Corporate social performance, competitive advantage, earnings persistence and firm value

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Abstract

In this paper, using a generalised valuation framework inspired by Ohlson (1995), we show that corporate social performance (CSP) is value relevant and that, in particular, it appears to be associated with a higher coefficient on earnings. This could be attributable to either a lower cost of equity for these firms, or greater earnings persistence. We show that, once industry membership is controlled for, any cost of capital effect is minimal. Regression tests based on realised earnings confirm that the valuation effect is attributable mainly to greater earnings persistence in firms with higher levels of CSP. These outcomes are consistent with higher CSP conferring a competitive advantage on firms.

Corporate social performance, competitive advantage, earnings persistence and firm value

1. Introduction

Can a firm's corporate social performance (CSP) endow it with a competitive advantage and, thereby, improve its earnings? Friedman (1962, 1970) famously expressed disquiet about agency losses from socially responsible actions but, notably, he was not opposed to corporate social responsibility if it enhanced firm value. His views motivated a large body of empirical work investigating if there is a business case for corporate social responsibility (CSR). Renneboog, Ter Horst and Zhang (2008) review this literature and conclude that whether or not CSR is priced in capital markets is an open question. However, recent studies that focus on firm value, as we do here, find evidence that CSP does impact positively on firm value (Galema et al., 2008; Guenster et al., 2011; Jo and Harjoto, 2011; Kim and Statman, 2012; Gregory and Whittaker, 2013). Nonetheless, even if firms with a high corporate social performance (CSP) are found to have a higher stock value than firms with low CSP, this still leaves open the possibility that this is a consequence of greater investor demand for the stocks of 'good' companies (Mackey, Mackey and Barney, 2007) while, as suggested by El Ghoul et al. (2011), companies with an inferior CSP may have a smaller investor base. The contribution of this paper is not only simply to show that CSP is value-enhancing, but also to show that the reason CSP is value relevant is that CSP appears to be associated with greater earnings persistence. The implication is that the relationship between CSP and firm value is driven by an underlying economic effect that is consistent with firms that have higher levels of CSP having a competitive advantage over rival firms.

Our investigative approach is consistent with that of Agarwal, Taffler and Brown (2011) and Gregory and Whittaker (2013). Both papers argue that firm value, rather than realised returns, is the more appropriate metric when assessing the financial implications of the objects of their investigations. The reason is straightforward, in that the analysis of realised returns will tell us nothing if markets are efficient. As Agarwal et al. (2011) point out "In efficient markets, there should be no relationship between quality of management and subsequent stock returns as implications of management quality will already be impounded in the stock price. This is irrespective of whether it has a positive, negative or no impact on firm operating performance". Gregory and Whittaker (2013) make a similar point with regard to CSP, emphasising that if CSP is associated with a *lower* cost of capital (as

El Ghoul et al., 2011 and Sharfman and Fernando, 2008 suggest), then we would expect to observe high CSP firms having lower returns on average than low CSP firms.

In this study we use a more sophisticated value-based model than that employed in Gregory and Whittaker (2013) and apply it not only to retest the impact of CSP on firm value but, after finding that firms with a high CSP do have a higher value, also explore whether this is because earnings themselves are more persistent and whether they have a lower risk-adjusted cost of capital resulting in a higher capitalisation of future earnings. In this respect, our approach is similar to that adopted in Agarwal et al. (2011), although our modelling of valuation and earnings effects is subtly different. In common with Agarwal et al. (2011), we also investigate whether risk-adjusted costs of capital differ between firms with good and poor CSP performance with respect to our chosen metrics. In contrast to the findings of Sharfman and Fernando (2008) and El Ghoul et al. (2011), we find that, once industry membership is controlled for, any cost of capital difference between high and low CSP firms is minimal. However, we find that CSP positively predicts future earnings and therefore high CSP would appear to be associated with higher future abnormal earnings. Therefore we conclude that CSR engagement can endow firms with a competitive advantage by raising future earnings.

2. Theory and hypotheses

The ability of a firm to gain a competitive advantage is normally considered from the resource-based view (RBV), which assumes firm heterogeneity. Firms with resources and capabilities which are valuable and rare attain economic rents and, when these are difficult to imitate or substitute, the competitive advantage is sustainable over the long term (Barney, 1991). However, Oliver (1997) argues that an institutional perspective is also relevant for understanding competitive advantage, because conforming to social expectations is pertinent for organisational success and survival (Carroll and Hannan, 1989; Oliver, 1991; Scott, 1987). An early response to Friedman's concern with agency losses associated with CSR is provided by Narver (1971), who stresses the necessity of companies taking voluntary action to address 'external effects' if they are to maximise wealth. He suggests that to ignore the changing expectations of a broad base of stakeholders "can induce the capital market to perceive lower expected earnings and/or impute a higher risk factor resulting in a lower present value of the firm" (p103) and, thus, identified the relevance of CSP for firm value. This was endorsed thirty years later when Jensen (2001) advised that responding to stakeholders is 'enlightened value maximisation'.

Over time, national governments have found it more difficult to regulate and, subsequently, firms have come under greater pressure from external stakeholders to address social and environmental issues (Campbell, 2007). Many have responded by increasing their CSP in order to maintain legitimacy (Chiu and Sharfman, 2011). Legitimacy endows a 'licence to operate', a primary component and minimum requirement of firm reputation, and therefore an important intangible asset (Chiu and Sharfman, 2011; Hall, 1993). When a firm goes beyond the minimum provision of CSP required for legitimacy, further reputational benefits can be attained, for instance by attracting better employees and loyal customers (Brammer & Pavelin, 2006; Fombrun et al., 2000; Waddock & Graves, 1997). In addition, there is evidence that CSP can establish moral capital and so reduce unsystematic risk (Bansal and Clelland, 2004). Godfrey et al. (2009) find stakeholder engagement builds goodwill which has an insurance-like effect when a negative event such as a product safety concern or an environmental accident occurs. Koh et al. (2014) find that the insurance properties of CSP are not only identifiable *ex post* a negative event, but also discernible *ex ante*, with the value dependent on a firm's exposure to risk.

The above discussion denotes a coalescing of the resource-based view and institutional perspective; stakeholder engagement builds reputational capital, which is a difficult-to-imitate intangible resource, thereby assisting in the attainment of a sustainable competitive advantage (Roberts and Dowling, 2002, Wang and Choi, 2013). However, in addition to the reputational impact from meeting societal expectations, CSP is associated with enhancing a firm's internal organisational capabilities (Sharma and Vredenburg, 1998). For example, Hart (1995) in his 'natural resource-based view' proposes that, in addressing environmental concerns, valuable firm-specific capabilities are developed. In subsequent empirical studies, Russo and Fouts (1997) find pollution prevention activities do result in new competences being developed, particularly in high growth firms, and Aragón-Correa and Sharma (2003) conclude that the relevance of a proactive environmental strategy on a firm's competitive advantage is context-dependent. Beyond the purely environmental dimension, Hillman and Keim (2001) argue that there are benefits from managing primary stakeholder relationships in a less contractual manner. Luo and Bhattacharya (2006) and Sen and Bhattacharya (2001) indicate that higher CSP is associated with higher customer support, while Edmans (2011) finds that high levels of employee satisfaction lead to stronger corporate performance, but that this intangible asset is not fully incorporated into stock value. Teece, Pisano and Shuen (1997) emphasise the relevance of dynamic capabilities, arguing that a constant set of resources and capabilities would not stand the test of time, particularly in rapidly changing environments. Consequently, they claim that an ability to reconfigure competences when external conditions require is indispensable for sustaining a competitive advantage. Choi and Wang (2009) test the importance of good stakeholder relationships for building dynamic capabilities and find that they are influential in sustaining a firms' competitive advantage over a duration, although not as influential as technological knowledge.

Assimilating knowledge from stakeholders and creating value from it is, in itself, a skill and requires appropriate systems (Harrison, Bosse and Phillips, 2010). Barnett (2007) argues that it takes time for firms to acquire the capacity to engage effectively with stakeholders and, therefore, there is likely to be a lag between investment in CSR and a financial return from it. Empirical work by Barnett and Salomon (2012) confirms that firms need to commit a certain level and continuity of investment in CSR in order to attain net benefits. Harrison et al. (2010) and Wang and Choi (2013) also emphasise the need for temporally consistent social performance for building stakeholder relationships that bring financial rewards.

McWilliams and Siegel (2001) theorise that firms adopt an efficient approach to CSR strategy, matching stakeholder demand for CSP with a firm's capability to supply, and, as a result, levels of CSP between firms should be expected to vary. Firms that have greater public exposure are likely to experience greater stakeholder demands (Campbell, 2007, Chiu and Sharfman, 2011, Aguinis and Glavas, 2012) and, recently, Servaes and Tamayo (2013) demonstrate the importance of customer awareness in determining the influence of CSR on firm value. Flammer (2015) uncovers temporal changes in demand, finding that the environmental expectations of stakeholders have grown over time. A consequence of this is that the financial reward to firms with a positive environmental effect has diminished, as what was once perceived as exceptional practice becomes the expected norm. Simultaneously, the financial penalty to firms that cause a negative environmental impact has increased. This suggests that the minimum requirements for achieving social legitimacy are rising and strategic attention to CSP is financially relevant.

