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Profit maximisation vs. agency: an analysis of charitable giving by UK firms

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The charitable giving of a large sample of publicly quoted UK firms is analysed within a model that explores the profit maximisation and managerial utility enhancement motives for giving. The empirical method draws a distinction between the decision to participate in giving and the determination of the amount of corporate contributions. Firm size and advertising intensity are found to be positively associated with the probability of participation in giving. Stricter corporate governance and the rate of directors' remuneration are negatively related to the probability of participation. Among givers, the rate of giving is related positively to R&D intensity, the rate of directors' remuneration, and corporate profitability and negatively to firm indebtedness.

Key words: Corporate social responsibility, Charitable giving
JEL classifications: L21, G30

1. Introduction

The level of charitable donations made by businesses in the UK and America is at an all-time high (Bartkus *et al.*, 2001; Smyth, 2000). According to *The Guardian's Guide to Company Giving*, British firms donated more than £700m to charities in cash or in kind in 2001. However, in contrast to recent US evidence, new UK data suggest that the rate of giving among UK firms has increased by over 46% as a proportion of turnover and by almost 150% as a proportion of gross profits during the last decade. Over the same period, the rate of participation in charitable giving by individuals has declined significantly and the overall level of private contributions has stagnated (Pharoah and Tanner, 1997). Hence, corporate charitable giving is an increasingly significant activity for corporate givers, their shareholders, the charities that compete to receive these funds, and the society that is the ultimate beneficiary of the funds.

This article extends the analysis of corporate charitable donations in three ways. First, the method distinguishes between the decision to give (the participation decision) and the amount the company contributes (the expenditure decision). Thus

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this paper aims both to understand what drives firms to engage in charitable giving and to investigate the determinants of the level of expenditure. Although earlier studies have recognised that any analysis of the level of observed corporate giving implicitly addresses these two conceptual issues,[1] the existing empirical literature draws no methodological distinction between givers and non-givers. Thus earlier studies involve (untested) assumptions concerning the nature of the relationship between the participation and the expenditure decisions that, at best, leave the determinants of participation unexplored and, at worst, could lead to biased results. Secondly, the analysis focuses on the determinants of charitable giving in 1999 using a broad cross-section of more than 500 publicly quoted UK companies. These companies account for in excess of 98% of the revealed charitable contributions made by the largest 750 quoted UK firms in 1999 and 93% of total sales. Thirdly, following Navarro (1988), the analysis places charitable donations within an economic framework that encompasses both profit maximisation and managerial utility maximisation motivations. With respect to the latter, and in the light of rapidly increasing levels of board-level compensation in UK firms, the analysis emphasises the possibility that charitable giving and improved board remuneration are substitutes.

The development of corporate charitable contributions is reflected in a general increase in the profile of corporate social responsibility (CSR) as firms have encountered pressure from a variety of sources to undertake socially appropriate behaviour (Bartkus *et al.*, 2001; Smyth, 2000). In addition to its growing importance, three characteristics of charitable giving make it a particularly interesting form of CSR for analysis. First, decisions concerning charitable activity are usually made at board level (Siegfried *et al.*, 1983) and hence they are, at least potentially, highly integrated with the strategic decision-making apparatus. Secondly, charitable giving is distinct from other forms of CSR behaviour (such as improving environmental protection, promotion of human rights) in that it is not motivated by a desire to comply with external legal or regulatory imperatives.[2] It could, however, be argued that the tax deductibility of corporate donations constitutes a significant incentive to be involved in firm giving. Thirdly, charitable giving, unlike other aspects of CSR, is operationally distinct from other aspects of business activity. This suggests that charitable contributions offer an opportunity to study the underlying motivations for CSR activity in a relatively pure context.

There is, however, only a relatively small, largely US-based, literature that examines the underlying motivations for, and constraints upon, charitable giving by firms (see Schwartz, 1968; Adams and Hardwick, 1998). In an early paper, Navarro (1988) places charitable giving within a model that emphasises the competing motivations which flow from profit maximisation and the maximisation of managerial utility.[3] Later papers have focused on the relationship between corporate governance and charitable giving (Atkinson and Galaskiewicz, 1988; Buchholtz *et al.*, 1999). There

[1] For example, see McElroy and Siegfried (1985).

[2] There has, however, been a government minister for CSR since 2000 who 'has a duty to explain why CSR is an essential part of modern business practice and to promote it wherever and whenever possible' (Smyth, 2000).

[3] Navarro (1988) is one of the rare studies that focuses on a mixed sample of givers and non-givers. He rejects a truncated regression approach because of the small number of non-givers in his sample. The generally lower rate of participation in giving in the UK necessitates the use of a truncated regression technique.

has been only one systematic attempt to analyse the determinants of corporate charitable giving by UK firms (Adams and Hardwick, 1998). In an exploratory study, Adams and Hardwick (1998) analyse the level of corporate donations within a stakeholder model using a small sample of data drawn from 1994.

The following section discusses the theoretical motivations for charitable giving. Section 3 introduces the empirical method before Section 4 defines the empirical models and formulates the hypotheses. Section 5 discusses the data sources and variable definitions and Section 6 reports the results. Conclusions are given in Section 7.

2. Theoretical background

The existing literature identifies two alternative managerial decision frameworks within which the charitable activity of firms can be viewed. The different behavioural models characterise giving either as an instrument of profit maximisation or as the outcome of a process by which managers enhance their utility.

