Competition laws, ownership, and corporate social responsibility

Wenzhi Ding[1], Ross Levine[2,3],
Chen Lin[1] and Wensi Xie[4]

[1] Faculty of Business and Economics, The University of Hong Kong, Pok Fu Lam, Hong Kong; [2] Haas School of Business at the University of California, 545 Student Services Building, Berkeley, CA 94720-1900, USA; [3] NBER, Cambridge, USA; [4] Department of Finance, CUHK Business School, Chinese University of Hong Kong, Shatin, Hong Kong

Correspondence:
R Levine, Haas School of Business at the University of California, 545 Student Services Building, Berkeley, CA 94720-1900, USA
e-mail: rosslevine@berkeley.edu

Abstract
Different theories offer different predictions of the impact of competition on corporate social responsibility (CSR). The stakeholder value and product differentiation theories hold that intensifying competition spurs firms to increase corporate social responsibility (CSR) to strengthen relationships with non-shareholder stakeholders (e.g., workers, suppliers, customers, and local communities) and differentiate their products to gain pricing power. However, textbook theories of the firm imply that competition spurs firms to focus on short-term survival and forgo investments that pay off in the long run, such as CSR. The purpose of this paper is to evaluate these competing hypotheses. Methodologically, we use a large sample of firm-level data on CSR and panel data on competition laws across 47 countries from 2002 to 2015 and employ multivariate regressions. We find evidence consistent with the stakeholder value and product differentiation theories: intensifying competition laws leads firms to increase their CSR activities, and the CSR-enhancing effects of competition vary across (a) firms with different institutional owners, controlling owners, industry structures, and financing constraints, and (b) countries with different social attitudes toward CSR in ways consistent with the stakeholder value and product differentiation theories. The results imply that firms use CSR, at least partially, as a profit-maximizing strategy.

Journal of International Business Studies (2022) **53**, 1576–1602.
https://doi.org/10.1057/s41267-022-00536-4

Keywords: corporate social responsibility; ownership/control structures; agency theory; competition; multiple regression analysis

INTRODUCTION

Many international businesses stress the importance of corporate social responsibility (CSR). For example, on January 14, 2020, Larry Fink, the CEO of BlackRock, the world's largest asset manager, argued that "a company cannot achieve long-term profits without embracing … the needs of a broad range of stakeholders," (Fink, 2020) such as customers, employees, suppliers, and the communities in which the company operates. In August 2019, the Business Roundtable, a group of CEOs from major U.S. corporations, committed to investing in their employees, dealing fairly and ethically with suppliers, and protecting the environment. Internationally, about 1500 companies with almost US $90 trillion worth of assets are signatories to the United Nations-supported Principles for Responsible Investing (Fitzgerald, 2019; PRI Association, 2022).

However, although many voice support for CSR, actual implementation varies markedly across businesses and countries, raising questions about the determinants of CSR activities.

The purpose of this paper is to evaluate the independent impact of laws that shape product market competition on CSR activities, controlling for other potential CSR determinants. We focus on competition laws for three reasons. First, policy-makers, researchers, and businesses intensely debate the impact of competition laws on social welfare (e.g., Asker & Nocke, 2021; Autor, Dorn, Katz, Patterson, & Van Reenen, 2020; De Loecker, Eeckhout, & Unger, 2020). We contribute to this debate by examining the connection between competition laws and CSR activities. Second, extensive research shows that product market competition is a primary determinant of corporate governance, finance, and investment (e.g., Alchian, 1950; Shleifer & Vishny, 1997). We contribute to this line of inquiry by examining the impact of competition laws on corporate CSR activities. Third, an emerging body of research within the field of international business discussed in detail below offers differing perspectives on how competition shapes CSR. We contribute to this line of inquiry by employing new data and analytical methods to conduct the first study of the relationship between competition laws and CSR in an international panel of firms. Competition laws are determined at the national level, highlighting the value of using cross-country analyses to assess the impact of competition laws on CSR. Our cross-country approach allows us to exploit multiple changes in competition laws in different nations at different points in time.

Researchers offer differing views of the impact of product market competition on CSR (Kitzmueller & Shimshack, 2012). The stakeholder value view is based on a conception of the firm as a nexus of explicit and implicit contracts between shareholders and other stakeholders, with the effectiveness, i.e., the efficiency and reliability, of both explicit contracts and implicit agreements positively shaping corporate operations (Alchian & Demsetz, 1972; Coase, 1937; Jensen & Meckling, 1976). Since the effectiveness of implicit agreements depends on stakeholders' beliefs that firms will honor these agreements, boosting stakeholder trust in firms can enhance the efficiency of corporate operations. Several studies suggest that firms can build stakeholder trust by conducting CSR activities such as (a) honoring informal agreements to ensure worker well-being, (b) providing safe, high-quality products to customers, (c) fulfilling informal obligations to suppliers, and (d) protecting the local environment (Du, Bhattacharya, & Sen, 2011; Flammer, 2015b; Porter & Kramer, 2006). Therefore, the stakeholder value view suggests that as more intense competition shrinks profit margins and compels firms to intensify their efforts to enhance efficiency, firms respond by investing more in CSR to bolster their relationships with stakeholders, improve stakeholder trust, increase the effectiveness of implicit contracts, and enhance their long-term profitability. Consistent with this view, Flammer (2015a) shows that international trade agreements that spur competition between U.S. firms increase the firms' CSR.

The product differentiation view also stresses the positive effects of competition on CSR. As Flammer (2015a) argues, intensifying competition can spur firms to differentiate their products to cushion the adverse impact of competition on profits. CSR is one possible mechanism for enhancing product differentiation. Albuquerque, Koskinen, and Zhang (2019) show theoretically that CSR reduces the price elasticity of demand by enhancing product differentiation, which allows firms to set higher prices and enjoy higher profit margins. Consistent with this view, empirical research shows that (a) CSR increases customer loyalty and pricing power (Elfenbein & McManus, 2010; Lev, Petrovits, & Radhakrishnan, 2010; Luo & Bhattacharya, 2009; Servaes & Tamayo, 2013) and (b) markets view CSR as a positive signal regarding a firm and its products (McWilliams & Siegel, 2001; Siegel & Vitaliano, 2007). Thus, the product differentiation view predicts that greater competition will induce firms to invest more in CSR to differentiate their products.

However, other theories suggest that intensifying product market competition can reduce, not increase, CSR activities. In a textbook theory of the firm with liquidity constraints, competition can compel firms to focus on short-term survival and therefore forgo investments that pay off in the long run, such as various CSR activities. For example, although investing in workplace safety may build loyalty in the long term, such investment may be limited by the large, fixed costs of improving workplace safety combined with binding liquidity constraints and shrinking profit margins due to intensifying competition. From this perspective, intensifying product market competition could compel firms to reduce their CSR activities and focus on short-term survival.

To empirically evaluate these competing views, we construct a cross-firm, cross-country panel dataset on CSR activities (firm level) and competition laws (country level) for about 1300 firms across 42 countries for the period 2002–2010. Although subject to data limitations, the results hold when extending the sample to 2015 with 47 countries. By "competition laws," we refer to the legal rules that regulate competition between firms, such as laws concerning mergers and acquisitions, anticompetitive agreements, and the ability of firms to exploit dominant positions in markets. We use a comprehensive dataset developed by Bradford and Chilton (2018) and Bradford, Chilton, Megaw, and Sokol (2019) that includes competition laws for 123 countries dating back to the 19th century. Based on the individual laws, the authors create an overall competition law index (CLI), with higher values indicating more contestable and competitive markets. For brevity, we refer to higher CLI values as signifying more "stringent" or "intense" competition laws. By "CSR," we refer to (1) responsible corporate treatment of non-shareholder stakeholders, including employees (occupational safety, worker training, flexible work hours, etc.), customers, suppliers, and the communities in which firms operate, (2) corporate efforts to mitigate environmental degradation, such as by reducing emissions, fostering sustainable resource use, and engaging in green innovation, and (3) governance of socially responsible actions. We use time-series data on CSR activities from Thomson Reuters. As this CSR measure captures environmental, social, and governance (ESG) features, it aligns closely with other ESG measures.

The first hypothesis that we examine is that increasing the stringency of competition laws is associated with an increase in CSR activities. In our baseline analyses, we regress firm-year measures of CSR on CLI while controlling for firm fixed effects, industry-year fixed effects, lagged time-varying firm characteristics (size, leverage, and profitability), and time-varying country traits (gross domestic product (GDP) per capita). By including firm fixed effects, we condition out all time-invariant firm – and hence country – factors. Consistent with the stakeholder value and product differentiation views, we discover that increasing CLI is associated with a material increase in CSR. These estimates indicate that a one-standard-deviation increase in CLI is associated with a one-quarter-standard-deviation increase in CSR activity.

We conduct several tests to address the concern that reverse causality or omitted variables may drive our finding that intensified competition laws boost CSR activities. Although we cannot perform a controlled experiment and randomly assign competition laws to countries, we implement a series of tests to improve identification. First, we test whether changes in CSR activities among firms in an economy can predict changes in that country's competition laws. We find no evidence of reverse causality.

Second, we control for many additional time-varying country traits to reduce potential omitted variable bias. To bias our results, an omitted variable must be (a) time-varying, as firm fixed effects control for all time-invariant firm and country characteristics and (b) correlated with CLI and CSR *beyond* its relation to the other control variables and fixed effects. Thus, we add additional control variables to the baseline model. Most importantly, we control for national CSR regulations. If nations reform CSR regulations when they reform competition laws, then omitting these reforms from the analyses could confound our ability to identify the relationship between competition laws and CSR. We also address the possibility that competition law reforms accompany national reforms in other areas, e.g., financial systems, institutional and regulatory quality, economic freedom, and political leadership, and omitting these reforms from the analyses jeopardizes our ability to identify the impact of CLI on CSR. Thus, we control for these national reforms as well. All of our results hold and the estimated coefficient on CLI barely changes, when including measures of these national reforms, suggesting a robust and independent relationship between competition laws and CSR.

Third, we address concerns about potential omitted variable bias by testing whether the CLI–CSR relationship varies across firms in a theoretically predictable manner. Specifically, we test a prediction that reflects two building blocks. First, the stakeholder value and product differentiation views stress that intensifying competition triggers firms to invest more in CSR to strengthen ties with stakeholders and differentiate their products. Second, as competition laws are designed to combat monopolistic power, increasing CLI should intensify competition more among firms with greater, pre-existing monopolistic power. Combining these building blocks, the stakeholder value and product differentiation views predict that higher CLI will

boost CSR more among firms in less competitive environments. Evidence consistent with this prediction would make it more challenging to argue that omitted variables account for the results. The omitted variables would need to *both* (a) have strong correlations with CLI and CSR after controlling for the firm, industry, and country traits discussed above, and (b) vary across firms in a manner that accounts for the prediction that increasing CLI spurs CSR more in less-competitive environments. We confirm this prediction and show that increasing CLI boosts CSR more among firms with greater pre-existing market power. This finding reduces omitted variable concerns and offers evidence on how intensifying competition laws spurs CSR.

Our second hypothesis posits that the impact of intensifying competition laws on CSR is smaller for firms with institutional investors that have shorter investment horizons. This prediction emerges from two premises: (1) CSR-generated improvements in stakeholder trust and product differentiation tend to yield returns over longer horizons due to the time required to build relationships, and (2) some institutional investors, e.g., hedge funds, have shorter investment horizons than others (e.g., Khandani & Lo, 2011; Lo, 2008; Stein, 2009).Consistent with this second observation, research shows that different types of institutional investors have very different attitudes toward CSR (Barber, Morse, & Yasuda, 2021; Chen, Dong, & Lin, 2020; Dyck, Lins, Roth, & Wagner, 2019; Pedersen, Fitzgibbons, & Pomorski, 2021; Riedl & Smeets, 2017). These two observations combine to yield the testable prediction that competition will have a smaller impact on CSR among firms with institutional investors that have shorter investment horizons than those with longer horizons.

