**Lancaster University
Management School**

Economics Working Paper Series

2016/006

Why don't all firms do "good" equally?

Shantanu Banerjee, Swarnodeep Homroy, and Aurélie Slechten

The Department of Economics
Lancaster University Management School
Lancaster LA1 4YX
UK

LUMS home page: http://www.lancaster.ac.uk/lums/

Why don't all firms do 'good' equally?

Shantanu Banerjee, Swarnodeep Homroy, and Aurélie Slechten

May 6, 2016

Abstract

This paper shows that difference in equity holding structure leads to heterogeneous firm preference for investing in social capital (CSR). In our theoretical model managerial and customer preferences jointly influence CSR investments. We show that if managerial preference is high, social investments of firms are higher, independent of customer preference. We test our theoretical predications using data from Indian firms. We show that firms with concentrated shareholding invest more in CSR. Firms with dispersed shareholding increase social investments if they export to the United States and the European Union, but they decrease these expenses in reaction to antidumping penalties.

Key Words: Controlling Stakeholding, Public Goods, Corporate Social Responsibility

JEL Codes: D13, G28, J12, G32

1 Introduction

This paper is about ownership concentration and heterogeneous firm preference for social investments. Investments in corporate social responsibility (CSR) have grown significantly over the period 2010–2013. For example, average CSR spending by US and United Kingdom (UK) companies in the Fortune Global 500 is $15.2 billion a year (Financial Times, 2014). This uptick in CSR spending can be partially attributed to increasing institutional pressure on firms to be more socially and environmentally responsible. CSR is increasingly becoming an investment criterion. In 2013, socially responsible investments were estimated to total $6.5 trillion in the US and 237.9 billion euros in the European Union (EU). Customer preferences also influence investments in social and environments capital by business entities, particularly in the developed economies. Yet, such investments of firms are strategic, and not all firms invest in CSR. If CSR is an investment criterion or yields financial returns, we can expect all firms to make such investments.

The financial case for firms to invest in social capital is not well established. On the one hand, CSR involves sacrificing short-term profit to create social goods, which is likely to leave firms with a competitive disadvantage (Baumol, 1991). On the other hand, firms can gain from CSR by earning a better reputation, reducing the threat of regulation and institutional intervention, and increasing ability to attract high-skilled workers (Turban and Greening, 1997; Baron, 2001; Maxwell, Lyon, and Hackett, 2000). CSR thus is implicitly a long-term profit-maximizing tool. Firms can also invest in social capital in reaction to demands from consumers to engage in delegated philanthropy on their behalf. If the consumers are endowed with social or environmental preferences, CSR investments are no different from profit-maximizing strategies such as advertisement. In such cases, the firms are likely to pass on the cost of CSR to the consumers. Gary S. Becker suggests that firms combining the usual profit motive with some social preferences (e.g., CSR) can

succeed in a competitive environment only if there exist consumers who also have social preferences.[1] In situations where some consumers have social preferences, Besley and Ghatak (2007) show that two sectors emerge with some firms selling to consumers who care about CSR and charging a price premium and others selling to neutral consumers at a lower price. A crucial question is: Why would identical firms [as in the Besley and Ghatak (2007) model] choose different levels of investment in CSR? Some papers say that CSR can be used as an advertising tool (e.g., Ariely, Bracha, and Meier, 2009; Arora and Gangopadhyay, 1995; Conrad, 2005; Bagnoli and Watts, 2003). Generally, these papers assume two profit-maximizing firms with similar objective functions choosing their level of CSR as a way to differentiate their product. All of economic literature assumes homogeneous firm preferences in public goods provision, even though they account for heterogeneity in consumer preference. But public goods provision by firms can differ with the willingness of the manager(s) to invest in CSR (Bénabou and Tirole 2010; Adams, Almeida, and Ferreira, 2009; Fahlenbrach, 2009). CSR can form part of an optimal firm strategy if managers themselves have social or environmental preferences. Some managers would be more likely to invest in CSR than others if they have a longer planning horizon or if they garner private benefits from doing so. Either way, little theoretical and empirical justification indicates that firm preferences for investing in public goods are homogeneous.

This paper is about the heterogeneity in firm preference in the private provision of public goods. We present a model in which incentives of private firms to invest in CSR are simultaneously influenced by firms' and consumers' preferences. We examine the impact of the holding structure of firms on CSR. The difference in investment strategies of family-owned firms and firms with founder–chief executive officers (CEOs) is well docu-

---

[1]See The Becker-Posner Blog, "On Corporate Altruism," February 10, 2008, http://www.becker-posner-blog.com
/2008/02

mented (Adams, Almeida, and Ferreira, 2009; Fahlenbrach, 2009). In our model, firms with concentrated shareholding invest more in CSR compared with widely held firms with managers having short-term profit targets, irrespective of consumer preferences. The theoretical underpinning is that firms investing in CSR can compete as long as shareholders have a longer planning horizon to account for the time lag in the returns from CSR, which is the case for firms with an owner-manager and with concentrated shareholding. The controlling stakeholding and the related temporal dimensions of profits ease the participation constraint of firms with social preferences. This model extends the theoretical literature on CSR by incorporating heterogeneity in firm preferences. This is consistent with the Bénabou and Tirole (2010) managerial preference hypothesis. In equilibrium, firms with concentrated shareholding invest more in CSR compared with firms with dispersed shareholding, irrespective of consumer preference. Firms with dispersed shareholding invest in CSR only when the consumers care about CSR.

We empirically verify the predictions of our model using a sample of Indian firms derived from the top five hundred firms listed on the Bombay Stock Exchange (BSE) for the period 2006–2013: 36% of the large firms are affiliates of family-owned business groups with concentrated shareholding and 53% of the firms have dispersed shareholding. Our sample allows us to compare the investment strategies of firms with different ownership structures within the same institutional and legal frameworks. The empirical findings are consistent with the theoretical implications; that is, firms with concentrated shareholding invest more in social capital on average than firms with dispersed shareholding, notwithstanding consumer preferences. Social and environmental preferences of consumers are likely to be correlated with demographic characteristics, such as education and technological development (Fleishman-Hillard and the National Consumers League, 2007). This, combined with higher purchasing power of consumers in developed economies, makes it more likely for them to have higher preferences for CSR compared with consumers in

developing economies.

These results enhance the traditional view in economics that private firms aim to maximize wealth and that governments and nonprofit institutions are concerned with the creation of social capital and public goods. Besley and Ghatak (2007) show that CSR can be Pareto optimal and produce a second-best outcome to government provision. If the government provision of public goods is imperfect, firms can gain in profits and goodwill by investing in CSR. Such investments can be in the form of donations to community infrastructures and sponsorships of social events, or they can be part of the production process (renewable energy sources, ethical sourcing, etc.). In an emerging economy (such as India), the government provision of public goods can often be suboptimal and, hence, private provision of public goods could be required (Dasgupta, Laplante, Wang, and Wheeler, 2002). At the same time, emerging market firms can export to developed countries where the consumer preference for CSR is, on average, higher compared with the domestic market. Therefore, we investigate how exports impact upon CSR investments, controlling for the ownership structure.

On the one hand, CSR investments are positively associated with exports for both types of firms, but the association is statistically significant only for widely held firms. Firms with concentrated shareholding invest in social capital even when they are not heavily reliant on export earnings. Probably prompting such action by these firms are their longer planning horizons, in which the concentrated shareholding partially trades off short-term profit for longer-term returns (legacy effect). On the other hand, CSR investments of widely held firms are driven by the preference of consumers in the export markets to invest in responsible business practices (supply-chain effect). These results are robust to firm- and industry-level heterogeneity, as well as endogeneity in firm characteristics and CSR investments.

The paper is organized as follows. In Section 2, we review the emerging literature on

CSR and the performance implications of such investments. We also lay out the model and the main result, which shows that firms with concentrated shareholding invest more in CSR, relative to firms with dispersed shareholding. Section 3 presents the institutional background and the data used for the empirical analysis. Section 4 is a discussion on our methodology and empirical results, and Section 5 concludes.

2 The Model

We present a duopoly model of differentiated products in which firms have the possibility to invest in CSR. In our model, firms are identical (i.e., they have the same marginal costs) except that one firm values CSR investments and the other is purely profit maximizing. Consumers are ready to pay a higher price to a firm if it invests in CSR. We model the effect of ownership structure on CSR investments.

2.1 The Environment

Two firms produces a private good and are located at each end of a Hotelling line, with locations (or goods' characteristics) $x_0 = 0$ and $x_1 = 1$. The level of the private good is denoted by q_i, $i = 0, 1$. They face the same constant marginal cost c and charge a price p_i.[2] Besides the production of the private good, firms also invest in CSR; the level of which is θ_i. Also assume that $\theta_i \in [0, \bar{\theta}]$.

CSR is a broad term that encompasses a wide range of activities. In general, it is concerned with private provision of public goods or reduction of negative externalities. Some CSR investments, such as social and community expenses and environmental and pollution control expenditures, can involve a large fixed cost that does not depend directly

---

[2]We assume that firms sell differentiated products because when consumers are not willing to pay for CSR, firms will be able to invest in CSR only if they are earning a positive profit.

on the quantity sold by the firm, e.g., providing a safe workplace or making a large donation to a social cause.[3] In that context, θ_i can be interpreted as the share of profits allocated to CSR investments and the objective function of firm i can be written as:

$$U_i = (p_i - c)q_i - \theta_i + \alpha_i \theta_i \tag{1}$$

Where $\pi_i = (p_i - c)q_i$ is the firm's profit and α_i can be interpreted as a measure of firms' preferences for CSR. We assume that $\alpha_0 = 0$ (firm 0 is pure profit-maximising firm) and $\alpha_1 > 1$ (firm 1 derives utility from CSR investments and the marginal utility, α_1, is higher than the marginal cost of CSR). Hereafter, firm 0 is the neutral firm and firm 1 is the socially responsible firm.

There is a continuum of consumers of mass 1, uniformly distributed on the interval $[0, 1]$. Consumers buy up to one unit of output from one of the firms. A consumer located at x pays the price p_i, charged by firm i and a transportation cost $t|x - x_i|$, where x_i is the location of firm $i = 0, 1$. This transportation cost can be interpreted in a broader sense as the disutility of a consumer, located at $x \in [0, 1]$, to purchase her preferred good with characteristics x_i. In other words, the transportation cost parameter t measures the strength of personal preferences.

By buying one unit of good from firm i, a consumer of type $x \in [0, 1]$ derives utility:

$$V_i(x) = R - t|x - x_i| - p_i + \beta \theta_i$$

Where R is the reservation value, identical for all consumers, and β (the same for all consumers) is a parameter expressing the consumers' level of concern about CSR, which is positive if the consumers care about CSR and zero otherwise.

---

[3]In Appendix 1, we also consider the case in which CSR activities involve variable costs and show the implications in terms of equilibrium prices and quantities.

Demand functions facing each firm reflect the location of the marginal consumer. The marginal consumer $\tilde{x} \in (0,1)$ is indifferent between the products of the two firms, given their prices (p_0, p_1) and their choices of CSR (θ_0, θ_1): $\tilde{x}$ must satisfy $V_0(\tilde{x}) = V_1(\tilde{x})$. This implies that $\tilde{x}$ is defined by:

$$\tilde{x} = \frac{p_1 - p_0 + t + \beta(\theta_0 - \theta_1)}{2t}$$

Consumers located at $x < \tilde{x}$ (resp. $> \tilde{x}$) buy the product of firm 0 (resp. firm 1) and firms' demand functions are given by:

$$D_0(p_0, p_1) = q_0 = \begin{cases} 0 & \text{if} \quad p_0 > p_1 + t + \beta(\theta_0 - \theta_1) \\ \frac{p_1 - p_0 + t + \beta(\theta_0 - \theta_1)}{2t} & \text{if} \quad p_1 - t + \beta(\theta_0 - \theta_1) \leq p_0 \leq p_1 + t + \beta(\theta_0 - \theta_1) \\ 1 & \text{if} \quad p_0 < p_1 - t + \beta(\theta_0 - \theta_1) \end{cases}$$

$$\tag{2}$$

And

$$D_1(p_0, p_1) = q_1 = 1 - D_0(p_0, p_1) \tag{3}$$

Our model consists of two stages: In the first stage, the firms simultaneously choose and commit to their respective CSR policy (θ_i). In the second stage they compete in prices. At this stage, CSR characteristics are fixed and firms maximise their payoff (1) given these characteristics. We solve this model backwards.

