

Are CSR Expenditures Affected by Investor Sentiment?

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Abstract

We use differences in market-to-book ratios between high and low corporate social responsibility (“CSR”) firms as a proxy for time-varying investor sentiment for CSR initiatives. We first validate this measure by documenting positive abnormal returns to CSR announcements during periods when investor sentiment is relatively high. We then provide evidence that firms respond to investor sentiment by showing that CSR expenditures are higher during periods when investor sentiment is high. This response is stronger for firms with more powerful incentives to respond to investor sentiment due to the investment horizon of the firm and the firm’s shareholders. Additional tests show that future stock returns are lower for firms that respond to investor sentiment, suggesting that CSR activities chosen in response to investor sentiment did not increase long-term shareholder value. Our results provide new insights into our understating of the dramatic increase in CSR-related activities over the last several years. We also extend the behavioral finance literature by showing that managers may undertake costly real actions, such as shifting capital investments toward CSR projects, in order to boost the firm’s short-term stock price.

JEL classification: M41, D82, G14, G30, G31, G32, G34

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1. Introduction

One of the most studied research questions in the area of corporate social responsibility (“CSR”) is whether social performance enhances financial performance. These studies often rely on the association between stock returns and a measure of CSR expenditures to assess the connection between social and financial performance. Since many CSR studies document a positive association between stock returns and CSR (Margolis, Elfenbein, and Walsh, 2009), there is a general consensus that CSR initiatives enhance firm value. However, a key unstated assumption in these studies is that markets are efficient. This critical assumption allows one to conclude that managers have undertaken actions that increase the long term fundamental value of the firm when there is a positive association between short term or contemporaneous stock returns and CSR performance.

We investigate whether this assumption of market efficiency has consequences for the conclusion that CSR expenditures increase firm value. Specifically, we investigate whether there is time varying investor sentiment toward CSR initiatives, and whether firms respond to this sentiment by boosting CSR related activities when sentiment is high. In other words, we suggest that investors may, at times, have a preference for firms to undertake CSR initiatives. To the extent that this preference results in a higher valuation for CSR firms, then the firm may respond by increasing CSR expenditures. Importantly, this sequence of events can lead to a positive association between short term stock returns and CSR expenditures even though such an association is not indicative of long term value creation.

The extant literature has shown that time varying sentiment exists for different types of financial policy choices and that firms are influenced by the variation in investor sentiment. For example, prior work has shown that dividends (Baker and Wurgler, 2004), equity issues (Pagano,

Panetta and Zingales, 1998), firm investment (Gilchrist, Himmelberg, and Huberman, 2005; Polk and Sapienza, 2009) and stock splits (Baker, Greenwood and Wurgler, 2009) are all influenced by investor sentiment. In each study, the authors document time variation in investor sentiment and find that firms respond to the variation in investor sentiment by portraying the firm in a manner that maximizes its appeal to sentiment-driven investors. As an example, firms are more likely to initiate dividends during periods when investor sentiment towards dividends is high, and suspend dividends during periods when investor sentiment towards dividends is low. We conjecture that a manager's decision to expend resources on CSR activities is based in part on this same goal—boosting the firm's short term stock price.

This paper has two primary findings. First, we document that there is time varying investor sentiment for CSR initiatives. We develop a CSR-specific measure of investor sentiment, and show that our measure predicts abnormal stock returns in short-window event studies. We follow the intuition of Baker and Wurgler (2004), who construct a sentiment measure for dividends based on the difference between the natural log of the average market-to-book ratios of dividend payers and nonpayers, and construct our CSR-specific measure of investor sentiment using the difference between the natural log of the average market-to-book ratios of high and low CSR firms. We refer to our measure as the CSR premium. A high value for CSR premium is consistent with strong investor preferences for CSR activities.

We validate this measure by conducting short-window event study tests to examine whether the market response to CSR announcements is differentially positive during periods when the CSR premium is high. Since these tests use daily stock returns, and since the announcement days are dispersed over time, these specifications provide a strong identification approach for establishing investor sentiment. Using a total of 4,385 press releases over our

sample period, we find a positive association between the announcement return and the market-level CSR premium. In other words, we document positive abnormal returns to CSR announcements during periods where the CSR premium is high relative to CSR announcements during periods where the CSR premium is low.

Second, we show that firms respond to investor sentiment by boosting CSR expenditures when sentiment is high. We develop a simple theoretical framework based on Stein (1996) that allows us to model how investor sentiment might affect a firm's level of CSR expenditures. Our framework indicates that a firm with sentiment-driven investors chooses between two conflicting goals. The first is to maximize the long term fundamental value of the firm by selecting initiatives that increase the rationally risk-adjusted present value of future cash flows. The second is to maximize the current stock price by undertaking activities that are currently favored by shareholders, even though those activities are not consistent with long term value creation. Based on this framework, we predict and then find a positive association between the market-level CSR premium and firm-level excess CSR expenditures.

Our framework also provides two cross sectional predictions. First, a rational manager who is responding to shareholder preferences will assign less weight to boosting the short term stock price through CSR initiatives when shareholders have long horizons. Second, a rational manager will be more willing to undertake CSR initiatives when the price reversion associated with an overinvestment in CSR takes longer to occur. We conduct empirical tests where we use share turnover to proxy for shareholder horizons and R&D spending to proxy for the investment horizon of the firm. Consistent with our predictions, we find that firms with higher values of either share turnover or R&D spending boost CSR activities more in response to the CSR premium.

In additional tests, we also find that excess CSR is followed by a stock price reversion. This result provides strong corroborative evidence that our results are attributable to firms responding to investor sentiment. When a firm undertakes a CSR initiative in an effort to categorize itself as a high CSR firm, the consequence in our framework is that the firm is overvalued by investors. To the extent that this is true, excess CSR expenditures may forecast the returns on high CSR firms relative to low CSR firms, as stock prices eventually revert. Our results support this conclusion. We find a strong negative association between future returns and the market-level average of excess CSR expenditures.

We make several contributions to the literature. First, we extend the literature on the drivers of a firm's commitment to CSR initiatives by showing that a manager's perception of the value of these initiatives to investors is positively associated with the actual level of expenditures chosen by the manager. The extant literature has only considered firm-level or industry-level attributes, such as the types of customers or the regulatory environment. This link between CSR and behavioral finance provides potential insights into our understanding of the dramatic increase in the popularity of CSR related activities over the last several years. CSR has been an important part of the corporate landscape and of academic research for more than forty years. However, it is only since the financial crisis of 2007 that CSR has grown exponentially in importance, with significantly more shareholder attention,¹ and with most companies now producing standalone corporate accountability reports compared with a small minority in 2007.²

¹ For example, Ernst & Young, in a recent report entitled "Shareholders press boards on social and environmental risks", reported that shareholder proposals dealing with corporate responsibility have increased by approximately 30% over the 10-year period from 2000 to 2010. More notably, the average voting support for these types of proposals has increased from 7.5% in 2000 to 18.4% in 2010. In addition, 52.1% of the proposals received more than 10% support in 2010, compared with only 16.7% in 2000.