We find evidence consistent with this second hypothesis. We differentiate firms based on the identities of their institutional blockholders, i.e., investors that own at least 5% of the outstanding shares. Drawing on existing research, we categorize hedge and private equity funds as having shorter horizons than banks, insurance companies, pension funds, mutual funds, and other asset management firms (Cella, Ellul, & Giannetti, 2013; Kahan & Rock, 2007). We find that the CSR-enhancing effects of competition are weaker for firms with institutional investors with shorter horizons than those with longer horizons. This finding offers new evidence supporting the stakeholder value and product differentiation views of how competition shapes CSR

and enhances identification by showing that the CLI–CSR relationship varies across firms with different owners in a theoretically predictable manner.

The third hypothesis that we examine – and confirm – is that the CSR-boosting effects of competition are muted in family-controlled firms. The hypothesis that family ownership dampens the CSR-boosting effects of competition arises from studies demonstrating that family-controlled firms, on average, focus more than other firms on (a) fostering strong bonds and relationships with workers, suppliers, and customers, and (b) differentiating their brands (Craig, Dibrell, & Davis, 2008; Kandel & Lazear, 1992; Miller, Lee, Chang, & Le Breton-Miller, 2009; Mueller & Philippon, 2011; Orth & Green, 2009).[1] If family-controlled firms have already established comparatively strong bonds, brands, and reputations, they will be less likely to invest in further boosting these connections in response to intensified competition. In other words, if CSR has diminishing returns and family-controlled firms have comparatively strong stakeholder bonds and brand differentiation, then the impact of competition on CSR will be weaker for family-controlled firms than for non-family-controlled firms. Consistent with this prediction, we find that the CSR-boosting effects of competition are stronger for non-family-controlled firms than for family-controlled firms.

We conclude the paper with two extensions. The first concerns the potential heterogeneous impact of competition on CSR across countries with different social norms. The stakeholder value and product differentiation views suggest that CSR activities positively signal firms' brand uniqueness and commitment to fulfill implicit contracts. A natural corollary is that (1) competition will have a greater effect on CSR when firms expect CSR to generate more positive signals for stakeholders, and (2) the strength of the CSR signal depends on how the economy values CSR. This corollary predicts that the CSR-boosting effects of competition will be stronger in societies that value CSR more highly. Consistent with this corollary, we find that the CSR-boosting effects of intensifying competition laws are stronger in societies with stronger preferences for CSR.

The second extension builds on the observation that CSR is a costly investment. Therefore, the severity of a firm's financing constraints will shape its CSR response to competition. Suppose that intensifying competition increases the expected benefits from CSR and that there are sizeable

upfront costs associated with CSR investments. Under these conditions, financing constraints will shape the ability of firms to respond to changes in competition laws. Consistent with this premise, we find that the impact of competition laws on CSR is smaller for more financially constrained firms.

We make several contributions to the literature on the determinants of CSR. We are the first to study (1) how the laws regulating competition between firms influence firm-level CSR activities in an international context, (2) how the CSR-boosting effects of competition differ across firms with different institutional investors, (3) how the CSR-boosting effects of competition differ across family-controlled and non-family-controlled firms, (4) how the CSR–competition nexus depends on social norms, and (5) the roles of financing constraints and market structure in shaping the CSR-boosting effects of competition. Our results hold when conditioning on country-industry and industry-year effects, which helps identify the impact of competition laws on CSR. More broadly, our work relates to studies on the social externalities of national factors such as taxes and institutional design (Gande, John, Nair, & Senbet, 2020) and bank regulations (John, Saunders, & Senbet, 2000). Our work also relates to research on the growth of industry concentration and whether this growth reflects (a) the rise of "superstar" firms from a competitive environment or (b) reduced competition (e.g., Autor et al., 2020; Blonigen & Pierce, 2016; De Loecker et al., 2020; Hall, 2001, 2018).

The paper is organized as follows. First, we discuss related research and our hypotheses. Next, we describe the data. We then present our statistical methodology and present our core empirical results regarding the relationship between competition laws and CSR. In our fifth section, we evaluate the two hypotheses concerning the differential impact of competition laws on CSR across firms (1) with different institutional investors and (2) that are family-controlled vs. non-family-controlled. Next, we extend the analyses by exploring the heterogeneous effects across countries with different social norms and firms with different financing constraints. Our final section concludes the study.

RELATED RESEARCH AND HYPOTHESIS DEVELOPMENT

International business and management studies explore the national- and firm-level determinants of CSR. Some of this research examines how national characteristics such as CSR regulations, institutions, and culture shape firms' CSR decisions (Chen, Hung, & Wang, 2018; El Ghoul, Guedhami, & Kim, 2017; Graafland & Noorderhaven, 2020; Ioannou & Serafeim, 2012; Rodriguez, Siegel, Hillman, & Eden, 2006; Young & Makhija, 2014). Other studies focus on how CEO leadership traits and corporate governance structures influence the CSR activities of firms (Ferrell, Liang, & Renneboog, 2016; Waldman, Sully de Luque, Washburn, House, Adetoun, & Barrasa, 2006). Research also suggests that firms seek to reduce the cost of capital by attracting CSR-focused investors (e.g., Barber et al., 2021; Chen et al., 2020; Cheng, Ioannou, & Serafeim, 2014; Dimson, Karakaş, & Li, 2015; Dyck et al., 2019; Pedersen et al., 2021; Riedl & Smeets, 2017).[2] Some studies stress that CSR is used by firms to (a) build trust, loyalty, and legitimacy with stakeholders and others in society (Du et al., 2011; Flammer, 2015b; Porter & Kramer, 2006), and (b) differentiate their brands (Albuquerque et al., 2019; Elfenbein & McManus, 2010; Flammer, 2015a; Lev et al., 2010; Luo & Bhattacharya, 2009; McWilliams & Siegel, 2001; Servaes & Tamayo, 2013; Siegel & Vitaliano, 2007). Studies also examine the interactive effects of these determinants. For example, Young and Makhija (2014) find that the degree to which a firm engages in CSR to boost legitimacy in its community depends on the institutional environment. Graafland and Noorderhaven (2020) show that institutions associated with economic freedom interact with the degree to which a country's culture encourages a long-term orientation to shape CSR. El Ghoul et al. (2017) find that corporate returns to CSR depend on the degree of business freedom and the effectiveness of legal systems.

Within this large literature on CSR determinants, a growing body of research offers differing perspectives on the effects of competition on CSR. Two lines of research suggest that making product markets more contestable induces firms to invest more in CSR. First, as competition squeezes profit margins, firms subject to competition look for strategies to boost their efficiency so that they can survive and prosper. The stakeholder value view suggests that (a) the effectiveness of implicit and informal agreements between shareholders and other firm stakeholders, such as customers, employees, suppliers, and the communities in which the firm operates, positively influences firm efficiency; and (b) greater trust among shareholders and other stakeholders enhances the effectiveness of implicit and informal

agreements. Therefore, in response to an intensification of competition, a potential strategy for boosting trust and efficiency is to invest more in CSR to signal a firm's commitment to honoring implicit agreements with customers, workers, suppliers, and local communities (Du et al., 2011; Flammer, 2015b; Porter & Kramer, 2006).[3]

A second line of research suggests that when competition squeezes profit margins, firms look to gain pricing power by investing more in product differentiation. Several studies suggest that CSR is an effective product differentiation tool, as investing in CSR can boost a firm's reputation (McWilliams & Siegel, 2001; Siegel & Vitaliano, 2007) and enhance customer loyalty and pricing power (Albuquerque et al., 2019; Elfenbein & McManus, 2010; Lev et al., 2010; Luo & Bhattacharya, 2009; Servaes & Tamayo, 2013). Thus, the stakeholder value and product differentiation views suggest that greater competition prompts firms to invest more in CSR to cushion the adverse impact of the intensification of competition on profits.

However, other research suggests that making product markets more competitive can induce firms to invest less, not more, in CSR. Suppose that an intensification of competition threatens firms' survival. Further, suppose that liquidity constraints limit the ability of firms to weather the intensification of competition and make long-term profit-maximizing investments. Under these conditions, firms may reduce CSR investments geared toward building trust and loyalty that pay off in the long run and instead focus on short-term survival. Furthermore, some agency models suggest that intensifying product market competition can reduce CSR by limiting the ability of corporate insiders to obtain private benefits from firms' CSR activities, such as enhancing their reputation with politicians, foundations, charitable organizations, and other associations (Bénabou & Tirole, 2010; Jensen & Meckling, 1976; Krüger, 2015; Masulis & Reza, 2015). Thus, if competition reduces agency costs, it may also reduce investment in CSR.

We empirically evaluate the stakeholder value and product market differentiation views of how competition influences CSR. As detailed in the Introduction, the stakeholder value view stresses that CSR strengthens stakeholder trust and bonds, thereby enhancing firm efficiency. The product differentiation view stresses that CSR helps distinguish a firm's brand. Thus, these views suggest that when competition squeezes profit margins, firms increase their CSR activities to strengthen their

relationships with stakeholders and to gain pricing power. We hypothesize that reforming competition laws to intensify competition prompts firms to increase CSR activities.

Hypothesis 1: Intensifying competition laws increases CSR.

The next two hypotheses evaluate how firms' ownership structures affects the impact of competition laws on CSR. Consider first the investment horizon of institutional investors. CSR investments tend to boost stakeholder trust and differentiate a firm's products in the long run. However, some institutional investors have short-term investment horizons, e.g., hedge funds (e.g., Khandani & Lo, 2011; Lo, 2008; Stein, 2009). Therefore, we hypothesize that firms with institutional investors with shorter investment horizons will increase CSR less in response to intensified competition than firms with long horizon investors because CSR primarily pays off in the long term.

Hypothesis 2: Intensifying competition laws has a smaller effect on CSR in firms with institutional investors that have shorter investment horizons.

As explained in the Introduction, research suggests that family-controlled firms tend to have (a) stronger bonds and trust with stakeholders, including workers, suppliers, customers, and the communities in which they operate, and (b) more differentiated brands (Craig et al., 2008; Kandel & Lazear, 1992; Miller et al., 2009; Mueller & Philippon, 2011; Orth & Green, 2009). This research suggests that intensifying competition will have a smaller effect on the CSR activities of family-controlled firms because they already have comparatively strong stakeholder bonds and brand differentiation. However, other research suggests a countervailing influence of family ownership. It suggests that the CEOs of family-controlled firms are more entrenched and better positioned to pursue the family's private interests at the expense of other shareholders (e.g., Faccio, Lang, & Young, 2001; Schulze, Lubatkin, & Dino, 2003; Schulze, Lubatkin, Dino, & Buchholtz, 2001). To the extent that (a) the family's private interests are more focused on CSR activities than on other shareholders, and (b) intensifying competition improves governance and thereby reduces the impact of the family's private interests on firm choices, making competition laws more stringent will reduce CSR activities in family

firms through this agency channel. Thus, we evaluate the impact of intensifying competition on CSR activities while distinguishing between family-controlled and non-family-controlled firms, based on the following hypothesis.

> **Hypothesis 3:** Intensifying competition laws has a smaller effect on CSR in family-controlled firms than in non-family-controlled firms.

DATA

This section first describes our time-series data on CSR for a large international sample of publicly listed firms. We then discuss our panel data on national competition laws. We conclude this section by providing summary statistics. Appendix Table 11 provides detailed variable definitions.

Data on CSR Activities

The Thomson Reuters ASSET4 ESG database provides information on the CSR activities of a cross-country panel of publicly traded firms from 2002 onwards. These data come from corporate annual reports, stock exchange filings, CSR reports, non-profit organizations, news media, and various other sources. Thomson Reuters (2013) provides standardized quantitative measures of CSR activities to facilitate comparisons across firms and countries. Manufacturing firms differ significantly from firms in other sectors in terms of pollutant emissions, other environmental issues, and product safety. Thus, to further increase the comparability of CSR measures across countries and firms, we focus on manufacturing firms.

Based on over 100 individual indicators of firms' CSR activities, Thomson Reuters provides three indexes of a firm's commitment to CSR: (1) Environmental, including resource use, emissions, and green innovation; (2) Social, i.e., treatment of non-shareholder stakeholders, such as employee welfare, human rights, and the treatment of customers, suppliers, and the communities in which the firm operates; and (3) Strategy, i.e., implementation of CSR activities. We now discuss each of these three indexes, from which we also create an overall index of CSR activities that we define below.

