

# Effect of mandatory sustainability disclosure announcements: cross-country evidence

Disclosure  
announcements

Zhongtian Li

*Newcastle Business School, University of Newcastle, Newcastle, Australia, and*

Jing Jia

*School of Business and Economics, University of Tasmania, Hobart, Australia*

127

Received 20 September 2020  
Revised 25 January 2021  
30 May 2021  
15 July 2021  
15 August 2021  
Accepted 17 August 2021

## Abstract

**Purpose** – This study aims to examine whether announcements of mandatory sustainability disclosure affect corporate sustainability performance (CSP).

**Design/methodology/approach** – The authors use a quasi-experiment provided by mandatory sustainability disclosure announcements that occurred in 21 countries from 2006–2016. A difference-in-differences method is adopted. The authors restrict the drawing of all candidate treatment and control firms to a pool of firms that did not disclose sustainability information one year before the announcements.

**Findings** – The authors find that the announcements of mandatory sustainability disclosure are positively related to CSP. The positive effect is more pronounced for firms in countries with higher anticipation effects and lower awareness effects. Specifically, the authors find that the effect of the announcements is more pronounced in a country where the rule of law is higher and stakeholders are less likely to initiate communication about sustainability with firms, and with fewer active participants in and signatories to the United Nations Global Compact initiative. The findings hold under different robustness analyses.

**Originality/value** – The study enriches the knowledge about the effect of the announcements of comprehensive mandatory sustainability disclosure by analysing the consequences of these announcements. In the contribution to this growing stream of research, the authors provide evidence on the consequences of the announcements based on a cross-country sample and importantly, focusses on the non-economic consequences.

**Keywords** Sustainability performance, Difference-in-differences, CSR performance, Mandatory sustainability disclosure

**Paper type** Research paper

## Introduction

In this study, we aim to analyse how announcements of comprehensive [1] mandates on sustainability disclosure affect corporate sustainability performance (CSP). Voluntary sustainability disclosure has seen greater acceptance by firms (KPMG, 2013, 2015, 2017). Along with the rising trend of voluntary disclosure, more countries are considering and introducing mandatory sustainability disclosure (United Nations Environment Programme and KPMG, 2006; United Nations Environment Programme, KPMG, Global Reporting Initiative and Centre for Corporate Governance in Africa, 2010, 2013, 2016). For instance, Norway's Accounting Act asks firms to comprehensively disclose information on sustainability issues, including workplace safety, gender diversity and the natural environment. United Nations Environment Programme and KPMG (2006), the



Pacific Accounting Review  
Vol. 34 No. 1, 2022  
pp. 127-155  
© Emerald Publishing Limited  
0114-0582  
DOI 10.1108/PAR-09-2020-0141

An earlier version of the manuscript is presented in the 2019 AFAANZ conference.

United Nations Environment Programme, KPMG, Global Reporting Initiative and Centre for Corporate Governance in Africa (2010, 2013, 2016) and the Sustainable Stock Exchanges (SSE) initiative [2] suggest that comprehensive mandates on corporate sustainability disclosure (CSD) would be introduced by more countries in the future.

We are interested in announcements of comprehensive mandates on sustainability disclosure (hereafter, announcements of mandatory sustainability disclosure) for two reasons. Firstly, some studies, including the work of [Chen \*et al.\* \(2018\)](#), focus on how mandatory sustainability disclosure comes into effect and how this affects firms. We extend this stream of the research by investigating the announcements of mandates. Thus, our study provides more evidence on the effect of mandatory sustainability disclosure from a relatively omitted view, that of the announcements. Secondly, as changes in CSP require time and effort ([Flammer and Bansal, 2017](#); [Liang \*et al.\*, 2014](#); [Wang and Bansal, 2012](#)), it is expected that these announcements motivate firms to take action today. Consequently, we investigate whether announcements of mandatory sustainability disclosure affect CSP (research question). To address this question, we use a unique setting based on mandatory sustainability disclosure announcements that occurred in 21 countries (from 2006–2016). We use a difference-in-differences (DiD) approach. Specifically, if a firm in a country announced mandatory sustainability disclosure (i.e. a firm in the treatment group), we compute the differences in the firm's sustainability performance before and after the announcement. We then compare these differences with the corresponding differences in performance of a control firm. Following [Ioannou and Serafeim \(2016\)](#), we draw the control group from US firms only, as the USA is not subject to mandatory sustainability disclosure during our sample period [3]. We restrict the drawing of all candidate treatment and control firms to a pool of firms that did not disclose sustainability information one year before the announcements. Control firms are matched to treatment firms based on similar ex-ante characteristics to ensure that control firms are similar to treatment firms, except for the treatment (the announcements of mandatory sustainability disclosure).

Using this matched DiD approach, we identify that announcements of mandatory sustainability disclosure are positively related to CSP. The positive effect is more pronounced for firms in countries with higher anticipation effects and lower awareness effects. Specifically, we find that the effect of announcements is more pronounced in a country that has a higher level of rule of law (*ROL*) (higher anticipation effect), with stakeholders (e.g. trade unions) who are less likely to initiate communication about sustainability with firms (lower awareness effect), and that has fewer active participants in and signatories to the United Nations (UN) Global Compact initiative (lower awareness effect). Our results hold under a battery of robustness tests, including a generalised DiD approach.

Our study contributes to the findings of prior studies on mandatory sustainability disclosure ([Frost, 2007](#); [Birkey \*et al.\*, 2018](#)) from three aspects. Firstly, we examine the non-economic consequences of mandatory sustainability disclosure, which existing studies tend to omit. For instance, [Grewal \*et al.\* \(2019\)](#) focus on how the capital market in Europe reacts to a mandate on sustainability disclosure; however, the non-economic consequences of the mandate are not considered. Secondly, we investigate the general consequences of announcements of mandatory sustainability disclosure, which are also relatively omitted in prior literature. For example, [Chen \*et al.\* \(2018\)](#) examine the implementation of mandatory sustainability disclosure in China; however, the effect of the mandate being announced is not considered. Thirdly, we provide cross-country evidence demonstrating that country characteristics (e.g. the rule of law) affect the impact of announcements of mandatory sustainability disclosure on CSP. Our study lends support to the theoretical argument of the

transparency–action cycle (Fung *et al.*, 2007; Weil *et al.*, 2013) by indicating that announcements of mandatory sustainability disclosure increase the expectation of greater transparency of corporate sustainability, thus making firms alter their actions (in our case, their CSP).

Our study also has practical implications. Firstly, as comprehensive mandates on CSD are being marketed to policymakers [4], we provide additional evidence on the effect of announcements of such mandates on CSP. Secondly, our study suggests that the impact of mandatory sustainability disclosure can be sensitive to country-specific characteristics. Thus, our findings should be of interest to policymakers in countries that have introduced such mandates and in countries considering such mandates. Thirdly, our findings should be of interest to investors and directors, as we find that announcements of mandatory sustainability disclosure are positively related to sustainability performance, with prior studies (Eccles *et al.*, 2014; Khan *et al.*, 2016; Lins *et al.*, 2017; Servaes and Tamayo, 2013) showing that sustainability performance has economic consequences. Fourthly, our study should be of interest to those stakeholders in general who are interested in discussions about the effect of mandatory sustainability disclosure on CSP [5].

This paper comprises the following sections. The second section reviews prior studies relevant to our research aim and develops three hypotheses. The third section describes the research design, including the method and descriptive statistics, the variables and the validity of the identification strategy. The empirical results and discussion, including the additional analyses, are presented in the fourth section, whilst the fifth section summarises and concludes the paper.

## Literature review and hypotheses development

### *Literature review*

Mandates on CSD include those that are issue-specific and comprehensive mandates. In relation to issue-specific mandates (i.e. mandates that concentrate on specific areas/themes of sustainability disclosure), Birkey *et al.* (2018) examine California's Transparency in the Supply Chain Act and find that the capital market negatively reacts to that announcement. Other countries, in addition to the USA, have introduced issue-specific mandates. For example, Section 299 (1) (f) of the Corporations Law in Australia is about environmental disclosure, with Frost (2007) finding that it effectively encourages Australian firms to disclose their environmental performance. Larrinaga *et al.* (2002) find the Environmental Disclosure Standard 437/98 in Spain to be barely effective, whilst Day and Woodward (2004) investigate Schedule 7, Section 234 (3) and (4) of the *UK Companies Act 1985*, which mandates disclosure of employee-related issues, including employment welfare.

Regarding comprehensive mandates, a well-known instance is Directive 2014/95/EU, which covers many themes of CSD, including environmental protection, employees, human rights and anti-corruption [6]. Grewal *et al.* (2019) analyse how the capital market reacted to related regulatory events preceding the announcement of Directive 2014/95/EU. Examining comprehensive mandates imposed by stock exchanges in China, Chen *et al.* (2018) find that disclosure mandates alleviate regional pollution and negatively affect financial performance. Chauvey *et al.* (2015) investigate the *Nouvelles Régulations Economiques #2001–420* in France, a relatively early comprehensive mandate on sustainability disclosure, and find that the impact of this mandate on the transparency of corporate sustainability is moderate.

In summary, our study extends the literature on mandatory sustainability disclosure in three ways. Firstly, we focus on the announcements of mandates. This is relatively omitted in the prior literature, yet is a meaningful aspect. As changes in sustainability performance need time and effort (Wang and Bansal, 2012), it is probable that announcements of

mandates already exert some impact on performance. Without this knowledge, the overall effect of mandatory sustainability disclosure may be underestimated if only the implementation of mandates is examined. Secondly, following [Leuz and Wysocki \(2016\)](#), [Chen et al. \(2018\)](#) and [Leuz \(2018\)](#), we analyse the non-economic consequences of mandatory sustainability disclosure (i.e. CSP in our study). Although the impact of corporate activities on stakeholders is an essential concern of corporate sustainability, this is examined by only a few studies. Our study contributes to this omitted research field by exploring whether announcements of these mandates affect CSP. Thirdly, using a DiD approach with a treatment sample from 21 countries, our study provides more comprehensive and persuasive evidence in this regard.

### *Hypotheses development*

In this section, we develop our hypotheses about the relationship between announcements of mandatory sustainability disclosure and CSP. It should be noted that as our study is investigating the effect of announcements of mandatory sustainability disclosure, our hypotheses are developed based on firms with no previous sustainability disclosure before the announcements. For firms with sustainability disclosure before the announcements, the announcements may have no impact, as these firms have already satisfied the requirement.