The above literature indicates that positive CSP can be value enhancing. In this paper the research method differs by being firmly in the tradition of market-based accounting research and uses a general valuation framework originally developed by Ohlson (1995), and extended by Akbar and Stark (2003). This allows us to explore the sources of value. However, our starting assumption is that market prices will reflect the expected present value of a firm's CSP. This directly leads to our first hypothesis, H1, which may be stated as:

H1: If CSR engagement is value-enhancing, then CSP will be positively valued by markets.

Clearly, this hypothesis tells us nothing about where such value additivity comes from. Quite reasonably, it could be in the form of long run future cash flow expectations that are yet to have an impact on current earnings. Nonetheless, Mackey, Mackey and Barney (2007) provide a theoretical argument suggesting that a CSR strategy could maximize the value of the firm even if it is not maximizing the present value of future cash flows. Their argument is based on the assumption that some shareholders may have a preference for investing in firms that operate in a socially responsible way, even when this constrains the present value of future cash flows. Bollen (2007) too has argued that certain investors have a multi-attribute utility function, deriving additionally utility from the socially responsible dimensions of an investment. Certainly some demand has been expressed by retail investors for socially responsible mutual funds, but Haigh and Hazleton (2004) question whether such demand is sufficient to have an impact on stock prices, particularly when institutional investors are subject to fiduciary duties. We are able to investigate this with our model, by examining the mechanisms by which CSP may be value relevant.

If CSP is value enhancing, this could be either because it improves future earnings, or because it results in a lower cost of capital. Sharfman and Fernando (2008) and El Ghoul et al. (2011) provide evidence to support the case that superior CSP may be associated with a lower cost of capital. However, it is not clear whether CSR exposure is likely to be a priced *systematic* risk factor. One can conceive of scenarios where it may be. For example, given that oil price shocks are systematic in nature, firms that adopt renewable energy or low carbon strategies may have lower systematic risk than those that do not. On the other hand, some CSR exposures would not be expected to affect systematic risks but, instead, would be expected to be of a specific risk nature. For example, avoiding pollution spills by installing suitable technologies avoids fines and clean-up costs, plus costs associated with poor publicity, but these are future cash flow effects rather than systematic risk effects.[1] A consequence is that it is not obvious why all differences in CSP should show up in long run *abnormal* returns in any predictable fashion, which provides the basis of the case made by Gregory and Whittaker (2013) for using firm value as the performance metric. If CSP is manifested either in the form of a lower cost of capital, or in more persistent abnormal earnings, then we should

[1] Curiously, El Ghoul et al. (2011) use the theoretical model of Heinkel *et al*. (2001) to argue that firm specific risk may influence the cost of capital. This model proposes that a higher cost of capital can be associated with higher firm-specific risk when this risk reduces the number of investors and thereby reduces the opportunities for risk sharing. Hong and Kacperczyk (2009) find evidence that 'sin' stocks (i.e. relating to alcohol, tobacco and gambling etc.) were less likely to be included in the portfolios of norm-constrained institutional investors, and such stocks have a higher cost of capital. However, it remains an empirically open question as to whether sufficient investors have been deterred from investing in firms with low CSP, as opposed to avoiding firms in specific 'sin' industries.

expect to see market values driven by a higher multiplier of current earnings, leading to our second hypothesis:

H2: CSP is associated with a higher valuation multiplier of current earnings.

If abnormal earnings are more persistent in firms with high CSP (as implied by Choi and Wang, 2009), this should be directly observable, leading to our third hypothesis:

H3: CSP is associated with a higher multiplier of current earnings when predicting future earnings.

Finally, if CSP is associated with a lower cost of capital (El Ghoul et al., 2011; Sharfman and Fernando, 2008), then it should manifest itself in lower factor loadings or, alternatively, in a lower implied cost of equity capital. Thus, our fourth hypothesis can be stated as:

H4: CSP is negatively related to the cost of equity.

3. Data and Methodology

Our measure of CSP is derived from the widely used Kinder, Lyndenberg and Domini (KLD) data series. Although this data has been subject to some criticism (see for example, Chiu and Sharfman, 2011), it has the merit of having a long time series of information (since 1991) and being readily available. The KLD data takes the form of a series of zero-one variables for a number of strengths and weaknesses across different categories of CSR indicators, namely Environment, Community, Diversity, Employee Relations, Human Rights, Product and Governance.[2] An important feature of the data is that the number of strengths and weaknesses are not symmetrical within any CSR indicator, and the number of strengths and weaknesses differ between indicators. Furthermore, over time, indicators may change as new concerns emerge, so that the number of strengths and weaknesses can change between years. For example, the Human Rights measure has, for some early years, included concerns reflecting activity in South Africa and Northern Ireland, neither of which are regarded as relevant by KLD in later years.

Our first problem is to organise this data so that it is comparable across firms and across industries. There are several approaches that have been adopted in the recent literature. First, Kempf and Osthoff (2007) normalise the data for each CSR indicator on a zero to one scale, weighting strengths

[2] Further detail on the criteria for each indicator is reported in Appendix 1.

positively and concerns negatively. By contrast, in respect of the KLD environmental score, Fernando, Sharfman and Uysal (2010) classify firms into one of four categories: "Green" firms, which have only strengths; "Toxic" firms, which have only concerns; "Gray" firms, which have both strengths and concerns; and "Neutral" firms, which have neither. Finally, some studies (e.g. Galema et al., 2008; El Ghoul et al., 2011) simply sum positive and negative CSR scores.

Whilst normalised scores have some advantages when the number of indicators vary through time and across categories, normalised CSP scores simply do not lend themselves to neat decile or quartile cut-offs, despite the implication that such portfolios can be formed in, for example, Kempf and Ostoff (2007). This is an important limitation if we wish to estimate either realised or implied costs of capital (ICC). We do not investigate the individual components of CSR in this paper, but instead employ a summary measure.

For this measure, we form an overall score based on a summation of each KLD indicator except *Human Rights* and *Governance*. *Human Rights* is a problematic indicator, as it is neither available for all our time periods nor on a consistent basis. Furthermore, the vast majority of firms have a "zero" net score. Only 61 firms have only *Human Rights Strengths* whilst 1,210 have only *Human Rights Weaknesses*, and just under 10% of our sample have no records for *Human Rights*. Additionally, this indicator exhibits less stability than others because of changes in its composition through time.[3]

The *Corporate Governance* indicator is also problematic. As Kempf and Osthoff (2007, fn. 7) note, the KLD indicator differs from those indicators of governance generally employed in the literature, including Gompers, Ishii and Metrick (2003), Brown and Caylor (2006), Bhagat and Bolton (2008) and Bebchuk, Cohen and Ferrell (2009).[4] In particular, KLD has high executive compensation as a concern, and low executive compensation as a strength (see Appendix). To the extent that executive pay is a function of past performance, this clearly could be problematic. This, together with the lack of commonality between the KLD measure and the measures employed in the above studies, leads Kempf and Osthoff (2007) to drop *Governance* from their analysis, and we follow that approach here. Our overall score, then, is the sum of the strengths (positive) and weaknesses (negative) from each of the *Community*, *Diversity*, *Employment, Environment* and *Product* indicators described in the Appendix.

3 See Appendix.

4 See also Shaukat and Trojanowski (2011) for a UK version in line with the UK Code on Corporate Governance.

Finally, for our analysis of cost of capital, we classify firms into three groups, based on these overall KLD net scores: an overall positive net score; an overall zero net score, and an overall negative net score.

The valuation model we employ is based on the Ohlson (1989, 1995) model. Specifically, Ohlson (1989) shows that, if market value, V_t, is the present value of future expected net dividends, then that value will be a function of abnormal earnings, book value and "other information". Ohlson (1995) then shows that the valuation relationship can be re-arranged as a linear function of earnings, book values and net dividends. Assuming, for simplicity, that "other information" in the Ohlson (1989, 1995) model is zero, then Ohlson (1995, equation [7]) shows that the valuation relationship can be expressed as:

$$V_t = (1-k)BV_t + k\left(\frac{NI_t R}{r} - Div_t\right) \quad (1)$$

where:

BV_t = book value at the end of year t, NI_t = net income for year t, $k = r.\omega/(R-\omega)$ and $R = 1 + r$, where r = the cost of equity[5] and ω is 1 + the growth rate in abnormal earnings.

