

An Empirical Analysis of the Strategic Use of Corporate Social Responsibility

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Abstract

Recent theories of the strategic use of corporate social responsibility (CSR) emphasize the role of information asymmetry and how CSR is likely to be matrixed into a firm's product differentiation strategy. A key empirical implication of these theories is that firms selling experience or credence goods and services are more likely to be socially responsible than firms selling search goods. Using firm-level data, we report evidence that is consistent with this hypothesis.

Keywords: Corporate Social Responsibility (CSR), Search Goods, Experience Goods, Credence Goods

JEL Codes: M14, D21

I. Introduction

Corporate social responsibility (CSR) occurs when firms engage in activity that appears to advance a social agenda beyond that which is required by law. For instance, an automobile manufacturer could produce “hybrid” vehicles, which significantly exceed government fuel efficiency requirements. Similarly, a savings and loan association is said to be socially responsible when it approves a higher proportion of loans to poor or minority borrowers than required by the Community Reinvestment Act, which governs the lending practices of these institutions.

Recent theories of CSR (Baron (2001), McWilliams and Siegel (2001), Bagnoli and Watts (2003)) assert that firms engage in “profit-maximizing” CSR. That is, companies are assumed to be socially responsible because they anticipate a benefit from these actions. Examples of such benefits might include reputation enhancement, the ability to charge a premium price for its output, or the use of CSR to recruit and retain high quality workers. These benefits are presumed to offset the higher costs associated with CSR, since resources must be allocated to allow the firm to achieve CSR status.

These theoretical studies emphasize how this activity is likely to be matrixed into a firm’s differentiation strategies. They also focus on the importance of information asymmetry. The purpose of this paper is to determine whether observed patterns of investment in CSR are consistent with the strategic use of CSR. More specifically, we present a simple empirical test of the hypothesis that firms selling experience and credence goods are more likely to be socially responsible than firms selling search goods.

The remainder of this paper is organized as follows. In the next section, we briefly review some recent theoretical studies relating to the strategic use of CSR. This section also

outlines the simple model we wish to estimate. Section III presents our data and describes the construction of variables used in the empirical analysis. The following section describes our econometric analysis and presents empirical results. Section V consists of caveats and preliminary conclusions.

II. Literature Review and Theoretical Model

To the best of our knowledge, Baron (2001) and McWilliams and Siegel (2001) were the first two papers to explicitly model “profit-maximizing” CSR. Baron (2001) coined the phrase “strategic CSR.” He defines CSR as the “private provision of a public good.” More importantly, Baron (2001) asserts that companies compete for socially responsible customers by explicitly linking their social contribution to product sales. A good example of such strategic CSR was Ben and Jerry’s commitment to donate 7.5% of its pre-tax profit to social causes.

In a similar vein, McWilliams and Siegel (2001) outlined a simple theoretical model in which two firms sell identical goods, except that one company decides to add an additional “social” attribute or feature to its product. This social feature is valued by some consumers or, potentially, by other stakeholders. In this theory of the firm-based model, managers conduct a cost/benefit analysis to determine the level of resources to devote to CSR activities/attributes. Simply put, firms simultaneously assess the demand for CSR and the cost of satisfying this demand and then determine the optimal level of CSR to provide.

A key implication of a theory of the firm/strategic perspective on CSR is that this activity is likely to be matrixed into the company’s business-level differentiation strategies. For example, a “hybrid” version of a Honda Accord generates less pollution than a standard Honda Accord. Most consumers will consider the hybrid car to be superior to the standard model.

Some consumers are also willing to pay a price premium for the hybrid car, given that the social characteristic of less pollution is “valuable” to them. Other types of CSR investment relate to the adoption of CSR-related production processes, where the focus of concern relates to the extent to which the firms’ production methods are socially responsible. Thus, many natural food companies (e.g., Hain Celestial Group, Inc.) place labels on their products signifying the use of organic, pesticide-free ingredients.

