FINANCIAL REPORTING QUALITY AND INVESTMENT IN CORPORATE SOCIAL RESPONSIBILITY

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ABSTRACT

KATIE E. MCDERMOTT: Financial Reporting Quality and Investment in Corporate Social Responsibility
(Under the direction of Robert M. Bushman)

This study investigates the role of financial reporting quality in disciplining managers' investments in corporate social responsibility (CSR). While agency problems are endemic to all investment decisions, with respect to investment in CSR, the moral hazard problem that results in over-investment is likely exacerbated as CSR provides certain private benefits to managers that would not be expected from a typical investment. Consistent with higher-quality financial reporting reducing over-investment in CSR, I document a negative association between financial reporting quality and investment in CSR for firms operating in settings with higher likelihood of over-investment. Further, I show that there is a positive relation between investment in CSR and future profitability for firms with high-quality financial reporting whereas there is a negative relation between investment in CSR and future profitability for firms with low-quality financial reporting. Overall, these results suggest that higher-quality financial reporting improves CSR investment efficiency by mitigating moral hazard, resulting in an investment in CSR that benefits shareholders by improving future financial performance.

To Mom and Dad

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CHAPTER 1

FINANCIAL REPORTING QUALITY AND INVESTMENT IN CORPORATE SOCIAL RESPONSIBILITY

1. Introduction

In recent years, there has been an increased focus on corporate social responsibility (CSR).[1] CSR has been critiqued by Milton Friedman and others, who argue that the responsibility of a corporation is to earn profits and that CSR is a distribution of shareholder wealth for pursuit of managers' own interests (Friedman, 1970). On the other side of the CSR debate, some theoretical models and empirical findings indicate that CSR can be an economically justified business expenditure that enhances a firm's future financial performance (e.g., Fisman et al., 2006; Lev et al., 2009) or reduces a firm's cost of capital (e.g., Dhaliwal et al., 2011; El Ghoul et al., 2011). In this study, I explore the role of financial reporting quality in disciplining managers' investments in CSR, as this is one channel that is likely to affect whether CSR results in enhanced financial performance. Specifically, I examine whether higher-quality financial reporting is associated with a reduction in over-investment in CSR and whether higher-quality financial reporting results in CSR investments that enhance financial performance. I provide evidence that higher-quality financial reporting reduces over-investment in CSR and results in CSR investments that are positively associated with future profitability. Overall, these results suggest that higher-quality financial reporting

[1] Consistent with prior research, including Renneboog et al. (2008), I define corporate social responsibility (CSR) as a set of corporate decisions fostering social, environmental, and ethical issues.

improves CSR investment efficiency and disciplines managers to make investments in CSR that benefit shareholders.

Agency theory describes the conflict between managers and shareholders that arises when managers choose actions that are not in the best interest of shareholders in order to maximize their own utility (Jensen and Meckling, 1976). This moral hazard problem is caused by the existence of information asymmetry between managers and shareholders and can result in managers choosing investments with negative net present value. Agency perspectives on CSR, including the Friedman critique, argue that absent strong control from shareholders, managers can opportunistically use corporate resources to pursue goals that enhance their own utility in ways that are unlikely to provide significant returns to shareholders. Consequently, CSR comes at the expense of good financial performance because CSR makes use of firm resources in ways that confer significant managerial benefits rather than devoting those resources to alternative investment projects or returning them to shareholders (Brammer and Millington, 2008). As investments in CSR can provide certain private benefits to managers that would not be expected from a typical investment (e.g., reputational gains, enhanced social status, or a "warm-glow" from supporting a social cause), the moral hazard problem that results in over-investment is likely exacerbated with respect to investments in CSR.

Prior research suggests that higher-quality financial reporting can mitigate the moral hazard problem that results in inefficient investment decisions.[2] For example, Bushman and Smith (2001) document that financial accounting information influences firms' future

[2] Conceptually, I follow Biddle et al. (2009) and define a firm as *investing efficiently* if it undertakes projects with positive net present value and define a firm as *over-investing* if it undertakes projects with negative net present value.

economic performance through a governance role and predict that higher-quality financial accounting information improves investment efficiency. Consistent with this prediction, Biddle et al. (2009) find that higher-quality financial reporting improves investment efficiency by reducing over- and under- investment. In this study, I examine whether higher-quality financial reporting disciplines managers' investments in CSR. With respect to CSR, higher-quality financial reporting may mitigate the exacerbated moral hazard problem by decreasing information asymmetry and increasing the ability of shareholders to monitor managers' investments in CSR through the use of high-quality, firm-specific information. Thus, I examine whether higher-quality financial reporting results in increased CSR investment efficiency.

To examine whether financial reporting quality disciplines managers' investments in CSR, I use proxies for the key constructs in the analysis, financial reporting quality and investment in CSR. To construct a proxy for a firm's investment in CSR, I use data from KLD Research and Analytics, Inc. (KLD), a leading provider of research on the social performance of corporations. I use the change in the firm's CSR rating from the prior year as a proxy for the firm's investment in CSR.

I define financial reporting quality as the precision with which financial reporting conveys information about the firm's operations, in particular its expected cash flows. This definition is consistent with the Financial Accounting Standards Board Statement of Financial Accounting Concepts No. 8 (2010), which states that one objective of financial reporting is to inform present and potential investors in assessing the expected firm cash

flows.[3] Consistent with prior research that examines the relation between financial reporting quality and investment efficiency, I use accruals quality as a proxy for financial reporting quality, and I calculate accruals quality using an augmented Dechow and Dichev (2002) model following Francis et al. (2005).[4]

Biddle et al. (2009) find that higher-quality financial reporting reduces both over-investment and under-investment. Following the logic that higher-quality financial reporting mitigates the moral hazard problem that results in over-investment in CSR for the manager's private benefit, I hypothesize that higher-quality financial reporting reduces over-investment in CSR. To test this hypothesis, I follow the methodology of Biddle et al. (2009) and develop a proxy for a firm's likelihood of over-investment, using firm-specific characteristics (i.e., cash and leverage) shown to be associated with over-investment (e.g., Myers, 1977; Jensen, 1986). Consistent with the hypothesis that higher-quality financial reporting reduces over-investment in CSR, I find that there is a negative association between financial reporting quality and investment in CSR for firms operating in settings with higher likelihood of over-investment.

