A MODEL OF CORPORATE PHILANTHROPY*

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Abstract

We present a signaling model of corporate philanthropy. We argue that CSR may serve as a means of vertical differentiation in a market where quality is difficult to observe, so that a firm must signal its aversion to sacrificing quality (i.e., generate trust with the consumer). Our separating equilibrium is built on the assumption that entrepreneurs can be of two types – they are either purely profit motivated or they care about both profits and the externalities they impose. This difference in entrepreneurs' preferences makes corporate philanthropy more expensive for profit-maximizing entrepreneurs than it is for 'socially-minded' entrepreneurs, who gain some warm glow from charity. In contrast to earlier work, our model does require any complementarities between production and CSR provision, and is not subject to the Friedman critique that it is more efficient for firms to return earnings to shareholders to make their own social expenditures. Preliminary empirical tests support our framework: corporate philanthropy and profits are positively related only in industries with high advertising intensity and high competition.

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In the business community, Corporate Social Responsibility (CSR) has emerged as a significant theme.[1] Most explanations in the popular press focus on taste-based preferences of consumers to purchase products from companies with high ethical standards, which has led to the catchphrase, "Doing well by doing good," which served as the title of a recent *Economist* article on the topic.[2] That is, companies may increase profits by acting as upstanding corporate citizens. In some cases, corporations may be particularly well-positioned to deliver 'warm glow' to consumers, due to complementarities between good 'deeds' and the firm's production process. For example, the most efficient way for a consumer to improve the lives of people in low wage countries may be to purchase goods from a certified 'fair labor' company with subsidiaries in the developing world rather than sending donations to a development NGO. Corporations can similarly integrate different elements of CSR into their interactions with employees (see, for example, Besley and Ghatak (2006) for a model that incorporates these complementarities). However, the complementarities between a firm's production and its socially oriented activities are not always so clear. In fact, the most visible element of a company's CSR activities is often its charitable giving, which in most cases could very easily be decoupled from its product (Caldwell 2006). Such corporate philanthropy raises the standard Friedmanesque concern that firms should simply charge lower prices and allow consumers to make their own charitable allocations.

In this paper, we present a signaling model of corporate philanthropy where there need not be any complementarities between production and CSR provision, and which is not subject to the Friedman critique. Our model is based on the use of such 'visible' CSR as a costly signal of trustworthiness in the presence of unobservable product attributes. Consider, for example, the task faced by a consumer in deciding whether to buy 'natural' beef from Whole Foods Natural Market. Given that it is difficult, even after consuming

[1] The Economist recently surveyed executives and investors on CSR. Of the136 executives and 65 investors who responded, eighty-five percent said corporate social responsibility (CSR) was now a "central" or "important" consideration in investment decisions. This figure is almost double the 44% who said CSR was "central" or "important" five years ago, demonstrating the growth in CSR's significance. Similar findings were also reported by the Global CEO Survey conducted by PriceWaterhouseCoopers.

[2] "Doing well by doing good," The Economist, December 16, 2002

the product, to verify the absence of bovine growth hormones, it is essential that Whole Foods establish its trustworthiness in the eyes of its customers. While there are consumer watchdogs and legal obligations that ameliorate such concerns to some degree, the purchase ultimately involves a leap of faith that the company is not passing off cheap, factory farmed beef as a premium product.

We argue here that CSR expenditures which are visible to the consumer, but unrelated to the firm's products, are useful in signaling the firm's trustworthiness in providing (unobservable) quality.[3] Obviously, for any signal to be effective, it must be that the signal is more costly for firms that try to masquerade as trustworthy. Our separating equilibrium is built on the assumption that entrepreneurs can be of two types – they can either be purely profit motivated or they may care about both profits and the externalities they impose. It is in fact this pure concern for profits without concern for externalities that drives some entrepreneurs to keep costs low by cutting corners and providing low (unobservable) quality products. This same difference in entrepreneurs' preferences makes corporate philanthropy more expensive for profit-maximizing entrepreneurs than it is for 'socially-minded' entrepreneurs, who gain some warm glow from charity and for whom it is therefore not a pure cost. Thus, CSR may serve as a means of vertical differentiation in a market where quality is difficult to observe, so that a firm must signal its aversion to sacrificing quality (i.e., generate trust with the consumer). This intuition has certainly not been lost on managers and industry consultants – a recent report by the market research firm, Datamonitor, emphasizes CSR as one of the primary mechanisms through which firms may build trust with consumers (Datamonitor 2005). Cause-related marketing campaigns, where a fraction of revenues from certain product lines are donated to charity, are another increasingly popular mechanism (Barrett and McCarthy, 2002).