Environmental CSR index

The Environmental index comprises three components, Resource Use, Emission Reduction, and Green Innovation. Resource Use "reflects a company's performance and capacity to reduce the use of materials, energy, or water and to find more eco-efficient solutions by improving supply chain management" (Thomson Reuters, 2018: 15) and consists of 19 individual indicators. Emission Reduction "measures a company's commitment to and effectiveness in reducing environmental emission in the production and operational processes" and consists of 22 individual indicators. Green Innovation measures "a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products" and consists of 20 indicators. Green Innovation has information on whether a company has developed products used to clean the environment, generate clean, renewable energy, treat water, improve water use efficiency, enhance energy efficiency or sustainability, reduce noise emissions, etc. It also includes data on a firm's ratio of environmental research and development expenditures to total revenue, the proportion of its energy distributed or produced from renewable energy sources, and average fuel consumption by a firm's fleet of vehicles.

Social CSR index

The Social index aggregates information on the extent to which firms enhance employee welfare (Workforce), promote human rights (Human Rights), engage in community development (Community), and fulfill their responsibilities to consumers (Product Responsibility). Workforce has 29 indicators and captures a company's effectiveness in ensuring "job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce" (Thomson Reuters, 2018: 15). Human Rights has eight indicators that measure the degree to which a company respects fundamental human rights, freedom of association, policies against child and forced labor, and proactive policies for using human rights as a criterion when selecting suppliers. Product Responsibility has 12 indicators that measure "a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity, and data privacy". Community has 14 indicators and measures "a company's commitment towards being a good citizen, protecting public health, and respecting business ethics".

Strategy CSR index

The Strategy index aggregates eight indicators of the degree to which firms integrate CSR strategies into their operations and decision-making processes. CSR Strategy includes, inter alia, information on whether a company has a CSR committee, whether it publishes a CSR-related report or a section in its annual report on CSR activities, whether such reports follow Global Report Initiative guidelines, etc.

Two measures of overall CSR score

We aggregate the Environmental, Social, and Strategy CSR indexes into two overall measures of CSR activities. First, Average Score is the equally weighted average of the Environmental, Social, and CSR Strategy scores. Second, PCA Score is the first principal component of these three subcomponents, obtained by principal component analysis (PCA).

Competition Law Index

We obtain data on competition laws from Bradford and Chilton (2018) and Bradford et al. (2019). Their database includes longitudinal data on numerous antitrust and other laws regulating competition between firms for a large panel of countries from 1888 to 2010. As they document, their dataset provides greater coverage of laws, countries, and years than other datasets on competition laws. Furthermore, national governments determine competition laws and reforms to those laws, highlighting the value of using a panel of countries over many years to assess the impact of competition laws on CSR. Such a cross-country approach allows us to exploit multiple changes in the stringency of competition laws in different nations and at different points in time.

Bradford and Chilton (2018) and Bradford et al. (2019) collect all existing competition laws dating back to the first competition law adopted by each country. They code more than 700 competition laws and organize these laws into (1) substantive provisions related to anticompetitive agreements, mergers and acquisitions, and abuse of dominant positions, and (2) authority provisions related to addressing and remedying violations of competition laws.

Bradford and Chilton (2018) construct an overall CLI based on the relevant laws of each country in each year. The overall score is the average of the scores for two indexes, Authority and Substance. The Authority index captures the breadth and depth of authority regarding the enforcement of competition laws. The Substance index captures provisions concerning (1) agreements among firms that limit competition (Anticompetitive Agreements), (2) mergers and acquisitions (Merger Control), and (3) strategies used by firms to exploit their dominant positions (Abuse of Dominance).

Authority

The Authority index is based on information on (1) who has legal standing to bring a lawsuit concerning violations of competition laws, (2) the remedies that authorities can impose on those who violate competition laws, and (3) the scope of the law with respect to which industries and enterprises fall under the purview of competition laws. The Authority index is the summation of eight components. Private Right of Action equals 1 if a country allows individuals and firms to bring suits against companies that breach competition rules and 0 otherwise. Although governments are usually responsible for bringing anti-competition lawsuits, allowing individuals and firms to sue increases the legal risk to a firm that engages in anticompetitive behaviors. The next five components capture the ability of authorities to impose penalties and remedies and equal 0 expect as indicated. Fines equals 1 if a country's authorities can impose monetary fines on firms for violating competition laws. Imprisonment equals 1 if a country can imprison those breaching competition laws. Divestitures equals 1 if authorities can reverse, prevent, or modify the structure of mergers and acquisitions. Damages equals 1 if the authorities can provide damages as compensation to injured private parties. Extraterritoriality equals 1 if a country's authorities can enforce laws against anticompetitive conduct emanating from abroad. Each of these components adds 1 to the Authority index. The final two components relate to the presence of industry and enterprise exemptions and equal 0 except as indicated. Industry Exemptions equals − 0.5 when a country's competition law exempts specific industries (e.g., agriculture or telecommunications) from adhering to competition laws. Enterprise Exemptions equals − 0.5 when there exist any exemptions for enterprises (state owned).

Substance

The Substance index aggregates information on a country's laws concerning mergers and acquisitions (Merger Control), agreements among firms that

limit competition (Anticompetitive Agreements), and strategies used by firms to exploit their dominant positions (Abuse of Dominance).

Merger Control is the summation of seven components on how laws foster competition by regulating mergers and acquisitions, where each of these laws is coded as equaling 0 except as indicated. Pre-merger Notification equals 1 if firms must obtain approval before completing a merger. Mandatory Notification equals 1 if firms must obtain approval before completing a merger. Economic Reason equals 1 if the authorities can restrict mergers that would weaken competition. Public Interest equals 1 if regulatory authorities can restrict mergers that would hurt public interest. Merger Control includes information on the arguments that firms can use to defend themselves against accusations of anticompetitive mergers. These components enter negatively into the Merger Control index, as legal defenses reduce regulatory control over mergers. Efficiency Defense equals − 0.5 if the law allows firms to defend anticompetitive mergers by arguing that such mergers sufficiently enhance economic efficiency and outweigh any adverse anticompetitive effects. Failing Firm Defense equals − 0.5 if firms can justify otherwise anticompetitive mergers when target firms fail and bankruptcy materially reduces the value of target firm assets. Public Interest Defense equals − 0.5 if firms can argue that the public interest benefits of a merger outweigh its anticompetitive costs.

Anticompetitive Agreements is the summation of ten components measuring restrictions on cartel formation and collusion to limit competition. Four components capture horizontal constraints, i.e., restrictions on cartels. Price Fixing, Market Sharing, Output Limitations, and Bid Rigging each equal 0.5 if a country's competition laws limit firms from colluding to (1) set product prices, (2) divide the market along geographic, demographic, price, etc., (3) limit supply, or (4) when making bids, respectively, and equal 0 otherwise. Four components involve laws limiting vertical agreements. Exclusive Dealing, Resale Price Maintenance, Tying, and Eliminate Competitors each equal 0.5 if a country's laws prohibit firms from colluding to (1) restrict sales to specific companies, (2) set the price at which retailers sell products to consumers, (3) condition a contract on buying other products that are not directly connected to the product that is the subject of the contract, and (4) engage in coercive practices to eliminate or restrict competitors, and equal 0 otherwise. The final two components measure legal

defenses against accusations of participating in anticompetitive agreements and equal 0 except as specified. Efficiency Defense (Anti.) equals − 0.5 if firms can defend anticompetitive agreements by arguing that the economic efficiency gains outweigh the anticompetitive costs. Public Interest Defense (Anti.) equals − 0.5 if firms can defend anticompetitive actions by arguing that the public interest benefits of these actions outweigh the costs.

Abuse of Dominance is the summation of 11 components measuring the restrictions on firms' ability to exploit market power. Each component equals 0 except as specified. General Prohibition equals 2 if the law prohibits the abuse of a dominant position, either generically or by specifying actions that would constitute an impermissible abuse of a dominant position. If the law prohibits a firm from setting different prices for different customers to maximize profits, then Discriminatory Pricing equals 0.25. If the law prohibits a firm from setting unfair prices by using its dominant positions, then Unfair Pricing equals 0.25. If the law prohibits a firm from setting an extremely low price to eliminate competitors' profits, then Predatory Pricing equals 0.25. If the law prohibits a firm from providing discounts to incentivize consumers or downstream companies to trade exclusively with them, then Discounts equals 0.25. If the law prohibits a firm from requesting the retailer to sell a product at a set price, then Retail Price Maintenance equals 0.25. Abuse of Dominance also includes information on non-price-related abuses. If the law prohibits a firm from maliciously limiting their supply or restricting their sales to specific customers, then Market Access equals 0.25. If the law prohibits a firm from setting conditions on the sale of one product to the sales of other products that are not directly correlated, then Tying equals 0.25. If the law prohibits a firm from conducting any other impermissible abuse of a dominant position, then Other Abuse Acts equals 0.25. The final two components of Abuse of Dominance reflect how competition laws treat defenses of "abusive" actions. Efficiency Defense (Dom.) equals − 0.5 if firms can argue that the economic efficiency benefits of otherwise impermissible abusive actions outweigh the associated adverse costs. Public Interest Defense (Dom.) equals − 0.5 if firms can argue that the public interest benefits of abusive actions outweigh the costs. These two components enter negatively because they reduce regulatory powers over the behaviors of dominant firms.

Overall CLI

Our key measure, CLI, gauges the overall stringency of a country's competition laws. Bradford and Chilton (2018) define the overall CLI score as the average of the scores for the Authority and Substance indexes, where the score for Substance is the average of the scores for Merger Control, Abuse of Dominance, and Anticompetitive Agreements.

Firm-Level Controls

We account for several firm-specific traits. These include the natural logarithm of one plus the total book value of assets of the firm (Size), the firm's ratio of long-term debt to the total book value of assets (Leverage), and profitability, i.e., the ratio of net income to total assets (ROA).[4] The firm-level data are obtained from Worldscope.

Country Controls

We condition on five sets of time-varying country traits. First, to control for economic development, we use the natural logarithm of gross domestic product per capita (GDP per capita). Second, we use two measures of financial development: Stock Market Capitalization/GDP and Private Credit/ GDP. Third, we use an index of institutional quality developed by the World Bank, composed of six indicators. These indicators measure the degree to which (1) people can select their government, have freedom of speech and association, have access to a free media, and can hold government officials accountable, (2) the government is capable of formulating and implementing policies and regulations to promote private-sector development, (3) there is an absence of political instability and violence related to political issues, (4) people, firms, and governments are confident in and subject to the rule of society, such as the quality of contract enforcement, the protection of property rights, and the effectiveness of police and courts, (5) there are high-quality civil and public services, and (6) there are limits on officials abusing public power to extract private benefits in the form of corruption. Our indicator, *Institutional Quality*, is the first principal component of these six components. Fourth, we use an index of economic freedom established by the Heritage Foundation. It is composed of ten indicators that measure the protection of private-property rights, government integrity, the size of the government, the extent to which

regulations impede efficient business operations, government interventions in labor markets, taxes, government size, barriers to international trade, constraints on international capital flows, and the operation of domestic financial institutions (Miller, Kim, & Roberts, 2020). Appendix Table 11 provides detail definitions of the variables. Although there is some conceptual overlap between several components of the Economic Freedom and World Governance Indicator (WGI) indexes, these two indexes focus on different factors. Economic Freedom emphasizes the extent of freedom concerning economic activities such as business operation, trade, capital flow, and the financial sector, whereas WGI stresses the quality and effectiveness of institutions.

Fifth, we control for CSR regulations. Since 2002, several countries have implemented CSR regulations. We obtain data on mandatory CSR regulations from the 2016 "Carrot & Sticks" report. This report is based on joint work by the United Nations Environment Program (UNEP), the Global Reporting Initiative (GRI), KPMG International, and the University of Stellenbosch Business School's Centre for Corporate Governance. CSR Regulations equals the number of mandatory regulations on environmental or social issues that affect listed companies.

Sixth, we address the concern of financial crises shaping CSR practices. To help determine the independent relationship between competition laws and CSR activities, we create a vector of dummy variables, Financial Crisis, that, for each country, equals 1 if the country is experiencing a systemic financial crisis in a year, and 0 otherwise. Laeven and Valencia (2013, 2020) provide country-year data on whether a country is experiencing a systemic banking crisis.