Next, I use an ex-post measure of investment efficiency, future financial performance, to examine whether higher-quality financial reporting disciplines managers to invest efficiently in CSR. Following the logic that higher-quality financial reporting disciplines

[3] Statement of Financial Accounting Concepts No. 8 is part of the FASB's project with the International Accounting Standards Board to improve and converge their frameworks. It supersedes FASB Statement of Financial Accounting Concepts No. 1 (1978).

[4] Dechow et al. (2010) stress that the definition of financial reporting quality is contingent on the specific decision context. In the context of this study, accruals quality, which maps financial reporting to short-term cash flows, is well-suited to test whether financial reporting quality serves a role in disciplining managers' investments in CSR. In particular, the accruals quality measure isolates the likelihood of estimation error in accruals. Thus, higher accruals quality allows shareholders to better assess expected firm cash flows, which in turn allows shareholders to better monitor managers' investment decisions and thus encourages managers to invest in positive NPV projects.

managers to make investments in CSR that benefit shareholders, I hypothesize that for firms with high-quality financial reporting, investment in CSR is positively associated with future profitability. Consistent with this hypothesis, I show that there is a positive relation between investment in CSR and future profitability for firms with high-quality financial reporting whereas there is a negative relation between investment in CSR and future profitability for firms with low-quality financial reporting. Further analysis shows that the negative relation between investment in CSR and future profitability for firms with low-quality financial reporting is exacerbated in low consumer sensitivity firms. This suggests that in settings where CSR has a tenuous link to financial performance, financial reporting quality plays an important role in disciplining managers to avoid inefficient CSR investments.

This study contributes to the literature that examines the valuation implications of investments in CSR and the literature that examines the role of accounting information in investment decisions. Recent studies, including Biddle et al. (2009), Bushman et al. (2011), Francis and Martin (2010), Hope and Thomas (2008), and McNichols and Stubben (2008), find that financial reporting quality affects investment efficiency. My findings suggest that financial reporting quality also plays a role in disciplining managers' investments in CSR. Given the ongoing debate on whether investments in CSR result in value creation or a distribution of shareholder wealth, these findings are important as they suggest that financial reporting quality is one channel that affects whether CSR results in enhanced financial performance.

The remainder of this paper is organized as follows. Section 2 discusses the related literature and develops the testable hypotheses. Section 3 describes the construction of the

sample and section 4 describes the research design. Section 5 presents the main results. Section 6 concludes.

2. Background and Hypothesis Development

2.1 Corporate Social Responsibility

In recent years, there has been an increased focus on CSR, and socially responsible investing has grown at a faster pace than the broader universe of investments.[5, 6] Anecdotal evidence suggests that some large corporations invest hundreds of millions of dollars annually in CSR.[7] Many theories have been proposed to explain CSR investment, and these theories can be broadly grouped into two categories: profit-motivated and non-profit motivated (Hong et al., 2011).

The profit-motivated CSR theories argue that CSR can be an economically justified business expenditure that enhances a firm's future financial performance. The profit-motivated theories suggest many channels through which CSR can enhance future financial performance. For example, CSR can enhance future financial performance by: delivering a "warm-glow" to consumers that increases demand for products, attracting higher quality employees, improving employee efficiency, reducing conflicts among stakeholders, mitigating litigation risk, deterring regulation, signaling product quality, enhancing corporate

[5] Socially responsible investment (SRI) is an investment process that integrates social, ethical, and environmental considerations into investment decision making (Renneboog et al., 2008). In 2010, 12 percent of assets under management were involved in some form of SRI. From 1995 to 2010, professionally managed assets following socially responsible investing strategies grew 380 percent to $3 trillion versus a 260 percent rise (to $25 trillion) in the broader universe of assets under professional management (Social Investment Forum Foundation, 2010).

[6] In the wake of the financial crisis, there is growing momentum for social responsibility, and regulators in some countries (e.g., Denmark, Sweden, South Africa) are creating a case for mandatory sustainability reporting or mandatory integrated reporting (Ioannou and Serafeim, 2011).

[7] For example, in 2009, Intel invested $100 million in global education programs and energy conservation efforts. General Electric invested $160 million per year in charitable donations and employee philanthropic programs in 2007-2009 (Delevingne, 2009).

reputation, or reducing waste (Benabou and Tirole, 2010; Heal, 2005; Hong et al., 2011; Ioannou and Serafeim, 2010a).

On the other hand, the key non-profit motivated CSR theory argues from an agency theory perspective that CSR is a distribution of shareholder wealth for pursuit of managers' own interests (Friedman, 1970).[8] This non-profit motivated theory suggests that absent strong control from shareholders, managers can opportunistically invest in CSR as a perquisite or to entrench themselves by gaining favor with important stakeholders (Hong et al., 2011). Consequently, CSR comes at the expense of good financial performance because CSR makes use of firm resources in ways that confer significant managerial benefits rather than devoting those resources to alternative investment projects or returning them to shareholders (Brammer and Millington, 2008). Consistent with managers over-investing in CSR for their private benefit when they bear little of the cost of doing so, Barnea and Rubin (2010) find that insiders' ownership is negatively related to firms' CSR ratings.

In the literature to date, many studies have examined whether investments in CSR create firm value. In particular, many studies in the management literature have examined the link between CSR and corporate financial performance.[9] Margolis et al. (2007) conduct a meta-analysis of hundreds of these studies and find that the overall relation between CSR and corporate financial performance is positive but small.[10] Although many studies have

[8] Another non-profit motivated explanation for CSR is that shareholders delegate CSR (i.e., philanthropy) to the firm on their behalf because the firm faces a lower cost of giving (Friedman, 1970).

[9] These studies often employ a cross-sectional research design and look for a contemporaneous link between CSR and corporate financial performance (Brammer and Millington, 2008).

[10] However, many of the empirical studies (58%) document a non-significant relation between CSR and corporate financial performance (Margolis et al., 2007).

examined the valuation implications of CSR, this is still very much an open question in the literature.