[3] For an early discussion of this and related issues, see Milgrom and Roberts (1986), who treat advertising as a signal of quality but mention that CSR is also a possible signal.

We use our model to derive several implications that can be tested empirically.[4] We assume that there is some component of managerial preferences for charity that is idiosyncratic to the individual and hence may be thought of as randomly assigned. We show that in some industries, this (randomly assigned) managerial preference to take into account the externalities of their decision translates into corporate philanthropy. First, such corporate philanthropy is more likely in industries where a firm's image is important to consumers (e.g., industries with high advertising), and we also predict that corporate philanthropy should have less of a negative association with profits in such industries. Additionally, 'visible' CSR is more likely in industries where firms are closer together in product space, and hence CSR is a source of product differentiation in an otherwise uniform market space. Hence, we expect that corporate giving will be more prevalent in 'crowded', i.e., competitive, markets, and that profitability will be more (positively) correlated with CSR expenditures in such markets.

We find broad support for these predictions. We recognize that these empirical regularities may also be consistent with the 'consumer warm glow' theory of CSR. Clearly, these theories of CSR are not mutually exclusive; however, there are arguments that favor our explanation. First, as previously noted, the consumer warm glow theory is problematic conceptually, and begs the question of why social acts do not devolve to shareholders. Further, the empirical results appear more consistent with our signaling model, for the following reason. Our signaling model operates at the level of the *industry*, where CSR is a means of differentiation. By contrast, the consumer warm glow theory operates at the level of the firm – any advertising-intensive corporation should be able to derive benefits from a CSR message. Our empirical results are more consistent with an industry-level story, as our profit-CSR results do not obtain when we use firm-specific

[4] There is an extensive empirical literature on the relationship between CSR and corporate financial performance, measured either by Tobin's q or by the return on assets (RoA). The empirics in these studies differ in one important respect from ours, and this is in the nature of the CSR measure that they use. Almost all of them use a measure of environmental performance as the CSR variable, and in the great majority of cases this is based on toxic emissions as reported in the U.S. Environmental Protection Agency's toxics release inventory (TRI) (see for example Konar and Cohen 2001 and for the use of an alternative data set on environmental performance see Dowell Hart and Yeung 2000). Our study differs from all of these in the use of corporate philanthropy as a measure of CSR, rather than using a measure of environmental performance. For a review of this literature see Heal (2005).

advertising rather than an industry-level aggregate. Finally, regardless of the interpretation, many of the coarse correlations that we report here have not previously been documented and are of interest in and of themselves. We expect that future work will allow for more fine-grained tests of our trust-based signaling model.

The rest of the paper is organized as follows: In section 1 we present our theoretical framework. Section 2 provides an overview of the data. We present our empirical findings in Section 3, and conclude in Section 4.[5]

1. Model and analysis

We consider a framework where two firms produce a single product. For simplicity, the firms are located at the two ends of a line of unit length (0 and 1). Customers are located on this line and are indexed by their distance i from the firm at location 0. We take the 'travel cost' x between that two products as a measure of product market competition. We can think of products that are differentiated in one characteristic, with consumers' locations in the interval representing their optimal values for this characteristic.