Corporate charitable giving can, either by reducing costs or enhancing revenues, fulfil a number of functions that are consistent with profit maximisation (Schwartz, 1968; Navarro, 1988). First, charitable donations may perform some of the functions of advertising by increasing the level of demand for a firm's products and reducing its price sensitivity (Dorfman and Steiner, 1954; Levy and Shatto, 1978; Navarro, 1988).[1] Collaterally, if charitable donations fulfil an advertising function it is expected that they will be associated with higher firm price–cost margins (PCM) (Schmalensee, 1972). Earlier studies have found support for a positive relationship between charitable donations and advertising expenditures (Schwartz, 1968; Levy and Shatto, 1978; Maddox and Siegfried, 1981) and price–cost margins (Navarro, 1988; Adams and Hardwick, 1998).[2]

Corporate donations may also facilitate cost reduction. Giving could lead to lower wages both by offering an increased level of non-pecuniary benefits to workers and by increasing the supply of qualified labour. Where the reduction in wages more than offsets the cost of providing non-pecuniary benefits and supporting education, profits are increased (Clotfelter, 1985). Firms active in R&D-intensive industries, such as pharmaceuticals, may face particular incentives to engage in charitable giving that boosts the long-run supply of skilled labour and provides a cost-effective method of outsourcing basic research. Firms may also view corporate-giving programmes as a means by which they fulfil a tacit contract with the societies within which they operate, particularly when their activities involve harmful externalities. Firms may voluntarily meet their social obligations in order to avoid harmful tax, environmental or regulatory policies. The incentives to adopt this behaviour may be particularly strong among more visible firms (March and Simon, 1958). Empirical evidence relating to cost-reduction motives is mixed. Many studies have used firm size as a proxy for both firm visibility and resource constraints. Typically, a positive relationship between

[1] As Schwartz (1968) notes, the link between advertising intensity and giving may be more complicated. If alternative advertising media are close substitutes for corporate donations then higher charitable giving might permit lower rates of advertising via those alternatives.

[2] If giving is a form of advertising then, as Navarro (1988) notes, it is important to recognise that the level of corporate donations is simultaneously determined along with other equilibrium outcomes. Because of the possibility of important mis-specification biases, it is important to test for this.

donations and size is found (e.g., Adams and Hardwick, 1998; McElroy and Siegfried, 1985). Maddox and Siegfried (1981) finds a positive relationship between corporate donations and firm R&D intensity and Navarro (1988) finds a positive relationship between donations and labour intensity, providing some support for cost-reducing motivations for giving.

An alternative perspective characterises giving as evidence of agency problems (Williamson, 1964). Agency problems arise when the interests of managers and shareholders are divergent and when the latter can only imperfectly control the former. Managers opportunistically divert the firm's resources to projects that enhance their own utility rather than investing in internally generated projects or returning excess financial resources to shareholders (Jensen, 1986). There is little strong evidence that corporate donations are effective in increasing shareholder wealth (Wang and Coffey, 1992). Hence the 'problem' in the relationship between principal and agent arises because it is assumed that the exercise of managerial discretion is contrary to the maximisation of shareholder wealth (Friedman, 1970).

Earlier empirical contributions have emphasised the role of corporate governance as evidence of the likely degree to which owners can exert effective control over managers. Many of them involve reflecting the degree to which the share capital of the firm is held by a few shareholders (e.g. Adams and Hardwick, 1998)[1] or the extent to which firms are owner controlled (e.g. Navarro, 1988). Other researchers have drawn more sophisticated distinctions including focusing on the relative importance of 'insider' versus 'outsider' share ownership (Bartkus *et al.*, 2001), or board diversity (Coffey and Wang, 1998). The findings of this literature are very varied. Navarro (1988) finds some evidence for lower rates of giving among owner-managed firms, Bartkus *et al.*, (2001) find some evidence that firms with large single blockholders are likely to give less, especially if they are also current members of the board of directors, while Adams and Hardwick (1998) report no correlation between the level of corporate gifts and shareholder concentration.

Within the managerial discretion perspective, weak corporate governance is a necessary, but insufficient, condition for the exercise of discretion by making charitable contributions. Two other conditions must be met for the exercise of discretion by making donations to be optimal. First, the firm must have excess financial resources for managers to exercise their discretion over. Managers who are resource-constrained, therefore, are less likely to make charitable donations. Secondly, giving to charity must offer managers more utility than alternative discretionary uses of company funds. Previous studies provide strong evidence that corporate giving is positively related to the level of residual corporate income (e.g., Johnson, 1966; Schwartz, 1968), negatively related to the degree of corporate indebtedness (e.g., Adams and Hardwick, 1998; Navarro, 1988), and positively linked with the ability of the firm to increase the dividends it makes to shareholders (Navarro, 1988). Hence there is good evidence for a role for both internal and external capital availability in determining the levels of corporate giving. In contrast to the impact of resource constraints, few researchers have explored the impact of the opportunity costs of charitable giving on the giving decision. However, Navarro (1988) finds some evidence

[1] Adams and Hardwick (1998) use the three shareholder concentration ratio as a measure of shareholder concentration.

that managerial salaries and charitable donations are substitutes, suggesting that enhanced managerial remuneration is a likely alternative use for free funds.

Since charitable donations are tax deductible, at least to some degree, researchers have attempted to evaluate the impact of policy changes on corporate giving (Schwartz, 1968; Clotfelter 1985; Navarro, 1988). If charitable donations are an ordinary business expense incurred consistent with profit maximisation, then changes in the marginal tax rate ought not to affect giving behaviour because all ordinary business expenditures are equivalently tax deductible. However, tax variations might affect giving behaviour by firms, either because they influence the opportunity cost to managers of using discretionary resources or because they alter the incentives for philanthropists to use the firms they control as tax efficient vehicles for their private giving.