Although this weighted average relationship is well-known, rather less attention gets focussed upon the associated relationship with earnings. Ohlson (1995) shows that the earnings relationship is also a weighted average, so that:

$$\widetilde{NI}_{t+1} = \omega.(R.NI_t - r.d_t + \epsilon) + (1-\omega).(r.BV_t + \epsilon) \quad (2)$$

Note that we do not test the Ohlson (1989, 1995) model directly, as to do so would place the Ohlson linear information dynamics restrictions on the model. Furthermore, the Ohlson (1989, 1995) model does not allow for the possibility that dividends and net capital contributions might have signalling value, or may convey information about expected earnings, as has been observed empirically (Akbar and Stark, 2003; Hand and Landsman, 2005; Rees, 1997; Rees and Valentincic, 2013). Neither does it allow for the empirically observed relationship between research and development (R&D) expenditure and value (Green, Stark and Thomas, 1996; Lev and Sougiannis, 1996). So, instead, we employ the more general Akbar-Stark (2003) framework, which is consistent with the Ohlson (1989) model. Variants of the Akbar and Stark (2003) framework are found in Rees (1997), Hand and Landsman (2005) and Rees and Valentincic (2013). Initially, we assume that z_t is a vector of

5 Although note that, in the original paper, r is assumed to be equal to the risk free rate

accounting variables comprising book value, net income, dividends (Div_t), net capital contributions ($NetCap_t$) and R&D Expenditure. Consistent with Akbar and Stark (2003) and Ohlson (1989, 1995), $\tilde{z}_t$ evolves as follows:

$$\tilde{z}_t = \Omega z_{t-1} + \tilde{\epsilon}_t \qquad (3)$$

If market value, V_t, is the present value of future expected dividends, then Ohlson (1989) and Akbar and Stark (2003) show that value will be a linear combination of these five variables in z_t so that:

$$V_t = \alpha_1 BV_t + \alpha_2 NI_t + \alpha_3 Div_t + \alpha_4 NetCap_t + \alpha_5 R\&D_t \qquad (4)$$

Our interest here is in the way CSR activity might influence market value. We suggest that this may either be through some direct impact on value, so that (4) above can be modified because of some long run impact of CSP that is not yet present in the accounting variables, or more simply because CSP raises the persistence of abnormal earnings. Given our hypotheses, this suggests that we need to concern ourselves with not just the simple addition of a CSP parameter to (4), which is essentially the test conducted in Gregory and Whittaker (2013), but rather that we need to consider the interaction between CSP and earnings and book values. The form of the Ohlson (1989, 1995) model set out in (1) above suggests that if CSP raises the persistence of earnings, we should see an increasing weight on the earnings component with an offsetting decreasing weight on the book value components in estimates of (1). Our work further expands on Gregory and Whittaker (2013) by directly considering the relationship between one period ahead earnings and current earnings. The earnings relation in (2) above shows us that a similar weighting effect in respect of CSP should apply in respect of the relationship between future earnings and current earnings and book values.

The accounting data required to empirically test our model are from *Compustat*. R&D poses some problems as more than half our sample have zero observations on *Compustat* for R&D expenditures. Here, we assume that unreported expenditures are likely to be trivial, and so set values to zero where *Compustat* does not report a value for R&D expenditures.[6] Our basic valuation model (M1V), expanded to allow for the influence of CSP on value, either through earnings or directly, is:

M1V:

$$V_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 NI_{it} + \alpha_3 CSP_t.BV_{it} + \alpha_4 CSP_t.NI_{it} + \alpha_5 Div_{it} + \alpha_6 NetCap_{it} + \alpha_7 R\&D_{it} +$$

6 See the Appendix to Gregory and Whittaker (2013) for an analysis of the impact of this assumption on market value.

$\alpha_8 CSP_{it} + \epsilon 1_{it}$

(5)

where *CSP* is the net CSP score (CSR strengths – concerns).

Exploiting the same earnings relationship set out in Akbar and Stark (2003, p.1226) allows us to examine the relationship between realisations of future earnings and z_t, yielding the following empirical model of earnings (M1E)[7]:

M1E:

$$NI_{it+1} = \Omega_0 + \Omega_1 BV_{it} + \Omega_2 NI_{it} + \Omega_3 CSP_{it}.BV_{it} + \Omega_4 CSP_{it}.NI_{it} + \Omega_5 Div_{it} + \Omega_6 NetCap_{it} + \Omega_7 R\&D_{it} + \Omega_8 CSP_{it} + \epsilon 2_t$$

(6)

Our hypothesised relationships predict that either or both of α_4 and α_8 will be positive if H1 holds, and α_3 will be negative, that $\alpha_4$will be positive and α_3 negative if H2 holds, and that either Ω_8 will be positive, and/or Ω_4 will be positive and Ω_3 negative if H3 holds. [8]

The estimation of M1V and M1E raise issues concerning deflation. Akbar and Stark (2003) discuss this problem in detail. Barth and Clinch (2009) examine various deflators, before concluding that deflating by number of shares is the least problematic deflator on simulated US data. Rees (1997) also uses the number of shares as a deflator, whilst Rees and Valentincic (2013) employ book value. While opening book value, closing book value, opening market value and sales are possible choices for the deflator, here we limit ourselves to the number of shares and closing book value as our two deflators of choice. We exclude opening market value because a regression where closing market value deflated by opening market value as a dependent variable is identical a regression where realised returns are the dependent variable in the case where where dividends and net capital contributions are zero. For the reasons explained earlier, we wish to conduct a test based on market valuations and not returns. We do not present results based on opening book value deflations, as opening book values and closing book values are, unsurprisingly, highly correlated.

As in Akbar and Stark (2003, p.1217), we estimate a common model across the two deflators. The consequence is that when deflating by book value, the deflated version of the model has a constant

7 A similar approach can be found in Rees and Valentincic (2013)

8 We do not attempt to investigate the role of an "other information" parameter as defined in Ohlson (1999) as we would need to orthogonalise such a parameter with respect to all inputs in the model. We are grateful to Andy Stark (the Editor of this paper) for this observation.

but, when the deflator is the number of shares, there is no constant term in the regression to be estimated. The precise models we estimate are:

MV deflated by number of shares:

$$V_{it/}n_{it} = \hat{\alpha}_0 1/n_{it} + \hat{\alpha}_1 BV_{it}/n_{it} + \hat{\alpha}_2 NI_{it}/n_{it} + \hat{\alpha}_3 CSP_t.BV_{it}/n_{it} + \hat{\alpha}_4 CSP_t.NI_{it}/n_{it} + \hat{\alpha}_5 Div_{it}/n_{it} + \hat{\alpha}_6 NetCap_{it}/n_{it} + \hat{\alpha}_7 R\&D_{it}/n_{it} + \hat{\alpha}_8 CSP_{it}/n_{it} + \widehat{\epsilon 1}_{it} \tag{7}$$

MV deflated by book value:

$$V_{it}/BV_{it} = \hat{\alpha}_0 1/BV_{it} + \hat{\alpha}_1 + \hat{\alpha}_2 NI_{it}/BV_{it} + \hat{\alpha}_3 CSP_t. + \hat{\alpha}_4 CSP_t.NI_{it}/BV_{it} + \hat{\alpha}_5 Div_{it}/BV_{it} + \hat{\alpha}_6 NetCap_{it}/BV_{it} + \hat{\alpha}_7 R\&D_{it}/BV_{it} + \hat{\alpha}_8 CSP_{it}/BV_{it} + \widehat{\epsilon 2}_{it} \tag{8}$$

Earnings deflated by number of shares:

$$NI_{it+1}/n_{it} = \widehat{\Omega}_0 1/n_{it} + \widehat{\Omega}_1 BV_{it}/n_{it} + \widehat{\Omega}_2 NI_{it}/n_{it} + \widehat{\Omega}_3 CSP_t.BV_{it}/n_{it} + \widehat{\Omega}_4 CSP_t.NI_{it}/n_{it} + \widehat{\Omega}_5 Div_{it}/n_{it} + \widehat{\Omega}_6 NetCap_{it}/n_{it} + \widehat{\Omega}_7 R\&D_{it}/n_{it} + \widehat{\Omega}_8 CSP_{it}/n_{it} + \widehat{\epsilon 3}_{it} \tag{9}$$

Earnings deflated by book value:

$$NI_{it+1}/BV_{it} = \widehat{\Omega}_0 1/BV_{it} + \widehat{\Omega}_1 + \widehat{\Omega}_2 NI_{it}/BV_{it} + \widehat{\Omega}_3 CSP_t. + \Omega_4 CSP_t.NI_{it}/BV_{it} + \widehat{\Omega}_5 Div_{it}/BV_{it} + \widehat{\Omega}_6 NetCap_{it}/BV_{it} + \widehat{\Omega}_7 R\&D_{it}/BV_{it} + \widehat{\Omega}_8 CSP_{it}/BV_{it} + \widehat{\epsilon 4}_{it} \tag{10}$$

Whilst the regressions in (7-10) above can be run using industry/firm and year fixed effects, to do so assumes that each industry-year cluster is independent (Gow, Ormazabal and Taylor, 2010). As Petersen (2009) points out, choosing the correct approach depends upon the likely form of dependence in the data. If CSP scores are likely to be "sticky" for a firm across time, then the research design needs to be robust to both time and firm effects.[9] Accordingly, our tests in this paper are conducted using the two-way cluster robust standard error (or CL-2) approach of Petersen (2009), which Gow et al. (2010) show to yield well-specified standard errors in US accounting panel data simulations.

