DOES PRODUCT MARKET COMPETITION FOSTER CORPORATE SOCIAL RESPONSIBILITY? EVIDENCE FROM TRADE LIBERALIZATION

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This study examines whether product market competition affects corporate social responsibility (CSR). To obtain exogenous variation in product market competition, I exploit a quasi-natural experiment provided by large import tariff reductions that occurred between 1992 and 2005 in the U.S. manufacturing sector. Using a difference-in-differences methodology, I find that domestic companies respond to tariff reductions by increasing their engagement in CSR. This finding supports the view of "CSR as a competitive strategy" that allows companies to differentiate themselves from their foreign rivals. Overall, my results highlight that trade liberalization is an important factor that shapes CSR practices. Copyright © 2014 John Wiley & Sons, Ltd.

INTRODUCTION

Over the past decades, the rapid globalization of the world economy has led to profound changes in the way companies operate. In particular, trade liberalization has contributed to an unprecedented increase in the competitive pressure that U.S. companies face from their foreign rivals (e.g., Bernard, Jensen, and Schott, 2006a; Krugman, 1995; Krugman, Obstfeld, and Melitz, 2012). This trend towards lower trade barriers has spurred a large literature that studies how foreign competition affects productivity (e.g., Bernard *et al.*, 2006a), economic growth (e.g., Frankel and Romer, 1999), as well as social and environmental welfare (e.g., Edmonds and Pavcnik, 2005; Grossman and Krueger, 1993). While the latter focuses on social and environmental welfare at the aggregate level, very little is known

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on how foreign competition affects *firm-level* decisions to invest in corporate social responsibility (CSR), and in particular whether domestic companies use CSR as a differentiation strategy to compete against their foreign rivals. This paper sheds light on this question by theorizing and empirically testing how reductions in import tariffs—which facilitate the entry of foreign competitors into local markets—affect the social and environmental practices of U.S. companies.

The concept of comparative advantage is a core tenet of neoclassical trade theory (e.g., Heckscher, 1919; Ohlin, 1933; Ricardo, 1817) and strategic management (e.g., Helfat and Peteraf, 2003; Hooley, Broderick, and Moeller, 2006; Peteraf, 1993; Wernerfelt, 1984, 1995). In particular, incumbent companies can sustain their competitive advantage by leveraging their resources and capabilities in which they have a comparative advantage. In the context of trade liberalization, domestic companies have a comparative advantage over foreign companies in their relationships to local stakeholders. Hence, I argue that domestic companies may respond to increased foreign competition by strengthening their relations with local consumers,

employees, and other stakeholders. Relatedly, the CSR literature argues that companies can "do well by doing good" as they may benefit from higher employee motivation, access to new market segments (such as "green" consumers), the more efficient use of materials and energy, etc. (e.g., Hart, 1995; Jones, 1995; Porter and Kramer, 2006, 2011; Russo and Fouts, 1997). In line with these arguments, I posit that increased foreign competition may foster CSR since domestic companies are eager to leverage their comparative advantage to remain competitive.

Recent surveys are supportive of this theoretical prediction. Specifically, the surveys by Accenture and UNGC (2010) and *MIT Sloan Management Review* (2012) indicate that, in the face of rising global competition, over 90 percent of CEOs see sustainability as critical for their company's competitiveness and future success.[1]

Apart from these surveys, there is little evidence on the impact of foreign competition on CSR. This question is difficult to answer empirically since traditional measures of competition (e.g., import penetration) are likely endogenous with respect to CSR. In other words, unobserved characteristics may drive a spurious correlation between the two. For example, long-term thinking CEOs may be more inclined to implement CSR initiatives. At the same time, they may self-select into non-competitive industries (e.g., because the lower short-run pressure gives them more leeway in achieving long-term objectives). Another example is a reverse causality argument: companies could use CSR as a way to influence competition. In particular, incumbent companies may increase their CSR to preempt entry

of foreign firms. As these examples illustrate, finding a correlation between, say, import penetration and CSR would not warrant a causal interpretation.[2]

To overcome this obstacle, I exploit a quasi-natural experiment in the form of large import tariff reductions that occurred between 1992 and 2005 in the U.S. manufacturing sector. These tariff reductions are substantial (tariff rates decreased by about 50% on average), and hence provide sharp exogenous shifts in the competitive pressure that U.S. companies face from their foreign rivals. To estimate the effect of these "treatments" on CSR, I use a difference-in-differences approach. Specifically, if a firm operates in an industry that experiences a tariff reduction (a "treated" firm), I compute the difference in CSR before and after the tariff reduction. I then compare this difference with the corresponding difference at a "control" firm. Control firms are matched to treated firms on the basis of similar *ex ante* characteristics.

Using this matched difference-in-differences methodology, I find that tariff reductions lead to significant increases in CSR, as measured by the Kinder, Lydenberg, and Domini (KLD) index of social performance. This finding holds under a large battery of robustness checks including alternative definitions of the treatment and alternative matching procedures.

While tariff reductions provide plausibly exogenous variation in competitive pressure from abroad, a potential concern is that special interest groups may influence the outcome of trade policy. As a result, policymakers may reduce import tariffs based on specific industry characteristics (e.g., they may lower tariffs in less profitable industries as they "give up" on them). If these characteristics are related to subsequent investments in CSR, my results could be spurious. Nevertheless, this concern is mitigated for two reasons. First, the matching algorithm ensures that treated and matched control firms are very similar *ex ante*, which alleviates concerns that my results may be driven by pretreatment differences between treated and control firms (e.g., in terms of profitability). Second, I obtain similar results if I consider only

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[1] Relatedly, anecdotal evidence suggests that fiercer competition leads companies to increase their investment in CSR, consistent with the view of CSR as a competitive strategy. For example, Seventh Generation's CEO John Replogle argues that, in a competitive environment where only the fittest survives, CSR is key: "Sustainability is no longer optional. Companies that fail to adopt such practice will perish. They will not only lose on a cost basis, they will also suffer in recruiting employees as well as attracting consumers." Furthermore, when referring to his former company, Burt's Bees, John Replogle argues: "Because we've trimmed our use of electricity, water, waste, and most packaging inputs, we are leaner and more competitive than most companies. … Burt's Bees is a more competitive and profitable business BECAUSE we embrace sustainable practices" (*Forbes*, 2011, emphasis in original). Along similar lines, the declared objective of General Electric's environmental CSR program "ecomagination" was to improve GE's competitiveness. As GE's CEO Jeffrey Immelt emphasizes: "We did it from a business standpoint from Day 1, … it was never about corporate social responsibility" (*New York Times*, 2011).

[2] A related strand of literature examines the association between domestic competition—as measured by the Herfindahl-Hirschman index (HHI) of industry concentration—and CSR (Declerck and M'Zali, 2012; Fernandez-Kranz and Santalo, 2010; Fisman, Heal, and Nair, 2006). As with import penetration, HHI is likely endogenous with respect to CSR. See the Discussion section for more details.

the subset of tariff reductions that were part of large-scale multilateral trade agreements established by the General Agreement on Tariffs and Trade (GATT), World Trade Organization (WTO), and the North American Free Trade Agreement (NAFTA). As Krugman *et al.* (2012) argue, special interest groups are less likely to influence tariff changes resulting from multilateral trade agreements compared to those that are negotiated on a bilateral basis. Hence, this subset of treatments is relatively more exogenous with respect to lobbying pressure.