² <http://www.ga-institute.com/>

Second, our results make an important contribution to behavioral finance. We show that investor sentiment can be used to not only explain the overall level of corporate investment (e.g. Stein, 1996; Baker, Stein, Wurgler, 2003; Polk and Sapienza, 2009) but also specific types of investments. In particular, we show that managers are responding to the increased demand from shareholders for improved social and environmental performance. Our results also relate to studies where investor sentiment has resulted to the exponential growth of a particular practice, from the “tronics” boom of the 1960;’s to the more recent internet bubble of the late 1990’s. This paper extends this literature by showing that managers may undertake costly real actions, including changing the structure of the firm’s operations or shifting capital investments toward social and environmental projects, in order to boost the firm’s short term stock price.

Finally, our findings suggest that short term or contemporaneous stock returns may not be an ideal measure of whether a particular CSR initiative enhances the long term fundamental value of the firm. Since Friedman (1970) famously said that the only responsibility of a modern business is to earn legal profits, a number of critics have identified CSR activities that seem inconsistent with shareholder value.³ Proponents of CSR have generally rebutted these criticisms by highlighting the positive association between stock returns and a firm’s commitment to CSR. Our results suggest that while it may be true that CSR performance and stock returns are positively associated, the interpretation of that association is sensitive to the assumption of investor rationality and the period over which the association is measured.

³ Consider the following excerpt from Business Week, 2005: It’s 8:30am on a Friday in July, and Carol B. Tomé is starting to sweat. The chief financial officer of Home Depot Inc. isn’t getting ready to face a firing squad of investors or unveil troubled accounting at the home improvement giant. Instead, she and 200 other Home Depot employees are helping to build a playground replete with swings, slides, and a jungle gym at a local girls’ club in hardscrabble Marietta, Ga. ... Is this any way to build shareholder value at Home Depot, where the stock has been stuck near \$43, down 35% from its all-time high?

We proceed as follows. Section 2 provides the literature review and hypothesis development. We outline our research design in Section 3 and our data in Section 4. We present our results in Section 5, and then conclude in Section 6.

2. Literature Review and Hypothesis Development

Investor sentiment is a belief about future cash flows and investment risk that is not justified by the facts at hand (Baker and Wurgler, 2006, 2007). In other words, investor sentiment can be thought of as investor optimism or pessimism that is not justified by a stock's underlying fundamentals. Several studies have examined whether investor sentiment affects asset prices, and whether firms respond to investor sentiment. For example, Cooper, Dimitrov, and Rau (2001) identified an abnormal return of 74 percent for firms who replaced the firm's name with a dotcom name between June 1998 and July 1999, during the height of the internet bubble of the 1990s. These authors also documented that the decision to change the firm's name was often done primarily to boost the firm's stock price. In a subsequent study, Cooper et al. (2005) document that names were later used to dissociate companies from the internet sector when prices crashed. Between August 2000 and September 2001, firms that dropped their dotcom name saw a positive announcement effect of around 70 percent. The effect was almost as large for firms that dropped the dotcom name but kept an internet business focus, and for the double dippers which dropped the name they had newly adopted just a few years earlier. These studies indicate that when sentiment is extremely high or low, changes in stock prices are not representative of the underlying fundamentals.

Other related studies have examined aspects of financial policy, such as the payment of dividends (Baker and Wurgler, 2004), equity issues (Pagano, Panetta and Zingales, 1998), firm

investment (Gilchrist et al., 2005; Polk and Sapienza, 2009) and stock splits (Baker, Greenwood and Wurgler, 2009). While the returns in these studies are not nearly as economically significant as those in the Cooper et al. (2001) and Cooper et al. (2005) studies on name changes during and after the internet bubble, the overall conclusions are similar. Each study finds that there is time variation in investor sentiment for certain aspects of financial policy, and that firms respond to this variation in investor sentiment by portraying the firm in a manner that maximizes its appeal to sentiment-driven investors. As an example, firms are more likely to initiate dividends during periods when investor sentiment towards dividends is high, and suspend dividends during periods when investor sentiment towards dividends is low.

These studies suggest that a firm's decision to appeal to sentiment-driven investors reflects a tradeoff between two conflicting goals. The first is to maximize the long term fundamental value of the firm by selecting activities that increase the rationally risk-adjusted present value of future cash flows. The second goal is to maximize the current stock price by undertaking activities that are currently favored by sentiment-driven investors (e.g., Baker and Wurgler, 2012). We conjecture that this same framework can be used to evaluate a firm's decision to invest in CSR initiatives. To illustrate how sentiment can affect CSR expenditures, we present a simple theoretical framework based on the assumptions of rational managers and inefficient markets. This framework is based on Stein (1996), Baker and Wurgler (2004, 2013) and Polk and Sapienza (2009). For ease of interpretation, we ignore agency issues, taxes, financing and the costs of financial distress.

Suppose a firm spends capital K , with cost c , on CSR initiatives. Then, the fundamental value of the firm is $F(K) - K*c$, where F is increasing and concave. In efficient markets, maximizing the market value of the firm is indistinguishable from the goal of maximizing

fundamental value. However, once the assumption of rational investors is relaxed, there is a deviation between the fundamental value and the market value of the firm due to the valuation premium associated with activities favored by sentiment-driven investors. We denote the market value of the firm as $M(K)$, and define it as follows:

$$M(K) = (1 + \theta_t) * F(K) \quad (1)$$

Where θ_t measures the extent to which the firm, through its stock price, deviates from fundamental value. Our first hypothesis is as follows:

H1: There is variation in the demand for CSR activities by investors over time and this variation in demand affects the market value of the firm (i.e., $\theta_t \neq 0$).

When investors prefer to own shares in a company that engages in CSR activities rather than the shares of a comparable firm that does not, and they are willing to pay a premium for this preference, then $\theta_t > 0$. This idea is similar to the intuition of studies examining the product market consequences of CSR activities, where consumers may use CSR as a way to differentiate between otherwise similar products (e.g., Bagnoli and Watts, 2003). We assume that the valuation premium disappears over time according to an exponential process.

$$\theta_t = \theta * e^{-\rho t} \quad (2)$$

Under this formulation, ρ represents the rate at which the valuation premium disappears. The manager's objective function then simply depends on the relative weights given to the two conflicting goals of maximizing the fundamental value and the market value of the firm. We can express this objective function as follows:

$$\max_K [\pi * F(K) + (1 - \pi) * M(K)] \quad (3)$$

The appropriate weighting chosen by the rational manager depends on the liquidation preferences of the firm's shareholders. For example, if shareholders never intend to sell their holdings, then $\pi = 1$, and the firm would only undertake actions that are based on fundamental value.

We assume that each shareholder will sell his shares at time t , where the arrival rate of the liquidation event follows a Poisson process with mean arrival rate φ . A small φ reflects a lower arrival rate and hence a longer period of time until liquidation, consistent with long horizon shareholders. Similarly, a high φ reflects a rapid arrival rate and hence short horizon shareholders. This assumption allows us to define the manager's objective function in terms of the expected utility of shareholder j as follows:

$$U_j^t = \int_{t=0}^{\infty} \varphi e^{-\varphi_j t} * M(K) dt - K * c \quad (4)$$

Differentiating with respect to K gives the optimal level of CSR expenditures for a rational manager operating in inefficient capital markets:

$$F'(K) = \frac{(\rho + \varphi) * c}{\rho + (1 + \theta) * \varphi} \quad (5)$$

When there is no valuation premium (i.e. $\theta = 0$), the goals of maximizing the fundamental value and the market value of the firm are indistinguishable. Under this condition, the optimal level of CSR expenditures is the value K^* that satisfies $F'(K^*) = c$. However, when shareholders assign a higher market value to a firm due to an irrational demand for CSR expenditures (i.e. $\theta > 0$), the manager will undertake CSR expenditures in excess of K^* . This leads to our second hypothesis:

H2: Firms increase (decrease) CSR expenditures when investor sentiment for CSR activities is high (low).