Bagnoli and Watts (2003) extend Baron (2001) by analyzing how the structure of competition in the market for the private good affects CSR. They assume that the consumer has perfect information about both the private good and the associated public good. In their model, the consumer has a willingness to pay because the firm produces a good or service with jointly supplied benefits. The authors consider two oligopoly models: Cournot quality competition and Bertrand price competition. A key finding of their study is that when the market for the private good is more competitive, firms are more likely to be socially responsible.

Other papers (Baron (2001), Feddersen & Gilligan, (2001)) provide additional insights on the strategic implications of CSR, especially the role of asymmetric information. While some CSR attributes are easily observed, it is sometimes difficult for consumers and other stakeholder to assess a firm’s social performance. The level of asymmetric information regarding internal operations can be mediated by the firm itself or by activists. For instance, companies such as McDonalds, Motorola, and Nike publish annual reports on social responsibility. One can view this activity as a form of advertising, especially for more general types of CSR. While such reports may be useful, some consumers perceive this information as biased, since it is filtered through senior management. Feddersen & Gilligan (2001) assert that activists can play an important role in addressing this concern, by supplying consumers with a public good, i.e.,

information they can rely on to choose socially responsible firms.

McWilliams and Siegel (2001) specifically advanced the hypothesis that a firm selling an experience good is more likely to engage in CSR than a firm producing a search good.

Experience goods must be used or consumed before their true value to the consumer can be determined. Examples of experience goods and services are automobiles, appliances, weight control programs and mutual funds. Advertising of experience goods will stress the reputation of the firm for high quality. On the other hand, search goods and services are readily evaluated prior to purchase, and most advertising will involve information about product availability and price. Clothing, footwear and furniture are typically cited as examples of search goods.

It is also possible that the form of CSR is tailored to the type of experience good the firm sells. Thus, some firms may find it advantageous to engage in a more publicly visible type of CSR. Such “public” CSR might entail generous charitable contributions, avoiding layoffs, or adopting 'green' purchasing policies, actions that are likely to attract public attention and signal social responsibility. For example, some potential customers of a bank (classified here as selling an experience service) may be more concerned (at the margin) about the organization's charitable donations to specific causes in the local community or its family-friendly employment policies than with attributes of service quality or honesty.

The concept of experience and search goods is generally attributed to Philip Nelson (1970, 1974), who developed a taxonomy of such goods that was extended by Liebermann and Flint-Goor (1996). Lancaster (1981) noted that consumers of high quality products have the strongest demand for product information because while low price is typically a reliable signal of low quality, a high price may not signify high quality. Given that affluent consumers are most likely to demand high quality goods, CSR as a signal of product quality is likely to be associated

with upscale goods and services that typically yield higher profit margins.

Our interpretation of this phenomenon extends insights from the Bagnoli and Watts (2003) and McWilliams and Siegel (2001) models. Specifically, we hypothesize that consumers view CSR activity as a signal about the attributes of the private good sold by the firm. That is the reason why experience goods are more likely to be associated with CSR.

The notion of a consumer demand for CSR is based on the idea that buyers believe that a reliable and honest firm will produce better products. In the minds of some consumers, CSR is viewed as a signal of such honesty and reliability. Thus, CSR is a form of product differentiation--a form of advertising to establish or sustain brand loyalty. The producer of a search good such as food or furniture might choose CSR, e.g., to use pesticide-free ingredients or pledge not to use old-growth wood. In this case, the consumer might prefer the product simply because of a desire to support the environment or some other cause, rather than using CSR as an indirect proxy for information regarding the product. Thus, the relative importance of different types of experience versus search goods in the CSR choice is an empirical issue, which provides a key motivation for this paper.

A Model of Corporate Social Responsibility

A firm is hypothesized to engage in CSR if it anticipates benefits greater than costs. Let $\Pi_{CSR} = \beta N \mathbf{x}_{CSR} + \varepsilon_{CSR}$ be the *expected* profit earned if a firm chooses CSR. The \mathbf{x} vector would include input and output prices (a profit equation), and background variables such as product type, market structure, and regulatory environment. An error term ε_{CSR} is appended because this is intended as an empirical exercise. A firm that chooses not to be CSR earns $\Pi_{NCSR} = \gamma N \mathbf{x}_{NCSR} + \varepsilon_{NCSR}$. The expected net profit from choosing CSR is $C^* = \beta N \mathbf{x}_{CSR} - \gamma N \mathbf{x}_{NCSR} + (\varepsilon_{CSR} - \varepsilon_{NCSR}) =$

$\delta N\mathbf{x} + \varepsilon$, but C^* is not observed. Note also that we do observe that $C^* = 1$ if a firm chooses CSR and $C^* = 0$ if not, and assume that this implies that $\Pi_{CSR} > \Pi_{NCSR}$.