Finding that U.S. companies respond to higher competitive pressure from abroad by increasing their CSR is consistent with the view that CSR generates valuable resources that allow companies to improve their competitiveness and differentiate themselves from their foreign rivals. In auxiliary analyses, I further document that this effect is stronger for companies operating in the business-to-consumer (B2C) sector—i.e., in industries where the purchasing decision is more sensitive to companies' CSR engagement (Lev, Petrovits, and Radhakrishnan, 2010). I also document that companies focus their additional CSR investments on their core stakeholders (customers and employees) as opposed to their other, more peripheral stakeholders (society at large and environment).

In the remainder of this paper, I develop the theoretical arguments in detail, describe the data and methodology, present the empirical results, and conclude by discussing the implications and limitations of my findings.

THEORY AND HYPOTHESIS

Relationship between foreign competition and corporate social responsibility

To derive theoretical predictions on the relationship between foreign competition and the CSR engagement of domestic companies, I draw from different strands of literature.[3] A long-standing literature in economics examines the impact of trade liberalization on economic growth (e.g., Frankel and Romer,

1999), productivity (e.g., Bernard *et al.*, 2006a), and employment (e.g., Wood, 1995). In particular, at the core of neoclassical trade theory is the concept of *comparative advantage,* according to which countries align their productive activities with their relative resource endowment (e.g., Heckscher, 1919; Ohlin, 1933; Ricardo, 1817). For example, as U.S. import tariffs decreased over the past years, domestic companies faced increased global competition from low-wage countries such as India and China. Given their relatively higher wages, U.S. companies responded by shifting their production from labor-intensive products to more skill- and capital-intensive products (e.g., Bernard, Jensen, and Schott, 2006b; Pierce and Schott, 2012).

Relatedly, the strategic management literature argues that companies can sustain their competitive advantage by leveraging the resources and capabilities in which they have a comparative advantage (e.g., Helfat and Peteraf, 2003; Hooley *et al.*, 2006; Peteraf, 1993; Wernerfelt, 1984, 1995). In the context of trade liberalization, domestic companies have a comparative advantage over foreign companies in their relationship with local stakeholders, while it may be difficult for them to compete on a cost basis.[4] Accordingly, I argue that domestic companies may respond to increased foreign competition by strengthening their relations with local consumers, employees, and other stakeholders. In a sense, by stepping up their social and environmental initiatives, companies can differentiate themselves and establish a "soft" trade barrier disadvantaging their foreign competitors.

The potential value of strengthening firms' relations with their stakeholders is also emphasized in the CSR literature. For instance, Freeman's (1984) stakeholder theory suggests that companies should consider the interests of a broader group of stakeholders. Several extensions of stakeholder theory have been proposed (for a review, see Agle *et al.*, 2008). In particular, instrumental stakeholder theory (e.g., Jones, 1995) holds that CSR efforts can be instrumental in obtaining necessary resources or stakeholder support. Similarly, companies may engage in CSR in order to improve their efficiency and enhance, e.g., their reputation, brand, and trust (e.g., Barney, 1991; Hart, 1995; Porter, 1991; Russo and Fouts, 1997). This argument is related to Porter

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[3] An activity is considered to be socially responsible if it goes beyond the firm's maximization of its (single) bottom line and legal requirements and contributes to the social good (e.g., Davis, 1973; McWilliams and Siegel, 2001).

[4] The cost advantage of foreign rivals is likely one of the rationales underlying the use of import tariffs in the first place (e.g., Gros, 1987; Helpman and Krugman, 1989).

and Kramer (2006, 2011) who emphasize the strategic importance of considering a broader business environment and creating "shared value" for both society and the company. The creation of shared value—as opposed to only social (i.e., philanthropic) value—is integral to a company's maximization of long-term shareholder value and its competitiveness in the global market place.

In sum, the above arguments imply that CSR allows domestic companies to improve their competitiveness and differentiate themselves from their foreign rivals. Accordingly, companies facing fiercer competition from abroad may respond by increasing their investment in CSR. Hence, I posit a positive causal relationship between foreign competition and CSR:

Hypothesis 1: An exogenous increase in foreign competition leads to an increase in CSR.

Naturally, the alternative hypothesis is that an increase in foreign competition leads to a decrease (or no change) in CSR, which would be in line with the literature that sees companies' social engagement as an inefficient use of resources. For example, Friedman's shareholder theory (Friedman, 1962, 1970) views social responsibility as an unnecessary cost of doing business. Accordingly, addressing social issues reduces the company's profits and is akin to a transfer from shareholders to stakeholders. A similar argument is made, e.g., in Elhauge (2005) who argues that CSR policies involve "sacrificing corporate profits in the public interest" (p. 733). In the spirit of this literature, an increase in competitive pressure may stifle CSR, since it reduces firms' profits and hence the amount of resources that can be transferred to stakeholders.

DATA

Reduction of import tariff rates

To measure increases in foreign product market competition, I use industry-level import tariff data compiled by Feenstra (1996), Feenstra, Romalis, and Schott (2002), and Schott (2010). These data are available at the four-digit SIC (Standard Industry Classification) level for the U.S. manufacturing sector (SIC 2000–3999) from 1972 to 2005. For each four-digit SIC industry and year, I compute the *ad valorem* tariff rate, which is the ratio of duties

collected by U.S. Customs to the free-on-board value of imports.

Tariff rates fluctuate from year to year. However, the typical tariff change is very small and economically unimportant. To circumvent this limitation, I follow common practice in the economics literature and consider only "large" tariff reductions, i.e., tariff reductions that are above a certain threshold (e.g., Fresard, 2010; Fresard and Valta, 2014; Lileeva and Trefler, 2010; Trefler, 2004). Specifically, I follow Fresard (2010) and Fresard and Valta (2014) and qualify a tariff rate reduction in a given industry year as large if it is at least three times larger than the average annual (absolute) change in tariff rate in the same industry across all years. The choice of the threshold is immaterial for my analysis. In robustness checks, I show that my results also hold if I consider alternative cutoffs such as tariff reductions that are two or four times the average.

There are 91 such large tariff reductions from 1972 until 2005; the first one occurring in 1975, the last one in 1998. Since the objective of this paper is to study how import tariff reductions affect CSR, and given that CSR data from the KLD database are available from 1991 onward, I only consider tariff reductions that occurred as of 1992. (Dropping events occurring in 1991 is due to the difference-in-differences specification that requires at least one year of CSR data in the year preceding the tariff reduction.) This criterion leaves me with a final set of 34 large tariff reductions, which are provided in Table S1. For each event, Table S1 reports the year of the tariff reduction, the four-digit SIC code, a short description of the industry, and whether the tariff reduction was implemented as part of multilateral trade agreements established by the GATT, WTO, or NAFTA. The latter information is obtained from the U.S. International Trade Commission.[5]

These events correspond to an average decrease in tariff rates by about 50 percent (on average, the tariff rate drops from 2.6% in the year preceding the event to 1.3% in the year following the event). Accordingly, the treatments considered in this study provide sharp increases in competitive pressure faced by U.S. companies. For more details about

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[5] The sample period considered in this study has witnessed a decreasing trend in import tariffs. Accordingly, there are only two instances of large tariff rate increases. This prevents me from conducting the reverse analysis, i.e., studying whether companies adjust their social engagement following a decrease in product market competition.

the economic significance of the treatments, see the Methodology section.