Equation (5) also provides two cross-sectional predictions. The incentive to overinvest is decreasing in the shareholders horizon (i.e. as φ increases) and increasing in the expected duration of the valuation premium (i.e. as ρ decreases). This leads to our final hypotheses:

H3A: Firms will increase CSR expenditures in response to investor sentiment for CSR activities more when the investor horizon is longer.

H3B: Firms will increase CSR expenditures in response to investor sentiment for CSR activities more when the expected duration of the valuation premium is longer.

We discuss these predictions in detail as part of our empirical design in the next section.

3. Research Design

This section proceeds in two parts. First, we outline how we calculate and validate CSR premium, our measure of investor sentiment for CSR related activities. Second, we outline how we examine whether firms change their CSR activities in response to investor sentiment.

3.1 Measuring Investment Sentiment

Our proxy for investor sentiment is CSR premium, which is defined as the difference between the logs of the top quintile of CSR expenditure firms and the bottom quintile of CSR expenditure firms' average market-to-book ratios. This measure follows from the intuition of Baker and Wurgler (2004), who construct a dividend premium variable based on the difference between the natural log of the average market-to-book ratios of dividend payers and nonpayers. The specific measure of CSR expenditures we use to identify firms as high or low is the component of CSR expenditures that is not explained by economic factors—what we refer to as excess CSR. Since this component of CSR expenditures is not associated with economic drivers of CSR expenditures, any valuation differences across firms due to differences in excess CSR are more likely to be driven by investor sentiment. This approach is similar to the one employed by Baker and Wurgler (2004), who develop a model that estimates the residual propensity to pay

dividends to control for time-varying investment opportunities. Therefore, our use of excess CSR mitigates concerns that our measure of sentiment will be correlated with overall changes in the economic environment.

We determine the allocation of total CSR expenditures to economic and non-economic factors using an approach similar to the one employed by Lys, Naughton and Wang (2014). This approach uses a regression of total CSR expenditures on a broad set of factors that are viewed as economic justifications for CSR expenditures. The fitted value from this regression is the component of CSR expenditures explained by economic factors, and the residual is the unexplained component. Even though we refer to the residual component as excess CSR, it consists of both positive and negative values, and has a mean of zero by construction.

We follow Lys et al. (2014) and include an extensive set of economic factors to estimate excess CSR. We include advertising and R&D expenses as firms with higher expenditures in these areas invest more heavily in CSR-related activities (Shane and Spicer, 1983; Wieser, 2005; McWilliams and Siegel, 2000). We include litigation expenses as CSR expenditures can act as reputation insurance (Peloza, 2006). We include the natural log of total assets to proxy for firm size as larger firms may have greater resources for CSR expenditures and, therefore, may attract greater pressure to engage in CSR-related activities (Wu, 2006; Teoh et al., 1999). We include a measure of the firm's overall corporate governance score because of the suggestion that corporate governance is associated with the scope and effectiveness of CSR expenditures (Johnson and Greening, 1999).

We include book leverage and market-to-book as stable firms with lower risk generally appear more likely to make CSR expenditures (Cochran and Wood, 1984; Orlitzky and Benjamin, 2001). We include the level of cash, cash flow from operations, and the asset turnover and

profitability components of return on assets to proxy for firm performance, which some suggest enables or gives rise to the external demand for CSR expenditures (Preston and O’Bannon, 1997; Campbell, 2007). Lastly, we include industry fixed effects due to the variation in environmental impact, growth prospects, disclosure requirements, and regulatory oversight in different industries, all of which are expected to affect the level of CSR expenditures (Karpoff et al., 2005; Griffin and Mahon, 1997; Spencer and Taylor, 1987).

We rank firms based on the estimate of excess CSR for each year. We calculate the CSR premium by subtracting the natural log of the average market-to-book ratio of the firms in the lowest quintile of excess CSR from the natural log of the average market-to-book ratio of the firms in the highest quintile of excess CSR. This approach follows from Polk and Sapienza (2009), who estimate investor sentiment for firm investment as the difference between the market-to-book ratio of the top and bottom quintile of firms based on abnormal investment. We validate the CSR premium variable by investigating whether there are differential responses by investors to CSR activities during periods when the value of the CSR premium variable is high versus low. If the CSR premium variable captures investor sentiment toward CSR initiatives, then we expect that information about CSR initiatives will result in positive (negative) abnormal returns during periods when the CSR premium variable is high (low). We test this expectation using three day abnormal returns around CSR press releases using the following specification:

$$CAR_{i,j} = \theta_0 + \theta_1 PREM_t + \sum_{k=2}^5 \theta_k FACTORS_{i,t} + \epsilon \quad (6)$$

$CAR_{i,j}$ is the cumulative abnormal return for press release j by firm i ; $PREM_t$ is the CSR premium for period t ; and $FACTORS_{i,t}$ are the risk factors from the Carhart four-factor model for firm i in period t . To the extent that the CSR premium variable identifies periods where investors place a valuation premium on CSR activities, then there will be a positive (negative) abnormal

return in response to CSR announcements during periods when the CSR premium is high (low), which implies that $\theta_1 > 0$.

3.2 Firm Response to Investor Sentiment

We investigate whether firms respond to investor sentiment by regressing CSR expenditures on the lagged value of the CSR premium. The specification we employ is as follows:

$$CSR_t^e = \gamma_0 + \gamma_1 PREM_{t-1} + \epsilon \quad (7)$$

This equation tests whether the portion of CSR expenditures not explained by economic factors can be explained through investor sentiment. To the extent that CSR expenditures are positively associated with the lagged CSR premium, this implies that $\gamma_1 > 0$.

There are two cross sectional predictions that follow from the theoretical framework presented in Section 2. First, the incentive to overinvest will be stronger for firms with shorter investor horizons. Second, when it takes longer for the outcome of CSR expenditures to be realized, the firm has a greater incentive to overinvest in CSR since any valuation premium will persist for a longer period of time. We use share turnover, measured as the average over the fiscal year of the daily ratio of shares traded to shares outstanding, to proxy for the average holding period and hence the horizon of the firm's shareholders. We follow Polk and Sapienza (2009) and use R&D intensity to proxy for the expected duration of a firm's capital investments, since firms with higher levels of R&D intensity generally have longer term projects where cash inflows take longer to materialize. We assume that the cash flow patterns for CSR projects will generally follow those of the firm's other capital investments. The specification for each cross-sectional test is as follows:

$$CSR_t^e = \delta_{0a} + \delta_{1a}PREM_{t-1} + \delta_{2a}HI_TO_{t-1} + \delta_{3a}PREM_{t-1} * HI_TO_{t-1} + \epsilon \quad (8a)$$

$$CSR_t^e = \delta_{0b} + \delta_{1b}PREM_{t-1} + \delta_{2b}HI_R\&D_{t-1} + \delta_{3b}PREM_{t-1} * HI_R\&D_{t-1} + \epsilon \quad (8b)$$

To the extent that excess CSR expenditures are positively associated with the lagged CSR premium, this implies that $\delta_1 > 0$. Since our framework predicts that this effect should be stronger for firms with higher share turnover or greater R&D intensity, this implies $\delta_3 > 0$.