Seventh, political leaders may have different views on CSR and firms may respond to political pressures. To control for changes in political leadership within countries over time, we use data from the Archigos dataset (Goemans, Gleditsch, & Chiozza, 2009). We construct a dummy variable for each government leader in each country that equals 1 for the year(s) that the leader was in power, and 0 otherwise. For example, a dummy variable for George W. Bush's U.S. presidency equals 1 from 2002 to 2008, and 0 otherwise. A separate dummy variable for Barack Obama's U.S. presidency equals 1 in 2009–2010, and 0 otherwise. There is a separate dummy variable for each leader. We call this matrix

of dummy variables "government leader fixed effects" and include them to control for the influence of political changes on CSR activities.

Sample

Our primary sample consists of 7241 firm-year observations from 2002 to 2010 and includes 1325 firms from 42 countries. Our sample period starts in 2002 because this is the first year for which Thomson Reuters ASSET4 has information on CSR. The CLI developed by Bradford and Chilton (2018) ends in 2010. Table 1 presents summary statistics for the main variables used in this analysis. As shown, each CSR indicator, including the categorical score, has a mean value of around 50. This is due to the ranking-based scoring rule used by ASSET4, which generates a flat distribution for each score and removes the influence of extreme values.

EMPIRICAL METHODOLOGY AND RESULTS

Baseline Methodology

We begin by evaluating Hypothesis 1, which states that intensifying competition laws boosts CSR activities, using the following regression specification:

$$\text{CSR Score}_{f,c,t} = \alpha_0 + \beta \times \text{CLI}_{c,t} + \gamma \mathbf{X}'_{f,c,t} + \delta_f + \delta_{j,t} + \varepsilon_{f,c,t}, \tag{1}$$

where f, j, c, and t index firm, industry, country, and year, respectively. The dependent variable, $\text{CSR Score}_{f,t}$, is either the Average Score or PCA Score of firm f at time t. The key explanatory variable, $\text{CLI}_{c,t}$, denotes the stringency of competition laws in country c in year t. $\mathbf{X}'_{f,c,t}$ denotes a

Table 1 Summary statistics

Variable	N	Mean	Std. Dev.	P10	Median	P90
Firm CSR						
Average score	7241	52.93	19.70	28.37	51.16	80.49
PCA score	7233	50.58	21.24	23.98	48.87	80.21
Environmental	7233	52.62	21	26.65	50.94	81.63
Social	7233	51.63	21.22	23.41	50.92	80.77
CSR strategy	7241	54.46	27.18	21.02	50	92.50
Competition laws						
CLI	7241	0.76	0.14	0.63	0.70	1
Authority	7241	0.78	0.14	0.57	0.79	0.93
Substance	7241	0.69	0.16	0.58	0.65	1
Firm characteristics						
Size	7241	15.41	1.32	13.86	15.28	17.16
Leverage	7241	0.17	0.13	0	0.16	0.34
ROA	7241	0.05	0.09	− 0.02	0.05	0.14
SA Index	6863	− 3.64	1.87	− 5.97	− 3.47	− 1.47
Market power	7233	0.14	0.22	0	0.06	0.33
HHI	7233	0.68	0.33	0.17	0.75	1
Bank, insurance, and pension	6894	1.18	3.44	0	0	5.53
Hedge fund and PE	6894	0.67	4.01	0	0	0
Other AMC	6894	11.32	12.75	0	7.22	27.18
Family	6332	0.11	0.32	0	0	1
Country characteristics						
GDP per capita	282	10.25	0.91	9.10	10.61	11.02
Stock market capitalization/GDP	282	80.78	50.87	29.90	69.73	136.53
Private credit/GDP	282	89.81	39.95	35.55	89.30	145.74
Institutional quality	282	1.21	1.92	− 2.11	1.87	3.07
Economic freedom	282	69.54	8.56	59	69.25	80.70
CSR regulations	282	0.65	0.98	0	0	2
Financial crisis	282	0.17	0.38	0	0	1
Social norms	31	0.49	0.10	0.38	0.50	0.60

This table presents summary statistics for the variables used in the following analysis. All the statistics are calculated for the sample from the period 2002–2010 for all manufacturing firms included in the Thomson Reuters ASSET4 database. The statistics for country-level variables are based on the country-year level sample from 2002 to 2010

Std. Dev. standard deviation, *P10* 10th percentile, *P90* 90th percentile

vector of covariates at (a) the firm level, i.e., 1-year-lagged values of Size, Leverage, and ROA, and (b) the country level (GDP Per Capita). We include many additional time-varying country controls in robustness tests. Equation (1) further includes a full set of firm (δ_f) and industry (three-digit SIC) by year ($\delta_{j,t}$) fixed effects. The firm fixed effects control for all time-invariant firm and, hence, country traits. The industry-year fixed effects control for all factors influencing different industries over time, including changes in technology that might alter CSR activities. We estimate Eq. (1) using ordinary least squares, with standard errors clustered at the country level.

Baseline Results

Consistent with Hypothesis 1, Table 2 indicates a positive relationship between the stringency of a country's competition laws and firms' CSR activities. The estimated coefficients on CLI enter with p values < 0.02 across the different regression specifications. The strong connection between CLI and CSR holds when using either Average Score or PCA Score as a CSR measure. The results are robust to both including and excluding time-varying firm traits (Size, Leverage, and ROA) and the estimated coefficient on CLI changes little across these specifications. The analyses are conditional upon GDP Per Capita, mitigating concerns that the positive association between CLI and CSR is a simple manifestation of economic development. The results hold when the sample period is expanded to 2015, assuming that CLI remains unchanged during the period 2010–2015, as shown in columns 3 and 6.

The estimated coefficients suggest that firms operating in countries with laws fostering more intense competition tend to engage in substantially more CSR activities. To highlight the economic magnitudes, consider the estimates from column (2), which imply that a one-standard-deviation increase in CLI leads to an increase of 3.31 ($= 0.14 \times 23.64$) in Average Score, equivalent to approximately 6% of the sample mean value of Average Score and 17% of its standard deviation.

Furthermore, we examine the relationship between CLI and industry concentration to assess whether increasing the stringency of competition laws boosts competition, as measured by concentration. We use three measures of industry concentration at the country-industry-year level. We use Herfindahl–Hirschman indexes (HHIs) based on firm sales, assets, and market capitalization. We then run panel regressions of these HHIs on lagged values of CLI while controlling for country-industry industry-year fixed effects and time-varying country traits to isolate the independent relationship between CLI and industry concentration. As shown in Online Appendix Table OA4, increases in CLI are associated with reductions in the HHIs, indicating that making competition laws more stringent tends to put downward pressure on industry concentration.

Table 2 Competition laws and corporate social responsibility

	Average score			PCA score		
	(1)	(2)	(3)	(4)	(5)	(6)
CLI	24.351	23.640	28.662	25.889	25.116	29.563
	(0.013)	(0.016)	(0.002)	(0.016)	(0.019)	(0.003)
GDP per capita	0.774	3.207	7.348	− 3.156	− 0.254	7.663
	(0.946)	(0.770)	(0.208)	(0.801)	(0.983)	(0.233)
Size		− 0.633	1.314		− 0.870	1.211
		(0.451)	(0.003)		(0.327)	(0.010)
Leverage		0.337	− 0.139		0.076	− 0.032
		(0.925)	(0.925)		(0.985)	(0.984)
ROA		3.127	2.456		3.182	2.976
		(0.103)	(0.028)		(0.108)	(0.011)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	7294	7241	13,907	7286	7233	13,896
Adjusted R^2	0.779	0.779	0.808	0.781	0.781	0.814
No. of countries	43	42	47	43	42	47

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI). In columns 3 and 6, we expand the sample period to end in 2015, assuming that CLI remains unchanged during the 2010–2015 period. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

Robustness Tests

We conduct robustness tests to mitigate concerns about reverse causality, omitted variables, and sample selection.

Time-series assessment of reverse causality

As a preliminary exercise, we assess whether changes in CSR activities in firms in a given economy predict changes in that country's competition laws. We compute the average value of the CSR indicators (Average Score and PCA Score) across firms in a country for each year. We then test whether the lagged values (either 1-, 2-, or 3-year lagged values) of the CSR indicators can predict changes in CLI. In these cross-country, cross-time analyses, we cannot include firm fixed

effects, but we do control for country, year, and government leadership fixed effects. As shown in Table 3, we find no evidence that changes in CSR predict changes in competition laws. This finding holds when including or excluding the time-varying country characteristics discussed above. Furthermore, when conducting the Table 3 analyses in first differences (see Online Appendix Table OA2), lagged changes in CSR scores do not predict subsequent changes in competition laws.

Omitted variables: Controlling for CSR regulations and additional country traits

For omitted variables to bias our results, they must be both (a) time-varying, as firm fixed effects control for all time-invariant country characteristics, and

Table 3 Pre-existing corporate social responsibility and competition laws

	CLI					
	(1)	(2)	(3)	(4)	(5)	(6)
Average score, $t-1$	− 0.000	0.001	0.002			
	(0.586)	(0.211)	(0.267)			
Average score, $t-2$			0.000			
			(0.707)			
Average score, $t-3$			− 0.001			
			(0.246)			
PCA score, $t-1$				− 0.000	0.001	0.001
				(0.537)	(0.245)	(0.283)
PCA score, $t-2$						0.000
						(0.735)
PCA score, $t-3$						− 0.001
						(0.201)
GDP per capita		1.115	1.324		1.114	1.325
		(0.000)	(0.000)		(0.000)	(0.000)
Stock market capitalization/GDP		− 0.000	0.000		− 0.000	0.000
		(0.966)	(0.639)		(0.984)	(0.634)
Private credit/GDP		0.000	0.001		0.000	0.001
		(0.670)	(0.383)		(0.663)	(0.379)
Institutional quality		0.007	0.011		0.007	0.011
		(0.788)	(0.786)		(0.797)	(0.790)
Economic freedom		0.005	0.002		0.005	0.002
		(0.073)	(0.611)		(0.071)	(0.614)
CSR regulations		0.016	0.016		0.016	0.016
		(0.037)	(0.028)		(0.038)	(0.030)
Financial crisis		0.020	0.025		0.020	0.025
		(0.197)	(0.153)		(0.197)	(0.153)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	242	241	162	242	241	162
Adjusted R^2	0.853	0.936	0.923	0.853	0.936	0.923
No. of countries	40	40	32	40	40	32

This table reports regression results for the relationship between the competition law index (CLI) and lagged CSR scores. The key explanatory variable is the lagged (1–3 years) value of either Average Score or PCA Score, which is averaged across firms in each country in each year. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

(b) correlated with both changes in competition laws and changes in CSR activities beyond any relation with either GDP Per Capita or time-varying industry traits. Although our empirical design includes firm fixed effects that account for all time-invariant factors across firms and countries, we further address omitted variable concerns by conditioning on additional time-varying country traits.

Our primary concern is that changes in competition laws might be correlated with changes in other national policies and regulations that the extant literature shows influence corporate CSR. Such other policies and regulations include those that directly regulate CSR activities (Chen et al., 2018), financial systems (El Ghoul et al., 2017; Ioannou & Serafeim, 2012), institutional and regulatory quality (Ioannou & Serafeim, 2012; Young & Makhija, 2014), and economic freedom (El Ghoul et al., 2017; Graafland & Noorderhaven, 2020). Furthermore, research indicates that changes in political leadership (Ioannou & Serafeim, 2012) and culture (e.g., Ioannou & Serafeim, 2012; Waldman et al., 2006) also influence CSR. As a result, we include (1) an indicator of the changes in CSR regulations in each economy, CSR Regulations; (2) two measures of financial development, Stock Market Capitalization/GDP and Private Credit/ GDP; (3) an overall index of the quality of public institutions, Institutional Quality; (4) an indicator of the absence of government restrictions on economic activity, Economic Freedom; (5) a country-year indicator variable capturing whether the country is suffering a systemic financial crisis, Financial Crisis; and (6) a series of fixed effects for the years for which a particular person leads the government, which we call government leadership fixed effects. Thus, we condition on these factors to identify the independent influence of competition laws on CSR.