For firms with no previous sustainability disclosure before the announcements, we posit a positive relationship between announcements of mandatory sustainability disclosure and CSP. Legitimacy theory suggests that maintaining legitimacy is the main motivation behind corporate efforts on sustainability issues ([Deegan, 2002](#); [Deegan et al., 2002](#); [de Villiers and van Staden, 2006](#)). An important way through which the general public assesses a firm's efforts on sustainability issues is to read its sustainability disclosure ([Deegan, 2002](#)). As [Fung et al. \(2007\)](#) and [Chen et al. \(2018\)](#) suggest, mandatory sustainability disclosure mitigates information asymmetry between the general public and corporate efforts on sustainability issues. When information asymmetry is reduced because of the introduction of mandatory sustainability disclosure, the general public, including consumers and sustainability-oriented non-governmental organisations (NGOs), can more easily identify firms with unsatisfactory sustainability performance. Therefore, when firms are required to disclose their efforts on sustainability issues, concerns about legitimacy due to their lower information asymmetry would motivate them to put more effort into sustainability issues. For firms with no previous sustainability disclosure, information asymmetry is higher and their concerns about legitimacy should be greater. As the improvement of CSP requires time and effort ([Wang and Bansal, 2012](#); [Liang et al., 2014](#); [Flammer and Bansal, 2017](#)), we expect that firms would improve their sustainability performance after sustainability disclosure mandates are announced.

Nevertheless, we consider a possible counterargument based on the concept of greenwashing, which may weaken the positive relationship that we posit. Some studies, including the works of [Delmas and Burbano \(2011\)](#), [Bowen \(2014\)](#), [Marquis and Qian \(2014\)](#) and [Marquis et al. \(2016\)](#), demonstrate the use of greenwashing in environmental and sustainability disclosure. Its presence indicates that firms do not communicate their sustainability performance in a true and fair way. If this holds, CSD is less likely to report/reveal poor sustainability performance. In anticipation of mandatory disclosure, firms may "greenwash" the disclosure, rather than improving their sustainability performance. It is noteworthy that prior studies examine greenwashing in the context of voluntary disclosure. Although the possibility of greenwashing in mandatory sustainability disclosure should not be completely ruled out, we argue that it should be of less concern in our study. Firstly, some countries (e.g. France and Taiwan) introduced their disclosure mandates along with

mandates on external assurance services. As [Cohen and Simnett \(2014\)](#) and [Ackers \(2015\)](#) find, the use of external assurance can mitigate greenwashing and improve the credibility of sustainability disclosure. Secondly, as disclosure mandates are in the form of legislation or exchange listing rules, greenwashing in mandatory sustainability disclosure carries more litigation risk and leads to severe regulatory penalties. In summary, we posit a positive relationship between announcements of mandatory sustainability disclosure and CSP:

*H1.* The announcement of comprehensive mandates on CSD is positively related to CSP.

*Anticipation effect.* The positive effect of announcements of mandatory sustainability disclosure is likely to be affected by perceptions of the extent to which firms have confidence in and abide by the rules of society (the anticipation effect). As previously discussed, the expectation of greater transparency of corporate sustainability prompted by mandatory sustainability disclosure may encourage firms to improve their sustainability performance. This is consistent with the theoretical argument of the transparency–action cycle ([Weil et al., 2013](#)). For example, [Jin and Leslie \(2003, 2009\)](#) demonstrate that mandatory presentation of restaurant hygiene grade cards encourages restaurants to improve their hygiene conditions. However, if firms anticipate that mandatory sustainability disclosure will not be effectively carried out, they are less likely to improve their sustainability performance. Thus, in countries where firms are more confident that mandatory sustainability disclosure will be effectively carried out (i.e. a higher anticipation effect), they are more likely to improve their sustainability performance after announcements of mandatory sustainability disclosure. Where firms are less confident of effective implementation of mandatory sustainability disclosure, they are less likely to improve their sustainability performance after such announcements:

*H2.* The effect of announcements of mandatory sustainability disclosure on sustainability performance is more pronounced in countries where the anticipation effect is higher.

*Awareness effect.* The positive effect of announcements of mandatory sustainability disclosure is likely to be affected by the extent to which firms in a country are aware of sustainability (including the values of sustainability and how to design and implement corporate sustainability). We expect that these announcements raise the awareness of corporate sustainability within firms, encouraging them to consider sustainability issues, thus improving their sustainability performance ([Edelman, 1992](#); [Adams and Frost, 2008](#); [Dobbin et al., 2009](#)). Specifically, awareness comes from two sources. Firstly, firms are likely to receive more information about sustainability accompanying announcements of mandatory sustainability disclosure. For example, along with Taiwan's announcement of mandatory sustainability disclosure, the Taiwan Stock Exchange organised seminars about corporate sustainability for directors and managers of its listed firms [7]. Secondly, the announcements are expected to raise the general public's expectations of sustainability and encourage them to communicate more actively with firms in this regard. For example, the introduction of Directive 2014/95/EU has an explicit social goal to encourage firms to develop a more socially responsible approach [8]. Therefore, for firms in countries where awareness of sustainability is less, the positive effect of the announcements would be more pronounced and vice versa:

*H3.* The effect of announcements of mandatory sustainability disclosure on sustainability performance is more pronounced in countries where the awareness effect is lower.

## Research design

### *Identification of countries that announced comprehensive mandates on sustainability disclosure*

To examine our hypotheses, our study sought countries that introduced comprehensive mandates on CSD. Firstly, we refer to [KPMG \(2013, 2015, 2017\)](#), the [Initiative for Responsible Investment \(2015\)](#), the [Economist Intelligence Unit \(EIU\) \(2010\)](#), [Dhaliwal \*et al.\* \(2012\)](#), the [United Nations Environment Programme and KPMG \(2006\)](#) and the [United Nations Environment Programme, KPMG, Global Reporting Initiative and Centre for Corporate Governance in Africa \(2010, 2013, 2016\)](#) to identify such countries. Secondly, we check and verify documents from various sources (e.g. academic papers, newspapers, government reports, practitioners' journals and reports from NGOs) to triangulate the presence of these mandates, with this work taking 10 months to complete. In total, our sample initially comprises 26 countries.

South Africa and India are excluded as their mandates are remotely related to CSD. Regarding South Africa, as elaborated in [Serafeim \(2015\)](#) and [Barth \*et al.\* \(2017\)](#), South Africa mandates integrated reporting, which is different from sustainability disclosure in general. With respect to India, as [Manchiraju and Rajgopal \(2017\)](#) find, India stipulates firms' investment in sustainability (e.g. a charity donation), rather than sustainability disclosure. Although disclosure mandates are in force in China ([Chen \*et al.\*, 2018](#)), China is excluded as our sample of Chinese firms disproportionately consists of state-owned enterprises with a distinctive culture ([Ralston \*et al.\*, 2006](#)) and a unique form of business operation ([Li \*et al.\*, 2015](#)). It is reasonable to argue that, compared to other countries in our sample, China has a distinctive and unique institutional environment (including state capitalism with government interventions in the vertical structure) ([Li \*et al.\*, 2015](#); [Szamosszegi and Kyle, 2011](#)). Therefore, with regard to corporate sustainability, Chinese firms may be different to their peers in other countries ([Yang \*et al.\*, 2015](#); [Yin and Quazi, 2016](#); [Yin and Zhang, 2012](#)).

Vietnam and Brazil are excluded, as our study does not identify straightforward and substantial evidence about the presence of mandatory sustainability disclosure in these two countries. Whilst this sample selection approach may be (too) conservative, it ensures that countries in our sample have comprehensive mandates on CSD. We acknowledge that our triangulation process is based on available documents and web pages in English, and we also use Google Translate, where possible, to access information in languages other than English.

[Appendix 1](#) presents details, in table form, regarding the countries in our sample and announcement dates of their comprehensive mandates on CSD and when they came into effect. For Denmark, France, Norway and Sweden, it should be noted that we include the announcements of their comprehensive mandates on sustainability disclosure, rather than Directive 2014/95/EU, as their national mandates largely overlap with Directive 2014/95/EU. As the [Global Reporting Initiative, CSR Europe and Accountancy Europe \(2017\)](#) and [Jeffery \(2017\)](#) find, the national mandates announced and implemented by Denmark, France, Norway and Sweden are comparable with Directive 2014/95/EU. Therefore, our data analysis focusses on the national mandates of Denmark, France, Norway and Sweden, rather than on Directive 2014/95/EU for these countries.

## Method and descriptive statistics

### *Construction of treatment and control groups*

Our study uses a DiD method to determine whether announcements of mandatory sustainability disclosure relate to CSP. Specifically, we compare the difference in

sustainability performance for firms in countries before and after the treatment (i.e. announcement of comprehensive mandates on sustainability disclosure) [9] (i.e. treatment group) with the corresponding difference for firms in the US that do not have mandatory sustainability disclosure (i.e. control group) but are similar to the treatment group in other ways.

We draw the control group from US firms [10] only for several reasons. Firstly, the US provides the “cleanest” control group, as it did not introduce mandatory sustainability disclosure metrics during our sample period (Ioannou and Serafeim, 2016). Secondly, we acknowledge that the US introduced several issue-specific mandates on sustainability disclosure (e.g. California’s Transparency in the Supply Chain Act) during our sample period. However, this presents a bias against our findings. If announcements of issue-specific mandates on sustainability disclosure could increase CSP, we would not be able to identify significant differences between the treatment group and the control group. Thirdly, we attempted to identify a control group within countries in our sample (i.e. firms that are not influenced by mandatory sustainability disclosure) but these observations are not provided in our data. Fourthly, we attempted to estimate a regression discontinuity around regulation thresholds within countries in our sample. However, observations adequate for this analysis are not provided in our data.

#### *Data sources and sample selection*

Data on CSP are downloaded from the Thomson Reuters Asset4 database and other firm-level data from the Worldscope database. Our initial sample consists of all firms in countries that announced mandatory sustainability disclosure from 2006–2016. We exclude firms that disclosed sustainability information one year before the announcements. That is, all candidate control and treatment firms are drawn only from a pool of firms that did not disclose sustainability information one year before the announcements. We use an indicator from the Thomson Reuters Asset4 database, namely, CGVSDP026 [11] that measures whether a firm makes CSD in a year [12]. In addition, we exclude firms missing data that are necessary for the variables used in our analysis. Furthermore, we exclude control firms that have years or industries not matched with treatment firms. This step increases the accuracy of our matching, ensuring that treatment firms operate in the same industries and in the same years as control firms. Finally, as shown in Appendix 1, some countries in our sample carried out mandatory sustainability disclosure within 12 months of their announcements. As our main analysis covers one year before and after mandatory sustainability disclosure announcements, our results may be affected by some effects of carrying out the mandates, rather than the effect of the announcements alone. Depending on a firm’s financial (fiscal) year-end, some firms are affected by the mandates within 12 months of the announcements, whilst others are not. If we set the announcement year as year  $t$ , we need to exclude firms with a financial (fiscal) year-end at year  $t + 1$  that are affected by carrying out the mandates. We present two firms in Norway as an example. Firm A has its fiscal year beginning on 1 January and Firm B has its fiscal year beginning on 1 July. Norway mandates that firms with a financial (fiscal) year beginning on or after 1 June 2013 are to disclose their sustainability information; thus, sustainability disclosure is not mandatory for Firm A in its 2013 financial (fiscal) year, but it is mandatory for Firm B. Firms’ financial (fiscal) year-end details are downloaded from the Worldscope database [13]. After deleting firms with missing data, our study has a sample of 196 treatment firms and 3,249 control firms ( $N = 3,445$ ). Table 1 provides details of the variables used in our analysis. Table 2 presents the descriptive statistics and correlation matrix of the pre-treatment values of firms in our sample that are used for propensity score matching (PSM).