4. Data

We collect information on CSR initiatives from the Thomson Reuters ASSET4 database,⁴ which provides comprehensive CSR data for firms in the Russell 1000 starting with 2002.⁵ Our primary measure of CSR expenditures is the CSR score produced by Asset4 that only includes social and environmental factors,⁶ and does not reflect financial performance or corporate governance factors. We exclude financial and governance factors because we are focused on investor demand for social and environmental initiatives. Consistent with other studies, we assume that a firm's CSR score is directly related to a scaled measure of the firm's actual CSR expenditures (e.g. Margolis et al, 2009; Servaes and Tamayo, 2013; Lys et al., 2014). This assumption is reasonable, after we control for industry, because the level of disclosure and the types of CSR expenditures are relatively comparable within industries. In addition, disclosure is a necessary element of responding to investor sentiment since a firm responding to irrational investor preferences can only boost the short term stock price by making its actions publicly observable. Therefore, the use of the ASSET4 score to approximate CSR expenditures is

⁴ Founded in 2003, ASSET4 was a privately held Swiss-based firm until it was acquired by Thomson Reuters in 2009. The firm has collected data and scored firms on financial, governance, environmental and social dimensions since 2002.

⁵ ASSET4 data is not available for periods prior to 2002, nor could we locate reliable CSR data for periods prior to 2002 from another source. This relatively short time series reduces the power of our tests.

⁶ A description of the social and environmental factors, as outlined in the Asset4 documentation, is provided in Appendix B.

especially appropriate in our setting as ASSET4's process only uses publicly available CSR information.⁷

We collect information on firm press releases using CSRwire, the leading global source of CSR and sustainability news. For each firm in our sample, we collect information on every CSR-related press release that occurred during our sample period. We use the description of the press release that was selected by the company and CSRwire at the time of its publication to identify those releases that are related to environmental or social initiatives.⁸ This results in 4,385 press releases, of which 1,491 focus on environmental issues and 3,327 focus on social issues. The sum of the separate environmental and social numbers is greater than the combined total because there are some news releases which cover both environmental and social issues.

In Table 1 we report the number of firms in our sample by year and by industry. Our sample encompasses a broad cross section of industries. In addition, our sample grows over the period, consistent with the increased demand for CSR related measures. In our tests, we use the entire sample, and run robustness tests to confirm that our results are qualitatively unchanged for a group of firms that are in the sample each period. For each firm-year observation, we collect financial data from COMPUSTAT and stock return information from CRSP. We truncate all continuous variables at the first and 99th percentile. Appendix A provides the definition and measurement of the variables we use.

⁷ Research analysts of ASSET4 collect more than 900 evaluation points per firm, where all the primary data used must be objective and publicly available. Typical sources include stock exchange filings, annual financial and sustainability reports, nongovernmental organizations' websites, and various news sources. Each firm takes one analyst approximately one week to evaluate.

⁸ The press releases we identify as Environmental use the following categories on CSRwire: "Clean Technology", "Environment", "Green Building", "Green Jobs & Career News", "Green Products & Services", "Renewable & Alternative Energy", or "Sustainability." The press releases we identify as Social use the following categories on CSRwire: "Community Development", "Corporate Social Responsibility", "Philanthropy & Corporate Contributions", "Volunteerism", "Diversity & Human Resource", "Fair Trade & Supply Chain", "Health & Wellness", "Human Rights", and "Workplace Issues."

We report descriptive statistics in Table 2 for the variables used in the regression analyses. Panel A presents the firm-level variables. The firm-level CSR expenditures have a broad range and relatively high variability. For example, the environmental measure ranges from 0.09 to 0.97, with a standard deviation of 0.30. In addition, the firms in our sample are generally large and profitable. Only firms in the lowest quartile of profitability have negative income or negative operating cash flow. The median firm has total assets of approximately \$5.8 billion and income before extraordinary items of \$273 million, or 5% of total assets. Panel B presents the market-level variables. The CSR premium measure varies from -0.05 to 0.16 during our sample period.

We report the pair-wise Pearson correlations in Table 3 for the variables used in the regression analyses. As expected, the highest correlations are between overall *CSR* and its two components, *ENV* and *SOC*. The univariate correlations between the CSR measures and the firm specific explanatory variables are consistent with other studies that have examined the relation between social and financial performance. For example, advertising expenses, asset turnover, cash flow from operations, and corporate governance are positively correlated with most of the CSR measures. Even though cash holdings are negatively correlated with the CSR measures in univariate tests, they are generally positively correlated with the CSR measures when we control for other firm-specific CSR determinants.

By construction, excess CSR expenditures are uncorrelated with firm-specific CSR determinants, such as corporate governance measures and firm size. In the univariate tests, each excess CSR measure is positively correlated with its corresponding contemporaneous premium variable. For example, excess environmental expenditures are positively associated with the environmental premium. However, the relation is statistically significant only for the excess total CSR measure.

5. Results

5.1 Measuring Investor Sentiment

The first step in estimating the CSR premium, our measure of investor sentiment, is to calculate excess CSR by regressing total CSR on a set of economic determinants of CSR expenditures. The results of this regression are presented in Table 4. The coefficient on the each explanatory variable is consistent with our expectations and with prior research. The results in Table 4 indicate that higher levels of CSR expenditures are associated with: higher levels of cash (the coefficients on *CASH* and *CFO* are positive, and the coefficient on *CFO* is also statistically significant); lower levels of book leverage (the coefficient is negative, although not statistically significant); higher market-to-book ratios (the coefficient is positive and statistically significant); larger firm sizes (the coefficient is positive and highly statistically significant); higher R&D and advertising expenses (the coefficients on R&D and advertising are positive, and the coefficient on R&D is also significant); better corporate governance (the coefficient is positive and statistically significant). We rank firms based on the estimate of excess CSR for each year. We calculate the CSR premium by subtracting the natural log of the average market-to-book ratio of the firms in the lowest quintile of excess CSR from the natural log of the average market-to-book ratio of the firms in the highest quintile of excess CSR.

Our analysis of the validity of our measure of investor sentiment using equation (6) is provided in Table 5. These results provide strong support for the idea that our measure is capturing investor sentiment for CSR activities. These specifications use 4,385 press releases, of which 1,491 focus on environmental and 3,327 focus on social issues. These press releases are distributed over a nine year period where the CSR premium is both high and low. In column [1], both the firm's excess CSR expenditures and the proxy for the CSR premium are calculated

using the combined social and environmental measure. The next two columns use the individual environmental and social components, respectively.

The results of these short-window event study tests indicate a statistically significant positive association between abnormal announcement returns and the CSR premium. In column [1], the coefficient on the CSR premium is 0.019, with a t -statistic of 2.83. This coefficient implies that there is a positive abnormal return over a three-day window to a CSR announcement if that announcement happens during a period where the CSR premium is high. This result holds for both the environmental and social specifications. The coefficient on the environmental (social) premium is positive and significant, with a t -statistic of 3.75 (1.94). Based on these results, we conclude that there is time varying demand on the part of investors for CSR activities, and that this demand has an effect on asset prices. We also conclude that our CSR premium variable captures investor sentiment. Therefore, we next investigate whether firms respond to investor sentiment in determining their commitment to CSR.