Before turning to the general case where $\beta > 0$ (i.e. consumers are willing to pay for CSR), we first analyse the special case where $\beta = 0$ to examine CSR investments where consumers do not care, and are unwilling to pay for it.

2.2 Consumers are not willing to pay for CSR ($\beta = 0$)

In stage 2, given (θ_0, θ_1), each firm chooses its price p_i in order to maximise its objective function (1). Note that as consumers do not care about CSR ($\beta = 0$ in equations (2) and (3)) and the objective function (1) is separable in θ_i and p_i, this amounts to choosing the price p_i that maximises the firm's profit $\pi_i = (p_i - c)q_i$.

At the equilibrium in stage 2, $p_i = t + c$ with $q_i = 1/2$. Maximizing profits are identical for both firms and given by $t/2$. Given this maximum level of profit, firms choose their level of CSR in stage 1.

The optimal level of CSR will be $\theta_0 = 0$ for the neutral firm and $\theta_1 = \min\{\bar{\theta}, t/2\}$ for the socially responsible firm.

2.3 Consumers are willing to pay for CSR ($\beta > 0$)

Now assume that consumers are willing to pay for CSR where the intensity of their valuations of CSR is given by $\beta > 0$. In **stage 2**, firm's objective functions are given by (1). Let's first assume that both firms have positive demands (i.e. interior solution). The objective functions can be rewritten as:

$$U_0 = \underbrace{(p_0 - c)\frac{p_1 - p_0 + t + \beta(\theta_0 - \theta_1)}{2t}}_{\pi_0} - \theta_0$$

$$U_1 = \underbrace{(p_1 - c)\frac{p_0 - p_1 + t + \beta(\theta_1 - \theta_0)}{2t}}_{\pi_1} - \theta_1 + \alpha_1\theta_1$$

Where π_i denotes profits for $i = 0, 1$. First order conditions for p_0 and p_1 imply that:

$$p_0 = c + t + \frac{\beta}{3}(\theta_0 - \theta_1)$$

$$p_1 = c + t + \frac{\beta}{3}(\theta_1 - \theta_0)$$

9

This will be the equilibrium in stage 2 if the conditions for an interior solution are satisfied: $0 \leq q_i \leq 1$ for both firms, or equivalently

$$-\frac{3t}{\beta} \leq (\theta_1 - \theta_0) \leq \frac{3t}{\beta} \tag{4}$$

The difference in terms of CSR is between the limits defined above. Consumers care about CSR and, if one firm chooses to spend a lot on social causes, all consumers will prefer to buy from this firm even if they are located far away from it. We have two potential corner solutions.

First, if $(\theta_1 - \theta_0) > \frac{3t}{\beta}$, the level of CSR chosen by firm 1 is higher than the level chosen by firm 0. As a consequence, all consumers buy from firm 1 (i.e. $q_1 = 1$ and $q_0 = 0$). Prices are given by $p_0 = c$ and $p_1 = c - t + \beta(\theta_1 - \theta_0)$. The case in which $(\theta_1 - \theta_0) < -\frac{3t}{\beta}$ is completely symmetric.

Turning to **stage 1** and substituting equilibrium prices in the objective functions, we get:

$$U_0(\theta_0, \theta_1) = \begin{cases} \beta(\theta_0 - \theta_1) - t - \theta_0 & \text{if} \quad \theta_1 - \theta_0 < -\frac{3t}{\beta} \\ \frac{\left(t + \frac{\beta}{3}(\theta_0 - \theta_1)\right)^2}{2t} - \theta_0 & \text{if} \quad -\frac{3t}{\beta} \leq (\theta_1 - \theta_0) \leq \frac{3t}{\beta} \\ -\theta_0 & \text{if} \quad \theta_1 - \theta_0 > \frac{3t}{\beta} \end{cases} \tag{5}$$

And

$$U_1(\theta_0, \theta_1) = \begin{cases} -\theta_1 + \alpha_1 \theta_1 & \text{if} \quad \theta_1 - \theta_0 < -\frac{3t}{\beta} \\ \frac{\left(t + \frac{\beta}{3}(\theta_1 - \theta_0)\right)^2}{2t} + (\alpha_1 - 1)\theta_1 & \text{if} \quad -\frac{3t}{\beta} \leq (\theta_1 - \theta_0) \leq \frac{3t}{\beta} \\ \beta(\theta_1 - \theta_0) - t + (\alpha_1 - 1)\theta_1 & \text{if} \quad \theta_1 - \theta_0 > \frac{3t}{\beta} \end{cases} \tag{6}$$

Firms will maximise these objective functions subject to the constraint that their CSR expenditures (θ_i) must be covered by their profits (π_i), where profits are given by:

10

$$
\pi_i(\theta_i, \theta_j) = \begin{cases} 0 & \text{if} & \theta_i - \theta_j < -\frac{3t}{\beta} \\ \frac{\left(t + \frac{\beta}{3}(\theta_i - \theta_j)\right)^2}{2t} & \text{if} & -\frac{3t}{\beta} \leq (\theta_i - \theta_j) \leq \frac{3t}{\beta} \\ \beta(\theta_i - \theta_j) - t & \text{if} & \theta_i - \theta_j > \frac{3t}{\beta} \end{cases}
$$

$U_0(\theta_0, \theta_1)$ and $U_1(\theta_0, \theta_1)$ are both convex functions. Moreover, $U_1(\theta_0, \theta_1)$ is increasing in θ_1 for all levels of CSR chosen by firm 0. This is due to the fact that firm 1 enjoys some utility from CSR investments (i.e. $\alpha_1 > 1$) Therefore, the best response of firm 1 is to choose the maximum level of CSR that is affordable. By contrast, depending on the level of investment chosen by firm 1, $U_0(\theta_0, \theta_1)$ may be decreasing in θ_0 for some levels of CSR. As a consequence, the optimal investment decision of firm 0 is either (i) not to invest in CSR, $\theta_0 = 0$ or (ii) to choose the maximum level of CSR that is affordable

To solve for the equilibrium in stage 1, we will first assume that $\bar{\theta} \leq \frac{3t}{\beta}$. With this assumption, we are sure to have an interior solution in stage 2, even if one country does not invest in CSR. We will then analyse potential corner solutions if $\bar{\theta} > \frac{3t}{\beta}$. Our main results are summarized in the next proposition:

Proposition The equilibrium of the two-stage game, in which firms first choose their level of investment in CSR and then their pricing strategy is as follows:

1. If $\beta \geq 3$, $\bar{\theta} \leq \min\{\frac{t}{2}, \frac{3t}{\beta}\}$ and $2t\left(\frac{\beta}{3} - 1\right) > \frac{\beta^2}{9}\bar{\theta}$ or if $\beta > 6$ and $\frac{3t}{\beta} < \bar{\theta} < \frac{t}{2}$, the optimal level of CSR in stage 1 is $\theta_i = \bar{\theta}$

   with equilibrium prices and quantities in stage 2 given by:

   $$p_i = t + c, q_i = 1/2$$

2. In all other cases, the optimal level of CSR in stage 1 is $\theta_0 = 0$ and θ_1 given by (7)

11

with equilibrium prices and quantities in stage 2 given by:

$$p_0 = \max\left\{c; c + t - \frac{\beta}{3}\theta_1\right\}, q_0 = \max\left\{0; \frac{1}{2t}\left(t - \frac{\beta}{3}\theta_1\right)\right\}$$

$$p_1 = \min\left\{c - t + \beta\theta_1; c + t + \frac{\beta}{3}\theta_1\right\}, q_1 = \min\left\{1; \frac{1}{2t}\left(t + \frac{\beta}{3}\theta_1\right)\right\}$$

Proof. Case 1:

$\bar{\theta} \leq \frac{3t}{\beta}$.

Because $U_1(\theta_0, \theta_1)$ is increasing in θ_1 for all levels of CSR chosen by firm 0, the best response of firm 1 is to choose the maximum level of CSR that is affordable, i.e.

$$\theta_1 = \begin{cases} \bar{\theta} & \text{if } \bar{\theta} \leq \frac{\left(t + \frac{\beta}{3}(\bar{\theta} - \theta_0)\right)^2}{2t} \\ \theta_1^{\max} & \text{if } \bar{\theta} > \frac{\left(t + \frac{\beta}{3}(\bar{\theta} - \theta_0)\right)^2}{2t} \end{cases} \tag{7}$$

where $\theta_1^{\max} < \bar{\theta}$ is defined as: $\theta_1^{\max} = \frac{\left(t + \frac{\beta}{3}(\theta_1^{\max} - \theta_0)\right)^2}{2t}$.

By contrast, the optimal investment decision of firm 0 is either (i) not to invest in CSR, $\theta_0 = 0$ or (ii) to choose the maximum level of CSR that is affordable $\theta_0 = \bar{\theta}$ or $\theta_0^{\max}$, where $\theta_0^{\max}$ is defined in the same way as $\theta_1^{\max}$. The choice between these two strategies will obviously depend on the utility firm 0 can achieve under each strategy, the level of which will be determined by the parameters of the model, β, t and $\bar{\theta}$.

If both firms choose the maximum level of CSR, they will invest the same amount because profit functions are symmetric. This implies that either both firms choose $\theta_i = \bar{\theta}$ or $\theta_i = t/2$ (i.e. their entire profit) and firm 0 gets a utility of:

$$U_0(\theta_0, \theta_1) = \begin{cases} t/2 - \bar{\theta} & \text{if } \bar{\theta} \leq t/2 \\ 0 & \text{if } \bar{\theta} > t/2 \end{cases} \tag{8}$$

12

On the other hand, if firm 0 does not invest in CSR while firm 1 invests as much as possible, firm 0's utility is given by:

$$U_0(0, \theta_1) = \frac{\left(t - \frac{\beta}{3}\theta_1\right)^2}{2t} \geq 0 \tag{9}$$

Where θ_1 is either $\bar{\theta}$ or $\theta_1^{\max}$.

To derive the equilibrium in stage 1, we compare equations (8) and (9). First, if $\bar{\theta} > t/2$, firm 0 will always choose $\theta_0 = 0$. Second, for $\bar{\theta} \leq t/2$, firm 0 will invest in CSR if $(8) \geq (9)$:

$$t/2 - \bar{\theta} \geq t/2 - \frac{\beta}{3}\theta_1 + \frac{1}{2t}\frac{\beta^2}{9}\theta_1^2$$

Or equivalently,

$$\bar{\theta} \leq \frac{\beta}{3}\theta_1(1 - \frac{\beta}{6t}\theta_1)$$

Clearly, as $\theta_1 \leq \bar{\theta}$, firm 0 will never invest in CSR if $\beta < 3$. This is not the case if $\beta \geq 3$. Note first that $\theta_1 = \bar{\theta}$ when $\theta_0 = 0$ because $\pi_1(0, \bar{\theta}) = \frac{\left(t + \frac{\beta}{3}\bar{\theta}\right)^2}{2t} > \bar{\theta}$. We can then substitute θ_1 by $\bar{\theta}$ in the previous condition and we get that firm 0 will invest in CSR when $\beta \geq 3$ and $\bar{\theta} \leq t/2$ if and only if:

$$2t\left(\frac{\beta}{3} - 1\right) > \frac{\beta^2}{9}\bar{\theta} \tag{10}$$

Case 2:

$\bar{\theta} > \frac{3t}{\beta}$.