This type of regression equation is routinely estimated as either a probit or logit model, depending on the assumed distribution of the residuals. The \mathbf{x} vector in the reduced form estimating equation includes those variables thought likely to influence a firm's decision to adopt a CSR stance. This formulation of the problem is similar to the individual choice of travel mode, e.g. car versus train. The key choice variables are time and money cost, but those values will vary across individuals, thus leading to different preferred choices (and unobserved utility levels). All that is observed is the mode selected.

In the present case, the key difference between the firms is that one decides to incorporate a social characteristic or feature in its product and/or to undertake some type of social investment, while the other does not. Profit differentials arise because the firm that sells a socially responsible product is likely to charge a premium price (relative to its competitors) for its product and pay higher prices for its inputs or pay higher wages than a non-socially responsible company. Although the focus of this paper is on the subset of the \mathbf{x} coefficient vector relating to the taxonomy of search, experience and credence goods, the literature suggests that there are additional determinants of the propensity of firms to be socially responsible.

Following Waddock and Graves (1997) and McWilliams & Siegel (2000), we include measures of profitability, firm size, and R&D intensity as control variables. The inclusion of profits is based on the notion that better financial performance may result in CSR rather than cause it. Managers may spend firm resources to enhance their own reputations rather than maximize shareholder value, thus reversing the direction of causality. A size variable is added to control for the possibility that large firms are more vulnerable to pressure groups or the

possibility that there are economies of scale in CSR. McWilliams and Siegel (2000) assert it may be appropriate to include R&D investment in this equation, since CSR should be related to product innovation and differentiation strategies, in general. Thus, we estimate equations of the following form:

$$(1) \text{ CSR1, CSR2, or CSR3} = f(\text{GOODTYPE, PROFIT, SALES, RDINT}),$$

where CSR1, CSR2, and CSR3 are dummy variables that are equal to 1 if the firm is considered to be socially responsible, based on alternative definitions of CSR provided below; 0 otherwise. GOODTYPE refers to a set of dummy variables denoting whether the firm's products or services are search, experience, or credence goods, PROFIT is proxied by market capitalization which reflects not only volatile past profits but also *expected* future profits, SALES is net sales revenue (a proxy for firm size), and RDINT is the ratio of R&D to net sales revenue.

III. Data and Construction of Variables

Measures of Corporate Social Responsibility

The first step in our empirical analysis is to identify socially responsible firms. To accomplish this task, we rely on data from Kinder, Lydenberg, and Domini (KLD), a firm that rates the social performance of corporations. KLD sells this information to portfolio managers and other institutional investors who wish to incorporate social factors into their investment decisions. Such social investors seek to “screen” their portfolios to exclude companies that violate their social principles.

We use three alternative measures of CSR based on KLD data. Given the somewhat ambiguous nature of the CSR construct, it is probably useful to have “multiple indicators” of CSR. The first measure of CSR (CSR1) is a dummy variable, with a value of 1 if a firm is

included in the 2002 KLD Large Cap Social Index (LCSI); 0 otherwise. The LCSI is drawn from the Russell 1000 Index, which covers more than 90% of total U.S. stock market capitalization. The Russell 1000 Index is much broader than the Dow Jones or Standard and Poor's indices and thus, includes a higher proportion of smaller (publicly-traded) firms.

