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The Externalities of ESG Disclosure

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Yi Jiang
Harbin Institute of Technology
Ya Kang
Chinese University of Hong Kong
Hao Liang
Singapore Management University and ECGI

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Abstract

We study the negative externalities of mandatory environmental, social, and governance (ESG) disclosure through the lens of regulatory salience. Our analysis exploits a unique setting in China, where firms differ in their exposure to a countrywide political campaign of combating poverty depending on whether they are required to disclose their contribution to it on their ESG reports ("treatment"). Using a difference-in-differences analysis, we find that treated firms significantly increase their donations to poverty alleviation but also their pollutions, following the treatment. Negative environmental externalities increase with firms' financial constraints and market competition. Further evidence shows that treated firms receive more government subsidies and state-owned bank loans, and achieve greater operating performance and valuation. Collectively, these findings suggest that mandatory ESG disclosure may induce firms to trade off different ESG goals by prioritizing more conspicuous ESG practices at the cost of trivializing other, longer-term, issues.

Keywords: ESG disclosure, poverty alleviation, pollution, regulatory salience, political incentives

JEL Classifications: G18, G32, G38, K22, K32, M14, M41, M48

Yi Jiang
Assistant Professor
Harbin Institute of Technology
School of Management, HIT
Shenzhen, China
e-mail: jiangyi@hit.edu.cn

Ya Kang
Assistant Professor
Chinese University of Hong Kong
Cheng Yu Tung Building, 12 Chak Cheung Street
Shatin, N.T., Hong Kong, China
e-mail: yakang@cuhk.edu.hk

Hao Liang*
Associate Professor of Finance
Singapore Management University, Lee Kong Chian School of Business
50 Stamford Road
Singapore 178899, Singapore
phone: +65 6828 0662
e-mail: hliang@smu.edu.sg

*Corresponding Author

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Abstract

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† Jiang is at School of Economics and Management, Harbin Institute of Technology (Shenzhen). Email: jiangyi@hit.edu.cn. Kang is at CUHK Business School, Chinese University of Hong Kong. Email: yakang@cuhk.edu.hk. Liang (corresponding author) is at Lee Kong Chian School of Business, Singapore Management University. Address: 50 Stamford Road, Singapore 178899. Email: hliang@smu.edu.sg. Tel: +65-6828-0662. Fax: +65-6828-0777. We thank Lilian Ng, Rong Wang, Aaron Yoon, as well as seminar and conference participants at the University of International Business and Economics, Wuhan University, Singapore Management University, and the Hawkes Center Workshop on Sustainability and Sustainable Finance at Swansea University. Ya Kang acknowledges financial support from the Research Grants Council of the Hong Kong Special Administration Region, China (Project No. CUHK 24503522)

The Externalities of ESG Disclosure

1. Introduction

The disclosure of environmental, social, and corporate governance (ESG) information has become increasingly prevalent around the world. Today, almost all public companies regularly publish ESG reports alongside their annual reports. Most of these disclosures are made on voluntary basis, driven by investors' and societal demand for more reliable ESG data (Ilhan et al., 2021), and following frameworks developed by international organizations. [1] In addition, many jurisdictions have enacted ESG disclosure requirements to more closely monitor corporate ESG actions.[2]

The literature mostly focuses on the informational role of corporate disclosures—especially those mandated ones—as reporting of material information within a firm can help reduce information acquisition costs by various stakeholders, leading them to commit more resources to the firm. In addition, the disclosure of verifiable and contractible measurement rules is important for setting performance-based compensation, covenants, and other contractual contingencies, which help align the interests between corporate insiders and outsiders, as well as alleviate moral hazard and adverse selection problems. Despite the mounting evidence on the positive "information" effect and "incentive alignment" effect of mandatory disclosure, little is known about the potential negative effects of mandatory disclosure, especially regarding ESG information. This is what we aim to address in the paper.

[1] Examples of such frameworks include the Taskforce for Climate-Related Financial Disclosure (TCFD), the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the newly created International Sustainability Standards Board (ISSB).

[2] Several countries, such as the UK and Singapore, have prescribed ESG-related disclosures on specific topics, such as climate-related issues, for all public companies, while stock exchanges in other countries have also enacted non-prescriptive regulations that require some companies to issue ESG reports. More recently, the European Commission's proposal for a Corporate Sustainability Reporting Directive (CSRD), new legislation that aims to replace the Non-Financial Reporting Directive (NFRD), envisages the adoption of mandatory reporting of broad ESG issues across all large companies in the EU. The US Securities and Exchange Commission (SEC) is also contemplating mandating climate-related disclosures for all listed companies, which has triggered fierce debates.

Motivating our empirical investigation is the idea that mandating disclosure on specific ESG issues increases their regulatory saliency, incentivizing reporting firms to focus more on the mandated issues than on other ESG issues. This may lead firms to trade off more salient, shorter-term ESG goals with longer-term goals, especially when they face resource constraints. Therefore, mandatory ESG disclosure may also create negative externalities through distorting managerial incentives and resource allocation. We call this the "regulatory salience" effect of mandatory disclosure, and examine its implications on cross-ESG tradeoff and firm performance.

While studies on voluntary ESG disclosure are abundant, the literature on mandatory ESG disclosure is rather limited (Christensen et al., 2021) and predominantly focusing on the effect of climate-related disclosure (e.g., Jouvenot and Krueger, 2020; Tomar, 2021; Grewal, 2021; Downar et al., 2021).[3] However, these studies remain silent on the potential externalities of mandatory ESG reporting. In addition, there lacks a setting in which the regulatory salience of different ESG issues—thus the extent of incentive distortion induced by mandatory disclosure—vary across firms, impeding researchers forming appropriate treatment and control groups. Existing policy frameworks based on mandatory disclosure either focus on one single aspect of ESG for all firms (e.g., the greenhouse gas emission disclosure mandates in the UK and Singapore) or do not differentiate between general ESG issues and specific ESG issues (e.g., the EU NFRD/CSRD). Thus, policy changes do not engender a meaningful control group, making it difficult to examine whether and how firms prioritize different ESG issues.

We aim to address the gaps in the literature by exploiting a unique setting of China, where the regulator differentially requires listed firms to disclose their contributions to poverty alleviation, and study the real effect of regulatory salience on firms' behavior with regard to trading off different ESG commitments. In 2016,

[3] Besides climate-related disclosures, Christensen et al. (2017) focus on workplace safety issues. Regarding broader ESG issues, Ioannou and Serafeim (2019), Krueger et al. (2021) and Fiechter et al. (2022) provide international evidence that ESG-related mandatory disclosure requirements are associated with greater corporate social responsibility (CSR) engagement, greater firm value and other beneficial real outcomes.

the China Securities and Regulatory Commission (CSRC) started mandating all listed firms to disclose detailed quantitative information on their pecuniary and non-pecuniary contributions to the "targeted poverty alleviation" (TPA) program, a political campaign of China's paramount leader Xi Jinping. An important feature of this mandate is that CSRC specifically requires a pre-determined subset of listed firms to additionally disclose their TPA contributions in their ESG reports.[4] This extra requirement makes TPA a more salient issue than other aspects of ESG to firms that have to highlight their contributions to it in a separate report, compared to other firms, as such ESG report usually puts a firm's ESG efforts under spotlight rather than muddled with financial information. Moreover, since 2016, a firm needs to standardize only its TPA information in its ESG report, whereas there has been no prescriptive guideline for disclosing other ESG information. Therefore, we use "TPA disclosure mandate" hereafter to refer to the *additional* reporting requirement for TPA information that applies to the subset of firms (which are mandated to issue ESG reports) since 2016.

This setting offers several advantages for us to study the incentive distortion effect of mandatory ESG disclosure. First, China's regulatory regime with regard to ESG disclosure has evolved from requiring a specific set of firms to disclose general ESG issues to mandating all firms to disclose specific ESG issues (i.e., donation and poverty alleviation). Therefore, it is broader in scope as compared to the mandatory disclosure on firms' carbon footprint that exists in other countries (e.g., in the UK and Singapore, and the recent US SEC proposal). It also provides variation in its emphasis on different "E" and "S" aspects over time, allowing us to study how firms trade off different ESG goals. Second, the special treatment on a pre-determined set of firms (i.e., those having to issue ESG reports) creates variations in the relative saliency of the same ESG issue between the treated and control groups. This enables us to meaningfully compare the magnitudes of incentive distortion across firms. In addition, the fact that the list of treated firms was determined long before the enactment of the TPA disclosure mandate, i.e., as early as 2008, when China first mandated general ESG disclosure,

[4] This set of firms were determined in 2008 by CSRC, which required them to issue CSR reports to disclose general ESG issues, but without providing detailed guidance on how to disclose such information.

alleviates the concern that these firms are "selected" into the treatment group due to their financial performance or unobservable characteristics.

Using this setting, we investigate whether and to what extent the TPA disclosure mandate generates negative environmental externalities. Our focus on environmental issues in the analysis is motivated by their long-term nature. Because of the long timespan of solving environmental problems and the lack of verifiable immediate outcomes of such efforts, firms may be incentivized to deprioritize this issue and to direct resources to TPA, which is more salient and for which there is a clear timeline for achieving its goals.

Employing a sample of firms listed on the Shanghai and Shenzhen stock exchanges over the period 2013–2019 and applying a difference-in-differences (DiD) methodology, we examine the effects of the TPA disclosure mandate on Chinese firms' donations to poverty alleviation and pollutions. We first find that while all firms increased their TPA donations after the TPA disclosure mandate, treated firms on average increased their TPA donations by 500,000 USD more than control firms. This direct effect is economically sizable, as it represents a 7.5 times increase from the pre-mandate level. In contrast, the increase in TPA donations by control firms is economically modest, at around 1.2 times increase on average. As all firms are required to disclose their TPA contributions, it is surprising that treated firms donate much more compared to control firms merely because they need to additionally disclose this information on their CSR reports. We argue that this is because TPA is more salient for them. To highlight this saliency effect, we term these treated firms "salient firms."

Next, we find that in response to the mandate, salient firms on average released 5,258 more tons of toxic pollutants relative to control firms after the disclosure mandate, translating into monetary costs of 5-15 million CNY (0.68-2.05 million USD) based on the estimation of abatement investment. These pollutants cover a wide range of toxicants, including sulfur dioxide and heavy metals, even tiny amounts of which are found to be hazardous to public health (Currie and Schmieder, 2009; Currie et al., 2014). Alternative specifications show that the results are not driven by unobservable firm-specific factors or time-

varying industry shocks, but more likely signify the negative externalities of the TPA disclosure mandate on the environment. This finding suggests a reallocation of corporate resources across different ESG categories, from the environmental ("E") dimension to the more regulatorily salient social ("S") dimension—thus reflecting a tradeoff between different ESG goals under mandatory ESG disclosure. Interestingly, we do not find similar results for other ESG concerns, such as product quality and employee wellbeing, which are regular issues with immediate outcomes, and which do not have the long timespan as environmental goals.

We then conduct a textual analysis to further pin down the regulatory salience channel that drives the above tradeoff. Analyzing keywords in both news articles in major state-owned newspapers and local government working reports, we first document a significant shift in regulators' attention from environmental protection to poverty alleviation after the 2016 reporting mandate. We further provide firm-level evidence that salient firms are more frequently covered with TPA-related keywords in the media, and their pollutions increase more with the aggregate media coverage on their TPA contributions, compared to control firms.

To substantiate the interpretation on salience-induced incentive distortion and to rule out alternative explanations, we perform several additional tests. First, we show that our finding is unlikely driven by a selection effect in which politically important firms are pressured to both issue ESG reports and make more TPA contributions. To this end, we focus on state-owned enterprises (SOEs) which are usually champions in promoting political agenda, and fail to find that they exhibit stronger tradeoff behavior, rejecting this selection hypothesis. To further alleviate potential selection concerns, we adopt a matching method, in which we match each treated firm with at most three control firms based on a set of observable characteristics. Our results are upheld after applying this matching.

In addition, we show that the increased level of pollution is not driven mechanically by the expansion of business operations. Moreover, our findings are robust to alternative data on firm-level pollution as well as accounting for regulatory stringencies and penalties. Furthermore, we show that the TPA–environment tradeoff appears to take place within a firm's fixed budgets, as we do

not find a significant difference in salient firms' capital expenditure and R&D investment before and after the mandate, as compared to those of control firms. In other words, the TPA disclosure mandate has changed how the pie of ESG spending is split but not the total size of the pie. Finally, in a dynamic analysis testing the pre-trend, we do not find differences in donations and pollution levels between treated and control firms in absence of the mandate.

We then conduct several cross-sectional analyses to corroborate our findings. First, financially constrained firms are more prone to making such a tradeoff as they need to prioritize their spending on ESG activities that are more under the spotlight, and thus cut spending on other less salient but costly ESG issues, such as pollution reduction. Consistent with this prediction, we find the negative environmental externalities are concentrated in firms that are more financially constrained. Second, firms facing fiercer market competition are more incentivized to prioritize regular spending that does not cause significant cash flow fluctuations (commonly seen in expenditures on long-term environment abatement). Supporting these arguments, we find greater environmental externalities of the TPA disclosure mandate for firms with higher levels of product market competition. Further evidence suggests that such salient firms received more government subsidies and state-owned bank loans, and achieved greater operating performance and valuation.