9 We are grateful to an anonymous referee for this point.

Our basic tests are conducted assuming that the cost of capital does not vary according to CSP. However, as the valuation and earnings relations in (1) and (2) show, the coefficients on earnings and book values embed a cost of capital term, *r*. It could, therefore, be the case that the estimated coefficients on CSP-related terms in models (7) to (10) are influenced by differences in the cost of equity, rather than by ω itself. As in Agarwal et al. (2011), we investigate whether there are significant differences in the cost of capital between positive and negative CSP groups by analysing realised returns. In this analysis, we employ the method described in Edmans (2011), which has the advantage of allowing us to investigate whether cost of equity differs according to CSP once industry effects are allowed for.[10] Our first realised returns test regresses the returns on a portfolio long in positive CSP (R_{Pt}^{+}) stocks and short in negative CSP (R_{Pt}^{+}) stocks against a Carhart (1997) type model where the market factor ($R_m - R_f$), size factor (*SMB*), book-to-market factor (*HML*) and momentum factor (*MOM*) are all from Ken French's website. The second realised returns test adjusts these portfolio returns by first deducting the returns on an industry matched equally-weighted control portfolio return (R_{It}^{+}, R_{It}^{-}). The industry returns also are from Ken French's website. This is designed to take care of any residual industry effects not picked up in the factor exposures. Our two regressions are therefore:

Long-short portfolio:

$$R_{Pt}^{+} - R_{Pt}^{-} = \beta_0 + \beta_1(R_{mt} - R_{ft}) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \mu_t \quad (11)$$

Industry-adjusted portfolio:

$$(R_{Pt}^{+} - R_{It}^{+}) - (R_{Pt}^{-} - R_{It}^{-}) = \beta_0 + \beta_1(R_{mt} - R_{ft}) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \mu_t \quad (12)$$

4. **Basic Statistics and Results**

Table 1 summarises the key variables, deflated on a per share and book value basis. We report the overall mean and standard deviation, and these statistics for the positive and negative CSP samples separately. The final two columns show the difference between positive and negative CSP firms, and the significance of any differences. It is immediately apparent that positive CSP firms have higher share prices (i.e. MVps) and market-to-book ratios (MVbv) than negative CSP firms. They have higher earnings, dividends, net capital contributions and R&D expenditures, and they are larger (as

10 As a robustness check, we also employ the Easton et al. (2002) model and solve for the implied cost of equity (ICE) on each of the positive, negative and zero portfolios of the KLD overall net score variable described above. However, this method does not allow us to control for industry cost of capital, hence our preference for an analysis based upon realised returns.

measured by market capitalisation). The only variable that is not significantly different between the two groups is book value per share. The mean CSP score is close to zero, but the mean value for positive CSP firms is 2.27 and the mean for negative CSP firms is -1.75. Table 2 shows the correlations between these variables. Perhaps surprisingly, given the differences that emerge in Table 1, none of the correlations between CSP and any of the financial variables are particularly striking. The highest correlation (0.15) is between market-to-book and CSP.

Industry Differences

An important question that arises is whether CSP scores differ significantly across industries. Table 3 analyses CSP across all 48 Fama-French industries, reporting the mean score, the standard deviation of the score, the minimum and maximum scores, and the significance level from a t-test for whether the industry mean is significantly different from the overall mean (which, from Table 1, is 0.01). Perhaps not surprisingly, Table 3 shows that there are highly significant differences between industries. *Coal* records the lowest mean score, at -2.81, with a maximum score of -1 and a minimum of -6 within the industry. This is the only industry with a negative maximum score. *Books* (mean score 1.55), closely followed by *Household* (mean score 1.5), are the industries with the highest mean scores. Some industries, notably *Food* and *Computers*, stand out for having high standard deviations of scores within the industry. However, with the exception of just two industries (Beer and Fabricated Products), there is considerable within-industry variation in CSP, whether measured by range or by standard deviation, suggesting that the degree of engagement with CSR is not industry-specific. All industries contain firms with negative net scores, and all industries except Coal, Fabricated Products and Beer (where the latter two have zero maximum net scores) have firms with positive net scores.

Regression Results

In our regressions, we report the results of the earnings regressions and value regressions using our alternative deflation measures. In Table 4, we present the results from running model M1E and M1V on a per share deflated basis. We start by showing the basic earnings and valuation models without CSP (Columns 3 and 6 respectively), and then add in CSP in the regressions in each case (columns 4 and 7). Note that the R-squared values for the model where number of shares is used as the deflator must be interpreted with caution as the regression is estimated without a constant.

To interpret the results from the basic earnings model (Earnings Model 1, Column 3), we note that the coefficient on NI implies a low level of persistence in earnings. If we arbitrarily set the cost of equity to 10%[11], from the Ohlson (1995) model relationship set out in (2) above, we can infer the value of ω. The implied value is 0.544. Alternatively, we can solve for a cost of equity that is consistent with the coefficient that we observe on BV. Setting the cost of equity to around 7% is consistent with both NI and BV coefficients and implies a value for ω of 0.559. The observed coefficients on earnings and book values (and the implied estimates of ω) are reasonably consistent with the Dechow, Hutton and Sloan (1999) estimates of ω. However, the significantly positive coefficient on dividends is, of course, inconsistent with the Ohlson model's assumption of dividend irrelevance. Furthermore, R&D has a role in predicting future earnings. We can also examine whether the coefficients we observe in the Earnings Model 1 regression are consistent with those we observe in Value Model 1, by employing the relationship in (1). From the results reported in Column 6 in Table 4 we can see that the ω values implied by the earnings model regression are not consistent with the coefficients observed in the valuation model, if the Ohlson (1995) model holds. It is no surprise to find that dividend irrelevance does not appear to hold, given the evidence in Hand and Landsman (2005). More subtly, even ignoring the implications of Earnings Model 1, for reasonable estimates of *r* and ω, the coefficients on earnings and book values cannot be reconciled with the Ohlson (1995) model predictions – either the coefficient on earnings appears too high, or the coefficient on book values appears to be too high. In short, the basic valuation and earnings models taken together are not consistent with the restrictions implied by the Ohlson (1995) model.

Having made these observations, and noted their implications, we now turn to the specific role of CSP, and Earnings Model 2 reported in Column 4 of Table 4. First, we observe that the interaction of CSP and NI is positive and significant, confirming that, consistent with our third hypothesis, CSP plays a role in increasing the persistence of earnings. The interaction of CSP and book value is negative (as would be predicted by the Ohlson (1995) framework), but is nowhere near being significant, and neither does CSP play any direct role in forecasting future earnings.[12]

The valuation model (Value Model 2) reported in Column 7 of Table 4 provides evidence that it is this interaction of earnings and CSP that is important in determining value, as CSP is associated with a higher multiple of earnings (CSP x NI), as predicted by our second hypothesis. Precisely, each unit of the CSP score raises the earnings multiplier by 0.491 (significant at the 1% level). Further, consistent with the general predictions of the Ohlson (1995) model, the coefficient on CSP x BV is negative (-0.031) and is significant at the 10% level. Note, though, that, as with the base regression model, the relative scales of the impact are not consistent with the weights in (1 and 2) above.

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11 See, for example, Claus and Thomas (2001) for a justification of this approximation.

12 As the earnings regression requires an observation for earnings one year ahead, the number of observations in our earnings regressions is always lower than those in the valuation regressions.

Instead, the book value effect is small compared to the earnings effect. CSP itself has no direct impact upon firm value, suggesting that the way CSP generates value is limited to an earnings persistence effect, although we note that equation (1) implies that the ability of CSP x NI to predict future earnings could, in part, be attributable to a cost of capital effect. We return to this point below.

Table 5 reports the results when models M1E and M1V are deflated by book value. First, we note that the basic Earnings Model 1 coefficients yield broadly similar inferences to the per share deflated model, except that R&D no longer predicts one period ahead earnings. Similar comments to those made in respect of the per share deflated regression concerning the consistency of the model with the assumptions of Ohlson (1995) model apply to the coefficients in the book value deflated version of both M1E and M1V. With regard to the latter, the finding that one or other of the BV and NI coefficients are higher than expected under the Ohlson (1995) model is consistent with the evidence in DeChow, Hutton and Sloan (1999) which shows that the Ohlson (1995) model under-estimates contemporaneous equity values.