Firm-level data

The accounting data are obtained from Standard & Poor's (S&P) Compustat; the CSR data are from the KLD database. KLD is an independent social choice investment advisory firm that compiles ratings of how companies address the needs of their stakeholders. During the relevant sample period, the KLD database consists of all companies listed in the S&P 500 Index as well as companies listed in the Domini 400 Social Index, which includes mainly large and mid-sized companies (see Domini Social Investments, 2013). KLD ratings are widely used in CSR studies (e.g., Berman *et al.*, 1999; Deckop, Merriman, and Gupta, 2006; Graves and Waddock, 1994).

The KLD database contains social ratings of companies along several dimensions including community, diversity, employee relations, environment, human rights, product quality, corporate governance, and whether firms' operations are related to alcohol, firearms, gambling, tobacco, nuclear power, and military contracting. To construct a composite KLD index, I sum up all strengths along these dimensions.[6] In auxiliary analysis, I also consider four sub-indices of this composite index (see the Results section).

METHODOLOGY

Difference-in-differences

To study whether an increase in competitive pressure from abroad affects CSR, I use a difference-in-differences methodology based on

the 34 large tariff reductions listed in Table S1 (treatments). Specifically, I compare the difference in KLD index before and after the treatment for firms in industries that experience large tariff reductions (treatment group) with the corresponding difference for firms that are not affected by the tariff reductions but are otherwise similar (control group). In the following, I describe how the treatment and control groups are constructed.

Treatment group

The treatment group consists of all firms that operate in a four-digit SIC industry that experiences a large tariff reduction and have coverage in Compustat and the KLD database at least one year before and one year after the tariff reduction. The 34 large tariff reductions yield a sample of 254 treated firms that satisfy these criteria.

Control group

To construct a sample of firms that are similar to the treated firms (except for the tariff reduction), I match each treated firm to a control firm on the basis of industry- and firm-level characteristics using the following procedure.

First, since the treatments are at the industry level, matching control firms based on the same four-digit SIC industry is not possible. Instead, a natural approach is to match control firms based on a broader industry sector such as one-, two-, or three-digit SIC codes (excluding four-digit SIC industries that are treated). In my baseline analysis, I require that the control firm operates in the same two-digit SIC industry and produces the same type of goods (consumer versus intermediate goods).[7] This approach balances two concerns. On one hand, the industry partition needs to be sufficiently fine grained so that industry characteristics are similar. On the other hand, the industry partition needs to be broad enough so that the pool of potential control firms for the matching based on firm-level characteristics is sufficiently large.

Second, out of the remaining candidates, I select the nearest neighbor on the basis of six firm-level

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[6] A few of the specific strengths are not surveyed every year in the KLD database, which could lead to inconsistencies in the measurement of CSR over time. However, I have verified that I obtain similar results if, instead of using the full index, I only include those strengths that are surveyed in all years from 1991 to 2005. In addition to CSR strengths, the KLD data also contain a list of CSR concerns. Accordingly, an alternative approach is to construct a "net" KLD index by subtracting the concerns from the strengths. However, recent research suggests that this approach is methodologically questionable. Because KLD strengths and concerns lack convergent validity, using them in conjunction fails to provide a valid measure of CSR (e.g., Johnson-Cramer, 2004; Mattingly and Berman, 2006). For this reason, my analysis relies on the composite index of KLD strengths (for a similar approach, see, e.g., Kacperczyk, 2009).

[7] The partition of four-digit SIC industries into consumer versus intermediate goods is obtained from Lev *et al.* (2010: 188). I obtain very similar results if the industry matching is done solely based on two-digit SIC codes. In robustness checks, I discuss alternative matching procedures.

Table 1.   Summary statistics for treated and matched control firms

		Observations	Mean	25th percentile	50th percentile	75th percentile	*p*-value (*t*-test)	*p*-value (*KS*-test)
Panel A. Matching characteristics								
KLD index	Treated	254	1.751	0.000	1.000	3.000	0.918	0.816
	Control	254	1.759	0.000	1.000	3.000		
Log(assets)	Treated	254	7.954	7.064	7.791	9.113	0.275	0.173
	Control	254	8.138	6.847	8.025	9.574		
Market-to-book	Treated	254	2.092	1.419	1.655	2.310	0.267	0.353
	Control	254	2.262	1.329	1.594	2.599		
ROA	Treated	254	0.069	0.038	0.063	0.096	0.464	0.596
	Control	254	0.066	0.026	0.061	0.103		
Cash/assets	Treated	254	0.089	0.027	0.053	0.113	0.254	0.620
	Control	254	0.098	0.028	0.047	0.138		
Leverage	Treated	254	0.132	0.065	0.132	0.198	0.990	0.795
	Control	254	0.132	0.047	0.135	0.198		
Panel B. Industry characteristics								
Import tariff rate	Treated	254	0.028	0.022	0.029	0.033	0.483	0.395
	Control	254	0.027	0.017	0.025	0.034		
Import penetration	Treated	254	0.226	0.060	0.181	0.414	0.940	0.861
	Control	254	0.228	0.060	0.202	0.402		
HHI	Treated	254	0.316	0.125	0.231	0.516	0.747	0.594
	Control	254	0.310	0.155	0.236	0.503		

characteristics: KLD index, size, market-to-book ratio, return on assets (ROA), cash holdings, and leverage ratio, all computed as average in the three years preceding the tariff reduction (using pre-treatment values ensures that the matching characteristics are not affected by the treatment itself).[8] The nearest neighbor is the firm with the lowest Mahalanobis distance to the treated firm across these six matching characteristics.[9]

This matching procedure ensures that control firms are as similar as possible to the treated firms *ex ante.* In particular, using the KLD index as a matching characteristic ensures that treated and control firms have similar CSR strengths prior to the treatment. Using measures of profitability (ROA) and growth opportunities (market-to-book) rules

out concerns that the treated firms may be less profitable or operate in declining industries. Using size, cash holdings, and debt capacity (leverage) further addresses the possibility that differences along these characteristics may affect future CSR investments (e.g., through the ease of raising capital). In sum, the control firms provide a counterfactual for what would happen at the treated firms absent any increase in foreign competition. Since each treated firm is matched to one control firm, the final sample consists of 508 companies (254 treated firms and 254 matched control firms).

To illustrate the similarity between treated and control firms, Table 1 reports descriptive statistics for the six matching characteristics, as well three industry characteristics that capture the degree of competition in the four-digit SIC industry of the treated and control firms. These three characteristics are the import tariff rate, import penetration, and the Herfindahl-Hirschman index (HHI) of industry concentration, all computed as average in the three years preceding the tariff reduction.[10] For

[8] The last five characteristics are obtained from Compustat. Size is the natural logarithm of the book value of assets; market-to-book ratio is the ratio of the market value of equity to the book value of equity; ROA is the ratio of income before extraordinary items to the book value of assets; cash holdings is the ratio of cash and short-term investments to the book value of assets; leverage is the ratio of long-term debt to the book value of assets. These five characteristics are commonly used in the economics and finance literature to construct a set of comparable firms (see, e.g., Almeida *et al.*, 2012; Fresard and Valta, 2014).

[9] Formally, the Mahalanobis distance δ between treated firm i and candidate firm j is given by $\delta = [(\mathbf{X}_i - \mathbf{X}_j)' \, \boldsymbol{\Sigma}^{-1} \, (\mathbf{X}_i - \mathbf{X}_j)]^{1/2}$, where $\mathbf{X}$ is a (6×1) vector containing the six matching variables and $\boldsymbol{\Sigma}$ is the (6×6) covariance matrix of these six variables.

