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Special Issue, Climate Change and Human Rights.

**What type of controlling investors impact on which elements of
corporate social responsibility?**

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Abstract

Using a large sample of 3,541 companies drawn from 30 countries over the period 2002 to 2010 we analyse the impact of strategic shareholdings on different elements of corporate social responsibility (CSR). We find that total strategic or closely held equity holdings adversely affect the environmental, social and governance scores provided by ASSET4. However, this effect is largely driven by entrenched and undiversified holdings such as family and corporate cross-holdings whereas diversified institutional investments typically have an insignificant impact. The influence of undiversified holdings includes particularly strong negative impacts on measures that include climate change, environmental management, business ethics and human rights. Thus the impact of ownership on CSR performance differs depending on both the type of owner and the type of CSR.

Keywords: Corporate Social Responsibility; Environment; Social; Governance; Human Rights; Climate Change; Institutional Investor.

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1. Introduction

Recent failures of corporate governance, environmental management and social responsibility have emphasised the importance of improving the environmental, social and governance (ESG) performance of public corporations. Prior results based on American (Barnea & Rubin, 2010), European (Dam and Scholtens, 2012) and international data (Mackenzie et al., 2011; Rees and Mackenzie, 2011; Ioannou and Serafeim, 2010) have suggested that such performance is conditioned by ownership. These studies suggest that a) entrenched equity holdings reduce ESG performance, b) engagement by responsible investment indices improves performance and c) high levels of leverage can impact on performance in either direction. While Dam and Scholtens (2012) separate corporate social responsibility (CSR) into three broad categories related to ethics, stakeholders and environment, none of the above studies investigated which underlying elements of environmental, social or governance activities are affected by ownership. In this study we seek to identify what types of strategic equity ownership impact on which types of CSR¹ performance. We assume that owners will tend to resist environmental, social and governance improvements if the personal costs exceed the benefits from the allocation of resources to ESG projects (Siegel and Vitaliano, 2006; Rees and Mackenzie, 2011). We hypothesise that equity held for strategic reasons will have a stronger impact on ESG than equity held for trading. We also argue that the impact of strategic ownership on ESG will be more pronounced for undiversified owners than diversified and more pronounced where the benefits are externally focused.

Using a sample of 3,541 firms drawn from 30 countries over the period 2002 to 2010 we analyse the impact of entrenched shareholdings (greater than 20% for overall holdings, defined either as strategic or closely held, and over 10% for the sub-categories of corporate, family, investment institution or government) on different ESG elements as reported by ASSET4. Propensity score matching is used to contrast ESG elements for

¹ We follow the adaptation by Aguilera et al. (2007) of the definition introduced by Davis (1973) and refer to CSR as “the firm’s considerations of, and response to, issues beyond the narrow economic, technical, and legal requirements of the firm to accomplish social and environmental benefits along with the traditional economic gains which the firm seeks” (Aguilera et al., 2007: 836). While there are many definitions of CSR, this formulation emphasises the potential external nature of benefits from CSR initiatives and the relation of CSR to the wealth generating goal of the firm. Further, we use ESG and CSR terms as synonyms for the purposes of the discussion in this study.

the treatment firms, i.e. those with significant strategic shareholdings, with the control firms, which have the same probability of significant strategic shareholdings but do not have such holdings. This approach produces a reliable experimental setting in which to evaluate the impact of strategic shareholdings (Rosenbaum and Rubin, 1983; Armstrong et al., 2010). We additionally examine the relationship using traditional regression analysis with strategic shareholdings as independent variables alongside control variables. The propensity matching variables and the control variables in the regression models are capitalisation, profitability, Tobin's q, leverage, year, industry and country.

To study the effect of ownership on ESG performance, we use two metrics of overall ownership, designated strategic or closely held equity holdings, and separately study various groups of block holders such as corporations, employees and families, government and investment institutions. We analyse the impact of these groups of owners on the ASSET4 pillars of environmental, social and governance scores, and on their 15 sub-scores or themes. At the top level, closely held or strategic shareholdings adversely affect environmental, social and governance scores. Entrenched undiversified shareholdings controlled by families or corporate cross-holdings also have a negative effect on all three scores. Conversely, government holdings impact positively on environmental and social scores, as do investment trusts on governance. Broadly speaking, entrenched undiversified block holdings reduce ESG performance whereas block holdings by diversified institutional investors have no effect or a modest benign effect.

A more detailed analysis of the underlying themes of ESG performance shows that entrenched shareholders have a particularly strong negative impact on ESG themes that relate to benefits that fall outside the firm such as business ethics, climate change, environmental management and human rights than for those that impact on the firm itself such as internal governance, product development, health and safety, employment quality and training and development. A strong impact is also found on the overarching vision and strategy dimension that “reflects a company's capacity to convincingly show and communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes” (ASSET4 definition: see appendix one).

The results offer an insight into the influence of ownership on ESG performance and the way in which institutional arrangements might stimulate ESG investment and affect management decision-making. Above all the impact of ownership on ESG depends on both the type of owner and the type of ESG. Recent global initiatives such as UN Principles for Responsible Investment (PRI), Carbon Disclosure Project (CDP), Institutional Investors Group on Climate Change (IIGCC) and the activities of Responsible Investment indices such as FTSE4Good or Dow Jones Sustainability Indices have promoted the involvement of shareholders in improving ESG performance all over the world. These initiatives predominantly target institutional investors who are becoming the dominant shareholders in many countries (Clark and Hebb, 2005; Starks, 2009). Our results suggest that institutional investors as yet provide little benefit over diversified investors and the campaign to improve CSR via institutional investment has some way to go before it is effective. However, the greater problem would appear to lie with the entrenched undiversified investors who have both the power to influence firm decisions and an incentive to reduce investment in CSR that doesn't benefit the firm directly.

2. Prior Research and Hypotheses Development

2.1 ESG ratings

ASSET4 is one of a growing set of ESG ratings organisations. For some time Kinder, Lydenberg and Domini (KLD) have been providing an assessment of the ESG performance of US firms. Since 2001 FTSE have also been categorising firms as complying or not with ESG criteria to become listed in the FTSE4Good index, and since 2011 they calculate a performance score based on six categories for each of the environmental, social and governance pillars. Despite some early scepticism the organisations have gradually refined their techniques and have gained some credibility in the financial and investment world (Collison et al., 2009; Slager et al., 2012). In most cases financial institutions are closely involved in the development of the scoring systems. ASSET4, now a part of the Thomson Reuters organisation, have been publishing their scores since 2002 using information from company reports, corporate and NGO websites, press and trade publications (Semenova, 2010). They calculate four

scores: the usual environmental, social and governance scores plus an economic score. The economic score is based on client loyalty, firm performance and shareholder loyalty but we do not analyse this pillar as it lies outside the CSR setting. Environmental performance incorporates the themes of resource reduction, emission reduction and product innovation. Social performance includes employment quality, health and safety, training and development, diversity, human rights, community (which includes business ethics) and product responsibility. Corporate governance is assessed on board structure, compensation policy, board functions, shareholder rights and vision and strategy. A description of the categories is given in appendix one. ASSET4 report that these scores are based on 250 indicators calculated from 750 publicly available data items.

As with all such scoring systems it is difficult to tell to what extent the score measures genuine CSR activity and to what extent that CSR activity benefits stakeholders. Rees and Mackenzie (2011) note that in 2011 the FTSE4Good and ASSET4 scores are significantly positively correlated. This is consistent with two expert systems evaluating the same underlying phenomena. They report the scores for five dimensions and where like is being compared with like the raw correlations are marginally over 0.50. Some of the remaining disagreement will be explained by explicit differences in the scoring systems as FTSE4Good downgrade firms exposed to high risk and ASSET4 do not. However, there is a significant level of agreement between the two sets of scores.

There is also some limited American evidence suggesting that ESG scores reflect an underlying reality and impact on performance. Chatterji et al. (2009) analyse a KLD assessment of 588 firms' environmental performance and demonstrate that this is related to past environmental events such as toxic emissions, environmentally related fines etc. The score appears to be a better assessment of past than future performance. However, Chatterji and Toffel (2010) have also demonstrated that poor KLD environmental scores have stimulated firms to improve their toxic emissions faster than firms that scored well. Additionally, Semenova (2010) used a large sample of MSCI US companies in 2003-2008 and found that environmental performance metrics constructed independently by KLD, GES and ASSET4 exhibit a significant correlation when considering both environmental performance and environmental risks. The study further reports that these rating services offer consistent data for the comparison of companies across industries and thereby enable stakeholders to make informed decisions. Thus there is some preliminary

evidence that ESG scores can reflect an underlying reality and can lead to genuine benefits. There is some way to go before we can conclude that these benefits are pervasive.

2.2 Prior Research and Hypotheses Development

Ownership and ESG performance

There is some evidence to suggest that managers may favour ESG developments. Prior research argues that enhanced these practices can offer a competitive advantage (Jones, 1995; Bansal and Roth, 2000; Aguilera et al., 2006; Kiernan, 2007). ESG developments may, for example, send a particular signal to consumers about product quality (McWilliams and Siegel, 2001; Becker-Olsen et al., 2005), help sustain brand loyalty (Siegel and Vitaliano, 2006), attract motivated employees (Moskowitz, 1972; Turban and Greening, 1997) and reduce capital constraints (Cheng et al., 2011). Investors may regard enhanced corporate social performance as a signal about the overall quality of management (Solomon et al., 2004; Renneboog et al., 2008) or as a necessary way to avoid costs in case of boycotts (Cespa and Cestone, 2007) and preserve shareholder value through goodwill (Godfrey et al., 2009). Jo and Harjoto (2011) argue that their evidence is more strongly supportive of the theory that investment CSR is a method for reducing conflict with stakeholders, rather than as a signal of product quality or a way of boosting management reputation or security of tenure.