Note that because $U_1(\theta_0, \theta_1)$ is increasing in θ_1 when $-\frac{3t}{\beta} \leq (\theta_1 - \theta_0) \leq \frac{3t}{\beta}$, a corner solution in which the optimal levels of CSR would be such that $\theta_1 - \theta_0 < -\frac{3t}{\beta}$ can be ruled

13

out. Indeed, if $\theta_1 - \theta_0 < -\frac{3t}{\beta}$, firm 1 has a profit of 0, which imposes that $\theta_1 = 0$ and $U_1(\theta_0, 0) = 0$. By choosing any level of CSR such that $\theta_1 - \theta_0 > -\frac{3t}{\beta}$ and the constraint on CSR expenditures is satisfied, firm 1 can always get a positive utility. This reasoning cannot be applied to the other corner solution $\theta_1 - \theta_0 > \frac{3t}{\beta}$ because, as we have shown previously, $U_0(\theta_0, \theta_1)$ is not necessarily increasing in θ_0.

As in case 1, firm 1 will always choose the maximum level of CSR because $U_1(\theta_0, \theta_1)$ is increasing in θ_1 for all values of θ_0, while the decision of firm 0 will depend on the values of the parameters.

If both firms choose to invest in CSR, we have an interior solution and firm 0's utility is given by (8)). When firm 0 does not invest in CSR, either (i) firm 1 invests $\bar{\theta}$ and we have a corner solution in which firm 0 gets a utility of 0, or (ii) firm 1 invests less than $\bar{\theta}$ (due to the profit constraint) and $U_0 \geq 0$ (where U_0 is given by (8) if we have an interior solution or 0 if we have a corner solution.

Note that if $\beta > 6$, we have $\frac{3t}{\beta} < t/2$ and $\theta_1 = \bar{\theta}$ when $\theta_0 = 0$ (i.e. from (6) $\pi_1(0, \bar{\theta}) = \beta\bar{\theta} - t > \bar{\theta}$). Therefore the utility of firm 0 is either given by (8) if firm 0 chooses the maximum amount of CSR or $U_0(0, \bar{\theta}) = 0$ if firm 0 does not invest in CSR. The optimal decision of firm 0 is then $\theta_0 = \bar{\theta}$ if $\bar{\theta} \leq t/2$ and $\theta_0 = 0$ if $\bar{\theta} > t/2$.

Finally, if $\beta \leq 6$, we have that $\bar{\theta} > \frac{3t}{\beta} \geq t/2$ and $\theta_0 = 0$ because whatever θ_1, $U_0 \geq 0$ (while by choosing $\theta_0 = \bar{\theta}$, $U_0 = 0$ as shown in (8)). ∎

The first obvious prediction of the theoretical model is that the socially responsible firm will always invest a positive amount in CSR, irrespective of consumers' willingness to pay, and the neutral firm will invest in CSR *only if* the consumer demand for CSR is sufficiently high (i.e. β is sufficiently large). Due to our linear setting, the level of investment chosen by the socially responsible firm does not depend on the intensity of firm's preferences over CSR (i.e. α). These preferences only determine what is the firm that will always choose a positive investment in CSR at the equilibrium.

14

For a given $\beta > 3$, the decision of a neutral firm to invest in CSR depends on $\bar{\theta}$ and t. On the one hand, a large $\bar{\theta}$ implies that the socially responsible firm will invest a lot. In that case, the neutral firm will prefer not to incur the costs of CSR and try to attract consumers by lowering its prices. On the other hand, when t is low, competition between firms is very fierce because consumers are ready to buy a product that is farther away from their ideal specification x if the price of this product is relatively low. In that case, even if the neutral firm does not invest in CSR, it will be easier to attract consumers by lowering prices.

To conclude, the determinants of CSR investments are not the same for neutral and socially responsible firms. For socially responsible firms, the only important factor determining the level of CSR is the level of profit. For the neutral firm, the investment in CSR is driven by consumers' preferences (i.e. how much they value CSR, *beta*, relative to low prices t), and the amount of CSR chosen by the other firm.

Regarding the performance in terms of profits, the socially responsible firm perform better than the firm with dispersed ownership ($q_1 > q_0$ and $p_1 > p_0$) when only this firm invests in CSR. Indeed, consumers are ready to pay for CSR, and as firm 1 is the only firm investing in CSR, it can charge a higher price but is still able to increase its market share thanks to its level of CSR. When both firms are identical in terms of their investment in CSR, they share the market equally.

3 Heterogeneous Preference, Ownership Structure and CSR

As with the theoretical model, firms with different objective functions adopt different CSR strategies. A socially responsible firm invests in CSR whatever the attitude of the

consumers regarding corporate giving. A profit-maximizing firm uses CSR as product positioning when consumers are willing to pay for it. If competition is fierce or if the level of CSR chosen by the socially responsible firm is already very high, the profit-maximizing firm offers a good that has a lower price but does not invest in CSR (maximum differentiation in terms of CSR). An important question then is: Why do firms have heterogeneous preferences for CSR? The literature suggests that the answer could be related to the firms' ownership structure.

Concentrated share ownership, often at the hands of a family, and affiliation to business groups through cross-holdings are common in the industrial organization of the emerging economies. Firm ownership impacts upon strategic choices, and family firms with concentrated ownership structure can differ from other firms with dispersed ownership in investment decisions, diversification strategies, and performance. The strategic choices and financial outcomes for family firms are well documented (Shleifer and Vishny, 1997). As firms with different ownership structures have heterogeneous strategic choices, they also have different views on CSR. Why and how should ownership structure be expected to impact upon CSR? Social investments of firms can be viewed as a long-term investment, trading off current profitability with long-term sustainability. Therefore, firms could plausibly differ in their preference for such investments. Firms with concentrated shareholding could invest more CSR because of stronger long-term incentives for the founding family. For example, Oh, Chang, and Martynov (2011) argue that, given the limited efficiency of financial markets, long-term shareholders are more likely to drive CSR efforts in South Korean firms. However, the controlling shareholder in a family firm can expropriate rent at the expense of the minority shareholders through CSR investments (Bertrand, Mehta, and Mullainathan, 2002; Chang, 2003).

Another perspective views CSR as an alternative channel for shareholders to derive social satisfaction, which is related to Andreoni (1990), who compares different ways to

contribute to a social cause and asks whether they are imperfect substitutes. In the case of CSR, Baron (2007) maintains that if shareholders enjoy some warm-glow effect from giving to social causes, they have two possibilities to derive social satisfaction: personal giving or corporate giving, i.e., CSR investments. In that context, a share constitutes a charity-investment bundle incorporating social and monetary considerations of investors. Firms' decisions regarding CSR depend on the substitutability of private and corporate giving for the shareholders. If the ownership is concentrated or if the firm is owned by a family, the warm-glow effect derived from CSR by the majority shareholder is very similar to the warm-glow effect from personal giving. In contrast, corporate giving in dispersed shareholding firms is only an imperfect substitute of personal giving for individual shareholders; i.e., it is less obvious that an individual shareholder with a few shares of the firm derives utility from the CSR investments of the firm.

The difference in firm preferences for CSR can also be influenced by the incentives of the manager to invest in social capital. In this case, CSR investments can reflect agency problems (see Baron, 2008), and such managerial incentives are likely to be associated with firm ownership structure. For example, a family firm with concentrated ownership can be less affected by agency problems if the managers are themselves part of the family. Similarly, managers in dispersed shareholding firms are likely to have shorter planning horizons and tend to underinvest in CSR (Narayanan, 1985). On the contrary, Cespa and Cestone (2007) find that CSR investments of firms are positively associated with managerial entrenchment; i.e., inefficient managers use CSR as an effective entrenchment strategy to protect their job. Thus, the CSR investment of firms with concentrated shareholding of a family can be partially driven by the self-interests of the managers.

Therefore, various channels exist through which firm ownership impacts upon firms' preferences over CSR and, thus, on their decisions to invest in such activities. The effect of firm ownership on social investments remains an open question that lends itself well

17

to empirical analysis. Another strand of research suggests that institutional ownership is positively associated with CSR investments (Shleifer and Vishny, 1997; Sethi, 2005; Siegl and Vitaliano, 2007). Institutional shareholders own a significant proportion of a firm's stocks and cannot sell their shares easily. Therefore, long-term–oriented institutional shareholders are likely to have a longer planning horizon and drive CSR investments (Hoskisson, Hitt, Johnson, and Grossman, 2002). Foreign investments in firms are is positively associated with higher CSR investments (Oh, Chang, and Martynov, 2011). This could be driven by CSR standards in the home country of the importing firms, stakeholder demands for socially responsible supply chains, and the need to differentiate in a mature market.

4   Institutional Background and Data

In this section, we present details of the institutional context of our empirical analysis, discuss the uniqueness of Indian firm ownerships, and describe the data and the key variables.

4.1   Institutional Background

The institutional framework for corporate governance in India dates back to 1875 with the establishment of the Bombay Stock Exchange. The Companies Act of 1956 governs the activities of listed firms in India. Since the liberalization of the economy in 1991, Indian firms are increasingly reliant on external sources of finance and the role of government has decreased. A shift has taken place away from the traditional interventionist approach and toward a more Anglo-American style of governance. Similar in spirit to the 2002 Sarbanes-Oxley Act, the Securities and Exchange Board of India (SEBI) in 2001 implemented Clause 49 for all firms listed in the BSE 200 index and subsequently to all

listed firms. Clause 49 lays down a range of governance imperatives for listed firms, from board composition, to independence of audit committee, to enhanced disclosure norms.

The dispersed shareholding pattern, as is common in US and UK, is not widely prevalent in India so far. About 16% of the firms listed in BSE are wholly or significantly controlled by the government (federal and state), and three of the top six Indian firms in 2014 are public sector firms. On the other end of the spectrum, about a third of the listed firms have Western-style diversified shareholding and professional managers. However, diversified business groups, mostly having a family-centric controlling stake, dominate the Indian private sector.

A common characteristic of these business groups is the presence and influence of promoters. The term is commonly used to mean controlling stakeholder, which can be an individual or a family. Promoters collectively hold about 54% of the shares in business group firms. Consequently, tunneling of assets can be a source of inefficiency and loss of profitability. Bertrand, Mehta, and Mullainathan (2002) find that firms with concentrated shareholding are 30% more likely to suffer earnings loss during industry shocks compared with Western-style stand-alone firms in the same industry. Also, firms down the pyramid are less affected by shocks as their buffered using the assets of the firms nearer the top of the pyramid. This suggests that the controlling stakeholders benefit in business groups at the expense of minority shareholders. However, Khanna and Palepu (2000) find that affiliate firms of diversified business groups outperform stand-alone firms in the same industry.

Although Indian business groups share some characteristics of the pyramidal structures in Japanese keiretsu, several key differences makes them unique. Similar to keiretsu, individual firms within an Indian business group are legally separate entities, they are primarily responsible to their own shareholders, and their accounts are audited separately. However, unlike in keiretsu, in which the affiliate firms are connected and coordinated

19

through a common group-specific bank, firms within an Indian business group are coordinated by interlocked boards and by members of the promoter family, similar to the holding structure of Korean chaebols (Khanna and Palepu, 2000). A typical Indian business group has dozens of firms with complex cross-holdings. The complexity of cross-holdings makes computing the conventional cash flow rights and voting rights measures difficult.