When we include the CSP term in Earnings Model 2 we again observe that the interaction of CSP and NI is positive and significant, and the relationship appears to be stronger when book value is used as the deflator. Consistent with our third hypothesis, these coefficients confirm that CSP plays a role in increasing the persistence of earnings. The interaction of CSP and book value is negative (as would be predicted by the Ohlson (1995) framework), but is nowhere near being significant, whilst again CSP does not play any direct role in forecasting future earnings.

Turning to the valuation regression (Column 7), the earnings multiplier (CSP x NI) impact on value is stronger than when the number of shares is used as the deflator, the CSP*BV term is now insignificant, and the direct value impact remains approximately zero. Therefore the consistent result across both deflated estimations is that CSP contributes to firm value by raising the earnings multiplier. Whilst this provides evidence that is supportive of our first three hypotheses, at this stage we note that this could either be because earnings persistence is greater in firms with higher CSP, or that the cost of capital is lower for these firms.

Robustness tests

To this point, we have not considered industry effects, which could be viewed as problematic given that Table 3 shows that industry membership has an important influence on CSR scores, although we also noted that, in all but two industries, there is wide variation in CSP between firms. In addition, given that we can reasonably expect both cost of capital and growth in earnings to vary with industry, one interpretation is that we should always estimate any valuation model on a per industry basis (or equivalently, include industry dummy and interaction terms for each coefficient in M1V and M1E). However, we note that such an approach is not standard in the value relevance literature and, additionally, any attempt to run such a model is problematic in terms of the number of observations in some industries.

Given these problems, we follow Servaes and Tamayo (2013) and adopt only a simple industry dummy control or industry and year dummy controls in our regression models.

Thus, models M1V and M1E can be re-written as:

M2V:

$$V_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 NI_{it} + \alpha_3 CSP_t.BV_{it} + \alpha_4 CSP_t.NI_{it} + \alpha_5 Div_{it} + \alpha_6 NetCap_{it} + \alpha_7 R\&D_{it} + \alpha_8 CSP_{it} + \sum_{j=1}^{j=48} \alpha_{j+8} IND_{jit} + \sum_{t=1}^{t=18} \alpha_{t+56} YEAR_t + \epsilon 3_{it} \quad (13)$$

M2E:

$$NI_{it+1} = \Omega_0 + \Omega_1 BV_{it} + \Omega_2 NI_{it} + \Omega_3 CSP_{it}.BV_{it} + \Omega_4 CSP_{it}.NI_{it} + \Omega_5 Div_{it} + \Omega_6 NetCap_{it} + \Omega_7 R\&D_{it} + \Omega_8 CSP_{it} + \sum_{j=1}^{j=48} \Omega_{j+8} IND_{jit} + \sum_{t=1}^{t=18} \alpha_{t+56} YEAR_t + \epsilon 4_t \quad (14)$$

where IND_J is a Fama-French 48 industry code dummy equal to one if firm *i* belongs to industry *j* and $YEAR_t$ is a year dummy for each year between 1991 (*YEAR*=1) and 2008 (*YEAR*=18).

The results of these regressions, which are estimated with deflation as described by (5) to (8) above, are reported in Tables 6 and 7. Earnings (Value) Model 3 includes only the industry dummies, whilst Earnings (Value) Model 4 includes both industry and year dummies in the regression. Note that in Earnings (Value) Model 4 standard errors are clustered by firm only. Table 6 reports the valuation regression results from estimating E2V and M2V when an industry dummy is included with deflation by number of shares. Whilst the earnings persistence effect (*CSP x NI*) remains significant, the effect is weakened in significance in both regressions, and is only now significant at the 10% level. As before, *CSP x BV* fails to be significant. The direct impact of CSP on future earnings is insignificant when industry dummies are included, but when year dummies are also included the direct impact of CSP on earnings is weakly negative. We discuss the implication of this further when presenting the book value deflated models.

The conclusions with regard to the impact of CSP on value change little when the regression is run with industry dummies included. The *CSP*NI* coefficient is significantly positive at the 1% level and, as in Table 4, the *CSP*BV* coefficient has the expected negative impact on value. Again, this is only significant at the 10% level when industry dummies are included, although this becomes significant at the 5% level when year dummies are also included. As before, the direct impact of CSP is not significantly different from zero. Neither do industry controls alter the inferences with regard to the other coefficients in the model. The net income and book value coefficients remain similar to those observed in Table 4, as does that of net capital contributions, whilst the coefficient on dividends suggests a marginally stronger association with value, and the coefficient on R&D a marginally lower association with value.

Table 7 reports the results from running the earnings and valuation models with industry dummies and year dummies when book value is used as the deflator. With both Earnings Models 3 and 4 the earnings persistence effect (*CSP x NI*) remains highly significant and as before, *CSP x BV* fails to be significant. However, when BV is used to deflate the model the *CSP* coefficient itself has a negative sign (significant only at the 10% level). This result echoes that for the per share deflation when both industry and year dummies are included.

Our interpretation of this is that once industry effects are controlled for, whilst CSP raises earnings persistence, it comes at a cost. Given the median NI is approximately $62.4, and the CSP multiplier effect on NI is 0.0368 (when industry dummies only are included), the median impact of CSP engagement is to raise next period's earnings by approximately $2.29m. However, the estimated cost of CSP engagement then reduces this median by $0.42m, suggesting a median net positive effect on next period's income of $1.87m. Clearly the effect varies somewhat when year dummies are also included, and when the number of shares is used as the deflator, but the median effect of CSP is net positive. Given the mean net gain in next period's earnings is far higher at $12.2m[13] , any analysis based upon means would show a larger mean net positive effect of CSP.

In terms of other coefficients, inferences for the relationship between one period-ahead earnings and book value, net income and dividends are qualitatively unchanged, but note that net capital contribution now has a significant positive impact (at the 10% level) on one period ahead income

[13] See Table 1. In addition, a centile analysis shows that the implied CSP effect on earnings is net positive for 80% of our sample.

when number of shares is the deflator, and R&D now has a strong positive impact on future earnings for this deflator. Finally, as with the model deflated by number of shares, the inclusion of industry and year dummies does not affect our conclusions with regard to the impact of CSP on value.

In all these results, we acknowledge that the earnings multiplier effects in the valuation regressions, and the ability of the earnings regressions to predict future earnings could, in part, be attributed to higher CSP being associated with a lower cost of equity capital. This is implied by equations (1) and (2) above. So having noted that both the impact of CSP on valuation and on earnings *could* be attributable to either an increase in earnings persistence, or a reduction in cost of equity, or both, we next turn our attention specifically to the cost of capital effect.

Cost of Capital Differences

The result of running the Carhart (1997) model described in (11) above is shown in Table 8, columns 1 and 2. We see that there is evidence of a significant difference in the HML factor loading of the positive and negative CSP portfolios of approximately 0.14. Over the very long run of the Fama-French dataset (1927 to date) the mean annual HML premium has been 4.77%, so this factor exposure difference would translate into a significantly lower cost of capital for positive CSP firms.[14]

Given we have shown there are industry differences associated with CSR engagement, it would seem appropriate to consider any cost of capital differences on an industry-adjusted basis.[15] Table 8 columns 3 and 4 show the result of running the Edmans (2011) industry-matched returns regression described by (12). First, note that the difference in the HML factor loading disappears from the industry-adjusted regression result, suggesting that any observed difference in the factor loading in (9) is attributable solely to industry effects. However, a small but significant reduction in exposure to the SMB factor is found, but offsetting this is a small but significant increase in exposure to the momentum factor. The SMB exposure difference is consistent with the size differences between positive and negative CSP firms in Table 1.

The difficulty in interpreting these data is that we lack any compelling single explanation for the momentum effect, which makes it difficult to determine a plausible range for any momentum risk premium. In the absence of any such explanation, the only safe interpretation of the industry adjusted result in columns 3 and 4 is probably that there is no convincing evidence that there are

14 When we run a robustness check using the Easton et al. (2002) model, we find that the ICE for positive CSP firms is 6.69% and that for negative CSP firms is 6.76%. This small difference is significant at the 10% level, and can be viewed as being reasonably consistent with the realised return regression.

15 Unfortunately, it is not straightforward to do this on an ICE basis. (as is revealed by Table 3, the number of positive and negative CSP firms in each industry/year would cause difficulties if we were to attempt an industry-specific analysis).

any significant differences in cost of capital between high and low CSP firms once industry membership is controlled for. The important implication is that any earnings capitalisation effect in the valuation regressions, once industry effects are controlled for, will be mainly attributable to earnings persistence rather than cost of equity differences.

5. **Conclusion**

In this paper, using a generalised valuation framework consistent with Ohlson (1989, 1995) and Akbar and Stark (2003), we show that CSP has a positive impact on firm value. This result is not so surprising given that other studies based on Tobin's Q (including Galema et al., 2008; Guenster et al., 2011; Jo and Harjoto, 2011; and Kim and Statman, 2012) find a positive association between Q and CSP, as do Gregory and Whittaker (2013) using the value-relevance framework of Barth et al. (1998). However, we set out to do more than confirm the results of previous studies, and our contribution is an investigation of *why* this impact on value occurs.