More direct attempts to establish the link between financial and social performance using various ESG scoring systems and the related responsible investment indices produced mixed results (Margolis et al., 2007; Renneboog et al. 2008). If ESG investment is costly we might expect firms with high levels of performance to have lower profitability or growth. A case has been made that investment in environmental and social management and good governance has a positive impact on performance (for example Jo and Harjoto, 2011b and 2012). Yet it is not clear why over or under social and environmental performance should necessarily lead to better financial performance or to abnormal returns, unless the market has collectively misunderstood the implications (McWilliams and Siegel, 2001). If CSR does improve performance then good management will undertake CSR investment. Taken together, prior evidence suggests that while ESG development may improve some aspects of corporate performance and may therefore be

allied with shareholder wealth creation, as yet we have little robust evidence on the relationship between ESG scores and financial performance. Further, the existing evidence is sensitive to the ESG measures employed. We regard this as an indication that the way in which investors on the market perceive and determine CSR and its potential implications may not be uniform both across CSR programmes and across groups of investors and may therefore affect their investment and governance decisions.

In this study we focus particularly on the source of strategic shareholdings. Prior work provided mixed evidence of the association between ESG and closely held stock, with Ioannou and Serafeim (2010) reporting a tentative negative association and Mackenzie et al. (2011) finding no effect. Some evidence also shows a negative impact of entrenched undiversified equity (Rees and Mackenzie, 2011). The rationale of strategic owners regarding ESG is that they bear most of the associated costs because they cannot easily exit their position in the company (Cox et al., 2004). At the same time large institutional investors and other block holders have both the resources and the incentives to monitor management decisions in order to reduce management entrenchment (Jensen and Meckling, 1976; Demsetz and Lehn, 1985; Shleifer and Vishny, 1986; Shleifer and Vishny, 1997). In the case of ESG activities, managers usually have large corporate resources at their disposal (Orlitzky et al., 2003). Managers are more likely to over invest resources in ESG because of the personal benefits from the ‘warm-glow’ effect, possibly leading to agency conflict (Friedman, 1970; Barnea and Rubin, 2010). They have been shown to use ESG initiatives as an entrenchment ‘shield’ based on a good image with other stakeholders (Cespa and Cestone, 2007, Jo and Harjoto, 2011 and 2012) while, for example, engaging in earnings manipulations (Prior et al., 2008). Thus, while prior evidence points to the negative association between strategic owners and ESG developments, we extend it by predicting that strategic shareholders will try to prevent excessive expenditure on ESG activities.

H1: Strategic or closely held shareholdings are associated with lower ESG scores.

While strategic owners are generally unlikely to be enthusiastic about ESG expenditures, we may expect a substantial heterogeneity in their actual influence on ESG efforts of the companies they invest in. There is evidence to suggest that some institutional investors may effectively encourage companies to improve their ESG stance. Mackenzie et al.

(2011) show how financial institutions may influence ESG practices in their analysis of the impact of FTSE4Good engagement on firms in danger of being deleted from the FTSE4Good index when the environmental management criteria were upgraded. They conclude that for an international sample of firms FTSE4Good engagement significantly increased the probability of meeting the new criteria when implemented in 2005. Adopting a different approach, Cox et al. (2004) examine the impact of CSR performance on the demand for equity from different categories of institutional investors. Their evidence suggests that for a UK sample of FTSE All-Share index constituents during 2002-2003 long-term institutional investors, pension funds and life assurance firms tend to invest in firms with high CSR ranks but charities, short-term investors, investment trusts and unit trusts do not. Although based on UK data only, this suggests that the direction of causality is not obvious and that the link between CSR and investment institutions may be complex.

Large diversified owners such as pension funds are thought to be directly exposed to the impact of ESG developments through their long-term commitment to their clients (Sethi, 2005). Further, as strategic investors their holdings are susceptible to the consequences of any ESG negligence resulting in fines, negative publicity and other pressures from stakeholders (Johnson and Greening, 1999). As noted by Sethi (2005), in a discussion of US funds, a more conventional approach to the pension funds' fiduciary duty suggests that they should narrowly focus on well-defined financial measures to assess their investments. However, more recent evidence argues that pension funds would not resist ESG expenditures for future long-term benefits such as improved working conditions of the population and the long-term growth of corporations and whole industries. As Sethi (2005) argues, financial intermediaries advising pension funds on investment may be biased towards short-term investment considerations, therefore pension funds would have to actively promote ESG considerations. There is evidence showing that some of the largest pension funds such as ABP or the Government Pension Fund Global actively encourage ESG programmes both via engagement and investment decisions (Kiernan, 2007; Renneboog et al., 2008). Although these funds demonstrate impressive progress in stimulating ESG initiatives in companies, it remains unclear whether pension funds as a group of strategic owners would actively impact ESG decisions in companies.

The state has a responsibility to improve the quality of the life of the population and stimulate innovation, and may be inclined to incorporate addressing environmental and social challenges into its ownership strategy (OECD, 2010). Concentrated family ownership has been shown to significantly impact the corporation both in positive and negative ways. Family shareholdings have been shown to be positively correlated with corporate performance, particularly so when family members are involved in management (Anderson and Reeb, 2003; Barontini and Caprio, 2006; Andres, 2008). Conversely, family members may use their control to follow their private agenda and neglect the interests of other shareholders (Barontini and Caprio, 2006; Jara-Bertín et al., 2008) and therefore foster a negative corporate reputation (Delgado-García et al., 2010).

Using FTSE4Good ESG Ratings, Rees and Mackenzie (2011) showed that undiversified entrenched block holders are associated with lower ESG performance while pension funds or governments are not. The authors argue that the result is consistent for both the overall ESG rating and separately for corporate governance, environmental management, human rights, climate change and countering bribery areas. Dam and Scholtens (2012) find that ownership by corporations, employees and individuals in European multinational companies is negatively correlated with corporate social policies while bank shareholdings, institutional and government ownership show no significant association. While these findings provide initial evidence as to which types of owners tend to promote or discourage ESG, it still remains unclear which ESG elements are favoured or opposed by different groups of block holders. We address this issue further in this study but first, to ensure comparability of our analysis with prior evidence, we perform a direct test of whether undiversified strategic owners are associated with lower ESG scores than diversified strategic shareholders. We form the following hypothesis:

H2: Undiversified strategic shareholdings (family and corporations) are associated with lower ESG scores than other shareholdings (investment institutions and government).

Ownership impact on different ESG areas

The previous section considers the impact of different types of equity holders on ESG in general. We now extend prior work to investigate which specific ESG initiatives would be promoted or discouraged by which groups of owners and why this could be the case.

Concentrated ownership and power in the hands of block holders can increase their influence over corporate activities in order to extract private benefits (La Porta et al., 2000) possibly at the expense of minority shareholders or other groups of stakeholders (Shleifer and Vishny, 1997). Above all, this suggests that large owners may influence the management to take on activities that, in the owner's view, maximise the value of their shareholdings. The rational motivation of the owner is ultimately based on the expected return (Clark and Hebb, 2005; Lydenberg, 2007). Therefore, we hypothesise that owners will promote those environmental, social and governance programmes that they perceive to be in their interest. That is, the benefits for the owners exceed the costs from the allocation of resources to ESG development (Siegel and Vitaliano, 2006; Rees and Mackenzie, 2011). In this case, we expect significant differences in the interests of owners with regards to different aspects of ESG performance. Indeed, survey findings by Mercer Consulting in 2006 suggest that 64% of investors acknowledged the importance of corporate governance while 26% considered human rights and only 7% included climate change issues in their investment decisions (Starks, 2009).

We attribute these differences to the distribution of costs and benefits of investment in various ESG activities. From this perspective, this paper responds to the calls of prior research to investigate different dimensions of environmental, social and governance practices by firms separately rather than as an aggregate metric (Johnson and Greening, 1999; Hillman and Keim, 2001; Cox et al., 2004; Mattingly and Berman, 2006; Godfrey et al., 2008; Dam and Scholtens, 2012). For example, Johnson and Greening (1999) divided CSR in the 'people' dimension of corporate social performance related to communities and employees, and the 'product quality' dimension concerned with production and environmental strategy. However, the distribution of associated costs and derived gains is not explicit in these two categories, nor in the classification used by Dam and Scholtens (2012) who distinguished between ESG issues related to stakeholders, ethics and environment. Barnea and Rubin (2010) analyse 2,292 US firms categorised as socially responsible or irresponsible in 2003 by KLD. With regards to costs and benefits of ESG, Rees and Mackenzie (2011) classify ESG areas in three categories: predominantly externally focused (environmental management and climate change), concerned with firm contacts (human rights, supply chain labour standards and anti-bribery measures) and mainly focused on internal matters (corporate governance). In line with this classification, while some CSR initiatives targeting internal improvements (such as relations with

employees or product quality), are shown to be associated with higher firm value, the evidence regarding the value enhancing potential of more external CSR (related to the wider community and the environment) is mixed (Jo and Harjoto, 2011; Jo and Harjoto, 2012).