The results are robust to these additional controls. As shown in columns 3–5 and 8–10 of Table 4, the positive relationship between the stringency of competition laws and firms' CSR activities holds when including these additional controls; the p values of the estimated coefficients on CLI remain below 0.03. In columns 5 and 10, we further exclude country-year observations when the country is experiencing a systemic crisis and find that the results hold. Even when controlling for changes in CSR regulations, the results on the relationship between CSR scores and CLI hold. As an extension of this robustness check concerning changes in CSR regulations, we drop observations from 1 year before a CSR regulation change until the year after such a change. As shown in Online Appendix Table OA5, all results hold. In untabulated results, the findings hold when using a dummy variable that equals 1 after a country first introduces a CSR regulation and 0 otherwise, rather than using the continuous measure of CSR Regulations. Moreover, the estimated coefficients on CLI across these robustness tests are similar to those in the baseline results reported in Table 2. The finding that the estimated coefficient on CLI does not change much after altering the control variables reduces concerns that omitted variables drive the results. Although we cannot control for all conceivable omitted time-varying country traits, the consistency of the estimated coefficients on CLI across different conditioning information sets mitigates concerns that our findings are driven by omitted variable bias.

Omitted variables: Using theory to test mechanisms

A second strategy for assessing whether omitted variables bias our study is to evaluate whether the association between competition laws and CSR activities varies across firms, industries, and countries in a manner consistent with theories of how competition laws shape CSR activities. Such findings would make it more challenging to argue that our results are subject to omitted variable bias, because the omitted variable would need to *both* (a) have a strong, independent correlation with both changes in CSR activities and competition after controlling for the firm, industry, and country traits discussed above, including the fixed effects, *and* (b) vary across firms, industries, and countries in a manner that accounts for theoretical predictions regarding the mechanisms of how competition laws shape CSR activities.

To implement this strategy, we first note that the stakeholder value and product differentiation views collectively stress that intensifying competition triggers firms to invest more in CSR activities to strengthen ties with stakeholders and differentiate their products. Since competition laws are designed to combat monopolistic power by restraining anti-competitive behaviors, legal reforms designed to increase product market contestability should spur competition more among firms that had greater market power and operated in more monopolistic industries before the reforms. Laws restricting anti-competitive behaviors are therefore less likely to boost competition and spur CSR activities in already highly competitive markets.

Table 4 Competition law and corporate social responsibility, robustness

	Average score					PCA score				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CLI	17.955	15.984	20.341	21.651	19.976	19.666	16.540	21.518	23.051	21.277
	(0.097)	(0.093)	(0.023)	(0.013)	(0.024)	(0.100)	(0.106)	(0.025)	(0.014)	(0.023)
CLI × high market power	23.022					22.072				
	(0.000)					(0.001)				
CLI × high HHI		66.296					74.258			
		(0.000)					(0.000)			
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Government leadership fixed effects	No	No	No	Yes	Yes	No	No	No	Yes	Yes
No. of observations	7241	7241	7169	7169	4999	7233	7233	7161	7161	4994
Adjusted R^2	0.780	0.780	0.782	0.780	0.784	0.781	0.782	0.784	0.782	0.786
No. of countries	42	42	42	42	41	42	42	42	42	41

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI). Firm-level controls are Firm Size, Leverage, and Profitability. Country controls are GDP Per Capita, Stock Market Capitalization/GDP, Private Credit/GDP, Institutional Quality, Economic Freedom, CSR Regulations, and Financial Crisis. In columns 5 and 10, we drop country-year observations when the country is experiencing a systemic crisis. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

We use measures of market power at the firm and industry levels (Giroud & Mueller, 2010). To measure firm market power in each year, we set High Market Power as equal to 1 if the firm's share of total sales among all firms in the same industry-country-year is greater than the sample median, and 0 otherwise. We define industries at the three-digit SIC level. To measure competition at the industry level, we use the HHI. For each industry in each year, we set High HHI as equal to 1 if the sum of squared market shares of each firm's total sales in an industry-country-year is greater than the sample median, and 0 otherwise. We use the values of Market Power and HHI in the first year of the sample period. We test whether the CSR-enhancing effects of competition laws are stronger among firms with greater market power and within less competitive industries.

As reported in Table 4, columns 1, 2, 6, and 7, the CSR–CLI relationship varies across firms and industries in a manner consistent with the stakeholder value and product differentiation theories of how competition laws shape CSR activities. These results indicate that the CSR-enhancing effects of increasing competition law stringency are more pronounced among firms with more pre-existing market power and within industries with more market concentration. In columns 1 and 6, we see that both the linear term of CLI and its interaction with measures of a firm's market power (High Market Power) enter positively and with p values close to 0.000. These results suggest that although more stringent competition laws enhance CSR activities on average, this effect is stronger for firms with greater market power. Consistent with these results, columns 2 and 7 of Table 4 suggest that the effects of competition law stringency are more pronounced in more concentrated industries. The estimated coefficients on the interaction term between CLI and High HHI are positive and enter with p values close to 0.000. Furthermore, the estimated differential effects of competition laws by pre-existing market power are substantial. For example, consider the results for High Market Power. The estimates indicate that a one-standard-deviation increase in CLI would increase CSR, as measured by Average Score, by a factor of 3.2 (= 0.14 × 23.022) more for high-market-power firms than low-market-power firms. That is, the CSR-boosting effects of competition law stringency are twice as great among less-competitive firms than among those facing great competition.

Sample of countries
We also examine the robustness of our findings to the sample of countries. First, we address the concern that our results may be driven by country heterogeneity. We limit the analyses to similar countries, such as only OECD countries or only countries defined as "developed" by the United

Nations. As shown in Online Appendix Table OA1, the results hold across these subsamples. Second, we address the concern that the results are driven by countries with many firms, such as the U.S., Japan, and the U.K. Online Appendix Table OA3 provides information on firm coverage by country in our dataset. As shown in Online Appendix Table OA1, the results hold even after excluding such countries. Moreover, the estimated coefficients on CLI are very similar across the subsamples, highlighting the robustness of the relationship to changing the sample of countries.

TESTS OF ADDITIONAL HYPOTHESES

Our findings thus far suggest that firms increase their CSR activities when competition laws become more stringent. These findings are consistent with the stakeholder value theory that competition prompts firms to strengthen trust and loyalty among key stakeholders through CSR activities and the product differentiation theory that competition induces firms to distinguish themselves and their products by engaging in more CSR activities. Consistent with the stakeholder and product differentiation views, we also discover that the estimated impact of intensifying competition laws on CSR activities is stronger among firms in initially less-competitive markets.

We next evaluate two additional hypotheses based on the stakeholder value and product differentiation views regarding the heterogeneous impact of competition on CSR. We test specific predictions of how the CSR-enhancing effects of competition differ based on (1) firms' institutional investors and (2) whether firms are family-controlled. These tests provide additional evidence of the mechanisms linking competition and CSR and enhance identification.

Hypothesis 2: Institutional Investors

We begin by examining Hypothesis 2, which states that intensifying competition laws have smaller effects on CSR for firms with institutional investors that have shorter investment horizons. This hypothesis builds on two premises: (1) CSR investments yield returns over longer horizons and (2) some institutional investors have shorter investment horizons than others. These premises, therefore, predict that firms with powerful investors with shorter investment horizons will increase CSR activities to a smaller extent in response to more intense competition than otherwise similar firms

without such investors. We test this "institutional investor corollary" by distinguishing between firms with institutional investors with shorter and longer investment horizons. As discussed by Khandani and Lo (2011), Lo (2008), and Stein (2009), some institutional investors have a more short-term orientation than others do. For example, these studies note that (1) the quantitative trading strategies employed by hedge funds in conjunction with a heavy reliance on short-term liabilities is associated with a focus on generating short-term returns and (2) other institutional investors, such as insurance companies and pension funds, with longer-term liabilities tend to have longer-term orientations.

To measure institutional investors' shareholdings, we use data from Thomson Reuters Ownership. We classify institutional investors into three broad categories: (a) banks, insurance companies, and pension funds (Bank, Insurance & Pension), (b) hedge funds and private equity firms (Hedge Fund & PE), and (c) other asset management companies (Other AMC), such as mutual funds, investment banks, and investment and asset management companies (Vanguard, Fidelity, Black-Rock). We focus on blockholders, i.e., investors that own at least 5% of the total outstanding shares. Note that institutional investors rarely control more than 50% of a corporation's shares. We construct both "continuous" and "discrete" institutional investor measures. For the continuous measure of Bank, Insurance & Pension, we use the summation of the percentage of shares held by blockholders that are banks, insurance companies, or pension funds. We follow a similar procedure for constructing the continuous measures of Hedge Fund & PE and Other AMC. For the "discrete" institutional investor measure, we construct one-zero indicator variables of whether a firm has (a) bank, insurance company, or pension funds, (b) hedge funds or private equity firms, or (c) other asset management companies (e.g., mutual fund, investment bank, etc.) or does not have these institutional investors. Building on Eq. (1), we include the interaction term between CLI and these institutional investor measures. We thus test whether the impact of competition on CSR differs across corporations in a manner consistent with the institutional investor corollary.

Consistent with Hypothesis 2, Table 5 shows that the CSR-enhancing effects of competition are stronger for firms with more shareholdings by long-term investors (e.g., insurance companies

and pension funds) and weaker for firms with more shareholdings by short-term investors, such as hedge funds. The coefficient estimates on CLI × Bank, Insurance & Pension enter positively and with p values ranging from 0.002 to 0.032. In turn, the coefficient estimates on CLI × Hedge Fund & PE enter negatively and with similarly small p values. The results hold when (a) examining institutional investors separately or simultaneously, (b) using continuous or discrete indicators of institutional investor ownership, and (c) using Average Score or PCA Score as the dependent variable. These findings suggest that firms that have blockholders with shorter (vs. longer) investment horizons tend to increase their CSR engagement less in response to the intensification of competition.

We extend these analyses based on the findings of Dyck et al. (2019). They show that long-term European institutional investors have a stronger demand for CSR activities than long-term institutional investors based in other countries. Consistent with their findings, we show in Table 6 that CSR activities increase more following a boost in CLI only for firms in which European long-term institutional investors are comparatively important shareholders, i.e., pension and insurance funds. This finding supports the stakeholder value and product differentiation views, with competition spurring a larger CSR response in firms for which such a response is likely to have the biggest impact on trust, reputation, and brand loyalty, i.e., firms with long-term institutional investors with a comparatively intense focus on CSR activities.

