Corporate Social Responsibility and Company Value

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Note: This is a draft version of the paper. Please do not quote.

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Abstract

This paper examines how the stock market values corporate social responsibility (CSR) across its multiple dimensions. We argue that valuation is important, as if markets are efficient and CSR engagement changes infrequently, studying market returns may reveal relatively little about whether such engagement benefits the shareholders. This is because any rewards to positive engagement will be embedded in the stock price in such a market. Consistent with this conjecture, we show that most dimensions of CSR are not associated with either positive or negative out-performance on a risk-adjusted basis, with only the Employee Relations dimension showing any consistent returns associated with good CSR performance. However our analysis shows that markets appear to value CSR positively. We differentiate between types of CSR activities, and also make a distinction between strengths and concerns for each type in order to investigate how each of these components is valued by markets. Generally, strengths are valued positively, but weaknesses do not always detract from value. However, when all strengths and concerns are considered together, there is some evidence to indicate that the valuation effect seems to be principally driven by significant negative valuation of CSR concerns. Further investigation reveals that the valuation effects appear to be attributable to the positive relationship between implied long run growth and CSR performance.

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1. Introduction

Enquiry as to whether socially responsible actions by companies are financially rewarded has ensued since Friedman in his 1970 New York Times article re-ignited a debate that had simmered since the 1930s (Berle, 1931; Dodd, 1932). A swift and elegant response to Friedman's concern with potential agency losses associated with corporate social responsibility (CSR), was provided by Narver (1971) who asserted the actual necessity of companies taking voluntary action to address 'external effects' if they were to be wealth maximizing. He elucidated 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'. Thus Narver identified the need to consider how socially motivated actions by companies might affect both cash flows and the cost of capital. In accord, a central argument of this paper is that in order to adequately take account of all the financial implications of CSR, it is important to focus on company value, rather than relying solely on stock returns which have been at the centre of most market based financial studies of CSR.

Over the last 40 years, although here have been more than 200 empirical studies[1] conducted to investigate the association between corporate social performance (CSP) and corporate financial performance, few have based their estimations on company value. Indeed many studies do not relate CSP to any measure of stock market performance but use accounting measures instead. Whilst these can be enlightening, accounting measures are backward looking, while market based studies are forward looking. Ultimately it is on stock market performance that a company is judged. Reviews of the empirical literature (Orlitzy et al., 2003, Margolis et al. 2007) have noted that accounting based studies appear to demonstrate a stronger positive link between CSP and financial performance. This may be for various reasons including the possibility

[1] Margolis, Elfenbeim and Walsh (2007) surveyed 192 and since interest in the subject has grown.

that accounting measures do not sufficiently account for risk, and/or that stock markets are not efficient. Recently, Edmans (2011) has provided evidence that implies that stock markets may fail to efficiently impound new information on a firm's CSR activity relating to employee satisfaction. Using data on stock returns, he finds that a portfolio of the "100 Best Companies to Work for in America" generates an out-performance of between 2.1% and 3.5% per annum. His portfolio is associated with positive surprises in expected earnings for one and two years ahead, and in long run expected growth in those earnings. These results suggest an under-reaction to information, and prompt us to investigate whether this is the case for all dimensions of strategy associated with CSR.

However, in this paper we consider the impact of CSR not only on stock returns but also on company valuation, as a consequence of two recent studies by Sharfman and Fernando (2008) and El Ghoul, Guedhami, Kwok, and Mishra (2010) which both have shown, using different but consistent methodologies, that firms with a high level of CSP enjoy a lower cost of capital, implying that such firms are perceived as having a lower market risk (also known as systematic risk). Their results are significant for two reasons.

First, for a long time it has been presumed that CSR strategies were unlikely to reduce a company's vulnerability to this form of risk (McGuire, Sundgren, and Schneeweis, 1988). Market risk is generally of a macro-economic nature, and includes, for example, economic growth rate shocks, interest rate shocks, oil price shocks and inflation shocks. McGuire et al (1988) suggested that the impact of social responsibility on measures of a firm's systematic risk may be minimal "since most events affecting a firm's level of social responsibility do not systematically affect all other firms in the marketplace", a position consistent with that of Cornell & Shapiro, (1987). For example, if a company by adopting responsible practices reduces the likelihood of a pollution incident, then the risk of a cash flow shock is lowered and the company's expected future cash flows are raised. Such a reduction in firm-specific risk would be captured in stock returns at the point when the change was made, and in a permanently higher valuation thereafter.

Secondly, if CSP can also reduce a company's cost of capital, this has important connotations for the interpretation of much empirical work that has been based on investigating the link between company CSP and stock returns. For example, suppose high CSP firms generate lower returns over the long run. Is this because the companies were poorly managed or is it because markets recognised that such firms were less risky, and had a lower cost of capital? If it is the latter case then realised low returns are as expected given their low *ex ante* cost of capital. Specifically, the long run *returns* to firms with high CSP, can be lower for a given expected future cash flow simply because they are subject to less systematic risk, and are not the consequence of poor management. Therefore, if CSR lowers a company's cost of capital, focusing solely on returns to indicate the financial impact of CSR performance might be misleading. If CSR strategies affect both unsystematic[2] and systematic risk, then it is the combined effect on *both* the cash flows of firms *and* their cost of capital that is relevant if we are to understand the real impact of CSR strategies on financial performance. If that is the case, the appropriate measure for considering the financial effects of CSR is company value.

This is not to deny that if markets are efficient, at the point a firm *changed* its approach to CSR such that the cost of capital thereby was reduced, the present value of the cash flows would rise, leading to an increase in the value of returns. But this would occur as a "one off" event and if the event occurred before the start of any returns measurement period, it would be unobserved in any study of returns. The more general point is that returns studies will only capture the effects of *changes* in CSR policy, whereas valuation will capture the *level* of CSR policy. If CSR scores do not vary much from year to year, then valuation tests should give valuable insights into how markets perceive a firm's CSR policy. Even if markets are slow to embed CSR information in valuations, as the result from Edmans (2011) suggests, such valuation tests should still capture some (though not all) of the long run value ascribed to such policies, so that the tests will be conservative under such circumstances.

[2] Unsystematic risk can be either firm-specific or industry-specific.

Whilst useful, methods for calculating the implied cost of capital can be problematic because these involve making full use of information in analysts' forecasts, and it is necessarily assumed that the trend in long run growth is independent of CSR activity. As a consequence, it is possible that the method used in some studies to derive the implied cost of capital could be conflating systematic risk effects and cash flow effects. Feasibly, high CSR firms may have better growth prospects than low CSR firms, something that has hitherto been ignored in the literature that has investigated the cost of capital effects. By contrast, a company valuation approach is able to capture this.

Our argument is that a robust model that explores the financial effects of CSR needs to consider both expected cash flow effects (thereby capturing unsystematic risk impacts of CSR) and cost of capital effects (capturing any systematic risk effects of CSR). While there is previous work that has used company value as the financial metric to assess the company rewards from CSR, typically this has involved using Tobin's Q, proxied by calculating the firm's market value to book asset value ratio. Although this method has some merit for exploring theoretical ideas regarding CSR strategies, it has some shortcomings. One is that it assumes that any differences in Q-ratios are simply attributable to different CSR practices, when they could be the result of differences in business models, or to firm specific accounting choices (which would affect the book values). In this paper, we offer a model that employs recently developed theoretical models in the accounting literature in a theoretically rigorous framework, in an attempt to more precisely capture both cash flow and cost of capital effects and understand their impact on company value. Thus our second contribution is to study valuation effects rather than solely stock returns.

This study also builds on the research of Barnett and Salomon (forthcoming) which provides some evidence to support Barnett's (2007) theory that the relationship between corporate social performance (CSP) and corporate financial performance (CFP) may be U-shaped. Barnett (2007) argues that it takes time for firms to acquire the capacity to influence stakeholders and therefore there might be a lag between investment in CSR strategies and a financial return. Furthermore, only those firms with a real commitment to such activity are likely to realize the benefits of such investment, so that only the highest level of investment in CSR yields net benefits with a lower degree of commitment failing to generate benefits greater than costs. that it may take time to generate pay-offs from current investment in CSR. If investors are able to infer which firms are making a serious commitment to a CSR agenda and value those firms accordingly, then firms making likely successful investment in CSR will be rewarded by higher valuations even if there is a short term negative impact on profits.

Evidence in favour of the argument that pay-offs to investment in CSR may be non-linear can also be found in Brammer and Millington (2008) in their analysis of charitable giving, and they specifically call for an extension of their analysis to other aspects of CSP. Here, we approach the matter of non-linear returns to investment in CSR in a slightly different manner than Barnett and Salomon (forthcoming) by asking whether negative aspects of CSP (as captured by KLD concerns) have different valuation implications to positive aspects (as captured by KLD strengths). Furthermore, we explore whether these valuation effects may differ across dimensions of CSR.

Our fourth contribution is to analyze the reason for valuation differences. By investigating near term earnings forecasts, medium term earnings growth forecasts and the long run growth implied by current market valuations we make a preliminary attempt to identify to what extent the valuations are attributable to cash flow effects, and to what extent due to cost of capital effects.

The rest of the paper is organized as follows. Section 2 introduces the basic theoretical framework, and clarifies the distinction between systematic and unsystematic risk. Section 3 reviews the strategy literature which is relevant to considering how CSR activities may affect cash flows, unsystematic and systematic risk. Section 4 develops the theoretical model. Section 5 discusses the data whilst section 6 presents the results. Section 7 presents a discussion of the results.

2. Theoretical Framework

Our theoretical starting point is the rational market valuation of the firm. Fundamentally, the value of any firm is the present value of its future cash flows, discounted at the appropriate cost of capital, such that the value of the firm is given by:

$$V_e = \sum_{t=1}^{t=\infty} \frac{C_t}{(1+r_e)^t} \quad (1)$$

Where C_t is the expected cash flow in year t, and r_e, the required return.

Firms can be valued in various ways, for example, at the *enterprise* level (that is to say, the combined value of the firm's debt and equity) or at the *equity* or *shareholder* level (which involves valuing firm level cash flows at the equity cost of capital), but properly calculated the results are always equivalent (Lundholm and O'Keefe, 2001). In this paper, the equity level is the focus, purely because the models employed have originated at this level.

There has been much discussion within the management literature regarding how CSR may increase cash flows and limit their variability by reducing firm-specific risk, but little attention has been given, until recently, on cost of capital effects. Finance theory argues that cost of capital only alters in response to systematic risk changes.

The distinction between the two types of risk can be illustrated by drawing on the particularly tragic example of the recent environmental disaster in the Gulf of Mexico. The clean-up and compensation costs to BP of the Deepwater Horizon accident have been estimated at up to $37bn (Financial Times 26/2/12). This is a cash flow effect, and provides an illustration of a firm-specific risk which to shareholders at least, and however unpalatable it may seem, *can* be diversified away. For instance, at the worst point in the spill disaster, BP's shares roughly halved in value. However, a well-diversified investor with just one percent of her portfolio in BP's stocks would have suffered a loss of around 0.5% on such a portfolio. Contrast this situation with the collapse of Lehman Brothers. On the single day that this event occurred, the US market as a whole fell by 4.71%. Therefore, even if the investor was perfectly diversified across the five hundred stocks that comprise the S&P 500 index, in just one day she would have suffered a near five per cent fall in her wealth. This element of risk, systematic risk, cannot be diversified away.[3]

Some stocks clearly are more exposed than others to this type of risk. Financial stocks, highly leveraged firms, and capital goods manufacturers tend to be more exposed to adverse macro-economic conditions, whilst utilities and supermarkets typically have a relatively low exposure. The degree of exposure to systematic risk is captured by a stock's beta which measures the stock's volatility in relation to the market, and is a determinant of the required rate of return on the stock. According to the Capital Asset Pricing Model (CAPM) the required return on any stock, r_e, is a function of the risk free rate, r_f, the expected return on the market as a whole, r_m, and the stock's beta, β_e:

$$r_e = r_f + \beta_e(r_m - r_f) \qquad (2)$$

Sharfman and Fernando (2008) show for their sample that a firm's beta is a declining function of its degree of environmental risk management, suggesting that firms that invest in this form of risk management enjoy a lower cost of equity.