1.1. The Product:

Customers derive a short term utility gain on consumption. This gain is denoted by R. However, they might also bear a longer-term cost (L). This occurs if the product is not customer-friendly, i.e., the product features unobservable to the customer are harmful to her. This could characterize the case of the Whole Foods beef which may or may not be treated with hormones, as described in the introduction, but there is no shortage of other examples. As additional illustrations, consider the case of a drug for the common-cold that might relieve the customer from symptoms but may also increase the likelihood of long-term future illness; or consider even the case of headphones that over time may entail the loss of hearing. Thus, we assume that all dimensions of the product cannot be

[5] Our findings are consistent with those of Lev Petrovits and Radhakrishnan 2006, who find that "charitable contributions enhance the future revenue growth of the donors. …. We find evidence that, for firms in industries that are highly sensitive to consumer perception, corporate giving is associated with subsequent sales growth."

observed and that some of the unobservable dimensions entail a long term cost on the consumer. We denote unsafe products by "U" and the safe products by "S".

1.2. Firms

The monetary profits that firms generate are denoted by $\Pi(.)$. A firm can be one of two possible types (firm G or B) based on its objective function. A socially responsible firm (firm G) receives a warm glow (W) from producing products that are of type S, i.e., customer-friendly. More generally the firm receives a warm glow from activities that benefit customers regardless of its implications for profits. Thus firm G receives $\Pi(U)$ if it produces the unsafe product and $\Pi(S) + W(tL)$ if it produces the safe product, where 't' is a parameter that signifies the potential negative impact on customers from unsafe products.

Assumption 1: $\Pi(S) + W(tL) > \Pi(U)$.

This ensures that the socially responsible firm will always produce the safe product.

A socially indifferent firm (firm B) does not care about customer welfare except through its impact on firm profits. Thus firm B receives $\Pi(S)$ if it produces the safe product and $\Pi(U)$ if it produces the unsafe product.

The profits depend on product type for two reasons. First, the two types of goods have different production costs. We assume that the marginal costs are constant but that the marginal costs of producing the safe product, c(s), are higher than the marginal costs of producing the unsafe product, c(u). That is,

Assumption 2: $C(s) > C(u)$

Second, the prices charged for these products, and the associated revenue streams, might differ. Of course, this can only occur if customers may distinguish firm types, and since type is unobservable to customers, it may only be inferred through firm signals. In our framework, corporate expenditure on social causes plays this signaling role. We

describe this expenditure as corporate social responsibility (CSR), and denote the cost incurred because of such social donations by D.

To focus our analysis on the existence and profit implications of CSR, we assume that the firm at location 0 is of type G (socially responsible) and that the firm at location 1 is of type B (socially indifferent). Customers know that one of the two firms is socially responsible but do not know which. Thus, for example, a customer with no information on firm type and with preferences at 1/2 will purchase from the socially indifferent firm with a probability of 1/2.

1.3. Customers

In a pooling equilibrium, where customers cannot distinguish between the two firms, customer utility on purchasing from the firm located at 0 is given by:

$$R - ix - p_G - 1/2\ L,$$

where i denotes the distance of the customer from the firm; p denotes the price chosen by the firms, and the parameter 'x' captures the extent of product differentiation that can be either spatial or non-spatial. In a separating equilibrium, the customer utility on purchasing from the socially responsible firm is

$$R - ix - p_G$$

and the utility on purchasing from socially the indifferent firm is

$$R - (1-i)x - p_B - L.$$

We now analyze the conditions for the existence of such a separating equilibrium and the profit implications of CSR.

1.3. Analysis: Pooling equilibrium

In a pooling equilibrium, a customer located at i purchases from the firm located at 0 (firm G) if

$$ix + p_G + 1/2\ L < (1-i)x + p_B + 1/2\ L.$$

This implies that the market share of firm G is given by

$$m_G = 1/2 + (p_B - p_G) / 2x = 1 - m_B$$

Thus firm G chooses its price to maximize

$$(p_G - c(s))\ m_G = (p_G - c(s))\{\ 1/2 + (p_B - p_G) / 2x\ \}$$

Thus,

$$p_G = (\ x + c(s)\ )/2 + p_B/2.$$

Therefore, in a pooling equilibrium where $p_G = p_B = p^*$, the price chosen is

$$p^* = x + c(s).$$

Lemma 1: In the absence of CSR, the profit of the socially responsible firm is x/2 and the profit of the socially indifferent firm is (x + c(s)-c(u))/2.