Our findings add to the extant literature in several ways. First, we contribute to the growing literature on the real effects of (mandatory) ESG disclosure (Christensen et al., 2021). The effects of voluntary ESG disclosures have been well studied in the literature, but they usually suffer from self-selection issues, as the decision of choosing whether and what ESG information to disclose is usually related to other firm-level attributes and actions. Focusing on mandatory ESG disclosures can largely alleviate this selection concern, but it is ex ante unclear whether they should have any real effect, as many have low standards and loose guidelines, and some firms may choose to comply only superficially with any disclosure requirements (Krueger et al., 2021). Among the handful of studies that do find evidence of the real impacts of reporting mandates, they are usually limited to specific sectors (e.g., Christensen et al. (2017) on mining)

or outcomes (e.g., Jouvenot and Krueger (2020), Downar et al. (2021) and Tomar (2021) on GHG emissions; Rauter (2020) on corporate payment and investment policies). Krueger et al. (2021) investigate mandatory disclosure on broader ESG issues, but mostly focus on the implications for shareholders (e.g., stock crash risks), instead of the real effects on firms and their stakeholders. Fiechter et al. (2022) also take a broad ESG perspective by exploring the EU's NFRD, but their setting does not allow for a well-defined control group as all firms within the EU are affected. Moreover, these studies do not investigate the potential negative externalities of mandatory ESG disclosure—a question that is of paramount importance as such reporting mandates usually have specific goals but largely ignore their unintended consequences. By utilizing a Chinese setting with clearly defined treatment and control groups between which the saliency of reporting mandate varies, we provide more nuanced evidence on this issue. Perhaps the closest study to ours is Chen et al. (2018), which also exploits a Chinese setting but focuses on the 2008 disclosure mandate that requires the same set of companies to issue CSR reports. Chen et al. (2018) explore the *generic* ESG reporting mandate but their setting does not allow for studying the tradeoff across different ESG goals.

Second, we add to the emerging literature on how firms balance different ESG goals (see Bénabou and Tirole, 2010, Freeman, 2010, Kitzmueller and Shimshack, 2012, and Bridoux and Stofberg, 2015, for a review and detailed discussions). Existing studies mostly focus on how firms trade off shareholder interests and stakeholder welfare, especially when facing budget constraints (e.g., Xu and Kim, 2022) as well as short-term market and earnings pressures (Liu et al., 2021; Chen et al., 2018; Thomas et al., 2022). Unlike these studies, our study provides evidence on the tradeoff between different stakeholders' welfares as triggered by mandatory disclosure. We show how such a tradeoff can be driven by firms' strategic choice to pander to politicians' salient agenda in exchange for favorable treatment when facing resource constraints, unveiling a regulatory salience and incentive distortion channel.

2. Institutional Background and Hypothesis Development

2.1 The TPA Campaign and Disclosure Mandate

Despite China's remarkable achievement in combating poverty, a large part of the population had been living in extreme poverty. In 2013, one year after taking over the presidency, Xi Jinping launched the campaign of "targeted poverty alleviation" (TPA), which is central to China's anti-poverty strategy and to the centenary goal of the Communist Party of China (CPC) to build a "moderately prosperous society." The TPA aims to accurately identify impoverished areas and populations, and to allocate resources toward them (Liu et al., 2018).[5] In pursuit of the TPA agenda, a national poverty registration system has been established, leading groups on poverty alleviation have been set up at all administrative levels, clear guidelines have been developed, and target populations and timelines have been selected.[6]

Against the backdrop of this political campaign, CSRC introduced the mandatory disclosure of corporate contributions to poverty alleviation in 2016, and implemented it in the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE). Both exchanges issued an announcement mandating detailed disclosure of corporate anti-poverty contributions as a part of their total donations for all firms, while a pre-determined subset of firms are additionally required to disclose their TPA donations in a separate CSR report. In addition, SSE and SZSE issued a series of guidelines on the format of reporting TPA contributions to ensure that the information provided by firms is not boilerplate. A firm needs to provide information on the monetary amount of pecuniary donations, the number of poor people it helps, and the number of jobs created for people living in rural areas, all of which is quantitative information and thus less subject to discretion.

The unique institutional features of the TPA disclosure mandate make it an ideal setting for studying the causal effects of mandatory disclosure on corporate

[5] For more detailed information, see the official document *Opinion on Promoting Poverty Alleviation through Innovative Mechanisms*, issued in 2013 by the State Council of China.

[6] In 2021, Xi declared a complete victory in the campaign to eradicate extreme poverty, attributing this victory to the eight-year TPA campaign, which lifted nearly 100 million people out of poverty (https://www.bbc.com/zhongwen/simp/chinese-news-56194835).

ESG tradeoff. The evolution of the regulatory landscape of ESG reporting in China, as illustrated in Figure 1, help us distinguish between disclosing generic and specific ESG issues, and between treated and control firms. In 2008, CSRC first introduced the ESG disclosure mandate for the subset of firms listed on SSE and SZSE.[7] These firms include those listed in the "Corporate Governance Sector" of SSE, financial firms, firms with overseas listings, firms included in the "Shenzhen 100 Index," and centrally administered state-owned enterprises (SOEs).[8] The 2008 mandate does not specify the topics and formats of ESG disclosure, and is instead a general framework requiring firms to disclose on a broad range of issues. Starting from 2016, all listed firms have been required to report their TPA contributions in their annual reports, whereas those subject to the 2008 reporting mandate, i.e., treated firms, are additionally required to disclose detailed information on TPA contributions in their separate CSR reports. In other words, treated firms are more exposed to the regulatory salience of the TPA program because they have to feature it more prominently in a separate place, without providing additional information. This feature allows us to disentangle the incremental effect of mandated disclosure in a separate ESG report from the effect of disclosing any "new" information.

2.2 Related Literature

The literature offers several views on the channels through which ESG disclosure can have real effects. The predominant view is that disclosure improves a firm's information environment and reduces information-processing costs for various stakeholders. In general, a reporting mandate facilitates the disclosure and dissemination of information on a firm's endeavors in specific areas, which reduces the cost for stakeholders to acquire information and increases public

[7] The enforcement of the mandated ESG disclosure is nontrivial in that firms that fail to provide a report are subject to delisting (Chen et al., 2018).

[8] For example, the Notice on Periodic Reports by Listed Companies issued by SSE states that "*A subset of firms, including firms listed in its "Corporate Governance Sector", financial firms as well as firms with overseas listed shares, are required to issue CSR reports when issuing annual report… Those who issue CSR reports should emphasize information on corporate engagement in social poverty alleviation and disclose it separately in their CSR reports… CSR reports should be approved by the board of directors…Other listed firms are encouraged to issue CSR reports*." SZSE simultaneously issued a similar note stating that "*Firms included in "Shenzhen 100 Index" are required to issue CSR reports which should be approved by the board of directors… CSR reports should separately cover corporate involvement in social poverty alleviation…*".

awareness of the firm's behavior (Kanodia and Lee, 1998; Blankespoor et al., 2020). With regard to ESG disclosure, this process enables stakeholders to more actively monitor and to put greater pressure on the reporting firm to improve their ESG practice (Christensen et al., 2021; Houston and Shan, 2022). Greater engagement in ESG issues further helps the firm to receive more stakeholder support (Christensen et al., 2017).

This information channel can also function through peer benchmarking. That is, by facilitating greater transparency, disclosure enables managers to learn about their peers' performance through other companies' disclosures, leading managers to adjust their own investment policies (Beatty et al., 2013). Peer pressures also incentivize firms to take real actions to compete for stakeholder resources. However, such competitive incentives may also lead firms to disclose selectively to avoid releasing proprietary information to their rivals.

Another yet related view is that ESG disclosure helps align the interests of managers and stakeholders. Well-defined measurement rules make accounting information verifiable and contractible, which alleviate problems of moral hazard and adverse selection. This is due to the need for compensation contract to be contingent on financial performance and various economic events. In addition, accounting measurements provide many financial indicators on which covenants and contractual contingencies—those help allocate control rights thus decision-making power within a firm—are written (Kanodia and Sapra, 2016). Moreover, managers may also have incentives to manipulate corporate decisions in order to receive the accounting treatment they desire the most (Dye, Glover, and Sunder, 2015). We term this an incentive-alignment channel.

2.3 Hypothesis Development

We propose a new yet largely unexplored mechanism, namely regulatory salience, for how ESG disclosure affects corporate behavior. Political attention and scrutiny by public authorities motivate firms to devote resources to issues that local politicians care about, in order to gain strategic benefits such as political favor (Liston-Heyes and Ceton, 2007; Lin et al., 2015). In our context, a firm may strategically respond to the TPA campaign by committing more resources toward

poverty alleviation so as to cater to politicians' interests, in return for favorable treatment. The saliency of the campaign varies across firms depending on how they are required to disclose their contributions to it by the regulator. This view, as well as the information and incentive alignment views, all predict that both treated and control firms would increase their spending toward poverty alleviation after the 2016 reporting mandate. However, the regulatory salience view would further predict that salient firms, which are additionally required to disclosure their TPA contributions on a separate ESG report, would donate more. To the extent that an ESG report serves as the major source of corporate ESG information, the inclusion of TPA donations into it does not generate new information—as the TPA information is already disclosed elsewhere—but create a salience effect.

We next conjecture that the regulatory salience induced by the TPA disclosure mandate with different reporting requirements across firms may create negative externalities on other less prioritized, longer-term, ESG activities. Specifically, we focus on environmental externalities, for three reasons. First, the environment is a vaguely-defined public good but one that is lacking clearly identified private ownership, which leads to lower pollution abatement costs incurred at firm level than the marginal cost borne by the whole society (Xu and Kim, 2022). Second, while having great importance, environmental issues are long-term in nature, with the time horizon well beyond the length of politicians' careers, which makes them less salient for regulators. Third, from a reporting perspective, while it is not difficult to mandate firms to disclose their pollution abatement investment, it is extremely challenging to link such disclosures to well-defined long-term targets, such as carbon neutrality at the societal level. As a result, firms may have incentives to cut spending on environmental issues when they need to spend more on short-term-oriented and regulatorily salient TPA contributions.

Such environmental externalities of the TPA disclosure mandate reflect the tradeoff between less costly poverty alleviation and more costly pollution abatement by firms under resource constraints. Dealing with toxic pollutants requires substantial inputs of materials, labor and financial resources. Absent any regulatory change, firms in equilibrium will internalize the pollution abatement

costs in the production process to meet their environmental targets. The TPA disclosure mandate, by drawing public and regulators' attention to poverty alleviation, increases the benefit of donation for the company, which has traditionally been part of the government's responsibilities. On top of that, financial constraints increase the marginal cost of pollution abatement efforts (Xu and Kim, 2022). As a result, marginal firms are likely to reallocate their resources toward TPA-related donations and away from investing in pollution abatement. In addition, peer pressures from the product market also incentivize firms to prioritize regular spending that do not cause significant cash flow fluctuations over longer-term spending with greater uncertainties (such as environmental R&Ds).

Based on the above arguments, we hypothesize that treated (i.e., salient) firms will spend more on their TPA contributions and will simultaneously cut back on spending in other less salient, but capital-intensive, ESG projects—those related to pollution abatement and environmental protection. As a result, they will produce more pollution, resulting in negative and unintended environmental externalities. Such negative externalities can be intensified when firms face greater resource constraints and market competition, which create stronger incentives for them to trade off different ESG goals.

It is worth pointing out that if the net benefit of TPA donations is large enough, or if firms are able to internalize any potential cost associated with it, we might not expect the reporting mandate to have any negative ESG externalities. In the following sections, we formally test whether such negative externalities indeed exist.

3. Research Design

3.1 Data and Sample Selection

Our study combines data from several sources:

(1) *Donations and TPA contributions data.* Data on a firm's total donations are obtained from the China Securities Market and Accounting Research (CSMAR)

database. It is worth noting that the total donation amount did not differentiate between donations to poverty alleviation and other donations prior to the mandate. CSMAR records all donation information for all firms from 2008 onwards. However, data on donations to poverty alleviation are not readily available in the CSMAR database for the period before 2016, and become fully available from 2016 onward due to the requirement by TPA disclosure mandate. We therefore supplement the donation information for the pre-2016 period by hand-collecting data on poverty-alleviation donations from financial statements and CSR reports (if such information is disclosed) for all treated firms and control firms.

(2) *Pollution data*. Data on firm-level pollution are from multiple sources including CSMAR, the Trucost Environmental Dataset from Standard and Poor's, and manual collection. CSMAR provides data on the quantity of a firm's major pollutant emissions, which are retrieved from the firm's CSR reports and annual reports. We supplement the CSMAR pollution data with data from Trucost on various costs of air pollutants, GHG emissions, pollutants released on the land and in water and waste disposed.[9] We also use an alternative dataset on firm-level pollution from Institute of Public and Environmental Affairs (IPEA), which collects more granular real-time air and water pollution data from automatic pollution monitoring stations.