Although there is considerable debate within the finance literature regarding the most appropriate asset pricing model, with models such as the Fama-French three factor model, the Carhart four factor model, various forms of conditional CAPMs and Arbitrage Pricing Models, being proposed as alternatives to the basic CAPM in (2), significantly all of models share the same fundamental hypothesis that only systematic risk will determine expected returns. The higher the systematic risk, the higher the required expected return.

[3] Of course, international diversification helps, but all major markets fell when Lehmans filed for bankruptcy.

None of this implies that markets are indifferent to firm-specific risk. Instead, rather than being reflected in the expected cost of capital, specific risks are rendered in expected future cash flows. Consequently, the firm-specific risk of any CSR impacts will show up as positive or negative impacts in the expected cash flows.

For example, suppose the expected cash flows for two firms in the same sector are \$1m in perpetuity pre any environmental costs, and the expected cost of capital is 10%. As a result of its environmentally responsible strategy, Firm A decides to invest \$1m in state of the art pollution control equipment and has a zero chance of any environmental cleanup costs being incurred, so that the value of its future cash flows are simply \$1m/0.10 = \$10m, less the \$1m investment cost, giving a firm value of \$9m. However, Firm B has no such policies in place, and in any one year runs a 5% risk of a major pollution incident which will cost \$3m to clean up. Its expected cash flows will be reduced to \$1m – (3 x 0.05) = \$0.85m p.a. Consequently, its value is only \$0.85m/0.10 = \$8.5m.

Whilst we argue that solely investigating stock market returns is inadequate because they obfuscate cost of capital effects, what the above example illustrates is that investigating the cost of capital alone also is insufficient. This is because it is likely to result in an under-estimation of the impact of CSR on firm financial performance if there are cash flow effects as well.

A further example encompasses all the financial dimensions of CSR strategies. Suppose a firm has policies that reduce its carbon footprint through improved energy efficiency. This not only reduces costs and so improves cash flow, but also gives the firm a lower exposure to energy prices. Since energy prices impact upon the economy, we might reasonably expect our low carbon firm to have a lower beta as a consequence of this strategy. In addition, if this strategy finds favour with consumers of its products, it might also enjoy higher cash flows as the result of its policies. These cash flow effects could show up either in the form of higher profitability immediately, or in the form of superior long run growth prospects as more consumers switch to the firm's products. The net effect will be that both numerator and denominator in (1) will change. Third, such a strategy might also diminish unsystematic risk by reducing the company's vulnerability to the threat of any government introduction of carbon pricing to its industry. Once again this would change the numerator as expected cash flows would be increased by the reduction in unsystematic risk. This insight is at the heart of our approach to examining the impact of CSR upon company value.

3. Establishing links between CSR, cash flows and cost of capital.

Research on the strategic value of CSR has been conducted mainly from the resource-based view (RBV) which is motivated to understand the resources and capabilities required by a firm to achieve and sustain a competitive advantage and thereby a superior financial performance (Barney, 1991). Resources that are difficult to replicate by other firms are especially valuable for sustaining a competitive advantage, and as a consequence, attention has been given to the role of intangible resources, such as know-how, organizational skills, corporate culture and reputation.

Whilst Porter (1991) perhaps first argued that companies could gain a competitive advantage by adopting more environmentally friendly products and processes, this was largely in the context of responding to government regulation, and firm-specific gains in the form of improved resource efficiency and product quality (Porter and van de Linde, 1995). Hart (1995) in proposing a 'natural-resource-based view' asserted the value to companies of confronting environmental issues regardless of whether there were regulatory requirements. He drew attention to the long term competitive advantage that might be gained by developing complex cross-functional teams within the organisation to address environmental concerns. In addition, he noted the importance of engaging with stakeholders in order to acquire social legitimacy. Thus he identified the two principles strategic benefits from CSR strategies of (a) developing capabilities and (b) reputation building. Further work has refined understanding in these two areas.

Russo and Fouts (1997) and more recently Aragón-Correa and Sharma (2003) have elaborated upon the organizational skills that might be acquired by going beyond legal compliance on environmental matters. Meanwhile the potential benefits of engaging with stakeholders to address both social and environmental concerns, has been elucidated within the management literature. Freeman (1984) defined stakeholders as "Any group or individual who can affect or is affected by the achievement of the organisation's objectives" (p46). But this broad definition of stakeholders begged for greater classification as interest in CSR grew. Mitchell, Agle and Wood (1997) argued that a stakeholder's salience to management depended on the degree to which they had power, legitimacy, and urgency. Consequently, Freeman et al. (2008) classified stakeholders as either primary, if they had all three attributes and secondary if stakeholders had legitimacy but were lacking in power and urgency to enforce those claims. Primary stakeholders are normally identified as those which the company has an exchange relationship with, for example, employees, customers and suppliers (Hillman and Keim, 2001, Godfrey, Merrill and Hansen, 2009) and secondary stakeholders are those who are affected by company activities but not through an exchange, for example those who affected by the deleterious effects a company may have on the environment or community.

Hillman and Keim (2001) suggest that only engagement with primary stakeholders that transforms transactional relationships to relational ones, can enhance competitive advantage. However, Godfrey et al. (2009) argue that whilst CSR activities that relate to primary stakeholders can create valuable exchange capital, engagement with secondary stakeholders also is important for creating moral capital that essentially can reduce firm-specific risk. Building relationships with secondary stakeholders can indicate that the company is not totally self-serving and the resultant moral capital can be valuable to a firm should some negative event occur such as an environmental accident or a product safety concern. It may help 'stakeholders attribute the negative event to maladroitness rather than malevolence' (p 428) and thereby lessen the likelihood of sanctions such as consumer boycotts, and other negative cash flow shocks. Therefore, whilst such moral capital may not raise profits, it can have an insurance like effect. Consequently unsystematic risk might be reduced by a company's CSR activities, not only as result of implementing precautionary management practices to forestall a negative event, but also by building up moral capital that might reduce the cash flow shock should a negative event occur.

Choi and Wang (2009) find evidence to suggest that positive stakeholder relations not only help a company gain a competitive advantage but also to sustain an advantage over the long term. They suggest that good stakeholder relations reduce the likelihood of core competences becoming core rigidities, by facilitating the development of new capabilities, thus enabling a company to move out of a disadvantageous business situation. Thus they illustrate a further reason why CSR activity might reduce likelihood of negative cash flows, and therefore reduce firm-specific risk, albeit over the longer term.

However, the literature is thinner in addressing the question as to how CSR activities might reduce systematic risk. One clear example was drawn earlier in the case of the company that reduced its carbon footprint. But this was because oil prices, uniquely for commodities, can have a macro-economic impact, and other examples are less obvious. Heinkel et al. (2001) provide a theoretical argument to show that if a polluting firm detracts investors then, this leads to an additional risk premium for these. Hong and Kacperczyk (2009) have argued similarly for sin stocks. But it is empirically doubtful whether sufficient investors have been deterred, to have such an effect.

The answer to the question may lie in the fact shows that an individual stock's beta is determined by the total risk of a stock's return,[4] and therefore is shaped by factors that also influence unsystematic risk (Peavy, 1984). In concordance, Lubatakin and Chattergee (1994) comment "that some factors that have traditionally been ascribed to

[4] Precisely, it is the firm's standard deviation of the firm's return multiplied by the market's standard deviation of return multiplied by the correlation between the firm's and the market's return, divided by the market variance of returns (i.e. the firm's covariance of return with the market return, divided by the market variance).

one component of corporate stock return risk also influence the other components". They provide the example of entry barriers. A firm may be able to establish a market entry barrier through a new technology that will ensure regular cash flows. This is a firm-specific effect but it also could reduce its systematic risk if it puts the firm in a more powerful position to determine output and input prices in response to macro-economic disturbances. Albuquerque et al. (2011) have argued that good customer relations can reduce the elasticity of demand and therefore make sales more durable in a down turn. A more general point (supported by the findings of Choi & Wang (2009)) may be that good stakeholder relations improve a company's resilience during adverse macro-economic circumstances. Clearly this is an area for further empirical research for precise evidence.

4. Theoretical development

Having established that we need to investigate valuation rather than just returns or just cost of capital effects, we now turn to exactly how this can be done. As in Gregory, Whittaker and Yan (2010) the basic valuation model we employ is based on the framework developed by Peasnell (1982) and Ohlson (1995). Here we use the version as implemented in Barth, Beaver and Landsman (1992) and Barth, Beaver and Landsman (1998). A central feature of this model is that future cash flows can be expressed in terms of accounting profits, cost of equity, and accounting book values. It can be demonstrated that firm value, P_t, can always be expressed as (Peasnell, 1982; Ohlson, 1995; Rees, 1997; Lundholm and O'Keefe, 2001):

$$P_t = b_t + \sum_{\tau=t+1}^{\tau=\infty} \frac{x_\tau^a}{(1+r_e)^\tau} \qquad (3)$$

Where:

$$x_t^a = x_t - r_e.b_{t-1}$$

x_t is the net income in year *t*, and b_{t-1} is the opening book value, so that x_t^a is an abnormal earnings (or "super profits" or residual income) figure. This is a convenient form to express value, as it shows that firms that just earn their cost of capital (the "marginal" firm) will be valued at the book value of their assets, whereas firms that earn rates of return above their cost of capital will be valued more highly. Conceptually, this is similar to Tobin's Q –ratio, in that the marginal firm has a Q-ratio of unity.[5]

If we are prepared to make the assumption that residual income increases or decreases at a constant rate in perpetuity, then (3) becomes a geometric progression and simplifies to:

$$P_t = b_t + \alpha_1 x_t^a \tag{4}$$

Where, abnormal earnings will grow or decline though time at a rate ω-1, so that $\alpha_1 = \frac{\omega}{(1+r-\omega)}$. In this simple model, ω can be either greater than one, implying a growth in abnormal earnings, or less than one, implying a decline.

A particularly useful refinement of the model is due to Ohlson (1995) who introduces the concept of "other information" into (4). "Other information" can be viewed as any information relevant to valuing the firm that is not captured in current earnings or book values. In the Ohlson (1995) model this "other information" is captured in a parameter, υ. Ohlson additionally assumes that abnormal earnings and "other information" follow an autoregressive process such that $\alpha_1 = \frac{\omega}{(1+r-\omega)}$ and $\alpha_2 = \frac{(1+r)}{(1+r-\omega)(1+r-\gamma)}$, where ω and γ are the autoregressive parameters on abnormal earnings and "other information" respectively, so that we have.:

$$P_t = b_t + \alpha_1 x_t^a + \alpha_2 v_t \tag{5}$$

The autoregressive nature of the parameters means that in the model, ω and γ are assumed to have a value in the range 0 to 1. A value of 1 implies abnormal earnings (or other information) persist in perpetuity, whereas a value of zero implies they have no impact on value beyond the current period. The justification for an autoregressive

[5] Strictly, Tobin's Q requires that the assets be valued at replacement cost, but in the literature accounting book values are frequently used as a convenient proxy for replacement cost.

process is that this "abnormal earnings" or "residual income" would be expected to mean revert to zero in the long run in a competitive market.

The Ohlson (1995) model can be re-stated in terms of actual earnings (as opposed to abnormal earnings) and book values, which is helpful in terms of model specification as clearly earnings (as opposed to abnormal earnings or residual income) are directly observable:

$$P_t = b_t(1-\alpha_1 r) + \alpha_1 r\left(\frac{x_t(1+r)}{r} - d_t\right) + \alpha_2 \upsilon_t \qquad (6)$$

If dividends are zero, then this conveniently shows that we can express theoretical value as a linear combination of book values, earnings and "other information". Alternatively, we can drop the Ohlson (1995) "linear information dynamics" and derive a model based upon assumed growth rates in earnings and book values (Rees, 1997). This type of approach gives the theoretical underpinning for the class of model estimated in the accounting literature to determine whether additional information influences stock prices (e.g. Barth, Beaver and Landsman, 1992). The general form of these models can be summarized as:

$$P_{it} = \beta_0 + \beta_1 b_{it} + \beta_2 x_{it} + \beta_3 \upsilon_{it} + \varepsilon_{it} \qquad (7)$$

The theoretical model that we run derived from the above analysis models share prices as a function of book values, earnings and "other information" that may be relevant to the valuation of the firm but is not captured in the financial statements. Here, "other information" will include our measures of CSR. In other words, we are testing whether the β_3 coefficients in (7) that capture the effects of our CSR indicators are significant in explaining firm valuation.