Table 5 Competition law and corporate social responsibility, differentiated by institutional blockholder type

	Discrete					Continuous				
	Average score				PCA score	Average score				PCA score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CLI × bank, insurance and pension	9.534			9.504	10.567	0.598			0.565	0.686
	(0.002)			(0.004)	(0.004)	(0.019)			(0.032)	(0.021)
Bank, insurance, and pension	0.868			0.821	0.961	− 0.026			− 0.030	− 0.022
	(0.164)			(0.187)	(0.177)	(0.705)			(0.641)	(0.765)
CLI × Hedge fund and PE		− 23.145		− 23.201	− 24.674		− 1.522		− 1.484	− 1.477
		(0.007)		(0.006)	(0.004)		(0.000)		(0.000)	(0.000)
Hedge fund and PE		− 2.810		− 2.770	− 3.010		− 0.191		− 0.198	− 0.210
		(0.000)		(0.000)	(0.000)		(0.000)		(0.000)	(0.000)
CLI × Other AMC			− 2.319	− 1.214	− 1.009			0.020	0.024	0.041
			(0.594)	(0.763)	(0.810)			(0.920)	(0.902)	(0.846)
Other AMC			− 0.022	0.156	0.045			− 0.035	− 0.035	− 0.037
			(0.971)	(0.789)	(0.941)			(0.072)	(0.073)	(0.075)
CLI	20.829	22.127	23.375	21.474	22.166	21.380	22.103	21.770	20.972	21.613
	(0.033)	(0.024)	(0.030)	(0.045)	(0.055)	(0.027)	(0.023)	(0.032)	(0.038)	(0.048)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	6894	6894	6894	6894	6887	6894	6894	6894	6894	6887
Adjusted R^2	0.778	0.778	0.777	0.778	0.780	0.777	0.778	0.778	0.778	0.780
No. of countries	42	42	42	42	42	42	42	42	42	42

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI) differentiated by the type of institutional blockholder. Bank, insurance, and pension, Hedge Fund and PE, and Other AMC measure the degree to which the firm has an institutional blockholder that is a (a) bank, insurance company, or pension fund, (b) hedge fund or private equity firm, or (c) different type of asset management company. We use two measures of bank, insurance, and pension, Hedge fund and PE, and other AMC. In columns (1)–(5), we use discrete measures of whether a firm has a certain type of owner. In columns (6)–(10), we use continuous measures of the size of the shareholdings. Firm-level controls are Firm Size, Leverage, and Profitability. The country control is GDP Per Capita. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

Table 6 Competition law and corporate social responsibility, differentiated by European institutional ownership

	Average score (1)	PCA score (2)
CLI	21.814	22.273
	(0.056)	(0.072)
CLI × bank, insurance, and pension (Europe)	22.654	26.551
	(0.012)	(0.007)
Bank, insurance, and pension (Europe)	2.282	2.810
	(0.019)	(0.010)
CLI × bank, insurance, and pension (other)	2.024	3.318
	(0.417)	(0.248)
Bank, insurance, and pension (other)	− 0.339	− 0.420
	(0.604)	(0.539)
CLI × Hedge fund & PE (Europe)	6.864	5.943
	(0.579)	(0.641)
Hedge fund and PE (Europe)	− 1.104	− 1.738
	(0.581)	(0.408)
CLI × Hedge fund and PE (other)	− 41.154	− 44.781
	(0.005)	(0.002)
Hedge fund and PE (other)	− 2.003	− 2.288
	(0.016)	(0.006)
CLI × other AMC	− 3.401	− 3.496
	(0.402)	(0.409)
Other AMC	0.072	− 0.046
	(0.897)	(0.936)
Firm controls	Yes	Yes
Country controls	Yes	Yes
Firm fixed effects	Yes	Yes
Industry by year fixed effects	Yes	Yes
No. of observations	6894	6887
Adjusted R^2	0.777	0.779
No. of countries	42	42

This table presents the differential effects between the competition law index (CLI) and firm-level CSR score by the type of institutional blockholder. Bank, insurance, and pension (Europe) equals 1 if the company has above-median insurance and pension holdings from European countries, and 0 otherwise. Bank, insurance, and pension (other) equals 1 if the company has above-median insurance and pension holding from countries outside Europe, and 0 otherwise. Hedge fund and PE (Europe) and Hedge fund and PE (other) are defined similarly. Firm-level controls are firm size, leverage, and profitability. The country control is GDP per capita. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

Regarding the size of the effect, we consider a one-standard-deviation increase in CLI (0.14) and use the regression specification in Table 5, column (4). The estimates indicate that in response to a one-standard-deviation increase in CLI, firms that have a bank, insurance company, or pension fund as a blockholder, on average, boost CSR activity by a factor of 1.33 (= 0.14 × 9.504) more than firms without such blockholders. The additional boost in Average Score for firms with banks, insurance companies, or pension funds blockholders is equivalent to 6.8% of the sample standard deviation of Average Score.

Hypothesis 3: Family-Controlled Firms
We next examine Hypothesis 3, which states that intensifying competition laws has a smaller impact

on CSR for family-controlled firms than for non-family-controlled firms. Several studies show that family-controlled firms, on average, establish comparatively strong bonds with their stakeholders over many years or decades (Craig et al., 2008; Donnelley, 1964; Kandel & Lazear, 1992; Mueller & Philippon, 2011; Orth & Green, 2009). Accordingly, the CSR-enhancing effects of competition are weaker for family firms, as they have already invested heavily in CSR. We next evaluate this "family ownership" hypothesis.

The Bureau van Dijk Orbis database provides information on firms' ultimate owners. Orbis defines an ultimate controlling owner as a legal entity controlling, either directly or indirectly, 50% of the voting rights. Firms are classified into two types according to their ultimate controlling owners:

(a) firms with an individual or family as their ultimate controlling owner, and (b) firms that do not have an individual or family as an ultimate controlling owner. Thus, Family equals 1 if a firm has an ultimate controlling shareholder that is an individual or family, and 0 otherwise. We restrict the analyses to firms with the same type of controlling shareholders throughout the sample period. In the baseline regression, we include the interaction between CLI and these indicators of a firm's ultimate owner and test whether the competition – CSR relation varies across firms in manners consistent with the family ownership corollary.

Consistent with Hypothesis 3, the results in Table 7 show that the competition–CSR nexus is weaker for companies controlled by an individual or family (hereafter "family-controlled firms"). Across the different specifications, CLI enters positively with p values < 0.001, whereas CLI $\times$ Family enters negatively with p values < 0.09. Furthermore, the coefficient estimates are very similar across the different regressions. This finding indicates that compared with family-controlled firms, non-family-controlled firms drive the results reported above on the positive impact of competition laws on CSR activities. To illustrate the size of the impact, we consider a one-standard-deviation increase in CLI (0.14). From column 1 of Table 7, the estimated coefficients suggest that non-family-controlled firms increase their CSR activities by a factor of 12.8 (= 0.14 $\times$ 91.2) more than family-controlled firms do. This additional increase in Average Score among non-family firms is equivalent to 65% of the sample standard deviation of Average Score and 24% of the sample mean.

EXTENSIONS AND LIMITATIONS

We conclude with two extensions that further assess the robustness of our findings regarding the stakeholder value and product differentiation views. The first extension tests whether the impact

Table 7 Competition law and corporate social responsibility, differentiated by ultimate owners

	Average score		PCA score	
	(1)	(2)	(3)	(4)
CLI	40.382	40.396	42.964	42.737
	(0.000)	(0.000)	(0.000)	(0.000)
CLI × family	− 91.198	− 88.639	− 99.911	− 97.182
	(0.075)	(0.081)	(0.080)	(0.086)
CLI × bank, insurance, and pension		9.484		10.777
		(0.001)		(0.001)
Bank, insurance, and pension		0.745		0.846
		(0.242)		(0.240)
CLI × Hedge fund and PE		− 19.769		− 21.517
		(0.017)		(0.013)
Hedge fund and PE		− 2.714		− 2.973
		(0.000)		(0.000)
CLI × other AMC		− 2.010		− 1.885
		(0.695)		(0.723)
Other AMC		0.140		0.053
		(0.857)		(0.949)
Firm controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes	Yes
No. of observations	6339	6339	6332	6332
Adjusted R^2	0.774	0.774	0.776	0.777
No. of countries	41	41	41	41

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI) differentiated by the firm's ultimate owner. Family equals 1 if the ultimate owner of the firm is an individual or a family, and 0 otherwise. Non-Family equals 1 if the ultimate owner of the firm is neither an individual nor a family, and 0 otherwise. Bank, insurance, and pension (Hedge fund and PE, other AMC) equals 1 if the company has a bank, insurance company, or pension fund (hedge fund, private equity, or other asset management company) blockholder, and 0 otherwise. Firm-level controls are firm size, leverage, and profitability. The country control is GDP per capita. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

of competition laws on CSR depends on the degree to which stakeholders in a society are likely to view CSR as a positive signal about a firm. The second extension tests whether the impact of competition laws on CSR is smaller among more financially constrained firms, i.e., firms than can make fewer CSR investments in response to changing competition laws.

Societal Norms

The stakeholder and product differentiation views hold that CSR activities build loyalty and strengthen bonds with stakeholders by fostering the well-being of workers, customers, suppliers, and local communities. A natural corollary is that competition has bigger effects on CSR when firms expect CSR activities to generate greater loyalty and stronger ties with stakeholders.

To assess this corollary, we use the literature on social norms to construct proxies of the degree to which CSR activities are likely to enhance corporate stakeholders' perceptions of firms. Akerlof and Kranton (2005: 12) define norms as "peoples' views of how they, and others, should or should not behave." We posit that if firms engage in activities that conform to how people believe others should behave, then these activities should forge positive bonds with the community. Thus, we construct measures of the degree to which people value CSR activities.

We measure a country's social norms using data from the fifth wave of the World Values Survey (WVS), which collects responses from a random sample of the population in each country for the period 2005–2009. Our overall index, Social Norms, is based on three variables. Environmental Priority measures the extent to which respondents in a country prioritize the environment over the economy. Voice at work and community measures the degree to which respondents in a country consider it more important to have more say in how things are done at their jobs and in their communities than higher economic growth and other national goals. Human rights gauges the degree to which the people of a nation prioritize progress toward a less impersonal and more humane society over a stable economy and other aims of society. Social Norms is the average of these three components. Higher values of Social Norms indicate that individuals in a country have stronger social commitment to prioritizing the environment, worker, and human rights, individual voice, and accountability. If a country has a value of Social Norms above the

sample median, then we set High Social Norms as equal to 1; otherwise, we set High Social Norms as equal to 0.

To test the implication that the CSR-enhancing effects of competition laws are stronger in countries with higher values of Social Norms, we modify Eq. (1) by adding an interaction term between CLI and High Social Norms. The model specification is as follows.

$$
\begin{aligned}
\text{CSR Score}_{f,c,t} = {} & \alpha_0 + \beta_1 \times \text{CLI}_{c,t} \\
& \times \text{High Social Norms}_c + \beta_2 \times \text{CLI}_{c,t} \\
& + \gamma X'_{f,c,t} + \delta_f + \delta_{j,t} + \varepsilon_{f,c,t},
\end{aligned}
\tag{2}
$$

where High Social Norms$_c$ equals 1 if country c has a Social Norms value above the sample median, and 0 otherwise; the other variables are the same as those in Eq. (1).

The results reported in Table 8 are consistent with the social norms corollary, which states that the CSR-enhancing effects of competition laws are stronger in countries with social norms that highly value CSR activities. The interaction term, CLI × High Social Norms, enters positively and with p values of about 0.000 in all the columns. The linear term, CLI, also enters positively but with p values of about 0.95. These results suggest that intensifying competition enhances CSR more in countries with higher social norms. That is, when competition increases the value of stakeholder trust and loyalty, firms conduct more CSR activities when these activities are likely to generate a positive response from stakeholders, i.e., in high social norms countries. To illustrate the economic size of the relationship, we consider a one-standard-deviation increase in CLI (0.14) and the regression estimates in which the dependent variable is the Average Score measure of CSR (column 1). These estimates suggest that firms in high social norms countries will increase CSR by a factor of 7.52 (= 0.14 × 53.7) more than firms in low social norms countries in response. This extra boost in CSR from an increase in CLI in countries with high social norms is equivalent to 38% of the sample standard deviation of Average Score.

Given the importance of social norms in shaping the CSR-enhancing effects of competition law stringency, we extend these results by examining the three individual components of the dependent variable: Environmental, Social, and Strategy. In Panel A of Table 9, we repeat the analyses of Table 8 while separately examining these three

Table 8 Competition law and corporate social responsibility, differentiated by social norms

	Average score (1)	PCA score (2)
CLI × high social norms	53.742	60.119
	(0.000)	(0.000)
CLI	0.312	− 0.453
	(0.966)	(0.955)
Firm controls	Yes	Yes
Country controls	Yes	Yes
Firm fixed effects	Yes	Yes
Industry by year fixed effects	Yes	Yes
No. of observations	6807	6799
Adjusted R^2	0.783	0.786
No. of countries	31	31

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI) differentiated by countries' social norms. The dependent variable is either Average Score or PCA Score. Firm-level controls are firm size, leverage, and profitability. The country control is GDP per capita. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

components of CSR activity. The results hold for each of the three CSR components. When the dependent variable is Environmental or Social, CLI × High Social Norms enters with a p value of about 0.000. When the dependent variable is CSR Strategy, CLI × High Social Norms enters with an estimated p value of 0.034.

We also extend these analyses by examining the two components of CLI: Authority and Substance. As noted above, the Authority component measures the degree of official power over the enforcement of competition laws. The Substance component of CLI measures the laws that limit (1) agreements among firms to limit competition, (2) mergers and acquisitions, and (3) firms from exploiting their dominant positions. In Panel B of Table 9, we repeat the analyses from Table 8, but we examine Authority × High Social Norms and Substance × High Social Norms. When using either of these variables, we find that the CSR-boosting effects of competition law stringency are greater in countries with high values of the Social Norms index. These findings are fully consistent with the prediction that competition has bigger effects on CSR when firms expect CSR activities to generate greater loyalty and stronger ties with stakeholders.