Indian industrial organization allows us to compare different ownership structures within the same institutional framework and macroeconomic structure. The governance system there is a combination of dispersed shareholding, such as in the US and the UK, and an insider-dominated structure, such as in China and Japan. About 32% of the largest Indian firms are parts of diversified family-owned business groups, 16% are controlled by the state, and about 52% are Anglo-American style firms with dispersed equity shareholding and outside investors. Moreover, market and non-market institutions in India have evolved over a long period of time and are relatively stable, allowing for results that are comparable with extant corporate social responsibility and corporate governance literature, which is based predominantly on evidence from US and UK firms (Sarkar and Sarkar, 2000). The presence of stand-alone firms with dispersed shareholding and South Korean chaebol -type business group affiliates with complex cross-holdings within the same regulatory and accounting framework allows us to overcome many shortcomings of the cross-sectional comparisons of the first-generation studies on CSR. In doing so, we also add to the nascent literature on the effectiveness of corporate governance in emerging economies.

4.2 Data

4.2.1 Data Sources

A major challenge to research on corporate governance in emerging economies is availability of reliable and consistent data. India has a matured capital market and obtaining information on financial performance and industry classifications is relatively straightforward. The data are obtained from Prowess, maintained by the Centre for Monitoring the Indian Economy (CMIE). The sample period is from 2006 to 2013. Although data on Indian firms are available before that, the coverage and the consistency of the data are better 2006 onward. For example, Siegel and Choudhury (2012) note that historical Prowess data had survivor bias, which is corrected for in later years. Moreover, the Indian Companies Act of 2013 mandates that firms spend on CSR a minimum of 2% of the average net profit made during the three immediately preceding financial years. By limiting our sample period up to 2013, we do not contaminate our results with the enforcement of this act from April 1, 2014. For every year, we take the top five hundred listed firms on the BSE. Collectively, these firms represent over 95% of the total market capitalization. We follow firms from the time they first enter BSE 500 within our sample period until the end of the sample period, even if they drop out of BSE 500 listings. Firms that are delisted, taken private, or are acquired are eliminated from the sample. We exclude all publicly owned and foreign-owned firms. These firms lend themselves poorly to comparison in our context.[4] We also exclude firm-year observations with missing data on ownership, as well as firm performance measures. Our final sample is an unbalanced panel of 677 firms with 4,143 firm-year observations, although sample sizes vary due to missing observations for some firms. Table 1 presents the summary statistics on firm and board characteristics and CSR investments. All monetary values are winsorized at 1% levels and presented in

---

[4]For example, CEOs or Managing Directors of public sector firms are fixed term bureaucratic appointments and the pay is contingent on tenure and rank.

2000 US dollars.

[Insert Table 1 around here]

4.2.2 Ownership Measures

The measurement and classification of shareholding structure of these firms lie at the heart of our empirical strategy. Prowess provides information to accurately identify the shareholders who control a firm either directly through their own shareholding, or indirectly through cross-holdings. We create a variable,$\%Shareholding - Promoters$ which combines the direct shareholding by promoters and the proportion of shares held by persons acting in concert with the controlling shareholders. It is a measure of direct and indirect control of a firm by the promoters. Classifying firms into concentrated and dispersed shareholding is an inexact science. A firm is entirely defined neither by a certain percentage of equity ownership with a particular individual or family nor by the appointment of a family member as CEO or chairman. We use a threshold concentration of equity holdings of promoters. If promoters hold 25% or more of the shares outstanding, we classify the firm as having concentrated shareholding. Whilst this is not a perfect measure, it is consistent with the measures used in the literature on emerging market finance (Khanna and Palepu, 1999; Bertrand, Mehta, Mullainathan, 2002; Siegel and Choudhury, 2012). We also check for the robustness of our classification by using 20%, 30% and 50% as thresholds.

Of the 677 firms in our sample, 267 (39.44%) have concentrated shareholding and 410 (60.56%) have dispersed shareholding. The firms with concentrated shareholding often are family-owned or are affiliates of business groups. They are also more likely to have a member of the promoter family as the CEO. Throughout this paper, the top executive of the firm is identified as the CEO. However, "managing director" and "chief

executive officer" are interchangeably used as job titles for the top executive. Prowess identifies the top executive of each firm throughout the sample period but does not provide information on whether the CEO is a member of the founding family. This information is hand-collected from various filings (annual reports, statutory filings with the stock exchange, etc.) of each individual firm. We also control for institutional shareholding by the percentage of equity shares held by financial institutions such as mutual funds, banks, insurance companies, and venture capital funds.

One concern is that firms with concentrated shareholding are structurally different from widely held firms. In Table 2, we compare the key variables for firms with different ownership structure. Columns 1 and 2 present the mean values of key variables for firms with concentrated and dispersed shareholding, respectively, and Column 3 reports the difference in means, with * indicating that the difference is statistically significant at conventional levels.

[Insert Table 2 around here]

Firms with concentrated share holding are on average larger than widely held firms in terms of sales revenue and total assets. However, no statistically significant difference in performance seems to exist between business group firms with concentrated shareholding and widely held private stand-alone firms. Also, no statistically significant differences are evident in board-level characteristics.

4.2.3 Corporate Social Responsibility

The measure of CSR investments is the natural logarithm of annual spending on CSR initiatives. Firms report CSR spending to the Securities and Exchange Board of India along with their financial filings. CSR investments include spending on building and

maintenance of public services (parks, primary schools, etc.), expenditures on environ-mental and pollution control–related issues, and donations to a local authority or an institution for a social or humanitarian cause. Investments in all these categories are re-ported separately. Thus, we can examine the actual CSR investments and not score-based KLD-type measures. CSR investment is zero in 38% of the firm-year observations. The mean CSR investment is $18,450. An average firm spends about 3% of its total sales on CSR. Further, we use three disaggregated measures of CSR investments: donations to social causes, investment in social and community infrastructure, and expenses for envi-ronmental and pollution control.[5] Donations form a large part of total CSR spending. The mean donation is $12,668. The mean for social and community investments is $3,388; for environmental and pollution control investments, $2,400. From Table 2, firms with concentrated share ownership seem to invest more in CSR compared with widely held firms.

However, firms investing in CSR could be different from firms that do not. In Table 3, we compare the characteristics of firms for firm-years with and without CSR investments. Firms that invest in CSR are, on average, bigger in terms of total assets, have higher profits, have a higher proportion of exports to sales, and have higher shareholding of pro-moters and institutions. No significant difference emerges in the size and the proportion of independent directors on the board. CSR investment seems to be associated with firm characteristics, thus we need to control for these in our empirical analysis.

[Insert Table 3 around here]

About 30% of concentrated shareholding firm-years and about 40% of dispersed share-holding firm-years have no CSR investments. The mean CSR investment for firms with concentrated shareholding is $19,402; for firms with dispersed shareholding, $17,866.[6]

---

[5]Donations do not include donation to election funds or other political donations.
[6]The difference between the means is statistically significant at 5% levels.

Prima facie, the prediction of our model that firms with concentrated shareholding invest more in CSR is validated. While charitable donations form a large part of CSR spending for firms with concentrated shareholding (mean of donations is \$9,200 compared with \$5,118 and \$3,548 for social and community investments and for environmental and pollution control expenses, respectively), they are spread more evenly for firms with dispersed shareholding, it is spread more evenly (mean of donations is US\$ 18,209 compared to US\$ 628.40 and US\$ 564.70 for social and community investments, and environmental and pollution control expenses, respectively).

4.2.4   External Environment

In addition to heterogeneity in firms' preferences, we want to investigate the role of heterogeneity in consumers' behavior. As seen from Table 1, about 80% of sales revenues of the sample firms come from the domestic market. We use export revenues (as a percentage of sales) to control for the export orientation of a given firm. A firm with higher export revenues is likely to be more influenced by consumers' preferences in the countries they export to. Prima facie, firms with dispersed shareholding have higher export revenues compared with firms with concentrated shareholding. We use this information in our empirical analysis to examine how firms' preferences and consumers' preferences simultaneously impact upon CSR investments.

4.2.5   Control Variables

A range of firm- and board-level characteristics mitigates omitted variable bias. We use accounting information from stand-alone annual financial statements reported in Prowess, cross-checked with information collected from Datastream using a string-matching algo-

rithm by firms' names.[7] A firm's performance is measured by returns on assets (ROA), and we control for firm size using natural log of sales[8]. Information on board size and the number of independent directors is collected from Prowess. Following Clause 49 of SEBI, the mean proportion of independent directors on the board is expected to be at least 0.5 for all firms.

5   Results

This section discusses the empirical analysis used to examine the theoretical predictions. We consider the econometric issues and present the results for our baseline models and robustness tests.

5.1   Ownership Structure and CSR Investments

The central focus of our empirical analysis is the impact on CSR investments of shareholding structure. We undertake a univariate analysis in which we compare CSR spending of firms with concentrated shareholding and firms with dispersed shareholding. Because firms endogenously choose to invest in CSR, one concern could be that firm ownership and CSR spending are both driven by some unobserved variables. Ideally, we would want firms to switch between the two ownership structures in response to exogenous factors and then observe the change in CSR investments. In absence of such counterfactuals, we address this concern in a number of ways. First, we use a sample of matured firms for which the ownership structure is historically determined. So, for the sample period, the ownership structure can be considered exogenously given. Second, in all our speci-

---

[7]In cases where the data from the two sources did not match exactly, we keep the financial data from Prowess.

[8]We also check the robustness of our estimates with alternate measures of firm performance (Tobin's Q approximated by MTBV) and firm size (total assets).

26

fications we control for firm and board characteristics. Finally, we examine if the CSR investment of a firm with concentrated ownership at time t would be different if it was to switch to dispersed ownership within the same industry at $t + 1$. To do so, we measure the difference between the firm's actual CSR investment and the imputed value of CSR as dispersed shareholding entities following the procedures described in Berger and Ofek (1995, 1996). We calculate the imputed value for a firm i with concentrated ownership by multiplying the median ratio of annual CSR investment to accounting parameters (assets or sales), for firms with dispersed shareholding in the same industry, by the $i's$ level of the accounting item. The description of the procedure is in Appendix B. The industry medians are calculated using the narrowest grouping with at least five firms. The results are reported in Table 4. The difference between the imputed CSR and the actual CSR is positive and statistically significant at 5% levels. This suggests that, for a given firm i with concentrated ownership, the CSR investment falls if it could switch to being a dispersed shareholding firm in the same industry. Therefore, it seems that the ownership structure of firm impacts upon the CSR investments.

[Insert Table 4 around here]

Not controlling for any firm-level characteristics, firms with concentrated shareholding invest more in CSR compared with widely held firms. We further investigate the differences in corporate governance, firm strategy, and firm performance using multivariate analysis. We regress annual CSR investments on the proportion of shareholding by promoters and on controls for firm and board characteristics (size, performance, board size, proportion of independent directors, etc.):

27

$$\ln CSR_{it} = \alpha + \beta_1 \%Shareholding - Promoters_{it} + \beta_j X_{it}$$
$$+ \zeta PCEO_{it} + \sum_{n=1}^{N} \gamma_n I_n + \sum_{k=1}^{K} \delta_k T_k + \epsilon_{it} \quad (11)$$

The dependent variable in Eq. (1) is the natural logarithm of the annual CSR investment, which is defined as the linear summation of the spending on building and maintenance of public services (parks, primary schools, etc.), environmental and pollution control–related expenses, and donations to social or humanitarian causes. All expenses are audited independently and are expressed in thousands of US dollars.

$\%Shareholding - Promoters_{it}$ is the percentage share-ownership of the promoter family. X_{it} is a vector of all firm and board characteristics of firm i at time t. To control for the difference in consumers' preferences, X_{it} also includes the proportion of exports in the total sales. $PCEO_{it}$ is a dummy variable with a value of 1 if the CEO is from the promoter family. I_n and T_k are sets of industry and year dummies, respectively. To further investigate the impact on CSR investments of ownership, we estimate the above formulation separately on sub-samples of firms with different ownership structure.[9]

Table 5 presents the basic results for the impact of firm ownership on firm performance. Results are included for ordinary linear regression models with industry and time dummies and with robust standard errors. Column 1 reports the estimates of the baseline model with the pooled sample of firms with both types of shareholding. The estimate of $\%Shareholding - Promoters_{it}$ is positive and statistically significant: CSR investments increase with increasing concentration of shareholding. Firms with $Promoter - CEO$s have no significant difference in CSR investments compared to firms without a promoter-CEO.

