0.174***	-0.001**	-0.173***
	(0.023)	(0.001)	(0.023)
Myopia			-0.109
			(0.404)
Size	0.087**	0.003***	0.094**
	(0.043)	(0.001)	(0.043)
BM	-0.382*	0.005	-0.386*
	(0.210)	(0.005)	(0.210)
Lev	0.336*	0.021***	0.318*
	(0.171)	(0.005)	(0.172)
Tobin_Q	0.004	0.001	0.004
	(0.027)	(0.001)	(0.027)
ROA	-0.056***	-0.001	-0.057***
	(0.016)	(0.000)	(0.017)
Growth	-1.490*	0.011	-1.507*
	(0.854)	(0.019)	(0.856)
Age	-0.005	0.001***	-0.006
	(0.004)	(0.000)	(0.004)
Top1	-1.074***	-0.011*	-1.079***
	(0.205)	(0.006)	(0.206)
Inst	-0.146	0.003	-0.161
	(0.140)	(0.005)	(0.140)
Board	0.222**	0.002	0.217**
	(0.097)	(0.002)	(0.097)
Indep	-0.644**	0.012**	-0.630**
	(0.257)	(0.006)	(0.258)
Dual	-0.088	0.002	-0.086
	(0.171)	(0.004)	(0.171)
SOE	-0.684***	0.014***	-0.677***
	(0.063)	(0.002)	(0.063)
Big4	-0.453***	0.009***	-0.436***

	(0.116)	(0.003)	(0.116)
Turnover	-0.000	0.000***	-0.000
	(0.006)	(0.000)	(0.006)
Fraud_lag	0.344***	-0.001	0.347***
	(0.056)	(0.001)	(0.056)
News	0.007	-0.006***	0.010
	(0.052)	(0.001)	(0.052)
Analysts	-0.129***	-0.004***	-0.132***
	(0.029)		(0.029)
Constant	-0.916	0.007	-1.038
	(0.802)	(0.024)	(0.807)
Observations	10,748	14,451	10,683
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adj./pseudo-R2	0.095	0.145	0.095

Appendix

Table A1. Variable definitions

This table presents the definitions of all the variables used in this study.

Category	Variable	Definition
Dependent variable	Dfraud	A dummy variable which equals one if violations against the securities laws and regulations imposed by the regulatory bodies, are recorded for firm *i* in year *t+1*, otherwise it equals zero;
	Fraud	The natural logarithm of one plus the number of firm *i*'s fraud cases against the securities laws and regulations imposed by the regulatory bodies in year *t+1;*
Explanatory variable	ESG	The ESG score for firm *i* in year *t*, published by Sino-Securities Index Information Service. Here, ESG scores are transferred from C to AAA into numbers 1 to 9.
Mediating variable	CGI	A comprehensive corporate governance quality measure obtained from combining a wide set of corporate governance indicators, including ownership structure, board structure, information environment, and business ethics.
	Myopia	The frequency of short-term oriented words divided by the total number of words in the MD&A section for firm *i* in year *t,* based on the Chinese vocabulary developed by Hu et al. (2021);
Instrumental variable	PM2.5	The annual average concentration of PM2.5 in prefecture-level cities of the province where firm *i*'s headquarter resides in year *t*;
Control variable	Size	The natural logarithm of firm *i*'s book value of total assets in year *t*;
	BM	The market value of common equity plus the book value of total liabilities, divided by the book value of total assets of firm *i* in year *t*;
	Lev	The sum of firm *i*'s short- and long-term debt divided by the book value of its total assets in year *t*;
	Tobin's Q	The market value of firm *i*'s assets divided by replacement value of the firm's assets at the end of fiscal year *t*;
	ROA	The net profits divided the total assets of firm *i* in year *t*;

Growth	The annualized sales growth rate for firm *i* in year *t*;
Age	The natural logarithm of one plus the firm' age since its establishment;
Top1	The percentage of ownership held by the largest shareholder in year *t*;
Inst	The percentage of ownership held by institutional investors in year *t*;
Board	The natural logarithm of one plus the number of directors on the board in year *t*;
Indep	The natural logarithm of one plus the number of independent directors, divided by the total number of directors on the board in year *t*;
Dual	A dummy variable equal to one when the CEO also chairs the board, and zero otherwise;
Big4	A dummy variable equal to one when the auditor for firm *i* is one of the Big 4 audit firms or their predecessors, and zero otherwise;
SOE	A dummy variable equal to one when firm *i* is a state-owned enterprise (SOE), and zero otherwise;
Fraud_lag	A dummy variable which equals one if firm *i* had ever committed fraudulent activities in the past three years (t-1 to t-3), and zero otherwise;
Turnover	The natural logarithm of annual number of shares traded divided by the total number of shares outstanding of firm *i* in year *t*;
News	The natural logarithm of one plus the number of news related to firm *i* in year *t*;
Analysts	The natural logarithm of one plus the number of analysts following firm *i* in year *t*;

Table A2. Description of the CGI

This table describes the components of the Corporate Governance Indicator (CGI).

Category	Indicator	Expected sign	Definition
Ownership Structure	Top1	+	The proportion of shares held by the largest shareholder at the end of the fiscal year *t*;
	S-Index	+	The proportion of shares held by the top 10 shareholders, excluding the largest shareholder, at the end of the fiscal year *t*;
	InstHold	+	The proportion of shares held by institutional investors at the end of the fiscal year *t*;
	MHold	+	The proportion of shares held by managers and directors at the end of the fiscal year *t*;
	SOE	-	A dummy variable that equals 1 if firm *i* is a state-owned enterprise (SOE), and 0 otherwise;
Board Structure	Indep	+	The percentage of independent directors on the board at the end of the fiscal year *t*;
	Board	+	The number of directors on the board at the end of the fiscal year *t*;
	Analyst	+	The natural logarithm of one plus the number of analysts covering firm *i* in year *t*.
Disclosure quality	Cross-listing	+	A dummy variable that equals 1 if firm *i* is a cross-listed company, and 0 otherwise;
	Big4	+	A dummy variable that equals 1 if the firm is audited by Big 4 audit firms, and 0 otherwise;
	Unqualified	-	A dummy variable that equals 1 if the firm received an unqualified opinion in year *t*;
Business Ethics	Donations	+	The natural logarithm of one plus the amount of donations in CNY for firm *i* in year *t*;