3. Econometric methodology

Studies of consumer behaviour and labour supply often distinguish between the decision to participate in an activity and the decision over the extent of involvement.[1] Since the data on corporate giving reveal the existence of both positive and zero expenditures, this suggests that some firms may have decided not to participate in giving. The amount that a firm gives is a censored variable in the sense that it cannot take negative values. In such circumstances, ordinary least-squares estimation provides both biased and inconsistent estimates of model parameters. Heckman (1979) introduced a solution to the sample selection problems encountered in the presence of censoring. Formally, Heckman's approach involves defining a dummy variable, I_i, such that $I_i = 1$ if $y_i > 0$ and $I_i = 0$ otherwise. The next step of the procedure is to estimate a probit model of the participation decision. This permits recovery of the 'inverse Mills ratio', which is included as an instrument in the estimation of a truncated regression of the expenditure decision. Hence the structure of the econometric model is

$$I_i = \alpha_0 + \beta' x_i + \varepsilon_i \tag{2}$$

and

$$y_i = \alpha_1 + \gamma' z_i + \gamma_\lambda \hat{\lambda} + u_i \tag{3}$$

where x_i and z_i are vectors of explanatory variables,[2] λ is the 'inverse Mill's ratio', and ε_i and u_i are error terms that are assumed to have zero means and standard deviations of σ^{ε} and σ^{u}, respectively.

This procedure has two advantages over alternative estimation techniques for censored samples. First, unlike the Tobit[3] model, it allows variables to have asymmetric effects on participation and consumption. Secondly, in contrast to more sophisticated 'double-hurdle' models,[4] the approach involves first hurdle dominance

[1] For example, Blaylock and Blissard (1992) and Jones (1989) on smoking, Burton *et al.* (2000) on meat purchase, and Heckman (1976, 1979) on labour supply.

[2] Identification of the model requires that z_i should contain at least one element not present in x_i.

[3] Perhaps the simplest approach is to estimate a Tobit model of the level of expenditure by maximum likelihood. Because its likelihood function is well behaved, this approach provides unbiased parameter estimates (Maddala, 1983).

[4] The most general models allow non-consumption to arise either from the participation decision or from the expenditure decision (e.g., Burton *et al.*, 2000). These models therefore assume that neither hurdle dominates the other in determining consumption patterns.

in the sense that non-expenditure may only arise as an outcome of the participation decision. Given that the sample consists of large UK businesses, it is more plausible to interpret non-donation as the outcome of a decision not to participate in giving than it is to interpret it as being the outcome of binding expenditure constraints.

4. Empirical model and hypothesis formulation

The empirical model consists of two parts: the participation equation and the expenditure equation. As has been widely discussed in this context, theory provides very little guidance with respect to specifying appropriate functional forms among the variables. However, existing evidence indicates that the important influences on corporate giving are robust to variations in functional form.[1] In the light of this and to facilitate comparability with existing literatures, we adopt a standard linear functional form.[2] The remainder of this section discusses the specification of the participation and expenditure equations in turn.

4.1 The participation equation

The binary dependent variable in the participation equation was constructed from the continuous data on corporate giving. The dummy variable indicates whether a firm participates in giving (whereupon the variable = 1) or not (when the variable = 0). An exploration of the size distribution of gifts in our sample indicated that in addition to the 75 firms who made no donations, there was a significant number of firms who made very small donations. Because very low levels of donations are unlikely to be subject to the managerial decision processes, it was decided that a cut-off value of £10k would be used in determining whether a firm participated in giving.[3]

The investment perspective on giving indicates that an advertising or cost reduction motive may provide the stimulus for engaging in giving. In contrast, the agency perspective suggests that weak corporate governance, the presence of excess financial resources (or, at least, the absence of a binding resource constraint) and the absence of attractive alternative uses of firm resources are prerequisites for engaging in corporate charitable giving. Hence participation in giving is expected to coincide with significant advertising and R&D expenditures, high price–cost margins, labour intensive production, weak corporate governance, resource availability, low opportunity costs of giving and high corporate marginal tax rates. The participation equation is therefore specified as follows:

$$P(Dt>0) = f(\text{SIZE}, \text{GOVERN}, \text{ADVERT}, \text{PCM}, \text{RESOURCE}, \text{LABOUR}, \text{DIRECTSAL}, \text{TAX})$$

[1] See for example Schwartz (1968, p. 493).

[2] In addition, other functional forms, most notably the log-linear functional form, impose implicit sampling criteria on the data by removing any zero or negative observations. In some contexts (e.g., a firm having negative total assets) this is desirable, in others (e.g., firms making a loss, firms without debt) this is not desirable. We tested for robustness by estimating a variety of semi-log and mixed functional forms.

[3] This approach is similar to that of Siegfried *et al.* (1983) which focuses on managed contributing. The Directory of Social Change determines that a corporation is a significant contributor to charity only if it donates more than £30k (formerly £40k) per year and £50k per year is used as a signal of promoting good stakeholder relationships by the FTSE4 Good index.