In this study, we use ASSET4 ESG elements and extend Rees and Mackenzie's (2011) classification by distinguishing between the ESG programmes according to the extent to which strategic owners can be expected to benefit from them. By approaching the wide array of CSR initiatives from the narrow angle of the owners' costs and benefits, this categorisation enriches our understanding as to how different shareholders perceive different CSR engagements of the firm. Further, it helps to explain why, for example, some studies report a positive association between institutional ownership and composite CSR (Harjoto and Jo, 2011; Jo and Harjoto, 2011) while others find no relationship (Dam and Scholtens, 2012). It may also provide more clarity as to why there is mixed evidence of the value-enhancing effect of external CSR as the scope to internalise the benefits from CSR activities may differ with different types of large shareholders. appendix one briefly describes the ASSET4 themes used to assess the three categories. We classify ESG developments as follows.

- Governance-related practices offering largely internal benefits to shareholders: board function, board structure, compensation policy and shareholder rights. Diversified shareholders may view these positively whereas undiversified block holders might prefer the freedom of action allowed by low levels of internal governance. ASSET4 include vision and strategy in their governance pillar but we leave this theme aside as it is too general to be able to reliably predict where the costs and benefits might fall.
- Externally orientated practices where the benefits may fall broadly outside the firm: resource reduction, emission reduction, community activities and human rights.
- Initiatives that impact on the firms' business practices or on their relationship with contacts such as suppliers, employees or customers: employment quality, health and safety programmes, training and development, diversity of opportunities, product innovation and product responsibility.

This classification suggests that governance provisions and to a lesser extent 'contact' issues may offer a compelling business case for strategic owners and will therefore be

overall regarded positively. However, issues such as climate change and human rights, which have a substantial social impact, may offer the least immediate internal benefits to the strategic shareholders. Here the benefits are perceived as affecting both society at large and various groups of stakeholders, but perhaps not shareholders explicitly or, if so, then only after a very long time (Cox et al., 2004). Additionally, climate change and human rights present issues which still lack a full understanding of the risks involved, possible technologies and policy solutions even though the short-term costs of changing costs structure and competitive positions of carbon-intensive sectors are more apparent (Mackenzie and Ascuí, 2009). In this case shareholders are unlikely to promote such ESG aspects (Sullivan and Mackenzie, 2007). For comparative purposes we analyse the traditional ESG classification alongside our classification based on the location of the benefits. For this analysis we have no predicted ranking of impact:

H3a: The negative impact of strategic or closely held shareholdings differs across environmental, social score and governance scores.

However, we expect strategic owners to resist those ESG areas that offer them the least in terms of direct benefits:

H3b: Strategic or closely held shareholdings impact more strongly on ESG practices with external benefits (resource reduction, human rights, community and emission reduction) than those with benefits to business practices or contacts (employment quality, diversity of opportunities, health and safety programmes, employee training and product innovation) and internal benefits (board function, board structure, compensation policy and shareholder rights).

Having proposed a varying impact of different shareholdings on ESG and a varying impact of generic shareholdings on different ESG we further hypothesise that the impact of shareholdings on external, internal or contact based ESG will differ according to the type of ownership. There is an emerging argument suggesting that for large owners such as pension funds, the external benefits of certain ESG issues including climate change are largely internalised because, as ‘universal’ owners, they have a stake in the global economy and are therefore affected by global economic development (Clark and Hebb, 2005; Gjessing and Syse, 2007; Kiernan, 2007; Sullivan and Mackenzie, 2007). Further, some large investors may be exposed to particular markets, such as emerging markets,

and may therefore regard it as part of their fiduciary duty to screen companies to avoid reputational risks (Clark and Hebb, 2005). In some instances, however, investment banks and mutual funds that cannot easily exit the company may be constrained by more short-term interest (Aguilera et al., 2007) and perceived fiduciary duties (Aguilera et al., 2006) and may be only interested in those initiative which provide rapid internal gains such as internal governance. Prior research has demonstrated that institutional investors consider different aspects of corporate governance to be important for shareholder value creation (McCahery et al., 2009). These may include managerial ownership, transparency of holdings by large shareholders, equity-based compensation and board independence. The involvement of institutional owners has in many instances produced positive outcomes for corporate performance (e.g. Del Guercio and Hawkins, 1999; Cornett et al., 2007; Chen et al., 2007; Becht et al., 2008; Del Guercio et al., 2008). Large institutional ownership is found to be associated with improvements in executive compensation practice (Hartzell and Starks, 2003), fewer instances of earnings manipulation (Chung et al., 2002), a reduced cost of debt (Elyasiani et al., 2010) and investment in R&D (Wahal and McConnell, 2000).

Generally, since portfolios of large institutional block holders and pension funds tend to be highly diversified, these owners may still be more enthusiastic about the potential advantages of advanced environmental and social performance and efficient governance. Undiversified shareholders such as corporations and families may have a complex nexus of financial, private and strategic motives regarding the companies they own and a higher exposure to the particular risks involved. Therefore they may be expected to focus more on those management programmes from which they have most to gain. Given the concentrated character of their shareholdings, these owners have substantial control over management decisions (Shleifer and Vishny, 1997; Andres, 2008). We could therefore expect that, on average, diversified strategic owners will exhibit relatively less resistance to ESG expenditures than undiversified owners, particularly with regards to those ESG programmes that offer the most internal benefits:

H4: Undiversified strategic shareholdings (family and corporations) are most strongly associated with lower ESG scores than other shareholdings (investment institutions and government) where those scores relate to external benefits and least strongly for internal benefits.

3. Research Method

We use propensity score matching as our main method of analysis. It is more conventional to use regression analysis with control variables but this will only effectively control for exogenous influences if the relationship between the control variables and the dependent variable are linear and the same for both the treated sample, firms with strategic shareholdings, and the untreated, those without (Rosenbaum and Rubin, 1983; Caliendo and Kopeinig, 2008; Armstrong et al. 2010). As we do not know the underlying relationship between the controls and the ESG scores, and we suspect that these may well differ across treated and untreated firms, we argue that propensity score matching should be more reliable. We replicate our propensity score results with regression analysis and indeed find that the regression approach produces more apparently statistically significant results. We argue that it is prudent to use the more conservative approach and note that for some of the regression results the implied impact of treatment is somewhat larger than the difference between the two groups. The control variables have exacerbated, not mitigated, the difference between the treated and untreated groups.

3.1 Propensity Score Matching.

Equation one is used to estimate a probability that a firm will be identified as receiving treatment i.e. categorised as having a significant overall strategic equity holding (more than 20%) or a significant constituent holding (over 10%). In equation one TRT_{it} represents the zero-one variable where one indicates that the case receives treatment and zero that it does not. Control variables are percentiles of a) market capitalisation b) return on equity c) of the market value of equity plus debt over book value of equity plus debt and c) book value of dept to book value of equity plus debt. The year, country and industry variables are a vector of dummies identifying each firm's membership of each category (see appendix two for the distribution of the sample). The equation is estimated as a probit model (Leuven and Sianesi 2010). It may also be estimated as a logit model but in this case the results for probit or logit estimation are virtually indistinguishable.

$$\text{Equation 1: } TRT_{it} = a_0 + a_1MC_{it} + a_2ROE_{it} + a_3TQ_{it} + a_4LEV_{it} + \dots \\ YR'_{it} + CO'_{it} + IND'_{it} + e_{it}$$

The model has been tested in a number of different specifications. The treatment variable TRT_{it} is a dummy variable indicating if the measure of strategic holdings provided by Thomson Reuters, Datastream, which ranges from 0 to 100, is greater than 20% in the case of overall strategic holdings or greater than 10% for classifications of strategic holdings. Thomson Reuters classify investors as strategic or otherwise, and where a strategic investor holds more than 5% of equity this is treated as a strategic holding. Given the complexity of the data gathering involved there is some scope for strategic holdings to be under assessed and the reported statistic may be approximate. For this reason we simply define a holding of greater than 10% for a single class, or 20% for the total strategic holding, as being a significant. There may be firms in our analysis with reported strategic holdings of less than 10% with real holdings greater than that but this would bias our results against a significant finding.

The computation of the strategic shareholding changed at the end of 2004. Previously all equity holdings by organisations identified as strategic investors were recorded whereas after 2005 only holdings of 5% or more were considered. Where this resulted in cumulating across different strategic shareholdings, as with the total strategic holding or the institutional holding this caused a significant shift in the recorded number. To ensure consistency we restrict the analysis to 2005-2010 for these definitions and supplement the analysis with the Thomson Reuters closely held equity definition which is consistently available for 2002-2010. This measure is highly correlated with the strategic shareholding estimate over the period 2005-2010 and produces very similar results for that period. The restriction of the period to 2005-2010 and the diversified nature of pension fund stockholdings limited the sample for pension funds producing unreliable results. Therefore the analysis has been limited to closely held, strategic, corporate, family and institutional holdings.

The leverage variable LEV_{it} is expressed in percentiles to avoid the need to trim outliers. The results are robust to using the raw data if outliers are removed. The underlying leverage variable has been calculated as total debt over total debt plus equity and expressed as a percentile of the sample. Return on equity, ROE_{it} , also expressed as a percentile, was replaced by return on assets with no clear impact on the results. Our estimate of Tobins Q, the book value of debt plus the market value of equity over the

book value of debt plus equity, is intended to measure growth opportunities and is expressed as a percentile. The results are robust to the replacement of this variable by market-to-book. The country, C_{it} , industry, I_{it} , and year, YR_{it} , dummy variables identify each industry, country and year as specified in appendix one.