---

[9]We do not employ a firm fixed effects model because our key variable of interest, $\%Shareholding - Promoters_{it}$, is a slow-moving variable and firms do not move across the thresholds we discuss in the previous section.

These results are consistent with the theoretical proposition that ownership structure is a source of heterogeneity in firm preference for investing in social capital.

We investigate the determinants of CSR investment for firms with concentrated shareholding (column 2) and dispersed shareholding (column 3) separately. The parameter estimate on $\%Shareholding - Promoters_{it}$ needs to be interpreted with caution because widely-held firms have dispersed shareholding by construction. However, interesting difference that emerges from estimating the models separately for the two types of firms. Firms with concentrated shareholding and $Promoter - CEO$s invest more in CSR. Export (as % of sales) is positively and statistically significantly associated with CSR investments of widely-held firms. For firms with concentrated shareholding, the parameter estimate of exports is not statistically significant at conventional levels, which is consistent with the hypothesis that consumer preference is a source of heterogeneity in firm preference for CSR. Export-oriented firms interact with consumers with different private valuations for CSR investments and, hence, seem to invest more in CSR. Our results show that the heterogeneity of firm preference is driven by the ownership structure. Firms with a controlling stakeholder invest more in CSR, irrespective of consumer demand, whereas CSR investments of widely held firms are driven by consumer preference.

[Insert Table 5 around here]

Next we examine whether firms with different ownership structures choose different modes of CSR investments, driven by their objectives for such investments. If legacy building and longer-term profitability are the dominant objectives, firms are likely to invest more in charitable donations and social infrastructure. Therefore, we estimate our baseline model with the disaggregated measures of CSR as the dependent variables. In Table 6, the dependent variables in Columns 1, 2, and 3 are charitable donations, social and community infrastructure expenses, and environmental and pollution control

expenses, respectively. All results are for the pooled sample, with year and industry controls. From Columns 1 and 2, increasing concentration of equity holdings is associated with higher investments in charitable donations and social and community infrastructure. The estimate of $\%Shareholding - Promoters_{it}$ negative and statistically significant in Column3, suggesting that widely held firms invest more in environmental and pollution control projects. It is difficult to definitively claim that the negative coefficient is driven by the export-orientation of firms, but some evidence exists that firms with different ownership structures differ in the modes of CSR investment.

[Insert Table 6 around here]

The results presented in Table 5 could be biased. Not all firms in our sample invest in CSR, and the distribution of CSR spending is skewed. Using a censored dependent variable is likely to underestimate the parameter estimates. We check for the robustness of our baseline results using Tobit regressions. However, the ordinary least squares (OLS) estimates are likely to be biased only in the censored region. Therefore, we compare the Tobit results with the OLS estimates for the subsample of firms with nonzero CSR investments, the results of which are presented in Table 7. In Specification 1, we report the marginal effects from the Tobit regression with the pooled sample; in Specifications 2 and 3, the OLS estimates with the subsample of firms investing in CSR and the full sample for the sake of comparison. The key variable of interest is $\%Shareholding - \Pr omoters_{it}$, the coefficient for which is of similar magnitude across all specifications. Therefore, it does not seem that our baseline results are affected by the choice of estimation technique.

[Insert Table 7 around here]

30

5.2 Economic Significance

Our results have broad economic significance. If CSR investments were to result in enhanced financial performance, we would expect all firms, irrespective of the ownership structure, to make them. Similarly, if such investments drive consumers' choice, firms in a competitive market would suffer losses for not investing in CSR. Because the firms incur a short-term cost for socially responsible initiatives with uncertain longer-term results, firms with more concentrated shareholding and longer planning horizons invest more in CSR, especially when the consumers' demand for delegated philanthropy is weak. If private provision of public goods is the second-best outcome to public provision, it is important to understand the incentives of firms to invest in social capital. Firms with dispersed shareholding tend to invest in CSR when the consumers' preferences are high. To quantify, a one standard deviation change in equity ownership of the controlling shareholders leads to a 4.9% increase in CSR investment. To compare, a one standard deviation change in ROA leads to a 5.21% increase in CSR investments. For widely held firms, a one standard deviation in exports leads to a 3.8% change in CSR investments. Heterogeneity in firms' preferences over CSR investments and, thus, heterogeneity in terms of CSR spending seem to be associated with differences in ownership structure. This has implications, particularly in emerging economies in which public provision is not always efficient or adequate.

5.3 Endogeneity and Alternate Explanations

The results could suffer from endogenous selection of shareholding and CSR investments. For example, firms in certain industries can tend to have overrepresentation of both firms with concentrated equity ownership and CSR investments. We thus include industry dummies in our regression models. However, other channels of endogeneity could exist.

We use propensity score matching to address this concern further. We define the treatment group as firms with concentrated share ownership and the control group as widely held firms, with the difference in CSR investment as the outcome. To compare CSR investment of firms across the two groups with similar characteristics, we match firms on the following observables: sales, ROA, Tobin's q, exports, and industry and year dummies. The results are presented in Table 8.

[Insert Table 8 around here]

The results are presented for subsamples of firms with high (above the 50th percentile) and low exports. In both the subsamples, the difference in CSR investment of firms with concentrated shareholding and widely held firms are positive and statistically significant. However, the difference in outcomes is much larger in the subsample of firms with low exports. Firms with concentrated ownership invest more in CSR in comparison with firms with dispersed holding, notwithstanding consumer preference. Widely held firms respond to consumer preference to invest in CSR, which can explain the smaller difference in outcomes for the high exports subsample. This is consistent with our theoretical model and the regression results.

A more robust way to attenuate endogeneity concerns is to use an exogenous shock that is correlated with CSR investment, but not with the ownership structure. In this paper, we use antidumping measures against sample firms initiated by other countries as an exogenous demand shock. Importing countries impose antidumping measures on a particular product of a specific firm or on a product produced by all firms from a given exporting country. Faced with a demand shock, firms have a choice of reconsidering investment decisions given that an average firm in the sample spends about 3% of sales on CSR. If the CSR investments of firms with dispersed shareholding are driven primarily by the supply-chain effect, we expect firms to reduce CSR investments, conditional on hav-

ing antidumping restrictions imposed on them. We collect data on antidumping measures against Indian firms from the Global Antidumping Database maintained by the World Bank. We construct an indicator for antidumping, which is equal to one for all years when the antidumping penalty is in effect. The sample period contains 67 instances of antidumping penalties against sample firms, which results in 280 firm-year observations (6.2% of the total sample).[10]. In Table 9, we present the results with a lagged indictor for antidumping penalties.[11] Consistent with our hypothesis, we find that firms with dispersed shareholding reduce CSR investments when faced with an antidumping penalty, but firms with concentrated shareholding do not change theirs significantly. Firms with dispersed shareholding, with stronger incentives to maximize short-term profits, reduce their investment in social capital when faced with a demand shock. This result is consistent with the supply-chain effect hypothesis.

[Insert Table 9 around here]

It is possible that the results we highlight are not related to ownership concentration, and have alternate explanations. For example, it is possible that institutional shareholding drives CSR investments (Smith, 1996; Shleifer and Vishny, 1997). From Table 2, institutional shareholding is higher in firms with concentrated shareholding compared to that in firms with dispersed shareholding. Also from Table 3, firms investing in CSR have higher institutional ownership compared to firms that do not invest in CSR. To attenuate this concern, in our baseline specifications, we control for institutional shareholding. To test that concentration of equity-ownership and not institutional shareholding that drives our result, we partition the data for firms with high ($>$p75) and low ($<$p25) institutional

---

[10]A stronger measure is to use anti-dumping penalties imposed by the United States and the European Union only. We use this as robustness check. The results are qualitatively similar but are less precise due to smaller number of observations.

[11]The correlation coefficient of the lagged anti-dumping measure with $\%Shareholding - Promoters_{it}$ and CSR investment are 0.003 and 0.153, respectively.

ownership. CSR investments are not significantly different between the two groups. We further test the differences in mean CSR investments of firms within the two ownership categories by high and low institutional ownership. The difference in CSR investments are not statistically different for firms with concentrated shareholding, but firms with dispersed shareholding invest more in CSR if institutional shareholding is high. These results indicate that concentration of equity ownership is not merely picking up the effects of institutional shareholding.

Differences in the product market brand image can be furnished as another alternate explanation of our results. Firms selling consumer goods, and more visible brands may invest more in CSR (Servaes and Tamaro, 2013) compared to firms producing intermediate goods. If the product category and the ownership structure are correlated, then our results may not be driven by concentration of equity ownership. In our baseline specifications, we use a set of industry dummies to control for this possibility. Further, we test the difference in means of CSR investments for firms producing consumer goods, and firms producing intermediate goods. This difference is not statistically significant at conventional levels.[12] Also, anecdotal evidence suggests that CSR investments of Indian firms producing intermediate goods have not been insignificant (e.g. Tata Steel, Reliance Petrochemicals, etc.). Therefore this does not seem a very plausible alternate explanation of our results. The tables for alternate explanations are presented as online appendices.

5.4 Robustness checks

We test for the robustness of our baseline results. First, we investigate if a firm's binary choice of investing in CSR is associated with the ownership structure. We present the results from logistic regressions in Appendix D, where the dependent variable is an indi-

---

[12]The classification of firms into these two product categories is not an exact science. Firms can produce in both of these categories. In our classification, we use the main product of the firm as reported in Prowess.

cator equal to one if a firm chose to invest in CSR. It seems that the ownership structure, as measured by the promoter's shareholding, and the presence of a promoter CEO are positively associated with the choice of investing in CSR. This complements our baseline results.

Next, we examine if differences exist in a firm's investment in the three disaggregated measures of CSR. From Appendix E, the association of promoter shareholding with donation is much stronger for firms with concentrated shareholding. For dispersed shareholding firms, the association of exports with environmental and pollution expenses is stronger. Once again, these results support our central hypothesis. Finally, we use alternate classification algorithms of concentrated shareholding: 20% and 15% shareholding of promoter(s) as the threshold. The results are robust to all these checks. In the interests of brevity, the tables are not presented here.

6   Conclusion

Firms make a strategic choice to invest in CSR. The choice depends not only on consumer preference, but also on firm-specific characteristics. In this paper, we model a firm's choice of investing in CSR conditional on the ownership structure. In equilibrium, firms with dispersed shareholding invest in CSR only in reaction to consumer preference and firms with concentrated shareholding invest in CSR notwithstanding consumers' choice. The concentration of holdings, often in the hands of a family, strongly aligns the interests of the firm and the shareholders and also allows the shareholders to have a longer planning horizon. Using information from listed firms in India, where both types of firms are found within the same legislative environment, we provide empirical evidence in favor of our theoretical predictions. This is the first paper to incorporate heterogeneous firm preference for CSR investments. At the same time, it is important to highlight what our

paper does not do. We do not seek to establish that one type of ownership structure is associated with more altruism than the other. We merely investigate the incentives for firms to invest in social capital and how ownership structure is associated with such incentives. We also do not comment on the welfare implications of heterogeneous firm preference for CSR investment. Besley and Ghatak (2007) show the welfare implications of private provision of public good and find that private provision is the second-best outcome to public provision. Within that premise, this paper shows that firms differ in their preference for CSR investments and that private provision of public goods depends on both firm and consumer preference for CSR.

Our results are robust to firm and industry characteristics and does not seem to be susceptible to endogeneity concerns. The association of CSR investments with ownership structure is important because the rationales for such investments are not fully understood. No conclusive evidence suggests that CSR investments enhance firm performance. If CSR is not driven only by profit motives, then the question of why firms invest in CSR gains more importance.