Investigation of the advertising motive for engaging in giving is usually operationalised by the inclusion of the firm's advertising to sales ratio as an explanatory variable (Navarro, 1988). In the absence of reliable data on advertising expenditures in the UK, a dummy variable, ADVERT, was constructed which takes a value of 1 if the firm is a significant advertiser, in the sense discussed in the data section, and zero otherwise. Following Navarro (1988), firm price–cost margins (PCM) are measured by the ratio of pre-tax profits to total revenues and, following Maddox and Siegfried (1981), firm R&D intensity (RDS) is measured by the ratio of R&D expenditures to sales. Labour-related cost-reduction motives were captured by the inclusion of LABINT, which equals the ratio of total labour costs to total revenues as a measure of labour intensity, as an explanatory variable. Firm size is included as an explanatory variable both to reflect the impact of firm visibility on participation in giving and to reflect firm resource constraints. Following Adams and Hardwick (1998) we measure firm size by the total value of assets.

Both theory and existing empirical evidence suggest that the impact of size on giving behaviour may be non-linear. If firm visibility is a binary variable that is a function of a set of underlying firm characteristics including firm size, then participation in giving may be subject to threshold effects. Firm size might be important insofar as it makes a firm visible, but given that a firm is sufficiently large to be visible, its incremental impact on giving behaviour might be small. In addition, the existing literature suggests that log-linear specifications typically fit the data better.[1] Therefore, following Burton *et al.* (1994) and Jones (1989), a quadratic functional form of the giving/size relationship is estimated.[2]

Since agency theory focuses on the issue of the presence or absence of effective control by owners over management, empirical investigations have commonly employed either binary variable specifications reflecting the strength of corporate governance conditions (e.g., Navarro, 1988) or have constructed samples on the basis of a qualitative differences between firms in ownership or governance structures (e.g., Atkinson and Galaskiewicz, 1988). Two dummy variables, CONTROL and AGG-CONT, were specified that take a value of 1 if the proportion of the firm's share capital controlled respectively by a single shareholder, or in aggregate by those disclosing their interests, exceeded 50% and zero otherwise. Although arbitrary, this cut-off captures the distinction involving absolute control employed by Navarro (1988) and provides a starting point for sensitivity analyses.[3]

Earlier studies have proposed a variety of indicators of the presence of available discretionary resources in addition to firm size, including firm price–cost margins (Adams and Hardwick, 1998), increasing levels of dividend payments (Navarro, 1988), and the degree of corporate indebtedness (Navarro 1988; Adams and Hardwick, 1998). The theory indicates that the presence or absence of spare resources, rather than their level, determines participation in giving. Consequently, two binary

[1] See Clotfelter (1985), Adams and Hardwick (1998) and Schwartz (1968).

[2] Estimation of a quadratic functional form is common practice in the context of sample selection and double-hurdle models where it is viewed as a parsimonious method of permitting the possibility of a non-linear effect of an independent variable (e.g., Burton *et al.*, 1994; Jones, 1989).

[3] An interesting counter to the argument that more concentrated shareholdings will tend to reduce the discretionary donations made by firms is made by Fry *et al.* (1982). They point out that controlling interests in firms could be held by philanthropists who find it optimal to conduct their individual charitable acts by proxy via the firms they control for tax or other reasons.

indicators of the extent of firm resource constraints were constructed. The first, DIV, takes a value of 1 if the firm increased the absolute level of its dividend per share in 1999 relative to 1998. The second, HIDEBT, takes a value of 1 if a firm had total debts totalling greater than 30% of the value of its total assets.[1] Given that managers have discretion over a pool of spare resources, the allocation of those resources across alternative uses depends upon the relative attractiveness of the alternatives. A key candidate of the opportunity set facing managers with spare resources is their own rate of remuneration (Navarro, 1988). Hence the rate of directors' remuneration, measured by the ratio of total directors' remuneration to total sales (DIR/SAL) is included as a proxy for alternative uses of discretionary funds.

Finally, theory suggests that tax rates affect the (after-tax) price of charitable contributions. Price changes influence the trade-off between alternative discretionary activities. Consequently increases in marginal tax rates reduce the after tax price of giving and are expected to encourage participation. TAX is equal to the marginal rate of corporation tax facing the firm. The final estimating form of the participation equation is:

$$P_i = \alpha_0 + \beta_1 \mathrm{SIZE}_i + \beta_2 \mathrm{SIZE}_i^2 + \beta_3 (\mathrm{CONTROL\ or\ AGGCONT})_i + \beta_4 \mathrm{ADVERT}_i + \beta_5 \mathrm{PCM}_i + \beta_6 \mathrm{DIV}_i + \beta_7 \mathrm{HIDEBT}_i + \beta_8 \mathrm{LABINT}_i + \beta_9 \mathrm{RDS}_i + \beta_{10} \mathrm{DIR/SAL}_i + \beta_{11} \mathrm{TAX}_i + \varepsilon_i$$

4.2 The expenditure equation

The dependent variable in the expenditure equation is the level of charitable donations made by the firm normalised by firm size as measured by the level of total sales. The investment perspective suggests that the level of expenditure on charitable donations is primarily determined by the size of advertising and cost-reducing motives. The agency perspective suggests that weaker corporate governance, the presence of abundant spare financial resources and the absence of attractive alternative uses for discretionary funds may stimulate managers to make higher levels of donations. High levels of corporate charitable donations are therefore expected to coincide with a high degree of sensitivity of market demand to donations, high firm price–cost margins, highly labour-intensive or R&D-intensive production, the presence of abundant spare resources, weak corporate governance, low opportunity costs of giving, and high marginal tax rates. Therefore the expenditure equation is:

$$D_t/SALES = f(SIZE, GOVERN, ADVERT, PCM, RESOURCE, LABOUR, DIRECTSAL, TAX, LAMBDA)$$

The intensity of firm expenditures on charitable donations is expected to be sensitive to the existence of economies of scale or scope in gift making. To the extent that consumer goodwill towards a corporation carries across its activities in a number of product markets, firms may be able to make relatively small nominal gifts in order to

[1] The 30% cut-off was based on a distributional analysis. These firms lie in the tail of the distribution of firm indebtedness (they are the most indebted 5% of firms). Such a distinction is undoubtedly of interest to financial markets that make judgements concerning the indebtedness of firms, and the consequent higher degree of insolvency risk.

maintain a positive consumer perception of the organisation. Conversely, if the effect on demand of giving, like advertising, is subject to rapidly diminishing returns (Clarke, 1976) then larger, and hence more visible, firms might be expected to donate increasingly heavily. A quadratic functional form is adopted to permit the exploration of the possible non-linearity of the giving/size relationship.