[10] Import penetration is computed as the total imports divided by the sum of total domestic production plus imports minus exports at the four-digit SIC level. The data on import penetration are obtained from Peter Schott's website and are described in Feenstra (1996) and Feenstra *et al.* (2002). The Herfindahl-Hirschman index of (domestic) industry concentration is computed as the sum

each characteristic, the table reports means, medians, 25th, and 75th percentiles for both the 254 treated firms and the 254 matched control firms. In the last two columns, the table further reports the *p*-value of the difference-in-means test (*t*-test) and Kolmogorov-Smirnov test (*KS*-test), respectively.[11] As is shown, treated and control firms are very similar along all these characteristics. In particular, the null of equal means cannot be rejected (with *p*-values ranging from 0.25 to 0.99). Neither can the null of equal distributions (*p*-values from 0.17 to 0.86). Overall, the statistics in Table 1 confirm that control firms are very similar to treated firms, and hence likely provide a reliable counterfactual of how treated firms would behave absent the tariff reductions.

For each treated firm and each matched control firm, I compute the difference in the firm's average KLD index in the three years following the tariff reduction minus the firm's average KLD index in the three years preceding the tariff reduction.[12] I denote this difference by ΔKLD_{it}, where i indexes the company and t indexes the year of the tariff reduction. While I focus on three years before and after the tariff reductions in the baseline specification, my results are not sensitive to the choice of the treatment window. Specifically, I have verified that my results are robust if I use one, two, four, or five years before and after the treatment.

Having computed ΔKLD_{it} for the treated and matched control firms, I can measure the effect of tariff rate reductions on CSR by estimating the following regression:

$$\Delta KLD_{it} = \alpha_t + \beta \times \textit{Tariff Reduction}_{it} + \gamma' \mathbf{X}_{it} + \epsilon_{it},$$

where α_t are year fixed effects, *Tariff Reduction* is a dummy variable (treatment dummy) that equals one for treated firms and zero for matched control firms, **X** is the vector of control variables, which includes the six characteristics used to construct the matched control group (KLD index, size, market-to-book ratio, ROA, cash holdings, and leverage ratio, all computed as average in the three years preceding the tariff reduction), and ϵ is the error term. I cluster standard errors at the four-digit SIC industry level. (I obtain similar results if instead I cluster standard errors at the year level, at both the year and industry level, at the two-digit SIC level, or if I use heteroskedasticity-robust standard errors.) The coefficient of interest is β, which measures the difference in ΔKLD between treated firms and matched control firms (i.e., the difference-in-differences). In other words, it measures the effect of tariff reductions on the KLD index accounting for contemporaneous changes in the KLD index at otherwise similar firms that do not experience such tariff reductions.

Validity of the identification strategy

To be valid, my identification strategy needs to fulfill two requirements. First, the treatments—i.e., the large import tariff reductions—need to trigger *relevant* changes in the competitive pressure that U.S. companies face from their foreign rivals. Second the treatments need to be *exogenous* with respect to CSR. In the following, I discuss both requirements.

Relevance of large import tariff reductions

Import tariffs have decreased gradually over the past decades (Bernard *et al.*, 2006a; Feenstra, 1998; Krugman, 1995; Krugman *et al.*, 2012). This trend is visible in the figure provided in Figure S1, where I plot the evolution of import tariff rates in treated and control industries (i.e., the four-digit SIC industries of the treated and control firms, respectively). As can be seen, five years prior to the treatment, import tariff rates were about 3.2 percent in both control and treated industries. In control industries, import tariffs decrease by about 0.2 percentage points every year.[13] Import tariffs decrease at a similar pace

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of squared market shares of all companies in a given four-digit SIC industry. Market shares are computed from Compustat based on firms' sales.

[11] The *KS*-test is a nonparametric test of the null hypothesis of identical distributions. The underlying test statistic quantifies the difference between the empirical distribution of the variable of interest in the treatment group and its empirical distribution in the control group (for details, see Hollander and Wolfe, 1999: 178–186).

[12] The sample of treated and control firms is constructed by requiring that each firm has KLD coverage at least in the year before and the year after the treatment. In cases where KLD data are not available for the full three years before or after the treatment, the respective average is computed on the basis of the nonmissing years. My results are virtually identical if I only include firms with the full three years of KLD data before and after the treatment.

[13] This decrease is representative of the average change in import tariff rates across all manufacturing industries during the sample period. The corresponding average is −0.2 percentage point per year as well.

in treated industries except in the year of the treatment when the tariff rate drops by half, from 2.6 to 1.3 percent (i.e., a reduction by 1.3 percentage points). This large reduction generates a significant wedge between treated and control industries. This wedge is persistent in the five years following the treatment.

In principle, a given industry can be treated several times. Nevertheless, such multiple treatments do not occur during the sample period (see Table S1). Moreover, none of the treatments is reversed. This is in line with previous literature documenting that large increases in import tariffs are fairly rare (e.g., Fresard and Valta, 2014; Krugman *et al.*, 2012). From an identification perspective, the absence of reversals and multiple treatments is appealing, as it mitigates concerns that my results may be contaminated by post-treatment interventions.

To interpret the magnitude of the large import tariff reductions, it is helpful to benchmark them with the Canada-U.S. Free Trade Agreement (FTA) of 1989. Trefler (2004) reports that the passage of the FTA lowered the average tariff rate for Canadian products from four percent in 1988 to about three percent in 1990, i.e., a decrease by one percentage point. The FTA is commonly viewed as a sizable event that substantially increased the competitive pressure faced by U.S. companies (e.g., Clausing, 2001; Trefler, 2004). In terms of the magnitude, the average treatment in my sample—a reduction by 1.3 percentage points in import tariff rates—is close to the tariff reduction brought about by the FTA.

A related point is whether managers pay close attention to import tariffs. Anecdotal evidence suggests that managers are indeed sensitive to import tariff reductions. For example, when referring to the recently proposed Trans-Pacific Partnership trade deal, the CEO of New Balance Athletic Shoe Inc. noted: "A rapid reduction of the existing [tariff] agreements would put our factories here at significant risk" (*Wall Street Journal*, 2013). To obtain more systematic evidence on managers' attention to import tariffs, I follow the approach of Fresard and Valta (2014) and conduct a textual analysis of the Management's Discussion and Analysis (MD&A) section of the companies' 10-K filings (i.e., their annual reports). Since 10-K filings are electronically available on the SEC website from 1997 onward, I conduct this analysis for the subset of companies that are treated as of 1997. Specifically,

I search the MD&A section for keywords pertaining to "increasing competition."[14] I find that following large import tariff reductions, treated companies are 38 percent more likely to talk about increased competitive pressure, while the corresponding increase is merely seven percent for matched control firms.

Exogeneity of large import tariff reductions

My identification strategy relies on the assumption that large import tariff reductions are exogenous with respect to CSR. In the following, I discuss potential identification concerns and describe how my matched difference-in-differences specification is helpful in addressing them.

Political economy of tariff changes. Tariff changes are often the result of a long negotiation process that may involve various interest groups (e.g., Frye and Mansfield, 2004; Grossman and Helpman, 1995; Henisz and Mansfield, 2006; Hiscox, 2002; Mayer, 1981; Rogowski, 1989). Hence, a potential concern could be that policymakers reduce import tariffs based on specific industry characteristics that are related to subsequent investments in CSR. For example, it could be that politicians lower tariffs in declining industries as they "give up" on them. Or it could be that policymakers reduce tariffs in industries that have become sufficiently strong to face increased competition from abroad. Or it could be that import tariff reductions are more likely to occur in those industries where import tariff rates have been unusually high. In all these scenarios, there are systematic differences between treated and control firms (e.g., in terms of profitability) prior to the treatment. If these differences affect subsequent investments in CSR, my results could be spurious.