(3) *Other data.* We also collect data on other aspects of corporate ESG performance, including firms' involvement in regulatory actions or lawsuits related to products and services, employee health and safety-related issues, and corporate misconduct related to governance issues. These data are obtained from the Chinese Research Data Services Platform (CNRDS), which complements the CSMAR database and is increasingly used in China-related research (e.g., Dong et al., 2021). All corporate financial data are obtained from CSMAR.

[9] Another source of data on firm-level pollutants is the Environmental Survey and Reporting database of China (ESR), which has been used in prior literature (e.g., He et al., 2020; Liu et al., 2021). However, the data are only available until 2014, thus are not applicable in our setting. While ESR covers pollutants including sulfur dioxide, the data used in our study have a wider coverage of pollutants, including both sulfur dioxide and heavy metals. Nevertheless, in untabulated analysis, we compare the data used in this study with ESR data for the two overlapping years 2013–2014 and find that the firm-level pollution measures in the two datasets are highly correlated.

Our original sample includes all firms listed on the SSE and SZSE from 2013 to 2019. We then restrict our sample to non-financial firms and exclude firm-years with missing financial information, and with negative book value of equity or total assets.[10] Applying these filters, our final sample consists of 14,143 firm-year observations, corresponding to 2,376 unique firms.

The treated firms (i.e., salient firms) consist of those listed on SSE and with overseas listings, those included in the "Shenzhen 100 Index" on SZSE, and all centrally administered SOEs listed on both stock exchanges.[11] In total, 432 unique firms are identified as salient firms. Control firms are those that are not mandated to issue CSR reports and disclose information on TPA contributions on these reports.

3.2 Empirical Specification

We first estimate the following DiD model to investigate the direct effect of the 2016 TPA disclosure mandate on a firm's donations.

$$Donation_{i,t} = \beta_1 Treat_i \times Post_t + \boldsymbol{\theta} Controls_{i,t-1} + d_i + l_t + \varepsilon_{I,t}, \qquad (1)$$

in which i and t index firm and year, respectively. The dependent variable, *Donation*, is measured in two ways. The first measure is the monetary amount a firm's contributions to TPA (*TPADonation*). The second measure is the monetary amount of a firm's total donations (*TotalDonation*). d_i and l_t indicate firm and year fixed effects. *Treat* is an indicator variable that equals one if a firm is required to disclose its TPA contributions *in its CSR report*, as discussed in Section 3.1, and zero otherwise. *Post* is a binary indicator equaling one for years after 2016 and zero otherwise.

Controls is a vector of control variables, including firm size (*LnAsset*), firm age (*FirmAge*), leverage (*Leverage*), profitability (*ROA*), cash flow from operations (*CFO*), assets turnover ratios (*ATO*), investment opportunity as measured by

[10] The mandate was announced officially on 30 December 2016. Since all listed firms in China have a fiscal year ended on 31 December, the passage of the mandate one day before the fiscal year end may obscure any effect from the year 2016. We thus exclude the data in 2016 from our sample of analysis.
[11] In China, there are two types of SOEs: centrally administered SOEs that are supervised and monitored by the central government, and locally administered SOEs that are subject to the supervision of local governments. There are around 100 centrally administered SOEs, comprising 10% of all SOEs.

Tobin's Q (*TobinQ*), the total ownership of a firm's 10 largest shareholders (*Top10*), and whether the firm is a state-owned entity (*SOE*). We include these variables following Campbell (2007) and Lys et al. (2015), and present their detailed definitions in Appendix A. All continuous variables are winsorized at the 1st and the 99th percentile of their distributions.

To investigate the externalities of the TPA disclosure mandate, we next run a similar DiD model

$$Pollution_{i,t} = \beta_2 Treat_i \times Post_t + \boldsymbol{\theta} Controls_{i,t-1} + d_i + l_t + \varepsilon_{i,t}, \qquad (2)$$

in which all variables are defined similarly as in Equation (1) except that we replace the dependent variable with environmental pollution (*Pollution*), which is defined as the logarithm of one plus the total volume of a firm's major pollutants released into the air, on the land and in water in a year.[12] These pollutants include liquid waste material, industrial sewage/garbage, and poisonous heavy metals, such as arsenic (As), chromium (Cr), mercury (Hg), cadmium (Cd), thallium (Tl), and lead (Pb) etc. With their relatively high density and due to the fact that they are hazardous at very low concentrations, a small amount of metallic chemical elements can be detrimental to public health (Currie and Schmieder, 2009; Currie et al., 2014). With this measure, we aim to capture the overall environmental externalities of the enactment of the 2016 TPA disclosure mandate. We follow prior studies and use the level of a firm's pollution as our dependent variable for our main analysis (Akey and Appel, 2021; Xu and Kim, 2022; Thomas et al., 2022). To ensure the robustness of our results, we also scale the total emission volumes by the firm's revenue (*PollutionRev*) or the cost of goods sold (*PollutionCogs*) to measure the intensity of firm-level pollution and to take into account the size effect. For robustness, we further use alternative data sources for corporate environmental performance as discussed in Section 3.1.

The coefficients β_1 in Equation (1) and β_2 in Equation (2) capture the average change in corporate donations and in pollution abatement efforts after 2016 for treated firms relative to control firms. Based on our hypothesis, a positive

[12] We log-transform the pollution measure due to its right-skewedness in distribution, following Thomas et al. (2022).

and significant β_1 suggests that the disclosure mandate has an intended real effect in regard to promoting a firm's contribution to poverty alleviation, and a positive (negative) and significant β_2 indicates negative (positive) environmental externalities of the TPA disclosure mandate.

3.3 Descriptive Statistics

Panel A of Table 1 presents the summary statistics for the main variables for all firms. The average values of a firm's annual total donations (*TotalDonation*) and TPA contributions (*TPADonation*) are 2.65 million yuan (363,000 USD) and 1.34 million yuan (184,000 USD), respectively. On average, a firm in the sample releases 12,579 tons of toxic pollutants (*Pollution*) every year. In terms of other firm-level attributes, an average firm is valued 14,449 million yuan for its book value of total assets, 19 years old, has a book leverage (total liabilities to total assets) of 0.44, a ROA of 0.03, cash flow to total assets ratio of 0.04, operating revenue to total assets of 0.61, a Tobin's Q of 2.29, and an average ownership of 57% by the ten largest shareholders. About 39% of the sample firms are SOEs. In Panel B of Table 1, we partition the sample into treated and control groups and report their descriptive statistics separately. We find that treated (salient) and control firms differ significantly in their donations and pollutant emissions. Salient firms, on average, donate more in terms of both total amount and TPA contributions. By contrast, salient firms and control firms are comparable in regard to a variety of firm fundamentals, like age, size, leverage, and ownership concentration.

4. Main Empirical Results

4.1 Direct Effect of TPA Disclosure Mandate on Donations

We first examine the direct effect of the TPA disclosure mandate on a firm's donations by estimating Equation (1). Table 2 reports the results using different specifications. In Columns (1) and (4), we include industry-by-year fixed effects to account for industry-specific time-varying shocks which may be correlated with a firm's decision to donate. In Columns (2) and (5), we include both firm and year

fixed effects to control for unobservable firm-specific factors and time-varying macroeconomic factors. Columns (3) and (6) control for firm and industry-by-year fixed effects altogether.

In Columns (1)—(3), where the dependent variable is the total donation amount (*TotalDonation*), the coefficients on *Treat* × *Post* are positive and statistically significant across all specifications, indicating that treated firms—for which the disclosure requirement is more salient—increase their total spending on charitable giving more in response to the 2016 TPA disclosure mandate. The point estimate in Column (2) suggests that the average salient firm increases its total donation by 79.5% ($=e^{0.585}-1$), or about 2.11 million CNY (approximately 293,000 USD), relative to control firms for which the disclosure mandate is less salient. It is worth noting that this effect likely captures the lower bound of the mandate's real effect on a firm's total donations, as salient firms may cut corners on other donations in order to allocate more funds to TPA contributions, which will be empirically tested in Section 4.5.

In Columns (4)—(6), we replace the dependent variable with a firm's contributions to TPA (*TPADonation*) and re-estimate Equation (1). We again find positive and significant coefficients on *Treat* × *Post* across all specifications, corroborating the results in Columns (1)—(3). These results are also suggestive that the increase in salient firms' total donations after treatment is likely to be driven by the increase in their TPA contributions. In terms of economic magnitude, Column (5) suggests that salient firms on average experience a 269% ($=e^{1.306}-1$) increase in TPA contributions—amounting to 3.60 million CNY (approximately 500,000 USD)—after the 2016 TPA disclosure mandate, relative to that of the control firms. This estimate is likely to be the upper bound of the real effect to the extent that poverty alleviation donations prior to 2016 are understated as the data are hand-collected. Though far less often observed in our sample, some firms provide qualitative or less detailed information in their CSR reports prior to 2016. While all firms were affected by the TPA disclosure mandate and on average increased their donations, it is surprising that salient firms donated much more than control firms, merely by additionally disclosing TPA information on CSR reports.

4.2 Environmental Externalities of TPA Disclosure Mandate

We next investigate the externalities of the TPA disclosure mandate by focusing on firms' environmental performance to better understand how firms trade off different ESG goals. Based on our hypothesis, the TPA disclosure mandate may distort corporate incentives to overspend on donations and underspend on environmental protection, leading to more pollution. As a sanity check, we first show in Table B1 of Appendix B that the change in TPA donations is positively correlated with the change in pollutant emissions. We next examine whether and to what extent salient firms release more poisonous pollutants into the environment than control firms.

Table 3 presents the results. We report in Column (1) the within-industry analysis by including industry × year fixed effects, while leaving out any firm-level controls.[13] The coefficient on *Treat* × *Post* is positive and significant, suggesting that following the introduction of the TPA disclosure mandate, salient firms indeed release more hazardous pollutants compared to control firms in the same industry. Column (2) reports the results of estimating Equation (2), which includes both firm and year fixed effects, as well as firm-level controls, to account for the effects of any observable time-varying and unobservable time-invariant firm characteristics. The coefficient on *Treat* × *Post* remains positive and significant. The magnitude of the effect is economically sizable as well: salient firms on average release 5,258 (= 12,579 × ($e^{0.349}$-1)) more tons of toxic pollutants relative to control firms after the disclosure mandate. This represents 1.2 times increase relative to the pre-period pollution level among those salient firms. The monetary amount of pollution cost is estimated to be between 5 million yuan (0.68 million USD) and 15 million yuan (2.05 million USD) when considering the marginal abatement cost of dealing with the pollutants being 1,000 yuan per ton to 3,000 yuan per ton.[14] The lower bound of the cost of the pollution is comparable to, yet slightly larger than, the increased TPA contributions for a firm. However, since

[13] We report the regression results without covariates to address the concern raised by Gormley and Matsa (2014) that covariates that are correlated with the treatment may prevent us from drawing reliable causal inferences.

[14] Information on the unit abatement cost is obtained from National Development and Reform Commission's website: https://www.ndrc.gov.cn/xxgk/zcfb/gg/

these pollutions have significant intangible costs on public health, the overall social costs can be much more negative. Column (3) repeats the analysis in Column (2) by also including industry × year fixed effects and shows consistent results.

4.3 Alternative Measures and Alternative Explanations

Alternative Measures

To ensure our results indeed reflect the environmental externalities of the TPA disclosure mandate, we run several robustness tests. First, we use an alternative measure of firm-level pollution using data from Trucost. Using information from both public and private sources, Trucost systematically estimates the monetary costs associated with GHG emissions, air pollutants, land and water pollutants, as well as resource consumption, for firms around the world. The data are widely used in the finance and accounting literature (e.g., Bolton and Kacperczyk, 2021, 2022; Dai et al., 2021). Panel A of Table 4 reports the results by replacing the dependent variable in Table 3 with the monetary costs associated with air pollutants (*AirPol*) in Column (1), greenhouse gas emissions (*GHG*) in Column (2), land and water pollutants (*LWP*) in Column (3), and waste production (*Waste*) in Column (4). These measures are all log-transformed, thus the coefficients can be interpreted as percentages. The coefficients on *Treat* × *Post* remain positive and significant, providing additional support to our baseline finding in Table 3 that salient firms generate more negative environmental externalities than control firms after the disclosure mandate.

Alternative Explanations

We next try to rule out alternative interpretations of the results in Table 3. First, it is likely that the increase in pollution by salient firms is driven by business expansion and increased production, which have little to do with regulatory salience. To address this concern, we use a scaled measure of *Pollution* as the dependent variable. In Panel B of Table 4, we repeat the analysis in Table 3 by replacing the dependent variable with *PollutionRev* (*PollutionCogs*), which is defined as the total amount of pollutants scaled by total revenue (cost of goods sold). The positive coefficients on *Treat* × *Post* suggest that our main finding is not biased by increasing firm size.