KLD uses a combination of surveys, financial statements, articles in the popular press and academic journals (especially law journals), and government reports to assess social performance along eleven dimensions: corporate governance, community relations, diversity, employee relations, environment, human rights, alcohol, gambling, military contracting, nuclear power and tobacco. KLD researchers assess "strengths" and "concerns" regarding these twelve dimensions of social performance, in order to determine if a company is worthy of being judged socially responsible. The KLD LCSI consists of firms in the Russell index that satisfy all of the following criteria: (1) they derive less than 2% of their gross revenue from the production of military weapons, (2) they have no involvement in nuclear power, gambling, tobacco, and alcohol, (3) they have a positive record in each of the remaining social categories.

Our second measure of CSR is constructed directly from the KLD qualitative measures of social performance. Using the KLD data, we sum the strengths and concerns along all of the aforementioned CSR dimensions for each company. We then compute the sum of a firm's strengths minus the sum of its weaknesses (DIFF). If this difference is non-negative ($\text{DIFF} > 0$) then a firm is defined as being socially responsible or $\text{CSR}_2 = 1$; 0 otherwise. A drawback of this measure is that it equally weights all strengths and concerns, as well as each social dimension.

The third measure of CSR (CSR_3) is an indicator of "public" CSR, which consists of just four categories: the community relations, diversity, environment, and international human rights

practices of non-U.S. operations dimensions of the KLD CSR file. Thus, CSR3 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses in community relations, diversity, environment, and international human rights practices of non-U.S. operations; 0 otherwise.¹

Classification of Search and Experience Goods

The next task is to identify whether firms sell search, experience, or credence goods. The basic data set consists of 696 publicly traded corporations, 495 of which appear in the KLD Large Cap Social Index (LCSI) and thus, are considered to be socially responsible (using our first measure of CSR). These 696 firms were selected because they could be identified as producing either search goods or experience Goods, using the North American Industrial Classification System (NAICS) code, as reported in the COMPUSTAT database.² Conglomerate firms or firms producing industrial products not sold to final consumers are therefore omitted.³ Table 1 shows the detailed categories of four types of experience goods identified, as well as search goods, following the classification schema of Nelson (1974) and Liebermann and Flint-Goor (1996).

 Insert Table 1 about here

Non-durable Experience Goods involve frequent purchases (such as food and health and

1 We are indebted to an anonymous referee for suggesting this measure of CSR.

2 The descriptive statistics and correlation matrix are based on 696 observations, while some of the regressions include only 662 observations, due to missing variables.

3 We have two reasons for excluding firms that do not sell to final consumers. The first is a desire to focus on CSR that is visible to the consumer. A second reason is that Philip Nelson's (1970, 1974) framework of information asymmetry (and its relation to advertising) applies to consumer goods. As such, the taxonomy of search, experience, and credence goods relates to final goods and services, as opposed to intermediate goods and services.

beauty products) that the consumer experiences over multiple uses. Markets for both non-durable experience goods and search goods typically exhibit weak brand loyalty and a high degree of market competition. In other words, the opportunity for inexpensive repeat buying to judge product value renders non-durable experience goods similar to search goods.

Durable Experience Goods, such as automobiles, permit less learning from repeat buying and also require a longer period for a product's attributes to be fully known, e.g., reliability.

Experience Services and *Credence Services* both involve a high degree of information asymmetry between sellers and buyers. The products tend to be diversified, so information about one brand or type is not very useful in evaluating competing services, and even with the passage of time the consumer may find it difficult to judge its value. Examples of experience services are air travel and nursing homes. Mutual funds, health care and auto repairs are examples of credence services.

Consumers are not totally reliant on firms for product information. Government agencies such as the Consumer Products Safety Commission and the Food and Drug Administration are important sources of information. In the private sector, Better Business Bureaus and organizations such as *Consumer Reports* magazine exist to provide information to consumers. Nevertheless, a firm's reputation is probably one of its most valuable assets, and investing in CSR is a way of enhancing that value.

In our sample of firms, the distribution by class of goods is as follows: search goods (6%), non-durable experience goods (11%), durable experience goods (26%), experience services (36%), and credence services (21%).

In the following section of the paper, we outline our econometric strategy and present empirical findings.