The matching algorithm ensures that control firms are very similar to treated firms prior to the treatment, which alleviates concerns that preexisting differences may affect my results. For example, if large import tariff reductions are more likely to occur in declining industries, a potential concern is that treated firms might be less profitable than control firms. Nevertheless, as can be seen in Table 1, there is no significant difference in

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[14] More precisely, I search for the word "increasing" or one if its synonyms (such as "increased," "higher," "greater," "intensified," or "intensification") appearing besides the word "competition" (or variations thereof).

profitability (ROA) prior to the treatment. Similarly, the evidence provided in Table 1 shows no preexisting difference in growth opportunities (market-to-book ratio), financing policies (cash holdings, leverage ratio), CSR (KLD index), as well as the degree of competition (Herfindahl-Hirschman index, import penetration, import tariff rate).[15]

An additional way to address the above concern is by focusing on large import tariff reductions that are harder to influence by special interest groups. While special interest groups may influence the outcome of bilateral trade agreements, doing so is much more difficult for *multilateral* trade agreements such as those that were established by the GATT, WTO, or NAFTA (e.g., Fresard and Valta, 2014; Krugman *et al.*, 2012; Ornelas, 2005). Indeed, the participation of multiple countries makes negotiations more difficult and hence limits the ability of government officials to give in to lobbying pressure. Moreover, international trade institutions impose rules and formal obligations that restrict the influence of special interest groups. Accordingly, import tariff reductions that were introduced as part of the GATT, WTO, and NAFTA can be viewed as relatively more exogenous compared to those resulting from bilateral agreements. In robustness checks, I show that my results are similar if I only consider this subset of treatments.

Anticipation of import tariff changes. A related concern is that companies may anticipate the treatment and adjust their CSR accordingly. For example, it could be that, in anticipation of future competitive pressure, companies momentarily cut nonmarket activities (e.g., CSR) and focus on market activities. As companies resume their nonmarket activities following the treatment, my estimates would capture a spurious increase in CSR after the treatment. Nevertheless, this concern is unlikely to explain my results, for two reasons. First, the matching algorithm—which includes the (pretreatment) KLD index as one of the matching characteristics—ensures that there is

no preexisting difference in the KLD index in the three years preceding the treatment (see Table 1). Second, Figure 1 shows that (1) the evolution of the KLD index is virtually identical among treated and control firms in the five years preceding the treatment, and (2) treated companies do not reduce their KLD index in the pretreatment years.

Related industries. Another potential concern is that a tariff reduction in one industry may affect companies in related industries (e.g., suppliers), even if the latter do not experience a reduction in tariff rates. If companies from such industries happen to be in the control sample, the requirement that control firms be unaffected by the treatment would be violated. While it is unclear how such industry spillovers would bias my results, I show in robustness checks that my results are unchanged if I require control firms to operate in industries that are unrelated to those of the treated firms. To measure relatedness across industries, I use the 1992 input-output matrix of the Bureau of Economic Analysis and compute interindustry relatedness following the procedure in Fan and Lang (2000). Industries are said to be related if their relatedness coefficient is larger than five percent.

Advertising. Finally, the KLD index may correlate with advertising and public relations expenses. In particular, it could be that companies advertise their *existing* CSR more aggressively following an increase in foreign competition. If KLD analysts are influenced by advertising campaigns in assessing a company's social performance, my results could merely reflect a change in advertising behavior as opposed to an actual increase in CSR. To mitigate this concern, I show in robustness checks that my results are very similar if I control for contemporaneous changes in advertising expenses (defined as the ratio of advertising expenses to total assets from Compustat).

RESULTS

Main results

The main results are presented in Table 2. In all regressions, the dependent variable is the change in KLD index three years after compared to three years before the treatment. In Model 1, the regression only includes the tariff reduction dummy as

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[15] This evidence does not imply that import tariff changes are unrelated to, e.g., profitability, investment opportunities, or the degree of competition. What it shows is that control firms are very similar to treated firms along these characteristics, which mitigates concerns that preexisting differences—such as those reflecting the political economy of import tariff changes—may affect my results. See, e.g., Krugman *et al.* (2012) for a discussion of the determinants of import tariff changes.
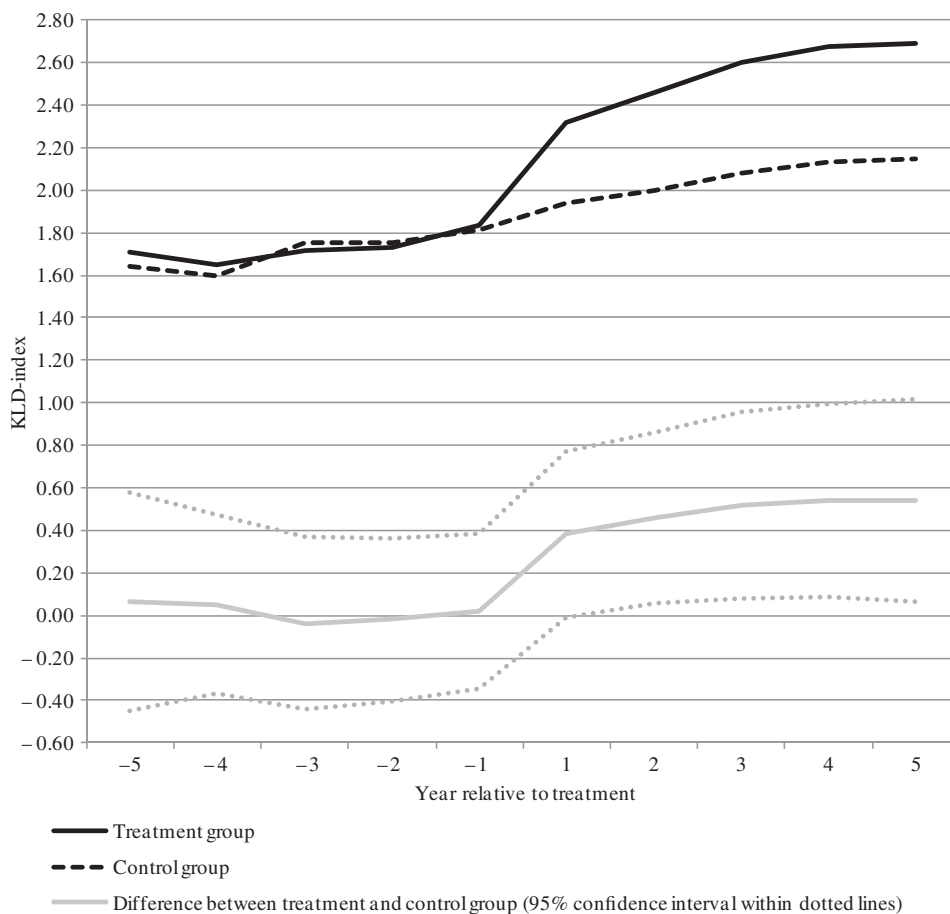
Figure 1.   Evolution of KLD index in control and treatment group

Table 2.   Do import tariff reductions lead to higher CSR?