The cases that received treatment, i.e. TRT_{it} equals one, are then matched with a case, or a sample of cases, that did not receive treatment but where the probability of being classified as treated is approximately similar, defined as $\text{pr}(TRT)_Y \approx \text{pr}(TRT)_N$, where $\text{pr}(TRT)$ is the predicted value from equation two. The treatment effect is then the difference in the ESG score being analysed (ESG_{it}) between the two cases. ESG_{it} is one of the social, environmental or governance pillars provided by ASSET4 for firm i year t . We also calculate 15 constituent themes that are the average of all elements used to calculate an ASSET4 pillar for which comprehensive data is available. The ESG variable is a score from 0 to 100.

There are a number of ways in which cases may be matched and the statistical significance of the treatment effect estimated (Caliendo and Kopeining, 2008). The results reported in this paper are based on matching each treatment case with 5 neighbours, with replacement, that fall within a range of probability (calliper) which we set at 0.0001 and using the normal T-test of difference between two matched samples (Caliendo and Kopeining, 2008; Leuven and Sianesi, 2010). Matching was also conducted using different groups of neighbours, $n=1$ $n=3$ and $n=5$, and matching within a radius of probabilities ($r=0.001$, $r=0.0005$, $r=0.0001$). A bootstrapping approach was used to compute alternative tests of significance. The choice of method involves a certain amount of judgement but experiment revealed that the results are not sensitive to the number of firms included in the match but are quite sensitive to the decisions that affect the number of firms which are considered “off support” and excluded from the analysis. These are treatment firms for which no close match can be found which is essentially determined by the size of the calliper. Using a tight calliper rejects some treated firms for which no adequate match can be found. In practice this rejects some firms for which a high probability of treatment is predicted. Our choice reflects a relatively conservative approach as broader callipers tended to produce stronger statistical significance although the main conclusions were unchanged.

3.2 Regression models

We also present regression results based on a pooled time-series and cross-sectional sample of international firms where country and industry differences are accounted for by including dummies to account for year, industry and country differences and adjusting the estimate of standard errors for firm specific clustering. The variable definition is as for equation one. As the model is estimated as a pooled cross-section and time-series, standard errors are corrected for clustering by firm.

$$\text{Equation 2: } ESG_{it} = b_0 + b_1 TRT_{it} + b_2 MC_{it} + b_3 ROE_{it} + b_4 TQ_{it} + b_5 LEV_{it} + \dots \\ YR'_{it}y + CO'_{it}c + IND'_{it}i + e_{it}$$

The variables used in the regression model are as for the propensity score analysis and the statistical significance is estimated using robust standard errors clustered by firm. Unlike the propensity score the regression approach is not subject to judgemental choices regarding the sample. This can mean that the regression is extended across heterogeneous cases when it might be wiser to restrict the experimental setting.

3.3 Sample Description

Appendix two, panels 1, 2 and 3 detail the sample composition by year, industry and country. We included all cases for which Thomson Reuters' Datastream service included ESG measures, the necessary financial variables and ownership data. The full sample comprises 18,690 cases, including 3,541 different firms, spanning 2002 to 2010 with a gradual increase in sample size most notably from 2003 to 2004. In some results we used a smaller sample due to inconsistency of the strategic shareholding and investment institution shareholding prior to 2005. We adopt a broad industry definition and find that the firms are very diverse and that there is considerable difference between the average scores for industry and country. More detailed industry definitions are available but left the analysis unchanged when tested the sensitivity of the results to industry definition. The sample is largely, but not exclusively drawn from countries with developed capital markets. If we restricted the analysis to firms from such countries the results were

essentially unchanged. The sample of firms from countries with less developed capital markets is too small to reliably analyse separately.

In appendix three we report the cross-correlation between the main variables and their descriptive statistics. Correlations are typically low apart from the environmental and social scores (0.752) and the closely held, strategic and corporate measures of shareholding (ranging from 0.401 to 0.504) although in no instance are these measures used in the sample model. As the ESG variables are expressed as a score out of 100, the financial variables are calculated as percentiles and the ownership measures are zero-one dummies the analysis is not troubled by outliers.

4. Results

4.1 Propensity Score Matching Results

In table one we report the average unmatched ESG scores for firms with strategic shareholdings (the treated) contrasted with those without (the control firms) the difference between the two, the standard error and the t-statistic. On the second line for each measure of ESG the same average ESG score for the treated firms is compared with the score for the propensity score matched control group to calculate the average treatment effect on the treated (ATT). The mean difference, standard error and t-statistic is again reported. Where the difference for the ATT is statistically significant at 5 percent or better the mean difference and t-statistic are in bold. The matching of treatment and control cases is conducted using a probit model the results of which are given in appendix four. Although we conducted extensive sensitivity analysis the reported results are base on matching treatment cases against the five nearest neighbours by probability of treatment, with replacement. Where five neighbours cannot be identified within a probability range of plus or minus 0.0001 the case is considered off support and discarded. This approach proves to be a relatively conservative analysis identifying fewer instances of significant results than other options.

Table one about here

We find that both the total strategic or closely held shareholdings of greater than 20% are associated with significantly lower environmental, social and governance scores. For these overall tests the impact on governance appears to be somewhat higher than on environmental or social scores. This is repeated for both corporate and family holdings of greater than 10% but in these cases the impact across the three measures looks relative undifferentiated. It is worth noting that the considerable impact on ESG of corporate holdings approximates to 4 percentage points and that of family holdings to between 6 and 7 percentage points. The other significant results are that government holdings of greater than 10% are positively associated with environmental and social scores and investment institution holdings of greater than 10% are positively associated with governance scores.

H1: Strategic or closely held shareholdings are associated with lower ESG scores.

Our results suggest that both strategic and closely held shareholdings are significantly negatively associated with environmental, social and governance CSR performance. We also averaged the three pillar scores and tested the direction of impact. The result is significant for the three scores and the average score for both measures of concentrated ownership and we are therefore able to reject the null of the first hypothesis. While managers may extract personal benefits from ESG projects (Barnea and Rubin, 2010), strategic owners on average will resist over investment in CSR since their benefits from it may be rather distant while the costs may be substantial.

H2: Undiversified strategic shareholdings (family and corporations) are associated with lower ESG scores than other shareholdings (investment institutions and government).

To formally test the second hypothesis we restrict the sample to firms with strategic holdings for corporations, families, investment institutions and government and test whether firms with the either family or corporate holdings have worse ESG performance than the other firms. This is significantly so for the average ESG measure and all three pillars and is repeated if we leave firms with government holdings out of the analysis. We are therefore able to reject the null of the second hypothesis. The results are consistent with the prior evidence suggesting that some institutional investors, pension funds and the state may be more enthusiastic about ESG developments (Kiernan, 2007; Renneboog et al., 2008; Jo and Harjoto, 2011; Mackenzie et al., 2011) or at least not actively opposed to it (Rees and Mackenzie, 2011; Dam and Scholtens, 2012). Meanwhile, families, as well

as corporations, are able to use their power to advance their personal agenda (Barontini and Caprio, 2006; Jara-Bertín et al., 2008) and in this case restrict ESG activities in firms.

H3a: The negative impact of strategic or closely held shareholdings differs across environmental, social score and governance scores.

With regards to hypothesis 3a we find that the response of governance scores is larger than that of both environmental and social scores. Whether estimated using closely held ownership for the period 2002-2010 or strategic holdings for the period 2005-2010 we find that the impact on governance is statistically significantly greater than that on either the environmental or social scores. Thus we can reject the null of hypothesis 3a. However, we will later show that this is a result of mixing the impact on undiversified entrenched holdings with the very different results for government and investment institutions.

4.1 Regression Analysis Results

Table two contains the results of regression models of the ESG scores with zero-one dummy variables identifying strategic shareholdings and control variables defined as the percentile of market capitalisation, return on equity, leverage and Tobin's Q plus unreported dummies identifying year, country and industry membership. Standard errors are adjusted for clustering at the firm level. Where the coefficient on the treatment variable is statistically significant at 5 percent or less the coefficient and t-statistic are shown as bold. In all instances where the propensity score matching approach identified a statistically significant relationship the regression analysis confirms that. In two additional cases the regression analysis suggests a statistically significant difference between the ESG scores of the treated and control firms. The regression approach suggests that significant holdings by investment institutions have a significant positive impact on environmental and social scores whereas these results are insignificant for propensity score matching.

Table two about here

We have not investigated the reason for the differing results between the regression and propensity score matching approaches. As there is good reason to suppose that the regression approach may not effectively control for the differences between the firms and the propensity score-matching approach is the more conservative, we regard the regression model results as only supporting those of propensity score matching.

4.3 The impact of strategic ownership on ESG component themes.

Table three reports the impact on the individual ESG theme scores of strategic shareholdings or closely held equity overall and those of corporations, families, investment institutions and government. We also present these results in graphical form in figure one where the estimated treatment effect is shown for the 15 themes and for six categories of ownership. Those themes classified as having mainly external benefits are shown in as black, those impacting on business contacts as grey and those with internal benefits are in white. The fifteenth category, vision and strategy, is shown to the right of each cluster and is grey.