IV. Econometric Analysis and Empirical Results

We employ two econometric strategies to estimate the likelihood of a firm engaging in CSR. First, we estimate a conventional probit model, using the three alternate dummy variable proxies for CSR as dependent variables. The key explanatory variables are the four types of experience goods indicators, with search goods as the default. We also include as control variables year 2000 return on equity ROE2000, net sales revenue (2002), and the percentage of net sales devoted to research and development in 2002(RDINT).

A second approach involves two-step maximum likelihood estimation, which is designed to address issues of endogenously determined explanatory variables (Greene (2000), 133).⁴ Our particular concern is whether or not profitability can be treated as cause or effect in determining CSR. That is, one might question the direction of causality. Do higher profits induce companies to engage in CSR or does engaging in CSR lead to higher profits? The latter interpretation is certainly consistent with the strategic use of CSR.

Thus, we also estimate the following two-step probit model, which controls (albeit, imperfectly) for the potential endogeneity of profit:

$$\text{PROFIT} = f(\text{LAGGED PROFIT}, \text{FIRMSIZE}, \text{R\&D INTENSITY})$$

$$\text{Prob (CSR1, CSR2, or CSR3)} = f(\text{GOODTYPE}, \text{FITTED PROFIT}, \text{R\&D INTENSITY})$$

In the first step equation, the market value has three explanatory variables: lagged profit, net sales revenue, and R&D intensity. The fitted or predicted profit is then included as a regressor in the second stage probit equation, which estimates the probability of a firm adopting CSR, using

⁴ Unlike two-stage estimation procedures, two-step estimation does not involve simultaneous estimation of multiple equations.

the Murphy and Topel (1985) adjustment of the variance covariance matrix.

We use the firm's aggregate stock market capitalization/value as the dependent variable in the first stage equation. Market value incorporates investors' expectations regarding future profitability, as well as all known information relating to current and past profitability. This is a more forward-looking measure of profit (expected profit), which may be less subject to managerial manipulation. Another justification for including a measure of expected profitability is that CSR is considered to be a form of investment in our theoretical framework. The two-step model can be estimated in LIMDEP, although we had to manually compute robust standard errors for the second step parameter estimates.

Descriptive statistics and a correlation matrix for the variables used in the regression equations are presented in Table 2. The representative firm in our sample generated approximately \$6.9 billion in sales, earned a 14.3% return on equity, and allocated 3.5% of sales to R&D. Not surprisingly, the three measures of CSR are positively correlated. Most importantly, a firm's propensity to sell experience or credence goods appears to be positively correlated with the probability that it is considered to be socially responsible.

 Insert Table 2 about here

The simple probit regression estimates of the determinants of social responsibility (for the three CSR proxies) are presented in Table 3, where the standard errors on the estimated coefficients are corrected for possible heteroskedasticity.⁵ In columns (1), (5), and (9) of Table 3, we include a single dummy for search goods, while in the remaining columns we include separate dummy variables for non-durable experience goods, durable experience goods,

⁵ We also estimated logit regressions, which yielded similar results.

experience services, and credence services. R&D intensity is also included as a regressor in columns (4), (8), and (12). Finally in columns (4), (8), and (12), we report the probit estimates with sales and profit excluded from the equation, since these are the problematic variables, in terms of endogeneity/causality.

Insert Table 3 about here

Several potentially interesting stylized facts emerge from the econometric results. Contrary to expectations, we find little evidence that large firms are more likely to be socially responsible. However, for each CSR indicator, the results strongly suggest that firms producing search goods are less likely to engage in CSR. Columns (2) (3), (4), (6), (7), and (8) reveal that companies selling durable experience goods and especially, credence services have the highest probability of investing in CSR. This pattern is consistent with theories of strategic CSR, which predict that the level of asymmetric information and the importance of firm reputation are highest for credence goods or services.

The findings for partial or “public” CSR (CSR3) reveal a slightly different story. Based on this measure of CSR, we find that firms selling non-durable experience goods are more likely to be socially responsible. More importantly, the coefficients on credence services are statistically insignificant for this particular type of CSR. This could imply that in order for CSR to be effective as a signaling device (e.g., for trust, honesty, concern for quality), the organization must be socially responsible across the board. It might also be a reflection of the types of firms who sell credence services. As shown on Table 1, these are mainly financial service companies and other local service providers (e.g., companies that sell weight control

services). Recall also that our measure of public CSR includes environmental factors and the international human rights practices of non-U.S. operations. Such companies do not typically encounter environmental issues domestically or labor practices/human rights issues abroad.