Certainly, there are other approaches to addressing the question of whether markets value CSR strategies. For example, we could compare the Q-ratios of high and low CSR firms, and this is the approach taken in Guenster et al. (2006). In effect, any differences in Q-ratios between firms are simply assumed to be attributable to CSR, yet they could easily be a consequence of differences in business models. To see this, consider two firms in the same industry, say retail. If Firm A rents all its stores whilst Firm B owns them, but both generate similar gross margins and volumes, the Q-ratio of Firm A will exceed that of Firm B, under current accounting rules. However, its net income will be lower because it pays store rental costs out of those margins. An analysis based on (6), controls for these effects, whereas a simple comparison of Q-ratios does not.

Surocca et al. (2010) posit that a virtuous circle exists between corporate financial performance (CFP) and CSR performance (CRP). They find that CRP stimulates the development of intangibles which leads in turn to an improvement in CFP, and they find support for causality in the opposite direction also. But importantly, the effect is not a direct one; it is indirect. If intangible assets and CSR inter-act with one another in this way, care is needed in concluding that CSR has an effect (whether mediated or not) on firm value. Within the accounting and finance literatures there is evidence that expenditure on two classes of intangibles, advertising and R&D, is associated with an increase in firm value (Chauvin and Hirschey, 1994; Green, Stark and Thomas, 1996; Lev and Sougiannis, 1996; Gu and Li, 2010). The argument is that whilst generally accepted accounting principles (GAAP) do not allow the capitalization of such expenditures on the balance sheets of companies, markets recognize these expenditures as creating assets and so effectively impound them in share prices as though they were assets. Taken together, the evidence from these studies and Surocca et al. (2010) suggest that we should include *both* proxies for intangibles *and* measures of CSR in our regression tests. Note however, that we are silent on the Surocca et.al. (2010) hypothesis on whether the effect of CSR is mitigated through intangibles. First, we do not attempt to measure many of the dimensions of intangible assets that they incorporate in their study. Second, to the extent that intangibles are captured in our proxies for intangibles (e.g. R&D may be a good proxy for innovation), we do not attempt to model any feedback loop between CSR and intangibles. We simply attempt to investigate whether CSR adds anything to firm value once the impact of our proxies for expenditure on intangibles has been controlled for.

Our model is based upon the Barth et al. (1992) and Barth et al. (1998) implementations of the models described in (7) above. Specifically, we run a regression of share price on book value per share, net income (or earnings) per share, plus a vector of "other information" variables. These variables are two proxies for intangible assets, ADV_{it} which is the advertising expenditure for firm *i* in year *t*, and $R\&D_{it}$ which is the R&D expenditure for firm *i* in year *t*, together with a set of CSR measures derived from KLD data which we describe in detail below. The regressions are run for each CSR indicator individually (including either a net measure or separate measures of strengths and concerns), and for all CSR indicators in combination. To allow for industry effects, our regression model is estimated with industry dummy variables (defined using Fama-French 48 industry groups[6]). The estimates are run using the two-way cluster robust standard error (or CL-2) approach of Petersen (2009). As Gow et al. (2010) have shown, this is important when using both industry and year dummies in accounting panel data. Using CL-2 yields well-specified standard errors when fixed effects models do not.

Our initial analysis of CSR amounts to a test of whether the coefficient on CSR in (7) is significant. Having investigated the valuation effects of CSR, it is then informative to analyse where any impact of CSR on valuation comes from. Equation (3) reveals that it can essentially come from three sources: short term earnings, longer term earnings, and the implied cost of capital.

Conceptually, the beta coefficients in (7) capturing both differences in the expected cost of capital between firms, and differences in expected income. Alternative approaches could employ the Lee et al. (1999) version of the Ohlson/Peasnell (OP) model,[7] which can be written as:

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[6] From Ken French's data library : http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. Results are robust to an alternative 10-industry classification.

[7] Strictly, although Lee et al. (1999) claim that their model is based on Ohlson (1995) it is actually a version of the Peasnell (1982) model, as there is neither an "other information" parameter, nor a "linear information dynamic" in the model estimated.

$$P_t = b_t + \sum_{i=1}^{i=n} \frac{(FROE_{t+i} - r_e)}{(1 + r_e)} b_{t+i-1} + \frac{(FROE_n - r_e) b_{n-1}(1+g)}{(r_e - g)(1 + r_e)^n} \quad (8)$$

Where b_t = book value of equity in year *t*, *g* is the long run growth rate from year *n* onwards, $FROE_{t+i}$ is the forecasted return on equity for period *t* + *i*, computed as forecast EPS for period *t* + *i* / book value of equity for period *t* + *i* -1. As in (4), the above is a valuation expression for the firm in terms of its "residual income" or "abnormal earnings". However, we can also solve the expression either for the long run growth rate, *g*, or the cost of equity capital (ICC), r_e, implied by the share price, P_t. [8]

The Barth et al. (1998) approach and the Lee et al. (1999) approach are complimentary for several reasons. First, from a conceptual point of view the Lee et al. (1999) model can only be solved for either ICC, or growth, but not both simultaneously. Given our prior is that we expect both a cost of capital effect and a cash flow effect from CSR, the Barth et al. (1998) model allows us to avoid ascribing valuation effects to either ICC or growth in the first instance. Second, the growth effects in the above model are potentially complex, as short term growth in residual income can differ from long run growth. Nonetheless, the Lee et al. (1999) model is potentially very useful, as it allows embedding of full information in analysts' forecasts. IBES provides a consensus analysts' forecast for 2-3 years ahead, and then a long run growth estimate of earnings growth from years 3-5. Consequently, this enables us to provide several analyses: first, we analyze differences in short term forecast ROE and 3-5 year earnings growth by CSR category directly from analysts' forecasts; second, we solve for differences in long run implied growth from (5) by CSR category, holding r_e constant; third, and alternatively, we can solve for differences in ICC from (5) by CSR category, holding long run growth, *g*, constant.

The Lee et al, (1999) model can be solved at a firm level for either cost of equity or growth, but it cannot do both simultaneously. However, models in the accounting

[8] This is one of the approaches taken in El Ghoul et al. (2010), who find that for two CSR indicators (environment and employee relations) high CSR firms have a lower implied equity cost of capital. In reaching that conclusion the authors also employ, inter alia, the Easton (2004) model.

literature (for example, Easton and Somers, 2007; Ashton and Wang, forthcoming) have used panel data regressions to simultaneously estimate the ICC and long run growth, with the principal interest in the literature being the estimation of the expected market risk premium. These models assume a simple single period growth model. However, these models do not come without costs. Whereas the model in (8) above allows any number of years of specific forecasts to be employed, the approaches in Easton and Somers (2007) and Ashton and Wang (forthcoming) use only one year ahead analysts' forecasts and then solve for the long run growth and cost of equity implied by current prices and these one year ahead forecasts. Generally, US analysts make forecasts for two or three years ahead, together with a "longer run growth" forecast, which actually is a forecast for earnings from year 3 to year 5. We make full use of these forecasts in our analysis, but as we note, this implies we can either solve for implied cost of capital (ICC) or long run growth beyond year 5, but not both at the same time.

One alternative specification of these models found in Easton et al. (2002) uses multi-year aggregate earnings and then solves for the cost of capital and growth implied by these aggregated earnings. A further disadvantage of these models is that they yield only a single implied growth and cost of capital estimate for a portfolio of firms, making tests using firm-level control variables impossible. Nonetheless, they can be useful if offering insights to the relative valuation impacts of ICC and implied growth. We return to this point later in our discussion.

Finally, we recognize that a complete analysis of the valuation effects of CSR requires an investigation of the relationship between CSR and returns. If markets efficiently impound information in CSR indicators, then we would expect portfolio alphas to be zero, but risk differences may nonetheless be important. On the other hand, if markets are slow to embed the information in CSR measures then we would expect to see significant out-performance, or "alpha". To investigate this question we form portfolios of stocks and regress returns on the three-factor (Fama-French) and four-factor (Carhart) models. These models can be generalized as:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + w_p MOM_t + \varepsilon_{pit} \quad (9)$$

Where the factors are: the market risk premium, ($R_m - R_f$); the size factor, *SMB*; the book to market factor, *HML*; and a winner minus loser, or momentum, (*MOM*) factor, all of which are from Ken French's website. The three factor model can be viewed as a special case of the four factor model, where the coefficient on *WML* is constrained to be zero. As in Edmans (2011), the model is also run on an industry adjusted basis, by forming an industry matched control portfolio (R_{pit}), where each firm in the CSR portfolio is matched with its Fama-French 48 industry return.[9] We then run the regression:

$$R_{pt} - R_{pjt} = \alpha_p + \beta_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + w_p MOM_t + \varepsilon_{pit} \quad (10)$$

The regression in (10) should control for any industry effects not picked up by the factor loadings. Regressions (9) and (10) are estimated using both equally weighted and value-weighted portfolios. As in Edmans (2011) the regressions are estimated using robust standard errors that allow for the possibility of heteroscedasticity.

5. Data

Our sources of data are as follows. All our measures of CSR are from KLD. The KLD Database is well-known in the management literature, so we do not describe it in depth here. Essentially, the KLD data takes the form of a series of zero-one variables for a number of strengths and concerns across the following categories of CSR indicators: *Community*; *Governance; Diversity*; *Employees*; *Environment*; *Human Rights* and; *Product*. In addition, KLD provides an indicator of whether a firm has any involvement in the following potentially contentious industries: *Gambling*; *Alcohol*; *Tobacco*; *Military*; *Firearms*; and *Nuclear*. The number of strengths and concerns differ between indicators, are not symmetrical, and can change over time as new concerns emerge or fail to be important. For example, in the *Environment* indicator, climate change first appeared as a concern in 1999.

[9] All industry returns are from Ken French's data library.

As Kempf and Osthoff (2007, fn. 7) note, the KLD indicator on governance differs from those 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). In particular, the *Governance* measure includes high levels of executive pay as a concern, and low levels as a strength. To the extent that pay and performance are related, this could result in some odd associations between the *Governance* indicator and firm value, and Gregory, Whittaker and Yan (2011) show that this is indeed the case. The *Human Rights* indicator is problematic for two reasons. First, there are fewer observations for human rights strengths (*humstr*) because of some missing observations in the early years for this variable. Second, Human Rights seems particularly subject to change. In the early years South African involvement would have appeared as a concern through 1994, before "positive operations" were listed as a strength in 1994 and 1995, before being dropped. Burma emerged as a concern in 1995, Mexico as a concern from 1995-2002, and Northern Ireland was a concern through 1994. Given the absence of comprehensive data, this variable is omitted from our analysis.

A summary of the KLD indicators is given in Table 1a and are based on 23,794 firm-year observations. Note, though, that in our later tests where we require IBES forecasts to be available, the sample size decreases to 18,364 firm-year observations. One striking feature of the data is that the mean number of strengths and concerns is low, at less than one in all cases, suggesting that the majority of firms simply have neither strengths nor weaknesses. Consequently we employ an alternative classification suggested in Fernando, Sharfman and Uysal (2010). Their paper simplifies the KLD rankings on environment by categorizing firms into four groups: "Green" firms, which have only strengths; "Toxic" firms which have only concerns; "Gray" firms which have some strengths and some concerns; and "Neutral" firms which have neither strengths nor concerns. We adopt this classification as a robustness test for all categories of CSR, and retain the Fernando et.al. (2010) labels for clarity and convenience. Table 1b shows the maximum and minimum number of strengths and concerns for each indicator.

Both the number of strengths and concerns, and dummy variables for “Green” and “Toxic” are used in the regression tests. Although we would expect the number of strengths and concerns to contain more information than a dummy variable, one disadvantage of using the number is that it assumes a linear relationship between the strength or concern count and their value. If, for example, market values are driven down by a number of socially responsible investors exiting the market for stocks with any weaknesses in a certain CSR category, then it is perfectly possible that the relationship between value and number of strengths or concerns is non-linear. Furthermore, some firms have both strengths and weaknesses for given indicators, and so one might argue that the Fernando et al. (2010) categorization is a cleaner one. It is for these reasons that we run alternative regressions using “Green” and “Toxic” dummy variables.