Table 1.

Variable definitions

Variable	Measurement
<i>Dependent variable</i>	
CSP	Corporate sustainability performance, measured as the average of environmental and social scores
ENVIR	Environmental score
SOCIAL	Social score
<i>Independent variable</i>	
Announcement	Announcement of comprehensive mandates on sustainability disclosure
Controls	
SIZE	Firm size, measured as the natural logarithm of market capitalisation
MTB	Market to book ratio, measured as the ratio of market capitalisation to total common equity
LEV	Leverage, measured as total liabilities deflated by total assets
ROA	Return on assets, measured as reported net profit after tax deflated by total assets
CASH	Cash holding, measured as cash holdings deflated by total assets
ROL	Rule of law, extracted from the worldwide governance indicators project
PART	The natural logarithm of the number of active participants in the UN global compact initiative in a country divided by the total population (in millions) of the country
SIGN	The natural logarithm of the number of active signatories of the UN global compact initiative in a country divided by the total population (in millions) of the country
UNION	Trade union density, extracted from international labour organisation
<i>Additional firm-level and country-level controls</i>	
GEOSEG	The number of geographical segments
PROSEG	The number of product segments
VOL	Firm risk, measured as volatility of stock price
COVERAGE	Analyst coverage, measured as the number of following analysts
SHARES	Ownership structure, measured as the percentage of closely held shares
GDP	Natural logarithm of GDP per capita
GLOBAL	Level of globalisation, measured as the aggregate value of import and export deflated by GDP
LEGAL	Legal of origin in each country

**Note:** This table presents details of the variables used

*Use of propensity score matching [14]*

To mitigate the concern that our study's treatment group is not randomly selected, we use PSM to construct a sample of control firms that are the same as the treatment firms except for the treatment (i.e. the announcements). We match each treatment firm to a control firm based on firm-level characteristics that may covariate corporate sustainability (Flammer, 2015; Ioannou and Serafeim, 2016). Following Flammer (2015), we match treatment firms and control firms based on "size", "growth opportunity" (market-to-book ratio), "leverage ratio", "profitability" (ROA) and "cash holdings", all computed at one year before the treatment. Using pre-treatment values ensures that the matching characteristics are not affected by the treatment itself. Matching based on pre-treatment values of the characteristics addresses the possibility that differences and the characteristics may affect sustainability (Flammer, 2015). This matching procedure ensures that control firms are as similar as possible to the treatment firms and vice versa. To better test *H1–H3* (*H1–3*), in addition to the five matching characteristics discussed earlier, we also match on the pre-treatment value of firms' sustainability performance (*PreCSP*). Again, using the pre-treatment value of sustainability performance (*PreCSP*) as an additional matching firm

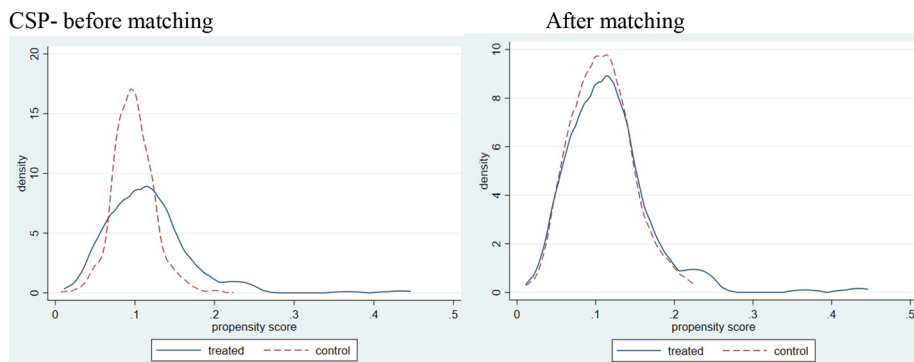
characteristics	N	Mean	Std.dev	Q1	Median	Q3
<i>Panel A: Matching</i>						
CSP	3,445	31.01	20.87	14.91	24.43	41.90
SIZE	3,445	15.39	1.31	14.59	15.26	16.07
MTB	3,445	3.48	5.49	1.44	2.50	4.18
LEV	3,445	0.59	0.28	0.43	0.58	0.66
ROA	3,445	0.07	0.08	0.03	0.06	0.10
CASH	3,445	0.10	0.11	0.01	0.06	0.14
<i>Panel B: Correlation</i>						
	CSP	SIZE	MTB	LEV	ROA	CASH
CSP	1					
SIZE	0.263***	1				
MTB	0.039**	0.110***	1			
LEV	0.022	-0.022	-0.080***	1		
ROA	0.058***	0.210***	0.135***	-0.145***	1	
CASH	0.009	-0.062***	0.163***	-0.251***	0.192***	1

**Notes:** This table presents the descriptive statistics and correlation matrix for the pre-treatment values of all the available sample firms (196 treatment firms and 3,249 control firms). Where \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05 and 0.01 levels, respectively

**Table 2.**  
Descriptive statistics  
( $N = 3,445$ )

characteristic ensures that the treatment and control firms have similar sustainability performance prior to the treatment.

We select nearest neighbour one-on-one matching based on the six firm-level characteristics above using pre-treatment values (i.e. values of these characteristics one year before the treatment), setting the caliper to  $0.25 \times$  standard errors of the propensity score (Dehejia and Wahba, 2002). Figure 1 illustrates the similarity between the treatment and control firms, presenting the density of the propensity scores of the treatment and control firms before and after matching. In line with Shaikh *et al.* (2009) and Shipman *et al.* (2017), density is constructed using Kernel density estimation. The results support a good match between our treatment and control firms after matching. Overall, we find that the treatment and control firms are similar after matching. With each treatment firm matched to a control firm, the sample for testing *H1-3* consists of 316 firms (158 treatment firms matched with 158 control firms).



**Figure 1.**  
The density of  
propensity scores of  
treatment and control  
firms – CSP: CSP –  
before matching

*Econometric modelling*

To construct a balanced data set for analysis, following [Flammer \(2015\)](#), for each treatment firm and each control firm, our study computes the difference in the firm's sustainability performance in the year after the announcement minus the firm's sustainability performance in the year before the announcement. We then estimate the effect of the announcement of mandatory sustainability disclosure on sustainability performance by estimating the following [equation \(1\)](#). We use robust standard errors [\[15\]](#). The coefficient of interest is  $b_1$ , which measures the differences in our dependent variables between treatment firms and matched control firms (i.e. DiD). *Announcement* is a dummy variable that equals 1 if mandatory sustainability disclosure is announced and 0 otherwise:

$$\Delta CSP_{i,t} = b_0 + b_1 \times \text{Announcement}_{i,t} + \text{Control Variables}_{i,t} + \text{Year, Industry \& Country FE} + \varepsilon_{i,t} \quad (1)$$

**Variables**

*Corporate sustainability performance*

As the Thomson Reuters Asset4 database is well-known for its international coverage ([Malik, 2015](#)) and is used in many seminal studies ([Cao et al., 2019](#); [Eccles et al., 2014](#); [Ioannou and Serafeim, 2016](#); [Lys et al., 2015](#); [Malik, 2015](#)), we use its environmental and social scores to measure firms' sustainability performance. Its environmental and social scores are on a scale of 0 to 100. Specifically, the environmental score consists of three sub-categories, namely, resource reduction, emission reduction and product innovation, whilst the social score consists of six sub-categories, namely, diversity and opportunity, community, health and safety, employment quality, training and development and product responsibility. Following [Ioannou and Serafeim \(2012\)](#), [Cheng et al. \(2014\)](#) and [El Ghouli et al. \(2016\)](#), we measure sustainability performance by averaging the environmental score (i.e. *ENVSCORE*) and the social score (i.e. *SOCSCORE*). Detailed information is provided in [Appendix 2](#).

*Anticipation and awareness effects*

*Anticipation effect.* We use the *ROL* to measure the extent to which firms anticipate that the mandates will be effectively carried out (i.e. the anticipation effect). *ROL*, as a governance indicator, captures the perceptions of the extent to which agents have confidence in and abide by the rules of society. *ROL* measures the concept of "law and order", in particular, the quality of contract enforcement, property rights, the police, the courts and the likelihood of crime and violence. We obtain data about the *ROL* from the Worldwide Governance Indicators project [\[16\]](#) that is supported by the World Bank.

*Awareness effect.* To capture the awareness effect, we use three proxies:

- (1) *PART*: the number of active participants in the UN Global Compact initiative, scaled by the total population.
- (2) *SIGN*: the number of active signatories of the UN Global Compact initiative scaled by the total population.
- (3) *UNION*: trade union intensity.

As the largest initiative in corporate sustainability, the UN Global Compact [\[17\]](#) annually hosts various seminars and workshops to educate the corporate sector about the values and

strategies of corporate sustainability and to promote the awareness of sustainability in firms. Thus, in a country with fewer active participants in and signatories to the UN Global Compact initiative, firms are less likely to have a high level of awareness of sustainability and vice versa. To determine the number of active participants in and signatories to the UN Global Compact initiative, we manually extract the data from the UN Global Compact website.

Awareness of corporate sustainability amongst firms may also be improved by active communication initiated by stakeholders. Trade unions are firms' primary stakeholder group and exert a significant impact on corporate sustainability activities (McWilliams and Siegel, 2001; Freeman *et al.*, 2010). In a country where trade union density is low, active communication about sustainability is less likely to be initiated and firms are less likely to be aware of sustainability. Accordingly, we use trade union density to measure the extent to which firms can develop an awareness of sustainability through active communication initiated by stakeholders. We obtain data about trade union density (*UNION*) from the International Labour Organisation [18].

#### *Control variables*

Following Flammer (2015), we control for the six firm-level characteristics used to construct the matched control group, namely, size (natural logarithm of market capitalisation); market-to-book ratio (ratio of market capitalisation to total common equity); leverage ratio (measured as total liabilities deflated by total assets); profitability (ROA) (measured as reported net profit after tax deflated by total assets); cash holdings (measured as cash holdings deflated by total assets); and pre-treatment sustainability performance, as in equation (1). As previously explained, when testing *H1-3*, this ensures that treatment and control firms have similar corporate sustainability conditions preceding the treatment.

#### **Validity of the identification strategy**

As highlighted by Flammer (2015, 2018), Flammer and Kacperczyk (2016), Glaeser and Guay (2017) and Flammer and Luo (2017), the following four underlying and essential assumptions apply when using the DiD method:

- Parallel trends assumption.
- Exogeneity assumption.
- Stable unit value treatment assumption (SUTVA).
- Perfect compliance assumption.

#### *Parallel trends assumption*

In relation to the parallel trends assumption, we prepare figures to visually inspect the changes in dependent variables for the control group and treatment group that would have occurred if the announcements were absent. Figure 2 shows the evolution of CSP in the treatment group (the red line) and the control group (the blue line) two years before and after the announcement. The CSP trends upward in the treatment group and the control group before the announcement. However, following the announcement, the treatment and control groups diverge. Compared to the matched US control firms, the CSP in treatment firms substantially increases.