Financial Constraints

As a final extension, we examine an implication that stems from the view that CSR activities involve upfront expenditures for returns that are likely to accrue over time. For example, improving worker safety conditions requires immediate capital expenditure, whereas the benefits of greater loyalty among stakeholders are likely to emerge over the long run. Similarly, pollution abatement requires sizable initial investments, whereas the benefits of stronger stakeholder bonds or customer reactions to lower pollution usually take longer to materialize. Thus, firms' actual investments in CSR are likely to depend on financial constraints. We expect the effects of competition laws on firms' CSR activities to be stronger if firms are less financially constrained, as such firms may be unable to respond by boosting investment in CSR.

To estimate the differential effects of competition laws on CSR activities on firms with varying degrees of financial constraint, we use the Hadlock and Pierce (2010) method to measure financial constraints, i.e., the SA index based on firm size and age. Specifically, the SA Index variable is a linear combination of size, size squared, and age, where $\text{SAIndex} = -0.737 \times \text{Size} + 0.043 \times \text{Size}^2 - 0.040 \times \text{Age}$. Higher values of the SA index indicate that a firm is more financially constrained. We then construct High SA Index, a dummy variable that equals 1 if a firm's SA Index is above the sample median value, and 0 otherwise. We measure a firm's financial constraints either by SA Index when it enters our sample (Initial) or by the average value of SA Index during the sample period (Average). The results hold for either approach.

The results reported in Table 10 are consistent with the view that the CSR-enhancing effects of intensifying competition laws are more pronounced among less financially constrained firms. The interaction term CLI × High SA Index, based on either Initial SA Index or Average SA Index, enters negatively and with p values of 0.019–0.043, depending on whether the dependent variable is

Table 9 Competition law and corporate social responsibility, subcomponents

	Environmental (1)	Social (2)	CSR Strategy (3)
Panel A: Subcomponents of CSR Index			
CLI × high social norms	63.094	53.720	45.104
	(0.000)	(0.001)	(0.034)
CLI	− 7.838	− 1.252	10.558
	(0.533)	(0.910)	(0.486)
Firm controls	Yes	Yes	Yes
Country controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes
No. of observations	6799	6799	6807
Adjusted R^2	0.716	0.709	0.684
No. of countries	31	31	31

	Average score		
	(1)	(2)	(3)
Panel B: Subcomponents of competition laws			
Authority × high social norms	34.804		18.918
	(0.009)		(0.009)
Authority	0.509		4.763
	(0.910)		(0.244)
Substance × high social norms		47.185	43.559
		(0.000)	(0.000)
Substance		− 10.539	− 10.076
		(0.195)	(0.190)
Firm controls	Yes	Yes	Yes
Country controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes
No. of observations	6807	6807	6807
Adjusted R^2	0.782	0.783	0.783
No. of countries	31	31	31

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI) differentiated by the firm's ultimate owner. Panel A presents the association between the competition law index (CLI) and the specific subcomponents of firm-level CSR scores. Panel B presents the association between firms' CSR score and the two subcomponents of CLI: Authority and Substance. Firm-level controls are firm size, leverage, and profitability. The country control is GDP per capita. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

the Average Score or PCA Score measure of CSR. These findings suggest that the competition–CSR nexus is weaker among more financially constrained firms. The results hold when including or excluding measures of financial development. To assess the estimated sizes of these effects, we consider a one-standard-deviation increase in CLI (0.14) and the regression estimates based on the Average Score measure of CSR and the Initial SA Index (column 1). The estimated coefficient on CLI × High SA Index (- 22) indicates that firms with high financial constraints (High SA index = 1) experience increases in Average Score that are 3.1 (= 0.14 × − 22) smaller, on average, than those of other firms. This effect is large and represents

almost 16% of the sample standard deviation of Average Score (19.7). These results are consistent with the view that (a) more stringent competition laws motivate firms to invest more in CSR, (b) such CSR investments involve upfront expenditures, and (c) less financially constrained firms are better able to make these investments and boost CSR activities.

Limitations
Although the evidence suggests a strong link between competition laws and corporate CSR activities, we interpret our results cautiously. First, our analyses focus on countries for which we have competition law and CSR data and manufacturing firms, and cover a limited time period. Second,

Table 10 Competition law and corporate social responsibility, differentiated by financial constraints

	Average score		PCA score	
	Initial SA Index (1)	Average SA Index (2)	Initial SA Index (3)	Average SA Index (4)
CLI × high SA Index	− 22.491	− 26.227	− 27.341	− 31.817
	(0.043)	(0.038)	(0.024)	(0.019)
CLI	34.747	36.920	38.398	41.009
	(0.001)	(0.001)	(0.001)	(0.001)
Firm controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Industry by year fixed effects	Yes	Yes	Yes	Yes
No. of observations	6863	6863	6855	6855
Adjusted R^2	0.779	0.779	0.781	0.781
No. of countries	41	41	41	41

This table reports regression results for the relationship between firm-level CSR scores and the competition law index (CLI) differentiated by the firm's financing constraints. We measure the degree of financial constraint of a firm either by the SA index when it enters our sample (columns 1 and 3) or the average SA Index across the sample period (columns 2 and 4). Firm-level controls are firm size, leverage, and profitability. The country control is GDP per capita. The p values are reported in round brackets and calculated based on robust standard errors clustered at the country level.

although we control for an array of factors that are known to affect CSR and our econometric specification includes extensive fixed effects, our analyses do not include the types of randomized controlled experiments that would address the remaining identification concerns.

CONCLUSION

In this paper, we examine the impact of competition laws on corporate social responsibility. Using firm-level data on CSR and panel data on competition laws in 47 countries, we find that (1) intensifying competition law stringency induces firms to increase their CSR activities; and (2) the CSR-enhancing effects of competition law stringency vary across firms and countries in ways that are consistent with the stakeholder value and product differentiation theories of how competition shapes CSR. In particular, the CSR-enhancing effects of competition are smaller among firms with institutional investors that have shorter horizons (hedge funds) and among family-controlled firms. Consistent with the stakeholder value and product differentiation views, we find that laws restricting anticompetitive behaviors exert a bigger influence on CSR among (a) firms with greater market power and in more monopolistic industries, (b) less financially constrained firms, and (c) firms in countries with social norms that prioritize the types of activities associated with CSR, such as the protection of the environment, worker and human rights, and individual voice and accountability. Overall, our results are consistent with the stakeholder and product differentiation views, which state that an intensification of competition prompts firms to increase their CSR activities as a strategy for strengthening relationships with customers, workers, and suppliers.

NOTES

[1]Several studies explore the relationship between family ownership and firm performance, such as Abeysekera and Fernando (2020), Anderson and Reeb (2003), Anderson, Mansi, and Reeb (2003), Anderson, Reeb, and Zhao (2012), and Villalonga and Amit (2006).

[2]Researchers also examine the pricing and hedging of climate risks (e.g., Engle, Giglio, Kelly, Lee, & Stroebel, 2020; Ilhan, Sautner, & Vilkov, 2021) and how climate risks influence investors (e.g., Krueger, Sautner, & Starks, 2020).

[3]The stakeholder value view does not suggest that CSR is the only, or even the most important, strategy for building trust with non-shareholder

stakeholders. For example, Bryson (2001) and Gill and Meyer (2013) argue that unions foster employee trust, cooperation with firms, and job security. If other factors, such as labor unions, determine business–stakeholder relationships and leave no room for competition to spur changes in CSR as an additional mechanism for enhancing these business–stakeholder relationships, we should not observe an increase in CSR following an intensification of competition through the stakeholder value mechanism.

[4]Lobbying is highly concentrated in large firms; thus, controlling for firm size, leverage, profitability, and firm fixed effects in our regressions helps us to isolate the independent connection between CLI and CSR (LobbyFacts, 2022). Furthermore, the results hold when excluding firms of above average size, as shown in Online Appendix Table OA6.

REFERENCES

Abeysekera, A. P., & Fernando, C. S. 2020. Corporate social responsibility versus corporate shareholder responsibility: A family firm perspective. *Journal of Corporate Finance,* 61: 101370.

Akerlof, G. A., & Kranton, R. E. 2005. Identity and the economics of organizations. *Journal of Economic Perspectives,* 19(1): 9–32.

Albuquerque, R., Koskinen, Y., & Zhang, C. 2019. Corporate social responsibility and firm risk: Theory and empirical evidence. *Management Science,* 65(10): 4451–4469.

Alchian, A. A. 1950. Uncertainty, evolution, and economic theory. *Journal of Political Economy,* 58(3): 211–221.

Alchian, A. A., & Demsetz, H. 1972. Production, information costs, and economic organization. *American Economic Review,* 62(5): 777–795.

Anderson, R. C., Mansi, S. A., & Reeb, D. M. 2003. Founding family ownership and the agency cost of debt. *Journal of Financial Economics,* 68(2): 263–285.

Anderson, R. C., & Reeb, D. M. 2003. Founding-family ownership and firm performance: Evidence from the S&P 500. *The Journal of Finance,* 58(3): 1301–1328.

Anderson, R. C., Reeb, D. M., & Zhao, W. 2012. Family-controlled firms and informed trading: Evidence from short sales. *The Journal of Finance,* 67(1): 351–385.

Asker, J., & Nocke, V. 2021. Chapter 12 – Collusion, mergers, and related antitrust issues. In K. Ho, A. Hortaçsu, & A. Lizzeri (Eds.), *Handbook of industrial organization*: 177–279. Amsterdam: Elsevier.

Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Van Reenen, J. 2020. The fall of the labor share and the rise of superstar firms. *The Quarterly Journal of Economics,* 135(2): 645–709.

Barber, B. M., Morse, A., & Yasuda, A. 2021. Impact investing. *Journal of Financial Economics,* 139(1): 162–185.

Bénabou, R., & Tirole, J. 2010. Individual and corporate social responsibility. *Economica,* 77(305): 1–19.

Blonigen, B. A., & Pierce, J. R. 2016. *Evidence for the effects of mergers on market power and efficiency*. National Bureau of Economic Research, working paper no. 22750. http://www.nber.org/papers/w22750

Bradford, A., & Chilton, A. S. 2018. Competition law around the world from 1889 to 2010: The competition law index. *Journal of Competition Law & Economics,* 14(3): 393–432.

Bradford, A., Chilton, A. S., Megaw, C., & Sokol, N. 2019. Competition law gone global: Introducing the comparative competition law and enforcement datasets. *Journal of Empirical Legal Studies,* 16(2): 411–443.

Bryson, A. 2001. The foundation of 'Partnership'? Union effects on employee trust in management. *National Institute Economic Review,* 176(1): 91–104.

Cella, C., Ellul, A., & Giannetti, M. 2013. Investors' horizons and the amplification of market shocks. *The Review of Financial Studies,* 26(7): 1607–1648.

Chen, T., Dong, H., & Lin, C. 2020. Institutional shareholders and corporate social responsibility. *Journal of Financial Economics,* 135(2): 483–504.

Chen, Y.-C., Hung, M., & Wang, Y. 2018. The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting & Economics,* 65(1): 169–190.

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

Coase, R. H. 1937. The nature of the firm. *Economica,* 4(16): 386–405.

Craig, J. B., Dibrell, C., & Davis, P. S. 2008. Leveraging family-based brand identity to enhance firm competitiveness and performance in family businesses. *Journal of Small Business Management,* 46(3): 351–371.

De Loecker, J., Eeckhout, J., & Unger, G. 2020. The rise of market power and the macroeconomic implications. *The Quarterly Journal of Economics,* 135(2): 561–644.

Dimson, E., Karakaş, O., & Li, X. 2015. Active ownership. *The Review of Financial Studies,* 28(12): 3225–3268.

Donnelley, R. G. 1964. The family business. *Harvard Business Review,* 42(4): 93–105.

Du, S., Bhattacharya, C. B., & Sen, S. 2011. Corporate social responsibility and competitive advantage: Overcoming the trust barrier. *Management Science,* 57(9): 1528–1545.