5.2 Firm Response to Investor Sentiment

We test whether firms increase CSR expenditures using equation (7), the results of which are provided in Table 6. In column [1], both the firm's excess CSR expenditures and the proxy for the CSR premium are calculated using the combined social and environmental measure. The next two columns use the individual environmental and social components, respectively. In column [1], we find that the firm-level choice of excess CSR expenditures is positively associated with the market-level CSR premium (i.e. $\gamma_1 > 0$ in equation (6)). In other words, when the CSR premium is high, managers respond by increasing CSR expenditures in the next period.

The coefficient on CSR premium indicates that a one standard deviation change in the CSR premium is positively associated with a 5 percent increase in excess CSR expenditures.⁹

We find similar results in the specification based on the environmental component, but insignificant results in the specification based on the social component. In column [2] we find that the firm-level choice of excess environmental expenditures is positively associated with the market-level environmental premium (i.e. $\gamma_1 > 0$ in equation (6)). The coefficient on the environmental premium indicates that a one standard deviation change in the environmental premium is positively associated with a 6 percent increase in excess environmental expenditures. In column [3], we do not find that the firm-level choice of excess social expenditures is positively associated with the market-level social premium. This result suggests that the positive association documented in column [1] is principally driven by the environmental rather than the social component of CSR expenditures.

To address the concern that the association between excess CSR expenditures and the CSR premium that we document in Table 6 is caused by a correlated omitted variable, we perform two sets of cross-sectional analyses based on our theoretical framework. The results of these tests are provided in Table 7. As with Table 6, we report results using three different approaches to measuring excess CSR expenditures. The primary coefficient of interest is on the term that interacts the CSR premium and either the share turnover or R&D intensity. In column [1], the coefficient on the CSR premium remains positive with a t -statistic of 1.85. More importantly, the coefficient on the interaction of share turnover and CSR premium is positive and highly significant (t -statistic of 5.57). This indicates that the positive association between the

⁹ We calculate the percentage change in total CSR expenditures as follows. In Column [1] of Table 6, the coefficient on $PREM_CSR_{t-1}$ is 0.319. We multiply this coefficient by the standard deviation of $PREM_CSR$, reported in panel B of Table 2 as 0.07, to estimate the change in the dependent variable, CSR, of 0.022. Dividing this amount into the mean of CSR, reported in Panel A of Table 2 as 0.45, yields approximately 5 percent.

lagged CSR premium and excess CSR expenditures is significantly stronger for firms with higher share turnover, consistent with our prediction. A firm that has share turnover above the median of the firms in our sample experiences an additional 3 percent increase in excess CSR expenditures relative to a firm with share turnover below the median of the firms in our sample, for a one standard deviation change in the CSR premium. The coefficient on the interaction of R&D intensity and CSR premium in column [2] is not significant, but is positive with a *t*-statistic of 1.42.

The results in columns [3] and [4], which use the specification based on the environmental component, provide additional support for our hypothesis that firms respond to CSR investor sentiment. The coefficient on the environmental premium is positive and significant in each regression. The coefficient on the interaction of R&D intensity and the CSR premium is positive and highly significant (*t*-statistic of 5.70). This result indicates that the positive association between the lagged environmental premium and excess environmental expenditures is significantly stronger for firms with higher R&D intensity. A firm that has R&D intensity above the median of the firms in our sample experiences an additional 5 percent increase in total environmental expenditures relative to a firm with R&D intensity below the median of the firms in our sample, for a one standard deviation change in the environmental premium. The coefficient on the interaction of share turnover and the environmental premium is not significant.

The results in columns [5] and [6], which use the specification based on the social component, also provide additional support for the hypothesis that firms are responding to investor sentiment, although to a much lesser extent when compared with the results derived from environmental performance. Even though the coefficient on the social premium remains

insignificant in both columns, consistent with Table 6, the interaction of share turnover and the social premium is positive and significant. However, this coefficient has slightly lower economic magnitude when compared with the other specifications. A firm that has share turnover above the median of the firms in our sample experiences an additional 2 percent increase in total social expenditures relative to a firm with share turnover below the median of the firms in our sample, for a one standard deviation change in the social premium. The coefficient on the interaction of R&D intensity and the social premium is not significant.

While the results in Table 7 support our cross-sectional predictions, the results vary across specifications. In particular, the interaction term with share turnover is positive and significant for the specification using total CSR expenditures and social CSR expenditures, but not for the environmental expenditures. Conversely, the interaction term with R&D intensity is positive and significant for the specification using environmental expenditures, but not for the total CSR expenditures and social CSR expenditures.

5.3 Alternative Specification using Future Returns

Another approach to testing whether firms are choosing CSR expenditures based on investor sentiment is to identify whether the mispricing that arises from this behavior reverses in future periods. To the extent that this is true, then CSR expenditures may forecast the returns on high CSR firms relative to low CSR firms, as stock prices eventually revert to fundamental value. Therefore, we perform an additional test where we treat future stock returns as a proxy for the correction of the ex-ante mispricing due to investor sentiment and investigate whether the pattern in aggregate CSR expenditures is consistent with the response by firms to investor sentiment. We use the following specification:

$$RET_{t+1}^e = \alpha_0 + \alpha_1 CSR_t^e + \alpha_2 PREM_{t-1} + \epsilon \quad (9)$$

We follow the approach of Baker, Greenwood and Wurgler (2009) and calculate the excess return, RET_{t+1}^e , by subtracting the average raw return of the firms in the lowest quintile of excess CSR expenditures from the average raw return of the firms in the highest quintile of excess CSR expenditures. CSR_t^e is the average of excess CSR across our sample firms in period t . We control for $PREM_{t-1}$ as the lagged premium is associated with both the firm's CSR expenditures in period t and potentially the returns in period t . We predict that CSR_t^e is negatively associated with future excess returns, consistent with price reversion, which implies that $\alpha_1 < 0$.

Table 8 provides the results of a market-level regression of excess returns on the average excess CSR expenditures, as shown in equation (9). Consistent with previous tables, we conduct our analyses using three different approaches for the measurement of CSR expenditures—column [1] uses the combined social and environmental measure, column [2] uses the individual environmental component, and column [3] uses the individual social component. If excess CSR expenditures do not predict future returns, it could be because either no mispricing exists or because the mispricing has gone undetected.

The results in Table 8 show a statistically significant negative association between future excess returns and the average excess CSR expenditures. In column [1], the coefficient on the average excess CSR expenditures is -1.186, with a t -statistic of 3.50. This coefficient implies that a one standard deviation change in the average excess CSR expenditures is associated with negative excess returns of 4.7% in the next period. The results for the specification based on environmental component in column [2] and for social component in column [3] provide similar results. The coefficient in the environmental (social) specification implies that a one standard deviation change in the average excess environmental (social) expenditures is associated with negative excess returns of 4.4% (4.2%) in the next period.

These results provide strong evidence that the level of CSR expenditures is partially set in response to the goal of boosting the firm's current stock price. Combined with the results in previous tables, we can conclude that not only does the CSR premium influence the managers selection of CSR initiatives, but also that this influence results in managers selecting a level that is contrary to the goal of improving fundamental value. Excess CSR expenditures predict negative excess future returns, implying that the short term boost in stock price reverts in subsequent periods.

6. Summary and Conclusion

We develop a measure of investor sentiment for CSR initiatives, and find that firms respond to sentiment-driven investors when committing resources to CSR projects. Our findings provide new insights into our understanding of the dramatic increase in CSR-related activities over the last several years and highlight the fact that contemporaneous stock returns are not ideal measures of whether particular CSR activities enhance the long-term fundamental values of firms. Our results also make an important contribution to behavioral finance, which has generally focused on aspects of investor sentiment that have nominal implications. We extend this literature by showing that managers may undertake costly real actions, including shifting capital investments toward CSR projects, in order to boost the firm's short-term stock price.