1.4. Analysis: Corporate Expenditures on Social and the Separating Equilibrium

We now consider the case where the firm spends D on social causes. This expenditure does not generate any profit, but can be used to signal firm type. The (utility) cost to firm G of donating to such social causes is D – W(D), where W(D) is the warm glow received from these expenditures. As described earlier, firm B is socially indifferent and receives no warm glow from social externalities. Since there is thus a correlation between disutility from producing unsafe products and the warm glow utility of making social

expenditures, CSR expenditures can be used to generate a separating equilibrium. We first characterize profits in such an equilibrium and then investigate its existence properties.

In a separating equilibrium, a customer located at i purchases from firm G if

$$ix + p_G < (1-i)x + p_B + L.$$

This implies that the market share of firm G is given by

$$m_G = 1/2 + L / 2x + (p_B - p_G) / 2x = 1 - m_B$$

Using these expressions, taking the price chosen by the socially indifferent firm as given, the price that firm G chooses to maximize $(p_G - c(s))\, m_G$ is

$$p_G = (c(s) + x + L)/2 + p_B/2 \qquad (1)$$

Similarly, the price that firm B chooses to maximize its profits is given by

$$p_B = (c(u) + x - L)/2 + p_G/2.. \qquad (2)$$

Using these expressions, we document our first finding:

Proposition 1: If non-profit expenditures can be used to generate a separating equilibrium between socially responsible and socially indifferent firms, then the price charged by socially responsible firms is higher than the price charged by socially indifferent firms. This price is also higher than the price used by firms in a pooling equilibrium if $c(u) + L > c(s)$.

Proof*: See Appendix.*

This result is intuitive since the separating equilibrium if it exists now reveals the higher quality product to the customer. This allows the socially responsible firm to charge a higher price. Having characterized firms' prices, we can also investigate the profitability of the two firms. The profits of the socially responsible firm are affected by two components: the revenues from product sales and the expenditures on social causes. We quantify this effect in the following lemma.

Lemma 2: In the presence of a separating equilibrium, the profits of the socially responsible firm are

$$x/2 + (c(u) + L - c(s)) / 3 \;\; + \;\; (c(u) + L - c(s))^2 / 18x) - D^*.$$

It is useful to note here that in a competitive market (lower x), customers are more concerned about the externality the product imposes rather than about other specific characteristics that are observable and more likely to be provided by other competitors. Thus, the benefit of generating a separating equilibrium would be higher in a competitive market.

This begs a question: would the socially indifferent firm not have a greater incentive to mimic the social expenditure in such a setting? Before we proceed to investigate the existence of such a separating equilibrium, we characterize the difference in profits between the two firms in a separating equilibrium.

Proposition 2: If non-profit expenditures (D^*) can be used to generate a separating equilibrium between socially responsible and socially indifferent firms then the difference between the profitability of the socially responsible firm and socially indifferent firm is given by

$$\Pi_G - \Pi_B = 2(c(u) + L - c(s)) / 3 - D^*.$$

Proof*: See Appendix.*

Note that the differential benefit is independent of the level of competition. This is because the firms adjust their prices accordingly. However, this expression also shows that firms that use social expenditures can be more or less profitable than their socially indifferent counterparts depending on the level of these expenditures ($D^{*)}$ that is required to generate a separating equilibrium.

We now investigate firm G's incentive to use social expenditures to generate such a separating equilibrium. For expositional ease, we denote the pecuniary profits of the socially responsible firm by Π_G (D_G, D_B) and the pecuniary profits of the socially indifferent firm by Π_B (D_G, D_B). In a separating equilibrium, $D_G = D^*$ and $D_B = 0$.

Firm G will use social expenditures to generate a separating equilibrium only if

$$\Pi_G\ (D^*,0) + W(D^*) > \Pi_G\ (0,0) \qquad (3)$$

We now investigate whether firm B has an incentive to mimic firm G's CSR activities. Firm B will choose not to mimic firm G only if

$$\Pi_B\ (D^*, D^*) < \Pi_B\ (D^*,0) \qquad (4)$$

Proposition 3: The use of non-profit expenditures (D^*) to social causes to generate a separating equilibrium between socially responsible and socially indifferent firms is more likely in competitive product markets (i.e. when x is small and product differentiation is low).