*Exogeneity assumption*

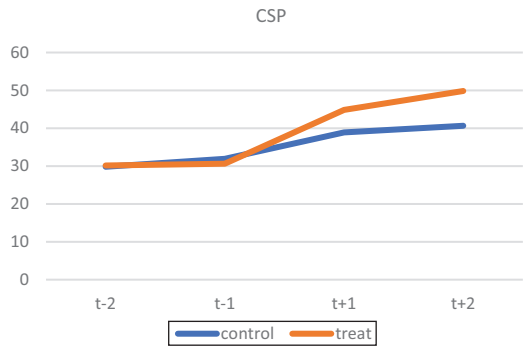
In relation to the exogeneity assumption, we argue that the introduction of mandatory sustainability disclosure is likely to be exogenous. It is very unlikely that a firm would lobby for mandatory sustainability disclosure. Firms that do not disclose their sustainability performance are unlikely to push for mandatory sustainability disclosure. Firms that voluntarily disclose sustainability performance would not lobby for these mandates, as they can adjust their disclosure levels to best serve their own interests. This is supported by [Grewal \*et al.\* \(2019\)](#) and [Birkey \*et al.\* \(2018\)](#), who found negative capital market reactions to mandatory sustainability disclosure.

Another related concern is that some changes in local socio-political conditions would affect both whether firms disclose sustainability information and when mandatory sustainability disclosure is introduced. Following [Flammer and Kacperczyk \(2016\)](#), we conduct an additional analysis by including country-by-year fixed effects to account for a country trend that may confound results. After the inclusion of country-by-year fixed effects, the results remain unchanged.

Following [Christensen \*et al.\* \(2017\)](#), we also search Google and Factiva for sporadic events in countries in our sample related to corporate sustainability before and after the announcements of mandatory sustainability disclosure but no such events are found.

Following [Delmas and Toffel \(2008\)](#) and [Kayser \*et al.\* \(2015\)](#), we consider whether systemic changes are occurring in socio-political conditions. We select three indicators relating to or reflecting these systemic changes, namely, environmental policy, environmental concern and trade union density. In terms of environmental policy, as found by the [Organisation for Economic Co-operation and Development \(OECD\) \(2014, 2016\)](#), no visible difference is apparent between any two adjacent years. We take France as an example: its environmental policy stringency index score in 2011 is 3.70; in 2012, it is 3.57; and in 2013, it is 3.50. France devoted 2.14% of its gross domestic product (GDP) to environmental causes in 2011; 2.15% of its GDP in 2012; and 2.24% of its GDP in 2013. With respect to environmental concerns, [Franzen and Vogl \(2013\)](#) find that stakeholders' environmental concerns do not fluctuate year by year. Take Spain as an example: the environmental concern level of Spanish stakeholders is 52.6 in 1993; 52.6 in 2000; and 50.4 in 2010. Regarding trade union density, data from the International Labour Organisation show [\[19\]](#) that trade union density rate remains largely constant over time. Take France as an example: its trade union density rate is the same before, during and after the announcement of Article 225 of the Grenelle II Act. Thus, it is expected that the exogeneity assumption does not distort our results.

**Figure 2.**  
Evolution of CSP in  
the control and  
treatment firms



*Stable unit value treatment assumption*

Regarding the third assumption, the SUTVA, as these mandates on CSD are introduced country by country, we argue that the mandates do not affect how the US control firms behave. As discussed in the third section, whilst the USA has introduced a few issue-specific disclosure mandates, the US has not announced any comprehensive mandate on sustainability disclosure. We also check the US control firms to ensure that no US control firms are listed on stock exchanges in Hong Kong, Singapore or Taiwan stock. Thus, it is expected that the SUTVA holds.

*Perfect compliance assumption*

In terms of the perfect compliance assumption, our research setting is inconsistent with this fourth assumption. For example, in countries in our sample, some firms disclosed sustainability information before the announcements of mandatory sustainability disclosure. To address this point, our main analysis focusses on firms with no previous sustainability disclosure (refer to the third section), with an additional analysis on firms that disclosed sustainability information before the announcements reported in the fourth section.

**Empirical results and discussion***Hypothesis 1*

Table 3 presents the results from analysing the relationship between announcements of mandatory sustainability disclosure and CSP. Table 3, Panel A presents the means of six matching characteristics of the treatment and control firms and *p*-values of the difference-in-means tests. We identify that matched firm-level characteristics are statistically indistinguishable, confirming that the control firms are similar to the treatment firms.

Table 3, Panel B presents the findings regarding *H1*. In Panel B, Column (1), the announcements of mandatory disclosure dummy is our independent variable, along with year, industry and country fixed effects. Furthermore, in Panel B, Column (2), we control for the aforementioned six firm-level variables, namely, *SIZE*, *MTB*, *LEV*, *ROA*, *CASH* and *PreCSP*. In the two models, the coefficient of the treatment  $b_1$  (i.e. mandatory sustainability disclosure announcements) is significant and positive, supporting *H1*. This supports the view that announcing the mandatory sustainability disclosure increases sustainability performance. Regarding the economic significance, as Table 3, Panel B reports, treatment firms improve sustainability performance by 10.109% (i.e. a coefficient of 10.109 on a scale of 100 in Panel B, Column [2]) after the announcements.

In addition, we separately test environmental performance (i.e. environmental scores) and social performance (i.e. social scores) to investigate whether the mandatory sustainability disclosure announcements affect them differently. The results are shown in Table 3, Panels C and D, respectively. As presented in Panels C and D, the announcements relate to better environmental performance. In the one year after the announcements, treatment firms improve their environmental performance by 17.026% (refer to Column (2) of Panel C showing a coefficient of 17.026 on a scale of 100); however, treatment firms do not seem to change their social performance. The two possible explanations are, firstly, that an improvement on environmental issues is easier than one on social issues. For example, firms tend to directly control their own emissions mitigation strategies; in contrast, it is much harder for them to collaborate with suppliers to curtail child labour or forced labour. Secondly, environmental issues could be preferred over social issues, as environmental issues attract public attention long before social issues do likewise.

	Treatment	Control	<i>t</i> -stat	<i>P</i> -value
<i>Panel A: Propensity-matched variables</i>				
SIZE	16.022	16.011	−0.05	0.960
MTB	3.392	4.332	−0.71	0.479
LEV	0.551	0.538	0.52	0.603
ROA	0.082	0.071	0.90	0.368
CASH	0.087	0.095	−1.00	0.318
PreCSP	30.639	33.026	−1.26	0.209
<i>Panel B: DiD – CSP</i>				
	ΔCSP		ΔCSP	
Announcement	9.496 <sup>***</sup> (2.66)		10.109 <sup>***</sup> (2.57)	
Controls included	No		Yes	
Year FE	Yes		Yes	
Industry FE	Yes		Yes	
Country FE	Yes		Yes	
No of firms	316		316	
Adjusted <i>R</i> <sup>2</sup>	0.27		0.29	
<i>Panel C: DiD – environmental performance</i>				
	ΔENVIR		ΔENVIR	
Announcement	16.454 <sup>**</sup> (2.44)		17.026 <sup>**</sup> (2.38)	
Controls included	No		Yes	
Year FE	Yes		Yes	
Industry FE	Yes		Yes	
Country FE	Yes		Yes	
No of firms	316		316	
Adjusted <i>R</i> <sup>2</sup>	0.26		0.28	
<i>Panel D: DiD – social performance</i>				
	ΔSOCIAL		ΔSOCIAL	
Announcement	2.538 (1.00)		3.193 (1.10)	
Controls included	No		Yes	
Year FE	Yes		Yes	
Industry FE	Yes		Yes	
Country FE	Yes		Yes	
No of firms	316		316	
Adjusted <i>R</i> <sup>2</sup>	0.22		0.24	
<b>Notes:</b> This table reports the DiD results of the impact of mandatory sustainability disclosure announcements on corporate sustainability performance. Panel A reports the mean of six matching characteristics of the treatment and control firms and the <i>p</i> -value of the difference-in-means tests. In Panels B–D, the main variable of interest is Announcement that measures whether a country announced a comprehensive mandate on sustainability disclosure. Other variables are listed in Table 1. Where * ** and *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively				

**Table 3.**  
Mandatory sustainability disclosure announcements and corporate sustainability performance

Our findings support the theoretical argument of the transparency–action cycle (Fung *et al.*, 2007; Weil *et al.*, 2013) by demonstrating that the expectation of greater transparency of corporate sustainability induces firms to change their sustainability performance. Our findings extend the work of Ioannou and Serafeim (2016) and Chen *et al.* (2018) (which investigates carrying out mandatory sustainability disclosure) by suggesting that announcing mandatory sustainability disclosure motivates firms to improve their sustainability performance. From a broader perspective, our findings align with Jin and Leslie (2003, 2009), who find that greater transparency has the potential to alter organisational behaviour.

*Hypotheses 2 and 3*

Our evidence so far shows that announcements of mandatory sustainability disclosure would increase CSP. As argued before (in the second section), the effect of disclosure mandate announcements is affected by the anticipation effect and the awareness effect.

*Anticipation effect – H2:* To test this expectation, we add an interaction term of *Announcement*  $\times$  *ROL* in the regression. The results are shown in Table 4, Panel A. We find *Announcement*  $\times$  *ROL* (coeff. = 26.469,  $p < 0.01$ ) to be significantly positive. That means, the effect of the announcements on sustainability performance is more pronounced when *ROL* is higher and vice versa. Thus, H2 is supported.

*Awareness effect – H3:* To test our expectation, we add interaction terms of *Announcement*  $\times$  *PART* (the number of active participants in the UN Global Compact initiative, scaled by total population per country); *Announcement*  $\times$  *SIGN* (the number of active signatories to the UN Global Compact initiative, scaled by total population per country); and *Announcement*  $\times$  *UNION* (trade union density), respectively, in the regression. The results are presented in Table 4, Panels B–D.

We find *Announcement*  $\times$  *PART* (coeff. =  $-6.978$ ,  $p < 0.05$ ) and *Announcement*  $\times$  *SIGN* (coeff. =  $-0.020$ ,  $p < 0.05$ ) to be significantly negative. That means the effect of the announcements is more (less) pronounced in a country where fewer (more) active participants in and signatories to the UN Global Compact initiative are present. Moreover, we find *Announcement*  $\times$  *UNION* (coeff. =  $-0.151$ ,  $p < 0.01$ ) to be significantly negative. That means the effect of the announcements is more (less) pronounced in countries where stakeholders are less (more) likely to initiate communication about sustainability. Therefore, H3 is supported. For firms in countries where awareness of sustainability is less (more), the positive effect of the announcements is more (less) pronounced and vice versa.

Overall, by analysing a cross-country sample, our study extends the work of Ioannou and Serafeim (2016) and Chen *et al.* (2018) by showing that country characteristics affect the impact of announcements of mandatory sustainability disclosure on sustainability performance. In addition to testing heterogeneity at the country level, as pointed out by Gao *et al.* (2020, p. 412), our analyses of H2 and H3 also help to mitigate the omitted variable concern, as “it is less likely to have an omitted variable correlated with the interaction term than with the linear term”.