Studies that find that CSR is positively related to financial performance provide evidence for profit-motivated theories of CSR. For example, Lev et al. (2009) find that CSR (i.e., charitable contributions) is significantly positively associated with future revenue, particularly for firms that are highly sensitive to consumer perception. This is consistent with the profit-motivated theory that CSR delivers a "warm-glow" to consumers that increases demand for products. Similarly, Fisman et al. (2006) develop a model in which CSR is a signal of unobservable product quality and provide empirical evidence that CSR (i.e., corporate philanthropy) and profits are positively related only in industries with high advertising intensity. Ioannou and Serafeim (2010a) provide additional evidence that CSR creates firm value, finding that firms with better CSR performance receive more favorable analyst recommendations in recent years.

Several recent studies examine the effect of CSR on the cost of equity capital. For example, El Ghoul et al. (2011) find that firms with better CSR performance have lower cost of equity capital. Dhaliwal et al. (2011) focus on firms that initiate voluntary disclosure of CSR and find that initiating firms with superior CSR performance enjoy a subsequent reduction in the cost of equity capital.[11]

Another recent paper, Hong et al. (2011), explores the determinants of firms' investments in CSR. Hong et al. (2011) model the firm's optimal choice of capital and CSR subject to financial constraints and find, consistent with model predictions, that less-

[11] Plumlee et al. (2010) examine the relation between the *quality* of firms' voluntary environmental disclosures and firm value. Plumlee et al. (2010) find that higher-quality voluntary environmental disclosures classified as soft (i.e., subjective) and positive are negatively associated with the cost of equity capital.

constrained firms have higher CSR scores. The study also seeks to empirically establish causality using a natural experiment, the relaxation of financial constraints during the technology bubble. The study finds that during the technology bubble, previously constrained firms experienced a temporary relaxation of their constraints and their CSR scores also temporarily increased relative to their previously unconstrained peers.

2.2 Financial reporting quality and investment efficiency

In perfect financial markets absent market frictions caused by information asymmetry, firms invest efficiently. That is, firms undertake only projects with positive net present value. However, the existence of information asymmetry can result in managers making investment decisions that are not in the best interest of shareholders in order to maximize their own utility (Jensen and Meckling, 1976). This moral hazard problem can result in managers investing inefficiently, e.g., by over-investing in projects with negative net present value for their own personal benefit. For example, Jensen (1986) predicts that managers have incentives to consume perquisites and to grow firms beyond their optimal size.

Prior research suggests that higher-quality financial reporting can enhance investment efficiency by mitigating the moral hazard problem that results in inefficient investment decisions (e.g., Bushman and Smith, 2001). Empirical results are also consistent with the prediction that higher-quality financial reporting enhances investment efficiency. For example, Biddle et al. (2009) find that higher-quality financial reporting improves investment efficiency by reducing over- and under- investment.

In particular, several studies show that higher-quality financial reporting improves investment efficiency by mitigating the moral hazard problem that results in managers'

over-investment. For example, McNichols and Stubben (2008) find that firms that manipulate their earnings over-invest during the misreporting period and no longer over-invest following the misreporting period. Hope and Thomas (2008) find evidence that relative to firms that disclose earnings by geographic area, non-disclosing firms experience greater expansion of foreign sales, produce lower foreign profit margins, and have lower firm value.[12] Francis and Martin (2010) find that firms with more timely loss recognition make more profitable acquisitions and are less likely to make post-acquisition divestitures, consistent with better ex-ante investment decisions. In an international context, Bushman et al. (2011) find that firms in countries characterized by greater timely loss recognition have more efficient investment in the sense that investment responds more quickly to declines in investment opportunities.

Higher-quality financial reporting can increase investment efficiency by increasing shareholders' ability to monitor managers' investment decisions, thus reducing information asymmetry and moral hazard. As an input to corporate control mechanisms, higher-quality financial accounting information can improve investment efficiency by increasing the efficiency with which assets in place are managed, by encouraging investments in high return projects, by reducing investments in low return projects, or by reducing the expropriation of investors' wealth (Bushman and Smith, 2001). For example, higher-quality financial reporting could curb managerial incentives to over-invest if it facilitates writing better contracts or increases shareholders' ability to monitor investment decisions (Biddle et al., 2009).

[12] Hope and Thomas (2008) use the adoption of Statement of Financial Accounting Standards No. 131, after which most U.S. multinational firms were no longer required to disclose earnings by geographic area, as a natural experiment. Thus, their conclusions are strengthened by the fact that the differences did not exist in the pre- SFAS 131 period.

2.3 Hypothesis development

My first hypothesis is motivated by the Biddle et al. (2009) finding that higher-quality financial reporting reduces both over-investment and under-investment. This result is consistent with the logic that higher-quality financial reporting mitigates the moral hazard problem that results in investment inefficiency. With respect to investments in CSR, I expect that the moral hazard problem that results in over-investment is likely exacerbated, as investments in CSR can provide certain private benefits to managers that would not be expected from a typical investment (e.g., reputational gains, enhanced social status, or a "warm-glow" from supporting a social cause).[13] If higher-quality financial reporting mitigates managerial incentives to over-invest by allowing shareholders to better monitor managers' investment decisions, I expect firms with higher-quality financial reporting will exhibit less over-investment in CSR.

Following the logic that higher-quality financial reporting mitigates the moral hazard problem that results in over-investment in CSR for the manager's private benefit, I hypothesize that higher-quality financial reporting reduces over-investment in CSR. This leads to the following specific hypothesis, stated in the alternative form:

> **H_1**: *Financial reporting quality is negatively associated with CSR investment in firms with a higher likelihood of over-investment.*

Many prior studies have examined the relation between CSR and financial performance (Brammer and Millington, 2008; Margolis et al., 2007; Orlitzky et al., 2003). I seek to provide further evidence on whether higher-quality financial reporting results in improved CSR investment efficiency by examining an ex-post measure of investment

[13] For this reason, I also expect that under-investment in CSR is a less-likely problem for shareholders. Proponents of CSR that argue that corporations under-invest in CSR usually argue from a social welfare perspective rather than a shareholder welfare perspective.

efficiency: future financial performance. In using future financial performance as an ex-post measure of CSR investment efficiency, I rely on the following logic. First, a positive relation between CSR and future financial performance is indicative of an efficient investment in CSR (i.e., a positive net present value investment that is beneficial to shareholders). Second, a negative relation between CSR and future financial performance is indicative of an inefficient investment in CSR (i.e., a negative net present value investment that represents private benefits to managers at the detriment of shareholders).