Proof: See Appendix.

The intuition of this result is again clear: CSR is a way of differentiating products in the face of product market competition.

1.5. Empirical implications

Unfortunately, we do not have a means of clearly identifying industries based on the importance of consumer trust. However, we may look at some of the coarser predictions

of the model in assessing who chooses to make CSR expenditures, and the profit implications.

There are two crucial elements to our model: competition, and the ability to signal to consumers. Hence, we look at predictions based on industry-level competition and industry-level advertising. More specifically Propositions 1 through 3 suggest that:

1. Firms in industries that are able to signal their type to consumers (high advertising industries) will have higher CSR expenditures.
2. Firms in competitive industries are more likely to have high CSR expenditures.
3. CSR expenditures are more positively correlated with profits in more competitive industries, due to the greater signal value of such expenditures in competitive environments.
4. In industries with low need or ability to signal to consumers, CSR expenditures (due, for example, to an individual manager's idiosyncratic preferences) will be negatively correlated with profits.

2. Data

To perform our tests, we extract balance sheet information from COMPUSTAT. This is then combined with information on a firm's social actions provided by KLD Research & Analytics Inc in their SOCRATES database. KLD uses this database to monitor a firm's social responsibility, and this forms the basis of the Domini 400 Social Index – the first and largest socially screened index in the world.[6] SOCRATES is a proprietary database program that provides access to KLD's ratings and other data pertaining to the social records of a subset of publicly traded U.S. companies between 1991 and 2003. The number of companies tracked by KLD expanded from approximately 500 to over 3000 by 2003.

The database consists of information about firm characteristics that have social and environmental impacts. These characteristics are used to assign measures of strength or concern. Each screen is assigned a zero/one score and is part of an overall evaluation of

[6] The fund manages over 1.8 bn in socially responsible investment vehicles such as the Domini Social Equity Fund, the Domini Social Bond Fund and the Domini Money Market Account.

corporate social performance. We restrict our attention to the community-oriented CSR screens as these are most directly related to our signaling model: they are expenditures that are least connected to direct profitability, and also the expenditures that are most visible to consumers (see, for example, Business in the Community 2000). This rules out, for example, human resource CSR which may much more readily be tied to direct profit maximization (e.g., by reducing turnover and otherwise improving worker productivity), and product quality CSR which has obvious and direct profit implications. Specifically, we measure a firm's corporate philanthropy based on KLD's the community-oriented screens[7]:

1) Generous Giving: The Company has consistently given over 1.5% of trailing three-year net earnings before taxes (NEBT) to charity, or has otherwise been notably generous in its giving.
2) Innovative Giving: The Company has a notably innovative giving program which supports nonprofit organizations particularly those promoting self sufficiency among the economically disadvantaged. Companies that permit non-traditional federated charitable giving drives in the workplace are often noted in this section as well.
3) Support for Housing: The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, e.g., the National Equity Fund or the Enterprise Foundation.

Aggregating over these three indicator variables, our index of philanthropy thus ranges between 0 and 3, with a higher value signifying greater generosity.[8] We call this variable *Philanthropy*.

Our empirical methodology is straightforward and builds on a key implication of the framework in the previous section: higher levels of corporate philanthropy should be observed for firms where the signaling value is greatest, and corporate philanthropy

[7] Slightly stronger results are obtained if we include community concerns as well as strengths. We omit concerns because they are essentially a mirror image of strengths, which results in much double counting. Additionally, we omit some community screens since they were introduced only in 2000 or later and consequently have virtually no overlap with our other data.

[8] KLD also began tracking from, 1994, 'support for education' which was defined as: The company has either been notably innovative in its support for primary or secondary school education, particularly for those programs that benefit the economically disadvantaged, or the company has prominently supported job-training programs for youth. Our results were qualitatively similar when we included this strength in our index and, consequently, decreased the sample to focus on the period between 1994 and 2002.

should be more correlated with profits in such cases. The two components to a firm's situation that we relate to the efficacy of corporate philanthropy in the previous section are industry competition and visibility to consumer.