Our results are also relevant to the ongoing debate on corporate accountability reporting. Currently, firms have significant discretion in how social and environmental performance is communicated to stakeholders. We show that the uncertain cash flows associated with CSR initiatives, which may be accentuated by the discretion in CSR reporting, increases the potential gains for firms responding to sentiment-driven investors. This finding suggests that a goal of

corporate accountability reporting might be to reduce valuation uncertainty, since doing so would provide incentives to place less weight on boosting the firm's current stock price at the expense of the fundamental value of the firm.

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Table 1: Sample Composition

Panel A: Breakdown by Year

<i>Year</i>	<i>Firm-Years</i>	<i>%</i>
2002	258	6.6
2003	264	6.8
2004	366	9.4
2005	421	10.8
2006	412	10.6
2007	419	10.7
2008	527	13.5
2009	622	16.0
2010	611	15.7
Total	3,900	100.0%

Panel B: Breakdown by Industry

<i>1-digit SIC</i>	<i>Description</i>	<i>Firm-Years</i>	<i>%</i>
0	Agriculture, Forestry, and Fisheries	8	0.2
1	Mineral and Construction	259	6.6
2	Manufacturing	891	22.9
3	Manufacturing	1,002	25.7
4	Transportation, Communications, and Utilities	655	16.8
5	Whole Trade and Retail Trade	454	11.6
6	Finance, Insurance and Real Estate	118	3.0
7	Service Industries	380	9.7
8	Service Industries	132	3.4
9	Public	1	0.0
Total		3,900	100.0%

Table 2: Descriptive Statistics

Descriptive statistics of the variables used in the regression analyses. All variables are defined in Appendix A.

Panel A: Firm-level

	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>P25</i>	<i>Median</i>	<i>P75</i>	<i>Max</i>
<i>CSR Variables:</i>								
CSR	3,900	0.45	0.28	0.07	0.2	0.37	0.7	0.98
ENV	3,900	0.43	0.31	0.09	0.16	0.29	0.76	0.97
SOC	3,900	0.47	0.29	0.04	0.21	0.42	0.73	0.99
CSR ^e	3,900	0.00	0.2	-0.57	-0.14	-0.01	0.14	0.67
ENV ^e	3,900	0.00	0.23	-0.75	-0.17	-0.01	0.17	0.82
SOC ^e	3,900	0.00	0.21	-0.67	-0.16	0	0.16	0.83
PR_CSR	1,410	3.16	4.39	1	1	1	3	50
PR_ENV	1,410	1.07	2.10	0	0	0	1	28
PR_SOC	1,410	2.40	3.63	0	1	1	2	39
<i>Other Variables:</i>								
ADVERTISING	3,900	0.01	0.02	0	0	0	0.01	0.13
ATO	3,900	0.94	0.63	0.05	0.49	0.79	1.15	3.61
CASH	3,900	0.09	0.09	0	0.02	0.06	0.13	0.47
CFO	3,900	0.09	0.08	-0.29	0.05	0.09	0.14	0.36
CGVSCORE	3,900	0.75	0.16	0.03	0.68	0.78	0.86	0.98
LEVERAGE	3,900	0.24	0.16	0	0.13	0.24	0.35	0.83
LITIGATION	3,900	0	0	0	0	0	0	0.02
MTB	3,900	1.68	1.05	0.24	0.98	1.37	2.01	8.35
PM	3,900	0.07	0.1	-1.02	0.03	0.07	0.12	0.42
R&D	3,900	0.04	0.07	0	0	0	0.03	0.64
SIZE	3,900	8.81	1.17	5.58	7.94	8.66	9.64	12.62
TURNOVER	3,900	0.01	0.01	0	0.01	0.01	0.01	0.14

Panel B: Market-level

	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>P25</i>	<i>Median</i>	<i>P75</i>	<i>Max</i>
PREM_CSR	9	0.04	0.07	-0.05	-0.02	0.06	0.08	0.16
PREM_ENV	9	0.04	0.05	-0.03	0.04	0.04	0.07	0.12
PREM_SOC	9	0.03	0.06	-0.1	0.01	0.03	0.05	0.15
CSR ^{e,mkt}	9	-0.01	0.04	-0.06	-0.03	-0.02	0.01	0.05
ENV ^{e,mkt}	9	-0.01	0.04	-0.05	-0.03	-0.01	0.01	0.05
SOC ^{e,mkt}	9	-0.01	0.04	-0.07	-0.04	-0.02	0.02	0.05
RET ^e _CSR	9	0.05	0.06	-0.03	0.00	0.06	0.10	0.15
RET ^e _ENV	9	0.04	0.06	-0.04	-0.01	0.03	0.07	0.13
RET ^e _SOC	9	0.05	0.05	-0.04	0.04	0.05	0.09	0.12

Table 3: Correlation Matrix of Firm- and Market-level CSR Variables

Pair-wise Pearson correlations of the variables. All variables are defined in Appendix A. * indicates statistical significance at the 5% level.

Panel A: Correlation between firm-level CSR expenditures and economic determinants

	CSR	ENV	SOC
CSR	1.0000		
ENV	0.9377*	1.0000	
SOC	0.9281*	0.7407*	1.0000
ADVERTISING	0.0985*	0.0750*	0.1100*
ATO	0.0446*	0.0154	0.0697*
CASH	-0.0587*	-0.0521*	-0.0576*
CFO	0.0426*	0.0062	0.0756*
CGVSCORE	0.5104*	0.4729*	0.4797*
LEVERAGE	-0.0018	0.0269	-0.0322*
LITIGATION	0.0309	0.0332*	0.0242
MTB	-0.0692*	-0.1018*	-0.0247
PM	0.0480*	0.0185	0.0729*
R&D	0.0344*	0.0435*	0.0198
SIZE	0.5316*	0.4929*	0.4992*

Panel B: Correlation between market-level CSR premium and excess CSR expenditure

	PREM_CSR	PREM_ENV	PREM_SOC	CSR ^{e,mkt}	ENV ^{e,mkt}	SOC ^{e,mkt}	RET ^c _CSR	RET ^c _ENV	RET ^c _SOC
PREM_CSR	1.0000								
PREM_ENV	0.1978	1.0000							
PREM_SOC	0.1284	-0.3081	1.0000						
CSR ^{e,mkt}	0.4366	0.2477	0.0955	1.0000					
ENV ^{e,mkt}	0.3162	0.1580	0.1639	0.9695*	1.0000				
SOC ^{e,mkt}	0.5244	0.3172	0.0269	0.9739*	0.8887*	1.0000			
RET ^c _CSR	-0.3289	-0.1130	0.5068	-0.6806*	-0.6496	-0.6723*	1.0000		
RET ^c _ENV	-0.3753	-0.2107	0.5728	-0.6844*	-0.5893	-0.7353*	0.8870*	1.0000	
RET ^c _SOC	-0.1446	0.1040	0.1046	-0.8249*	-0.8286*	-0.7766*	0.7898*	0.7063*	1.0000

Table 4: First Stage Model to Construct the CSR Premium

Results from the first-stage estimation in which the dependent variable is the level of firm's CSR expenditures and the independent variables are various economic and institutional characteristics of the firm. All variables are defined in Appendix A. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered at the firm-level.