Dependent variable	Δ KLD Model 1	Δ KLD Model 2	Δ KLD Model 3	Δ KLD Model 4
Tariff reduction	0.402***	0.403***	0.363***	0.316***
	(0.090)	(0.089)	(0.085)	(0.091)
Control variables	No	No	Yes	Yes
Year fixed effects	No	Yes	Yes	Yes
Regression type	OLS	OLS	OLS	Median
R-squared	0.04	0.05	0.12	0.05
Observations	508	508	508	508

Standard errors are in parentheses. All tests are two-tailed.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

explanatory variable. In Model 2, I also include year fixed effects. In Model 3, I further include firm-level controls (KLD index, size, market-to-book ratio, ROA, cash holdings, and leverage, all measured as average in the three years preceding the tariff reduction). Finally, in Model 4, I use a median (mean absolute deviation) regression instead of ordinary least squares (OLS).[16] For each specification, the

[16] Since clustering techniques are not available for median regressions, standard errors in Model 4 are block-bootstrapped at the four-digit SIC level using 500 bootstrap samples.

table reports the coefficient on the tariff reduction dummy and its standard error in parentheses. As can be seen, the coefficient on the tariff reduction dummy is very stable regardless of the specification.[17] More precisely, it lies between 0.316 and 0.403 and is always highly significant. This implies that, in the three years following the tariff reduction, companies increase their social performance by about 0.3–0.4 KLD strengths—loosely speaking, companies are implementing 0.3–0.4 CSR initiatives. While this effect may seem modest in absolute terms, it is quite substantial in relative terms. Since the average number of KLD strengths prior to the treatment is 1.75 (see Table 1), this implies that the CSR engagement of companies increases by about 18–23 percent.

To provide more perspective on the effect of tariff reductions on CSR, Figure 1 plots the evolution of the KLD index in the treatment (black solid line) and control group (black dashed line) five years before and after the treatment, as well as the difference between the two (gray solid line) with the corresponding 95 percent confidence interval (dotted lines).[18] This figure provides four insights. First, the KLD index is trending upward in both the control and treatment groups. This is consistent with previous evidence showing that companies are increasing their CSR activities over time (see, e.g., Flammer, 2013), and underscores the importance of using a control group—not accounting for changes in CSR at the control group would overstate the effect of tariff reductions on the KLD index, as it would capture some of the time trend. Second, there is no apparent difference in the KLD index in the five years preceding the treatment. Third, following the treatment, the two curves diverge: treated firms increase their KLD index substantially more compared to matched control firms. Fourth, Figure 1 sheds light on the dynamics of the treatment effect. Companies start increasing their CSR in the first year following the tariff reduction. However, it is only after two years that the effect becomes substantial and significant at the five percent level—arguably,

it may take some time for companies to decide upon and implement the appropriate CSR program. Subsequently, the difference remains significant and somewhat stable in magnitude.

Robustness checks

I perform several robustness checks that address potential concerns. All these robustness checks are provided in Table S2.

First, I show that my results are not sensitive to the coding of the large import tariff reductions. In the baseline analysis, a tariff reduction is coded as large if it is at least a threefold of the average (absolute) tariff change in the industry. I obtain similar results if a two- or fourfold cutoff is used instead (Models 1 and 2 in Table S2).[19]

Next, I show that my results are robust to alternative definitions of the matched control group. Specifically, I obtain similar results if all matching characteristics are measured three years prior to the treatment (as opposed to the average of the three years preceding the treatment), if control firms are required to operate in the same three-digit SIC industry as treated firms, if control firms are required to be located in the same state as treated firms (using the state of headquarters' location from Compustat), or if I require that control firms operate in industries that are not vertically related to the treated industries (Models 3–6 in Table S2).

Finally, I show that my results are similar if I only consider large import tariff reductions that were established by multilateral trade agreements (GATT, WTO, or NAFTA), or if I control for contemporaneous changes in advertising expenses (Models 7 and 8 in Table S2).

Auxiliary analysis

In Table 3, I provide auxiliary evidence that is indicative of potential mechanisms through which CSR may improve companies' ability to compete with their foreign rivals. Note that this evidence is merely suggestive as it is open to alternative interpretations (see the Discussion section).

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[17] Throughout the analysis, the inclusion of controls is immaterial for my results. This is to be expected given that the variables used as controls are the same as the matching characteristics reported in Table 1.

[18] Each point in the figure represents the average KLD index among all firms in the respective group (or the difference between the two). In case a company does not have KLD coverage in a given year, the average is based on the remaining firms with nonmissing KLD data.

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[19] Interestingly, the coefficient is smaller for the twofold cutoff (0.251) and larger for the fourfold cutoff (0.504), compared to the coefficient of 0.363 for the threefold cutoff. This pattern suggests that the increase in CSR is monotonic in the extent to which foreign product market competition increases.

Table 3.   Auxiliary analysis

| Dependent variable | B2C sector | KLD sub-indices for stakeholder groups | | | |
	Δ KLD Model 1	Δ KLD Employees Model 2	Δ KLD Consumers Model 3	Δ KLD Environment Model 4	Δ KLD Society at large Model 5
Tariff reduction	0.250*** (0.095)	0.173*** (0.047)	0.134*** (0.054)	0.057** (0.027)	0.001 (0.043)
Tariff reduction × B2C sector	0.306** (0.142)				
Control variables	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.13	0.05	0.08	0.06	0.08
Observations	508	508	508	508	508

Standard errors are in parentheses. All tests are two-tailed.
*$p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

B2C sector

The arguments provided so far indicate that, when faced with fiercer competition from abroad, U.S. companies increase their CSR to improve their competitiveness and differentiate themselves from their foreign rivals. That being said, the value of CSR as a differentiation strategy likely varies across business sectors. In particular, Lev *et al.* (2010) show that individual consumers are more responsive to companies' CSR engagement than industrial buyers, which reflects inherent differences in the purchasing decision-making process (Corey, 1991).[20] Since sensitivity to CSR is likely higher for individual customers, it follows that the differentiation gains from CSR should be higher for companies selling to individual customers (i.e., B2C companies), as opposed to companies selling to industrial buyers. Consequently, I should observe a stronger treatment effect for companies in the B2C sector.

I examine this mechanism in Model 1, where I augment my baseline specification by including an interaction term between the tariff reduction dummy and a dummy variable indicating whether a company operates in the B2C sector. The classification of B2C industries is obtained from Lev *et al.* (2010: 188). As is shown, the treatment effect is significantly stronger for companies in

the B2C sector, consistent with the differentiation mechanism.

CSR dimensions

CSR initiatives can take on many different forms. For example, companies may decide to invest in the research and development of environment-friendly products, offer work-life benefits (e.g., child care, flextime) to their employees, donate to charity, etc. Given the wide variety of CSR investments, their contribution to a company's competitiveness may differ. More specifically, a company's social engagement that directly addresses the needs of its core stakeholders (e.g., employees and consumers) may allow companies to improve their competitiveness more effectively than social activities that are primarily directed at other, more peripheral stakeholders (e.g., society at large and environment).