To measure visibility to consumers, we use the median of the advertising expenditure to sales ratio for each 4-digit SIC code during the 1990s, calculated using the full sample of COMPUSTAT firms (*Advertising*). We use the Herfindahl-Hirschman Index (*HHI*), given by the sum of squares of the percentages of the market shares held by the firms in a market, as a measure of product market competition. Our data are at the 4-digit SIC code level and are derived from the 1982 Economic Census.[9] Since this variable is only available for manufacturing firms, its inclusion significantly reduces our sample size.

We additionally require measures of profitability. As an indicator of firm operating performance we use the firm's return on assets (income before extraordinary items divided by assets). We also use a measure of firm Q (market value of assets plus liabilities divided by book value of assets) as a forward-looking measure of performance. Using two distinct measures also serves as a robustness check on the results.

Finally, we include a number of commonly employed covariates in our regressions on profitability. These include (all data taken from COMPUSTAT, at the company-year level):

- log(*Sales*)
- *S&P* – Indicator variable denoting whether a firm is part of the S&P 500 index
- *Cash* – Cash holdings divided by book value of assets
- *Depreciation* – Depreciation expense divided by sales
- *Segments* – Number of business segments
- log(*Age*) – logarithm of he firm's age, as proxied by years since incorporation

Finally for our profit regressions, we trim the data of firm-level outliers, removing measures of profit that are above the 99th percentile or below the first percentile.

In Table 1, we summarize the median values of several firm characteristics based on a sample split of the (philanthropy =0 and > 0). Although these are only differences in medians, it is useful to make some preliminary observations. As predicted, corporate

[9] This is most recent data for which HHI is available.

philanthropy is higher in industries with a higher advertising to sales ratios. We do not, however, observe any significant difference in median *HHI* values based on the sample split.

Interestingly there are hardly any differences in cash holdings of firms that differ in their levels of corporate philanthropy. Thus, there does not appear to be any obvious evidence that firms with more cash to spend simply spend it on charity even if such activities might not affect firm value. However, it might be the case that more profitable firms generate higher cashflows and after spending on philanthropic causes end up with cash levels similar to less profitable firms that do not spend on charity. Even if philanthropy is unrelated to profitability, one would then observe a positive association between *Philanthropy* and profitability. As we will see later, looking at the link between our philanthropy measure and profitability across groups of firms with differing consumer orientation makes our results less hostage to such an interpretation. We now turn to a more structured econometric approach to study in greater detail the determinants of CSR and the characteristics that mediate the CSR-performance relationship.

3. Empirical Results

We begin by examining the correlation between industry characteristics and industry-level averages of corporate philanthropy. Specifically, for each company we take the median value of *Philanthropy* over the period 1990 – 2000 to generate a firm-level measure of *Philanthropy*. We then take the median of these firm-level averages for each industry, in order to generate a (constant) industry-level measure of *Philanthropy*. We then consider regressions of the form:

$$Philanthropy_I = \alpha + \beta_1 X_I + \beta_2 \log(Sales_I) + \varepsilon_I \qquad (5)$$

where I indexes the industry; X_I is either the industry-level median of advertising to sales ratio (*Advertising*) or the 4-digit Herfindahl Index based on the 1982 Economic Census (*HHI*); *Sales* is the median industry-level sales; and ε is a random disturbance term. The results are reported in Table 2. The correlation between *Philanthropy* and *Advertising* is strongly positive (column (1)), thus consistent with our model. The results on *HHI* are

much weaker - though the point estimate is negative, implying higher *Philanthropy* in more competitive industries, the effect is not at all significant.