A second alternative explanation is the confounding effect of other events during our sample period, such as the strengthening of China's Environmental Protection Law (EPL) in 2014, which largely coincides with the timing of TPA disclosure mandate. However, EPL applies to both treated and control firms, and even if EPL has any differential effects on these two groups of firms, we would find a decrease, as opposed to an increase, in firm-level pollutions. To further disentangle the effects of EPL strengthening and TPA disclosure mandate, we utilize the time lag between these two events and use an alternative dataset from IPEA, which collects more granular real-time air and water pollution data from automatic monitoring stations. We aggregate all data to the firm-quarter level and repeat our analysis in Table 3 by including (excluding) the observations in year 2015, and report the results in Column (1) (Column (2)), Panel C of Table 4. The dependent variable is the amount of pollutants in milligrams per cubic meter (mg/m3) of air and water. The results are consistent with our main findings.[15]

Another alternative explanation is that the selection of firms into the treated group, albeit being predetermined eight years prior to the 2016 mandate, may be correlated with observable and unobservable factors. To address this potential selection bias, we conduct a battery of tests. First, we adopt a propensity score matching approach to match treated firms with control firms based on a few observable characteristics, as set out in Tables 2 and 3, to ensure that the two groups of firms are comparable along those dimensions. In particular, we match a treated firm to its three closest peer firms that have similar firm characteristics.[16] We then repeat our baseline analysis in Table 3. Table B2 of Appendix B presents the results estimated from the matched sample, which shows a qualitatively similar DiD estimator on *Pollution*, further corroborating the finding in Table 3.

Second, we conduct a falsification test. Specifically, we randomly assign a firm to the treatment or control group and repeat the baseline analysis in Table 3 by replacing the original sample with this pseudo-matched sample. We repeat this

[15] Another advantage of using the data from automatic monitoring stations is that the data are less subject to human manipulation, as they are automatically recorded and sent to environmental authority for further evaluation.
[16] The results are robust when we use alternative matches, such as 1:4 or 1:5 matches.

process 1,000 times, which provides us with 1,000 pseudo-DiD estimators (coefficients on *Treat* × *Post*). We then plot the distribution of the pseudo-DiD estimators and present it in Figure 2. If any other unobservable factor were to drive our finding, we would expect to see the distribution centered around the actual coefficient, represented by the solid line. However, the distribution of the pseudo coefficients is normally distributed and centered around zero, which significantly deviates from the estimations using actual data.

As a final attempt to mitigate the selection issue, we examine whether the environmental externality we have documented is concentrated among SOEs. If it is the case that the government selectively chose SOEs to lead the poverty alleviation campaign, we would expect stronger effect among them. In Table B3 of the Appendix B, we interact *Treat* × *Post* with an indicator variable, *SOE*, which equals one for a SOE firm and zero otherwise. The results show that the coefficient on this triple interaction term, *Treat* × *Post*× *SOE*, is not significant, while that on *Treat* × *Post* continues to be positive. This result indicates that any selection criterion that is related to state ownership does not explain our results.

Parallel Trends Assumption

The DiD estimation in Table 3 relies on the parallel trends assumption that treated and control firms follow similar pre-trends before the 2016 TPA disclosure mandate. Therefore, we next test their pre-trends by examining the dynamic effects of the mandate by estimating the following model:

$$y_{i,t} = \Sigma\, \beta_{(\tau)} Treat_i \times Year_{(t+\tau)} + \boldsymbol{\theta} Controls_{i,t-1} + d_i + l_t + \varepsilon_{i,t}, \qquad (3)$$

in which τ denotes year τ relative to the year 2016. The dependent variable y is either the *Donation* measures (*TotalDonation* and *TPADonation*) as used in Equation (1) or the *Pollution* measure as used in Equation (2). Table 5 reports the dynamic effects estimated from Equation (3). The coefficients on $Treat \times Year_{(t-2)}$ and $Treat \times Year_{(t-1)}$ in all columns are statistically indistinguishable from zero and economically trivial. This suggests that the differences in donations and pollution levels between treated firms and control firms are unlikely driven by any time trend. In contrast, coefficients on $Treat \times Year_{(t+1)}$, $Treat \times Year_{(t+2)}$, and $Treat \times Year_{(t+3)}$ in the post-mandate period are all significantly positive and economically

sizable. For instance, these coefficients range from 1.1 to 1.5 in Column (2) (and from 0.3 to 0.6 in Column (3)), which are quantitatively similar to those in the baseline models in Table 2 and Table 3. These results confirm that our findings reflect the increased regulatory saliency of TPA relative to environmental protection, rather than a general time trend.

4.4 Testing the Regulatory Salience Channel

In this section, we more specifically test the regulatory salience channel. That is, by mandating treated firms to report their TPA contributions in a separate CSR report, regulators make poverty alleviations a more salient issue for these firms, making them more pressured to allocate their resources towards donations, and henceforth more likely to cut corner in environmental protection that require long-term investments.

We conduct a textual analysis to pin down the regulatory salience channel. To this end, we collect data on the frequency of keywords related to TPA and environmental protection, which aim to capture their relative political salience, in five major state-owned newspapers in China, namely *People's Daily*, *Securities Daily*, *Securities Times*, *China Securities Journal* and *Shanghai Securities Journal*. The first is the official newspaper of the CPC, and the other four are the mainstream newspapers related to securities markets in China. We then calculate the "media coverage" of these two ESG issues as the natural logarithm of the total number of news articles related to TPA and environmental protection, respectively. We plot the media coverages of TPA and environmental protection over the sample period in Panel A of Figure 3. It shows that while the number of articles covering environmental protection remained relatively stable over time, the number of articles covering TPA experienced significant bump after 2016. This suggests that poverty alleviation did receive more attention than environmental protections in stock market-related news after the TPA disclosure mandate.

To provide additional supports to the regulatory salience hypothesis using textual analysis, we further analyze the texts in city-level government working reports to gauge the changing priority of local politicians with regard to poverty alleviation vis-a-vis environmental protection in their agenda. Such reports

usually summarize a government's efforts in a year on a variety of social and economic issues. We compile all city-level government working reports and extract the keywords related to TPA and environmental protection following the same procedure as in Panel A of Figure 3. We then plot the time-series frequency of these keywords in Figure B1 of Appendix B, and find that TPA-related keywords significantly increased than environment-related keywords after 2016, suggesting a shift in local politicians' relative attention on these two issues.

We further provide firm-level evidence on the changing regulatory salience of TPA relative to environmental protection. In Panel A of Table 6, we re-estimate the baseline regression as in Table 3 by replacing the dependent variable with the firm-level media coverage related to TPA (*Firm_TPA_Count*) or environmental protection (*Firm_Env_Count*). The firm-level media coverage is defined as the natural logarithm of one plus the total number of keywords related to the two topics *for each firm* in a year in the five major state-owned newspapers mentioned earlier. The results in Panel A of Table 6 show that salient firms are more frequently covered by media for their involvement in TPA relative to control firms, which is consistent with our conjecture. In contrast, the media coverage for salient firms' environmental issues does not significantly change after the disclosure mandate.

The above results are corroborated by Panel B of Figure 3, which shows the dynamic effects of the mandate on firm-level media coverage on TPA donation and environmental protection for each firm. The figures plot the coefficient estimates of regressing firm-level media coverages on the two issues on the interaction terms $Treat \times Year_{(t+\tau)}$, respectively, together with the same set of controls and fixed effects as in Equation (2).

In Panel B of Table 6, we provide further evidence that the increased firm-level pollution is a response to the intensified saliency of TPA relative to environment, by regressing *Pollution* on the interaction between *Treated* and two aggregate media coverage measures. *TPA_News* measures the total number of news articles mentioning TPA-related words, and *NewsDif* measures the difference in the number of news articles mentioning TPA and mentioning

environmental protection. We again find more pollutions by salient firms following more frequent mentioning of TPA in state-owned newspapers. It is evident that a firm's pollution reflects its attention to TPA-related news net of environment-related news, further supporting the regulatory salience-based interpretation.

4.5 Effects on Other ESG and Non-ESG Activities

Do firms only cut their spending on environmental protection when prompted by disclosure saliency for short-term donations? Or do they also cut other ESG and non-ESG expenditures? In this section, we examine whether the 2016 TPA disclosure mandate has any spillover effect on other aspects of corporate ESG besides pollutions, such as non-TPA donations, product or service quality, employee wellbeing and safety, and corporate misconduct, as well as non-ESG activities.

We first examine whether salient firms substitute other donations with TPA contributions. Column (1) of Panel A of Table 7 shows the result of replacing the dependent variable in Table 2 with *OtherDonation*, measured by the logarithm of one plus non-TPA donations. The coefficient on *Treat* × *Post* is significantly negative, and the point estimate indicates that treated firms cut back their spending on non-TPA donations by 32.3% ($=e^{0.28}-1$).

We then test the effects on other non-environmental issues of ESG. The last three columns of Panel A in Table 7 report the results from estimating a linear probability model, with the dependent variable being a binary indicator for whether a firm has been subject to any regulatory actions or lawsuits related to products or services (Column (2)), employee health and safety (Column (3)), and corporate misconduct (Column (4)).[17] The coefficients on *Treat* × *Post* in all three columns are statistically indistinguishable from zero, suggesting that the negative externalities are mostly manifested in environmental issues, and not other ESG

[17] Binary indicators are used as dependent variables due to data availability, and we use linear probability model instead of logit or probit to avoid the incidental parameter problem associated with controlling for firm and year fixed effects.

issues for which the outcomes are usually in intermediate terms that span a few years but not decades.[18]

As a final test, we examine whether the disclosure mandate triggered externalities in relation to other non-ESG activities that are also long-term in nature or related to core corporate business operations. Panel B of Table 7 reports the results of repeating the baseline analysis but replacing the dependent variables with operating expenses scaled by lagged total assets (*OperExp*), capital expenditure scaled by lagged total assets (*Capx*) and R&D investment scaled by lagged total assets (*R&D*). The results suggest that spending on non-ESG activities is not affected by the reporting mandate. These results also suggest that the tradeoff between TPA contributions and environmental protections is not driven by the change in overall spending or business operations.

It is imperative to discuss why one observes negative externalities in relation to environmental performance, but not other ESG dimensions. Among various long-term commitments, environmental goals usually have much longer horizons that can go well beyond politicians' and corporations' lifespans, making them much less salient for decision-makers.[19] In addition, they are difficult to measure and regulate at the individual firm level (such as Scope 3 emissions). In contrast, other ESG and non-ESG investments, some of which are also long-term in nature, usually do not have such long horizons for achieving desirable outcomes. As a result, when firms need to cut corner in its expenditures to make room for more spending on what are conspicuously disclosed (thus draw greater attention from regulators), they mostly reduce environmental investments whose outcomes are not salient in the short- and medium-terms and hard to verify.

[18] This inference holds to the extent that there is no differential change in regulatory enforcement related to products/services, employee wellbeing or corporate governance for treated firms vs. control firms in the post-2016 period. We do not observe such changes in our sample period.

[19] For example, one can only gauge whether environmental improvement is in line with China's pledge in regard to the Paris Agreement that it will achieve carbon neutrality by 2060, which is far beyond the political career of Xi and most politicians. In contrast, in 2021 Xi declared a complete victory in the fight to end extreme poverty in China, which he called a miracle and said would "go down in history," after an eight-year campaign, right before his re-election for an unprecedented third term. Indeed, Xi also emphasized other aspects of ESG, such as environmental protection, for which CSRC also requires mandatory reporting but which have not been elevated to the level of a national strategy and made a top political priority.

5. Heterogeneity in Environmental Externalities

5.1 The Role of Financial Constraints

The environmental externalities of the TPA disclosure mandate reflect a tradeoff between short-term social donations and long-term environmental investments, which is based on the assumption that firms have limited resources and they allocate their resources toward the most salient ESG issues and most important stakeholders (Wang et al., 2016). Such a tradeoff should be particularly prominent when firms are financially constrained. To test this argument, we exploit the within-treated variation in financial constraints by partitioning our sample into two groups using the widely used SA index for firm-level financial constraints (Hadlock and Pierce, 2010). Studying within-treated estimations also helps rule out any confounding effect that is specific to treated firms.

Table 8 reports the results, in which we sort the sample of treated firms into terciles based on their average SA index values three years prior to the mandate, and classify those in the bottom tercile as less constrained firms. *LowFinCons* is an indicator variable which equals one for less financially constrained firms (bottom tercile of the SA index) and zero otherwise. In Column (1) (Column (2)), we retain (drop) treated firms in the middle tercile. The variable of interest in Table 8 is the interaction $Treat \times Post \times LowFinCons$, which captures the marginal difference in pollution between less financially constrained treated firms and more constrained ones. The significant negative coefficients on this triple interaction term suggest that the negative environmental externalities are attenuated by the relaxation of financial constraint. This finding points to the role of financial constraints in driving a corporate tradeoff among different ESG goals, and echoes the findings of some recent studies (e.g., Hong et al., 2012; Xu and Kim, 2022; Bartram et al., 2022).