Although these regression estimates are important, it is also useful to compute to increase or decrease in probability of CSR associated with a variable whose coefficient is statistically significant. In this regard, we computed slope parameters, or the marginal effects evaluated at the means of the other explanatory variables. For the dummy variables that measure search, experience, or goods, the marginal effect is $\Delta\text{Prob}_C = \text{Prob}[C^*=1 | z=1] - \text{Prob}[C^*=1 | z=0]$, where z is the dummy variable of interest. These findings indicate that selling a search good reduces the probability that a firm is considered to be socially responsible by about 19% (averaged across all the models we estimate), at the margin. Firms whose products are durable experience goods or credence services are significantly more likely to engage in CSR, with an increased probability of about 18% and 25% (averaged across all the models we estimate), respectively.

Various measures of goodness of fit for limited dependent variable models have been proposed in the literature. The average (across all models) pseudo R-squared value proposed for the probit by Zavoina and McKelvey (1975) is .41. Another frequently reported statistic in models of binary choice is the proportion of outcomes correctly predicted by the fitted equation. However, this is sensitive to the chosen probability level, i.e., what P value equates to $C^* = 1$, with .50 as the typical default. That is not satisfactory in the present case because the sample is unbalanced, with .71 of the observations being $C^* = 1$ (for CSR1). For example, if a threshold probability of .68 is chosen, then 85% of actual 1s are correctly predicted, and 67% of 0s and 1s

correctly predicted.⁶ Hosmer and Lemeshow (1989) proposed a diagnostic statistic to assess the match between actual and predicted values (see Limdep 8, p. E15-28 for details). The test statistic follows a chi-squared distribution, and values less than the critical value is evidence in favor of the model. For the probit model of Table 3, the Hosmer-Lemeshow test statistic for variant is always lower than the 95% critical value of 15.51 (prob = .08) for each of the CSR indicators. Thus, the probit model specification cannot be rejected for each variant of the model and for all three CSR proxies.

We now turn to the two-step probit maximum likelihood estimates of the determinants of the propensity of firms to engage in CSR, which are presented in Table 4. Recall that these findings control for the possible endogeneity of profit. For CSR1 and CSR2, the two-stage findings are somewhat weaker than the simple probit estimates. However, these results still strongly suggest that firms selling experience and credence goods and services are more likely to engage in social responsibility. Note that the public CSR measure (CSR3) has considerably more explanatory power in the two-stage model than in the simple probit case, with positive and statistically significant coefficients for non-durable experience goods and experience services.

 Insert Table 4 about here

⁶ The table of actual and predicted 0s and 1s is shown below.

	Predicted		
Actual	0	1	Total
0	47	154	201
1	72	423	495
Total	119	577	696

V. Conclusions and Caveats

In a recent insightful survey of CSR, *The Economist* (2005, 8) identified four varieties of CSR, based on whether this activity raised or lowered profits and raised or lowered social welfare. This paper constitutes the first empirical test of recent theories of strategic CSR. Specifically, we focus on the importance of the type of product or service sold by a firm as a determinant of management's decision to invest in CSR. This decision could represent a signaling device regarding the quality of the firm's output.

Consistent with these theories of strategic CSR, we find that companies selling durable experience goods or credence services are much more likely than comparable firms to be socially responsible. At the margin, our results imply that firms selling a credence service (e.g., financial services) are about 23% more likely to opt for CSR. Similarly, a firm producing durable experience goods, such as automobiles or software, is about 15% more likely to be socially responsible. Our results also suggest that firms selling experience services or non-durable experience goods are more likely to adopt CSR, although the nature and strength of this relationship may likely depend on the type of CSR the firm wishes to engage in (e.g., "public" CSR or "across-the board" CSR).