Bushman and Smith (2001) assert that higher-quality financial reporting can improve investment efficiency by encouraging investments in high return projects and increasing the efficiency with which assets in place are managed. If higher-quality financial reporting mitigates moral hazard and disciplines managers to make efficient investments in CSR, I expect that for firms with high-quality financial reporting, investment in CSR is positively associated with future profitability. This leads to the following hypothesis, stated in the alternative form:

> **H_2**: *CSR investment is positively associated with future profitability in firms with high-quality financial reporting.*

Prior research has shown that in high consumer sensitivity firms, investments in CSR are positively associated with future revenues (Lev et al., 2009).[14] This is consistent with the explanation that in high consumer sensitivity firms, CSR can deliver a "warm-glow" to consumers that increases demand for products. Thus, in high consumer sensitivity firms, CSR can be a legitimate, profit-motivated expenditure, with a role similar to an advertising expenditure. In contrast, in low consumer sensitivity firms, Lev et al. (2009) find no

[14] Lev et al. (2009) define high consumer sensitivity firms as those firms that produce goods and services primarily for individual customers.

association between CSR and future revenues. This is consistent with there being little role for CSR to increase consumer demand in low consumer sensitivity firms. Following prior literature, I expect that in low consumer sensitivity firms, CSR has a weaker link to financial performance and is thus ex-ante more likely to be an inefficient investment. Following this logic, I expect that for firms with low consumer sensitivity, higher-quality financial reporting is particularly important in disciplining managers to avoid inefficient investments in CSR.

3. Data and Sample Selection

3.1 Data and sample selection

I employ a sample of firms from the KLD STATS database, which provides data on firms' corporate social responsibility prepared by KLD Research and Analytics, Inc. (KLD).[15, 16] KLD ranks firms' CSR performance in seven main categories: 1) Community, 2) Corporate Governance, 3) Diversity, 4) Employee Relations, 5) Environment, 6) Human Rights, and 7) Product. For each category, KLD defines a set of potential strengths and assigns a value of 1 if the strength exists, and a value of 0 otherwise.[17] The rankings are based on information obtained from financial statements, government documents, mainstream media, and company communications (KLD Research & Analytics, Inc., 2006).

[15] KLD STATS provides yearly social performance evaluations beginning in 1991. In 1991, KLD covered approximately 650 companies (comprising firms in the S&P 500 and Domini 400 Social Index). During 2001 to 2002, KLD expanded its coverage to include all companies on the Russell 1000 Index and in 2003 it expanded its coverage to include all companies on the Russell 3000 Index.

[16] The KLD database is widely used in recent CSR research (e.g., Dhaliwal et al., 2011; Hong et al., 2011; Ioannou and Serafeim, 2010a; El Ghoul et al., 2011).

[17] KLD's use of indicator variables to rate firms' CSR performance is a crude methodology that results in a noisy measure of CSR performance. In fact, Chatterji et al. (2009) show that KLD environmental strengths do not accurately predict pollution levels or compliance violations and that KLD ratings do not optimally use publicly available data. Ideally, I would like to have precise data on firms' actual CSR expenditures. Since this precise data is not available, I use the KLD data to construct a proxy for firms' investments in CSR and contend that the noise in this proxy should bias against findings.

Similar to Dhaliwal et al. (2011), Appendix B presents the main categories of CSR strengths employed by KLD in its rating process and the average rating scores across industries.

I begin with all firm-year observations in KLD STATS from 1991-2009 and merge this data with the Compustat database.[18] I delete firms in the utility and financial industries (i.e., firms with SIC codes 4900-4999 or 6000-6999).[19] I also delete firms that are involved in producing alcohol, tobacco, and gaming (i.e., "sin" firms).[20] I retain in my sample those firms that are in the intersection of the KLD STATS and Compustat databases with sufficient available data to construct all variables used in the empirical specifications. I winsorize all continuous, non-logarithmic variables at the 1st and 99th percentiles to reduce the effects of outliers. The final sample consists of 10,107 firm-year observations representing 1,860 firms from 1992-2009.

3.2 Descriptive statistics

Table 1, Panel A provides sample descriptive statistics. The mean (median) *CSR_Level* across all firm-years is 1.54 (1) and the mean (median) *CSR_Change* is 0.12 (0). The mean (median) firm in the sample has an *AQ* of -0.045 (-0.033), which is consistent with prior research (Francis et al., 2005). Table 1, Panel B provides sample descriptive statistics for firm-years with large investments in CSR (*HighCSR_Change*=1) and those without large

[18] To merge KLD STATS with Compustat, I first link KLD STATS to CRSP data using ticker symbol. I ensure the validity of the match by comparing company name per KLD STATS to company name per CRSP.

[19] Prior literature that examines the relation between financial reporting quality and investment efficiency excludes firms in the utility and financial industries because of the different nature of investment and financial reporting for these firms.

[20] Hong and Kacperczyk (2009) find that sin stocks: are less held by norm-constrained institutions, receive less analyst coverage, and have higher expected returns than comparable stocks. I exclude sin firms from this study as CSR is likely to have vastly different incentives for sin firms. I use the KLD data to identify sin firms, i.e., those firms with a concern in KLD's Alcohol, Gambling, or Tobacco controversial business issues categories.

investments in CSR (*HighCSR_Change*=0).[21] The *HighCSR_Change*=1 and *HighCSR_Change*=0 sample partitions have statistically significant differences in mean values for many firm-level variables. In particular, firms with large investments in CSR (*HighCSR_Change*=1) are larger, more profitable, and have larger cash flows and larger market-to-book ratios. Table 2 presents the correlations among the main variables. The CSR variables, *CSR_Level* and *CSR_Change*, are significantly positively correlated (Pearson correlation of 0.30).

4. Research Design

To test the hypotheses, I first develop proxies for two constructs key to this analysis: investment in CSR and financial reporting quality.

4.1 Proxy for investment in CSR

I use the KLD data to construct a proxy for a firm's investment in CSR. First, for each firm-year, I construct the variable *CSR_Level*, which is the sum of the strengths in KLD's Community, Diversity, Employee, and Environment categories.[22] I then construct *CSR_Change*, the change in the firm's *CSR_Level* from the prior year, CSR_Level_t - CSR_Level_{t-1}. As firms' CSR policies (and KLD ratings) are likely to be sticky across years, I use *CSR_Change* as a proxy for a firm's investment in CSR, as a KLD rating increase is

[21] *HighCSR_Change* is an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*.