5.2 The Role of Product Market Competition

Firms facing fierce competition have greater incentives to cater to the preferences of key stakeholders, especially regulators, thus are more sensitive to issues that draw stakeholders' attention while ignoring other less salient ones. In addition, the disclosure of information makes it easier for peers to infer corporate

performance, which further intensifies competition (Cao et al., 2019; Christensen et al., 2021). As a result, one would expect the negative environmental externalities to be stronger for firms facing greater competition. We use two proxies to capture the intensity of product market competition and interact the measures with *Treat* × *Post* to test this mechanism. The first one is the Herfindahl-Hirschman Index (HHI) of a firm's industry. To this end, we calculate the pre-mandate period average HHI value for each industry and sort industries into terciles based on the average HHI. As a higher HHI value indicates greater concentration, we consider a firm to be facing low industry competition (*LowIndCom)* if the HHI of its industry falls into the top tercile. Columns (1) and (2) of Table 9 present the results without and with industry-year fixed effects, respectively. The regression estimates suggest that the triple term is statistically negative at the 1% significance level, showing that the negative environmental externalities become weaker when firms are in less competitive product markets relative to firms in more competitive markets.

The second proxy for product market competition is the regional marketization index developed by Fan et al. (2017). This index explores the geographic variation at the provincial level in product market development in China and has been widely used in prior studies (e.g., Li et al., 2011; Berkowitz et al., 2015). A greater index value suggests a higher degree of product market competition. We compute the average rank of the marketization index in the three years prior to 2016. We define a province-level indicator variable, *HighMktIndex*, which equals one if the average marketization index rank of a province is in the top tercile and zero otherwise. We present the cross-sectional results in Column (3) of Table 9. The significant coefficient on *Treat* × *Post* × *HighMktIndex* suggests that the negative environmental externalities are mostly driven by salient firms located in more developed and competitive local markets, corroborating the finding in the first two columns. The result is robust to the inclusion of province-year fixed effects in Column (4), indicating that the result is not driven by unobservable time-varying factors pertaining to firm location.

6. Performance Implications

A remaining question is whether the externalities of mandatory ESG disclosure have financial implications for firms. As mandatory ESG disclosure can lead to incentive distortion, salient firms may rationally react by reallocating their limited resources to cater to regulators' preference in order to receive favorable treatment. In this section, we test whether the stronger ESG tradeoff by firms with greater exposure to disclosure mandate is related to better financial performance and greater government supports, potentially at the cost of the environment and social welfare.

6.1 Financial Performance and Firm Value

We start by studying the effect of the TPA disclosure mandate on a firm's financial performance and valuation, and present the results in Panel A of Table 10. We measure financial performance using return on assets (*ROA*) in Column (1), return on equity (*ROE*) in Column (2), operating margin (*OperMargin*) in Column (3) and Tobin's Q (*TobinQ*) in Column (4). To link the differences in financial performance and firm value to the donation–pollution tradeoff, we create a new variable capturing the within-treated variations. Specifically, *HighTPA* is a binary indicator for firms with a higher increase in TPA donations after the mandate. To construct this variable, we first calculate the change in a firm's TPA contributions after the disclosure mandate and then sort treated firms into terciles based on the magnitude of their TPA contribution changes. Firms in the top tercile are classified as *HighTPA* firms. The variable of interest *Treat* × *Post* × *HighTPA* in Panel A of Table 10 captures the difference in financial performance and firm value between salient firms with larger TPA donation increases—which presumably pollute more—and salient firms with smaller TPA donation changes. Both the coefficients on *Treat* × *Post* × *HighTPA* and on *Treat* × *Post* in all four columns are significantly positive (with the magnitudes of the latter being smaller). These results provide robust evidence that a larger improvement in financial performance and firm value is mostly concentrated among salient firms that donate more and likely pollute more.

It is important to reconcile our findings on financial performance and firm value with those of prior studies which show that mandated ESG disclosure generally has an adverse effect on firm value (e.g., Manchiraju and Rajgopal, 2017; Chen et al., 2018; Grewa et al., 2019). Extant studies mostly focus on how mandatory ESG disclosure induces a firm's tradeoff between ESG and non-ESG activities, or between its shareholders and stakeholders (Christensen et al., 2021). It is reasonable to expect that mandating disclosure on stakeholder issues will incentivize reporting companies to prioritize stakeholder welfare, often at the cost of shareholders. In contrast, the tradeoff in our setting is between different ESG goals, and a firm is incentivized to strategically reallocate resources to more regulatorily salient ESG issues but deprioritize other ESG issues. This does not necessarily come at a cost of shareholder value, as the firm may still operate within the same budget, but may constitute a cost of *some* stakeholders.

6.2 Access to Government Financing

We next examine the preferential treatment mechanism more specifically by testing whether salient firms have better access to government financing as a result of their catering behavior. We replace the dependent variable in Equation (1) with a variable of firm-level government financing. Specifically, we use two different measures to capture government financing received by a firm, including the amount of loans received from state-owned banks (*StateBankLoan*) and government subsidies (*GovSubs*). Panel B of Table 10 presents the results. *StateBankLoan* in Column (1) is defined as the logarithm of one plus the total loan amount obtained from state-owned banks. *GovSubs* in Column (2) is calculated as the logarithm of one plus the subsidies received from the government. The coefficients on the triple interaction term $Treat \times Post \times HighTPA$ are significantly positive in Column (1) and (2), indicating that salient firms that make more TPA donations indeed receive a higher amount of loans from state-owned banks and larger government subsidies after the TPA disclosure mandate. The economic magnitudes are also nontrivial: an average salient firm that makes more TPA contributions receives 126.4% ($=e^{0.817}-1$) more state-bank loans and 181.5% ($=e^{1.035}-1$) more government subsidies, compared with the sample mean.

Collectively, the results in Table 10 are consistent with the notion that firms strategically prioritize TPA contributions to maximize profits by catering to regulators' political agenda in exchange for preferential treatment.

7. Conclusions

This paper provides robust evidence on the negative externalities of mandatory ESG disclosure using a unique setting in China, where the paramount leader's political agenda made poverty alleviation a more salient ESG issue than environmental protection for local politicians and firms. Firms with different exposures to the regulatory salience, depending on whether they are required to issue ESG reports, strategically react to such political agenda by donating more and polluting more, especially after the regulators mandate disclosing their contributions to poverty alleviation. This setting embodies what a mandatory ESG disclosure typically entails, namely the political agenda of regulators and the strategic catering by firms, an important feature that is often overlooked in the literature.

Using a DiD approach, we find firms more exposed to the regulatory salience of the TPA campaign (i.e., those required to issue ESG reports) significantly increased their total donations and contributions towards poverty alleviation more than those for which ESG reporting is not mandated after the passage of the TPA disclosure mandate. Notably, these firms also increased their pollution emissions more. This latter finding of negative environmental externality is robust to alternative measures of firm-level pollution and model specifications. We further show that such externality, or the TPA-environment tradeoff, is not explained by business expansion, state ownership, changing strength of environmental laws, selection of firms into treatment group, and unobservable firm characteristics. Evidence from textual analysis reinforces the idea that the greater increase in pollutions by firms issuing ESG reports is driven by elevated regulatory attention to TPA issues relative to environmental issues. The cross-sectional analyses further suggest that the negative environmental externalities are concentrated in firms that are more financially constrained or facing fiercer market competition. Treated firms, by donating more albeit also

polluting more, receive more favorable financing and government subsidies, which help them achieve greater financial performance and valuation. Overall, our findings suggest a tradeoff between different ESG goals for firms, manifested by their reactions to mandatory ESG disclosure.

Perhaps the most significant implication of our findings is that mandatory ESG disclosure, especially that focusing on specific issues or stakeholders, can have significant negative externalities in regard to other stakeholders and the society at large. Our findings also demonstrate how the Chinese setting—including the unique regulatory framework and politician–firm dynamics—can potentially help researchers answer important questions in the accounting and ESG literature (Cheng et al., 2022; Lennox and Wu, 2022). But we believe our findings are generalizable to international settings and can inform regulators who are contemplating introducing a CSR/ESG reporting mandate about potential negative effects on stakeholders, which are often overlooked in current policy debates.

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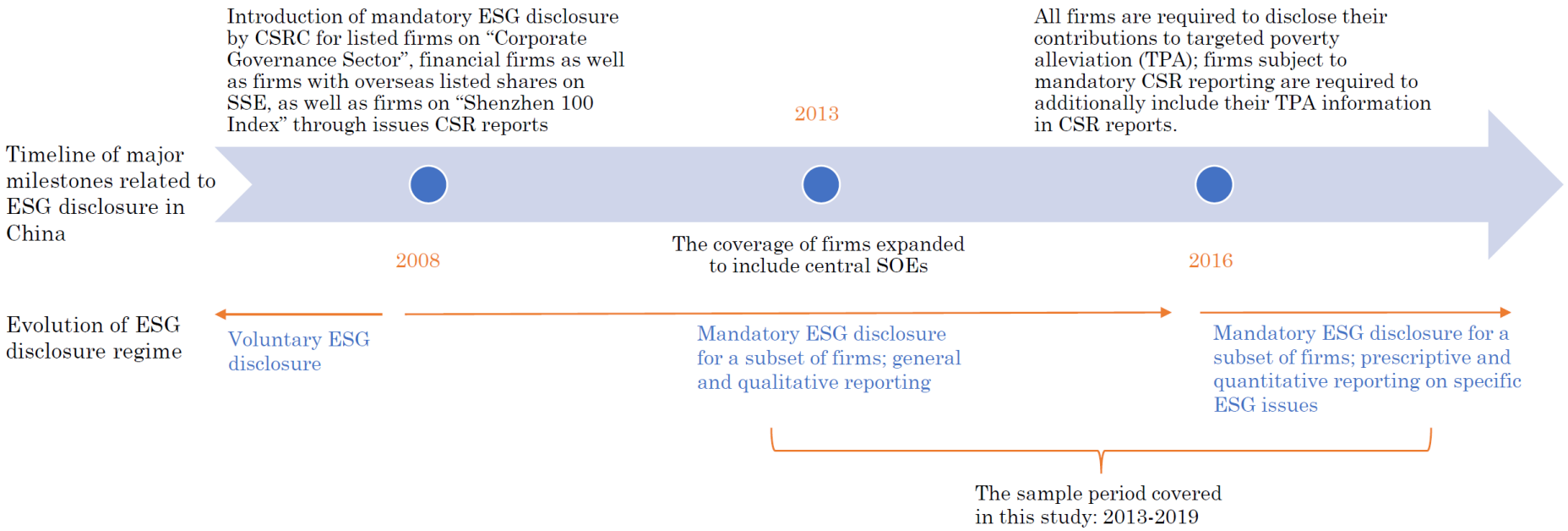


Figure 1. The Evolution of ESG Disclosures in China over Time

This figure illustrates the timeline, major milestones, and affected firms of the mandatory ESG disclosure landscape in China.