For instance, CSR programs targeted at improving product quality may benefit domestic companies in two ways. On one hand, they may reduce the price elasticity of demand—consumers are willing to pay a higher price for "ethical" goods. On the other hand, they may increase consumer demand directly by enhancing consumer loyalty and advocacy as well as attracting new customers such as "green" consumers or, more generally, consumers who are responsive to sustainable practices (see, e.g., Baron, 2008; Du, Bhattacharya, and Sen, 2007; Kotler, Hessekiel, and Lee, 2012; Luo and Bhattacharya, 2006; McWilliams and Siegel, 2001; Reinhardt, 1998; Sen and Bhattacharya, 2001). Relatedly, having a strong employee-related CSR

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[20] More precisely, "[t]he purchasing decision of an individual consumer is affected not only by product attributes, but also by social group forces, psychological factors, and the consumer's situational forces. In contrast, in industrial purchasing, the decision-making process is highly formalized, using defined procurement procedures, and subject to economic (cost/value) analysis." (Lev *et al.*, 2010: 186, adapted from Corey, 1991)

program may help companies attract, motivate, and maintain the most talented employees in the industry, thus directly adding to the firm's competitiveness (e.g., Albinger and Freeman, 2000; Greening and Turban, 2000; Turban and Greening, 1996).[21]

In Models 2–5, I extend my baseline specification to examine different types of CSR investments. Specifically, I decompose the KLD index into four sub-indices by adding up KLD strengths pertaining to employees, customers, environment, and society at large (i.e., all remaining KLD strengths), respectively. As can be seen from Model 2, companies substantially increase their employee-related CSR following the treatment, which is in line with the labor channel suggested above. Moreover, Model 3 shows that companies increase their customer-related CSR, which lends additional support to the differentiation channel. Finally, the estimates in Models 4 and 5 indicate that companies are less likely to increase their CSR efforts targeted at other, more peripheral stakeholders.

DISCUSSION AND CONCLUSION

This paper examines whether foreign competition affects CSR investments of domestic companies. Extending existing theories, I argue that domestic companies respond to fiercer competition from abroad by increasing their CSR, as they are keen to leverage their comparative advantage (in their relationships with local stakeholders such as consumers, employees, and communities) to differentiate themselves and remain competitive. To empirically test this theoretical prediction, I exploit a quasi-natural experiment in the form of large import tariff reductions that occurred between 1992 and 2005 in the U.S. manufacturing sector. Using a matched difference-in-differences approach, I find that, following the tariff reductions, domestic companies increase their CSR efforts, as measured by a significant increase in their KLD index. This result is consistent with the view that CSR generates valuable resources that allow domestic companies

to improve their competitiveness and differentiate themselves from their foreign rivals.

This finding is related to the economics literature that examines the impact of globalization on social and environmental welfare. In particular, Copeland and Taylor (1994) argue that multinational firms may exploit "pollution havens" in foreign countries by, e.g., moving parts of their (pollution-intensive) production abroad to countries with lax environmental standards. Yet, the empirical literature finds little empirical evidence that trade has a detrimental effect on the environment globally (Eskeland and Harrison, 2003; Frankel and Rose, 2005; Grossman and Krueger, 1993, 1995). Similarly, while it is sometimes argued that globalization increases the incidence of child labor, the empirical evidence seems to suggest that trade openness may in fact reduce child labor (Edmonds and Pavcnik, 2005; Neumayer and De Soysa, 2005). A common feature of these articles is the focus on *aggregate* social and environmental welfare. In contrast, my paper studies *firm-level* responses to trade liberalization from a strategic CSR perspective.

Furthermore, this paper contributes to the literature on product market competition and CSR. The papers that are most closely related are Fernandez-Kranz and Santalo (2010), Fisman *et al.* (2006), and Declerck and M'Zali (2012). Consistent with my findings, they find a positive correlation between competition (proxied by the HHI of industry concentration) and CSR. However, as mentioned in the introduction, such correlation does not warrant a causal interpretation. Several unobserved variables may correlate with both HHI and CSR, and hence drive a spurious relationship between the two. To the best of my knowledge, my paper is the first to examine the causal effect of product market competition on CSR.

A potential limitation of my study is that, although it shows that U.S. companies respond to a reduction in import tariffs by increasing their social engagement, it does not provide direct evidence that this increase in CSR is value enhancing. An alternative interpretation of my results could be that fiercer competition leads to corporate inefficiencies that translate into wasteful CSR efforts. Nevertheless, this alternative interpretation is very unlikely, for two reasons. First, if—as many economists argue—product market competition fosters efficiency (e.g., Alchian, 1950; Friedman, 1953; Stigler, 1958), it seems implausible that companies would respond to higher competition by

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[21] Anecdotal evidence further supports these arguments: in the aforementioned survey by Accenture and UNGC (2010: 14), "58% of CEOs identify consumers as the most important stakeholder group that will impact the way they manage societal expectations. Employees were second with 45%." Along similar lines, Jim Sinegal, Costco's CEO, argues: "I happen to believe that in order to reward the shareholder in the long term, you have to please your customers and workers" (*Wall Street Journal*, 2004).

increasing CSR if doing so were value destroying. Second, a large literature examines the relationship between CSR and financial performance (for reviews, see, e.g., Margolis, Elfenbein, and Walsh, 2007; Margolis and Walsh, 2001, 2003; Orlitzky, Schmidt, and Rynes, 2003). While there is some heterogeneity in the findings, Margolis *et al.* (2007) note in their meta-analysis of this literature that the "overall effect is positive but small" (p. 2). This suggests that CSR is unlikely to destroy value.[22]

A caveat of my study is that it is empirically difficult to provide evidence on the causal mechanisms through which CSR may improve U.S. companies' ability to compete with their foreign rivals. In auxiliary analyses, I provide evidence that is indicative of potential mechanisms, yet this evidence is merely suggestive as alternative interpretations cannot be ruled out. For instance, I show that the treatment effect is stronger in the B2C sector. To the extent that individual customers are more sensitive to companies' CSR engagement than industrial buyers (Lev *et al.*, 2010), this evidence is potentially consistent with the differentiation mechanism. However, it is open to alternative interpretations—e.g., companies making goods in the B2C sector may respond more strongly simply because foreign competitors are more likely to be the low-cost producers for these goods. More generally, this illustrates the caveat of using inter-action terms in a difference-in-differences setting. While the treatment effect (i.e., the effect of import tariff reductions on CSR) is well identified, this may not be the case of the interaction effects, since they are obtained by interacting the treatment dummy with cross-sectional characteristics for which I do not have exogenous variation (e.g., being in the B2C sector is not exogenously determined, and hence may correlate with unobservable characteristics that may also explain the heterogeneity in the treatment effect). Relatedly, my finding that companies increase their employee-related KLD strengths is suggestive of a labor productivity mechanism. Yet, as KLD strengths pertaining to employees include a broad list of criteria (e.g., work/life benefits, gay and lesbian policies, union relations, health and safety, employee involvement,

stock ownership, etc.), alternative interpretations cannot be ruled out. For instance, employee involvement in decision making and stock ownership could be interpreted as devices to adapt or gain employee support for change (see, e.g., Morgan and Zeffane, 2010; Piderit, 2000). As these examples illustrate, providing conclusive evidence on the underlying mechanisms is a challenging task that would require detailed microdata on the companies' operations and processes. Making ground on these mechanisms is an exciting avenue for future research.

My findings have several managerial implications. First, the fact that domestic companies respond to import tariff cuts by increasing their CSR suggests that CSR helps companies remain competitive and differentiate themselves from their foreign rivals. Hence, in the face of rising global competition, managers may find it worthwhile to design and implement effective CSR practices. Second, my findings suggest that CSR is part of a firm's competitive strategy, and hence may be more core to corporate strategy than often thought. Accordingly, managers could benefit from explicitly integrating social and environmental considerations into their strategic decision making.

Finally, finding that the lowering of trade barriers fosters domestic companies' CSR has potentially important policy and welfare implications. In the economics literature, the typical view is that trade liberalization increases social surplus by improving productive efficiency and consumers' welfare. The results of this study suggest that the welfare of the companies' stakeholders (including consumers, employees, and the environment) improves as well. Accordingly, taking into account this positive externality, the overall benefits of trade liberalization on society may be larger than previously assumed.