Dyck, A., Lins, K. V., Roth, L., & Wagner, H. F. 2019. Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics,* 131(3): 693–714.

El Ghoul, S., Guedhami, O., & Kim, Y. 2017. Country-level institutions, firm value, and the role of corporate social responsibility initiatives. *Journal of International Business Studies,* 48(3): 360–385.

Elfenbein, D. W., & McManus, B. 2010. A greater price for a greater good? Evidence that consumers pay more for charity-linked products. *American Economic Journal: Economic Policy,* 2(2): 28–60.

Engle, R. F., Giglio, S., Kelly, B., Lee, H., & Stroebel, J. 2020. Hedging climate change news. *The Review of Financial Studies,* 33(3): 1184–1216.

Faccio, M., Lang, L. H. P., & Young, L. 2001. Dividends and expropriation. *American Economic Review,* 91(1): 54–78.

Ferrell, A., Liang, H., & Renneboog, L. 2016. Socially responsible firms. *Journal of Financial Economics,* 122(3): 585–606.

Fink, L. 2020. *Larry Fink CEO letter*. BlackRock. https://www.blackrock.com/hk/en/larry-fink-ceo-letter. Accessed 23 March 2022.

Fitzgerald, M. 2019. *The CEOs of nearly 200 companies just said shareholder value is no longer their main objective*. https://web.archive.org/web/20200307005518/http://nbr.com/2019/08/19/the-ceos-of-nearly-200-companies-just-said-shareholder-

value-is-no-longer-their-main-objective/. Accessed 23 March 2022.

Flammer, C. 2015a. Does product market competition foster corporate social responsibility? Evidence from trade liberalization. *Strategic Management Journal,* 36(10): 1469–1485.

Flammer, C. 2015b. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science,* 61(11): 2549–2568.

Gande, A., John, K., Nair, V. B., & Senbet, L. W. 2020. Taxes, institutions, and innovation: Theory and international evidence. *Journal of International Business Studies,* 51(9): 1413–1442.

Gill, C., & Meyer, D. 2013. Union presence, employee relations and high performance work practices. *Personnel Review,* 42(5): 508–528.

Giroud, X., & Mueller, H. M. 2010. Does corporate governance matter in competitive industries? *Journal of Financial Economics,* 95(3): 312–331.

Goemans, H. E., Gleditsch, K. S., & Chiozza, G. 2009. Introducing Archigos: A dataset of political leaders. *Journal of Peace Research,* 46(2): 269–283.

Graafland, J., & Noorderhaven, N. 2020. Culture and institutions: How economic freedom and long-term orientation interactively influence corporate social responsibility. *Journal of International Business Studies,* 51(6): 1034–1043.

Hadlock, C. J., & Pierce, J. R. 2010. New evidence on measuring financial constraints: Moving beyond the KZ index. *The Review of Financial Studies,* 23(5): 1909–1940.

Hall, R. E. 2001. The stock market and capital accumulation. *American Economic Review,* 91(5): 1185–1202.

Hall, R. E. 2018. *Using empirical marginal cost to measure market power in the US economy.* National Bureau of Economic Research, working paper no. 25251. https://www.nber.org/papers/w25251.

Ilhan, E., Sautner, Z., & Vilkov, G. 2021. Carbon tail risk. *The Review of Financial Studies,* 34(3): 1540–1571.

Ioannou, I., & Serafeim, G. 2012. What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies,* 43(9): 834–864.

Jensen, M. C., & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* 3(4): 305–360.

John, K., Saunders, A., & Senbet, L. W. 2000. A theory of bank regulation and management compensation. *Review of Financial Studies,* 13(1): 95–125.

Kahan, M., & Rock, E. B. 2007. Hedge funds in corporate governance and corporate control. *University of Pennsylvania Law Review,* 155(5): 1021–1093.

Kandel, E., & Lazear, E. P. 1992. Peer pressure and partnerships. *Journal of Political Economy,* 100(4): 801–817.

Khandani, A. E., & Lo, A. W. 2011. What happened to the quants in August 2007? Evidence from factors and transactions data. *Journal of Financial Markets,* 14(1): 1–46.

Kitzmueller, M., & Shimshack, J. 2012. Economic perspectives on corporate social responsibility. *Journal of Economic Literature,* 50(1): 51–84.

Krueger, P., Sautner, Z., & Starks, L. T. 2020. The importance of climate risks for institutional investors. *The Review of Financial Studies,* 33(3): 1067–1111.

Krüger, P. 2015. Corporate goodness and shareholder wealth. *Journal of Financial Economics,* 115(2): 304–329.

Laeven, L., & Valencia, F. 2013. Systemic banking crises database. *IMF Economic Review,* 61(2): 225–270.

Laeven, L., & Valencia, F. 2020. Systemic banking crises database II. *IMF Economic Review,* 68(2): 307–361.

Lev, B., Petrovits, C., & Radhakrishnan, S. 2010. Is doing good good for you? How corporate charitable contributions enhance revenue growth. *Strategic Management Journal,* 31(2): 182–200.

Lo, A. W. 2008. *Hedge funds.* Princeton: Princeton University Press.

LobbyFacts. 2022. *LobbyFacts database.* https://lobbyfacts.eu/reports/lobby-costs/all/0/2/2/2/21/0/. Accessed 23 March 2022.

Luo, X., & Bhattacharya, C. B. 2009. The debate over doing good: Corporate social performance, strategic marketing levers, and firm-idiosyncratic risk. *Journal of Marketing,* 73(6): 198–213.

Masulis, R. W., & Reza, S. W. 2015. Agency problems of corporate philanthropy. *The Review of Financial Studies,* 28(2): 592–636.

McWilliams, A., & Siegel, D. 2001. Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review,* 26(1): 117–127.

Miller, D., Lee, J., Chang, S., & Le Breton-Miller, I. 2009. Filling the institutional void: The social behavior and performance of family vs. non-family technology firms in emerging markets. *Journal of International Business Studies,* 40(5): 802–817.

Miller, T., Kim, A. B., & Roberts, J. M. 2020. *2020 Index of economic freedom.* Washington: The Heritage Foundation.

Mueller, H. M., & Philippon, T. 2011. Family firms and labor relations. *American Economic Journal: Macroeconomics,* 3(2): 218–245.

Orth, U. R., & Green, M. T. 2009. Consumer loyalty to family versus non-family business: The roles of store image, trust and satisfaction. *Journal of Retailing & Consumer Services,* 16(4): 248–259.

Pedersen, L. H., Fitzgibbons, S., & Pomorski, L. 2021. Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics,* 142(2): 572–597.

Porter, M. E., & Kramer, M. R. 2006. Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review,* 84(12): 78–92.

PRI Association. 2022. *The PRI in numbers.* PRI. https://www.unpri.org/annual-report-2018/how-we-work/the-pri-in-numbers. Accessed 23 March 2022.

Riedl, A., & Smeets, P. 2017. Why do investors hold socially responsible mutual funds? *The Journal of Finance,* 72(6): 2505–2550.

Rodriguez, P., Siegel, D. S., Hillman, A., & Eden, L. 2006. Three lenses on the multinational enterprise: politics, corruption, and corporate social responsibility. *Journal of International Business Studies,* 37(6): 733–746.

Schulze, W. S., Lubatkin, M. H., & Dino, R. N. 2003. Exploring the agency consequences of ownership dispersion among the directors of private family firms. *Academy of Management Journal,* 46(2): 179–194.

Schulze, W. S., Lubatkin, M. H., Dino, R. N., & Buchholtz, A. K. 2001. Agency relationships in family firms: Theory and evidence. *Organization Science,* 12(2): 99–116.

Servaes, H., & Tamayo, A. 2013. The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science,* 59(5): 1045–1061.

Shleifer, A., & Vishny, R. W. 1997. A survey of corporate governance. *The Journal of Finance,* 52(2): 737–783.

Siegel, D. S., & Vitaliano, D. F. 2007. An empirical analysis of the strategic use of corporate social responsibility. *Journal of Economics & Management Strategy,* 16(3): 773–792.

Stein, J. C. 2009. Presidential address: Sophisticated investors and market efficiency. *The Journal of Finance,* 64(4): 1517–1548.

Thomson Reuters. 2013. *Thomson Reuters corporate responsibility ratings: Rating and ranking rules and methodologies.* https://www.thomsonreuters.com/content/dam/openweb/documents/pdf/tr-com-financial/methodology/corporate-responsibility-ratings.pdf. Accessed 3 August 2021.

Thomson Reuters. 2018. *Thomson Reuters ESG scores.* https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/esg-scores-methodology.pdf. Accessed 4 March 2020.

Villalonga, B., & Amit, R. 2006. How do family ownership, control and management affect firm value? *Journal of Financial Economics,* 80(2): 385–417.

Waldman, D. A., Sully de Luque, M., Washburn, N., House, R. J., Adetoun, B., Barrasa, A., et al. 2006. Cultural and leadership predictors of corporate social responsibility values of top management: A GLOBE study of 15 countries. *Journal of International Business Studies,* 37(6): 823–837.

Young, S. L., & Makhija, M. V. 2014. Firms' corporate social responsibility behavior: An integration of institutional and profit maximization approaches. *Journal of International Business Studies,* 45(6): 670–698.

APPENDIX

See Table 11.

Table 11 Key variable definitions

Variable	Definition
Average score	Equally weighted average of Environmental, Social, and CSR Strategy scores
PCA score	The first principal component of Environmental, Social, and CSR Strategy scores
CLI	The overall stringency of a country's competition laws
Size	Natural log of one plus the book value of total assets
Leverage	The ratio of long-term debt to the total book value of assets
ROA	The ratio of net income to total assets
GDP per capita	Natural log of gross domestic product per capita
Stock market capitalization/GDP	The ratio of stock market capitalization to GDP
Private credit/GDP	The credit provided to the private sector by commercial banks and other financial institutions as a proportion of GDP
Institutional quality	The first principal component of six indicators, covering: (1) Voice and Accountability; (2) Political Stability and Absence of Violence; (3) Government Effectiveness; (4) Regulatory Quality; (5) Rule of Law; and (6) Control of Corruption
Economic freedom	The ten components of the Heritage Foundation index are: (1) Property Rights, which measures the degree of private property protection via legal systems and government enforcement; (2) Government Integrity, which assesses the lack of corruption in the government; (3) Tax Burden, which measures the marginal tax rates on both individual income and corporate profits; (4) Government Spending, which measures the overall expenditure burden of government, including direct spending for maintaining government and transfer payment in all kinds; (5) Business Freedom, which measures the degree to which regulatory and infrastructure environments hinder efficient business operations, such as the ease of starting, operating, and closing a business; (6) Labor Freedom, which measures the extent to which a country's legal and regulatory framework protects the labor market, such as by enforcing minimum wages and restrictions on hiring, working hours, and layoffs; (7) Monetary Freedom, which measures the extent to which government activities distort prices, along with the overall inflations; (8) Trade Freedom, which measures tariff and non-tariff barriers on the import and export of goods and services; (9) Investment Freedom, which measures the constraints on the flow of investment capital, such as capital controls, foreign exchange controls, and national treatment of foreign investment; (10) Financial Freedom, which measures banking efficiency and the extent to which the financial sector is independent of government intervention
CSR regulations	The number of mandatory regulations on environmental or social issues that affect companies in a country
Financial crisis	Equals 1 if a country is experiencing a systemic financial crisis in a year, and 0 otherwise

ABOUT THE AUTHORS

Wenzhi Ding is a PhD student at the University of Hong Kong (HKU) Business School, Department of Finance. His research interests include corporate finance, corporate governance, law and finance, and fintech.

Professor Ross Levine is the Willis H. Booth Chair in Banking and Finance at the University of California Berkeley Haas School of Business. His research focuses on two areas: how financial regulations and the operation of financial systems shape economic growth and economic prosperity more generally; and the traits of successful entrepreneurs.

Professor Chen Lin is the Stelux Professor in Finance at the University of Hong Kong (HKU) Business School. His research interests include banking and financial institutions, corporate finance, financial technology, entrepreneurship and innovation, finance and economic development.

Professor Wensi Xie is Associate Professor in the Department of Finance at the Chinese University of Hong Kong (CUHK) Business School. Her research interests include corporate finance, banking and financial institutions, and financial stability.