While additional research is needed to pin down the diverse reasons why firms adopt a CSR stance, the evidence presented here supports a view that it is consistent with theories of strategic CSR and rational, profit-seeking management decision-making. Others may view the same evidence as proof that CSR is a "fraud" or "smokescreen" to disguise the same behavior, which they abhor.

Several caveats should be mentioned. The first is that our empirical analysis is based on

a single cross section. It would be useful to test theories of strategic CSR using panel data, which would enable us to better control for unobserved firm heterogeneity and changes in CSR behavior and its determinants over time. A second concern is the possibility that our econometric analysis is subject to omitted variables bias. In contrast to ordinary least squares estimation, the estimated coefficients in a probit model are inconsistent, even if the omitted variables are uncorrelated with the included regressors (see Greene (2000) (p. 828)). It is impossible to assess the importance of this effect on our estimates of the impact of good type on the propensity of firms to engage in CSR. Finally, it is difficult to classify a company cleanly into selling search, experience or credence goods and service. Although we eliminated conglomerate firms from our sample and relied on the firm's primary products or services for our industry classification, we recognize that many firms are diversified, which induces a certain amount of measurement error in our empirical analysis. In an ideal world, the division or perhaps, the plant or establishment, would serve as the unit of analysis, rather than the firm.

Table 1**Classification of Search, Experience, and Credence Goods**

<i>Search Goods</i>	<i>Non-Durable Experience Goods</i>	<i>Durable Experience Goods</i>	<i>Experience Services</i>	<i>Credence Services</i>
Clothing	Health/Beauty	Housing	Advertising	Investments
Furniture	Cigarettes	Automobiles	Transportation	Trusts
Footwear	Food	Appliances	Vacations	Portfolio Management
Carpets	Cleaners	Hardware	Education	Mutual Funds
Mattresses	Newspapers	Drugs	Training	Insurance
	Office Supplies	Glasses	Tours	Health Care
		Software	Transportation	Weight Control
		Signs	Banking	Car Repairs
		Books	Car Rentals	
		Sporting Goods	Entertainment	
		Hobbies	Direct Mail	
		Utilities	Real Estate	
			Cargo	
			Job Placement	
			Information	
			Nursing Homes	
			Sports Clubs	
			Hotels	
			Waste Collection	
			Landscaping	

Table 2
Descriptive Statistics and Correlations (N=696 firms)

	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11
1. CSR1	.71	.45	----										
2. CSR2	.38	.49	.24**	-----									
3. CSR3	.32	.47	.28**	.31**									
4. Search	.06	.24	-.08	.11	-.07	-----							
5. Non-Durable Experience Good	.11	.31	-.06	.05	.20*	-.09	-----						
6. Durable Experience Good	.26	.44	.13	.12	.22*	-.15	-.21*	-----					
7 Experience Service	.36	.48	.14	.11	.09	-.19	-.27**	-.45**	-----				
8. Credence Service	.21	.40	.21*	.28**	.13	-.13*	-.18*	-.30**	-.39**	-----			
9. Sales (\$mil)	6914.77	.59	-.06	.05	.10	.06	-.04	.06	-.01	-.05	-----		
10. Lagged Profit	14.28	20.48	.02	.01	.05	.07	.05	-.02	.00	-.06	.07	-----	
11. R&D Intensity	3.54	26.42	.05	.04	.10	-.01	-.04	.15*	-.06	.08	-.03	-.01	-----

Notes: ⁺p < .10; *p < .05; **p < .01

CSR1 is a dummy variable, with a value of 1 if a firm is included in the 2002 KLD Large Cap Social Index (LCSI); 0 otherwise.

CSR2 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses; 0 otherwise.

CSR3 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses in community relations, diversity, environment, and with respect to international human rights practices in non-U.S. operations; 0 otherwise (proxy for “public” CSR).