[22] In constructing the *CSR_Level* variable, I do not include KLD's Corporate Governance, Human Rights, or Product categories. I exclude the Corporate Governance category for the following reasons: 1) it is likely to capture a construct different from other CSR categories, 2) it is likely to benefit the investor stakeholder group and thus be less subject to the moral hazard problem than the other CSR categories, and 3) it includes a Transparency subcategory which could be correlated with financial statement reporting quality. Additionally, Hong et al. (2011) find that a factor analysis of the KLD strength categories places a zero weight on the Corporate Governance category, providing empirical justification for excluding Corporate Governance from the *CSR_Level* variable. I exclude the Human Rights category, consistent with Hong et al. (2011), as the composition of this category is not consistent over time. Following the logic of Fisman et al. (2006), I exclude the Product category which has "obvious and direct profit implications" as it measures product quality and R&D expenditures. Refer to Appendix B for a description of KLD's strength categories.

likely to coincide with years in which a firm makes an investment in CSR.[23] I then create an indicator variable, *HighCSR_Change*, equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, which is a proxy for firms with large investments in CSR. In a subsequent test, I provide empirical validation that *HighCSR_Change* captures firm-years with CSR investments.

4.2 Proxy for financial reporting quality

Consistent with prior research that examines the relation between financial reporting quality and investment efficiency, I use accruals quality as a proxy for financial reporting quality. Following Francis et al. (2005), I measure accruals quality using the Dechow and Dichev (2002) approach augmented with the fundamental variables of the modified Jones (1991) model, change in revenues and PPE.[24] The *AQ* metric is based on the following annual, cross-sectional model (in which all variables are scaled by average total assets):

$$TCA_{j,t} = \phi_{0,j} + \phi_{1,j}CFO_{j,t-1} + \phi_{2,j}CFO_{j,t} + \phi_{3,j}CFO_{j,t+1} + \phi_{4,j}\Delta Rev_{j,t} + \phi_{5,j}PPE_{j,t} + \upsilon_{j,t} \quad (1)$$

where *TCA* = total current accruals, equal to (Δ*CA*-Δ*CL*-Δ*Cash* +Δ*STDebt*); *CFO* = cash flow from operations, equal to (*Nibex*-*TA*); *Nibex* = net income before extraordinary items; *TA* = total accruals, equal to (Δ*CA*-Δ*CL*-Δ*Cash* +Δ*STDebt*-*DEPN*); Δ*Rev* = change in revenues; *PPE* = gross value of PPE; Δ*CA* = change in current assets; Δ*CL* = change in current liabilities; Δ*Cash* = change in cash; Δ*STDebt* = change in debt in current liabilities; and *DEPN* = depreciation and amortization expense.

[23] Similarly, Kim and Statman (2011) use the change in the KLD environmental score as a proxy for a firm's investment in environmental responsibility.

[24] The inclusion of change in revenue and PPE follows the suggestion of the McNichols (2002) discussion of the Dechow and Dichev (2002) model.

I estimate Eq. (1) for each of Fama and French's (1997) 48 industry groups with at least 20 firms in year *t*, after winsorizing variables at the 1st and 99th percentiles. $AQ_{j,t}$ is computed as the standard deviation of firm *j*'s residuals, $v_{j,t}$, calculated over years *t*-4 through *t* and multiplied by negative one. As a large standard deviation of residuals indicates poor accruals quality, multiplying by negative one results in an *AQ* variable that is increasing in accruals quality.

4.3 Examination of the determinants of investment in CSR

To provide empirical validation that *HighCSR_Change* captures firm-years with CSR investments, I estimate the following probit regression model, which examines the determinants of investments in CSR:

$$HighCSR\_Change_{i,t} = \beta_0 + \beta_1 Cash_{i,t-1} + \beta_2 CFO_{i,t-1} + \beta_3 Lev_{i,t-1} + \beta_4 MTB_{i,t-1} + \beta_5 Sales\ Growth_{i,t-1} + \beta_6 AQ_{i,t-1} + \sum \gamma_j Controls_{j,i,t-1} + \eta_I + \varphi_t + \varepsilon_{i,t} \quad (2)$$

As described above, *HighCSR_Change* is an indicator variable designed as a proxy for firms with investments in CSR and *AQ* is accruals quality. All other variables are as described in Appendix A. *Controls* is a set of control variables, η is an industry fixed-effect using the Fama and French (1997) 48-industry classification, and φ is a year fixed-effect.

4.4 Test of Hypothesis 1

To test whether financial reporting quality is negatively associated with CSR investment in firms with a higher likelihood of over-investment (H_1), I follow the empirical methodology of Biddle et al. (2009). First, I construct the variable *Overi*, designed as a proxy for a firm's likelihood of over-investment, using firm-specific characteristics (i.e., cash and leverage) shown to be associated with over-investment. Specifically, following Biddle et al. (2009), *Overi* is computed as the average of the firm's decile rank of cash and the firm's

decile rank of (leverage*-1), both ranked by year. This measure relies on the arguments that firms with large cash balances are more likely to face agency problems and over-invest (Jensen, 1986) and that firms with low leverage are less likely to suffer the debt overhang problem that would force them to under-invest (Myers, 1977). I next estimate the following probit regression model:

$$HighCSR\_Change_{i,t} = \beta_0 + \beta_1 AQ\_Rank_{i,t} + \beta_2 AQ\_Rank_{i,t} * HighOveri_{i,t} + \beta_3 HighOveri_{i,t} + \sum \gamma_j Controls_{j,i,t-1} + \eta_I + \varphi_t + \varepsilon_{i,t} \quad (3)$$

where *HighCSR_Change* is an indicator variable designed as a proxy for firms with investments in CSR. *AQ_Rank* is the decile rank of accruals quality. *HighOveri* is an indicator variable used to distinguish firms in settings with higher likelihood of over-investment. *Controls* is a set of control variables, η is an industry fixed-effect using the Fama and French (1997) 48-industry classification, and φ is a year fixed-effect.