In examining the implications of the agency hypothesis for the intensity of firm expenditures on charitable donations, the interest lies in evaluating the impact of marginal differences between firms in the degree of corporate governance and resource availability. Therefore, it is necessary to construct continuous variables that capture the extent of resource availability and the strength of corporate governance conditions. Earlier studies have measured the strength of governance and the degree of alignment of owner–manager interests by using measures of shareholder concentration (Adams and Hardwick, 1998), the degree to which firms are single-owner or family-controlled (Navarro, 1988; Atkinson and Galaskiewicz, 1988), or the size of the largest shareholding (Bartkus *et al.*, 2001). To facilitate comparison with the existing literature, continuous variables reflecting the proportion of the share capital of a firm attributable to the largest shareholder (LARGSHA) and the sum of those who disclose their interests (AGGSHA) are employed as explanatory variables in the expenditure equation.

Following Adams and Hardwick (1998) and others, we use firm leverage (LEVERAGE) to capture the extent of corporate resource constraints. ADVERT and PCM are included as explanatory variables to examine whether the presence of advertising motives leads firms to make higher levels of donations. The presence of cost-reduction motives is explored by the inclusion of LABINT and RDS; the opportunity cost of giving is reflected by DIR/SAL and the impact of marginal tax rates on the trade-off between discretionary activities is captured by the inclusion of TAX. The final estimating form of the expenditure equation is

$$\begin{aligned}\mathrm{DON/Sal}_t = {} & \gamma + \Delta_1 \mathrm{SIZE}_i + \Delta_2 \mathrm{SIZE}_i^2 + \Delta_3 \mathrm{GOVERN(AGGSHA\ or\ LARGSHA)}_i \\ & + \Delta_4 \mathrm{ADVERT}_i + \Delta_5 \mathrm{PCM}_i + \Delta_6 \mathrm{LEVERAGE}_i + \Delta_7 \mathrm{LABINT}_i \\ & + \Delta_8 \mathrm{RDS}_i + \Delta_9 \mathrm{DIR/SAL}_i + \Delta_{10} \mathrm{TAX}_i + \Delta_{11} \lambda_i + \varepsilon_i\end{aligned}$$

5. Data

The data consist of a cross-section of information extracted from the annual reports and accounts of a sample of 550 firms quoted on the London Stock Exchange for the year ending 1999. The sample was drawn approximately proportionally from size strata and hence we are confident that our sample is representative of the population of large UK enterprises. Reported donations to charity in our sample totalled more than £230 million and the rate of participation in giving (donation > £0) was approximately 83%. Within the sample, firms donated 0.36% of pre-tax profits to charity. This compares favourably with Casson's (1993) estimate of roughly 0.28% and provides additional support for the notion that UK businesses are giving increasingly heavily to charity over time.

Under the listing rules for the London Stock Exchange, firms must disclose the identities of holders of shareholdings in excess of 3% in the report of the directors in

their annual report and accounts (Davies *et al.*, 1999). Hence, information pertaining to these 'significant' shareholdings is commonly available in the annual reports of listed firms. The governance data we used related to 1998 to reflect the governance conditions at the start of the time period for which we observe giving behaviour. This helps in drawing causal inferences and mitigates the worry that snapshots of shareholder concentration at the end of a financial year might provide a misleading indicator of actual governance conditions during the decision-making period.

Firm-level advertising data are difficult to obtain in the UK. Firms have no statutory obligation to disclose their levels of advertising expenditure and consequently this information is only patchily reported in the annual reports of the firms in our survey. There are, however, some useful firm-level data relating to advertising in the public domain. Media research agencies monitor the incidence of advertisements at the brand level throughout the main advertising media (TV, newspapers and magazines, radio, outdoor/poster, etc) and construct estimates of the levels of expenditure incurred. The data disclosed are therefore helpful in identifying many of the firms for which advertising constitutes an important tool in their competitive armoury. However, the coverage of the surveys available is insufficiently comprehensive for us to be able to make any claims about being able to aggregate expenditure data satisfactorily from the brand to the firm level. We constructed a dummy variable on the basis of identification of a firm in *Marketing* magazine's 'Top 100 Advertisers' or as an owner of one of the 'Biggest Brands' in the UK in 1999. Given that the levels of expenditure on advertising tail off dramatically at the foot of these rankings, we are confident that our methodology allows us to capture the vast majority of the firms for which advertising is a key competitive tool. Table 1 provides a list of variable definitions and a summary of the hypothesised effects of the variables on participation and expenditure. In the absence of the information necessary to construct a continuous variable to capture firm level advertising intensity, our (binary) indicator of firm-level advertising intensity probably constitutes an improvement upon using industry-level data.