**Additional analyses***Inclusion of country-by-year fixed effects*

As previously discussed, we include country-by-year fixed effects in all models to account for any country trend that could confound our results. The un-tabulated results [20] indicate that, after the inclusion of country-by-year fixed effects, our results remain unchanged. We find that the announcements increase CSP.

*Placebo test*

We also conduct a placebo test in which we artificially select the three years before the announcements of mandatory sustainability disclosure as a “pseudo-event” year and re-test H1. Specifically, we use the difference in CSP one year before and one year after the “pseudo-event” year as the dependent variable. The un-tabulated results [21] show no significant effect of the treatment effect, thus reinforcing our findings.

*Generalised difference-in-differences model*

As a robustness test, we follow Atanassov (2013), Balsmeier *et al.* (2017), Fauver *et al.* (2017) and Bae *et al.* (2021) and adopt an alternative DiD model, namely, a generalised DiD model. Specifically, we re-test H1 by estimating the following equation (2):

Panel A: Anticipation effect – rule of law

	$\Delta$ CSP
Announcement	16.360 <sup>***</sup> (5.62)
Announcement $\times$ ROL	26.469 <sup>***</sup> (5.21)
ROL	6.852 <sup>***</sup> (4.51)
Controls included	Yes
Year FE	Yes
Industry FE	Yes
No of firms	316
Adjusted $R^2$	0.29

Panel B: Awareness effect – population-adjusted number of active participants in the UN global compact initiative

	$\Delta$ CSP
Announcement	6.837 <sup>**</sup> (2.26)
Announcement $\times$ PART	−6.978 <sup>**</sup> (−2.76)
PART	−6.849 <sup>**</sup> (−2.68)
Controls included	Yes
Year FE	Yes
Industry FE	Yes
No of firms	316
Adjusted $R^2$	0.30

Panel C: Awareness effect – population-adjusted number of active signatories in the UN global compact initiative

	$\Delta$ CSP
Announcement	7.704 <sup>***</sup> (3.17)
Announcement $\times$ SIGN	−0.020 <sup>**</sup> (−2.39)
SIGN	−0.014 <sup>***</sup> (−4.71)
Controls included	Yes
Year FE	Yes
Industry FE	Yes
No of firms	316
Adjusted $R^2$	0.30

Panel D: Awareness effect – trade union density

	$\Delta$ CSP
Announcement	19.657 <sup>***</sup> (4.62)
Announcement $\times$ UNION	−0.151 <sup>***</sup> (−5.94)
UNION	−0.315 <sup>***</sup> (−5.06)
Controls included	Yes
Year FE	Yes
Industry FE	Yes
No of firms	316
Adjusted $R^2$	0.29

**Notes:** This table reports how the anticipation effect and awareness effect affect the relationship between mandatory sustainability disclosure announcements and corporate sustainability performance. Panel A reports the results of the anticipation effect and Panels B–D report the results of the awareness effect. *ROL* is the country level of rule of law. *PART* is the number of active participants in the UN Global Compact initiative adjusted by the total population of the country. *SIGN* is the number of active signatories of the UN Global Compact initiative adjusted by the total population of the country. *UNION* is trade union density. The definitions of all variables are listed in Table 1. Where \* \*\*, and \*\*\* indicate significance at the 0.10, 0.05 and 0.01 levels, respectively

**Table 4.**  
Anticipation effect  
and awareness effect

		Disclosure announcements
<i>Panel A: DiD – CSP without additional controls</i>		
Announcement	CSP 10.230*** (17.80)	
Controls included	Yes	
Year FE	Yes	
Firm FE	Yes	
Observations	6,890	
Adjusted $R^2$	0.25	
<i>Panel B: DiD – CSP with additional controls</i>		
Announcement	CSP 9.688*** (16.42)	
<i>Additional firm-level controls</i>		
GEOSEG	0.259** (2.24)	
PROSEG	0.617 (0.33)	
VOL	−0.188*** (−4.51)	
COVERAGE	0.080* (1.70)	
SHARES	−0.052** (−2.60)	
<i>Additional country-level controls</i>		
GDP	−10.020*** (−4.36)	
GLOBAL	−0.006 (−0.33)	
LEGAL included	Yes	
Other controls included	Yes	
Year FE	Yes	
Firm FE	Yes	
Observations	5,498	
Adjusted $R^2$	0.26	

**Notes:** This table reports the results of using generalised DiD models. The main variable of interest is *announcement*, which is a dummy that equals one if mandatory sustainability disclosure is announced by time  $t$  and zero otherwise. Panel a shows the results without additional firm-level and country-level controls and panel B shows the results including additional firm-level and country-level controls. The definitions of all variables are listed in Table 1. Where\*\*\*and\*\*\*indicate significance at the 0.10, 0.05 and 0.01 levels, respectively

**Table 5.**  
Generalised DiD  
models

$$CSP_{i,t} = b_0 + b_1 \times Announcement_{i,t} + Control\ Variables_{i,t} + \alpha_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

The variable *Announcement* is a dummy variable that equals 1 if mandatory sustainability disclosure is announced by time  $t$  (i.e. post-treatment). The specification estimates a generalised DiD model, in which firms in countries that announced mandatory sustainability disclosure are “treatment firms”. Year fixed effects  $\delta_t$  are included in equation (2) to control for economy-wide shocks. We also include firm fixed effects  $\alpha_i$  to control for any unobservable firm heterogeneity that is time invariant. As Atanasov and Black (2016) suggest, firm fixed effects capture time-invariant differences between the treatment and control groups, including the pre-treatment conditions and any common time trend unrelated to the treatment.

The results of estimating the generalised DiD regression using equation (2) are shown in Table 5, Panel A. We find a significantly positive coefficient estimate on *Announcement* at the 1% level, suggesting that CSP increases following announcements of mandatory sustainability disclosure. This confirms our main finding.

*Generalised difference-in-differences model with additional firm-level and country-level controls.* We conduct a generalised DiD model and control for additional firm-level and country-level characteristics that may be associated with CSP. The additional firm-level and

country-level controls are listed in Table 1. After controlling for these characteristics, the results in Table 5, Panel B remain consistent with our main findings. Announcements of mandatory sustainability disclosure are found to increase CSP.

*Firms that disclosed sustainability information before and after announcements (always compliers)*

In our main analysis, we are interested in firms with no sustainability disclosure before the announcements of mandatory sustainability disclosure. As an additional analysis, we shed light on how these announcements affect sustainability performance for “always compliers”, a term referring to firms that disclosed sustainability information pre- and post-announcements (i.e. CSD = 1 pre- and post-announcements).

On the one hand, our study expects that “always compliers” are less likely to be affected by the announcements, as they have disclosed sustainability information and devoted resources to sustainability issues even before the announcements. On the other hand, the announcements motivate non-disclosure firms (i.e. firms that disclose sustainability information only after the announcements) to improve their sustainability performance. It is reasonable to suspect that “always compliers” would try to outperform non-disclosure firms following the announcements. Thus, the sustainability performance of “always compliers” would also increase following the announcements.

Our results for “always compliers” are reported in Table 6. For “always compliers”, we identify that the mandate announcements improve their sustainability performance, in particular, their social performance but not their environmental performance. This finding relates to our earlier discussion that improvement in environmental issues seems to have a higher position in corporate sustainability issues. Thus, we expect that “always compliers” deliver environmental performance at the desired level. If this holds [22], then, for “always compliers” that aim to further improve their overall sustainability performance, they may focus on social issues.

**Summary and conclusion**

Our study aims to explore whether announcements of mandatory sustainability disclosure affect CSP. Analysing a cross-country sample using a matched DiD approach, we reveal that these announcements improve sustainability performance and in countries where the *ROL*

DV	ΔCSP	ΔENVIR	ΔSOCIAL
Announcement	4.759** (6.77)	1.269 (0.86)	8.384*** (8.59)
Controls included	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
No of firms	370	370	370
Adjusted R <sup>2</sup>	0.28	0.24	0.28

**Notes:** This table reports the DiD results of the impact of mandatory sustainability disclosure announcements on corporate sustainability performance for always compliers, which refer to firms that disclosed sustainability information pre- and post-the announcements. The variable of interest is *Announcement* that measures whether a country announced a comprehensive mandate on sustainability disclosure. The definitions of all variables are listed in Table 1. Where \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05 and 0.01 levels, respectively

**Table 6.**  
Always compliers

is higher (the anticipation effect) and the corporate sector is less aware of sustainability (the awareness effect), the effect of the announcements is more pronounced. Our findings hold under different robustness tests.

Our study contributes to the literature on mandatory sustainability disclosure in three ways. Firstly, we extend prior studies (Chen *et al.*, 2018) by focussing on announcements of the mandates, an aspect that has been relatively omitted. Prior studies provide evidence of the impact of the implementation of mandatory sustainability disclosure, whilst we contribute to the literature by investigating the effect of mandatory sustainability disclosure being announced. Secondly, distinct from prior studies with their focus on firm value, our study investigates the non-economic consequences of mandatory sustainability disclosure (i.e. CSP). Arguably, whether mandatory sustainability disclosure affects non-financial stakeholders should be an essential research interest in the literature, if not the primary interest. Thirdly, we provide cross-country evidence, showing that country-specific characteristics affect the impact of the announcements. Overall, our findings highlight that firms react to announcements of mandatory sustainability disclosure. In relation to theory, our results lend support to legitimacy theory and the theoretical argument of the transparency–action cycle by demonstrating that the expectation of greater transparency of corporate sustainability prompted by mandatory sustainability disclosure can make firms alter their action (i.e. CSP).

As mandatory sustainability disclosure is a prominent topic, our study should be of great interest to policymakers, investors, directors and other stakeholders. Nevertheless, our study has some limitations. Firstly, whilst we carefully inspect whether our data comply with the four assumptions of the DiD method and mitigate the non-compliance concerns where possible (readers may refer to the third section), we cannot completely rule out confounding effects that might be present. Secondly, although we focus on one year before and after the treatment to allow for better identification of the treatment effect, our findings do not address potential long-term consequences. Thirdly, we acknowledge that data from the Thomson Reuters Asset4 database can be a noisy proxy for CSP. For example, at least some of the effects found might be driven by increases in sustainability disclosure; thus, our findings should be interpreted with caution.

## Notes

1. In our paper, the term “comprehensive mandates on CSD” refers to mandates that require firms to disclose various themes of corporate sustainability disclosure, including environmental protection, employees, human rights and anti-corruption. See the second section for further discussion.
2. The SSE initiative is organised by the UN (website: <https://sseinitiative.org/> [accessed on 26 January 2020]).
3. More details are discussed in the third section. As a robustness test, we then select control firms worldwide. Our findings continue to hold.
4. For example, readers may refer to [www.globalreporting.org/information/news-and-press-center/Pages/ESG-disclosure-reduces-risk-and-informs-investors.aspx](http://www.globalreporting.org/information/news-and-press-center/Pages/ESG-disclosure-reduces-risk-and-informs-investors.aspx) (accessed on 27 January 2020).
5. Two examples to which readers may refer are: [www.cpajournal.com/2018/07/25/mandatory-nonfinancial-reporting-in-the-eu/](http://www.cpajournal.com/2018/07/25/mandatory-nonfinancial-reporting-in-the-eu/) and [www.cpajournal.com/2019/08/16/sustainability-reporting/](http://www.cpajournal.com/2019/08/16/sustainability-reporting/) (accessed on 27 January 2020).
6. More information about Directive 2014/95/EU can be found in webpages set up by the European Commission: [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting\\_en](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en) (accessed on 12 November 2019).