References

[1] Adams, R., Almeida, H., Ferreira, D., 2009. Understanding the relationship between founder-CEOs and firm performance. Journal of Empirical Finance 16, 136–150.

[2] Andreoni, J., 1990. Impure Altruisms and donations to public goods: A theory of warm-glow giving. Economic Journal 100 (401), 464-477.

[3] Ariely, D., Bracha, A., Meier, S., 2009. Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. American Economic Review 99 (1), 544–555.

[4] Arora, S., Gangopadhyay, S., 1995. Toward a theoretical model of voluntary over-compliance. Journal of Economic Behavior and Organization 28, 289–309.

[5] Bagnoli, M., Watts, S.G., 2003. Selling to socially responsible consumers: competition and the private provision of public goods. Journal of Economics and Management Strategy 12 (3), 419–445.

[6] Baron, D., 2001. Private politics, corporate social responsibility, and integrated strategy. Journal of Economics and Management Strategy 10, 7–45.

[7] Baron, D., 2007. Corporate social responsibility and social entrepreneurship. Journal of Economics and Management Strategy 16 (3), 683–717.

[8] Baron, D., 2008. Managerial contracting and corporate social responsibility. Journal of Public Economics 92, 268–288.

[9] Baumol, W. J., 1991. Perfect Markets and Easy Virtue: Business Ethics and the Invisible Hand. Basil Blackwell, Oxford, UK.

[10] Bénabou, R., Tirole, J., 2010. Individual and corporate social responsibility. Economica 77, 1–19.

[11] Berger, P.G., and Ofek, E. (1995) Diversifications Effect on Firm Value. Journal of Financial Economics 51(4), 39-65.

[12] Berger, P.G., and Ofek, E. (1996) Bustup Takeovers of Value-Destroying Diversified Firms. Journal of Finance 51(4), 1175-1200.

[13] Bertrand, M., Mehta, P., Mullainathan, S., 2002. Ferreting out tunneling: an application to Indian business groups. Quarterly Journal of Economics 117 (1), 121–148.

[14] Besley, T., Ghatak, M., 2007. Retailing public goods: the economics of corporate social responsibility. Journal of Public Economics 91 (9), 1645–1663.

[15] Cespa, G., Cestone, G., 2007. Corporate social responsibility and managerial entrenchment. Journal of Economics and Management Strategy 16, 741–771.

[16] Chang, S. J., 2003. Ownership structure, expropriation, and performance of group-affiliated companies in Korea. Academy of Management Journal 46, 238–253.

[17] Conrad, K., 2005. Price competition and product differentiation when consumers care for the environment. Environmental and Resource Economics 31, 1–19.

[18] Dasgupta, S., Laplante, B., Wang, H., Wheeler, D., 2002. Confronting the environmental Kuznets curve. Journal of Economic Perspectives 16 (1), 147–168.

[19] Eichholtz, P., Kok, N., Quigley, J. M., 2010. Doing well by doing good? Green office buildings. American Economic Review 100 (5), 2492–2509.

[20] Fahlenbrach, R., 2009. Founder-CEOs, investment decisions, and stock market performance. Journal of Financial and Quantitative Analysis 44, 439–466.

[21] Financial Times, 2014. Fortune 500 companies spend more than $15bn on corporate responsibility. October 12.

[22] Fleishman-Hillard and the National Consumers League, 2007. Rethinking corporate social responsibility. Fleishman-Hillard, Inc. and National Consumers League, St. Louis, MO, and Washington, DC.

[23] Friedman, M. (1970). The social responsibility of business is to increase its profits. *New York Times Magazine,* 13 September, 122–6.

[24] Hoskisson, R. E., Hitt, M. A., Johnson, R. A., Grossman, W., 2002. Conflicting voices: the effects of institutional ownership heterogeneity and internal governance on corporate innovation strategies. Academy of Management Journal 45, 697–716.

[25] Khanna, T., Palepu, K., 2000. Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. Journal of Finance 55 (2), 867–891.

[26] Kitzmueller, H., Shimshack, J., 2012. Economic perspectives on corporate social responsibility. Journal of Economic Literature 50 (1), 51-84.

[27] Maxwell, J. W., Lyon, T. P., Hackett, S. C., 2000. Self-regulation and social welfare: the political economy of corporate environmentalism. Journal of Law and Economics 43 (2), 583–617.

[28] Narayanan, M. P., 1985. Managerial incentives for short-term results. Journal of Finance 40, 1469–1484.

[29] New York Times Magazine, 1970. The social responsibility of business is to increase its profits. M. Friedman, September 13, 122–126.

[30] Oh, W. Y., Chang, Y. K., Martynov, A., 2011. The effect of ownership structure on corporate social responsibility: empirical evidence from Korea. Journal of Business Ethics 104 (2), 283–297.

[31] Sarkar, J. and Sarkar, S., 2000. Large shareholder activism in corporate governance in developing countries: Evidence from India. International Review of Finance 1, 161–194.

[32] Servaes, H., Tamaro, A., 2013. The impact of corporate social responsibility on firm value: the role of customer awareness. Management Science 59 (5), 1045–1061.

[33] Sethi, P., 2005. Investing in socially responsible companies is a must for public pension funds – because there is no better alternative. Journal of Business Ethics 56, 99–129

[34] Shleifer, A., Vishny, R. W., 1997. A survey of corporate governance. Journal of Finance 52, 737–783.

[35] Siegel, J. and Choudhury, P., 2012. A reexamination of tunneling and business groups: New data and new methods. Review of Finance 25 (6), 1763-1798.

[36] Siegel, D. S., Vitaliano, D. F., 2007. An empirical analysis of the strategic use of corporate social responsibility. Journal of Economics and Management Strategy 16, 773–792.

[37] Smith, M. P., 1996. Shareholder activism by institutional investors: evidence from CalPERS. Journal of Finance 51, 227–252.

[38] Turban, D. B., Greening, D. W., 1997. Corporate social performance and organizational attractiveness to prospective employees. Academy of Management Journal 40 (3), 658–672.

Table 1

Descriptive Statistics of Key Variables

This table presents the descriptive statistics of the key variables used in the empirical analysis. All monetary values are in constant 2010 US$.

Variables	N	Mean	Std. Dev.	Min	Max
ROA	5311	0.083	0.1110	-0.847	1.826
MTBV	5311	1.419	2.917	0.187	13.521
EPS	5311	0.547	8.373	-5.740	550.34
Sales (/1,000)	5311	522.592	2229.181	0.011	68215.143
Total Assets (/1,000)	5311	77.121	264.824	.210	6332.593
Exports/Sales (%)	5311	22.538	42.663	0.00	93.51
%Shareholding-Promoters	5311	41.577	20.847	0.000	88.911
%Shareholding-Institutions	4395	17.806	14.4962	0.000	88.194
Promoter CEO	5311	0.375	0.484	0.000	1.000
Board Size	5311	9.949	3.328	4.000	33.000
% Outside Directors	5311	51.799	16.181	48.330	93.500
CSR	3762	15.061	38.722	0.000	2880.000
Donations	3762	13.044	86.515	0.000	2880.000
Social and Community Expenses	3762	0.487	8.046	0.000	327.500
Environment and Pollution Control Expenses	3762	1.544	16.799	0.000	469.000

Table 2

Comparison of Firms with Concentrated and Dispersed Shareholding

We compare performance, size, board characteristics, and CSR investments of firms with concentrated and dispersed shareholding structures. Firms with concentrated shareholding on average, are larger, make more in charitable donations, invest more in social and community issues, but spend less for environmental and pollution control. No statistically significant difference exists in firm performance and board characteristics. All variables are winsorized at 1% levels. * indicates that the difference is statistically significant at conventional levels.

Variables	Firms with Concentrated Shareholding	Firms with Dispersed Shareholding	Difference
%Shareholding-Institutions	19.652	15.967	3.685*
ROA	0.080	0.089	-0.009
MTBV	1.510	1.488	0.022
EPS	0.462	0.605	-0.143
Sales (/1,000)	697.781	404.465	293.316*
Total Assets (/1,000)	114.964	51.611	63.353*
Export/Sales (%)	20.781	23.723	-2.942
Board Size	10.137	9.195	0.222
% Outside Directors	51.020	51.764	-0.744
CSR	20.441	11.248	9.193*
Donations	19.180	8.675	10.505*
Social and Community Exp	0.664	0.360	0.304*
Environment and Pollution Control Expenses	0.596	2.216	-1.620*

Table 3
Comparisons of Firms with and without CSR Investment
This table compares firm-years with no CSR investment and firm-years with non-zero CSR investment. Larger and more profitable firms invest more in CSR. All variables are winsorized at 1% levels. * indicates that the difference is statistically significant at conventi-onal levels.

Variables	Mean-*No CSR*	Mean-*CSR*	Difference
Return on Assets	0.080	0.086	-0.006
MTBV	1.545	1.763	-0.218
EPS	0.513	0.558	-0.045
Sales (/1,000)	667.104	650.722	16.372
Total Assets (/1,000)	91.030	68.940	22.09*
%Shareholding-Promoters	19.551	49.854	-30.303*
%Shareholding-Institutions	16.705	18.518	-1.813*
Exports/Sales (%)	17.660	21.924	-4.264*
Board Size	9.548	10.210	-0.662
% Non-Executive	50.656	50.892	-0.236

Table 4
Comparison of Actual and Imputed CSR
This table compares imputed and actual CSR of firms with dispersed shareholding. The difference of imputed and actual CSR is statistically significant. This suggests that firms with dispersed shareholding would invest more in CSR, if it were a firm with concentrated shareholding in the same industry. * indicates that the difference is statistically significant at conventional levels.

Variables	Imputed CSR-Dispersed	Actual CSR-Dispersed	Difference
Sales-Multiplier	18.30	11.28	7.02*
Asset-Multuplier	19.04	11.28	7.76*

Table 5
Ownership Structure and Investment in Corporate Social Responsibility (CSR)
In this table, we present the baseline results. The dependent variable is ln(CSR).
All monetary values are winsorized at 1%. The main variable of interest is
$\% Shareholding - Promoters_{it}$.which is positively associated with the dependent
variables in all specifications. . ***, **, and * indicate significance at the 1%,.5%
and 10% level, respectively.

Variables	Dependent Variable: ln(CSR)		
	(1) Full Sample	(2) Concentrated Shareholding	(3) Dispersed Holding
% Shareholding-Promoters$_{it}$	0.051**	0.064**	0.002
	(0.023)	(0.017)	(0.002)
Sales	0.486***	0.519***	0.419***
	(0.035)	(0.042)	(0.037)
ROA	0.390***	0.472***	0.392***
	(0.045)	(0.069)	(0.82)
Board Size	0.087***	0.075***	0.084***
	(0.013)	(0.010)	(0.019)
% Independent Directors	0.001	-0.004	0.005
	(0.003)	(0.005)	(0.004)
Promoter CEO	0.024	0.118**	-0.060
	(0.037)	(0.047)	(0.102)
%Shareholding-Institutions	0.017	0.019	0.013*
	(0.013)	(0.016)	(0.006)
Export / Sales (%)	0.002*	-0.004	0.007***
	(0.001)	(0.004)	(0.001)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Constant	-3.413***	-3.049**	-3.413
	(0.299)	(0.433)	(0.401)
Observations	3,762	1,582	2,180
Adjusted-R^2	0.314	0.307	0.285

Table 6
Ownership Structure and Spend on Different CSR Initiatives
In this table we present the results for different measures of CSR investments. The dependent variable is mentioned at the top of each column. All monetary values are winsorized.at 1%. The main variable of interest is % Shareholding-Promoters. This is positively associated with with the dependent variables in all specifications. ***, **, and * indicate significance at 1%, 5 %, and 10% levels, respectively.