Hypothesis 1 predicts that financial reporting quality is negatively associated with CSR investment in firms with a higher likelihood of over-investment. In a linear specification of Eq. (3), the coefficient β_2 would measure the incremental relation between financial reporting quality and investment in CSR for firms with a higher likelihood of over-investment, and a significantly negative β_2 coefficient would provide evidence, consistent with H_1, that financial reporting quality is negatively associated with CSR investment in firms with a higher likelihood of over-investment.[25] However, the nonlinearity of the probit specification makes the interaction coefficient difficult to interpret directly. Specifically, in the nonlinear probit specification of Eq. (3), one cannot merely assess the sign and

[25] Also, in a linear specification of Eq. (3), the total effect of financial reporting quality on investment in CSR for firms with a higher likelihood of over-investment would be measured by the sum of the coefficients on financial reporting quality and the interaction between financial reporting quality and *HighOveri* (i.e., $\beta_1+\beta_2$).

significance of β_2 to assess the marginal effect of the interaction term as in the linear model.[26] Thus, following the recommended methodology of Ai and Norton (2003), I calculate the marginal effect of the interaction term (i.e., the cross-partial derivative with respect to the two interacted variables) and assess the statistical significance of the marginal effect using the delta method.[27] Greene (2010) critiques the Ai and Norton (2003) method's use of statistical tests to interpret the interaction effect and suggests that graphical analysis can be more informative than statistical tests in interpreting interaction effects in nonlinear models.[28, 29] Thus, following the recommendation of Greene (2010), I also present graphical analysis of the interaction effect.

To provide further evidence on whether financial reporting quality mitigates over-investment in CSR for firms with a higher likelihood of over-investment, I use an alternative research design. I estimate the following probit regression model for the full sample and for firms in the *HighAQ*=1, *MiddleAQ*=1 and *LowAQ*=1 partitions:

$$HighCSR\_Change_{i,t} = \beta_0 + \beta_1 HighOveri_{i,t} + \sum \gamma_j Controls_{j,i,t-1} + \eta_I + \varphi_t + \varepsilon_{i,t} \quad (4)$$

where the *HighAQ*=1, *MiddleAQ*=1 and *LowAQ*=1 partitions represent firm-years in the top decile, middle deciles, and bottom decile of *AQ_Rank*, and all other variables are as previously defined. A significantly positive β_1 coefficient indicates that firms with a higher

[26] For interaction terms in nonlinear models, both signs and z-statistics for marginal effects could change dramatically from those for coefficient estimates (Powers, 2005).

[27] Ai et al. (2004) provide additional details on empirically implementing the Ai and Norton (2003) methodology.

[28] In particular, In particular, Greene (2010) argues that the marginal effect of the interaction term is difficult to interpret in terms of the relations among the variables in the model because the concept of the "unit change" may be unreasonable.

[29] Kolasinski and Siegel (2010) also critique the Ai and Norton (2003) method and contend that it is perfectly correct to use just the interaction term and its standard error to draw inferences about the interactive effect in a nonlinear model.

likelihood of over-investment have a higher likelihood of investment in CSR, which is consistent with over-investment in CSR. By estimating this probit specification across sample partitions, I allow the relation between *HighOveri* and *HighCSR_Change* to differ conditional on the financial reporting quality. I employ Monte Carlo randomization to test whether the marginal effects of the *HighOveri* coefficients are different across the sample partitions. Appendix C provides a description of the Monte Carlo randomization test methodology.

In the tests of Hypothesis 1, I include several control variables. I control for market-to-book and *Size* as these variables are likely to be related to investment behavior. I also control for a series of firm-specific factors to mitigate concerns that the observed relation is driven by innate firm factors that influence both accruals quality and investment in CSR. Specifically, I control for the standard deviation of cash flows, the standard deviation of sales, the length of the firm's operating cycle, and the frequency of losses (Dechow and Dichev, 2002; Francis et al., 2005). I also control for year fixed-effects and for industry fixed-effects using the Fama and French (1997) 48-industry classification as investment in CSR is likely to vary by industry (Fisman et al., 2006). I cluster standard errors by firm.

4.5 Test of Hypothesis 2

To test whether CSR investment is positively associated with future profitability in firms with high-quality financial reporting (H_2), I estimate the following ordinary-least-squares regressions:

$$Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1} \quad (5)$$

$$Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \beta_3 LowCSR\_Change_{i,t} + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1} \quad (6)$$

where *Nibex* is net income before extraordinary items scaled by average total assets, *LowCSR_Change* is an indicator variable that equals one for firm-years in the bottom decile of firms each year ranked by *CSR_Change*, and all other variables are as previously defined.[30]

I estimate Eq. (5) and Eq. (6) for the full sample and for firms in the *HighAQ*=1 and *LowAQ*=1 partitions.[31] The test of H_2 focuses on the sign and significance of β_2, which estimates the effect of an investment in CSR on future profitability, after controlling for current profitability. By estimating this specification across sample partitions, I allow the slope on *HighCSR_Change* to differ conditional on the financial reporting quality. I test the significance of relevant coefficients across partitions using an untabulated fully-interacted specification.

To further explore the role of financial reporting quality in disciplining investments in CSR, I estimate the following ordinary-least-squares regressions:

$$Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \beta_3 HighCSR\_Change_{i,t} * LowConsumerSensitivity_{i,t} + \beta_6 LowConsumerSensitivity + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1} \quad (7)$$

[30] Although Eq. (5) and Eq. (6) are nested models, I estimate both the reduced and full models to show that results from the estimation of the reduced model are robust to controlling for firms with CSR divestments (*LowCSR_Change*=1) in the full model.

[31] Estimating Eq. (5) and Eq. (6) across samples partitioned by *HighAQ*=1 and *LowAQ*=1 is econometrically equivalent to a fully-interacted specification in which all of the independent variables, including the control variables, are interacted with the *HighAQ* and *LowAQ* variables. For expositional simplicity, I present results for the estimation of Eq. (5) and Eq. (6) across sample partitions. The fully-interacted specification is available upon request.

$$Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \beta_3 HighCSR\_Change_{i,t} * LowConsumerSensitivity_{i,t} + \beta_4 LowCSR\_Change_{i,t} + \beta_5 LowCSR\_Change_{i,t} * LowConsumerSensitivity_{i,t} + \beta_6 LowConsumerSensitivity + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1} \quad (8)$$

where *Nibex* is net income before extraordinary items scaled by average total assets, *LowConsumerSensitivity* is an indicator variable equal to 1 for firms in industries with below-median advertising expense to sales (following Fisman et al., 2006), and all other variables are as previously defined.[32]

Estimating Eq. (7) and Eq. (8) on the full sample allows for a differential relation between CSR investment and future profitability for firms in high versus low consumer sensitivity industries. Specifically, β_2 captures the effect of an investment in CSR on future profitability for firms in high consumer sensitivity industries. β_3 captures the incremental effect of an investment in CSR on future profitability for firms in low consumer sensitivity industries, and ($\beta_2 + \beta_3$) captures the total effect of an investment in CSR on future profitability for firms in low consumer sensitivity industries.