Table 3
Probit Coefficient Estimates of the Determinants of the Propensity of Firms to Engage in CSR
Dependent Variables:

Independent Variables	(1) CSR1	(2) CSR1	(3) CSR1	(4) CSR1	(5) CSR2	(6) CSR2	(7) CSR2	(8) CSR2	(9) CSR3	(10) CSR3	(11) CSR3	(12) CSR3
Constant	.576*** (.063)	.457*** (.075)	.387*** (.091)	.513*** (.103)	.360*** (.112)	.381** (.123)	.299** (.145)	.281** (.139)	-.121** (.061)	.109** (.053)	-.167** (.079)	.121** (.061)
Search	-405** (.199)				-.366** (.181)				-.238** (.112)			
Non-Durable Experience Good		-.094 (.152)	.043 (.088)	.050 (.072)		.054 (.139)	.062 (.092)	.070 (.083)		.199** (.093)	.224** (.094)	.235** (.114)
Durable Experience Good		.232** (.112)	.254** (.125)	.270** (.133)		.232** (.112)	.244** (.121)	.263** (.130)		.062 (.045)	.059 (.088)	.072 (.121)
Experience Service		.133 (.120)	.142 (.101)	.135 (.113)		.153 (.116)	.158 (.105)	.162 (.114)		.153 (.116)	.051 (.086)	.158 (.105)
Credence Service		.387*** (.143)	.412*** (.156)	.320** (.162)		.452*** (.164)	.403** (.193)	.387** (.188)		-.013 (.087)	-.015 (.164)	-.021 (.099)
Sales	-.052*** (.019)	-.050*** (.018)	-.041* (.026)		.012 (.016)	.131 (.132)	.115 (.093)		.002 (.003)	.001 (.002)	.000*** (.000)	
Lagged Profit	.001 .001	.001 (.001)	.005** (.002)		.004* (.002)	.002 (.002)	.004** (.002)		.003** (.001)	.002** (.001)	.000 (.000)	
R&D Intensity			.082 (.060)	.101 (.063)			.073 (.051)	.064 (.043)			.007 (.006)	.063** (.031)
Log Likelihood	-411.66	-394.18	-392.82	-403.79	-397.29	-381.25	-380.89	-393.56	-441.12	-439.33	-438.17	-435.86

N = 662 firms, Standard Errors in parentheses. Significance: * p<.1; ** p<.05; *** p<.01

CSR1 is a dummy variable, with a value of 1 if a firm is included in the 2002 KLD Large Cap Social Index (LCSI); 0 otherwise.

CSR2 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses; 0 otherwise.

CSR3 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses in community relations, diversity, environment, and with respect to international human rights practices in non-U.S. operations; 0 otherwise (our proxy for “public” CSR).

Table 4
Second Step Maximum Likelihood Coefficient Estimates of the Determinants of the Propensity of Firms to Engage in CSR

Independent Variables:	Dependent Variable:		
	CSR1	CSR2	CSR3
Constant	.090 (.196)	.093 (.191)	-.992 (.196)
Non-Durable Experience Good	.063 (.077)	.193 (.249)	.224*** (.078)
Durable Experience Good	.143** (.070)	.145** (.069)	.077 (.065)
Experience Service	.114* (.064)	.112* (.062)	.063** (.027)
Credence Service	.207*** (.047)	.211*** (.046)	-.007 (.146)
“Fitted” Profit	-.006 (.026)	-.007 (.026)	.106 (.079)
R&D Intensity	.004 (.006)	.013 (.018)	.007 (.005)
Log Likelihood	-398.64	-391.30	-434.93

Notes: N = 662 firms, Standard Errors in parentheses. Significance: * p<.1; ** p<.05; *** p<.01

CSR1 is a dummy variable, with a value of 1 if a firm is included in the 2002 KLD Large Cap Social Index (LCSI); 0 otherwise.

CSR2 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses; 0 otherwise.

CSR3 is a dummy variable, with a value of 1 if a firm has more CSR strengths than weaknesses in community relations, diversity, environment, and with respect to international human rights practices in non-U.S. operations; 0 otherwise (our proxy for “public” CSR).

The first-step OLS regression is:

$$\text{PROFIT} = 2.845^{***} + .001*(\text{LAGGED PROFIT}) + .666^{***}(\text{FIRMSIZE}) + .014(\text{R\&D INTENSITY})$$

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