This is important as non-financial factors might influence stock choice when CSP is taken into account, given that demand for some socially responsible mutual funds suggests that certain investors have multi-attribute utility functions. We investigate whether it is the financial impact of CSP that drives value by testing whether the valuation multiplier on current earnings is positive and find that the overall CSR score of a firm significantly increases the earnings multiplier effect. Further, through an analysis of one period-ahead earnings, we find that CSP is associated with greater persistence in earnings. The precise effects depend upon whether deflation is on a number of shares or book value basis, with the relative effect being far greater when the latter approach to deflation is employed. Under either method of deflation, it is clear that the impact is both statistically and economically significant. This leads to the conclusion that the impact of CSP on firm value is a result of either lowering the cost of capital, or alternatively giving rise to more persistent abnormal earnings, and it is not the result of special demand conditions.

One explanation for our results is that our higher earnings multiplier effects could be in part attributable to CSP being associated with a lower cost of capital. Although our analysis of realised returns confirmed that there are significant differences between the cost of equity for positive and negative CSP firms, we found these differences are primarily attributable to industry effects. Therefore, on an industry-adjusted basis, it is not obvious that there remain any significant differences in the cost of capital between high and low CSP firms. We conclude that the major impact of CSP on firm value comes about because CSP is associated with a greater persistence in abnormal earnings rather than it being associated with a lower cost of capital.

Naturally, we acknowledge the usual caveat that association does not imply causality. It is possible that the direction of causality is that highly valued firms, and those with more persistent income, can afford to spend more on CSP. However, we think this is unlikely for two reasons. First, Kim and Statman (2012) and Gregory and Whittaker (2013) both show that *changes* in CSP appear to be associated with subsequent value gains, which suggests that firms modify their CSR policies in a manner that is consistent with shareholder value maximisation. Second, Barnett and Salomon (2012) show that there is a gain in operating performance associated with a long term investment in CSR, and our earnings regressions also provide support for CSP predicting future financial performance.

Overall, we interpret our results as showing that CSP increases firm value, and that it appears to do so by increasing earnings persistence. In other words, CSP would appear to be associated with a competitive advantage, implying that decisions to invest in CSP are in the long run interests of the shareholders. The model we employ here necessarily looks at the relationships between value, earnings and CSP one period ahead. An interesting question for future research is whether there is any relationship between CSP and medium- to long-term financial performance.

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Table 1 Summary Statistics

Overall		**Overall**		**Positive CSR (32.8% of sample)**		**Negative CSR (41.8% of sample)**		**Differences**	
Variable	N	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	P-N	Sig
MV ($bn)	15911	7.31	23.40	13.08	33.00	4.88	18.70	8.20	***
MVps	15911	31.26	19.31	34.71	20.27	29.24	18.69	5.47	***
$NIps_{t+1}$	12584	1.52	1.59	1.64	1.58	1.47	1.66	0.17	***
BVps	15911	12.95	8.54	13.04	8.71	12.97	8.63	0.07	
NIps	15911	1.41	1.62	1.57	1.60	1.34	1.67	0.23	***
Divps	15911	0.49	0.86	0.56	0.83	0.46	0.94	0.10	***
NetCapps	15911	0.17	2.22	0.37	1.78	0.05	2.74	0.31	***
R&Dps	15911	0.42	0.82	0.53	0.96	0.36	0.72	0.17	***
MVbv	15911	3.15	2.99	3.65	3.76	2.87	2.38	0.78	***
$NIbv_{t+1}$	12584	0.11	0.20	0.13	0.20	0.09	0.21	0.04	***
NIbv	15911	0.10	0.23	0.13	0.21	0.08	0.24	0.04	***
Divbv	15911	0.04	0.08	0.05	0.09	0.03	0.07	0.02	***
NetCapbv	15911	0.02	0.63	0.04	0.22	0.01	0.94	0.03	*
R&Dbv	15911	0.05	0.12	0.06	0.12	0.05	0.12	0.01	***
CSR (net score)	15911	0.01	2.11	2.27	1.71	-1.75	1.11	4.02	***

The Table shows the mean and standard deviation for each variable. MV denotes market value, BV book value, NI net income, Div dividends, NetCap net capital contributions, R&D research and development expenditure (assumed to be zero for firms where R&D is not reported) and CSR is the overall net score calculated from KLD data. The appended letters “ps” and “bv” denote that numbers are deflated by number of shares and book value respectively. The first three columns describe the overall sample, the following four the positive and negative CSR groups respectively (zero net score firms are not separately identified), and the final column gives the differences between positive and negative CSR firms. Significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Table 2 Correlations

Variable	MVps	$NIps_{t+1}$	BVps	NIps	Divps	NetCapps	R&Dps	MVbv	$NIbv_{t+1}$	Nibv	Divbv	NetCapbv	R&Dbv	CSR
MVps	1.00													
FNIps	0.63	1.00												
BVps	0.48	0.48	1.00											
$NIps_{t+1}$	0.59	0.66	0.59	1.00										
Divps	0.31	0.32	0.39	0.33	1.00									
NetCapps	0.11	0.12	0.02	0.16	0.00	1.00								
R&Dps	0.19	0.03	0.02	-0.01	-0.02	0.03	1.00							
MVbv	0.32	0.05	-0.42	-0.05	-0.08	0.11	0.08	1.00						
$NIbv_{t+1}$	0.33	0.58	0.00	0.34	0.13	0.13	-0.04	0.37	1.00					
Nibv	0.29	0.34	0.01	0.56	0.12	0.16	-0.08	0.34	0.55	1.00				
Divbv	0.16	0.15	-0.01	0.14	0.69	0.02	-0.04	0.30	0.29	0.28	1.00			
NetCapbv	0.04	0.04	-0.02	0.05	0.00	0.80	0.00	0.14	0.09	0.14	0.03	1.00		
R&Dbv	-0.04	-0.17	-0.27	-0.25	-0.14	0.00	0.68	0.29	-0.15	-0.24	-0.05	-0.01	1.00	
CSR	0.11	0.04	-0.05	0.06	0.03	0.08	0.11	0.15	0.10	0.11	0.09	0.03	0.10	1.00

The Table shows the correlation between deflated variables. MV denotes market value, BV book value, NI net income, Div dividends, NetCap net capital contributions, R&D research and development expenditure (assumed to be zero for firms where R&D is not reported), and CSR is the overall net score calculated from KLD data. The appended letters “ps” and “bv” denote that numbers are deflated by number of shares and book value respectively.

Table 3 Analysis of CSP by industry

FF Industry Code	Description	Proportion	Mean	Significance	Std. Dev.	Min	Max
1	Agric	0.10%	-1.86	***	1.99	-6	1
2	Food	1.40%	0.08		3.65	-8	12
3	Soda	0.80%	1.05	***	2.28	-5	8
4	Beer	0.10%	-0.56	**	0.81	-3	0
5	Smoke	0.10%	0.53		2.84	-5	4
6	Toys	0.70%	0.81	***	2.17	-3	6
7	Fun	1.10%	-0.24	*	1.94	-5	7
8	Books	1.40%	1.55	***	1.96	-3	7
9	Hshld	2.00%	1.5	***	2.64	-5	11
10	Clths	1.30%	0.32	***	2.43	-7	8
11	Hlth	1.60%	-0.64	***	1.51	-5	5
12	MedEq	2.80%	0.05		1.74	-4	7
13	Drugs	4.40%	0.3	***	2.05	-6	8
14	Chems	2.20%	-0.76	***	1.98	-7	4
15	Rubbr	0.40%	-0.04		1.59	-3	5
16	Txtls	0.20%	0.16		1.61	-2	4
17	BldMt	1.60%	-0.51	***	1.86	-5	4
18	Cnstr	0.80%	-0.62	***	1.61	-7	3
19	Steel	1.30%	-1.22	***	2.48	-7	4
20	FabPr	0.20%	-1.37	***	0.74	-3	0
21	Mach	3.90%	-0.1		1.93	-6	10
22	ElcEq	1.80%	0.02		1.72	-7	7
23	Autos	1.40%	-0.57	***	1.79	-7	5
24	Aero	0.60%	-0.61	***	2.1	-5	5
25	Ships	0.30%	-1.87	***	1.22	-5	1
26	Guns	0.30%	-0.65	**	2.16	-6	6
27	Gold	0.20%	-1.92	***	1.76	-5	2
28	Mines	0.20%	-0.28		1.5	-3	3
29	Coal	0.20%	-2.81	***	1.39	-6	-1
30	Oil	4.00%	-1.29	***	2.02	-7	6
31	Util	4.90%	-0.65	***	2.25	-8	6
32	Telcm	1.90%	0.06		1.96	-5	9
33	PerSv	1.10%	0.34	**	1.99	-4	7
34	BusSv	9.50%	0.15	***	1.8	-6	8
35	Comps	2.70%	0.93	***	2.94	-6	16
36	Chips	5.70%	0.21	***	2.19	-6	14
37	LabEq	1.90%	0.35	***	2.01	-3	13
38	Paper	1.60%	0.56	***	2.52	-6	9
39	Boxes	0.50%	0.44	**	1.93	-3	4
40	Trans	2.30%	-0.38	***	2.29	-6	8