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[22] A caveat of this literature is that CSR is endogenous with respect to financial performance. However, recent evidence by Flammer (2014), who relies on exogenous variation in CSR in the form of CSR-related shareholder proposals that pass or fail by a small margin, suggests that the positive link between CSR and financial performance is in fact causal.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Figure S1. Import tariff rates in control and treatment group.
Table S1. Industries affected by large import tariff reductions.
Table S2. Robustness.

Figure S1. Import tariff rates in control and treatment group

Year relative to treatment
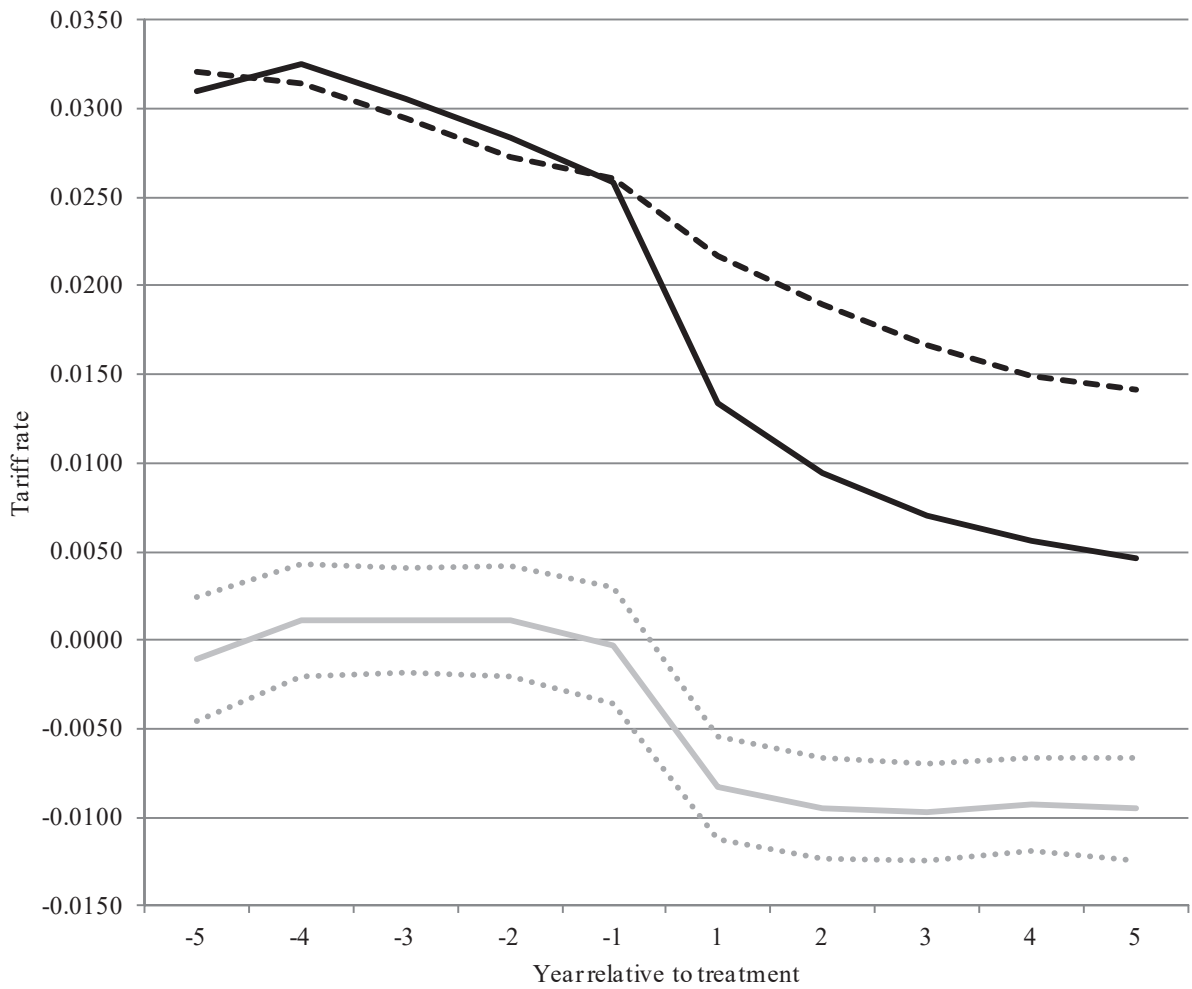
— Treatment group

- - - Control group

— Difference between treatment and control group (95% confidence interval within dotted lines)

Table S1. Industries affected by large import tariff reductions

Year	SIC	Industry description	Multilateral agreement
1992	3613	Switchgear and switchboard apparatus	Other
1992	3669	Communications equipment, nec	Other
1993	2761	Manifold business forms	GATT
1993	2522	Office furniture, except wood	GATT, NAFTA
1993	2451	Mobile homes	GATT, NAFTA
1993	3715	Truck trailers	GATT, NAFTA
1994	3651	Household audio and video equipment	Other
1994	3577	Computer peripheral equipment, nec	GATT, NAFTA
1994	3341	Secondary nonferrous metals	GATT
1995	3555	Printing trades machinery	WTO, NAFTA
1995	2834	Pharmaceutical preparations	WTO
1995	2835	Diagnostic substances	WTO
1995	3822	Environmental controls	Other
1995	3944	Games, toys, and children's vehicles	WTO
1995	3011	Tires and inner tubes	WTO
1995	3842	Surgical appliances and supplies	WTO
1995	2842	Polishes and sanitation goods	WTO, NAFTA
1995	3579	Office machines, nec	Other
1995	2844	Toilet preparations	Other
1995	3942	Dolls and stuffed toys	WTO
1995	2833	Medicinals and botanicals	WTO
1995	3559	Special industry machinery, nec	WTO, NAFTA
1995	3612	Power, distribution and specialty transformers	Other
1995	3843	Dental equipment and supplies	WTO
1995	3561	Pumps and pumping equipment	Other
1997	3695	Magnetic and optical recording media	WTO, NAFTA
1997	3812	Search and navigation equipment	WTO, NAFTA
1997	3578	Calculating and accounting equipment	WTO, NAFTA
1997	3826	Analytical instruments	WTO, NAFTA
1997	3844	X-ray apparatus and tubes	WTO, NAFTA
1998	3829	Measuring and controlling devices, nec	Other
1998	3845	Electromedical equipment	Other
1998	3089	Plastics products, nec	Other
1998	3663	Radio and T.V. communications equipment	Other

Table S2. Robustness

	Tariff reductions > 2 × cutoff	Tariff reductions > 4 × cutoff	Matching based on characteristics at t − 3	Matching based on 3-digit SIC industries	Matching based on location	Excluding related industries from matched sample	Tariff reductions due to GATT, WTO, or NAFTA	Controlling for changes in advertising
Dependent variable:	Δ KLD	Δ KLD	Δ KLD	Δ KLD	Δ KLD	Δ KLD	Δ KLD	Δ KLD
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Tariff reduction	0.251***	0.504***	0.393***	0.394***	0.436***	0.507***	0.301**	0.360***
	(0.059)	(0.151)	(0.095)	(0.092)	(0.115)	(0.092)	(0.122)	(0.085)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.12	0.14	0.12	0.17	0.14	0.14	0.16	0.13
Observations	1,092	222	460	414	286	508	284	508

All tests two-tailed. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.