I estimate Eq. (7) and Eq. (8) for the full sample and for firms in the *HighAQ*=1 and *LowAQ*=1 partitions.[33] By estimating this specification across sample partitions, I allow the relation between CSR investment and future profitability to vary conditional on consumer

[32] Although Eq. (7) and Eq. (8) are nested models, I estimate both the reduced and full models to show that results from the estimation of the reduced model are robust to controlling for firms with CSR divestments (*LowCSR_Change*=1) in the full model.

[33] Estimating Eq. (7) and Eq. (8) across samples partitioned by *HighAQ*=1 and *LowAQ*=1 is econometrically equivalent to a fully-interacted specification in which all of the independent variables, including the control variables, are interacted with the *HighAQ* and *LowAQ* variables. For expositional simplicity, I present results for the estimation of Eq. (7) and Eq. (8) across sample partitions. The fully-interacted specification is available upon request.

sensitivity and financial reporting quality. I test the significance of relevant coefficients across partitions using an untabulated fully-interacted specification.

In the tests of Hypothesis 2, I include several control variables. Most importantly, I control for current profitability, $Nibex_t$. I control for leverage and *Size*, as these variables are likely to be related to future profitability, and for a series of firm-specific factors to mitigate concerns that the observed relation is driven by innate firm factors. I also control for year fixed-effects and for industry fixed-effects using the Fama and French (1997) 48-industry classification, and I cluster standard errors by firm.

5. Empirical Results

5.1 Examination of the determinants of investment in CSR

Table 3 reports the results of estimating Eq. (2), which examines the determinants of investments in CSR. Models (1) - (3) provide evidence that investment in CSR is positively related to cash and cash flow and negatively related to leverage. This result provides empirical validation that *HighCSR_Change* captures firm-years with CSR investments, as it indicates that firms that are less financially constrained are more likely to invest in CSR. This result is consistent with the Hong et al. (2011) empirical finding that less financially-constrained firms have higher CSR scores and that a relaxation of financial constraints leads to an increase in CSR investment. This result also provides empirical validation for using the *Overi* variable as a proxy for a firm's likelihood of over-investment.

Models (1) - (3) also show a positive relation between firm size and investment in CSR, consistent with findings in prior literature (Ioannou and Serafeim, 2010a). This is consistent with the prediction that highly visible firms have greater incentives to invest in CSR (Brammer and Millington, 2008; Ioannou and Serafeim, 2010a). Also, models (1) - (3)

show a positive relation between market-to-book ratio and investment in CSR, consistent with prior literature (Ioannou and Serafeim, 2010b). Finally, model (3) shows an insignificant relation between *AQ* and investment in CSR for the full sample (coefficient of -0.693, z-statistic of -0.95). This suggests that the role of financial reporting quality in disciplining investments in CSR is conditional on the specific setting in which the firm operates (e.g., whether the firm operates in a setting with high likelihood of over-investment). This will be explored further in subsequent tests.

5.2 Financial reporting quality and over-investment in CSR

Table 4 reports the results of the test of hypothesis H_1, which predicts that higher-quality financial reporting reduces over-investment in CSR. I find evidence that financial reporting quality is negatively associated with CSR investment in firms with a higher likelihood of over-investment, consistent with H_1. Specifically, there is a significant negative coefficient on the interaction between financial reporting quality and higher likelihood of over-investment, *AQ_Rank*HighOveri* (coefficient of -0.269, z-statistic of -1.94).[34] The marginal effect of the interaction between *AQ_Rank* and *HighOveri* is negative and significant (marginal effect of approximately -0.04, significant at the 10% level two-tailed, calculated in accordance with the methodology of Ai and Norton, 2003). In accordance with Greene (2010), which suggests that graphical analysis can be more informative than statistical tests in interpreting the interaction effects in nonlinear models, I also present graphical analysis of the interaction effect.

[34] Kolasinski and Siegel (2010) contend that it is perfectly correct to use just the interaction term and its standard error to draw inferences about the interactive effect in a nonlinear model. Given the debate in the literature, I also show that results are consistent using the Ai and Norton (2003) methodology and using the Greene (2010) recommendation of graphical analysis.

Appendix D presents the marginal effect of the interaction term, calculated as the cross-partial derivative with respect to the two interacted variables. Consistent with the statistical test, the graphical analysis provides evidence of a negative marginal effect of the interaction between *AQ_Rank* and *HighOveri*. Thus, the findings in Table 4 coupled with the graphical analysis of Appendix D provide consistent support for hypothesis H_1.[35] Also, the coefficient on *HighOveri* is positive and significant (coefficient of 0.261, z-statistic of 2.96), consistent with over-investment in CSR.[36]

In terms of the relation between financial reporting quality and investment in CSR for firms with a higher likelihood of under-investing, I find that the estimated coefficient on *AQ_Rank* is insignificantly positive (coefficient of 0.143, z-statistic of 1.41). In contrast, Biddle et al. (2009) find a significantly positive coefficient on financial reporting quality in their regression which examines the relation between financial reporting quality and overall investment. This Biddle et al. (2009) result is consistent with higher-quality financial reporting reducing under-investment (i.e., increasing investment in firms that are likely to under-invest). My result suggests that higher-quality financial reporting does not increase investment in CSR in firms that are likely to under-invest. This is in line with the Hong et al. (2011) model which proposes that financially-constrained firms do not have enough funding to achieve first-best level of investment and therefore spend nothing on CSR.

[35] In an untabulated robustness test, I re-estimate Eq. (3) after excluding the firms with CSR divestments (*LowCSR_Change*=1). The results are robust to this specification, with a significant negative coefficient on the interaction between financial reporting quality and higher likelihood of over-investment, *AQ_Rank*HighOveri* (coefficient of -0.316, z-statistic of -2.20). The increased significance of the interaction term indicates that including the CSR divestment observations induces noise that reduces the power of the statistical tests.