Turning now to profitability, we wish to assess whether *Philanthropy* is more correlated with profitability in particular types of industries. Our regressions have the form:

$$Profit_{iy} = \alpha_y + \eta_I + \beta_1 Philanthropy_{iy} + \beta_2 Philanthropy_{iy} * X_I + Controls_{iy} + \varepsilon_{iy} \qquad (6)$$

where y denotes the year, i the firm and I the industry, profits is either *ROA* or log(Q); α_y is a year fixed effect and η_I is a 4-digit industry fixed effect; X_I is an industry-level characteristics that may affect the profitability of corporate philanthropy (i.e., either *Advertising* or *HHI*), and *Controls* is a set of firm-level controls. These results are presented in Table 3. It is first interesting to note that *Philanthropy* is uncorrelated with profits when no interaction term is included: The point estimate is actually negative, though it is not significant at conventional levels. When the interactions terms are added, we find results that of are mixed statistical significance, but in the direction that is consistent with the model's predictions: In advertising-intensive industries, there is a more positive relationship between philanthropy and profit. In the case of *ROA*, the point estimates imply that for a company in an industry with very low advertising expenditures (*Advertising* ≈ 0), there is actually a negative association between philanthropy and profits. However, for firms in industries with high advertising levels, there is no effect – the signal value of philanthropy offsets its direct cost, with the breakpoint coming at about *Advertising* = 0.05, or approximately the 90th percentile of *Philanthropy*. We obtain similar results for *HHI* – for competitive industries, the direct cost of giving is offset by the benefits of differentiation from CSR.

We conclude this section by noting that we do not intend our regressions to be seen as conclusive evidence on the validity of our model, but rather as an exploratory exercise. Our intention is to present a new set of empirical results that are consistent with our model, but we recognize that these predictions may be consistent with other theories of corporate giving. Despite this disclaimer, we believe that these empirical findings will be useful in providing direction for future work.

4 Conclusions

We have suggested that corporate philanthropy may act as a signaling device, indicating that a firm's products are reliable and that it can be trusted to provide high quality in those dimensions where the consumer cannot readily check quality before buying. This separation is built on the assumption that some managers derive wellbeing from avoiding actions that might harm other stakeholders (such as consumers) even if they benefit shareholders, and also from undertaking actions that benefit society, again at the expense of profits. Under these assumptions, we may see a separating equilibrium at which firms managed by socially concerned managers use philanthropy as a signal of the quality of their products and their concern for the consumer.

We view this model as an important progression in our conceptual understanding of CSR motivations. In particular, it is distinct from earlier consumer warm glow models in avoiding the standard critique that firms should simply charge lower prices and allow consumers to make charitable expenditures themselves. Apart from addressing this conceptual critique, the model also generates some interesting empirical implications.

In particular, it suggests that corporate philanthropy should be more common in industries where products are less differentiated (i.e., more competitive) and where there is greater scope to signal one's type to consumers. More interestingly, the framework posits a link between profits and corporate giving only in competitive industries and where firms can use CSR to signal their type. Using advertising intensity (ability to signal) and Herfindahl index (a rough measure of differentiation), we provide mixed evidence for the former hypothesis while confirming the latter.

While we do not have sufficiently refined data to definitely test our predictions, the striking correlations are consistent with our theoretical results. More refined data and better identified tests are required to provide a more substantial evaluation of our theory, and better understand CSR motivations in general. This should be one particularly fruitful avenue for further research.

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Appendix

Proof of Proposition 1:

Solving for the prices given by (1) and (2), we get

$p_G = x + (2c(s) + c(u) + L)/3$ *and*

$p_B = x + (2c(u) + c(s) - L)/3.$

Since $c(s) > c(u)$, $p_G > p_B$. *Also, if* $c(u) + L > c(s)$, $p_G > p^*$. ♦

Proof of Proposition 2:

Using the prices from the prior proposition, we can characterize firm profits. Firm G's pecuniary profits are given by

$$(1/2 + (c(u) + L - c(s)) / 6x) \; (x + (c(u) + L - c(s)) / 3) - D^*$$

$$= x/2 + (c(u) + L - c(s)) / 3 + (c(u) + L - c(s))^2 / 18x) - D^*.$$

Similarly, firm B's pecuniary profits are given by

$$x/2 - (c(u) + L - c(s)) / 3 + (c(u) + L - c(s))^2 / 18x).$$ ♦

Proof of Proposition 3:

From (3), using Proposition 2, firm G will use social expenditures only if

$$\Rightarrow x/2 + (c(u) + L - c(s)) / 3 + (c(u) + L - c(s))^2 / 18x - D^* + W(D^*) > x/2$$

$$\Rightarrow (c(u) + L - c(s)) / 3 + (c(u) + L - c(s))^2 / 18x > D^* - W(D^*) \qquad (5)$$