The returns tests require a portfolio formation rule. As Gregory and Whittaker (2012) point out, the distributional properties of individual KLD indicators do not lend themselves to forming portfolios based upon quantiles, so the only unambiguous portfolio formation rule is to employ the Fernando et al. (2010) definition. However, this gives conservative groupings for the “overall” CSR indicator, where firms are required to have strengths in at least one dimension and weaknesses in no dimension to be classified as “Green” (and vice-versa for “Toxic”). Therefore, for the overall indicator we also investigate a classification based upon the overall number of strengths being higher than the median number of strengths (“Strong”) and the number of concerns being greater than the median numbers of concerns (“Weak”).

The KLD data is cross-matched with returns, share prices, accounting data and analysts’ forecast data. The source for the former is CRSP, and following Fama and French (1992) share prices in June of year t+1 are observed, in order to ensure all financial information for the financial year ended in year t has been embedded in share prices, and also to ensure that KLD information for year t has been fully reflected in prices. Returns are measured from June of year t+1 to June of year t+2. The source for all accounting data is Compustat. Four pieces of accounting information are required to estimate the regression in (7): book value per share (BVPS); Net Income per share (NIPS); Advertising expenditure per share (Adv_exp); and R&D spending per share (R&D_exp). Our source for the earnings forecast data is IBES.

Whilst the evidence in Surocca et.al. (2010) implies the need for attention to intangibles, requiring the advertising and R&D expenditures to be available would reduce our number of firm-year observations to 5,123. This information is unavailable as a large number of firms do not report such expenditures. So where such information is missing, we set the value to zero to avoid losing over 75% of our sample. Note, though, that regressions that do not include these variables give qualitatively similar results, so its inclusion does not seem to make a material difference.[10] In Table 2 we report the correlations between strengths and weaknesses separately and the general pattern that emerges is that strengths are correlated across CSR categories, as are concerns. This suggests that firms adopt coherent CSR policies across different dimensions, and justifies the inclusion of a compound measure of CSR. However, whilst strengths and concerns are generally not correlated, there is a correlation of 0.31 between *Environmental* strengths and concerns. The Fernando et al. (2010) definition of "Gray" firms, as opposed to "Green" and "Toxic" firms is useful for dealing with any issues caused by this type of correlation. Furthermore, we form an overall indicator using this definition, which following Fernando et al. (2010) we categorize as "Green", "Unclassified" and "Toxic" depending on a firm's overall strengths and weaknesses. For this overall measure a firm is "Green" if it has only strengths but no concerns in any category, "Toxic" if it has only concerns but no strengths in any category, and "Unclassified" otherwise.

Most of the relationships between R&D and strengths are significantly positive. Concerns show lower levels of correlation apart from *Environment* concerns and, perhaps unsurprisingly, a correlation with military concerns. Taken as a whole, these relationships, most particularly with R&D, are consistent with the Surocca et al. (2010)

[10] This seems reasonable with R&D, as many firms do not have material involvement in research and development activity. As it is more questionable with regard to advertising, we also run our regression tests excluding Adv_Exp. Results are qualitatively identical to those reported.

evidence on CSR being mediated through intangibles. However, the relatively small correlations might also imply that there are important aspects of CSR which are uncorrelated with these intangible assets.

6. Results

We start with an analysis of returns, reported in Table 3. Panel A shows the results from using equally weighted portfolios, and Panel B shows the results using value-weighted portfolios. In general, whilst green stocks outperform toxic stocks, there is an absence of alphas of any significance in either the individual portfolios or the long-short portfolios. The notable exception, consistent with Edmans (2011), is that firms with strengths in employee relations record an outperformance of 0.17% per month. The value-weighted returns in Panel B show similar alphas, except that we now observe a positive alpha for firms with employee relations strengths on both an absolute basis (0.2% per month) and on an industry adjusted basis (0.11% per month). Conspicuously, in spite of using a very different metric for employee relations, the effect found in Edmans (2011) persists, but it only seems to apply to this one CSR indicator.

However, what shows up in these regressions is a difference in risk exposures. On an equally weighted basis (Table 3, Panel A), with the exception of the *Product* category, high CSR stocks appear to have generally lower risk exposures, although how this is manifested varies between categories. For *Community*, Green firms have lower exposure to the HML factor, although this is not robust to industry controls when only an exposure to the size (SMB) factor is lower for Green firms. For *Diversity*, there is lower exposure to the SMB effect, although this is partly offset by an increased exposure to HML once industry effects are allowed for. For *Employee Relations*, there is lower exposure to the market factor but higher exposure to the momentum factor. Both these effects disappear once industry effects are allowed for, when only SMB exposure is lower. For *Environment*, market risk and HML risk are lower, although SMB risk is higher, although all exposures are explained by industry factors. Finally, for the *Product* category, market risk and SMB risk are higher for Green firms, whilst HML risk is lower.

Once industry effects are allowed for we observe a lower exposure to HML risk and a higher exposure to momentum.

On a value weighted basis (Table 3, Panel B), inferences change, and again some of the risk exposure differences seem to be explained by industry factors. For *Community*, Green firms again have lower exposure to the HML factor, although on an industry adjusted basis it appears that Green firms have a lower exposure only to the market factor. For *Diversity*, there is lower exposure to each of the market, SMB and HML effects, with the first two being robust two industry effects. On an industry adjusted basis, there is a small additional exposure to momentum. For *Employee Relations*, there is lower exposure to the HML factor and higher exposure to the momentum factor. The latter disappears once industry effects are allowed for, but then, as on an equally weighted basis, SMB exposure is lower. For *Environment*, market risk is now higher on a value weighted basis, as is SMB exposure, though HML and momentum risk are lower. Once again, all exposures differences are explained by industry factors. Finally, for the *Product* category, market risk and SMB risk are again higher for Green firms, whilst HML risk is lower, but all of these differences are explained by industry effects.

In Table 4, we re-run the analysis for long-short portfolios using the two versions of the overall CSR indicator described above. When we define groups using median strengths and median concerns, we observe a positive but insignificant alpha for both equally weighted and value weighted returns. HML exposures are lower, as is momentum exposure on a value-weighted basis. When industry effects are allowed for, SMB exposure is lower, but HML is only lower on a value-weighted basis. Once we define groups using the overall Green-Toxic definition, the lower HML exposure is still present, but there now appears to be a higher momentum exposure. On an equally weighted basis, there is a lower exposure to the market factor. On an industry-adjusted basis, the momentum effect remains, but when value weighting is employed, Green firms have lower exposure to market risk.

Taken as a whole, these results appear to be consistent with those studies that find high CSR firms have a lower cost of capital, although the effect here appears to be fairly small and to some degree seems to be explained by industry factors. However, there is some positive exposure to the momentum factor, implying that Green (or Strong) firms have a greater momentum component in their returns than Toxic (or Weak) firms. Importantly, although Green (or Strong) firms tend to out-perform Toxic (or Weak), with the sole exception of the Employee Relations dimension, there is no evidence of this out-performance being significant.

This finding, that "Strong" firms are not associated with higher alphas (which is consistent with Galema et al., 2008), but may have lower exposures to risk factors, and may also have lower cash flow risks, motivates our analysis of valuations. Our first set of valuation results, reported in Table 5, show how market prices capture the individual effects of CSR strengths and concerns. The first column for each regression reports the coefficient for each of book value (BV), net income (NI), advertising expenditure (Adv_Exp) research and development expenditure (R&D_Exp) and the individual CSR indicator strengths and concerns, with the second column showing the associated *p*-values. The first point to note from these regressions is that in all cases book value, net income and R&D expenditures always show a significant positive relationship with value. The coefficients on R&D_Exp indicate that markets treat such expenditure as creating an asset with a life well beyond the current period. However, the insignificance of Adv_Exp suggests that such expense does not generate value effects beyond the current period.[11] Throughout, all our regression 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 accounting panel data simulations. We do this because as Petersen (2009) points out, choosing the correct approach depends upon the likely form of dependence in the data. If CSR 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, and so our standard errors are clustered on firm

[11] This is also the case if we run regressions for just that sub-group of firms with reported advertising expenditures.

and year. All our regressions also include dummy variables for membership of each Fama-French 48 industry group.

With the individual CSR strengths and concerns, *a priori* we might expect weaknesses to detract from value by causing either reputational damage, and/or because they indicate poor management. Conversely, positive investment in CSR activities might be expected to enhance value. However, if managers over-invest in CSR it may be that agency costs arise, so that some strengths are negatively valued. The first point to note from the regressions in Table 3 is that markets indeed appear to view strengths and weaknesses differently. For *Diversity* and *Employee*, they appear to value strengths positively and concerns negatively. For *Community* and *Environment* strengths are significantly valued but not concerns. Markets value *Product* strengths and concerns in a rather enigmatic fashion, with strengths having a strong positive valuation but concerns carrying a smaller but still significant positive valuation also. Finally, we show the valuation of an *Overall* indicator, which is the sum of strengths (*Over Str*) or the sum of concerns (*Over Con*). Taken as a whole, such strengths are significantly positive valued, whilst weaknesses are negatively valued.

The coefficients can be interpreted as the $ amount the market adds to, or deducts from, the mean share price for each strength or concern indicator. In interpreting these coefficients it is important to realise that that there is considerable divergence between the number of strengths and concerns for each indicator (see Table 1b). For example, *Diversity* has a maximum of seven strengths whilst *Product* has only three. *Environment* has the maximum number of potential concerns at six, whilst *Diversity* has a maximum of two. This means that we cannot simply compare coefficients across strengths and weaknesses between indicators, or even within indicators, to gain any sense of the relative importance of such indicators without being aware of relative scales. So, for example, a firm that scores the maximum of two concerns on *Diversity* would be expected to suffer a fall of (2 x $1.544) in its share price, whereas a firm scoring the maximum of seven *Diversity* strengths would show an increase of (7 x $1.381). Despite these caveats, we observe that valuation effects are typically stronger for strengths than they are for concerns.

In Table 6 we explore the effect of using the Fernando et al. (2010) classifications for each CSR indicator. What we see emerge clearly from these regressions is the confirmation of all the Table 5 results with respect to strengths, in that "Green" firms (i.e. those with only strengths) in regard to *Community, Diversity, Employees, Environment* and *Product* are more highly valued. Results with respect to concerns are also similar. At the 5% significance level, only *Diversity* and *Employee* definitions of "Toxicity" appear to reduce value, and we retain the same enigmatic result with regard to *Product*.

In Table 7, we explore the effect of combined indicators, using our overall measure of "greenness" and "toxicity", and including the industry specific concerns appraised by KLD. Recall that the way this overall variable is set up requires a firm to have at least one strength and no concerns in *any* dimension to be classified as "Green", or conversely at least one concern and no strengths in *any* dimension to be classified as "Toxic", so that firms classified by this overall indicator are either unambiguously "good" or unambiguously "bad" in CSR terms. This is different from the *Overall* indicator in Table 5 which uses the simple sums of strengths and weaknesses. The first regression shows, perhaps surprisingly in the light of the Table 5 regressions, that it is the overall package of concerns that drives the share price down rather than an overall package of strengths moving the price up, "green" only being significant at the level of 13.2%. This evidence on overall concerns is consistent with markets viewing firms that *only* have concerns as being inherently more risky than other firms. The second regression then brings in industry involvement concerns. Here we see that the only industry that has a significant impact on valuations is involvement with the military industry, which is associated with a significant increase in value. Inferences for "green" and "toxic" do not change, although the significance level of the former improves marginally, although remaining insignificant at the 10% level.

Having shown that markets appear to value various dimensions of CSR, we now turn to an analysis of whether those effects are driven by differences in growth and profitability prospects. All our models now require the additional input of analysts' consensus forecasts for at least 2 years ahead, and an estimate of medium term earnings growth. Furthermore, to control for size in our regression tests, we require sales figures to be available. These requirements reduce the sample size to 18,364 firm-year observations. For these tests, we group firms into portfolios based on either their net CSR scores, so that firms are either "positive", "negative" or "zero" in terms of their scores for each category, or alternatively group them by using the Fernando et al (2010) "Gray", "Green", "Neutral" and "Toxic" classifications.

We begin our analysis with an examination of the one and two year forward profitability implied by these analysts' consensus forecast estimates. We do this by assessing short term profitability prospects (as measured by the implied return on equity, ROE) by CSR category, and we report both the base differences in profitability, with a simple t-test for differences, and the differences implied by a regression of forecast ROE on the log of current sales (our proxy for size), current advertising expenditure, current R&D expenditure and dummy variables for the Fama-French 48 industry membership. Again all regression tests are estimated with Petersen (2009) clustered standard errors, and test for differences between CSR grouping are made using an F-test.