6. Results

Table 2 reports the results of estimating the sample selection model. Models I and II report the results of estimating the influences on participation in giving, models III and IV report the results of the expenditure equation. In the light of possible collinearity, the relevant dimension of corporate governance is taken to be the aggregate shareholding of the disclosed shareholders for models I and III, and the size of the single largest shareholder for models II and IV. With respect to overall explanatory power, the models perform well. The participation equation correctly classifies 77% and 78% of the observations, respectively.[1] This compares favourably with the levels of correct classification of participation reported in studies of consumption behaviour (e.g., Blaylock and Blissard, 1992). The expenditure model explains approximately one-fifth of the variance in the rate of corporate giving. This is reasonable for a cross-section model and comparable with the explanatory power of Navarro's (1988) model.

[1] 'Correct classification' requires that the predicted probability of participation for a firm is >50% for a participant and <50% for a non-giver.

Table 1. *Variable definitions and summary of hypotheses*

Variable	Definition	Hypothesised effect
SIZE	Total assets (£'000)	Positive effect on participation and expenditure
$SIZE^2$	(Total assets (£'000))^2	Positive effect on participation and expenditure
ADVERT	=1 if firm is a significant advertiser, = 0 otherwise	Positive effect on participation and expenditure
RDS	Ratio of R&D expenditure to total sales	Positive effect on participation and expenditure
PCM	Ratio of profit before tax to total sales	Positive effect on participation and expenditure
DIRSAL	Ratio of Director's remuneration to sales	Negative effect on participation and expenditure
LARGSHA	The proportion of share capital held by the largest shareholder if >3%, 0 otherwise	Negative effect on expenditure
AGGSHA	The aggregate proportion of share capital held by significant shareholders	Negative effect on expenditure
CONTROL	= 1 if LARGSHA >0.5, 0 otherwise	Negative effect on participation
AGGCONT	= 1 if AGGSHA >0.5, 0 otherwise	Negative effect on participation
LABINT	Ratio of total employment costs to total sales	Positive effect on participation and expenditure
TAX	Firm's marginal rate of corporation tax	Positive effect on participation and expenditure
DIV	= 1 if dividend fell in 1999, 0 otherwise	Negative effect on participation
LEVERAGE	Ratio of long term debt to total assets	Negative effect on expenditure
HIDEBT	= 1 if leverage >0.3, 0 otherwise	Negative effect on participation

If participation in giving or the intensity of expenditure on donations were jointly determined with the level of advertising expenditures, then this might lead to biases in the parameter estimates of the selection model. Following Navarro (1988), a Hausman Test[1] was conducted for endogeneity of ADVERT in both the participation and the expenditure equations. The null hypothesis of no simultaneity could not be rejected at any recognised level of significance and hence any simultaneous equation biases are likely to be small.

Turning to the results with respect to participation, there is strong evidence of a non-linear relationship between size and the probability of participation, with the coefficients on SIZE and $SIZE^2$ being statistically significant above the 1% level.[3] Table 3 reports the probability of participation in giving for six hypothetical firms that

[1] See Hausman (1978). The test involves the separate estimation of the determinants of firm advertising intensity and the inclusion of the predicted level of firm intensity as an additional regressor in the estimation of the participation and expenditure equations. Endogeneity of advertising may be rejected if the predicted level of firm advertising intensity is not statistically significant.

[2] The critical value for significance at the 1% level on a two-tailed test with 521 degrees of freedom is <2.358.

Table 2. *TAX results of estimating the sample selection model*

	Participation		Expenditure	
	I	II	III	IV
CONSTANT	0.484 (0.761)	0.099 (0.740)	0.320 E-03 (0.288 E-03)	0.246 E-03 (0.287 E-03)
SIZE	0.695 E-06 (0.127 E-06)***	0.735 E-06 (0.125 E-06)***	0.178 E-10 (0.135 E-10)	0.208 E-10 (0.130 E-10)
$SIZE^2$	−0.119 E-13 (0.248 E-14)***	−0.126 E-13 (0.247 E-14)***	−0.182 E-18 (0.295 E-18)	−0.243 E-18 (0.284 E-18)
ADVERT	1.157 (0.541)**	1.184 (0.543)**	0.873 E-05 (0.861 E-04)	0.364 E-04 (0.821 E-04)
RDS	2.448 (2.571)	2.845 (2.561)	0.004 (0.001)***	0.004 (0.001)***
CONTROL		−0.550 (0.335)		
AGGCONT	−0.292 (0.132)**			
LABINT	0.517 (0.551)	0.619 (0.549)	0.168 E-03 (0.227 E-03)	0.213 E-03 (0.223 E-03)
PCM	0.518 (0.609)	0.386 (0.607)	0.536 E-03 (0.192 E-03)***	0.545 E-03 (0.185 E-03)***
DIRSAL	−49.191 (12.933)***	−50.023 (12.865)***	0.027 (0.007)***	0.023 (0.007)***
DIV	−0.027 (0.235)	−0.045 (0.232)		
HIDEBT	0.114 (0.196)	0.109 (0.196)		
TAX	−1.622 (2.470)	−0.683 (2.430)	−0.700 E-03 (0.927 E-03)	−0.644 E-03 (0.911 E-03)
LEVERAGE			−0.261 E-03 (0.156 E-03)*	−0.224 E-03 (0.154 E-03)
LARGESHA				0.428 E-05 (0.214 E-05)**
AGGSHA			0.183 E-05 (0.141 E-05)	
LAMBDA			−0.245 E-03 (0.126 E-03)*	−0.151 E-03 (0.119 E-03)
N	533	533	313	313
Adjusted R^2			19.50%	19.70%

*, ** and *** indicate statistical significance at the 10% level, 5% level and 1% level, respectively.

vary in size but which are otherwise identical.[1] The predicted probability of a firm with £50m of assets making donations in excess of £10k is only 3.5% compared with approximately 70% for firms with assets worth more than £1bn.