Table three and figure one about here

Both closely held equity and strategic holdings, despite the different source of the data and years over which the results have been estimated, have a statistically significant negative impact on all themes baring product innovation, which is negative but insignificant. Neither the tabulated nor graphical results suggest any clear dominance of the impact on ESG themes designated external versus internal or versus contacts. These results are stronger for the firms with significant corporate holdings and marginally stronger again for family holdings and again all estimates save those concerning product innovation are statistically significant. Conversely, no overall robust impact on the fifteen elements of ESG can be identified for government holdings nor for investment institutions. Only the negative impact of investment holdings on diversity and opportunity and the positive impact on board structure are statistically significant.

H3b: Strategic or closely held shareholdings impact more strongly on ESG practices with external benefits (resource reduction, human rights, community and emission reduction) than those with benefits to business practices or contacts (employment quality, diversity of opportunities, health and safety

programmes, employee training and product innovation) and internal benefits (board function, board structure, compensation policy and shareholder rights).

The difference in the results across type of owner illustrates the difficulties inherent in analysing the impact of total strategic or closely held ownership. When we examine the impact of either closely held, for the period 2002-2010, or strategic holdings, for the period 2005-2010, on the different themes clustered to represent external, business contact or internal benefits we find a negative impact on each theme but no reliable difference between the clusters. The only significant result is a marginally significantly higher impact on internal themes than business contacts for the closely held treatment group. This significant result is not replicated when we substitute strategic holdings for closely held. Therefore our results are not consistent with hypothesis H3b.

H4: Undiversified strategic shareholdings (family and corporations) are most strongly associated with lower ESG scores than other shareholdings (investment institutions and government) where those scores relate to external benefits and least strongly for internal benefits.

However, when we examine the firms with corporate or family block-holdings a subtle but statistically significant pattern appears. The categories of ESG we have classified as external tend to have higher negative responses to undiversified owners than other categories in general. Thus across corporate and family controlled firms emission reduction is the 4th and 3rd most significant impact respectively, resource reduction is the largest impact in both cases, community is ranked 10th and 5th, whilst human rights is 5th and 12th. Taken together the external impact group has a statistically higher response to corporate or family ownership than the internal or business contact group. This is statistically significant for the family and corporations taken together and for family separately. This difference is not apparent when the impact of total strategic or closely held ownership is analysed.

Thus our results confirm hypothesis H4 and we are able to reject the null. This is consistent with large undiversified owners assessing potential ESG involvement of the companies with regards to the benefits that they may accumulate from it. While a clear case is presented in the literature as to why ‘universal’ owners should be interested in overall ESG enhancement (Kiernan, 2007) including such global issues as mitigating corporate impact on climate change or assuring human rights, our results suggest that these ‘external’ initiatives, despite their undoubted significance for the society in general,

are actively and effectively discouraged by large undiversified owners given their power over management (Shleifer and Vishny, 1997; Andres, 2008). Considering the dominance of such ownership in a number of countries, this is a significant contribution to the understanding the ways to promote corporate involvement in climate change-related activities and human rights provision.

These findings could both confirm the first hypothesis and the tendency of strategic owners in general to view any CSR expenditure as excessive and a source of managerial entrenchment (Barnea and Rubin, 2010) and, combined with the findings of the second hypothesis, emphasise the importance of distinguishing between both sources of strategic ownership and types of CSR depending on the associated costs and benefits for the owners since this is the characteristics which matters for the owners. The latter has not been researched in the prior work which analysed either different types of owners versus overall CSR (or types not showing distribution of costs and benefits) or the firm value impact of different CSR. The results detailed above demonstrate that simultaneous differentiation between owners and ESG engagements may shed more light on the impact of ownership on CSR and help address the mixed evidence present in prior literature such as, for example, regarding the impact of institutional investors (Harjoto and Jo, 2011; Jo and Harjoto, 2011; Dam and Scholtens, 2012).

5. Conclusion

Whilst many aspects of corporate social responsibility such as product development or governance may be consistent with shareholder wealth maximisation, these are relatively uncontroversial if effective management ensures appropriate levels of investment. Elements of ESG expenditure which impact on the firm's contacts including suppliers, customers and employees may be perceived as beneficial for investors. There remains the possibility that managers will, from the point of view of equity investors, over-invest in these types of activities. However, certain ESG improvements are in the interests of society in general and here it is difficult to argue that the firm's shareholders will benefit, unless it is by a simple reputational effect. At the same time, these ESG initiatives will involve incurring costs within the firm and these can be substantial and involve

restructuring and the competitive rebalancing of the whole industries. We suggest that these developments are likely to include such issues as climate change mitigation strategies and human rights and community provisions. Despite their substantial social and economic impact, these may not present a compelling business case for the owners but managers may still pursue such developments for the personal benefit of positioning themselves as good global citizens.

Shareholders, unlike managers, are likely to be unenthusiastic and possibly hostile to activities that reduce the value of their shareholdings or where the potential benefits are distant. Therefore, the way that large shareholders influence ESG developments in companies, particularly the ones with no immediate internal benefits, is a crucial question in understanding the ESG stance of companies. In this paper we revisit the question of the impact of different strategic equity holders on ESG performance using a large internationally distributed sample and employing propensity score matching to overcome some of the shortcomings of regression modelling.

Since strategic owners ultimately bear the costs associated with ESG activities and given the long-term nature of their holdings, they are likely to step forward and resist undesirable expenditures by management. The larger their shareholding, the more power strategic shareholders will have to influence management and the less diversified their shareholding the stronger their incentive to do so. Indeed, highly diversified shareholders such as investment institutions may gain from the beneficial impact of ESG expenditure on other firms and society as a whole, while investors such as pension funds and the government itself have a clear interest in social benefits. While this may not result in these owners necessarily actively promoting ESG improvements, they are less likely to actively resist them.

Our results confirm that undiversified block holders are associated with lower environmental, social and governance performance, that government holdings are associated with better environmental and social performance and that diversified shareholders such as investment institutions have little impact on ESG either way. This last result may be unexpected given the movement towards socially responsible investment and the reported success of investor engagement. However, an important implication of this result suggests that if managers have reason to take a generally

positive attitude towards ESG expenditure, in the absence of direct opposition from shareholders they may invest more in ESG. We may therefore generally regard this implication as moderately beneficial for ESG development.

We also investigate the differing impact of strategic stockholdings on different types of ESG performance. Particularly, we argue that emission reduction, resource reduction, business ethics (classified in community by ASSET4) and human rights are all instances where a significant element of the benefit from the investment may fall outside the firm. In all four cases the performance measures are significantly and negatively associated with undiversified strategic or closely held shareholdings. This negative impact is generally stronger when we restrict the controlling shareholdings to corporations of families and in this instance we are able to show that the impact is statistically significantly larger on these ESG classifications with external benefits than for other ESG. Thus, our study contributes to the literature by offering a more nuanced view of the differing impact of ownership on different ESG issues. In particular, we demonstrate how the strategic owners may inhibit investment in global issues such as climate change and human rights and identify which type of owners are likely to have stronger resistance. Without a detailed understanding as to which groups of owners effectively curb ESG investments, mainstreaming considerations of such issues as climate change and human rights among investors and companies is likely to be hard if not futile.

Given that environmental, social and governance underperformance of firms may have massive social costs it is important to consider the implications of our analysis. Policy makers may wish to consider the advantages of encouraging diversified share ownership, either directly or via investment institutions, and there also seem to be benefits from direct government equity holdings. Where firms have substantial undiversified shareholdings, policy makers might consider either more robust controls or targeted incentives to encourage environmental, social and governance improvements.

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Table 1. Propensity Score Matching Test of ESG Pillar Performance							
		Variable	Sample	Treated	Controls	Difference	T-stat
Close		ENV	Unmatched	48.540	50.428	-1.888	-3.93
CTL	9,285		ATT	49.707	51.953	-2.246	-3.18
TRT	5,596	SOC	Unmatched	46.916	51.957	-5.040	-10.91
OS	2,830		ATT	47.923	50.676	-2.753	-4.06
TOT	17,711	GOV	Unmatched	40.054	64.605	-24.551	-59.66
2002-10			ATT	45.310	52.110	-6.800	-11.07
Strategic		ENV	Unmatched	46.834	51.993	-5.159	-9.69
CTL	8,793		ATT	46.035	49.156	-3.121	-4.42
TRT	4,396	SOC	Unmatched	47.865	51.003	-3.138	-6.11
OS	1,735		ATT	46.212	49.081	-2.869	-4.22
TOT	14,928	GOV	Unmatched	46.885	56.927	-10.041	-20.4
2005-10			ATT	51.331	56.301	-4.970	-7.62
Corp.		ENV	Unmatched	50.159	49.403	0.756	1.27
CTL	14,817		ATT	50.399	54.095	-3.696	-4.45
TRT	2,775	SOC	Unmatched	48.769	49.869	-1.099	-1.91
OS	792		ATT	48.073	52.114	-4.041	-4.97
TOT	18,364	GOV	Unmatched	35.039	56.920	-21.881	-40.86
2002-10			ATT	36.194	40.845	-4.652	-6.09
Family		ENV	Unmatched	42.335	50.312	-7.978	-9.93
CTL	16,615		ATT	42.567	49.039	-6.472	-6.79
TRT	1,537	SOC	Unmatched	44.316	50.210	-5.894	-7.60
OS	212		ATT	44.052	50.965	-6.912	-7.40
TOT	18,364	GOV	Unmatched	41.667	53.861	-12.194	-16.29
2002-10			ATT	43.436	49.985	-6.549	-7.33
Gov.		ENV	Unmatched	70.175	48.931	21.243	13.85
CTL	16,243		ATT	69.189	63.010	6.179	2.48
TRT	214	SOC	Unmatched	71.553	48.596	22.957	15.57
OS	227		ATT	70.123	64.146	5.977	2.43
TOT	16,684	GOV	Unmatched	47.187	52.914	-5.727	-3.93
2002-10			ATT	45.271	47.237	-1.966	-0.83
Inv.		ENV	Unmatched	44.246	52.360	-8.113	-14.35
CTL	1,321		ATT	46.577	45.557	1.020	1.28
TRT	3,692	SOC	Unmatched	46.670	51.038	-4.368	-7.98
OS	896		ATT	48.493	47.671	0.822	1.08
TOT	14,909	GOV	Unmatched	65.180	47.336	17.844	34.87
2005-10			ATT	64.231	62.829	1.402	2.03