From the analysis, reported in Table 8, for one year ahead, high CSR firms in the *Diversity* and *Employee* categories are significantly more profitable, whilst high CSR firms in the *Environment* and *Product* categories are less profitable. For the Overall indicator, profitability is higher by 0.5%. However, on control adjusted basis all of these apparent differences become insignificant. Broadly, these effects carry through to forecast ROE two years ahead, but the differences between high and low CSR are dampened down somewhat with the base differences for *Employee* and *Overall* becoming insignificant. On a control adjusted basis, it appears the high-scoring firms on *Diversity* are slightly more profitable, high-scoring firms on *Product* are less profitable, but for the *Overall* indicator there is no significant difference. As these effects are almost identical for the Green-Toxic (Strong-Weak) classifications, we do not repeat the analysis on that basis here. Taken as a whole, then, these results suggest there is little in terms of near term forecast profitability that cannot be explained by size, advertising, R&D or industry differences.

As we note, in practice, analysts provide estimates for one to three years ahead, together with a medium term (3-5) year growth forecast. This raises the obvious possibility of using such data to compare prospects between different categories of CSR. In Table 9, we analyze the differences in such growth estimates. Here, we show the forecast growth estimates for the "negative", "positive" and "zero" groups in the top half of the table, and for the "Gray", "Green", "Neutral" and "Toxic" classifications in the bottom half of the Table.

On an unadjusted basis, *Community*, *Environment* and *Product* are expected to have higher medium term growth associated with positive compared to negative CSR, whilst *Diversity* and *Employee* have lower expected growth. The effect on "overall" categories is negative, with expected growth being 0.45% lower. However, once we run the control regressions, overall there is no significant difference in growth, suggesting that industry and other control variable differences are important in explaining these different growth prospects. However, for *Community*, *Environment* and *Product*, high CSR firms have significantly higher growth prospects than low CSR firms, at least at the 10% level. The negative effects for *Diversity* and *Employee* are now insignificant, and indeed the latter is not far from being significantly positive rather than negative.

When we turn to the Fernando et al (2010) categorizations in the lower half of Table 9, we see generally similar patterns emerging. However, when industry, size and intangible controls are applied we observe that the positive growth effects reported in the top half of the table are strengthened. Medium term growth differences between "Green" and "Toxic" firms for each of *Community*, *Employee*, *Environment* and *Product* are now significant and significance levels in general are improved. It appears, therefore, that whilst we see little evidence of short term profitability differences between high and low CSP firms, we do see evidence that high CSP firms have better medium term growth prospects than low CSP firms. We next turn to analysis of the long term growth prospects implied by these forecasts and stock prices.

In order to carry this out, our final tests employ the Lee et al. (1999) model described by (8) above, making full use of the IBES analysts' forecasts and hence n in the model is set at 5 years. We start by hold cost of capital the same across different CSP sorted portfolios, and solve (8) above by finding the value of g that equates the present value of future residual income and book value to the June share price each year. To establish the cost of capital we use the ten year Treasury Bond rate each year, and given the evidence in Claus and Thomas (2001), set the market risk premium at 3.4% (although we sensitize our results using alternative estimates of 3%, 4% and 5%, this broad range being consistent with Dimson, Marsh and Staunton, 2011). We then calculate rolling industry betas each year using the previous 5 years of returns, by employing the industry portfolio and market factor returns from Ken French's website. These betas are then employed in a CAPM framework to give time-varying industry costs of capital. Note that we do not employ the Fama-French model given the difficulty of calculating a rational *expected* risk premium for the Fama-French SMB and HML factors, and given the evidence in Fama and French (1997) that industry-level costs of capital estimated on any basis are "distressingly imprecise". [12]

The results of this exercise are reported in Table 10. Note that in some cases we cannot solve for an implied growth rate, typically because the forecasted year 5 abnormal earnings is negative, but sometimes because the present value of the year 1-5 residual income plus book value already exceeds the current share price. Consequently, we eliminate such firms from our sample, leaving a sample of 14,061 firm-years for which we can feasibly compute an implied long run growth rate, and given that such estimates

[12] Given this, we also re-ran our tests using an assumption that all industries have a true beta of unity, i.e. we assume that in any given year, all firms face the same cost of capital. The results were qualitatively identical.

are inherently noisy, we Winsorize our implied growth rates at the 2.5% level.[13] In interpreting these implied long run growth estimates, it is important to bear in mind that the short term and medium term forecast growth in earnings (and hence abnormal earnings or residual income) have already been embedded in the valuation expression. As the *g* we are now solving for in (8) is the growth rate to infinity in *abnormal* earnings (i.e. earnings in excess of that expected given the cost of capital), economic theory implies that these long run expected growth rates should be negative (indeed, this is the assumption in the Ohlson (1995) model).

As before, the top half of the Table reports the results from groups based on net CSR score categories, whilst the bottom half reports the results from the "Gray-Toxic" categories. Taken as a whole, we see that these long run growth rates in Table 10 are indeed all negative. However, we see that for all categories of CSR, high CSP firms have a significantly higher expected growth rate than low CSR firms whatever categorization is used. Furthermore, we see that "Green" firms always have the highest growth rates, with either "Gray" or "Neutral" firms having the next highest. "Toxic" firms have the lowest growth rates except for *Diversity* and *Employee*, when "Gray" firms have the lowest rates. On an industry, size and intangibles control basis, the effect of superior CSP on growth rates is always significant except for the *Employee* indicator, when the "Gray-Toxic" categorizations are employed, where the difference just fails to be significant at the 10% level. For our two overall CSR indicators, it appears that net of control effects implied long run growth is 2.33% to 3.26% higher. As these growth rates are all negative, the implication (in terms of the Ohlson (1995) or Peasnell (1982) residual income models) is that abnormal earnings are more persistent in high CSP firms, suggesting that they are expected to enjoy a long run competitive advantage compared to low CSP firms. This idea of greater persistence in abnormal earnings for such firms is also found in the direct tests of the Ohlson (1995) model in Gregory et al. (2011). Note that the assumption of an equal cost of capital across CSP portfolios, despite the evidence from other studies which do *not* use ICC estimates and show that firms with high CSP may enjoy lower costs of equity (Sharfman and Fernando, 2008;

[13] Although our results are robust to Winsorizing at the 1% and 5% levels.

Gregory et al., 2011), means that the above tests are conservative tests of implied growth rates.

Other studies (in particular, El Ghoul et al., 2010) have solved (8) for the implied cost of equity capital (ICC) rather than for the growth rate, and it is perfectly possible to do this for our sample by holding assumed long run growth rates constant for all CSP portfolios. We implement this by assuming that beyond year 5 there is zero growth in abnormal earnings. In other words, we now solve for ICC by equating the present value of the right hand side of (8) to the actual share price in June of each year, whilst holding growth in long run *abnormal* earnings (or residual income) constant at zero across all firms. As in solving for *g*, solving for the ICC can yield some extreme results, we Winsorize all our ICCs at the 2.5% level, after discarding those observations with an implied negative cost of capital.[14] The results are presented in Table 11 and are striking, although in line with those reported by Sharfman and Fernando (2008) and El Ghoul et al. (2010). For all CSR categories, as well as overall, high CSP firms have a significantly lower implied cost of equity than low CSP firms. Firms with positive CSP have the ICCs ranging from 5.6% for *Product* up to 6.67% for *Diversity*, with an *Overall* ICC of 6.33%. The ICC for the negative CSP group ranges from 6.83% for *Environment* through to 7.25% for *Community*, with the *Overall* ICC being 6.98%. The differences are also observed in the "Gray-Toxic" groupings, where the "Green" portfolio has the lowest ICC for all categories of CSR except *Diversity* (where "Neutral" firms have the lowest) and "Toxic" firms have the highest, except in the case of *Community* where "Gray" firms have a marginally higher ICC. The effect is barely altered by controlling for size, intangible asset investment and industry effects, with the lower ICC ranges from 0.22% lower for high *Diversity* CSP firms, to 1.33% lower for high *Product* CSP firms. For our *Overall* categories, high CSP firms enjoy a lower ICC cost of capital than low CSR firms. These effects carry through to the "Gray-Toxic" categories, where all differences net of controls are highly significant. Once again, for the Overall category "Green" firms have an ICC 0.82% lower than "Toxic" firms In terms of understanding this effect, Gregory et al. (2011) provide evidence that high CSR firms in general have significantly lower exposures to both market risk (as captured by beta), the size factor (as captured by

[14] Again, our results are robust to Winsorizing at 1% and 5% levels.

SMB) and the Fama-French HML factor. Consistent with expected returns reflecting lower risk, but not poorer performance, they find that high CSR stocks neither out-perform nor under-perform low CSR stocks on a risk adjusted basis.

This raises the question of whether the ICC estimates or the implied growth estimates are more helpful in terms of understanding the drivers of CSP valuation. To try to estimate this we applied both the Easton et al. (2002) model based on aggregated five year forecast earnings[15], and the single period model found in Easton and Somers (2007). Whilst the former tends to give higher estimates for both ICC and growth, the inferences from both models are consistent, and suggest that in general it is the higher growth of high CSP firms, rather than a lower cost of capital, that is driving the valuation, *Environment* being the notable exception where the lower cost of capital is significant but growth differences are not. For example, for the Overall group, the Easton et al (2002) estimates for ICC are almost identical, at 10.05% for the positive CSP portfolio and 10.01% for the negative CSP portfolio. However, the growth differences are significant, at 7.62% and 6.89% for the two groups respectively. The figures from the single year Easton and Somers (2007) model are 8.23% and 8.11% for the high and low CSP ICCs, the difference being insignificant, but 5.93% and 5.32% respectively for the growth estimates. The difference is again significant.

As we noted earlier, such estimates, being global estimates for the portfolio, cannot employ industry, size and other controls. Nonetheless, they provide the insight that suggests that the growth differences are more important than cost of capital differences in explaining valuation effects.

7. Discussion

Having shown that, with the exception of Employee Relations, CSR indicators generally are not associated with positive alphas, this paper has argued that analyzing valuation

[15] Easton et al (2002) use for year ahead forecasts.

provides the single important indicator of how markets view CSR activity, as it captures both expected future cash flow effects and expected cost of capital effects. Our first contribution has been to present a model that that estimates the stock market's valuation of CSP across multiple dimensions. We differentiate between different types of CSR activities, and also make a distinction between strengths and concerns for each type of CSP to investigate how each of these components are valued by markets. Our results show that different dimensions of CSR are valued in different ways by markets. Separating out strengths and concerns reveals that strengths are significantly positively valued across *Community*, *Diversity*, *Employee*, *Environment* and *Product* dimensions. By contrast, concerns reduce value only in the *Diversity*, and *Employee* dimensions. For the *Product* dimension, concerns (somewhat curiously) seem to be associated with small value increases. However, when strengths and concerns are considered in a "pure" combined measure, that is one where firms have to perform consistently along all CSR dimensions to be classified as high (or indeed low) CSP firms, our results indicate that valuation effects seems to be principally driven by the significant negative valuation of CSR concerns, a effect consistent with markets viewing firms with consistently poor performance in CSR as being more risky.

Our second contribution is to attempt to analyze the source of these valuation differences. As we have argued, a higher valuation of CSR can arise either because such firms are expected to be more profitable in the short run, or they are expected to be more profitable in the long run, or they have a lower cost of capital. We attempt to disaggregate these effects in a number of ways.

First, we provided some evidence that firms with a high level of CSR tend to have somewhat lower risk factor exposures. Second, we analyzed IBES forecasts of future profitability and medium term growth for differences. Overall, once size, intangible expenditures on advertising and R&D, and industry differences are controlled for, there appears to be little evidence that forecast ROE differences depend on CSP. However, there is evidence that the expected medium term growth is significantly higher for high CSP firms on the *Community*, *Employee*, *Environment* and *Product* dimensions, although the effect is not significant neither for *Diversity* nor for the *Overall* measure of performance.