The results indicate a negative impact of both controlling aggregate and single shareholdings on the probability of participation. However, only the impact of a controlling aggregate shareholding is found to be statistically significant (at the

[1] Specifically, Table 3 reports probabilities of participation for differently sized firms for whom all other variables take on a zero value. Hence, most importantly, they are non-advertisers and they have no significant shareholdings.

Table 3. *Probabilities of participation for differently sized firms*

Firm size (£'M of total assets)	Probability of participation
50	0.035
100	0.069
200	0.139
500	0.345
750	0.515
1000	0.683

5% level). A firm where large shareholders control more than 50% of the share capital is, *ceteris paribus*, approximately 10% less likely to participate than a firm where ownership is more diluted. These results suggest that coalitions of large shareholders may play a significant role in retarding the ability or willingness of managers to exercise discretion in the form of charitable donations.

Firms for which advertising plays an important role are found to be significantly more likely to participate in giving, supporting the view that charitable giving acts as a form of advertising. Specifically, the probability of a firm participating in giving is, other things being equal, estimated to be 37% higher if the firm is a significant advertiser.[1] However, contrary to expectations, the results fail to support any significant link between firm price–cost margins and the probability of a firm being a giver.

The coefficient on DIV has the predicted sign but its effect is not found to be statistically significant. HIDEBT has the opposite effect on participation to that predicted but is also statistically insignificant. Thus, the results indicate that resource constraints have little influence upon the probability that a firm makes charitable donations. The coefficients relating to LABINT and RDS have the predicted signs but are found to be statistically insignificant. Therefore, the results indicate that deciding to participate in giving is not motivated by a desire to reduce labour costs. The model provides very strong evidence for a negative link between the rate of directors' remuneration and the probability of participation. The coefficient on DIRSAL is statistically significant in excess of the 1% level. Evaluated at the variable mean,[2] an increase of 0.1% in absolute terms (or a rise of approximately 18.5% expressed as a proportion of the mean value) leads to a 5% reduction in the probabiliity of participation. This suggests that senior management may often view self-reward as preferable to engaging in significant charitable contributing. Finally, the coefficient on the firm's marginal tax rate does not have the expected sign and is found to be statistically insignificant.[3]

The estimates in models III and IV concern the determinants of the rate of giving among those who gave more than £10k to charity in 1999. The results indicate that firm size has no statistically significant impact on the rate of giving among givers. In

[1] The marginal effect is based on the estimates of equation (1) and is evaluated at the means of the independent variables.

[2] The mean of the ratio of directors remuneration to sales is approximately 0.5%.

[3] This might reflect a statistical problem. Schwartz (1968) argues that the insignificant degree of variation in this variable renders precise estimation of the effect of tax differences problematic in the context of estimating a cross-sectional model.

addition, the rate of giving is not significantly higher for those firms who advertise heavily. This suggests that charitable donations are unlike other forms of advertising behaviour that are typically subject to diminishing returns (Clark, 1996).

Turning to the impact of corporate governance conditions, we first note that the coefficients on LARGSHA and AGGSHA are both positive. Furthermore, the impact of the largest single shareholding is found to be statistically significant at better than the 5% level. This contrasts with the findings of much of the literature to date. Among givers, firms with more highly concentrated shareholdings are found to donate proportionally more than those with more diluted holdings, particularly where that concentration reflects the existence of a single very large shareholder. This is consistent both with there being an important philanthropic influence from some individual industrialists and also with the possibility that the economic pay-offs of giving are unusually large for some givers. Where that is true, giving is consistent with shareholder objectives and concentrated shareholdings help them to press this upon management.

The rate of giving is found to be positively and significantly related to firm price–cost margins. A rise of firm price–cost margins by 1% (or about 12% of average price–cost margins) is predicted to lead to a 2% rise in the ratio of charitable donations to sales. This is consistent both with giving being a form of advertising and with the possibility that unexpectedly high returns provide managers with a pool of discretionary resources, part of which they spend on charitable contributions. Among givers, the rate of expenditure on R&D and the rate of giving are positively and significantly associated with an 0.1% increase in the ratio of R&D expenditure to sales (a change of approximately 11% of the mean value), leading to a predicted rise of 0.04% rise in the level of the ratio of donations to sales. This is evidence in support of the existence of cost-reducing motives relating to outsourcing of primary research and development activity and enhancement of skilled labour supply. However, the lack of statistical significance of the coefficient on LABINT suggests that there is no strong cost-reduction motive for giving associated with labour intensity. It is likely, therefore, that to the extent that such motives exist they are strongest where labour is highly specialised.

Among givers, the rate of directors' remuneration is significantly positively related to the rate of charitable contributions. Specifically, an increase in the rate of directors' remuneration of 0.1% (or about a quarter of the mean rate of directors' remuneration) is predicted to result in a 10% rise in the rate of giving. Since givers are typically much larger than other firms, this finding is suggestive of high rates of giving among firms whose directors earn very high salaries in absolute terms. Hence we tentatively propose that given either diminishing marginal utility of income or the risk of adverse media coverage of very high salaries, the highly paid directors of these large firms find it optimal to donate proportionately larger sums to charity. This could arise either as an outcome of an explicit bargain with shareholders, as suggested by Navarro (1988), or of the exercise of discretion. The marginal rate of tax is found to have no statistically significant relationship with the rate of giving among givers. Once again, this suggests that profit maximisation may outweigh discretion as a driver of giving behaviour.