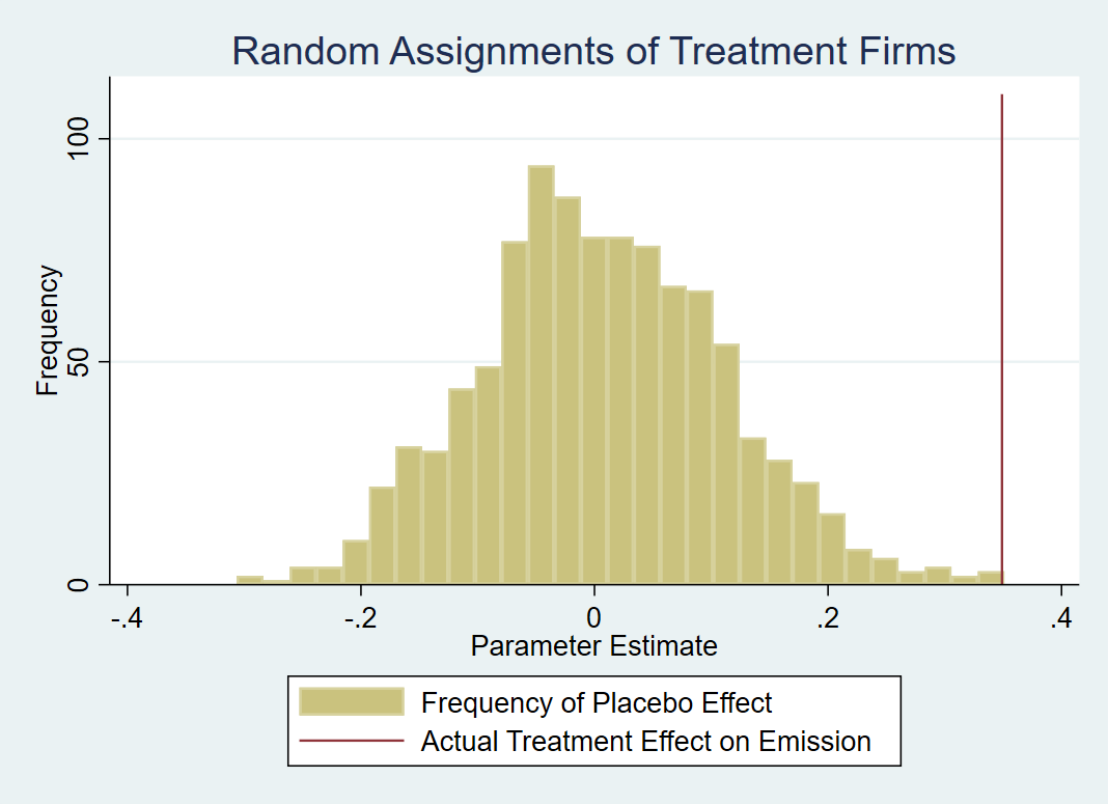
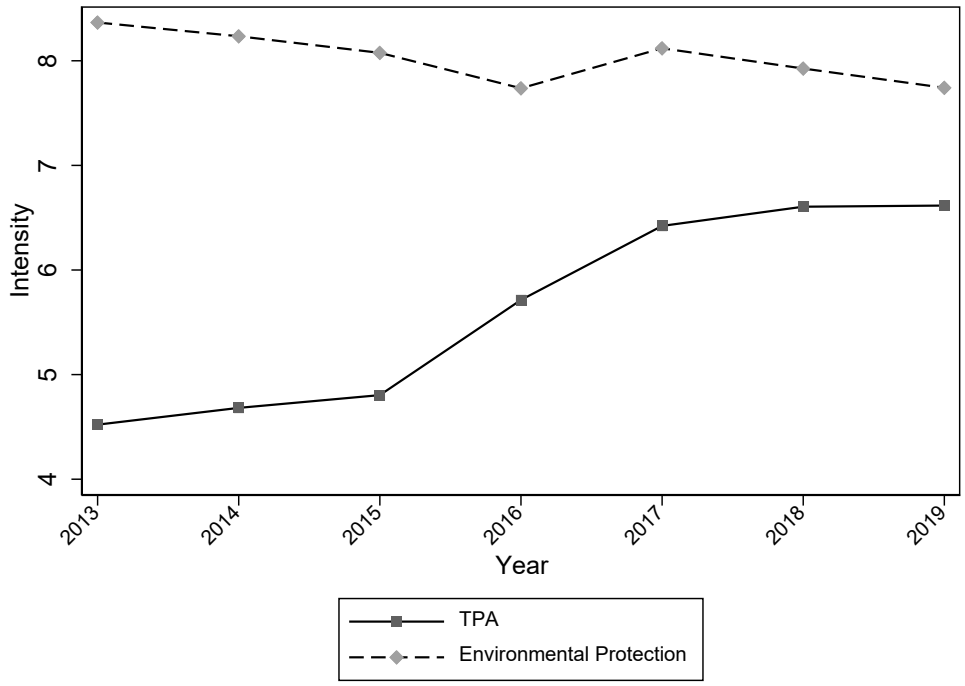


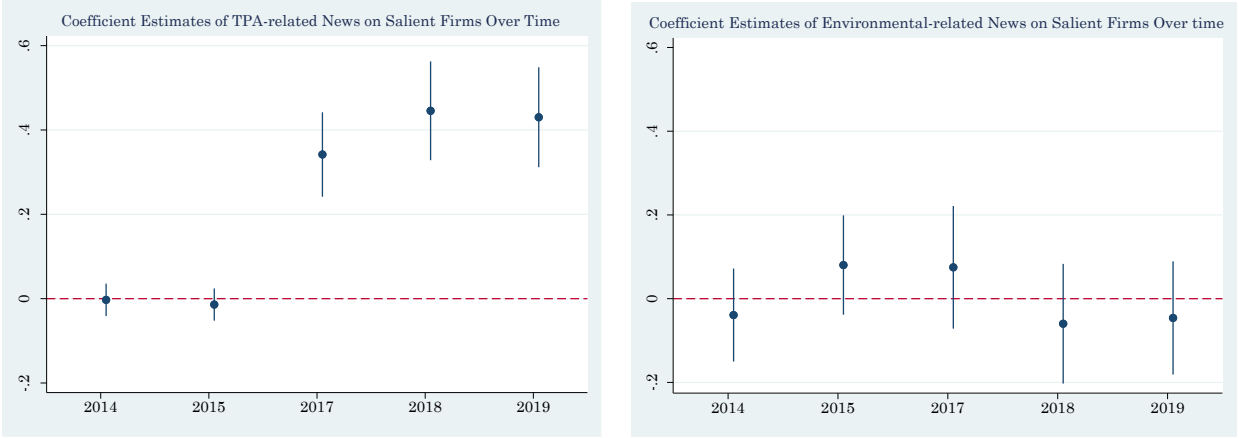
Figure 2. Distribution of the Results Estimated from Placebo Tests

The figure above compares the actual treatment effect with placebo effects. We keep the treatment year unchanged and randomly assign "placebo treatments" to our sample firms. Based on this pseudo treatment-control sample, we estimate the coefficient on *Treat* × *Post*. We repeat this practice 1000 times and plot the distribution of these coefficients. The red line represents the actual coefficient on *Treatment* × *Post* estimated from Equation (2).

Panel A. Overall media coverage on TPA vs. environmental protection



Panel B. Dynamic effects of firm-level media coverage on TPA vs. environmental protection



(a) (b)

Figure 3. Regulatory Salience of TPA vs. Environmental Protection

This figure presents the graphical analysis on the regulatory salience of TPA vs. environmental protection based on keywords appeared in the five major state-owned financial newspapers (*People's Daily, Securities Daily, Securities Times, China Securities Journal, and Shanghai Securities Journal*). Panel A shows the media coverage intensities of the two issues, calculated as the natural logarithm of the total number of news articles related to TPA and environmental protection, respectively, during the period around 2016. Panel B plots the coefficient estimates of regressing firm-level media coverages for TPA- and environment-related news on the interaction terms *Treat* × $Year_{(t+\tau)}$, respectively, together with the same set of controls and fixed effects as in Equation (2), during the period around 2016.

TABLE 1

Summary Statistics

This table shows the descriptive statistics for the main variables. Panel A reports the statistics for all observations in our sample. Panel B presents the statistics for treated firms and control firms separately. Appendix A presents a detailed description of variable construction.

Panel A: Summary Statistics for All Firms								
Variables	Obs	Min	P25	Median	Mean	P75	Max	SD
TotalDonation	14,143	0.00	0.00	0.00	1.27	1.90	10.42	2.33
TPADonation	14,143	0.00	0.00	0.00	0.79	0.00	9.57	1.90
OtherDonation	14,143	0.00	0.00	0.00	0.68	0.00	8.52	1.76
Pollution	14,143	0.00	0.00	0.00	0.51	0.00	14.56	2.13
PollutionRev	14,143	0.00	0.00	0.00	1.05	0.00	161.29	10.29
PollutionCogs	14,143	0.00	0.00	0.00	1.44	0.00	202.37	14.05
AirPol	14,143	0.00	0.00	0.00	0.32	0.01	9.28	1.00
GHG	14,143	0.00	0.00	0.00	0.45	0.07	10.05	1.27
LWP	14,143	0.00	0.00	0.00	0.14	0.00	6.82	0.55
Waste	14,143	0.00	0.00	0.00	0.14	0.02	7.87	0.51
ProCon	14,143	0.00	0.00	0.00	0.01	0.00	1.00	0.08
EmpCon	14,143	0.00	0.00	0.00	0.00	0.00	1.00	0.04
CgovCon	14,143	0.00	0.00	0.00	0.02	0.00	1.00	0.15
ROE	14,143	-5.44	0.02	0.06	0.02	0.10	0.36	0.33
OperMargin	14,142	-3.20	0.02	0.06	0.05	0.14	0.70	0.29
LoanAmt	14,143	0.00	0.00	0.00	0.65	0.00	12.96	2.56
GovSubs	14,143	0.00	0.00	0.00	3.32	7.21	11.56	3.83
LnAsset	14,143	19.32	21.32	22.08	22.23	23.00	26.38	1.31
Leverage	14,143	0.04	0.27	0.43	0.44	0.60	0.91	0.21
ROA	14,143	-0.63	0.01	0.03	0.03	0.06	0.21	0.06
CFO	14,143	-0.20	0.00	0.04	0.04	0.08	0.27	0.07
ATO	14,143	0.04	0.32	0.50	0.61	0.75	2.73	0.44
TobinQ	14,143	0.38	1.28	1.78	2.29	2.66	15.89	1.68
Top10	14,143	0.20	0.46	0.58	0.57	0.68	0.96	0.15
SOE	14,143	0.00	0.00	0.00	0.39	1.00	1.00	0.49
FirmAge	14,143	1.61	2.64	2.89	2.84	3.09	3.53	0.35
LowFinCons	14,143	0.00	0.00	0.00	0.06	0.00	1.00	0.24
LowIndCom	14,143	0.00	0.00	0.00	0.05	0.00	1.00	0.22
HighMktIndex	14,143	0.00	0.00	0.00	0.40	1.00	1.00	0.49

TABLE 1 (Continued)

Summary Statistics

Panel B: Summary Statistics for Treated and Control Groups

	Treated Firms			Control Firms		
Variables	Obs	Mean	SD	Obs	Mean	SD
TotalDonation	2,588	2.74	3.01	11,555	0.94	2.00
TPADonation	2,588	1.74	2.67	11,555	0.58	1.61
OtherDonation	2,588	1.61	2.53	11,555	0.48	1.46
Pollution	2,588	1.17	3.33	11,555	0.37	1.72
PollutionRev	2,588	2.55	15.56	11,555	0.71	8.64
PollutionCogs	2,588	3.44	21.12	11,555	0.99	11.86
AirPol	2,588	0.91	1.65	11,555	0.19	0.72
GHG	2,588	1.24	2.01	11,555	0.28	0.95
LWP	2,588	0.39	0.95	11,555	0.08	0.39
Waste	2,588	0.46	0.98	11,555	0.07	0.29
ProCon	2,588	0.03	0.16	11,555	0.00	0.05
EmpCon	2,588	0.01	0.07	11,555	0.00	0.03
CgovCon	2,588	0.05	0.22	11,555	0.02	0.13
ROE	2,588	0.07	0.13	11,555	0.01	0.36
OperMargin	2,588	0.09	0.19	11,554	0.04	0.31
LoanAmt	2,588	1.26	3.57	11,555	0.51	2.26
GovSubs	2,588	3.61	4.29	11,555	3.26	3.71
LnAsset	2,588	23.45	1.39	11,555	21.96	1.12
Leverage	2,588	0.51	0.19	11,555	0.42	0.21
ROA	2,588	0.04	0.05	11,555	0.03	0.07
CFO	2,588	0.05	0.07	11,555	0.04	0.07
ATO	2,588	0.65	0.47	11,555	0.60	0.43
TobinQ	2,588	1.85	1.34	11,555	2.39	1.73
Top10	2,588	0.59	0.16	11,555	0.57	0.15
SOE	2,588	0.72	0.45	11,555	0.32	0.47
FirmAge	2,588	2.91	0.31	11,555	2.83	0.35

TABLE 2

Direct Effect of TPA Disclosure Mandate on Corporate Donations

This table reports the results of testing whether treated firms, which are required to issue CSR reports, donate more to TPA and any charitable causes after the TPA disclosure mandate. The dependent variable in Column (1) to (3), *TotalDonation*, is the natural logarithm of one plus all charitable donations in Chinese yuan. The dependent variable in Column (4) to (6), *TPADonation*, is the natural logarithm of one plus charitable donation toward poverty alleviation in Chinese yuan. The key explanatory variable is the interaction term *Treat*×*Post*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. Columns (1) and (4) control for industry × year fixed effects but do not include any control variables. Columns (2) and (5) include year- and firm-fixed effects along with controls. Columns (3) and (6) include industry × year fixed effects and firm-fixed effects along with controls. Appendix A contains detailed descriptions of all variables. Standard errors are clustered by firms. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*TotalDonation*			*TPADonation*		
Treat×*Post*	**0.453*** **	**0.585*** **	**0.468*** **	**1.181*** **	**1.306*** **	**1.185*** **
	(0.130)	(0.132)	(0.130)	(0.132)	(0.137)	(0.132)
Treat	1.487***			0.483***		
	(0.112)			(0.058)		
LnAsset		0.200***	0.275***		0.062	0.166***
		(0.066)	(0.063)		(0.061)	(0.058)
Leverage		-0.061	0.022		-0.125	-0.069
		(0.194)	(0.196)		(0.179)	(0.180)
ROA		1.920***	1.544***		1.452***	0.982***
		(0.270)	(0.283)		(0.243)	(0.253)
CFO		0.454*	0.373		0.319	0.273
		(0.268)	(0.268)		(0.230)	(0.230)
ATO		0.012	0.054		-0.053	0.023
		(0.108)	(0.105)		(0.101)	(0.098)
TobinQ		0.031**	0.032**		0.001	0.005
		(0.015)	(0.016)		(0.013)	(0.013)
Top10		0.817***	0.281		0.942***	0.341
		(0.294)	(0.294)		(0.278)	(0.265)
SOE		0.156	0.164		0.166	0.172
		(0.197)	(0.193)		(0.185)	(0.179)
FirmAge		-0.535	-0.373		-0.216	-0.015
		(0.437)	(0.434)		(0.426)	(0.418)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	Yes	No	Yes	Yes
Ind×Year FE	Yes	No	Yes	Yes	No	Yes
Obs.	14,143	14,143	14,143	14,143	14,143	14,143
Adj R-sq	0.28	0.53	0.54	0.28	0.46	0.49