Third, we solved the long run residual income (or abnormal earnings) model of Lee et al. (1999) for implied long run growth whilst holding industry cost of capital constant across different CSP portfolios. As we note above, it is impossible to solve for both ICC and growth simultaneously at firm level whilst making full use of the information in IBES forecasts. Holding industry cost of capital constant across CSP portfolios within each year, we find that on a control-adjusted basis there is evidence that the implied long run growth is greater for firms with higher levels of CSP across all the dimensions of CSP, as well as for our overall CSR indicators. Put simply, such firms are expected to enjoy a longer run of abnormal earnings than low CSR firms.

Alternatively, holding this assumed long run growth constant, high CSP firms have a lower cost of capital than low CSP firms across all dimensions of CSR, an effect entirely consistent with the findings of Sharfman and Fernando (2008) and El Ghoul et al. (2010). Most likely, given the evidence in Tables 3 and 4 and the further evidence from studies which attempt to analyze realized cost of capital (Sharfman and Fernando, 2008; Gregory et al., 2011) rather than implied cost of capital, a combination of both these factors is at play, but we emphasize that a lower cost of capital for high CSP firms will amplify our derived growth difference across the CSP portfolios, not compress them. As such, our long term growth tests are conservative ones. Furthermore, our analysis based upon the approaches found in Easton et al. (2002) and Easton and Somers (2007) suggest that growth differences may, in general (although possibly not for *Environment*) be more important than cost of capital differences. Intuitively, this seems plausible. Whilst one might expect some aspects of CSP to be associated with a lower cost of capital, one might also expect a greater impact could come from the superior long run cash flow benefits, such as increased sales, margins and lower adverse impacts, associated with CSP.

Of course, all of our analysis rests on the assumption that in the long run markets price high and low CSR firms reasonably efficiently. The recent evidence from Edmans (2011) is problematic in this respect, although it serves to remind us that our valuation tests are likely to be conservative in the face of markets taking time to embed information in intangible assets. However, we have shown that any under-pricing effect appears to be confined to the Employee Relations dimension of CSR. Given this, and the fact that the evidence from Galema et al. (2008) and Gregory et al. (2011) is consistent with market efficiency, we believe that on the whole, such an assumption of market efficiency is not unreasonable.

Taken as a whole, our results show that markets positively value most aspects of CSR, and do so because in the medium to long run, measured across most dimensions high CSR firms have a lower cost of equity and a higher expected growth rate in their abnormal earnings. This has important implications for investors, corporate managers and fund managers. As Barber (2007) notes, "institutional shareholder activism designed to improve shareholder value should be well grounded in scientific evidence". In providing evidence that positive CSR is rewarded with increased valuations, and that the avoidance of exposures to some concerns is also rewarded by higher valuations, we provide a justification for such engagement in such a strategy. Whilst we agree with Barber (2007) that investor preferences should be paramount when it comes to any moral dimension, the point here is that there does not need to be any moralistic argument to justify positive action by either corporate managers or institutional investors. Enlightened self-interest suggests that positive engagement can reward both shareholders and wider stakeholders.

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Table 1a Summary Statistics for all variables

Variables	Mean	Standard Deviation	N
Comstr	0.200	0.551	23794
Comcon	0.086	0.299	23794
Divstr	0.594	1.012	23794
Divcon	0.327	0.481	23794
Empstr	0.299	0.610	23794
Empcon	0.400	0.623	23794
Envstr	0.144	0.436	23794
Envcon	0.258	0.708	23794
Prostr	0.083	0.291	23794
Procon	0.234	0.571	23794
Alccon	0.008	0.089	23794
Gamcon	0.012	0.108	23794
Tobcon	0.006	0.079	23794
Milcon	0.052	0.224	23794
Nuccon	0.026	0.160	23794

Variables are as follows: *Comstr*, *Comcon* the KLD CSR measures for community relations strengths and concerns, respectively; *Divstr, Divcon*, the KLD CSR measures for diversity indicator strengths and concerns, respectively; *Empstr, Empcon*, the net KLD CSR measure for employee relations indicator strengths and concerns, respectively; *Envstr*, *Envcon* the net KLD CSR measure for environmental indicator strengths and concerns, respectively; *Prodstr, Procon*, the net KLD CSR measure for product indicator strengths and concerns, respectively; *Alcon*, the KLD indicator for alcohol concerns; *Gamcon*, the KLD indicator for gambling concerns; *Tobcon*, the KLD indicator for Tobacco concerns; *Milcon*, the KLD indicator for military concerns; and *Nuccon*, the KLD indicator for nuclear concerns.

Table 1b Maximum and Minimum Scores for each indicator

Variable	Min	Max
comstr	0	5
comcon	0	3
divstr	0	7
divcon	0	2
empstr	0	5
empcon	0	4
envstr	0	4
envcon	0	6
prostr	0	3
procon	0	4

Table2 Pearson Correlation Coefficients

Var	Comstr	Comcon	Divstr	Divcon	Empstr	Empcon	Envstr	Envcon	Prostr	Procon	Alccon	Gamcon	Tobcon	Milcon	Nuccon	Adv_Exp	R&D_Exp
Comstr	1.00																
Comcon	0.15	1.00															
Divstr	0.44	0.15	1.00														
Divcon	-0.07	-0.01	-0.18	1.00													
Empstr	0.25	0.17	0.31	-0.08	1.00												
Empcon	0.03	0.10	0.12	0.08	0.06	1.00											
Envstr	0.22	0.16	0.25	-0.08	0.30	0.10	1.00										
Envcon	0.13	0.35	0.12	-0.05	0.25	0.19	0.31	1.00									
Prostr	0.15	0.03	0.21	-0.04	0.27	0.04	0.22	0.06	1.00								
Procon	0.28	0.23	0.32	-0.02	0.15	0.14	0.16	0.28	0.09	1.00							
Alccon	0.06	0.01	0.05	0.00	0.00	0.02	0.04	0.03	-0.02	0.07	1.00						
Gamcon	0.00	-0.02	0.01	0.02	-0.01	0.00	-0.02	-0.02	-0.02	0.01	0.01	1.00					
Tobcon	0.04	0.01	0.02	-0.01	0.01	0.02	-0.02	0.00	-0.01	0.19	0.20	0.04	1.00				
Milcon	0.07	0.05	0.05	0.03	0.11	0.05	0.13	0.17	0.10	0.08	-0.02	-0.01	-0.01	1.00			
Nuccon	0.05	0.15	0.05	-0.05	0.04	0.03	0.11	0.29	0.02	0.12	-0.01	-0.02	-0.01	0.06	1.00		
Adv_Exp	0.13	-0.03	0.14	-0.04	0.01	0.05	0.04	-0.02	-0.01	0.07	0.18	0.01	0.02	-0.04	-0.04	1.00	
R&D_Exp	0.07	-0.03	0.11	-0.04	0.17	0.02	0.16	0.10	0.17	0.07	-0.03	-0.03	0.00	0.25	-0.04	0.02	1.00

The table shows correlations between KLD indicators (defined in Table 1) and advertising expenditures (*Adv_exp*) and Research and Development Expenditure (*R&D_exp*). Where the latter figures are not given in *Compustat*, they are assumed to be zero.

Table 3, Panel A: Returns regressions for equally-weighted portfolios

Community	Green	Toxic	Long-short	IA Green	IA Toxic	IA Long-Short
mktrf	0.94	0.98	-0.04	0.10	0.15	-0.05
	(35.30) ***	(21.56) ***	(-0.94)	(2.49) **	(3.79) ***	(-1.59)
smb	0.10	0.09	0.00	-0.54	-0.45	-0.09
	(2.87) ***	(1.56)	(0.09)	(-9.38) ***	(-7.80) ***	(-2.39) **
hml	0.51	0.65	-0.13	0.22	0.18	0.04
	(14.11) ***	(9.45) ***	(-2.11) **	(3.37) ***	(3.33) ***	(0.89)
mom	-0.15	-0.16	0.00	0.06	0.02	0.04
	(-6.71) ***	(-3.72) ***	(0.11)	(1.11)	(0.46)	(1.41)
_cons	0.14	0.01	0.13	-0.05	-0.13	0.08
	(1.32)	(0.03)	(0.78)	(-0.29)	(-0.78)	(0.66)
R2	0.90	0.79	0.04	0.56	0.41	0.10
Diversity	**Green**	**Toxic**	**Long-short**	**IA Green**	**IA Toxic**	**IA Long-Short**
mktrf	1.03	1.07	-0.04	0.14	0.11	0.03
	(45.28) ***	(29.96) ***	(-1.16)	(3.79) ***	(3.06) ***	(1.14)
smb	0.16	0.33	-0.18	-0.54	-0.36	-0.18
	(4.57) ***	(6.12) ***	(-3.89) ***	(-10.40) ***	(-6.12) ***	(-4.97) ***
hml	0.39	0.39	0.00	0.17	0.10	0.07
	(9.96) ***	(6.82) ***	(-0.07)	(2.94) ***	(1.61)	(1.72) *
mom	-0.20	-0.24	0.04	0.04	-0.02	0.06
	(-6.81) ***	(-7.72) ***	(1.05)	(0.70)	(-0.71)	(1.51)
_cons	0.15	0.15	0.01	-0.11	-0.09	-0.03
	(1.53)	(1.11)	(0.05)	(-0.74)	(-0.57)	(-0.23)
R^2	0.93	0.90	0.15	0.58	0.31	0.21
Employee	**Green**	**Toxic**	**Long-short**	**IA Green**	**IA Toxic**	**IA Long-Short**
mktrf	1.02	1.08	-0.06	0.13	0.15	-0.02
	(39.53) ***	(31.28) ***	(-2.13) **	(3.35) ***	(3.41) ***	(-0.87)
smb	0.18	0.23	-0.06	-0.52	-0.47	-0.06
	(4.54) ***	(4.80) ***	(-1.47)	(-9.86) ***	(-6.92) ***	(-1.68) *
hml	0.39	0.44	-0.05	0.14	0.18	-0.04
	(10.53) ***	(6.24) ***	(-0.99)	(2.38) **	(2.47) **	(-0.77)
mom	-0.19	-0.27	0.08	0.02	0.00	0.03
	(-10.21) ***	(-7.54) ***	(2.90) ***	(0.52)	(-0.07)	(1.15)
_cons	0.17	0.09	0.07	-0.09	-0.19	0.09
	(1.87)*	(0.69)	(0.65)	(-0.66)	-1.06	(0.91)
R^2	0.94	0.90	0.14	0.54	0.43	0.04

Environment	Green	Toxic	Long-short	IA Green	IA Toxic	IA Long-Short
mktrf	0.98	1.04	-0.06	0.06	0.11	-0.05
	(23.65) ***	*(22.12)* ***	*(-1.87)* *	*(1.66)* *	*(2.80)* ***	*(-1.58)*
smb	0.24	0.11**	0.13	-0.44	-0.46	0.02
	(4.64) ***	*(2.05)*	*(3.04)* ***	*(-6.91)* ***	*(-7.52)* ***	*(0.57)*
hml	0.46	0.68	-0.22	0.16	0.20	-0.04
	(8.24) ***	*(9.72)* ***	*(-4.79)* ***	*(2.84)* ***	*(3.77)* ***	*(-1.00)*
mom	-0.15	-0.13	-0.02	0.04	0.02	0.02
	(-4.64) ***	*(-2.63)* ***	*(-0.58)*	*(0.96)*	*(0.50)*	*(0.62)*
_cons	0.06	-0.06	0.12	-0.11	-0.23	0.12
	(0.45)	*(-0.38)*	*(0.92)*	*(-0.78)*	*(-1.68)* *	*(1.10)*
R^2	0.86	0.85	0.20	0.45	0.54	0.03
Product	**Green**	**Toxic**	**Long-short**	**IA Green**	**IA Toxic**	**IA Long-Short**
mktrf	1.06	0.95	0.11	0.08	0.08	0.00
	(29.72) ***	*(33.49)* ***	*(3.08)* ***	*(1.78)* *	*(2.18)* **	*(0.14)*
smb	0.26	0.04	0.22	-0.55	-0.61	0.06
	(4.71) ***	*(1.15)*	*(4.95)* ***	*(-8.31)* ***	*(-11.86)* ***	*(1.62)*
hml	0.31	0.52	-0.21	0.12	0.21	-0.09
	(6.68) ***	*(9.94)* ***	*(-4.36)* ***	*(1.61)*	*(4.18)* ***	*(-1.66)* *
mom	-0.15	-0.17	0.02	0.10	0.01	0.09
	(-5.88) ***	*(-6.87)* ***	*(0.99)*	*(1.78)* *	*(0.37)*	*(2.97)* ***
_cons	0.21	0.19	0.01	-0.07	-0.08	0.01
	(1.66) *	*(1.86)* *	*(0.10)*	*(-0.38)*	*(-0.57)*	*(0.09)*
R^2	0.89	0.91	0.38	0.45	0.67	0.15