7. Discussion

This paper examines the motivations for charitable giving by firms using a new database relating to the giving behaviour of 550 large UK firms in 1999. The

econometric methodology involves separate analyses of the influences on the decision to participate in giving and the determinants of the levels of expenditure on corporate donations. The findings suggest that it is important to distinguish between involvement in corporate giving and the extent of that involvement, since these decisions appear to be motivated by different factors. Non-givers are, on average, smaller, less likely to operate in consumer-focused industries, and more likely to have significant controlling shareholders than those that are involved in corporate giving.

Although our results suggest that corporate giving may, for individual companies, be motivated either by economic factors or by the exercise of managerial discretion, the relative sizes and the pattern of statistical significance on the explanatory variables suggests that economic, rather than discretionary, motivations dominate in the determination of corporate charitable donations in the UK. For example, in the decision to participate, the effect of operating in an advertising-intensive industry is more than three times the size of the (opposing) effect of concentrated company ownership. Furthermore, in the expenditure equation, the importance of company profitability is vastly greater than the influence of large block holders. Our other findings indicate that charitable giving may be motivated by a range of economic factors including cost reduction, particularly for firms who invest heavily in R&D. However, contrary to theory and earlier evidence (e.g., Adams and Hardwick, 1998; Navarro, 1988) the results provide very little support for the importance of either financial hardship or a significant tax effect on giving behaviour. These observations are significant in a number of regards.

First, the dominance of economic factors in our analysis is consistent with the growing body of literature that suggests that corporate giving may be strategically motivated (e.g., Saiia *et al.*, 2003; Porter and Kramer, 2002). The growing importance of strategically motivated corporate giving has significant implications for the voluntary sector since it suggests that a strategic partnership approach to relationships between corporations and the voluntary sector, might increase the currently low level of voluntary sector income attributable to corporate giving. A good example of this approach is the long-run relationship between the cosmetics giant Avon and the breast cancer charity Breakthrough. In an article accompanying *The Guardian's* 2001 Giving List, an Avon company spokesperson stated that while they 'wanted to make a difference' the charity was 'the ideal partner' for Avon because it had a 'single focus' on an issue of great concern to their, mostly female, customers. At the same time, our findings raise issues about which issues/groups are 'attractive' to corporations and suggest that it might be those that have clear pay-offs in terms of visible impacts on consumers. In this climate, equally worthy, but less market-friendly, causes may find it hard to acquire corporate support.

Secondly, our findings highlight significant relationships between corporate ownership and charitable giving. Earlier, we hypothesised that these arose because of agency problems that occur in the presence of dispersed ownership. Our findings offer partial support for this hypothesis by showing the significantly lower propensity to become involved in charitable giving among firms with highly concentrated ownership. In addition, we find that the rate of directors' remuneration is negatively related to the likelihood that a business is involved in corporate giving. Consistent with Navarro (1988), this suggests that corporate donations and executive pay may be substitutes in some firms and, therefore, that at least some of the rapid increase in board-level

compensation over recent years may have come at the expense of making charitable donations. Some instances that resonate with our findings have emerged recently. Logica, the computer services company, came in for particular criticism in 2001 when it emerged that in addition to his £920k basic salary, CEO Dr Martin Read had made a further £27M from the sale of shares and the exercise of options during a period when the company made no charitable donations from company profits of over £136M.

However, the positive relationship between the size of the largest shareholding and the degree of involvement in corporate giving conflicts with a traditional agency interpretation of the relationship between company ownership and charitable activity. More recent approaches have suggested that a positive relationship between aspects of social performance and company ownership attributes may arise because the preferences of these investors are for ownership in socially responsive companies. Consistent with our findings in the expenditure equation, these new views suggest either that institutional investors engage in activism through the use of their voting rights that stimulates socially responsible behaviour (Ryan and Schneider, 2002) or that, faced with legal and regulatory pressures, socially responsive investors select responsible companies into their portfolios.

Several significant trends have emerged that support these suggestions. First, the extent to which corporate stock has come to be owned by institutions, such as pension and mutual funds, rather than individual investors, has risen dramatically over the last 25 years (Useem, 1996; Ryan and Schneider, 2002; National Statistics, 2002). Secondly, the rapid growth of the Socially Responsible Investment (SRI) movement has stimulated interest in aspects of corporate behaviour other than those directly associated with corporate financial performance (UK Social Investment Forum, 2002; Sparkes, 2000; Social Investment Forum, 2002). Thirdly, long-run institutional investors (e.g., Pension Funds, Life Assurance Companies) have become subject to significant regulatory and institutional social investment requirements in the UK (Occupational Pension Schemes, 1999; National Association of Pension Funds, 2002; Local Authority Pension Fund Forum, 2002; Association of British Insurers, 2001). Along with our findings, these trends suggest that a more complex relationship exists between corporate ownership patterns and aspects of their social responsiveness than has been suggested in earlier studies.

This discussion suggests that there is much more to be done, particularly in developing our understanding of the link between the ownership characteristics of corporations and business decision-making. In particular, future research might consider disaggregating company ownership into institutional and non-institutional investment in order to shed more light on the different preferences for aspects of firm behaviour suggested by our results. Since there is no consistent evidence of a positive relationship between firm social responsiveness and financial performance (Griffin and Mahon, 1997), our results cast some doubt on the traditional view that shareholders are solely interested in the long-run maximisation of the value of the firm.

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