VARIABLES	(1) CSR _t	(2) ENV _t	(3) SOC _t
ATO	0.050*** (4.22)	0.047*** (3.55)	0.053*** (4.12)
PM	0.016 (0.31)	0.014 (0.24)	0.017 (0.31)
CASH	0.135** (2.07)	0.221*** (2.92)	0.049 (0.69)
CFO	0.122** (2.01)	0.072 (1.01)	0.173*** (2.63)
LEVERAGE	-0.036 (-0.89)	-0.003 (-0.07)	-0.068 (-1.56)
MTB	0.012** (2.04)	0.002 (0.38)	0.021*** (3.23)
SIZE	0.120*** (22.32)	0.119*** (18.32)	0.121*** (20.77)
R&D	0.143 (1.53)	0.149 (1.31)	0.137 (1.42)
ADVERTISING	0.344 (1.40)	0.237 (0.85)	0.451 (1.61)
LITIGATION	-0.138 (-0.05)	0.473 (0.16)	-0.749 (-0.30)
CORPGOV	0.615*** (18.43)	0.618*** (16.70)	0.612*** (16.86)
Constant	-1.132*** (-19.24)	-1.200*** (-14.48)	-1.065*** (-13.97)
R-squared	0.5074	0.4589	0.4452
Industry Fixed Effects	Included	Included	Included
Observations	3,900	3,900	3,900

Table 5: Cumulative Abnormal Returns around CSR Press Releases and the CSR Premium

Results from an OLS estimation where the dependent variables are three-day cumulative abnormal returns around press releases related to CSR, environmental, or social activities and the independent variables are the market-level CSR premium and the Carhart four-factor model risk factors. The three-day cumulative abnormal return CAR is the difference between the stock return and the risk free rate centered at the press release date. Market-level CSR premium is the differences between the logs of the top quintile excess CSR expenditure firms and the bottom quintile excess CSR expenditure firms' average market-to-book ratios. All variables are defined in Appendix A. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using a two-tailed test and standard errors clustered by year.

VARIABLES	(1) CAR_CSR _t	(2) CAR_ENV _t	(3) CAR_SOC _t
PREM_CSR _t	0.019** (2.83)		
PREM_ENV _t		0.047*** (3.75)	
PREM_SOC _t			0.015* (1.94)
RMRF _t	0.773*** (14.73)	0.714*** (11.05)	0.794*** (11.56)
SMB _t	0.164*** (4.66)	0.366*** (4.39)	0.074 (1.80)
HML _t	-0.087 (-1.57)	0.014 (0.14)	-0.102 (-1.75)
MOM _t	-0.007 (-0.18)	-0.006 (-0.10)	-0.016 (-0.50)
Constant	0.000 (0.59)	-0.001 (-1.24)	0.001* (2.04)
R-squared	0.4447	0.5102	0.4551
Firm Fixed Effects	Included	Included	Included
Observations	4,385	1,491	3,327

Table 6: Excess CSR Expenditure and the CSR Premium

Results from an OLS estimation where the dependent variable is the level of firm's excess CSR expenditure and the independent variables are the lagged market-level CSR premium. Excess CSR expenditure represents the residual from a regression of CSR expenditures on various economic determinants and industry fixed effects. Market-level CSR premium is the differences between the logs of the top quintile excess CSR expenditure firms and the bottom quintile excess CSR expenditure firms' average market-to-book ratios. All variables are defined in Appendix A. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using a two-tailed test and standard errors clustered by year.

	(1)	(2)	(3)
	CSR_t^e	ENV_t^e	SOC_t^e
PREM_CSR _{t-1}	0.319** (2.71)		
PREM_ENV _{t-1}		0.580*** (5.23)	
PREM_SOC _{t-1}			0.099 (0.33)
Constant	-0.017 (-1.30)	-0.031** (-2.85)	-0.000 (-0.01)
R-squared	0.0118	0.0143	0.0007
Observations	3,642	3,642	3,642

Table 7: Cross-sectional Tests of Excess CSR Expenditure and the CSR Premium

Results from an OLS estimation where the dependent variables are measures of excess CSR expenditure and the independent variables are the lagged market-level CSR premium and cross-sectional partitioning variables. Excess CSR expenditure represents the residual from a regression of CSR expenditures on various economic determinants and industry fixed effects. Market-level CSR premium is the differences between the logs of the top quintile excess CSR expenditure firms and the bottom quintile excess CSR expenditure firms' average market-to-book ratios. HI_TO is a binary variable equal to one if the firm's share turnover is above the median. HI_R&D is a binary variable equal to one if the firm's reported R&D spending is positive. All variables are defined in Appendix A. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using a two-tailed test and standard errors clustered by year.

	PREM _{t-1} = PREM_CSR _{t-1}		PREM _{t-1} = PREM_ENV _{t-1}		PREM _{t-1} = PREM_SOC _{t-1}	
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>CSR_t^e</i>	<i>CSR_t^e</i>	<i>ENV_t^e</i>	<i>ENV_t^e</i>	<i>SOC_t^e</i>	<i>SOC_t^e</i>
PREM _{t-1}	0.226 (1.85)	0.235** (2.39)	0.613*** (6.92)	0.386** (3.15)	0.017 (0.06)	0.054 (0.19)
HI_TO _{t-1}	-0.048*** (-9.35)		-0.033** (-2.90)		-0.043*** (-5.59)	
HI_TO _{t-1} *PREM _{t-1}	0.186*** (5.57)		-0.070 (-0.42)		0.163** (2.37)	
HI_R&D _t		0.016 (1.05)		0.013 (1.12)		0.017 (1.84)
HI_R&D _{t-1} *PREM _{t-1}		0.195 (1.42)		0.425*** (5.70)		0.094 (1.31)
Constant	0.007 (0.52)	-0.024** (-2.51)	-0.014 (-1.21)	-0.036*** (-4.09)	0.022 (1.87)	-0.008 (-0.68)
R-squared	0.0220	0.0180	0.0208	0.0224	0.0092	0.0029
Observations	3,639	3,630	3,639	3,630	3,639	3,630

Table 8: Market-level Excess CSR Expenditures and Future Excess Returns

Results from an OLS estimation where the dependent variables are future excess returns and independent variables are market-level average excess CSR expenditure and lagged CSR premium. Future excess returns are the differences between the top quintile excess total CSR expenditure firms and the bottom quintile excess total CSR expenditure firms' average one-year returns. Market-level excess CSR expenditure represents yearly average excess CSR expenditures across firms in the sample. Market-level CSR premium is the differences between the logs of the top quintile excess CSR expenditure firms and the bottom quintile excess CSR expenditure firms' average market-to-book ratios. All variables are defined in Appendix A. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using a two-tailed test. Standard errors are Newey-West adjusted with 2 lags.

	(1)	(2)	(3)
	$RET^e_CSR_{t+1}$	$RET^e_ENV_{t+1}$	$RET^e_SOC_{t+1}$
CSR ^{e,mkt}	-1.186** (-3.50)		
PREM_CSR _{t-1}	0.105 (0.63)		
ENV ^{e,mkt}		-1.103*** (-4.23)	
PREM_ENV _{t-1}		0.174 (0.33)	
SOC ^{e,mkt}			-1.050*** (-4.73)
PREM_SOC _{t-1}			-0.166** (-2.83)
Constant	0.031** (3.87)	0.012 (0.31)	0.049** (3.94)
Observations	8	8	8

Appendix A: Variable Description and Data Sources

Specifications of variables used throughout the paper. Panels A, B, C and D describe the firm-level CSR variables, market-level CSR variables, firm-level economic determinants of CSR expenditures, and other variables respectively.