From (4), using Proposition 2, firm B will not mimic firm G's social expenditures only if

$$(x + c(s) - c(u)) / 2 - D^{\wedge *} < x/2 - (c(u) + L - c(s)) / 3 + (c(u) + L - c(s))^2 / 18x$$

$$\Rightarrow (c(s) - c(u)) / 2 - D^{\wedge *} < - (c(u) + L - c(s)) / 3 + (c(u) + L - c(s))^2 / 18x \qquad (6)$$

Both inequalities ((5) and (6)) are more likely to be satisfied as x is lower, that is, as product differentiation is low. ♦

Table 1 – Summary Statistics

Sample Medians based on a sample split of *Philanthropy*		
	Philanthropy=0	Philanthropy>0
Advertising/Sales	0.017	0.025
Herfindahl	0.45	0.40
Outside Blocks	0.12	0.07
Governance	0.46	0.43
ROA	0.044	0.041
Market to book	1.50	1.40
Leverage	0.19	0.25
Cash	0.05	0.04
Sales	2531.80	5681.84

Distribution of *Philanthropy*	
Philanthropy Value	Firm-year observations
0	5680
1	1071
2	234
3	26

Table 2 - Predicting Philanthropy

	(1)	(2)	(3)
Advertising	2.212***		5.744***
	(0.774)		(1.922)
Herfindahl		-0.030	-0.016
		(0.037)	(0.035)
log(Sales)	0.069***	0.101**	0.103**
	(0.015)	(0.043)	(0.043)
Observations	302	110	101
R-squared	0.15	0.07	0.27

Notes: Philanthropy, the sum of KLD's four community strength indicator variables, is the dependent variable in all regressions, averaged at the 4-digit SIC industry level. Advertising is the median of advertising expenditure to sales at for each 4-digit SIC code during 1990-2000. Herfindahl is the 1982 Herfindahl Index for each 4-digit SIC code. Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3 - Advertising, Concentration, and Profitability

	(1)	(2)	(3)	(4)	(5)	(6)
Philanthropy	-0.003	-0.001	-0.007**	-0.020	0.001	0.039
	(0.003)	(0.012)	(0.003)	(0.016)	(0.007)	(0.035)
Philanthropy			0.121*	0.566		
*Adv Intensity			(0.062)	(0.371)		
Philanthropy					-0.008	-0.042*
*Herfindahl					(0.006)	(0.023)
log(Sales)	0.006***	0.031***	0.005***	0.018**	0.009***	0.027**
	(0.002)	(0.008)	(0.002)	(0.008)	(0.003)	(0.012)
log(Age)	-0.004	-0.078***	-0.005*	-0.086***	-0.005	-0.057*
	(0.003)	(0.016)	(0.003)	(0.017)	(0.005)	(0.030)
Depreciation	-0.403***	-0.561***	-0.410***	-0.621***	-0.844***	-0.862*
	(0.049)	(0.154)	(0.049)	(0.172)	(0.130)	(0.475)
log(No. of Segments)	-0.007***	-0.023***	-0.007***	-0.025***	-0.007***	-0.031**
	(0.002)	(0.008)	(0.002)	(0.009)	(0.003)	(0.014)
S&P	-0.000	0.022	0.001	0.036**	0.002	0.043
	(0.004)	(0.018)	(0.004)	(0.019)	(0.008)	(0.032)
Dependent Variable	ROA	log(Q)	ROA	log(Q)	ROA	log(Q)
Observations	5933	5967	5946	5980	2255	2260
R-squared	0.31	0.51	0.31	0.50	0.36	0.49

Notes: Philanthropy, the sum of KLD's four community strength indicator variables. Advertising is the median of advertising expenditure to sales at for each 4-digit SIC code during 1990-2000. Herfindahl is the 1982 Herfindahl Index for each 4-digit SIC code. See the text for further details. All regressions include company and year fixed effects; robust standard errors with clustering at the company level. * significant at 10%; ** significant at 5%; *** significant at 1%