TABLE 3

Environmental Externality of TPA Disclosure Mandate

This table reports the results of testing whether treated firms, which are subject to TPA disclosure mandate, release more hazardous pollutants into the environment. The dependent variable, *Pollution*, is the logarithm of one plus total volume of major pollutants in tons. The key explanatory variable is the interaction term *Treat×Post*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. Columns (1), (2), (3) include the same set of controls and fixed effects as in Column (1), (2), (3) of Table 2, respectively. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
VARIABLES	*Pollution*	*Pollution*	*Pollution*
Treat×Post	**0.396*** **	**0.349** **	**0.384*** **
	(0.140)	(0.142)	(0.141)
Treat	0.503***		
	(0.097)		
LnAsset		-0.194***	-0.067
		(0.049)	(0.051)
Leverage		-0.039	0.088
		(0.178)	(0.178)
ROA		1.193***	0.559**
		(0.266)	(0.252)
CFO		0.322	0.333
		(0.249)	(0.245)
ATO		0.002	-0.008
		(0.086)	(0.087)
TobinQ		-0.020*	-0.008
		(0.012)	(0.012)
Top10		0.113	0.036
		(0.236)	(0.243)
SOE		-0.093	-0.037
		(0.143)	(0.152)
FirmAge		-0.399	-0.340
		(0.387)	(0.398)
Year FE	Yes	Yes	Yes
Firm FE	No	Yes	Yes
Ind×Year FE	Yes	No	Yes
Obs.	14,143	14,143	14,143
Adj R-sq	0.12	0.37	0.39

TABLE 4

Robustness Tests

This table reports the results of various robustness tests on environmental externalities of the TPA disclosure mandate using alternative data and ruling out alternative explanations. In Panel A, we use alternative data on pollution from Trucost Database. The dependent variables in Column (1) to Column (4) of Panel A are log-transformed estimated costs (in dollars) of direct air pollutants (*AirPol*), greenhouse gas emission (*GHG*), land and water pollutants (*LWP*) and waste production (*Waste*), respectively. In Panel B, we replace the dependent variable with the total volume of major pollutants scaled by operating revenue (*PollutionRev*) in Column (1) and the total volume scaled by cost of goods sold (*PollutionCogs*) in Column (2). In Panel C, we report the results of using firm-quarter air and water pollution data retrieved by Institute of Public and Environmental Affairs (IPEA) from automatic monitoring stations. The dependent variable is the amount of pollutants in milligrams per cubic metre (mg/m^3) of air and water. Column (1) (Column (2)) covers the data over the years 2015-2019 (excluding the year 2015). The key explanatory variable in all panels is the interaction term *Treat*×*Post*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. Control variables in all panels are the same as those in Table 3. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

Panel A: Alternative Data from Trucost

	(1)	(2)	(3)	(4)
VARIABLES	*AirPol*	*GHG*	*LWP*	*Waste*
Treat×*Post*	**0.263*** **	**0.366*** **	**0.137*** **	**0.214*** **
	(0.059)	(0.069)	(0.032)	(0.035)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Obs.	14,143	14,143	14,143	14,143
Adj R-sq	0.74	0.75	0.74	0.75

Panel B: Ruling out Alternative Explanation from Scale of Production

	(1)	(2)
VARIABLES	*PollutionRev*	*PollutionCogs*
Treat×*Post*	**1.232*** **	**1.740*** **
	(0.405)	(0.587)
Controls	Yes	Yes
Year FE	Yes	Yes
Firm FE	Yes	Yes
Obs.	14,143	14,143
Adj R-sq	0.16	0.16

Panel C: Ruling out the Effect from Environmental Regulation

	(1)	(2)
VARIABLES	*All Period*	*Excluding Obs. from 2015*
Treat×*Post*	**0.265** **	**0.183***
	(0.108)	**(0.104)**
Controls	Yes	Yes
Year-Quarter FE	Yes	Yes
Firm FE	Yes	Yes
Obs.	9,123	7,710
Adj R-sq	0.83	0.84

TABLE 5

Testing Dynamic Effects of TPA Disclosure Mandate on Corporate Donations and Pollutions

This table reports the results of testing the dynamic effects of the TPA disclosure mandate on firms' spending on total donations, TPA donations and pollutions over time. *Treat* × $Year_{(t+\tau)}$ is the interaction of *Treat* and $Year_{(t+\tau)}$ in which τ denotes year τ relative to the year 2016. Control variables are the same as those in Table 2 and 3. Appendix A presents detailed descriptions of all variables. Standard errors are clustered at the firm-level. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
VARIABLES	*TotalDonation*	*TPADonation*	*Pollution*
Treat × $Year_{(t-2)}$	0.008	-0.015	0.073
	(0.106)	(0.070)	(0.114)
Treat × $Year_{(t-1)}$	-0.091	0.002	0.161
	(0.112)	(0.078)	(0.125)
Treat × $Year_{(t+1)}$	**0.330****	**1.094*****	**0.601*****
	(0.161)	**(0.149)**	**(0.198)**
Treat × $Year_{(t+2)}$	**0.774*****	**1.310*****	**0.336***
	(0.165)	**(0.158)**	**(0.203)**
Treat × $Year_{(t+3)}$	**0.562*****	**1.500*****	**0.346***
	(0.166)	**(0.160)**	**(0.204)**
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Obs.	14,143	14,143	14,143
Adj R-sq	0.53	0.46	0.37

TABLE 6

Testing Regulatory Salience with Textual Analysis

This table presents the results of testing the regulatory salience channel using textual analysis on TPA- and environment-related keywords. Panel A shows the results from the DID analysis on the frequency of the TPA- and environment-related keywords featured in major state-owned newspapers by firm. We count the number of relevant keywords for each firm in firm-specific news each year in five newspapers, namely *People's Daily*, *Securities Daily*, *Securities Times*, *China Securities Journal*, and *Shanghai Securities Journal*. We define *Firm_TPA_Count* (*Firm_Env_Count*) as the natural logarithm of one plus the total number of keywords related to TPA (environmental protection) included in the firm-level news covered by the aforementioned newspapers. The key explanatory variable is the interaction term *Treat*×*Post*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. Panel B reports the results of regressing firm-level pollution on the interaction between *Treat* and the aggregate frequency of TPA-related news across all the five major state-owned newspapers. *TPA_News* is the total number of news articles mentioning TPA-related words, and *NewsDif* is the difference in the number of news articles mentioning TPA and mentioning environmental protection. Standard errors are clustered at the firm-level. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10%, respectively.

Panel A. Firm-level Keywords Frequency

	(1)	(2)
VARIABLES	*Firm_TPA_Count*	*Firm_Env_Count*
Treat×*Post*	**0.412*** **	-0.025
	(0.045)	(0.047)
Controls	Yes	Yes
Year FE	Yes	Yes
Firm FE	Yes	Yes
Obs.	14,143	14,143
Adj R-sq	0.29	0.54

Panel B. Firm Reaction to TPA News

	(1)	(3)
VARIABLES	*Pollution*	*Pollution*
Treat×*TPA_News*	**0.208** **	
	(0.084)	
Treat×*NewsDif*		**0.148** **
		(0.063)
Controls	Yes	Yes
Year FE	Yes	Yes
Firm FE	No	Yes
Ind×Year FE	Yes	Yes
Obs.	14,143	14,143
Adj R-sq	0.37	0.37

TABLE 7

Externalities on Other ESG Dimensions and Non-ESG Activities

This table reports the results of testing whether treated firms, which are required to issue ESG reports, are more concerned about other donations, as well as product, employee relations, and corporate governance related controversies (Panel A) and non-ESG activities including operating expenses, capital expenditures and R&D investment (Panel B). In Panel A, *OtherDonation* is the natural logarithm of one plus the amount of social donations other than poverty alleviation contributions. *ProCon* is a dummy variable that indicates whether a firm is subject to regulatory actions or lawsuits related to product or services. *EmpCon* is a dummy variable that measures whether a firm is involved in labor disputes or is penalized for employee health and safety related issues. *CgovCon* is a binary indicator for whether a firm engages in financial misconduct related to corporate governance controversies. In Panel B, *OperExp* is operating expenses scaled by lagged total assets while *Capx* is changes in fixed assets scaled by one-year-lagged total assets. *R&D* is the ratio of R&D expenditure to one-year lagged total assets. The key explanatory variable is the interaction term *Treat×Post*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. Control variables are the same as those in Table 3. Appendix A contains detailed descriptions of all variables. Standard errors are clustered by firms. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10%, respectively.

Panel A. Externality on Other ESG Activities

	(1)	(2)	(3)	(4)
VARIABLES	*OtherDonation*	*ProCon*	*EmpCon*	*CgovCon*
Treat×Post	**-0.280*** **	**-0.006**	**-0.002**	**0.015**
	(0.096)	(0.005)	(0.003)	(0.010)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Obs.	14,143	14,143	14,143	14,143
Adj R-sq	0.44	0.17	0.07	0.11

Panel B. Externality on Non-ESG Activities

	(1)	(2)	(3)
VARIABLES	*OperExp*	*Capx*	*R&D*
Treat×Post	**-0.010**	**0.002**	**-0.000**
	(0.011)	(0.003)	(0.001)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Obs.	14,143	14,143	14,143
Adj R-sq	0.80	0.11	0.80

TABLE 8

Environmental Externality and Financial Constraints

This table reports the results of testing whether the environmental externalities of the TPA disclosure mandate is less pronounced among treated firms that are less financially constrained. The key explanatory variable is the interaction term *Treat*×*Post*×*LowFinCons*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. *LowFinCons* is a binary indicator that equals one if treated firms are less financially constrained in the 3-year period prior to the mandate and zero otherwise. We calculate the average value of the SA index from Hadlock and Pierce (2010) during the pre-mandate period and then sort all treated firms into terciles based on the index value. Treated firms in the bottom tercile are considered as being less constrained. In Column (1) (Column (2)), we retain (drop) firms in the middle tercile. Control variables are the same as those in Table 3. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)
VARIABLES	*Pollution*	*Pollution*
Treat×*Post*×*LowFinCons*	**-0.559****	**-0.703****
	(0.239)	(0.351)
Treat×*Post*	**0.536*****	**0.679****
	(0.192)	(0.321)
Controls	Yes	Yes
Year FE	Yes	Yes
Firm FE	Yes	Yes
Obs.	14,143	13,281
Adj R-sq	0.37	0.37
Middle tercile included	Yes	No

TABLE 9

Environmental Externality and Competition

This table reports the results of testing whether the environmental externalities of the TPA disclosure mandate is more concentrated among treated firms that are faced with a higher level of product market competition. The key explanatory variables are the triple-interaction terms *Treat*×*Post*×*LowIndCom* and *Treat*×*Post*×*HighMktIndex*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. We use two proxies to indicate product market competition. *LowIndCom* is an indicator variable that equals one for less competitive industries. We use operating revenue to calculate the Herfindahl-Hirschman Index (HHI) for each industry every year and then average the index during the pre-regulation period. Then we sort industries into terciles based on the average HHI index. We consider a firm as facing low industry competition if the HHI of its industry falls into the top tercile. *HighMktIndex* is an indicator variable that equals one for provinces with a higher score in the marketization index (suggesting better product market development) during the pre-mandate period. We calculate the average ranks of product marketization index during the pre-mandate period and then sort provinces into terciles based on the ranks. We consider a firm facing high competition in a region if the average rank falls into the top tercile. Control variables are the same as those in Table 3. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	*Pollution*	*Pollution*	*Pollution*	*Pollution*
Treat×*Post*×*LowIndCom*	**-1.212*** **	**-1.149*** **		
	(0.342)	(0.341)		
Treat×*Post*×*HighMktIndex*			**0.754** **	**0.648** **
			(0.316)	(0.320)
Treat×*Post*	**0.403*** **	**0.425*** **	0.116	0.214
	(0.147)	(0.145)	(0.161)	(0.161)
*Post*LowIndCom*	-0.153			
	(0.173)			
*Post*HighMktIndex*			0.041	
			(0.080)	
Controls	Yes	Yes	Yes	Yes
Ind×Year FE	No	Yes	No	No
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Province×Year FE	No	No	No	Yes
Obs.	14,143	14,143	14,143	14,143
Adj R-sq	0.37	0.39	0.37	0.37

TABLE 10

Financial Performance and Favorable Government Treatment for Salient Firms

This table reports the results of testing the change in firm performance (Panel A) and favorable government financing to a firm (Panel B) after the TPA disclosure mandate. *ROA* is defined as the net income scaled by total assets. *ROE* is defined as net income scaled by shareholder's equity. *OperMargin* is the operating profits scaled by total operating revenue. *TobinQ* is measured by book value of total assets minus book value of equity plus market value of equity, divided by the book value of total assets. *StateBankLoan* is the natural logarithm of one plus total loan amount obtained from state-owned banks. *GovSubs* is calculated by the natural logarithm of one plus the amount of subsidies received from the government. The key explanatory variable is the interaction term *Treat*×*Post*×*HighTPA*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. *HighTPA* is an indicator variable that equals one for treated firms with relatively more increases (top tercile) in TPA donations after the regulation. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10%, respectively.