41	Whlsl	3.40%	-0.06		1.56	-5	8
42	Rtail	5.90%	0.18	***	1.95	-6	8
43	Meals	1.80%	0.11		2.3	-6	11
44	Banks	8.50%	0.46	***	1.82	-4	8
45	Insur	4.00%	0.19	**	1.8	-4	7
46	RlEst	0.20%	-0.44	**	1.32	-2	3
47	Fin	6.10%	-0.15	***	1.5	-5	9
48	Other	0.30%	-2.25	***	2.23	-9	5

The Table shows the mean overall CSP score, standard deviation of the score, and maximum and minimum observations for each industry. The significance column shows the significance level for the difference between the industry mean and the overall sample mean. Significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Table 4. Earnings and valuation regressions, deflated by number of shares

Variable	Coefficient	Earnings, Model 1	Earnings, Model 2	Coefficient	Value, Model 1	Value, Model 2
Constant	$\Omega_{0/1m}$	0.801	0.922	$\alpha_{0/1m}$	64.516***	67.007***
		(0.563)	(0.583)		(11.890)	(12.002)
BV_{it}	Ω_1	0.0311***	0.0309***	α_1	1.072***	1.068***
		(0.008)	(0.008)		(0.065)	(0.064)
NI_{it}	Ω_2	0.598***	0.599***	α_2	5.505***	5.556***
		(0.033)	(0.034)		(0.448)	(0.457)
$CSP_t.BV_{it}$	Ω_3		-0.000752	α_3		-0.0310*
			(0.001)			(0.016)
$CSPt.NI_{it}$	Ω_4		0.0124**	α_4		0.491***
			(0.006)			(0.102)
Div_{it}	Ω_5	0.185***	0.180***	α_5	2.874***	2.720***
		(0.062)	(0.061)		(0.964)	(0.899)
$NetCap_{it}$	Ω_6	0.0157	0.0150	α_6	0.347**	0.307**
		(0.010)	(0.010)		(0.149)	(0.141)
RD_{it}	Ω_7	0.0905***	0.0877***	α_7	6.545***	6.390***
		(0.027)	(0.027)		(0.606)	(0.601)
CSP_{it}	$\Omega_{8/1m}$		-0.384	$\alpha_{8/1m}$		1.550
			(0.238)			(3.959)
N		12584	12584		15911	15911
R-sq		0.714	0.715		0.800	0.803

The Table shows the results of regressing of regressing one period ahead net income or market value on accounting values and CSP when the number of shares is used as the deflator. MV denotes market value, BV book value, NI net income, Div dividends, NetCap net capital contributions , R&D research and development expenditure (assumed to be zero for firms where R&D is not reported), and CSP is the overall net score calculated from KLD data. Model 1 shows the basic relationships excluding any CSP variables, whilst Model 2 includes CSP variables. The omegas refer to the coefficients in Model E1V. Note that Ω_0 and Ω_8 have been scaled by dividing by 1 million. The alphas refer to the coefficients in Model M1V. Note that α_0 and α_8 have been scaled by dividing by 1 million. Standard errors are shown in parentheses and significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Table 5. Earnings and valuation regressions, deflated by book value

Variable	Coefficient	Earnings, Model 1	Earnings, Model 2	Coefficient	Value, Model 1	Value, Model 2
Constant	$\Omega_{0/1m}$	-0.979	-0.829	$\alpha_{0/1m}$	113.831***	114.094***
		(0.631)	(0.640)		(20.778)	(20.899)
BV_{it}	Ω_1	0.0336***	0.0348***	α_1	1.505***	1.542***
		(0.012)	(0.012)		(0.121)	(0.101)
NI_{it}	Ω_2	0.553***	0.557***	α_2	4.631***	4.773***
		(0.048)	(0.045)		(1.002)	(0.984)
$CSP_t.BV_{it}$	Ω_3		-0.00175	α_3		-0.0427
			(0.002)			(0.039)
$CSPt.NI_{it}$	Ω_4		0.0389***	α_4		1.096***
			(0.010)			(0.199)
Div_{it}	Ω_5	0.421***	0.345***	α_5	9.274***	7.226***
		(0.074)	(0.066)		(2.693)	(2.060)
$NetCap_{it}$	Ω_6	0.00344	0.00282	α_6	0.348*	0.322*
		(0.005)	(0.005)		(0.198)	(0.174)
RD_{it}	Ω_7	-0.0497	-0.0691	α_7	8.575***	8.075***
		(0.049)	(0.049)		(1.156)	(0.978)
CSP_{it}	$\Omega_{8/1m}$		-0.215	$\alpha_{8/1m}$		-1.864
			(0.230)			(6.807)
N		12584	12584		15911	15911
R-sq		0.328	0.336		0.317	0.354

The Table shows the results of regressing of regressing one period ahead net income or market value on accounting values and CSP when book value is used as the deflator. MV denotes market value, BV book value, NI net income, Div dividends, NetCap net capital contributions , R&D research and development expenditure (assumed to be zero for firms where R&D is not reported), and CSP is the overall net score calculated from KLD data. Model 1 shows the basic relationships excluding any CSP variables, whilst Model 2 includes CSP variables. The omegas refer to the coefficients in Model E1V. Note that Ω_0 and Ω_8 have been scaled by dividing by 1 million. The alphas refer to the coefficients in Model M1V. Note that α_0 and α_8 have been scaled by dividing by 1 million. Standard errors are shown in parentheses and significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Table 6. Earnings and valuation regressions with industry and year dummies, deflated by number of shares

Variable	Coefficient	Earnings, Model 3	Earnings, Model 4	Coefficient	Value, Model 3	Value, Model 4
Constant	$\Omega_{0/1m}$	-1.677	-15.253***	$\alpha_{0/1m}$	134.748***	-19.1
		(1.551)	(5.666)		(23.671)	(46.1)
BV_{it}	Ω_1	0.0303***	0.0308***	α_1	1.072***	1.075***
		(0.007)	(0.002)		(0.062)	(0.033)
NI_{it}	Ω_2	0.587***	0.588***	α_2	5.630***	5.530***
		(0.033)	(0.016)		(0.498)	(0.195)
$CSP_t.BV_{it}$	Ω_3	-0.000619	-0.000520	α_3	-0.0276*	-0.0280**
		(0.001)	(0.001)		(0.016)	(0.012)
$CSPt.NI_{it}$	Ω_4	0.0116*	0.0109*	α_4	0.485***	0.490***
		(0.006)	(0.006)		(0.099)	(0.080)
Div_{it}	Ω_5	0.203***	0.200***	α_5	2.930***	2.947***
		(0.066)	(0.036)		(1.049)	(0.557)
$NetCap_{it}$	Ω_6	0.0161*	0.0212*	α_6	0.297**	0.331**
		(0.010)	(0.012)		(0.138)	(0.132)
RD_{it}	Ω_7	0.0982***	0.0988***	α_7	5.906***	5.962***
		(0.025)	(0.016)		(0.572)	(0.481)
CSP_{it}	$\Omega_{8/1m}$	-0.180	-0.348*	$\alpha_{8/1m}$	0.449	1.069
		(0.196)	-0.206		(4.058)	-3.568
$IND48_{jit}$	Ω_9 to Ω_{56}	Included	Included	α_9 to a_{56}	Included	Included
$YEAR_t$	Ω_{56} to Ω_{74}	Excluded	Included	α_{57} to a_{74}	Excluded	Included
N		12584	12584		15911	15911
R-sq		0.717	0.722		0.810	0.815

The Table shows the results of regressing of regressing one period ahead net income or market value on accounting values and CSP when the number of shares is used as the deflator and Fama-French 48 industry dummies and year dummies are included. MV denotes market value, BV book value, NI net income, Div dividends, NetCap net capital contributions , R&D research and development expenditure (assumed to be zero for firms where R&D is not reported), and CSP is the overall net score calculated from KLD data. Model 1 shows the basic relationships excluding any CSP variables, whilst Model 2 includes CSP variables. The omegas refer to the coefficients in Model E2V. Note that Ω_0 and Ω_8 have been scaled by dividing by 1 million. The alphas refer to the coefficients in Model M2V. Note that α_0 and α_8 have been scaled by dividing by 1 million. Standard errors are shown in parentheses and significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Table 7. Earnings and valuation regressions with industry and year dummies, deflated by book value