Variables	(1)	(2)	(3)
		Dependent Variable	
	Donation	*Social and Community Expenses*	*Environmental/Pollution Control Expenses*
% Shareholding-Promoters$_{it}$	0.634***	0.212***	-0.0488**
	(0.220)	(0.077)	(0.022)
Sales	0.516***	0.122**	-0.000
	(0.018)	(0.013)	(0.000)
ROA	0.559***	0.250***	0.242*
	(0.152)	(0.103)	(0.127)
Board Size	0.113***	0.018**	0.065**
	(0.043)	(0.0.008)	(0.030)
% Independent Directors	-0.002	0.000	-0.001
	(0.003)	(0.000)	(0.000)
Promoter CEO	0.058*	0.033	-0.017
	(0.030)	(0.019)	(0.025)
% Shareholding-Institutions	0.098	0.000	0.008
	(0.210)	(0.002)	(0.007)
Export / Sales (%)	-0.008	-0.013	0.020***
	(0.005)	(0.013)	(0.004)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Constant	-3.520***	-0.848***	-1.730**
	(0.304)	(0.094)	(0.924)
Observations	3,762	3,762	3,762
Adjusted-R^2	0.310	0.187	0.172

Table 7

Ownership Structure and CSR Controlling for Bias

In this table we present the results with different approaches to control for bias induced by firms which do not invest in CSR. In column (1) we estimat -e a Tobit model, in column (2) we estimate a OLS model for firms that inv -est in CSR, and column (3) presents the OLS estimates with the full samp -le for comparison. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	(1)	(2)	(3)
	Dependent Variable: ln(CSR)		
	Tobit	OLS	OLS
		Non-Zero CSR	Full sample
% Shareholding-Promoters$_{it}$	0.086**	0.074**	0.051**
	(0.035)	(0.022)	(0.023)
Sales	0.535***	0.511***	0.486***
	(0.029)	(0.018)	(0.035)
ROA	0.441***	0.426***	0.390***
	(0.140)	(0.052)	(0.045)
Board Size	0.067***	0.066**	0.087***
	(0.012)	(0.019)	(0.013)
% Independent Directors	0.009	0.004	0.001
	(0.006)	(0.003)	(0.003)
Promoter CEO	0.049	0.031	0.024
	(0.033)	(0.024)	(0.037)
% Shareholding-Institutions	0.023	0.017	0.017
	(0.016)	(0.011)	(0.013)
Export / Sales (%)	0.003**	0.002*	0.002*
	(0.01)	(0.001)	(0.001)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Constant	-3.901***	-3.417***	-3.413***
	(0.337)	(0.291)	(0.299)

Table 8

Propensity Score Matching Models

We match concentrated shareholding firms in our sample with dispersed shareholding firms using nearest neighbourhood (Panel A), radius=0.1 (Panel B), Gaussian kernel (Panel C), and Mahalanobis (Panel D) matching methods. The variables used in the matching are firm size, firm performance, market-to-book, ratio, exports, industry and year dummies. Firms are divided into sub-samples of high and low export as percentage of sales. The average treatment to the treated is higher is consistently higher for the subsample for the low export sub-sample. This suggests that the difference in CSR between firms with concentrated and dispersed shareholding can be partially attributed to consumer preference. ***, **, and ** denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *Difference in CSR between firms with concentrated and dispersed shareholdings*	
	Subsample of firms with high exports	Subsample of firms with low exports
Panel A: Nearest Neighborhood Match		
Average Treatment to Treated	3.42**	10.19**
No. of Observations	2289	2197
Panel B: Radius Match (0.1)		
Average Treatment to Treated	15.27**	18.60**
No. of Observations	2210	2053
Panel C: Kernel Matching		
Average Treatment to Treated	9.72**	15.71**
No. of Observations	2289	2197
Panel D: Mahalanobis Distance Matching		
Average Treatment to Treated	9.20**	15.08*
No. of Observations	1962	1998

Table 9

Anti-Dumping and CSR

In this table we present the results of the impact on CSR of antidumping penalty imposed on firms. The main variable of interest is $Anti\text{-}Dumping_{it-1}$, a lagged indicator for antidumping penalty. The indicator is negatively associated with CSR investment, specially for firms with dispersed share-holdi -ng. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively.

Variables	(1)	(2)	(3)
	Dependent Variable: $ln(CSR)$		
	Full Sample	Concentrated	Dispersed
$Anti\text{-}Dumping_{it-1}$	-0.014*	0.008	-0.033**
	(0.007)	(0.006)	(0.011)
Dispersed Shareholding	-0.211**		
Dummy	(0.082)		
$Anti\text{-}Dumping_{it-1}*$	-0.012**		
Dispersed Shareholding	(0.005)		
% Shareholding-Promoters$_{it}$		0.064**	0.003
		(0.017)	(0.002)
Sales	0.311***	0.519***	0.281***
	(0.025)	(0.042)	(0.037)
ROA	0.296***	0.472***	0.194***
	(0.011)	(0.069)	(0.082)
Board Size	0.087***	0.075***	0.075***
	(0.013)	(0.010)	(0.019)
% Independent Directors	0.001	-0.004	0.005
	(0.003)	(0.005)	(0.004)
Promoter CEO	0.024	0.118**	-0.060
	(0.037)	(0.047)	(0.102)
% Shareholding-Institutions	0.017	0.019	0.013*
	(0.013)	(0.016)	(0.006)
Export / Sales (%)	0.002*	-0.004	0.007***
	(0.001)	(0.004)	(0.001)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Constant	-3.417***	-50.99**	-53.28***
	(0.2999)	(19.41)	(17.19)
Observations	3,762	3,762	3,762
Adjusted-R^2	0.314	0.307	0.311

Appendix A.

CSR can be treated as *variable* costs: for each unit sold, θ_i is donated to a social cause. The total amount spent on CSR is therefore given by $\theta_i q_i$ and firm i's objective function is:

$$U_i = (p_i - c - \theta_i)q_i + \alpha_i \theta_i q_i \tag{12}$$

A1. Consumers are not willing to pay for CSR .

In stage 2, given their CSR characteristics, firms will set their prices in order to maximise their objective function (12), with demand functions given by (2) and (3) and subject to the constraint that $p_i - c \geq \theta_i$, i.e. the amount given to the charity cannot exceed the firm's mark-up.

Due to this constraint on the level of prices, corner solutions in stage 2 can be ruled out. Consider, for example firm 0. At the corner solution $q_0 = 0$, firm 0 gets a zero payoff. The condition to have $q_0 = 0$ is that $p_0 > p_1 + t$, with $p_0 > c + \theta_0$ and $p_1 > c + \theta_1$. Therefore, by choosing a sufficiently low level of CSR in stage 1, firm 0 can easily avoid corner solutions in stage 2 and enjoy a positive payoff. The same reasoning applies for firm 1.

Assuming positive demands for both firms, first-order conditions will lead to the following prices:

$$
\begin{aligned}
p_0 &= t + c + \frac{(1-\alpha_1)}{3}\theta_1 + \frac{2}{3}\theta_0 \\
p_1 &= t + c + \frac{2}{3}(1-\alpha_1)\theta_1 + \frac{1}{3}\theta_0
\end{aligned}
$$

With these prices, firm 1's profit will cover its CSR expenditures if $(\theta_1 - \theta_0) < 3t -$

$2\alpha\theta_1$.[13]

If this condition is not satisfied, firm 1 is constrained to set a price equal to $p_1 = c + \theta_1$. The price set by firm 0 is then given by $p_0 = c + \frac{t+\theta_1+\theta_0}{2}$.

We are then able to derive the firms' payoffs as functions of CSR characteristics (θ_0, θ_1):

$$U_0(\theta_0, \theta_1) = \begin{cases} \frac{1}{2t}\left[t + \frac{1-\alpha}{3}\theta_1 - \frac{1}{3}\theta_0\right]^2 & \text{if} \quad \theta_1 - \theta_0 \leq 3t - 2\alpha\theta_1 \\ \frac{1}{2t}\left[\frac{t+\theta_1-\theta_0}{2}\right]^2 & \text{if} \quad (\theta_1 - \theta_0) > 3t - 2\alpha\theta_1 \end{cases} \tag{13}$$

And

$$U_1(\theta_0, \theta_1) = \begin{cases} \frac{1}{2t}\left[t + \frac{\alpha-1}{3}\theta_1 + \frac{1}{3}\theta_0\right]^2 & \text{if} \quad \theta_1 - \theta_0 \leq 3t - 2\alpha\theta_1 \\ \frac{\alpha\theta_1}{4t}\left[3t + \theta_0 - \theta_1\right] & \text{if} \quad (\theta_1 - \theta_0) > 3t - 2\alpha\theta_1 \end{cases} \tag{14}$$

In stage 1, whatever the CSR characteristics (θ_0, θ_1), the utility of firm 0, U_0 is decreasing in θ_0. Indeed, neither consumers nor firm 0 care about CSR. As a consequence, the best response of firm 0 will be to choose $\theta_0 = 0$. By contrast, the firm with concentrated ownership cares about CSR. For $\theta_1 - \theta_0 \leq 3t - 2\alpha\theta_1$ or equivalently $\theta_1 < \frac{3t}{2\alpha+1}$, U_1 is strictly increasing in θ_1 and convex. For higher levels of CSR, U_1 is concave and reaches a maximum at $\theta_1 = \frac{3t}{2}$.

The intuition is as follows: as long as θ_1 is sufficiently small, firm 1 is able to increase its payoff by reducing the price (and still earning a mark-up higher than the cost of CSR) and increasing the quantity sold. For higher levels of CSR, the mark-up will be exactly equal to the cost of CSR, which implies that increasing θ_1 has two effects: it increases directly the utility derived from CSR and it induces an increase in price, which reduces the quantity sold and decrease both profits and utility derived from CSR. These two effects balance each other at $\theta_1 = \frac{3t}{2}$.

As a consequence, when consumers are not willing to pay for CSR and CSR is char-

---

[13]The condition for firm 0 is similar to the condition for an interior solution and so is automatically satisfied.

acterised by variable costs, the equilibrium is given by $\theta_0 = 0$ and $\theta_1 = \frac{3t}{2}$. Prices are set such that

$$
\begin{aligned}
p_0 &= c + \frac{5t}{4} \\
p_1 &= t + \theta_1 = c + \frac{3t}{2}
\end{aligned}
$$

With quantities $q_0 = \frac{5}{8}$ and $q_1 = \frac{3}{8}$.

If firm 1 would leave the price unchanged compared to the situation without CSR (in which firms share the market equally and prices are given by $t + c$), firm 1 has increased its price in order to be able to commit to a higher level of CSR ($\frac{3t}{2}$ rather than t). Note that the total amount of CSR ($\theta_1 q_1$) is higher than when keeping the price at $t + c$ and devoting the entire profit to CSR spending.

A2. Consumers are willing to pay for CSR .

In stage 2, given their CSR characteristics, firms will set their prices in order to maximise their objective function (12), with demand functions given by (2) and (3) and subject to the constraint that $p_i - c \geq \theta_i$.

Using the same type of argument as for the case where $\beta = 0$, we can readily show that at the equilibrium of the two-stage game, both firms sell a positive quantity.