Variable	Description	Data Source
Panel A: Firm-level CSR Variables		
CSR	Asset4 2-Factor CSR score; includes social and environment factors	Asset4
ENV	Environmental score	Asset4
SOC	Social score	Asset4
CSR ^e	Excess total CSR expenditure defined as the residual from a regression of total CSR expenditures on various economic determinants described in Panel C and industry fixed effects	Constructed
ENV ^e	Defined as above using environmental CSR expenditure	Constructed
SOC ^e	Defined as above using social CSR expenditure	Constructed
PR_CSR	The annual number of press releases related to environmental or social activities defined below	CSRwire
PR_ENV	The annual number of press releases related to environmental activities (categories include Clean Technology, Environment, Green Building, Green Jobs & Career News, Green Products & Services, Renewable & Alternative Energy, and Sustainability)	CSRwire
PR_SOC	The annual number of press releases related to social activities (categories include Community Development, Corporate Social Responsibility, Philanthropy & Corporate Contributions, Volunteerism, Diversity & Human Resource, Fair Trade & Supply Chain, Health & Wellness, Human Rights, and Workplace Issues)	CSRwire
CAR_CSR	Three-day cumulative abnormal return CAR measured as the difference between the stock return and the risk free rate centered at the dates of press releases related to environmental or social activities	Constructed
CAR_ENV	Defined as above using press releases related to environment activities	Constructed
CAR_SOC	Defined as above using press releases related to social activities	Constructed
Panel B: Market-level CSR Variables		
PREM_CSR	The difference between the logs of the top quintile excess total CSR expenditure firms and the bottom quintile excess total CSR expenditure firms' average market-to-book ratios	Constructed
PREM_ENV	Constructed as above using excess environmental CSR expenditure	Constructed
PREM_SOC	Constructed as above using excess social CSR expenditure	Constructed
CSR ^{e,mkt}	Yearly average excess total CSR expenditure	Constructed

Variable	Description	Data Source
ENV ^{e,mkt}	Yearly average excess environmental CSR expenditure	Constructed
SOC ^{e,mkt}	Yearly average excess social CSR expenditure	Constructed
RET ^e _CSR	The difference between the top quintile excess total CSR expenditure firms and the bottom quintile excess total CSR expenditure firms' average one-year return	Constructed
RET ^e _ENV	Constructed as above using excess environmental CSR expenditure	Constructed
RET ^e _SOC	Constructed as above using excess social CSR expenditure	Constructed
Panel C: Firm-level Economic Determinants of CSR Expenditure		
ADVERTISING	Advertising expense scaled by net sales for fiscal year <i>t</i>	Compustat
ATO	Net sales divided by total assets, measured at the end of fiscal year <i>t</i>	Compustat
CASH	Cash scaled by total assets, measured at the end of fiscal year <i>t</i>	Compustat
CFO	Cash flow from operations (calculated using the indirect method) divided by total assets, measured at the end of fiscal year <i>t</i>	Compustat
CGVSCORE	Corporate governance score	Asset4
LEVERAGE	Sum of long term debt and debt in current liabilities divided by total assets, measured at the end of fiscal year <i>t</i>	Compustat
LITIGATION	Litigation expense scaled by net sales for fiscal year <i>t</i>	Asset4 & Compustat
MTB	Sum of market value of equity, long term debt, debt in current liabilities, liquidation value of preferred stock and deferred taxes and investment credit divided by total assets, measured at the end of fiscal year <i>t</i>	Compustat
PM	Income before extraordinary items divided by net sales for fiscal year <i>t</i>	Compustat
R&D	Research and development expense scaled by net sales for fiscal year <i>t</i>	Compustat
SIZE	Natural logarithm of total assets, measured at the end of fiscal year <i>t</i>	Compustat
Panel D: Other Variables		
TURNOVER	Average of the of the daily ratio of shares traded to shares outstanding over fiscal year <i>t</i>	CRSP
HI_TO	Binary variable equal to one if the firm's share turnover is above the median in year <i>t</i>	Constructed
HI_R&D	Binary variable equal to one if the firm's reported R&D spending is positive in year <i>t</i>	Constructed
RMRF	The excess return on the market	Fama-French Factors
SMB	The average return on the three small portfolios minus the average return on the three big portfolios	Fama-French Factors
HML	The average return on the two value portfolios minus the average return on the two growth portfolios	Fama-French Factors
MOM	The average return on the two high prior return portfolios minus the average return on the two low prior return portfolios	Fama-French Factors

Appendix B: Description of ASSET4 Categories (from ASSET4 documents)

Environmental Performance Pillar

- Resource Reduction: The resource reduction category measures a company's management commitment and effectiveness towards achieving an efficient use of natural resources in the production process. It reflects a company's capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.
- Emission Reduction: The emission reduction category measures a company's management commitment and effectiveness towards reducing environmental emission in the production and operational processes. It reflects a company's capacity to reduce air emissions (greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, etc.), waste, hazardous waste, water discharges, spills or its impacts on biodiversity and to partner with environmental organizations to reduce the environmental impact of the company in the local or broader community.
- Product Innovation: The product innovation category measures a company's management commitment and effectiveness towards supporting the research and development of eco-efficient products or services. It reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialized products with extended durability.

Social Performance Pillar

- Employment Quality: The workforce / employment quality category measures a company's management commitment and effectiveness towards providing high-quality employment benefits and job conditions. It reflects a company's capacity to increase its workforce loyalty and productivity by distributing rewarding and fair employment benefits, and by focusing on long-term employment growth and stability by promoting from within, avoiding lay-offs and maintaining relations with trade unions.
- Health and Safety: The workforce / health & safety category measures a company's management commitment and effectiveness towards providing a healthy and safe workplace. It reflects a company's capacity to increase its workforce loyalty and productivity by integrating into its day-to-day operations a concern for the physical and mental health, well-being and stress level of all employees.
- Training and Development: The workforce / training and development category measures a company's management commitment and effectiveness towards providing training and development (education) for its workforce. It reflects a company's capacity to increase its intellectual capital, workforce loyalty and productivity by developing the workforce's skills, competences, employability and careers in an entrepreneurial environment.
- Diversity and Opportunity: The workforce / diversity and opportunity category measures a company's management commitment and effectiveness towards maintaining diversity and equal opportunities in its workforce. It reflects a company's capacity to increase its workforce loyalty and productivity by promoting an effective life-work balance, a family friendly environment and equal opportunities regardless of gender, age, ethnicity, religion or sexual orientation.
- Human Rights: The society / human rights category measures a company's management commitment and effectiveness towards respecting the fundamental human rights conventions. It reflects a company's capacity to maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labor.
- Community: The society / community category measures a company's management commitment and effectiveness towards maintaining the company's reputation within the general community (local, national and global). It reflects a company's capacity to maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.).
- Customer / Product Responsibility: The customer / product responsibility category measures a company's management commitment and effectiveness towards creating value-added products and services upholding the customer's security. It reflects a company's capacity to maintain its license to operate by producing quality goods and services integrating the customer's health and safety, and preserving its integrity and privacy also through accurate product information and labeling.