Variable	Coefficient	Earnings, Model 3	Earnings, Model 4	Coefficient	Value, Model 3	Value, Model 4
Constant	$\Omega_{0/1m}$	-1.199	1.014	$\alpha_{0/1m}$	194.516***	97.301
		(1.745)	(5.379)		(39.543)	(101.70)
BV_{it}	Ω_1	0.0335***	0.0336***	α_1	1.577***	1.562***
		(0.011)	(0.004)		(0.098)	(0.089)
NI_{it}	Ω_2	0.555***	0.560***	α_2	4.824***	4.797***
		(0.045)	(0.039)		(0.976)	(0.595)
$CSP_t.BV_{it}$	Ω_3	-0.00130	-0.00139	α_3	-0.0380	-0.0447
		(0.001)	(0.002)		(0.039)	(0.027)
$CSPt.NI_{it}$	Ω_4	0.0368***	0.0361***	α_4	1.056***	1.060***
		(0.009)	(0.011)		(0.202)	(0.144)
Div_{it}	Ω_5	0.347***	0.346***	α_5	7.562***	7.619***
		(0.067)	(0.051)		(2.199)	(1.405)
$NetCap_{it}$	Ω_6	0.00359	0.00379	α_6	0.293*	0.257
		(0.005)	(0.006)		(0.160)	(0.163)
RD_{it}	Ω_7	-0.0397	-0.0328	α_7	7.830***	8.029***
		(0.050)	(0.041)		(0.963)	(0.600)
CSP_{it}	$\Omega_{8/1m}$	-0.419**	-0.597*	$\alpha_{8/1m}$	1.077	6.228
		(0.189)	(0.334)		(6.953)	(6.122)
$IND48_{jit}$	Ω_9 to Ω_{56}	Included	Included	α_9 to a_{56}	Included	Included
$YEAR_t$	Ω_{56} to Ω_{74}	Excluded	Included	α_{57} to a_{74}	Excluded	Included
N		12584	12584		15911	15911
R-sq		0.342	0.350		0.378	0.393

The Table shows the results of regressing of regressing one period ahead net income or market value on accounting values and CSP when book value is used as the deflator and Fama-French 48 industry dummies are and year dummies are included. MV denotes market value, BV book value, NI net income, Div dividends, NetCap net capital contributions , R&D research and development expenditure (assumed to be zero for firms where R&D is not reported), and CSP is the overall net score calculated from KLD data. Model 1 shows the basic relationships excluding any CSP variables, whilst Model 2 includes CSP variables. The omegas refer to the coefficients in Model E2V. Note that Ω_0 and Ω_8 have been scaled by dividing by 1 million. The alphas refer to the coefficients in Model M2V. Note that α_0 and α_8 have been scaled by dividing by 1 million. Standard errors are shown in parentheses and significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Table 8 Cost of capital differences and Industry-adjusted cost of capital differences

Model	Long-Short Portfolio		Industry-Adjusted Long-Short Portfolio	
Variable	**Coefficient (Standard error)**		**Coefficient (Standard error)**	
Rm-Rf	-0.025		-0.003	
	(0.022)		(0.018)	
SMB	-0.013		-0.058	***
	(0.026)		(0.021)	
HML	-0.141	***	-0.020	
	(0.028)		(0.023)	
MOM	0.016		0.044	***
	(0.017)		(0.014)	
Intercept (alpha)	0.127		0.096	
	(0.091)		(0.073)	
R-squared	0.111		0.069	

The Table shows the result of Carhart (1997) type regression of the returns on a portfolio long in positive CSP stocks and short in negative CSP stocks on the market (Rm-Rf), size (SMB), value (HML) and momentum (MOM) factors. All factors are from Ken French's website. The first two columns are the result of regressing an equally-weighted long-short portfolio, whereas the last two columns show the results from an equally-weighted industry-adjusted long short portfolio, as in Edmans (2011). Standard errors are shown in parentheses and significance levels are indicated by * for 10%, ** for 5% and *** for 1%.

Appendix: KLD definitions relevant to this study

Name	Company Name
CUSIP	CUSIP # (Not available 1991-1994)
Ticker	Company Ticker (U.S.-based exchange)
CGOV-con-#	Total Number of Corporate Governance Concerns
CGOV-con-B	High Compensation
CGOV-con-E	Tax Disputes (moved to Community 2005)
CGOV-con-F	Ownership Concern
CGOV-con-G	Accounting Concern (added 2005)
CGOV-con-H	Transparency Concern (added 2005)
CGOV-con-I	Political Accountability Concern (added 2005) (through 2007 July)
CGOV-con-J	Public Policy Concern (added 2007 Aug)
CGOV-con-X	Other Concern
CGOV-str-#	Total Number of Corporate Governance Strengths
CGOV-str-A	Limited Compensation
CGOV-str-C	Ownership Strength
CGOV-str-D	From 1996 thru 2004 - Environment: Communication Strength ; From 2005 to present - Transparency Strength
CGOV-str-E	Political Accountability Strength (added 2005)
CGOV-str-F	Public Policy Strength (added 2007 Aug)
CGOV-str-X	Other Strength
COM-con-#	Total Number of Community Concerns
COM-con-A	Investment Controversies
COM-con-B	Negative Economic Impact
COM-con-C	Indigenous Peoples Relations Concern (2000 - 2002)
COM-con-D	Tax Disputes (added 2005 from Corporate Governance)
COM-con-X	Other Concern
COM-str-#	Total Number of Community Strengths
COM-str-A	Generous Giving
COM-str-B	Innovative Giving
COM-str-C	Support for Housing
COM-str-D	Support for Education (added in 1994)
COM-str-E	Indigenous Peoples Relations Strength (2000 - 2002)
COM-str-F	Non-U.S. Charitable Giving
COM-str-G	Volunteer Programs Strength (added 2005)
COM-str-X	Other Strength
DIV-con-#	Total Number of Diversity Concerns
DIV-con-A	Employee Discrimination (renamed from Controversies 2007 Aug)
DIV-con-B	Non-Representation
DIV-con-X	Other Concern
DIV-str-#	Total Number of Diversity Strengths
DIV-str-A	CEO
DIV-str-B	Promotion
DIV-str-C	Board of Directors

DIV-str-D	Family Benefits
DIV-str-E	Women/Minority Contracting
DIV-str-F	Employment of the Disabled
DIV-str-G	Progressive Gay/Lesbian Policies (added in 1995)
DIV-str-X	Other Strength
EMP-con-#	Total Number of Employee Relations Concerns
EMP-con-A	Union Relations Concern
EMP-con-B	Health and Safety Concern (renamed from Safety Controversies in 2003)
EMP-con-C	Workforce Reductions
EMP-con-D	Pension/Benefits Concern (added in 1992)
EMP-con-X	Other Concern
EMP-str-#	Total Number of Employee Relations Strengths
EMP-str-A	Union Relations Strength
EMP-str-B	No Layoff Policy (through 1994)
EMP-str-C	Cash Profit Sharing
EMP-str-D	Involvement
EMP-str-F	Strong Retirement Benefits
EMP-str-G	Health and Safety Strength (added in 2003)
EMP-str-X	Other Strength
ENV-con-#	Total Number of Environment Concerns
ENV-con-A	Hazardous Waste
ENV-con-B	Regulatory Problems
ENV-con-C	Ozone Depleting Chemicals
ENV-con-D	Substantial Emissions
ENV-con-E	Agricultural Chemicals
ENV-con-F	Climate Change (added in 1999)
ENV-con-X	Other Concern
ENV-str-#	Total Number of Environment Strengths
ENV-str-A	Beneficial Products & Services
ENV-str-B	Pollution Prevention
ENV-str-C	Recycling
ENV-str-D	Alternative Fuels
ENV-str-F	Property, Plant, and Equipment (through 1995)
ENV-str-G	Management Systems (added 2006)
ENV-str-X	Other Strength
HUM-con-#	Total Number of Human Rights Concerns
HUM-con-A	South Africa Concern (through 1994)
HUM-con-B	Northern Ireland Concern (through 1994)
HUM-con-C	Burma (added in 1995)
HUM-con-D	Mexico (1995 - 2002)
HUM-con-F	International Labor Concern (added in 1998)
HUM-con-G	Indigenous Peoples Relations (added in 2000)
HUM-con-X	Other Concern
HUM-str-#	Total Number of Human Rights Strengths

HUM-str-A	Positive Operations in South Africa (1994 - 1995)
HUM-str-D	Indigenous Peoples Relations (added in 2000)
HUM-str-G	Labor Rights Strength (added in 2002)
HUM-str-X	Other Strength
PRO-con-#	Total Number of Product Concerns
PRO-con-A	Product Safety
PRO-con-D	Marketing/Contracting Controversy
PRO-con-E	Antitrust
PRO-con-X	Other Concern
PRO-str-#	Total Number of Product Strengths
PRO-str-A	Quality
PRO-str-B	R&D/Innovation
PRO-str-C	Benefits to Economically Disadvantaged
PRO-str-X	Other Strength