7. Readers may refer to [www.globalreporting.org/information/news-and-press-center/Pages/MANDATORY-SUSTAINABILITY-REPORTING-REGULATION-IN-TAIWAN.aspx](http://www.globalreporting.org/information/news-and-press-center/Pages/MANDATORY-SUSTAINABILITY-REPORTING-REGULATION-IN-TAIWAN.aspx) and <https://cgc.twse.com.tw/pressReleases/promoteNewsArticleEn/153> (accessed on 16 September 2020).
8. The overview of Directive 2014/95/EU can be found on [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting\\_en#overview](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en#overview) (accessed on 16 March 2020).
9. It should be noted that countries in our sample announced and carried out the mandates. Thus, the concern that the mandates did not accompany the announcements does not exist in our sample.
10. We acknowledge that using US firms as our control group may have limitations. We then use firms worldwide as our control group and our findings (un-tabulated) remain unchanged.
11. This indicator is stated as: Does the company publish a separate CSR/H&S/Sustainability report or publish a section in its annual report on CSR/H&S/Sustainability?
12. Our main analysis focusses on firms with no previous CSD. Correspondingly, our control firms are required to have no previous sustainability disclosure. That is, the pre-treatment value of CSD for all firms is 0. Thus, all firms in our sample should have a CSD of 0.
13. Data about firms' financial (fiscal) year-end are downloaded from the Worldscope database (*WC05350*).
14. We also use the entropy balancing approach and our findings remain unchanged. As a robustness test, we conduct the DiD analysis based on the total sample (without PSM) and find unchanged results. In addition, our results remain unchanged after further matching based on the Standard Industrial Classification code.
15. We obtain similar results if we cluster at the country level or firm level.
16. See World Bank (n.d.) for more information about this project.
17. The United Nations (UN) Global Compact is a voluntary initiative to encourage firms to adopt sustainable and socially responsible policies and to report on their implementation. This initiative is the largest voluntary corporate sustainability initiative. More information about the UN Global Compact can be found at [www.unglobalcompact.org/what-is-gc](http://www.unglobalcompact.org/what-is-gc) (accessed on 16 March 2020).
18. Raw data can be downloaded from [www.ilo.org/global/topics/collective-bargaining-labour-relations/WCMS\\_408983/lang-en/index.htm](http://www.ilo.org/global/topics/collective-bargaining-labour-relations/WCMS_408983/lang-en/index.htm) (accessed on 6 October 2019).
19. Raw data can be downloaded from [www.ilo.org/global/topics/collective-bargaining-labour-relations/WCMS\\_408983/lang-en/index.htm](http://www.ilo.org/global/topics/collective-bargaining-labour-relations/WCMS_408983/lang-en/index.htm) (accessed on 6 October 2019).
20. The results are available from the authors upon request.
21. The results are available from the authors upon request.
22. We find that, on average, the environmental performance of "always compliers" is better than their social performance.
23. It is noteworthy that for Denmark, France, Norway and Sweden, we focus on the announcements of their own mandates on sustainability disclosure and do not take into account Directive 2014/95/EU. As Global Reporting Initiative *et al.* (2017) and Jeffery (2017) found, the national mandates announced and enforced by Denmark, France, Norway and Sweden are at least as comprehensive as Directive 2014/95/EU. Thus, the effect of Directive 2014/95/EU on firms domiciled in Denmark, France, Norway and Sweden can be minimal.
24. This Glossary is downloaded from [https://uvalibraryfeb.files.wordpress.com/.../asset4\\_esg\\_data\\_glossary\\_april2013.xlsx](https://uvalibraryfeb.files.wordpress.com/.../asset4_esg_data_glossary_april2013.xlsx) (accessed on 24 July 2019).

---

## References

- Ackers, B. (2015), "Who provides corporate social responsibility (CSR) assurance and what are the implications of the various assurance practices?", *Journal of Economic and Financial Sciences*, Vol. 8 No. 1, pp. 125-144.
- Adams, C.A. and Frost, G.R. (2008), "Integrating sustainability reporting into management practices", *Accounting Forum*, Vol. 32 No. 4, pp. 288-302.
- Atanassov, J. (2013), "Do hostile takeovers stifle innovation? Evidence from antitakeover legislation and corporate patenting", *The Journal of Finance*, Vol. 68 No. 3, pp. 1097-1131.
- Atanasov, V.A. and Black, B.S. (2016), "Shock-based causal inference in corporate finance and accounting research", *Critical Finance Review*, Vol. 5 No. 2, pp. 207-304.
- Atanassov, J., Julio, B. and Leng, T. (2015), "The bright side of political uncertainty: the case of R&D", working paper, University of Nebraska.
- Bae, K., El Ghoul, S., Guedhami, O. and Zheng, X. (2021), "Board reforms and dividend policy: International evidence", *Journal of Financial and Quantitative Analysis*, Vol. 56 No. 4, pp. 1296-1320.
- Balsmeier, B., Fleming, L. and Manso, G. (2017), "Independent boards and innovation", *Journal of Financial Economics*, Vol. 123 No. 3, pp. 536-557.
- Barth, M.E., Cahan, S.F., Chen, L. and Venter, E.R. (2017), "The economic consequences associated with integrated report quality: capital market and real effects", *Accounting, Organizations and Society*, Vol. 62, pp. 43-64.
- Birkey, R.N., Guidry, R.P., Islam, M.A. and Patten, D.M. (2018), "Mandated social disclosure: an analysis of the response to the California transparency in supply chains act of 2010", *Journal of Business Ethics*, Vol. 152 No. 3, pp. 827-841.
- Bowen, F. (2014), *After Greenwashing: Symbolic Corporate Environmentalism and Society*, Cambridge University Press.
- Cao, J., Liang, H. and Zhan, X. (2019), "Peer effects of corporate social responsibility", *Management Science*, Vol. 65 No. 12, pp. 5487-5503.
- Chauvey, J.N., Giordano-Spring, S., Cho, C.H. and Patten, D.M. (2015), "The normativity and legitimacy of CSR disclosure: evidence from France", *Journal of Business Ethics*, Vol. 130 No. 4, pp. 789-803.
- Chen, Y.C., Hung, M. and Wang, Y. (2018), "The effect of mandatory CSR disclosure on firm profitability and social externalities: evidence from China", *Journal of Accounting and Economics*, Vol. 65 No. 1, pp. 169-190.
- Cheng, B., Ioannou, I. and Serafeim, G. (2014), "Corporate social responsibility and access to finance", *Strategic Management Journal*, Vol. 35 No. 1, pp. 1-23.
- Christensen, H.B., Floyd, E., Liu, L.Y. and Maffett, M. (2017), "The real effects of mandated information on social responsibility in financial reports: evidence from mine-safety records", *Journal of Accounting and Economics*, Vol. 64 Nos 2/3, pp. 284-304.
- Cohen, J.R. and Simnett, R. (2014), "CSR and assurance services: a research agenda", *Auditing: A Journal of Practice & Theory*, Vol. 34 No. 1, pp. 59-74.
- Day, R. and Woodward, T. (2004), "Disclosure of information about employees in the directors' report of UK published financial statements: substantive or symbolic?", *Accounting Forum*, Vol. 28 No. 1, pp. 43-59.
- Deegan, C. (2002), "Introduction: the legitimising effect of social and environmental disclosures", *Accounting, Auditing & Accountability Journal*, Vol. 15 No. 3, pp. 282-311.
- Deegan, C., Rankin, M. and Tobin, J. (2002), "An examination of the corporate social and environmental disclosures of BHP from 1983-1997", *Accounting, Auditing & Accountability Journal*, Vol. 15 No. 3, pp. 312-343.

- de Villiers, C. and van Staden, C.J. (2006), "Can less environmental disclosure have a legitimizing effect? Evidence from Africa", *Accounting, Organizations and Society*, Vol. 31 No. 8, pp. 763-781.
- Dehejia, R.H. and Wahba, S. (2002), "Propensity score-matching methods for nonexperimental causal studies", *Review of Economics and Statistics*, Vol. 84 No. 1, pp. 151-161.
- Delmas, M.A. and Burbano, V.C. (2011), "The drivers of greenwashing", *California Management Review*, Vol. 54 No. 1, pp. 64-87.
- Delmas, M.A. and Toffel, M.W. (2008), "Organizational responses to environmental demands: opening the black box", *Strategic Management Journal*, Vol. 29 No. 10, pp. 1027-1055.
- Delmas, M.A. and Toffel, M.W. (2011), "Institutional pressures and organizational characteristics: implications for environmental strategy", in Bansal, P. and Jermier, J.M. (Eds), *The Oxford Handbook of Business and the Natural Environment*, Oxford University Press, pp. 229-251.
- Dhaliwal, D.S., Radhakrishnan, S., Tsang, A. and Yang, Y.G. (2012), "Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure", *The Accounting Review*, Vol. 87 No. 3, pp. 723-759.
- Dobbin, F., Schrage, D. and Kalev, A. (2009), "Someone to watch over me: coupling, decoupling, and unintended consequences in corporate equal opportunity", working paper, Harvard University, p. 65.
- Eccles, R.G., Ioannou, I. and Serafeim, G. (2014), "The impact of corporate sustainability on organizational processes and performance", *Management Science*, Vol. 60 No. 11, pp. 2835-2857.
- Economist Intelligence Unit (EIU) (2010), "Global trends in sustainability performance management: Economist intelligence unit", p. 22.
- Edelman, L.B. (1992), "Legal ambiguity and symbolic structures: organizational mediation of civil rights law", *American Journal of Sociology*, Vol. 97 No. 6, pp. 1531-1576.
- El Ghouli, S., Guedhami, O., Wang, H. and Kwok, C.C. (2016), "Family control and corporate social responsibility", *Journal of Banking & Finance*, Vol. 73, pp. 131-146.
- Fauver, L., Hung, M., Li, X. and Taboada, A.G. (2017), "Board reforms and firm value: worldwide evidence", *Journal of Financial Economics*, Vol. 125 No. 1, pp. 120-142.
- Flammer, C. (2015), "Does product market competition foster corporate social responsibility? Evidence from trade liberalization", *Strategic Management Journal*, Vol. 36 No. 10, pp. 1469-1485.
- Flammer, C. (2018), "Competing for government procurement contracts: the role of corporate social responsibility", *Strategic Management Journal*, Vol. 39 No. 5, pp. 1299-1324.
- Flammer, C. and Bansal, P. (2017), "Does a long-term orientation create value? Evidence from a regression discontinuity", *Strategic Management Journal*, Vol. 38 No. 9, pp. 1827-1847.
- Flammer, C. and Kacperczyk, A. (2016), "The impact of stakeholder orientation on innovation: evidence from a natural experiment", *Management Science*, Vol. 62 No. 7, pp. 1982-2001.
- Flammer, C. and Luo, J. (2017), "Corporate social responsibility as an employee governance tool: evidence from a quasi-experiment", *Strategic Management Journal*, Vol. 38 No. 2, pp. 163-183.
- Franzen, A. and Vogl, D. (2013), "Two decades of measuring environmental attitudes: a comparative analysis of 33 countries", *Global Environmental Change*, Vol. 23 No. 5, pp. 1001-1008.
- Freeman, R.E., Harrison, J.S., Wicks, A.C., Parmar, B.L. and De Colle, S. (2010), *Stakeholder Theory: The State of the Art*, Cambridge University Press.
- Frost, G.R. (2007), "The introduction of mandatory environmental reporting guidelines: Australian evidence", *Abacus*, Vol. 43 No. 2, pp. 190-216.
- Fung, A., Graham, M. and Weil, D. (2007), *Full Disclosure: The Perils and Promise of Transparency*, Cambridge University Press.
- Gao, H., Hsu, P.H., Li, K. and Zhang, J. (2020), "The real effect of smoking bans: evidence from corporate innovation", *Journal of Financial and Quantitative Analysis*, Vol. 55 No. 2, pp. 387-427.