The table reports the average treatment effect on the treated (ATT) where treatment is defined as closely held (Close) or strategic (Strategic) equity holdings greater than 20% and equity holdings of greater than 10% for the components: corporations (Corp.), family holdings (Family), government (Gov.) and investment institutions' (Inv.). The treated firms are matched with their closest 5 untreated neighbours falling within a calliper of 0.0001 as estimated using the probit model in equation 1. The number of firms in the control group (CTL), the treatment group (TRT), those off-support and therefore excluded from the analysis (OS) and the full sample (TOT) are given in the left hand columns along with the sample period. ATT estimates and t-statistics signifying statistical significance less than 0.05 are shown in bold.

Table 2. Regression Models of the Impact of Strategic Shareholdings on ESG Performance

		INT	TRT	MC	ROE	TQ	LEV	N	R ²
Close 2002-10	ENV	27.73 (6.94)	-3.963 (5.43)	0.525 (35.50)	-0.007 (0.60)	-0.150 (8.00)	0.0886 (6.26)	17744	0.404
	SOC	26.13 (2.60)	-4.733 (6.55)	0.565 (40.53)	0.0144 (1.29)	-0.113 (6.22)	0.0727 (5.26)	17744	0.394
	GOV	53.01 (5.93)	-7.065 (13.26)	0.228 (23.90)	-0.013 (1.65)	-0.031 (2.37)	0.0394 (4.45)	17744	0.664
Strategic 2005-10	ENV	25.52 (6.30)	-3.284 (4.36)	0.546 (35.62)	-0.007 (0.61)	-0.149 (7.73)	0.0904 (6.13)	14935	0.410
	SOC	24.74 (2.37)	-3.327 (4.71)	0.573 (39.82)	0.0105 (0.89)	-0.109 (5.82)	0.0831 (5.81)	14935	0.403
	GOV	59.44 (5.73)	-5.007 (9.81)	0.238 (23.93)	-0.009 (1.17)	-0.037 (2.79)	0.0383 (4.18)	14935	0.675
Family 2002-10	ENV	26.50 (6.09)	-3.385 (3.54)	0.533 (36.31)	-0.003 (0.23)	-0.153 (8.26)	0.0892 (6.36)	18384	0.405
	SOC	24.07 (2.28)	-3.608 (3.84)	0.573 (41.65)	0.0165 (1.49)	-0.113 (6.35)	0.0753 (5.49)	18384	0.395
	GOV	49.13 (5.01)	-4.623 (6.89)	0.245 (25.36)	-0.007 (0.91)	-0.034 (2.60)	0.0433 (4.86)	18384	0.655
Corp. 2002-10	ENV	27.79 (7.10)	-6.965 (5.66)	0.528 (35.95)	-0.002 (0.15)	-0.147 (7.97)	0.0890 (6.38)	18384	0.407
	SOC	25.13 (2.45)	-6.455 (5.72)	0.567 (41.15)	0.0175 (1.58)	-0.108 (6.05)	0.0753 (5.51)	18384	0.397
	GOV	49.89 (5.32)	-6.496 (7.52)	0.240 (24.89)	-0.006 (0.77)	-0.029 (2.22)	0.0440 (4.89)	18384	0.656
Gov. 2002-10	ENV	25.57 (6.27)	5.662 (2.93)	0.531 (35.82)	-0.002 (0.14)	-0.153 (8.26)	0.0912 (6.48)	18384	0.404
	SOC	23.08 (2.26)	5.916 (2.80)	0.570 (41.09)	0.0177 (1.59)	-0.113 (6.35)	0.0774 (5.61)	18384	0.394
	GOV	47.77 (5.10)	2.003 (1.14)	0.245 (24.88)	-0.006 (0.77)	-0.035 (2.68)	0.0461 (5.10)	18384	0.652
Invest. 2005-10	ENV	22.61 (5.52)	1.515 (2.06)	0.555 (36.41)	-0.004 (0.37)	-0.153 (7.92)	0.0918 (6.21)	14935	0.409
	SOC	21.77 (2.06)	1.562 (2.27)	0.582 (40.52)	0.0135 (1.13)	-0.113 (6.03)	0.0845 (5.87)	14935	0.401
	GOV	55.35 (5.24)	1.681 (3.54)	0.250 (24.65)	-0.006 (0.67)	-0.044 (3.24)	0.0408 (4.36)	14935	0.670

$$\text{Equation 2: } ESG_{it} = b_0 + b_1TRT_{it} + b_2MC_{it} + b_3ROE_{it} + b_4TQ_{it} + b_5LEV_{it} + \dots$$

$$YR'_{it} + CO'_{it} + IND'_{it} + e_{it}$$

The table reports the average impact of strategic holdings where the ownership treatment dummy (TRT) is defined as closely held (Close) or strategic (Strategic) equity holdings greater than 20% and equity holdings of greater than 10% for the components: corporations (Corp.), family holdings (Family), government (Gov.) and investment institutions' (Inv.). The model is estimated with market capitalization (MC), profitability (ROE), Tobin's Q (TQ) and leverage (LEV) controls plus (unreported) dummies to control for year, industry and country. Standard errors are adjusted for firm specific clustering and where the treatment variable is significant at 5% the coefficient and t-statistic are in bold