Table 3, Panel B: Returns regressions for value-weighted portfolios

Community	Green	Toxic	Long-short	IA Green	IA Toxic	IA Long-Short
mktrf	0.87	0.95	-0.08	-0.05	0.03	-0.09
	(36.30) ***	*(19.32)* ***	*(-1.49)*	*(-3.29)* ***	*(1.20)*	*(-2.68)* ***
smb	-0.21	-0.21	0.00	-0.08	-0.08	0.00
	(-5.47) ***	*(-2.79)* ***	*(0.02)*	*(-3.39)* ***	*(-1.63)*	*(0.05)*
hml	0.08	0.38	-0.30	0.06	0.10	-0.04
	(2.58) **	*(5.42)* ***	*(-3.79)* ***	*(3.11)* ***	*(2.40)* **	*(-0.77)*
mom	-0.07	-0.03	-0.04	-0.03	-0.01	-0.02
	(-2.83) ***	*(-0.71)*	*(-0.88)*	*(-1.86)* *	*(-0.48)*	*(-0.85)*
_cons	0.12	0.05	0.07	0.07	0.03	0.04
	(1.29)	*(0.26)*	*(0.29)*	*(1.21)*	*(0.28)*	*(0.29)*
R2	0.90	0.70	0.09	0.36	0.10	0.03
Diversity	**Green**	**Toxic**	**Long-short**	**IA Green**	**IA Toxic**	**IA Long-Short**
mktrf	0.95	1.08	-0.12	-0.01	0.06	-0.07
	(60.15) ***	*(27.41)* ***	*(-2.81)* ***	*(-1.05)*	*(2.39)* **	*(-2.64)* ***
smb	-0.22	0.04	-0.27	-0.15	0.02	-0.17
	(-11.52) ***	*(0.94)*	*(-4.96)* ***	*(-9.75)* ***	*(0.66)*	*(-3.69)* ***
hml	-0.05	0.16	-0.22	0.02	0.02	0.00
	(-2.33) **	*(3.65)* ***	*(-4.04)* ***	*(1.72)* *	*(0.72)*	*(0.09)*
mom	-0.02	-0.07	0.06	-0.01	-0.06	0.05
	(-1.14)	*(-2.54)* **	*(1.48)*	*(-1.61)*	*(-2.84)* ***	*(1.90)* *
_cons	0.13	-0.08	0.20	0.06	-0.10	0.16
	(2.00) **	*(-0.58)*	*(1.30)*	*(1.52)*	*(-1.00)*	*(1.48)*
R^2	0.95	0.87	0.23	0.50	0.11	0.22
Employee	**Green**	**Toxic**	**Long-short**	**IA Green**	**IA Toxic**	**IA Long-Short**
mktrf	0.98	0.96	0.02	-0.02	0.01	-0.03
	(39.02) ***	*(29.48)* ***	*(0.53)*	*(-1.08)*	*(0.58)*	*(-1.22)*
smb	-0.22	-0.20	-0.02	-0.16	-0.09	-0.07
	(-7.69) ***	*(-5.40)* ***	*(-0.46)*	*(-7.29)* ***	*(-4.05)* ***	*(-2.38)* **
hml	-0.11	0.23	-0.34	0.01	0.13	-0.12
	(-3.34) ***	*(6.07)* ***	*(-6.46)* ***	*(0.25)*	*(5.50)* ***	*(-3.77)* ***
mom	-0.02	-0.09	0.07	-0.02	-0.04	0.02
	(-1.20)	*(-3.01)* ***	*(1.87)* *	*(-1.38)*	*(-2.16)* **	*(0.69)*
_cons	0.20	-0.03	0.23	0.11	-0.03	0.13
	(2.31) **	*-0.29*	*1.61*	*(1.83)* *	*-0.37*	*1.47*
R^2	0.94	0.90	0.33	0.39	0.37	0.12

Environment	Green	Toxic	Long-short	IA Green	IA Toxic	IA Long-Short
mktrf	1.03	0.90	0.13	0.00	0.01	0.00
	(25.08) ***	*(28.05)* ***	*(2.36)* **	*(0.07)*	*(0.31)*	*(-0.09)*
smb	-0.14	-0.28	0.14	-0.15	-0.10	-0.05
	(-2.85) ***	*(-8.07)* ***	*(1.98)* **	*(-3.75)* ***	*(-5.11)* ***	*(-1.16)*
hml	-0.09	0.20	-0.29	0.07	0.03	0.04
	(-1.67) *	*(4.48)* ***	*(-3.44)* ***	*(1.73)* *	*(1.42)*	*(0.74)*
mom	-0.08	0.05	-0.12	-0.02	0.02	-0.04
	(-2.89) ***	*(2.12)* **	*(-3.15)* ***	*(-0.96)*	*(1.18)*	*(-1.27)*
_cons	0.04	0.13	-0.09	-0.01	-0.01	0.01
	(0.28)	*(1.26)*	*(-0.45)*	*(-0.07)*	*(-0.19)*	*(0.04)*
R^2	0.83	0.85	0.24	0.18	0.17	0.04
Product	**Green**	**Toxic**	**Long-short**	**IA Green**	**IA Toxic**	**IA Long-Short**
mktrf	1.05	0.86	0.19	-0.04	-0.03	-0.01
	(28.27) ***	*(37.41)* ***	*(4.06)* ***	*(-1.41)*	*(-2.62)* ***	*(-0.19)*
smb	-0.01	-0.30	0.30	-0.10	-0.14	0.04
	(-0.16)	*(-13.10)* ***	*(5.77)* ***	*(-2.85)* ***	*(-9.61)* ***	*(1.02)*
hml	-0.16	0.20	-0.36	0.02	0.05	-0.03
	(-3.70) ***	*(6.11)* ***	*(-5.97)* ***	*(0.49)*	*(3.49)* ***	*(-0.80)*
mom	-0.07	-0.01	-0.05	-0.03	-0.02	-0.01
	(-2.33) **	*(-0.65)*	*(-1.35)*	*(-1.45)*	*(-1.61)*	*(-0.32)*
_cons	0.04	0.11	-0.07	-0.05	0.07	-0.11
	(0.29)	*(1.31)*	*(-0.39)*	*(-0.47)*	*(1.48)*	*(-1.00)*
R^2	0.86	0.91	0.48	0.11	0.59	0.02

The table shows the results of regressing the returns to a portfolio of stocks formed on the basis of their CSR strengths and concerns. “Green” stocks are those with only strengths; “Toxic” stocks are those with only concerns; long-short is a portfolio long in Green stocks and short in Toxic stocks. The first three columns show the result of running simple stock portfolio returns minus the risk free rate as the dependent variable on the four-factor model: $R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + w_p MOM_t + \varepsilon_{pit}$; The second three columns show the result of running an industry adjusted portfolio returns as the dependent variable on the four factor model: $R_{pt} - R_{pjtt} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + w_p MOM_t + \varepsilon_{pit}$. Panel A, uses equally-weighted returns and Panel B uses value-weighted returns. t-statistics are in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% percent level respectively.

Table 4: Regressions for "overall" CSR Indicator

	Equally Weighted Strong-Weak	I.A. Equally Weighted Strong-Weak	Equally Weighted Green-Toxic	I.A. Equally Weighted Green-Toxic
mktrf	-0.02	0	-0.06	-0.02
	(-1.11)	(-0.15)	(-2.43) **	(-0.67)
smb	-0.01	-0.06	-0.03	-0.04
	(-0.49)	(-2.74) ***	(-1.03)	(-1.42)
hml	-0.14	-0.02	-0.06	0.03
	(-4.97) ***	(-0.87)	(-1.79) *	(0.85)
mom	0.02	0.04	0.06	0.09
	(0.91)	(3.21) ***	(3.34) ***	(4.80) ***
_cons	0.13	0.1	0.04	0.03
	(1.4)	(1.32)	(0.36)	(0.32)
R^2	0.11	0.07	0.11	0.12
	Value Weighted Strong-Weak	**I.A. Value Weighted Strong-Weak**	**Value Weighted Green-Toxic**	**I.A. Value Weighted Green-Toxic**
mktrf	0.04	0	0.02	-0.04
	(1.21)	(-0.14)	(0.53)	(-1.65) *
smb	0.06	-0.03	0.03	-0.04
	(1.38)	(-1.72) *	(0.58)	(-1.28)
hml	-0.26	-0.05	-0.25	-0.03
	(-6.01) ***	(-2.40) **	(-5.38)***	(-0.96)
mom	-0.05	0	0.09	0.09
	(-2.01) **	(0.06)	(3.08) ***	(4.49) ***
_cons	0.07	0.09	0	-0.03
	(0.52)	(1.52)	(-0.02)	(-0.28)
R^2	0.24	0.01	0.2	0.13

The table shows the results of the regressing the returns to a portfolio of stocks formed on the basis of their overall CSR strengths and concerns. Results are shown for the portfolio long in high CSR, short in low CSR stocks. In the first two columns, "Strong" stocks are those with total strengths greater than the median, whilst "Weak" stocks are those with concerns greater than the median. In the second two columns, "Green" stocks are those with only strengths and no concerns; "Toxic" stocks are those with only concerns and no strengths. In each case the first column shows the result of running simple stock portfolios minus the risk free rate as the dependent variable on the four-factor model: $R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + w_p MOM_t + \varepsilon_{pit}$; The second column shows the result of running an industry adjusted portfolio returns on the four factor model: $R_{pt} - R_{pjtt} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + w_p MOM_t + \varepsilon_{pit}$. t-statistics are in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% percent level respectively.

Table 5: Regressions of price on book value, net income, intangible expenditures and KLD strengths and concerns

Var	Coef't	p-val	Coef't	p-val	Coef't	p-val	Coef't	p-val	Coef't	p-val	Coef't	p-val
BV	0.888	0.000	0.890	0.000	0.891	0.000	0.887	0.000	0.891	0.000	0.889	0.000
	(0.083)		(0.084)		(0.083)		(0.083)		(0.087)		(0.082)	
NI	4.521	0.000	4.514	0.000	4.516	0.000	4.542	0.000	4.532	0.000	4.503	0.000
	(0.669)		(0.665)		(0.663)		(0.661)		(0.690)		(0.667)	
Adv_exp	0.102	0.784	0.117	0.761	0.252	0.514	0.220	0.574	0.020	0.962	0.260	0.493
	(0.373)		(0.384)		(0.386)		(0.390)		(0.424)		(0.379)	
R&D_exp	2.678	0.004	2.626	0.003	2.665	0.003	2.800	0.003	3.903	0.000	2.436	0.006
	(0.920)		(0.892)		(0.902)		(0.932)		(0.973)		(0.895)	
Com Strs	2.452	0.001										
	(0.738)											
Com Cons	-0.363	0.622										
	(0.737)											
Div Strs			1.381	0.000								
			(0.344)									
Div Con			-1.544	0.013								
			(0.619)									
Emp Strs					2.514	0.000						
					(0.480)							
Emp Con					-1.166	0.034						
					(0.549)							
Env Strs							1.780	0.001				
							(0.535)					
Env Con							-0.015	0.970				
							(0.397)					
Pro Strs									7.602	0.000		
									(1.793)			
Pro Con									1.262	0.001		
									(0.387)			
Over Str											1.249	0.000
											(0.201)	
Over Cons											-0.568	0.004
											(0.208)	
R^2	0.682		0.683		0.683		0.681		0.684		0.684	

The Table shows the result of regressing June price of year t on net book value (NBV) and net income (NI) for financial year ended t-1, together with advertising expenditures (*Adv_exp*), Research and Development Expenditures (*R&D_exp*) and the KLD strength and concern indicators (defined in Table 1). Robust standard errors from the two-way cluster approach of Petersen (2009) are shown in parentheses, whilst the right hand column for each regression shows p-values to the nearest three decimal places. All regressions include dummy variables reflecting membership of the Fama-French 48 industry groups

Table 6: Regressions of price on book value, net income, intangible expenditures and dummy variables for KLD strengths and concerns