Panel A: Firm Performance after Disclosure Mandate

	(1)	(2)	(3)	(4)
VARIABLES	*ROA*	*ROE*	*OperMargin*	*TobinQ*
Treat×*Post*×*HighTPA*	**0.011*** **	**0.025** **	**0.029** **	**0.497*** **
	(0.004)	**(0.010)**	**(0.012)**	**(0.081)**
Treat×*Post*	0.006*	0.043***	0.022*	0.201***
	(0.003)	(0.011)	(0.012)	(0.076)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Obs.	14,143	14,143	14,143	14,143
Adj R-sq	0.28	0.12	0.22	0.65

Panel B: Loan Amount from state-owned banks and Government Subsidies

	(1)	(2)
VARIABLES	*StateBankLoan*	*GovSubs*
Treat×*Post*×*HighTPA*	**0.817** **	**1.035*** **
	(0.400)	(0.243)
Treat×*Post*	0.535***	0.533***
	(0.200)	(0.135)
Controls	Yes	Yes
Year FE	Yes	Yes
Firm FE	Yes	Yes
Obs.	14,143	14,143
Adj R-sq	0.39	0.83

Appendix A. Variable Definitions

Variable Name	Definition
Dependent variables	
TotalDonation	The natural logarithm of one plus all charitable donations in Chinese yuan of a firm.
TPADonation	The natural logarithm of one plus a firm's charitable donations in Chinese yuan toward the targeted poverty alleviation program.
Pollution	The natural logarithm of one plus a firm's total volume of major pollutants (including liquid waste material, industrial sewage/garbage, and poisonous heavy metals, such as arsenic, chromium, mercury, cadmium, thallium and lead) in tons.
PollutionRev	Total volume of major pollutants (tons) divided by operating revenue (millions of CNY) of a firm.
PollutionCogs	Total volume of major pollutants (tons) divided by cost of goods sold (millions of CNY) of a firm.
OtherDonation	The natural logarithm of one plus the amounts of all donations (in CNY) other than poverty alleviation contributions by a firm.
AirPol	The natural logarithm of one plus the direct remediation costs of air pollutants (in million dollars) for a firm. The direct costs of air pollutants refer to the cost of pollutants released to air by the consumption of fossil fuels and production processes which are owned or controlled by the company.
GHG	The natural logarithm of one plus the direct remediation costs of greenhouse gas emission (in million dollars) by a firm.
LWP	The natural logarithm of one plus the direct remediation costs of land and water pollutants (in million dollars) by a firm.
Waste	The natural logarithm of one plus the direct remediation costs of waste production (in million dollars) by a firm.
ProCon	A binary indicator that equals one if a firm has been subject to any regulatory actions or lawsuits related to products or services, and zero otherwise.
EmpCon	A binary indicator that equals one if a firm has been subject to any regulatory actions or lawsuits related to employee health and safety related issues, and zero otherwise.
CgovCon	A binary indicator that equals one if a firm has been subject to any regulatory actions or lawsuits related to corporate misconduct or governance issues, and zero otherwise.
Firm_TPA_Count	The natural logarithm of one plus the total number of keywords related to targeted poverty alleviation in five major state-owned newspapers in China (*People's Daily, Securities Daily, Securities Times, China Securities Journal, and Shanghai Securities Journal*) for each firm in a year.
Firm_Env_Count	The natural logarithm of one plus the total number of keywords related to environmental protection in five major state-owned newspapers in China for each firm in a year.
OperExp	The ratio of a firm's operating expenses to its one-year lagged total assets.
Capx	The ratio of a firm's capital expenditure to its one-year lagged total assets.
R&D	The ratio of a firm's R&D expenditure to its one-year lagged total assets.
ROE	Net income divided by the shareholder's equity of a firm.
OperMargin	Operating profits divided by total operating revenue of a firm.
StateBankLoan	The natural logarithm of one plus the loan amount borrowed from SOE banks of a firm.

GovSubs	The natural logarithm of one plus the government subsidies received by a firm.
Independent variables	
Treat	A binary indicator that equals one if a firm is mandated to issue CSR report, and zero otherwise.
Post	A binary indicator that equals one for years after 2016, and zero otherwise.
LowFinCons	A binary indicator that equals one if a firm is considered less financially constrained, i.e., in the bottom tercile of the SA index as developed by Hadlock & Pierce (2010) during the 3-year period before the TPA disclosure mandate, and zero otherwise.
LowIndCom	A binary indicator that equals one if a firm is in a less competitive industry, i.e., in the top tercile of the industry Herfindahl Index (HHI) based on operating revenue each year during the 3-year period prior to the TPA disclosure mandate, and zero otherwise.
HighMktIndex	A binary indicator that equals one if a firm is in a province with a better product market development thus high competition, i.e., in the top tercile of the marketization index developed by Fan et al. (2017) during the 3-year period prior to the TPA disclosure mandate, and zero otherwise.
HighTPA	A binary indicator that equals one for treated firms with relatively more (i.e., in the top tercile) increases in TPA donations after the TPA disclosure mandate, and zero otherwise.
TPA_News	Total number of news articles mentioning TPA-related words in the five major state-owned financial newspapers (*People's Daily, Securities Daily, Securities Times, China Securities Journal, and Shanghai Securities Journal*) in a year.
NewsDif	The difference in the number of news articles mentioning TPA and mentioning environmental protection in the five major state-owned financial newspapers in a year.
Control variables	
LnAsset	The natural logarithm of total assets of a firm.
Leverage	Total liabilities divided by total assets of a firm.
ROA	Net income divided by total assets of a firm.
CFO	Cash flow from operations divided by total assets of a firm.
ATO	Operating revenue divided by total assets of a firm.
TobinQ	The book value of total assets minus book value of equity plus market value of equity, divided by the book value of total assets of a firm.
Top10	Total equity holdings by top 10 shareholders of a firm.
SOE	A binary indicator that equals one if a firm is a state-owned entity, and zero otherwise. The state-owned entities are those whose ultimate controller is the state.
FirmAge	The natural logarithm of years since a firm's incorporation.

Appendix B.

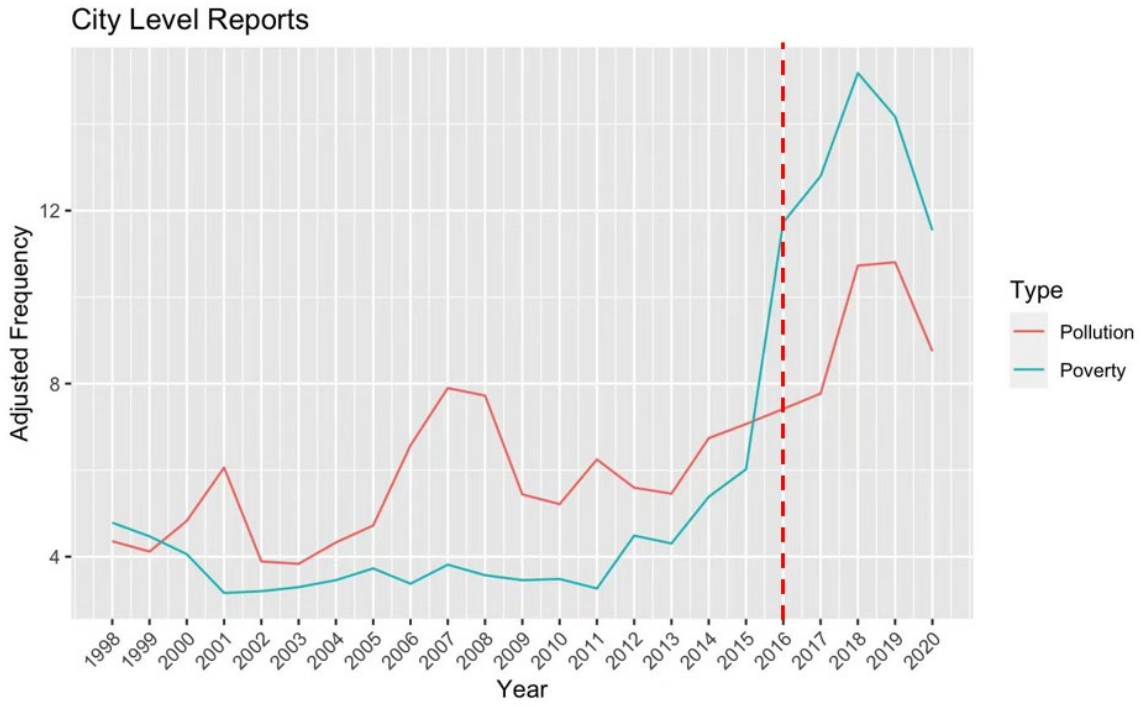


Figure B1. Regulatory Salience of TPA vs. Environmental Protection in Local Government Working Reports

This figure plots the time-series (1998-2020) frequency of keywords related to TPA and environmental protection obtained from city-level government working reports of all cities in our sample following the same procedure as in Panel A of Figure 3.

Table B1. Changes in TPA Donations and Changes in Pollutant Emissions

This table reports the results of testing whether changes in anti-poverty contributions are positively associated with changes in pollutant emissions after the TPA disclosure mandate. The dependent variable is *Pollution_change*, and is calculated as the natural logarithm of one plus the absolute value of change in emission volume from the 3-year period prior to the TPA disclosure mandate to the 3-year period after the mandate (multiplied by –1 if the change is negative). The key explanatory variables are *TotalDonation_change* in Column (1) and *TPADonation_change* in Column (2), calculated in a similar way based on pre- and post-mandate level changes. Control variables are constructed as the differences between their post- and pre-mandate average values. Standard errors are clustered by firms. ***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)
VARIABLES	*Pollution_change*	*Pollution_change*
TotalDonation_change	**0.056***	
	(0.031)	
TPADonation_change		**0.072***
		(0.038)
LnAsset_change	0.040**	0.039**
	(0.018)	(0.018)
Leverage_change	-1.080**	-1.073**
	(0.439)	(0.439)
ROA_change	1.051	1.145
	(1.148)	(1.141)
CFO_change	2.341**	2.323**
	(0.919)	(0.918)
ATO_change	0.275	0.267
	(0.254)	(0.255)
TobinQ_change	0.037	0.039
	(0.048)	(0.048)
Top10_change	0.260	0.277
	(0.607)	(0.609)
Firm FE	Yes	Yes
Obs.	2,376	2,376
Adj R-sq	0.06	0.06

Table B2. Additional Robustness Test from a Matched Sample

This table reports additional test results for whether treated firms, which are required to issue CSR reports, pollute more after the TPA disclosure mandate using a matched sample. We use a propensity score matching approach to match treated firms with up to three control firms based on a few observable characteristics set out in Table 3 to ensure that the two groups of firms are comparable along those dimensions. The key explanatory variable is the interaction term *Treat*×*Post*, where *Treat* is a binary indicator for treated firms and *Post* is a binary indicator for the period after 2016. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
VARIABLES	*Pollution*	*Pollution*	*Pollution*
Treat×*Post*	**0.371****	**0.381****	**0.315****
	(0.150)	**(0.151)**	**(0.149)**
Treat	0.392***	0.126	
	(0.099)	(0.103)	
Controls	No	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	No	No	Yes
Ind×Year FE	Yes	Yes	No
Obs.	8,577	8,577	8,577
Adj R-sq	0.11	0.13	0.38

Table B3. Alternative Explanation: Selection into SOEs

This table reports the results of testing whether the environmental externalities of the TPA disclosure mandate are more pronounced among state-owned entities (SOEs). The key variable of interest is the triple interaction term *Treat*×*Post*×*SOE,* where *Treat* is a binary indicator for treated firms, *Post* is a binary indicator for the period after 2016, and *SOE* is a binary indicator that equals one if a firm was an SOE right before the TPA disclosure mandate and zero otherwise. Control variables are the same as those in Table 3. Appendix A presents detailed descriptions of all variables. Standard errors are clustered by firms. ***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

	(1)
VARIABLES	*Pollution*
Treat×*Post*×*SOE*	**-0.232**
	(0.294)
Treat×*Post*	**0.398***
	(0.228)
Post×*SOE*	**0.332*****
	(0.104)
Controls	Yes
Year FE	Yes
Firm FE	Yes
Obs.	14,143
Adj R-sq	0.37

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