Table 3. Propensity Score Matching Test of ESG Theme Performance

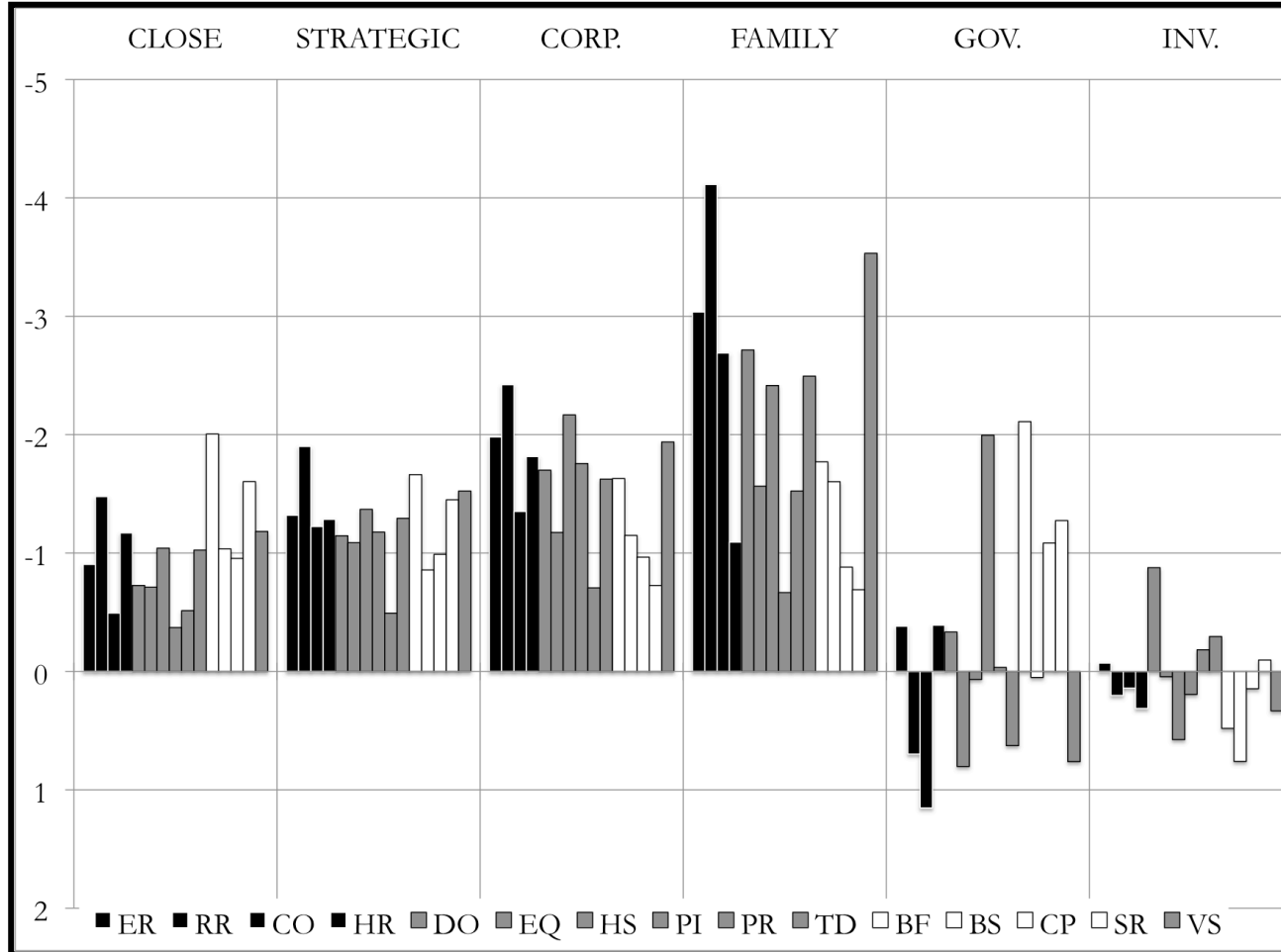
Theme	Benefit	Close		Strategic		Corp.		Family		Gov.		Inv.	
		Diff	T-stat	Diff	T-stat	Diff	T-stat	Diff	T-stat	Diff	T-stat	Diff	T-stat
Emission Reduction	Ext.	-1.245	-5.010	-2.671	-9.160	0.016	0.050	-4.321	-10.410	9.901	12.730	-4.563	-14.630
Product Innovation	Con.	-0.904	-2.410	-1.319	-3.380	-1.980	-4.490	-3.036	-6.430	-0.382	-0.260	-0.070	-0.160
Resource Reduction	Ext.	-0.850	-3.360	-2.297	-7.490	-1.391	-4.460	-1.955	-4.630	2.827	3.500	-2.041	-6.190
Community	Ext.	-0.371	-0.970	-1.177	-2.870	-1.756	-3.760	-0.666	-1.300	-1.995	-1.240	0.194	0.420
Reduction	Ext.	-1.073	-3.630	-2.629	-7.780	0.197	0.540	-4.297	-8.700	11.503	12.470	-4.428	-12.230
Community	Ext.	-1.477	-3.290	-1.900	-4.130	-2.422	-4.690	-4.113	-6.970	0.698	0.420	0.203	0.390
Diversity & Opportunity	Con.	-2.149	-14.930	-1.812	-11.040	-1.645	-9.210	-3.226	-13.400	4.242	9.340	-0.536	-3.020
Employment Quality	Con.	-0.493	-2.290	-1.224	-5.470	-1.351	-5.270	-2.689	-9.280	1.153	1.360	0.141	0.560
Health & Safety	Con.	-3.033	-15.530	-2.354	-10.240	-2.032	-8.340	-3.538	-10.760	6.211	10.110	-1.509	-6.090
Human Rights	Ext.	-0.726	-2.480	-1.146	-3.740	-1.700	-4.630	-2.715	-6.970	-0.333	-0.250	-0.876	-2.620
Product Responsibility	Con.	-1.697	-12.620	-0.251	-1.620	-0.465	-2.780	-1.128	-5.000	5.052	11.980	-0.111	-0.670
Training & Development	Con.	-0.711	-3.520	-1.087	-5.150	-1.174	-4.750	-1.565	-5.600	0.803	1.080	0.045	0.190
Board Function	Int.	-2.854	-13.350	-1.756	-7.250	-2.038	-7.680	-2.776	-7.740	7.290	10.830	-0.192	-0.740
Board Structure	Int.	-1.041	-3.240	-1.369	-4.170	-2.167	-5.650	-2.415	-5.500	0.068	0.050	0.576	1.580
Compensation Policy	Int.	-1.057	-6.670	-0.810	-4.310	-0.358	-1.820	-0.548	-2.060	4.902	9.920	-1.733	-8.600
Shareholder	Int.	-1.170	-4.840	-1.284	-5.090	-1.815	-6.480	-1.092	-3.320	-0.390	-0.390	0.313	1.090
Board	Int.	-0.591	-4.570	-0.920	-6.210	0.016	0.100	-1.592	-7.380	3.977	9.910	-0.980	-6.150
Structure	Con.	-0.514	-2.670	-0.492	-2.470	-0.706	-2.960	-1.524	-5.810	-0.034	-0.040	-0.183	-0.830
Compensation Policy	Con.	-0.270	-1.110	0.744	2.620	1.508	4.980	-0.435	-1.060	12.262	16.070	-3.596	-11.850
Shareholder	Int.	-1.025	-2.780	-1.293	-3.340	-1.624	-3.690	-2.494	-4.800	0.627	0.470	-0.295	-0.690
Board	Int.	-11.347	-46.230	-2.723	-9.310	-9.876	-31.480	-3.997	-9.170	-3.613	-4.370	10.374	34.340
Structure	Int.	-2.005	-5.340	-1.662	-4.120	-1.629	-3.380	-1.770	-3.360	-2.110	-1.610	0.481	1.200
Compensation Policy	Int.	-5.920	-31.750	-0.720	-3.320	-5.399	-23.100	-1.705	-5.310	0.648	1.060	6.388	28.230
Shareholder	Int.	-1.035	-3.670	-0.857	-2.870	-1.149	-3.080	-1.602	-3.990	0.051	0.050	0.760	2.530
Compensation Policy	Int.	-8.371	-40.160	-1.222	-4.880	-7.339	-27.810	-1.475	-4.040	-0.964	-1.390	8.531	32.940
Shareholder	Int.	-0.955	-3.000	-0.989	-2.850	-0.965	-2.320	-0.881	-2.010	-1.084	-0.980	0.146	0.430
Shareholder	Int.	-4.268	-33.610	-2.346	-16.410	-3.650	-22.890	-2.205	-10.100	-2.559	-6.210	3.088	20.180

		-4.268	-33.610	-2.346	-16.410	-3.650	-22.890	-2.205	-10.100	-2.559	-6.210	3.088	20.180
Rights		-1.603	-8.310	-1.450	-7.420	-0.726	-3.260	-0.690	-2.510	-1.274	-1.540	-0.096	-0.430
Vision & Strategy	Unclass.	-1.182	-3.180	-1.524	-3.910	-1.938	-4.390	-3.532	-2.370	0.762	0.480	0.333	0.770

Table 3 contains the results of propensity score matching to evaluate the impact of ownership on ESG performance. For each investment category we report the difference in performance between treated and untreated firms and the t-statistic of the difference in means in the first row and the difference in performance between matched firms and the t-statistic of the difference in means (the average treatment effect) in the second row. The statistical method is as described in table 1. Where the treatment effect is statistically significant the difference and t-statistic is in bold type. The definitions of the treatment variables and the statistical method are as described in table 1. The first 3 dimensions are classified by ASSET4 as environmental, the next six as social and the final five are classified as governance. Our classification is reported in the second column where external (EXT), contact (Con.) and Internal (Int.) and is based on our analysis as to whether the benefits fall outside the firm, on the firm's contacts and employees or on the internal management of the firm. Vision and Strategy is unclassified. The definitions of each category are given in appendix one.

Figure 1. PSM Estimates of the Impact of Strategic Ownership Categories on ESG Themes.

Themes benefitting external stakeholders are shown in black, those benefitting business contacts in grey and those impacting on internal governance in white. Vision and strategy is the last bar, also shown in grey. Theme definitions are given in appendix one.



Appendix 1. ASSET4 Theme Descriptions		
ENV	Environmental Performance Pillar	
RR	<p>Resource Reduction</p> <p>The resource reduction category measures a company's management commitment and effectiveness towards achieving an efficient use of natural resources in the production process. It reflects a company's capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.</p>	EXT
ER	<p>Emission Reduction</p> <p>The emission reduction category measures a company's management commitment and effectiveness towards reducing environmental emission in the production and operational processes. It reflects a company's capacity to reduce air emissions (greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, etc.), waste, hazardous waste, water discharges, spills or its impacts on biodiversity and to partner with environmental organizations to reduce the environmental impact of the company in the local or broader community.</p>	EXT
PI	<p>Product Innovation</p> <p>The product innovation category measures a company's management commitment and effectiveness towards supporting the research and development of eco-efficient products or services. It reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialized products with extended durability.</p>	CON
SOC	Social Performance Pillar	
EQ	<p>Employment Quality</p> <p>The workforce / employment quality category measures a company's management commitment and effectiveness towards providing high-quality employment benefits and job conditions. It reflects a company's capacity to increase its workforce loyalty and productivity by distributing rewarding and fair employment benefits, and by focusing on long-term employment growth and stability by promoting from within, avoiding lay-offs and maintaining relations with trade unions.</p>	CON
HS	<p>Health and Safety</p> <p>The workforce / health and safety category measures a company's management commitment and effectiveness towards providing a healthy and safe workplace. It reflects a company's capacity to increase its workforce loyalty and productivity by integrating into its day-to-day operations a concern for the physical and mental health, well being and stress level of all employees.</p>	CON
TD	<p>Training and Development</p> <p>The workforce / training and development category measures a company's management commitment and effectiveness towards providing training and development (education) for its workforce. It reflects a company's capacity to increase its intellectual capital, workforce loyalty and productivity by developing the workforce's skills, competences, employability and careers in an entrepreneurial environment.</p>	CON