Var	Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val	Coef	p-val
BV	0.887	0.000	0.888	0.000	0.891	0.000	0.886	0.000	0.887	0.000
	(0.083)		(0.083)		(0.083)		(0.083)		(0.083)	
NI	4.535	0.000	4.532	0.000	4.522	0.000	4.549	0.000	4.530	0.000
	(0.666)		(0.662)		(0.663)		(0.660)		(0.665)	
Adv_exp	0.135	0.723	0.149	0.698	0.242	0.530	0.222	0.567	0.253	0.507
	(0.381)		(0.383)		(0.385)		(0.389)		(0.381)	
R&D_exp	2.729	0.003	2.681	0.003	2.689	0.003	2.883	0.001	2.693	0.003
	(0.918)		(0.904)		(0.894)		(0.907)		(0.922)	
Com_G	3.380	0.003								
	(1.153)									
Com_T	-0.818	0.349								
	(0.874)									
Div_G			2.142	0.001						
			(0.630)							
Div_T			-1.845	0.006						
			(0.677)							
Emp_G					3.730	0.000				
					(0.681)					
Emp_T					-1.545	0.013				
					(0.621)					
Env_G							2.531	0.003		
							(0.841)			
Env_T							0.575	0.459		
							(0.776)			
Pro_G									7.204	0.001
									(2.227)	
Pro_T									1.297	0.032
									(0.605)	
R^2	0.682		0.682		0.683		0.681		0.683	

The Table shows the result of regressing June price of year t on net book value (NBV) and net income (NI) for financial year ended t-1, together with advertising expenditures (*Adv_exp*), Research and Development Expenditures (*R&D_exp*) and dummy variables for the KLD strength and concern indicators defined using the Fernando et al. (2010) classifications for each CSR indicator. For each CSR indicator firms are classified as "Green" (_G) if they have only strengths, and "Toxic" (_T) if they have only weaknesses. Robust standard errors from the two-way cluster approach of Petersen (2009) are shown in parentheses, whilst the right hand column for each regression shows p-values to the nearest three decimal places. All regressions include dummy variables reflecting membership of the Fama-French 48 industry groups.

Table 7: **Regressions of price on book value, net income, intangible expenditures and dummy variables for overall KLD strengths and concerns**

Variable	Coef't	p-value	Coef't	p-value
BV	0.888	0.000	0.887	0.000
	(0.083)		(0.084)	
NI	4.539	0.000	4.532	0.000
	(0.662)		(0.661)	
Adv_exp	0.192	0.622	0.189	0.622
	(0.390)		(0.383)	
R&D_exp	2.742	0.002	2.607	0.006
	(0.902)		(0.940)	
green	0.859	0.132	0.885	0.120
	(0.571)		(0.569)	
toxic	-2.559	0.000	-2.557	0.000
	(0.636)		(0.624)	
alccon			3.521	0.418
			(4.351)	
gamcon			2.049	0.170
			(1.494)	
tobcon			-2.623	0.432
			(3.340)	
milcon			2.331	0.073
			(1.298)	
nuccon			-1.281	0.207
			(1.015)	
R^2	0.682		0.682	

The Table shows the result of regressing June price of year t on net book value (NBV) and net income (NI) for financial year ended t-1, together with advertising expenditures (*Adv_exp*), Research and Development Expenditures (*R&D_exp*) and dummy variables for the KLD strength and concern indicators defined using the Fernando et al. (2010) classifications. Here, *green* denotes firms are if they have only strengths overall, and *toxic* denotes firms if they have only weaknesses overall. Robust standard errors from the two-way cluster approach of Petersen (2009) are shown in parentheses, whilst the right hand column for each regression shows p-values to the nearest three decimal places. All regressions include dummy variables reflecting membership of the Fama-French 48 industry groups.

Table 8: Analysts' Short Term Return on Equity Forecasts

Variable Category	ROE1 Positive	ROE1 Negative	ROE1 Difference	CA ROE1 Difference	ROE2 Positive	ROE2 Negative	ROE2 Difference	CA ROE2 Difference
Com	14.8%	14.2%	0.7%	-0.02%	14.5%	14.4%	0.1%	-0.39%
			0.154	0.724			0.755	0.559
Div	14.7%	12.5%	2.2%	0.46%	14.9%	13.6%	1.3%	0.61%
			0.000	0.190			0.000	0.035
Emp	14.5%	13.2%	1.3%	0.36%	14.5%	14.3%	0.2%	-0.07%
			0.000	0.419			0.372	0.860
Env	12.9%	14.1%	-1.3%	-0.34%	13.2%	14.4%	-1.2%	-0.83%
			0.002	0.604			0.000	0.157
Pro	12.7%	15.4%	-2.6%	-1.12%	13.3%	15.1%	-1.9%	-1.30%
			0.000	0.169			0.000	0.0.072
Overall	13.8%	13.3%	0.5%	-0.03%	14.1%	14.1%	-0.1%	-0.27%
			0.023	0.929			0.657	0.406

The table shows the result of analysing the forecast return on equity (ROE) implied by IBES earnings estimates on portfolios formed on the basis of positive (Pos) and Negative (Neg) net CSR scores each year. The base estimates show the actual growth estimates without considering industry effects, whilst the Control-adjusted (CA ROE) differences show the effect from a regression when size (log of sales), advertising expenditures, R&D expenditures and membership of the Fama-French 48 industry groups is controlled for. Figures in italics under row differences are p-values, calculated using simple t-tests for differences in the raw estimates, and a F-test for the regression adjusted estimates. N=18,364 observations.

Table 9: Analysts' Consensus Medium Term Growth Estimates by CSR Category

CSR Group	Community	Diversity	Employee	Environment	Product	Overall
Net negative	10.88%	15.59%	14.33%	10.80%	11.88%	14.12%
Net positive	11.68%	13.52%	13.38%	12.64%	14.75%	13.67%
Zero	14.74%	13.59%	14.14%	14.75%	14.50%	14.45%
Pos - Neg	0.81%	-2.07%	-0.95%	1.83%	2.87%	-0.45%
p-val of diff	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diff net of controls	0.52%	-0.02%	0.37%	0.49%	1.12%	0.08%
p-val of diff	(0.097)	(0.925)	(0.107)	(0.087)	(0.006)	(0.668)
Gray	10.41%	13.75%	13.06%	10.07%	12.67%	12.95%
Green	11.81%	13.65%	13.46%	12.78%	14.78%	14.14%
Neutral	14.81%	13.45%	14.22%	14.92%	14.54%	14.86%
Toxic	10.90%	15.61%	14.45%	11.10%	11.86%	15.00%
Green-Toxic	0.91%	-1.96%	-0.99%	1.68%	2.91%	-0.86%
p-val	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diff net of controls	0.54%	-0.02%	0.38%	0.66%	1.12%	-0.02%
p-val of diff	(0.085)	(0.937)	(0.085)	(0.030)	(0.006)	(0.943)

The table shows the result of analysing the IBES analysts' consensus medium term earnings growth estimates portfolios formed on the basis of positive (Pos) and Negative (Neg) net CSR scores each year, and for portfolios formed of firms with only positive CSR scores in that dimension and no negative scores in that dimension, together with firms with no scores ("Neutral") and mixed scores ("Gray") in that dimension. The base estimates show the actual growth estimates without considering industry effects, whilst the Control-adjusted (CA ROE) differences show the effect from a regression when size (log of sales), advertising expenditures, R&D expenditures and membership of the Fama-French 48 industry groups is controlled for. Figures in parentheses under row differences are p-values, calculated using simple t-tests for differences in the raw estimates, and a F-test for the regression adjusted estimates. N=18,364 observations.

Table 10: Implied Long Run Growth Estimates by CSR Category

CSR Group	Community	Diversity	Employee	Environment	Product	Overall
Net negative	-10.50%	-6.00%	-6.70%	-7.30%	-8.00%	-6.60%
Net positive	-5.00%	-5.50%	-4.00%	-3.80%	-0.80%	-4.40%
Zero	-5.30%	-5.40%	-5.60%	-5.50%	-5.40%	-5.30%
Pos - Neg	**5.50%**	**0.50%**	**2.80%**	**3.50%**	**7.20%**	**2.30%**
p-val of diff	(0.000)	(0.180)	(0.000)	(0.000)	(0.000)	(0.000)
Diff net of controls	**3.86%**	**1.26%**	**2.54%**	**1.82%**	**5.26%**	**2.33%**
p-val of diff	(0.028)	(0.035)	(0.092)	(0..077)	(0.001)	(0.055)
Gray	-9.10%	-6.70%	-6.90%	-6.10%	-3.60%	-5.80%
Green	-4.50%	-5.20%	-3.70%	-3.80%	-0.80%	-3.50%
Neutral	-5.30%	-5.50%	-5.50%	-5.40%	-5.40%	-5.40%
Toxic	-10.60%	-6.00%	-6.50%	-7.40%	-8.20%	-6.70%
Green-Toxic	**6.10%**	**0.80%**	**2.80%**	**3.60%**	**7.40%**	**3.20%**
p-val	(0.000)	(0.020)	(0.000)	(0.000)	(0.000)	(0.000)
Diff net of controls	**4.36%**	**1.56%**	**2.54%**	**2.01%**	**5.29%**	**3.26%**
p-val of diff	(0.017)	(0.013)	(0.105)	(0.074)	(0.001)	(0.009)

The table shows the result of analysing the implied long run residual income (or abnormal earnings) growth estimates portfolios formed on the basis of positive (Pos) and Negative (Neg) net CSR scores each year, and for portfolios formed of firms with only positive CSR scores in at least one dimension, and no negative scores in any dimension (“Green” firms) and firms with only negative CSR scores in at least one dimension, and no positive scores in any dimension (“Toxic” firms), together with firms with no scores (“Neutral”) and mixed scores (“Gray”). The raw estimates show the actual growth estimates without considering industry effects, whilst the control-adjusted differences show the effect from a regression when size (log of sales), advertising expenditures, R&D expenditures and membership of the Fama-French 48 industry groups is controlled for. Figures in parentheses under row differences are p-values, calculated using simple t-tests for differences in the raw estimates, and a F-test for the regression adjusted estimates. N=14,061 observations.

Table 11: Implied Cost of Capital Estimates by CSR Category

CSR Group	Community	Diversity	Employee	Environment	Product	Overall
Net negative	7.25%	7.00%	7.00%	6.83%	6.95%	6.98%
Net positive	6.28%	6.67%	6.25%	5.92%	5.60%	6.33%
Zero	6.67%	6.43%	6.62%	6.69%	6.67%	6.48%
Pos - Neg	-0.97%	-0.33%	-0.76%	-0.91%	-1.34%	-0.64%
p-val of diff	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diff net of controls	-0.83%	-0.22%	-0.70%	-0.91%	-1.33%	-0.66%
p-val of diff	(0.007)	(0.038)	(0.000)	(0.000)	(0.000)	(0.000)
Gray	7.29%	6.98%	6.82%	6.64%	6.51%	6.68%
Green	6.23%	6.61%	6.20%	5.86%	5.60%	6.20%
Neutral	6.66%	6.42%	6.61%	6.70%	6.67%	6.41%
Toxic	7.24%	7.00%	6.98%	6.85%	6.95%	7.05%
Green-Toxic	-1.01%	-0.39%	-0.78%	-0.99%	-1.35%	-0.86%
p-val	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diff net of controls	-0.88%	-0.28%	-0.71%	-1.00%	-1.33%	-0.82%
p-val of diff	(0.004)	(0.008)	(0.000)	(0.000)	(0.000)	(0.000)

The table shows the result of analysing the implied cost of capital (ICC) estimates for portfolios formed on the basis of positive (Pos) and Negative (Neg) net CSR scores each year, and for portfolios formed of firms with only positive CSR scores in at least one dimension, and no negative scores in any dimension ("Green" firms) and firms with only negative CSR scores in at least one dimension, and no positive scores in any dimension ("Toxic" firms), together with firms with no scores ("Neutral") and mixed scores ("Gray"). The raw estimates show the actual ICC estimates without considering industry effects, whilst the control-adjusted differences show the effect from a regression when size (log of sales), advertising expenditures, R&D expenditures and membership of the Fama-French 48 industry groups is controlled for. Figures in parentheses under row differences are p-values, calculated using simple t-tests for differences in the raw estimates, and a F-test for the regression adjusted estimates. N=16,913 observations.