- Glaeser, S. and Guay, W.R. (2017), "Identification and generalizability in accounting research: a discussion of Christensen, Floyd, Liu, and Maffett (2017)", *Journal of Accounting and Economics*, Vol. 64 Nos 2/3, pp. 305-312.
- Global Reporting Initiative (2014), "A role for market regulators and operators in advancing corporate transparency on sustainability", *The Netherlands: Global Reporting Initiative*, p. 13.
- Global Reporting Initiative, CSR Europe, and Accountancy Europe (2017), "*Member State Implementation of Directive 2014/95/EU: A Comprehensive Overview of How Member States Are Implementing the EU Directive on Non-Financial and Diversity Information*", Global Reporting Initiative, Belgium.
- Grewal, J., Riedl, E.J. and Serafeim, G. (2019), "Market reaction to mandatory nonfinancial disclosure", *Management Science*, Vol. 65 No. 7, pp. 2947-3448.
- Initiative for Responsible Investment (2015), "Corporate social responsibility disclosure efforts by national governments and stock exchanges", Hauser Institute for Civil Society, p. 22.
- Ioannou, I. and Serafeim, G. (2012), "What drives corporate social performance? The role of nation-level institutions", *Journal of International Business Studies*, Vol. 43 No. 9, pp. 834-864.
- Ioannou, I. and Serafeim, G. (2016), "The consequences of mandatory corporate sustainability reporting evidence from four countries", working paper, Harvard Business School, p. 49.
- Jeffery, C. (2017), "Comparing the implementation of the EU Non-Financial reporting directive in the UK, Germany, France and Italy", Frank Bold, p. 52.
- Jin, G.Z. and Leslie, P. (2003), "The effect of information on product quality: evidence from restaurant hygiene grade cards", *The Quarterly Journal of Economics*, Vol. 118 No. 2, pp. 409-451.
- Jin, G.Z. and Leslie, P. (2009), "Reputational incentives for restaurant hygiene", *American Economic Journal: Microeconomics*, Vol. 1 No. 1, pp. 237-267.
- Kayser, S.A., Maxwell, J.W. and Toffel, M.W. (2015), "Signaling without certification: the critical role of civil society scrutiny", working paper, Harvard Business School, p. 43.
- Khan, M., Serafeim, G. and Yoon, A. (2016), "Corporate sustainability: first evidence on materiality", *The Accounting Review*, Vol. 91 No. 6, pp. 1697-1724.
- KPMG (2013), "The KPMG survey of corporate responsibility reporting 2013", KPMG Global Center of Excellence for Climate Change & Sustainability, p. 82.
- KPMG (2015), "The KPMG survey of corporate responsibility reporting 2015", KPMG Global Center of Excellence for Climate Change & Sustainability, p. 48.
- KPMG (2017), "The KPMG survey of corporate responsibility reporting 2017", KPMG Global Center of Excellence for Climate Change & Sustainability, p. 57.
- Larrinaga, C., Carrasco, F., Correa, C., Llena, F. and Moneva, J. (2002), "Accountability and accounting regulation: the case of the Spanish environmental disclosure standard", *European Accounting Review*, Vol. 11 No. 4, pp. 723-740.
- Leuz, C. (2018), "Evidence-based policymaking: promise, challenges and opportunities for accounting and financial markets research", *Accounting and Business Research*, Vol. 48 No. 5, pp. 582-608.
- Leuz, C. and Wysocki, P.D. (2016), "The economics of disclosure and financial reporting regulation: evidence and suggestions for future research", *Journal of Accounting Research*, Vol. 54 No. 2, pp. 525-622.
- Li, X., Liu, X. and Wang, Y. (2015), "A model of China's state capitalism", *HKUST IEMS Working Paper*, No., pp. 2015-2012.
- Liang, H., Marquis, C., Renneboog, L. and Sun, S.L. (2014), "Speaking of corporate social responsibility", working paper, Singapore Management University, p. 49.
- Lins, K.V., Servaes, H. and Tamayo, A. (2017), "Social Capital, trust, and firm performance: the value of corporate social responsibility during the financial crisis", *The Journal of Finance*, Vol. 72 No. 4, pp. 1785-1824.

- Lys, T., Naughton, J.P. and Wang, C. (2015), "Signaling through corporate accountability reporting", *Journal of Accounting and Economics*, Vol. 60 No. 1, pp. 56-72.
- Malik, M. (2015), "Value-enhancing capabilities of CSR: a brief review of contemporary literature", *Journal of Business Ethics*, Vol. 127 No. 2, pp. 419-438.
- Manchiraju, H. and Rajgopal, S. (2017), "Does corporate social responsibility (CSR) create shareholder value? Evidence from the indian companies act", *Journal of Accounting Research*, Vol. 55 No. 5, pp. 1257-1300. 2013.
- Marquis, C. and Qian, C. (2014), "Corporate social responsibility reporting in China: symbol or substance?", *Organization Science*, Vol. 25 No. 1, pp. 127-148.
- Marquis, C., Toffel, M.W. and Zhou, Y. (2016), "Scrutiny, norms, and selective disclosure: a global study of greenwashing", *Organization Science*, Vol. 27 No. 2, pp. 483-504.
- McWilliams, A. and Siegel, D. (2001), "Corporate social responsibility: a theory of the firm perspective", *Academy of Management Review*, Vol. 26 No. 1, pp. 117-127.
- OECD (2014), "Environmental policy instruments".
- OECD (2016), "Environmental policy stringency index".
- Ralston, D.A., Terpstra, -Tong, J., Terpstra, R.H., Wang, X. and Egri, C. (2006), "Today's state-owned enterprises of China: are they dying dinosaurs or dynamic dynamos?", *Strategic Management Journal*, Vol. 27 No. 9, pp. 825-843.
- Serafeim, G. (2015), "Integrated reporting and investor clientele", *Journal of Applied Corporate Finance*, Vol. 27 No. 2, pp. 34-51.
- Servaes, H. and Tamayo, A. (2013), "The impact of corporate social responsibility on firm value: the role of customers awareness", *Management Science*, Vol. 59 No. 5, pp. 1045-1061.
- Shaikh, A.M., Simonsen, M., Vytlačil, E.J. and Yildiz, N. (2009), "A specification test for the propensity score using its distribution conditional on participation", *Journal of Econometrics*, Vol. 151 No. 1, pp. 33-46.
- Shipman, J.E., Swanquist, Q.T. and Whited, R.L. (2017), "Propensity score matching in accounting research", *The Accounting Review*, Vol. 92 No. 1, pp. 213-244.
- Szamoszegi, A. and Kyle, C. (2011), "An analysis of state-owned enterprises and state capitalism in China (vol. 52)", Capital Trade, Incorporated for US-China Economic and Security Review Commission.
- United Nations Environment Programme and KPMG (2006), "Carrots and sticks for starters: Current trends and approaches in voluntary and mandatory standards for sustainability reporting", United Nations Environment Programme, KPMG, p. 64.
- United Nations Environment Programme, KPMG, Global Reporting Initiative and Centre for Corporate Governance in Africa (2010), "Carrots and sticks for Starters - Promoting transparency and sustainability: an update on trends in voluntary and mandatory approaches to sustainability reporting", United Nations Environment Programme, KPMG, Global Reporting Initiative, Unit for Corporate Governance in Africa, p. 96.
- United Nations Environment Programme, KPMG, Global Reporting Initiative and Centre for Corporate Governance in Africa (2013), "Carrots and sticks: Sustainability reporting policies worldwide – today's best practice, tomorrow's trends", United Nations Environment Programme, KPMG, Global Reporting Initiative, Unit for Corporate Governance in Africa, p. 96.
- United Nations Environment Programme, KPMG, Global Reporting Initiative and Centre for Corporate Governance in Africa (2016), "Carrots and sticks: Global trends in sustainability reporting regulation and policy", United Nations Environment Programme, KPMG, Global Reporting Initiative, Unit for Corporate Governance in Africa, p. 34.
- Wang, T. and Bansal, P. (2012), "Social responsibility in new ventures: profiting from a long-term orientation", *Strategic Management Journal*, Vol. 33 No. 10, pp. 1135-1153.

- Weil, D., Graham, M. and Fung, A. (2013), "Targeting transparency", *Science*, Vol. 340 No. 6139, pp. 1410-1411.
- Yang, H.H., Craig, R. and Farley, A. (2015), "A review of chinese and english language studies on corporate environmental reporting in China", *Critical Perspectives on Accounting*, Vol. 28, pp. 30-48.
- Yin, J. and Quazi, A. (2016), "Business ethics in the greater China region: past, present, and future research", *Journal of Business Ethics*, Vol. 150 No. 3, pp. 815-835.
- Yin, J. and Zhang, Y. (2012), "Institutional dynamics and corporate social responsibility (CSR) in an emerging country context: Evidence from China", *Journal of Business Ethics*, Vol. 111 No. 2, pp. 301-316.