DO	Diversity and Opportunity The workforce / diversity and opportunity category measures a company's management commitment and effectiveness towards maintaining diversity and equal opportunities in its workforce. It reflects a company's capacity to increase its workforce loyalty and productivity by promoting an effective life-work balance, a family friendly environment and equal opportunities regardless of gender, age, ethnicity, religion or sexual orientation.	CON
HR	Human Rights The society / human rights category measures a company's management commitment and effectiveness towards respecting the fundamental human rights conventions. It reflects a company's capacity to maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labour.	EXT
CO	Community The society / community category measures a company's management commitment and effectiveness towards maintaining the company's reputation within the general community (local, national and global). It reflects a company's capacity to maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.).	EXT
PR	Customer / Product Responsibility The customer / product responsibility category measures a company's management commitment and effectiveness towards creating value-added products and services upholding the customer's security. It reflects a company's capacity to maintain its license to operate by producing quality goods and services integrating the customer's health and safety, and preserving its integrity and privacy also through accurate product information and labelling.	CON
GOV	Corporate Governance Pillar	
BS	Board Structure The board of directors / board structure category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to a well-balanced membership of the board. It reflects a company's capacity to ensure a critical exchange of ideas and an independent decision-making process through an experienced, diverse and independent board.	INT
CP	Compensation Policy The board of directors / compensation policy category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to competitive and proportionate management compensation. It reflects a company's capacity to attract and retain executives and board members with the necessary skills by linking their compensation to individual or company-wide financial or extra- financial targets.	INT
BF	Board Functions The board of directors / board functions category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to	INT

	board activities and functions. It reflects a company's capacity to have an effective board by setting up the essential board committees with allocated tasks and responsibilities.	
SR	<p>Shareholder Rights</p> <p>The shareholders / shareholder rights category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to a shareholder policy and equal treatment of shareholders. It reflects a company's capacity to be attractive to minority shareholders by ensuring them equal rights and privileges and by limiting the use of anti-takeover devices.</p>	INT
VS	<p>Vision and Strategy</p> <p>The integration / vision and strategy category measures a company's management commitment and effectiveness towards the creation of an overarching vision and strategy integrating financial and extra-financial aspects. It reflects a company's capacity to convincingly show and communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.</p>	n/a
<p>The definitions are taken from ASSET4 descriptions of their themes. The categorisation of each theme as internal (INT), external (EXT) or relating to business practices or business contacts (CON) is our judgemental assessment. We do not classify vision and strategy as it is unclear where the costs and benefits might fall.</p>		

Appendix 2. Sample Description

Panel 1. Distribution over years

Year	Freq.	ENV	SOC	GOV
2002	913	47.60	48.95	51.92
2003	927	48.00	49.19	51.73
2004	1,706	47.96	49.31	52.25
2005	2,117	48.34	49.15	51.77
2006	2,133	48.38	49.15	51.95
2007	2,301	49.81	50.11	52.21
2008	2,682	50.20	49.84	52.92
2009	3,024	50.25	49.61	53.07
2010	2,887	50.57	49.68	54.43
Total	18,690	49.36	49.53	52.68

Panel 2. Distribution by Industry

Sector	Freq.	ENV	SOC	GOV
Unknown	12	21.34	25.10	26.04
Basic Industries	2,106	57.23	51.09	51.26
Capital Goods	2,365	63.76	55.94	49.13
Consumer Durables	591	65.45	57.43	48.10
Consumer Non-Durables	1,282	51.59	54.00	52.03
Consumer Services	2,683	40.31	45.81	50.99
Energy	1,329	45.70	47.84	62.35
Finance	3,964	39.03	43.09	51.43
Health Care	1,102	45.54	50.94	56.17
Public Utilities	1,123	61.55	60.01	57.43
Technology	1,500	48.15	47.62	59.08
Transportation	613	49.41	47.79	41.65
Total	18,690	49.37	49.54	52.69

Panel 3. Distribution by Country.

Country	Freq.	ENV	SOC	GOV
Australia	895	41.55	40.84	58.50
Austria	141	48.66	48.55	27.68
Belgium	194	52.81	47.97	44.55
Brazil	119	56.65	70.30	27.12
Canada	1,079	36.19	36.62	70.51
China	136	33.55	36.91	22.56
Colombia	8	36.63	43.29	29.15
Czech Republic	12	53.60	63.76	30.13
Canada	45	38.42	36.58	63.81
Denmark	173	51.22	46.26	26.87
Finland	188	70.49	64.90	52.62
France	674	74.76	75.49	50.55
Germany	565	65.41	65.59	30.49
Greece	174	48.54	51.08	19.23
Hong Kong	487	33.29	36.21	25.11
India	104	52.96	62.00	26.77
Ireland	118	42.63	41.35	59.17
Italy	365	49.21	60.34	33.88
Japan	2,634	60.75	43.91	11.51
Netherlands	251	66.57	74.74	62.23
Norway	181	53.77	57.30	49.19
Philippines	14	35.75	40.15	24.73
Singapore	266	32.53	34.28	35.75
South Korea	134	62.07	54.54	16.25
Spain	348	67.27	72.89	43.93
Sweden	405	62.55	61.27	48.68
Switzerland	428	58.03	56.34	49.20
Taiwan	105	47.71	38.77	12.01
United Kingdom	2,230	58.68	62.99	68.38
USA	6,217	38.48	43.22	72.96
Total	18,690	49.36	49.53	52.68

Appendix 3. Correlation Matrices and Descriptive Statistics for Main Variables.

	ENV	SOC	GOV	Close	Strategic	Com.	Emp.	Gov.	Inv.	LEV	ROE	TQ	MC
ENV	1.000												
SOC	0.752	1.000											
GOV	0.132	0.303	1.000										
Close	-0.031	-0.082	-0.411	1.000									
Strategic	-0.080	-0.051	-0.165	0.494	1.000								
Com.	0.010	-0.014	-0.287	0.401	0.504	1.000							
Emp.	-0.073	-0.057	-0.120	0.256	0.310	-0.022	1.000						
Gov.	0.101	0.111	-0.028	0.144	0.172	-0.011	-0.040	1.000					
Inv.	-0.116	-0.065	0.274	-0.110	0.154	-0.212	-0.082	-0.086	1.000				
LEV	0.124	0.131	0.038	-0.059	-0.027	-0.026	-0.041	0.054	-0.005	1.000			
ROE	0.029	0.127	0.135	-0.036	0.036	-0.003	0.039	0.024	0.010	-0.026	1.000		
TQ	-0.011	0.089	0.227	-0.091	0.018	-0.083	0.075	-0.049	0.151	-0.242	0.467	1.000	
MC	0.336	0.417	0.190	-0.096	-0.060	-0.020	-0.086	0.108	-0.066	0.092	0.250	0.055	1.000
Mean	49.358	49.529	52.678	0.477	0.411	0.194	0.095	0.024	0.307	50.392	50.497	50.497	50.498
Std. Dev.	31.985	30.880	29.999	0.499	0.492	0.395	0.293	0.153	0.461	29.041	28.867	28.867	28.867
p25	17.170	19.820	23.770	0.000	0.000	0.000	0.000	0.000	0.000	25.000	25.000	25.000	25.000
p50	44.425	47.320	60.560	0.000	0.000	0.000	0.000	0.000	0.000	50.500	50.000	50.000	50.500
p75	83.700	79.790	78.820	1.000	1.000	0.000	0.000	0.000	1.000	75.000	75.000	75.000	75.000
N	18690	18690	18690	17860	15008	18482	18482	18482	15008	18666	18663	18559	18690

This table reports the descriptive statistics for, and correlations between, the ASSET4 measures of Environmental (ENV), Social (SOC) and Governance (GOV), the Datastream based zero-one indicators of closely held, strategic, company, employee, government and investment institution significant holdings plus the control variables of Leverage (LEV), Tobin's Q (TQ), Return on Equity (ROE) and market capitalisation (MC), all expressed as annual percentiles. The correlations and descriptive statistics for the Strategic and Investment variables are calculated for 2005-2010. All other variables are calculated for 2002-10.

Appendix 4. Probit Models of Significant Strategic Ownership by Various Classifications of Equity Holders plus Debt Holders.						
	Close	Strategic	Com.	Emp.	Gov.	Inv.
MC	-0.00520 (6.33)	-0.00481 (5.98)	-0.00161 (1.74)	-0.00608 (5.56)	0.0171 (6.96)	-0.00816 (10.41)
ROE	-0.00101 (1.58)	-0.00172 (2.70)	-0.00102 (1.38)	0.0000 (0.00)	-0.00250 (1.34)	-0.00196 (3.16)
TQ	0.00208 (2.14)	0.00351 (3.64)	0.00106 (0.95)	0.00620 (4.33)	-0.00411 (1.76)	0.00127 (1.38)
LEV	-0.00270 (3.59)	-0.00192 (2.65)	-0.00292 (3.32)	-0.00219 (2.05)	0.00394 (1.91)	0.00131 (1.90)
INT	0.413 (1.18)	0.163 (1.15)	-0.695 (1.43)	-0.730 (2.86)	-2.322 (6.37)	0.432 (1.18)
Country	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y
N	17711	14924	18384	18364	16672	14909
adj. R-sq	0.20	0.12	0.20	0.11	0.42	0.18

$$\text{Equation 1: } TRT_{it} = a_0 + a_1 MC_{it} + a_2 ROE_{it} + a_3 TQ_{it} + a_4 LEV_{it} + \dots \\ YR'_{it}y + CO'_{it}c + IND'_{it}i + e_{it}$$

The table reports the determinants of the treatment variable defined as closely held (Close) or strategic (Strategic) equity holdings greater than 20% and equity holdings of greater than 10% for the components: corporations (Corp.), family holdings (Family), government (Gov.) and investment institutions' (Inv.). The model is estimated with market capitalization (MC), profitability (ROE), Tobin's Q (TQ) and leverage (LEV) controls plus (unreported) dummies to control for year, industry and country. Standard errors are adjusted for firm specific clustering and where the treatment variable is significant at 5% the coefficient and t-statistic are in bold