Assuming positive demand for both firms, first-order conditions will lead to the following prices:

$$
\begin{aligned}
p_0 &= c + t + \frac{1 - \beta - \alpha}{3}\theta_1 + \frac{\beta + 2}{3}\theta_0 \\
p_1 &= c + t + \frac{1 - \beta}{3}\theta_0 + \frac{\beta - 2\alpha + 2}{3}\theta_1
\end{aligned}
$$

With these prices, firm 1's profit will cover its CSR expenditures if $(1 - \beta)(\theta_1 - \theta_0) \leq$

$3t - 2\alpha\theta_1.$[14] If this is not the case, prices will be given by:

$$p_0 = c + \frac{t}{2} + \frac{\beta}{2}(\theta_0 - \theta_1) + \frac{\theta_0 + \theta_1}{2}$$

$$p_1 = c + \theta_1$$

Turning to stage 1, we are then able to derive the firms' payoffs as functions of CSR characteristics (θ_0, θ_1):

$$U_0(\theta_0, \theta_1) = \begin{cases} \frac{1}{2t}\left[t + \frac{1-\alpha-\beta}{3}\theta_1 + \frac{\beta-1}{3}\theta_0\right]^2 & \text{if} \quad (1-\beta)(\theta_1 - \theta_0) \leq 3t - 2\alpha\theta_1 \\ \frac{1}{2t}\left[\frac{t+(1-\beta)(\theta_1-\theta_0)}{2}\right]^2 & \text{if} \quad (1-\beta)(\theta_1 - \theta_0) > 3t - 2\alpha\theta_1 \end{cases} \qquad (15)$$

And

$$U_1(\theta_0, \theta_1) = \begin{cases} \frac{1}{2t}\left[t + \frac{1-\beta}{3}\theta_0 + \frac{\alpha+\beta-1}{3}\theta_1\right]^2 & \text{if} \quad (1-\beta)(\theta_1 - \theta_0) \leq 3t - 2\alpha\theta_1 \\ \frac{\alpha\theta_1}{4t}\left[3t + (1-\beta)(\theta_0 - \theta_1)\right] & \text{if} \quad (1-\beta)(\theta_1 - \theta_0) > 3t - 2\alpha\theta_1 \end{cases} \qquad (16)$$

Depending on the intensity of consumers' preferences, two cases can be distinguished:

Case 1: $\beta < 1$

This case is very similar to the case where $\beta = 0$: U_0 is strictly decreasing in θ_0, while U_1 is first increasing in θ_1 and then decreasing in θ_1. Therefore the equilibrium of the two-stage game will be:

$$\theta_0 = 0 \qquad And \qquad \theta_1 = \frac{3t}{2(1-\beta)}$$

[14]The condition for firm 0 is similar to the condition for an interior solution and so is automatically satisfied.

And

$$
\begin{aligned}
p_0 &= c + \frac{5t}{4} \\
p_1 &= c + \theta_1 = c + \frac{3t}{2}
\end{aligned}
$$

With quantities $q_0 = \frac{5}{8}$ and $q_1 = \frac{3}{8}$.

Case 2: $\beta \geq 1$

In this case, each firm's payoff is increasing in the difference $\theta_i - \theta_j$. Firms will thus try to overtake the CSR investment of the other firm. In the end, both firms will invest $\bar{\theta}$. In stage 2, equilibrium prices are:

$$
p_0 = \begin{cases} c + t + \frac{3-\alpha}{3}\bar{\theta} & \text{if } \bar{\theta} \leq \frac{3t}{2\alpha} \\ c + \frac{t}{2} + \bar{\theta} & \text{if } \bar{\theta} > \frac{3t}{2\alpha} \end{cases} \tag{17}
$$

And

$$
p_1 = \begin{cases} c + t + \frac{3-2\alpha}{3}\bar{\theta} & \text{if } \bar{\theta} \leq \frac{3t}{2\alpha} \\ c + \bar{\theta} & \text{if } \bar{\theta} > \frac{3t}{2\alpha} \end{cases} \tag{18}
$$

with equilibrium quantities given by:

$$
q_0 = \begin{cases} \frac{1}{2t}\left[t - \frac{\alpha}{3}\bar{\theta}\right] & \text{if } \bar{\theta} \leq \frac{3t}{2\alpha} \\ \frac{1}{4} & \text{if } \bar{\theta} > \frac{3t}{2\alpha} \end{cases} \tag{19}
$$

And

$$
q_1 = \begin{cases} \frac{1}{2t}\left[t + \frac{\alpha}{3}\bar{\theta}\right] & \text{if } \bar{\theta} \leq \frac{3t}{2\alpha} \\ \frac{3}{4} & \text{if } \bar{\theta} > \frac{3t}{2\alpha} \end{cases} \tag{20}
$$

It is worth noting that when consumers' willingness to pay for CSR is relatively small (i.e. $\beta < 1$), the level of CSR chosen by firm 1 does not depend on its preferences for

CSR (α). By contrast, when consumers' willingness to pay is sufficiently high, the total amount of CSR $\theta_1 q_1$ will depend on firm 1's preferences over CSR.

As for the case where CSR is characterized by fixed costs, when the consumers' willingness to pay for CSR is low, only the firm with concentrated ownership will invest in CSR and the amount invested is fixed (i.e. does not depend on α). By contrast, when the consumers' willingness to pay is sufficiently high, the total amount chosen by the firm with concentrated ownership is greater than the amount chosen by the firm with dispersed shareholding and this total amount increases with α.

The performance in terms of profits depends on the consumer's behavior. If the willingness to pay for CSR is low, the firm with a dispersed shareholding has a higher profit: as consumers do not care sufficiently about CSR, they will not necessarily buy more from the firm with concentrated shareholding. Therefore, to increase the total amount of CSR, this firm will increase its price in order to be able to choose a very θ_1. This choice reduces the market share of the firm with concentrated ownership.

If the willingness to pay for CSR is high, the firm with dispersed shareholding may have a higher or a lower profit than the firm with concentrated shareholding. Both firms choose the same θ_i, but the firm with concentrated will charge a lower price in order to increase its market share and be able to invest more in CSR activities.

Appendix B

The imputed value of CSR is calculated following the procedure described below:

$$I(CSR) = \sum_{i=1}^{n} AI_i * (Ind_i(\frac{CSR}{AI})_{mf})$$

where $I(CSR)$ = The imputed CSR of a firm i with concentrated shareholding as dispersed shareholding firms

AI_i = Firm $i's$ value of the accounting item (sales or assets) used in the valuation multiple.

$Ind_i(\frac{CSR}{AI})_{mf}$ = The multiple of CSR to an accounting item (sales or assets) for the median firm with dispersed shareholding in firm $i's$ industry.

For example, to calculate using sales as the accounting item, we multiply the industry median CSR- to-sales ratio for the dispersed shareholding firms in firm its industry by firm its sales. The product is the imputed value of the CSR for firm i using a sales-multiplier. The imputed value using the asset-multiplier is calculated similarly.

Appendix C

Variable Description

This table presents the description of key variables used in the empirical analysis.

Variables	Description
ROA	Net Profit/Total Assets
MTBV	Tobin's Q approximated as market to book value
EPS	$\frac{NetIncome - Dividends}{AverageOuts\tan dingShares}$
Sales (/1,000)	Total Annual Sales in '000 US$
Total Assets (/1,000)	Total Assets in '000 US$
Exports/Sales (%)	Ratio of Exports over Total Annual Sales
%Shareholding-Promoters	Equity ownership of controlling stakeholders, both direct and indirect holdings.
%Shareholding-Institutions	Equity ownership of financial institutions, public sector holdings, etc.
Promoter CEO	=1 if CEO has controlling stakeholding, either individually, or as a family.
Board Size	Number of Directors on the board
% Outside Directors	$\frac{Number of Independent\;\; Directors}{Board\operatorname{Si}ze}*100$
CSR	Annual spend in CSR, in million US$
Donations	Donations to charitable causes, but excluding political donations, in '000 US$
Social and Community Expenses	Investment in social infrastructure like parks, schools, etc. in '000 US$
Environment and Pollution Control Expenses	Investment in environmentally sustainable practices, in '000 US$.

Appendix D: Probability of Investing in CSR

In this table we present the likelihood of firms investing in CSR. In columns 2 and 3 we present the estimates for firms with concentrated and dispersed shareholding respectively. Concentration of equity holding is positively associated with CSR investment. ***, **, and * indicate significance at 1% 5%, and 10% levels, respectively.

Variables	(1) Full Sample	(2) Concentrated Shareholding	(3) Dispersed Shareholding
% Shareholding-Promoters	0.002**	0.005**	0.000
	(0.001)	(0.002)	(0.001)
Sales	0.016	0.008	0.018
	(0.014)	(0.021)	(0.020)
ROA	0.082	0.502	0.088
	(0.208)	(0.388)	(0.271)
Board Size	0.027***	0.041***	0.012
	(0.007)	(0.011)	(0.009)
% Independent Directors	0.002*	-0.005**	0.005***
	(0.001)	(0.002)	(0.001)
% Shareholding-Institutions	0.001	0.000	0.001
	(0.001)	(0.002)	(0.002)
Promoter CEO	0.269***	0.279***	0.243***
	(0.040)	(0.065)	(0.053)
Export / Sales (%)	-0.000*	-0.003	0.005**
	(0.000)	(0.002)	(0.000)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Constant	-1.087***	-1.492***	-0.690***
	(0.201)	(0.352)	(0.264)
Observations	4,223	1,703	2,513

Appendix E: Types of CSR Investments and Firm Ownership
In this table we present the estimates for disaggregated measures of CSR investments by different equity ownership structure. ***, **, and * indicate significance at 1%,.5%, and 10% levels, respectively.

Variables	(1) Donation		(2) Social and Community Expenses		(3) Environmental/Pollution Control Expenses	
	Concentrated	Dispersed	Concentrated	Dispersed	Concentrated	Dispersed
% Shareholding-Promoters	0.759**	-0.186**	0.007*	0.130***	0.009*	0.054**
	(0.339)	(0.063)	(0.004)	(0.030)	(0.005)	(0.021)
Sales	7.192***	8.718**	0.280**	2.146**	0.105**	0.007
	(1.435)	(2.814)	(0.112)	(0.722)	(0.050)	(0.196)
ROA	7.518	1.560	-1.096	15.326**	-1.158*	5.497
	(12.261)	(1.804)	(1.125)	(7.694)	(0.791)	(4.481)
Board Size	2.738***	0.073	-0.224**	1.171***	0.026	0.270**
	(0.607)	(0.249)	(0.098)	(0.417)	(0.024)	(0.123)
% Independent Directors	0.298	0.246**	0.033	0.082*	-0.031**	0.007
	(0.240)	(0.091)	(0.021)	(0.043)	(0.009)	(0.016)
Promoter CEO	15.176***	12.456**	0.553**	-1.739**	-0.290	1.163
	(6.927)	(5.344)	(0.278)	(0.684)	(0.257)	(0.851)
% Shareholding-Promoters	0.759**	-0.186**	0.007*	0.130***	0.009*	0.054**
	(0.339)	(0.063)	(0.004)	(0.030)	(0.005)	(0.021)
% Shareholding-Institutions	0.822**	0.091	0.029*	-0.075	0.028**	0.097
	(0.378)	(0.082)	(0.017)	(0.051)	(0.011)	(0.059)
Export / Sales (%)	-0.192	0.147**	-0.001	0.027**	0.003	0.030**
	(0.143)	(0.059)	(0.002)	(0.011)	(0.002)	(0.009)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-21.447*	-58.126**	1.688	-34.25***	-0.771*	-10.926***
	(12.95)	(16.887)	(1.425)	(7.29)	(0.626)	(2.499)
Observations	1,516	2,505	1,516	2,505	1,516	2,505
R^2	0.167	0.107	0.035	0.201	0.060	0.067

Online Appendix
Robustness to alternate explanations
This table compares CSR investment for firms with high (>p75)
and low (<p25) institutional ownership (Panel A), and for firms
producing consumer goods and intermediate goods (Panel B).
None of the differences are statistically significant at conventi-
-onal levels.

Panel A	*%Shareholding-Institutions <p25*	*%Shareholding-Institutions >p75*	Difference
CSR	14.660	15.224	-0.564
Panel B	*Consumer Products*	*Intermediate Products*	Difference
CSR	15.189	14.940	0.249