### Further reading

- Cai, Y., Pan, C.H. and Statman, M. (2016), "Why do countries matter so much in corporate social performance?", *Journal of Corporate Finance*, Vol. 41, pp. 591-609.
- Campbell, J.L. (2007), "Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility", *Academy of Management Review*, Vol. 32 No. 3, pp. 946-967.
- Campan, D.L. and Poesiat, H. (2019), "The next steps in Non-Financial information reporting: Research into the decrees on Non-Financial information and diversity in The Netherlands in 2018 and 2017", KPMG Advisory NV, p. 24.
- Chatterji, A.K. and Toffel, M.W. (2010), "How firms respond to being rated", *Strategic Management Journal*, Vol. 31, pp. 917-945.
- Criado-Jiménez, I., Fernández-Chulián, M., Larrinaga-González, C. and Husillos-Carqués, F.J. (2008), "Compliance with mandatory environmental reporting in financial statements: the case of Spain (2001–2003)", *Journal of Business Ethics*, Vol. 79 No. 3, pp. 245-262.
- Daske, H., Hail, L., Leuz, C. and Verdi, R. (2008), "Mandatory IFRS reporting around the world: Early evidence on the economic consequences", *Journal of Accounting Research*, Vol. 46, pp. 1085-1142.
- Hoffman, A.J. (2001), *From Heresy to Dogma: An Institutional History of Corporate Environmentalism*, Stanford University Press.
- Hong Kong Exchange (2018), "Analysis of environment, social and governance practice disclosure in 2016/2017", Hong Kong Exchange, p. 23.
- Ioannou, I. and Serafeim, G. (2014), "The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics", *Strategic Management Journal*, Vol. 36 No. 7, pp. 1053-1081.
- KPMG China (2017), "The ESG journey begins – 2017 ESG reporting survey of Hong Kong listed issuers", KPMG China, p. 48.
- Liang, H. and Renneboog, L. (2017), "On the foundations of corporate social responsibility", *The Journal of Finance*, Vol. 72 No. 2, pp. 853-910.
- Llena, F., Moneva, J.M. and Hernandez, B. (2007), "Environmental disclosures and compulsory accounting standards: the case of spanish annual reports", *Business Strategy and the Environment*, Vol. 16 No. 1, pp. 50-63.
- Lo, S.F. and Sheu, H.J. (2007), "Is corporate sustainability a value-increasing strategy for business?", *Corporate Governance: An International Review*, Vol. 15 No. 2, pp. 345-358.
- Office of the Ambassador at large for Corporate Social Responsibility (2012), "The french legislation on extra-financial reporting: Built on consensus", in Etrangères, M.D.A. (Ed.), *Ministère des Affaires Étrangères*, Paris, p. 7.

**Table A1**  
Countries that  
introduced  
comprehensive  
mandates on  
corporate  
sustainability  
disclosure

Appendix 1

Country	Regulatory level	Announcement date of disclosure mandate	Fiscal year affected by disclosure mandate
<i>Panel A: Announcement and enforcement dates of mandatory corporate sustainability disclosure in countries</i>			
Austria	Legislation	22 October 2014	Ending on or after 31 December 2016
Belgium	Legislation	22 October 2014	Beginning on or after 1 January 2017
Czech Republic	Legislation	22 October 2014	Beginning on or after 1 January 2017
Denmark	Legislation(a)	(a) 8 October 2008	(a) Beginning on or after 1 January 2009
	Legislation(b)	(b) 22 October 2014	(b) Beginning on or after 1 January 2016
Finland	Legislation	22 October 2014	Beginning on or after 1 January 2017
France	Legislation(a)	(a) 26 April 2012	(a) Ending on or after 31 December 2013
	Legislation(b)	(b) 22 October 2014	(b) Beginning on or after 1 January 2017
Germany	Legislation	22 October 2014	Beginning on or after 1 January 2017
Greece	Legislation	22 October 2014	Beginning on or after 1 January 2015
Hong Kong	Stock exchange rules	21 December 2015	Beginning on or after 1 January 2016
Hungary	Legislation	22 October 2014	Beginning on or after 1 January 2017
Iceland	Legislation	22 October 2014	Beginning on or after 1 January 2016
Indonesia	Governmental guidance	1 August 2012	Ending on or after 31 December 2012
Ireland	Legislation	22 October 2014	Beginning on or after 1 August 2017
Italy	Legislation	22 October 2014	Beginning on or after 25 January 2017
Luxembourg	Legislation	22 October 2014	Beginning on or after 1 January 2017
Malaysia	Legislation	1 September 2006	Beginning on or after 1 January 2007
The Netherlands	Legislation	22 October 2014	Beginning on or after 1 January 2017
	Legislation(a)	(a) 14 November 2012	(a) Beginning on or after 1 June 2013
Norway	Legislation(b)	(b) 22 October 2014	(b) Beginning on or after 1 January 2017
Poland	Legislation	22 October 2014	Beginning on or after 1 January 2017
Portugal	Legislation	22 October 2014	Beginning on or after 1 January 2017
Singapore	Stock exchange rules	20 June 2016	Ending on or after 31 December 2017
Spain	Legislation	22 October 2014	Beginning on or after 1 January 2017
Sweden	Legislation(a)	(a) 29 November 2007	(a) Beginning on or after 1 January 2008
	Legislation(b)	(b) 22 October 2014	(b) Beginning on or after 1 January 2017
Taiwan	Stock exchange rules	9 September 2014	30 June 2015 at the end of the most recent fiscal year
Thailand	Governmental guidance	26 November 2013	Beginning on or after 1 January 2014
UK	Legislation	22 October 2014	Beginning on or after 1 January 2017
<i>Panel B: Regulatory documents in relation to mandatory corporate sustainability disclosure</i>			
Country	Regulatory Document		
Austria	Transposition of Directive 2014/95/EU		
Belgium	Transposition of Directive 2014/95/EU		

(continued)

Country	Regulatory level	Announcement date of disclosure mandate	Fiscal year affected by disclosure mandate
Czech Republic	Transposition of Directive 2014/95/EU		
Denmark	Legislation(a): Section 99a of the Danish Financial Statements Act Legislation(b): Transposition of Directive 2014/95/EU		
Finland	Transposition of Directive 2014/95/EU		
France	Legislation(a): Article 225 of the Grenelle II Act Legislation(b): Transposition of Directive 2014/95/EU		
Germany	Transposition of Directive 2014/95/EU		
Greece	Transposition of Directive 2014/95/EU		
Hong Kong	Appendix 27 of Main Board Listing Rules; Appendix 20 of GEM Listing Rules		
Hungary	Transposition of Directive 2014/95/EU		
Iceland	Transposition of Directive 2014/95/EU		
Indonesia	Government Regulation Kep-43/BL/2012		
Ireland	Transposition of Directive 2014/95/EU		
Italy	Transposition of Directive 2014/95/EU		
Luxembourg	Transposition of Directive 2014/95/EU		
Malaysia	The 2007 Budget Speech		
The Netherlands	Transposition of Directive 2014/95/EU		
Norway	Legislation(a): Section 3-3a of the Norwegian Accounting Act Legislation(b): Transposition of Directive 2014/95/EU		
Poland	Transposition of Directive 2014/95/EU		
Portugal	Transposition of Directive 2014/95/EU		
Singapore	Listing Rule 711AB		
Spain	Transposition of Directive 2014/95/EU		
Sweden	Transposition of Directive 2014/95/EU		
Taiwan	Legislation(a): Governmental Guidance Guidelines for External Reporting by State-owned Companies Legislation(b): Transposition of Directive 2014/95/EU		
Thailand	Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE		
UK	Listed Companies Sustainability Development Roadmap for Listed Companies Transposition of Directive 2014/95/EU		

**Notes:** This table summarises countries that announced and enforced comprehensive mandates for corporate sustainability disclosure. Panel A presents the date of the announcement and financial (fiscal) year when the disclosure mandates were enforced. Panel B presents the corresponding regulatory documents (Notes: Due to missing variables, Czech Republic, Iceland and Malaysia were dropped from our sample) [23]

Table A1

Appendix 2

Sub-categories	Asset 4 code	Description
Emission reduction	ENER	The emission reduction category measures a firm's management commitment and effectiveness towards reducing environmental emission in the production and operational processes. It reflects a firm's capacity to reduce air emissions (greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, etc.), waste, hazardous waste, water discharges, spills or its impacts on biodiversity and to partner with environmental organisations to reduce the environmental impact of the firm in the local or broader community
Product innovation	ENPI	The product innovation category measures a firm's management commitment and effectiveness towards supporting the research and development of eco-efficient products or services. It reflects a firm's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialised products with extended durability
Resource reduction	ENRR	The resource reduction category measures a firm's management commitment and effectiveness towards achieving an efficient use of natural resources in the production process. It reflects a firm's capacity to reduce the use of materials, energy or water and to find more eco-efficient solutions by improving supply chain management
Customer/product responsibility	SOPR	The customer/product responsibility category measures a firm's management commitment and effectiveness towards creating value-added products and services upholding the customer's security. It reflects a firm's capacity to maintain its license to operate by producing quality goods and services integrating the customer's health and safety and preserving its integrity and privacy also through accurate product information and labelling
Society/community	SOCO	The society/community category measures a firm's management commitment and effectiveness towards maintaining the firm's reputation within the general community (local, national and global). It reflects a firm's capacity to maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.)
Society/human rights	SOHR	The society/human rights category measures a firm's management commitment and effectiveness towards respecting the fundamental human rights conventions. It reflects a firm's capacity to maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labour
Workforce/diversity and opportunity	SODO	The workforce/diversity and opportunity category measures a firm's management commitment and effectiveness towards maintaining diversity and equal opportunities in its workforce. It reflects a firm's capacity to increase its workforce loyalty and productivity by promoting an effective life-work balance, a family friendly environment and equal opportunities regardless of gender, age, ethnicity, religion or sexual orientation
	SOEQ	

Table A2.  
Thomson Reuters  
Asset4

(continued)

			Disclosure announcements
Sub-categories	Asset 4 code	Description	
Workforce/employment quality		The workforce/employment quality category measures a firm's management commitment and effectiveness towards providing high-quality employment benefits and job conditions. It reflects a firm's capacity to increase its workforce loyalty and productivity by distributing rewarding and fair employment benefits, and by focussing on long-term employment growth and stability by promoting from within, avoiding lay-offs and maintaining relations with trade unions	155
Workforce/health and safety	SOHS	The workforce/health and safety category measures a firm's management commitment and effectiveness towards providing a healthy and safe workplace. It reflects a firm's capacity to increase its workforce loyalty and productivity by integrating into its day-to-day operations a concern for the physical and mental health, well-being and stress level of all employees	
Workforce/training and development	SOTD	The workforce/training and development category measures a firm's management commitment and effectiveness towards providing training and development (education) for its workforce. It reflects a firm's capacity to increase its intellectual capital, workforce loyalty and productivity by developing the workforce's skills, competences, employability and careers in an entrepreneurial environment	
<b>Notes:</b> As discussed in Section 3.3, Thomson Reuters Asset4 provides an environmental score and a social score for firms in its assessment universe. Details about each score are tabulated below. The information tabulated below is directly replicated from Asset4 ESG Data Glossary [24]			Table A2.

### About the authors

Zhongtian Li, PhD, is a Lecturer in Accounting at the University of Newcastle (Australia). He conducts research in the area of corporate social responsibility. His research has been published in *Journal of Corporate Finance and Accounting*, *Auditing and Accountability Journal*, amongst other journals.

Jing Jia, PhD, is a Senior Lecturer in Accounting at the University of Tasmania (Australia). She conducts research in the area of corporate social responsibility and risk management. Her research has been published in *Journal of Corporate Finance*, *Australia Journal of Management and Managerial Auditing Journal*, amongst other journals. Jing Jia is the corresponding author and can be contacted at: [jing.jia@utas.edu.au](mailto:jing.jia@utas.edu.au)