[36] In the specification of Eq. (3), similar to Biddle et al. (2009), the coefficient on *HighOveri* measures the effect of high likelihood of over-investment on investment in CSR when accrual quality is zero, which is never the case in this sample. In an untabulated regression, I re-estimate the model after centering accrual quality at zero, and the coefficient on *HighOveri* remains positive and significant as predicted.

Table 5 reports the results of estimating Eq. (4). As reported in model (1), firms with a higher likelihood of over-investment have a higher likelihood of investment in CSR, which is consistent with over-investment in CSR. This is evidenced by the significantly positive coefficient on *HighOveri* for the full sample (coefficient of 0.110, z-statistic of 2.64). Model (2) provides evidence that high-quality financial reporting mitigates over-investment in CSR, as indicated by the insignificant coefficient on *HighOveri* in the *HighAQ*=1 partition (coefficient of -0.132, z-statistic of -0.86). Models (3) and (4) provide evidence consistent with over-investment in CSR in the *MiddleAQ*=1 and *LowAQ*=1 partitions as indicated by the significantly positive coefficients on *HighOveri* (coefficients of 0.126, 0.428 and z-statistic of 2.71, 2.72 for the *MiddleAQ*=1 and *LowAQ*=1 partitions, respectively). The Monte Carlo randomization test indicates that there is a statistically significant difference in the marginal effects of the *HighOveri* coefficients across the *HighAQ*=1 and *LowAQ*=1 partitions (p-value of 0.03), consistent with higher-quality financial reporting mitigating over-investment in CSR. Overall, the findings in Table 4 and 5 are consistent with higher-quality financial reporting reducing over-investment in CSR.

5.3 Financial reporting quality and ex-post investment efficiency

Table 6 reports the results of the test of hypothesis H_2, which predicts that CSR investment is positively associated with future profitability in firms with high-quality financial reporting. Table 6 estimates Eq. (5) and Eq. (6), and the coefficient on *HighCSR_Change* represents an estimate of the effect of an investment in CSR on future profitability, after controlling for current profitability and other observable firm-level determinants of future performance.[37]

[37] Eq. (5) and Eq. (6) also control for the effect of industry and year on future financial performance with fixed-effects.

Models (1) and (2) provide evidence that investment in CSR is unrelated to future profitability for the full sample, as indicated by the insignificant coefficient on *HighCSR_Change* (coefficient of 0.004 and t-statistic of 1.32 for model (1)). This is consistent with many empirical findings in the management literature.[38] Consistent with H_2, model (3) provides evidence that CSR investment is positively associated with future profitability in firms with high-quality financial reporting, as indicated by the significant positive coefficient on *HighCSR_Change* (coefficient of 0.0064, t-statistic of 1.71). The coefficient of 0.0064 indicates that in the year following investment in CSR, profitability is .64 percentage points higher for firms in the *HighAQ*=1 partition that invest in CSR versus those that do not. This difference is economically significant, as it represents 12.7% of the mean profitability in year *t*+1 of firms without investments in CSR.

In sharp contrast to the high-quality financial reporting partition, model (4) provides evidence that CSR investment is negatively associated with future profitability in firms with low-quality financial reporting, as indicated by the significant negative coefficient on *HighCSR_Change* (coefficient of -0.032, t-statistic of -2.05). The coefficient of -0.032 indicates that in the year following investment in CSR, profitability is 3.2 percentage points lower for firms in the *LowAQ*=1 partition that invest in CSR versus those that do not. This difference represents 63.6% of the mean profitability in year *t*+1 of firms without investments in CSR, suggesting that investment in CSR in low-quality financial reporting firms is detrimental to shareholders. The fully-interacted specification shows that the coefficient on *HighCSR_Change* is statistically different across the *HighAQ*=1 and

[38] Margolis et al. (2007) conduct a meta-analysis of hundreds of studies that examine the relation between CSR and corporate financial performance and find that while the overall relation is positive but small, many studies (58%) document a non-significant relation.

LowAQ=1 partitions (difference of 0.039, p-value of 0.01). Also, the coefficient on $Nibex_t$ is larger in the *HighAQ*=1 partition than the *LowAQ*=1 partition (coefficient of 0.879 versus 0.404 in models (3), (4)), consistent with the prior literature finding that firms with better accruals quality have more persistent earnings (Francis et al., 2004).

Models (5) and (6) provide results consistent with models (3) and (4), after controlling for firms with CSR divestments (*LowCSR_Change*=1). Interestingly, the fully-interacted specification reveals that the coefficient on *LowCSR_Change* is statistically indistinguishable across the *HighAQ*=1 and *LowAQ*=1 partitions (p-value of 0.59), suggesting that CSR divestment does not have differential implications for future profitability conditional on firms' financial reporting quality.

Overall, the results in Table 6 show that there is a positive relation between investment in CSR and future profitability for firms with high-quality financial reporting whereas there is a negative relation between investment in CSR and future profitability for firms with low-quality financial reporting. This is consistent with the interpretation that high-quality financial reporting disciplines managers to invest efficiently in CSR that benefits shareholders, whereas low-quality financial reporting allows managers to invest inefficiently in CSR to obtain private benefits at the detriment of shareholders.

Table 7 reports the results of estimating Eq. (7) and Eq. (8). Models (1) and (2) provide evidence that for firms in high consumer sensitivity industries, investment in CSR is positively related to future profitability, as indicated by the significant positive coefficient on *HighCSR_Change* (coefficient of 0.012 and t-statistic of 3.15 for model (1)). This is consistent with findings in the prior literature that in high consumer sensitivity industries

where CSR investments can increase consumer demand, investment in CSR is positively related to financial performance (e.g., Lev et al., 2009; Fisman et al., 2006).

Consistent with the prediction that CSR is less likely to be directly related to future financial performance for firms in low consumer sensitivity industries, Models (1) and (2) indicate a negative incremental effect of an investment in CSR on future profitability for firms in low consumer sensitivity industries (coefficient on *HighCSR_Change*LowConsumerSensitivity* of -0.016 and t-statistic of -2.85 for model (1)). Thus, for firms in low consumer sensitivity industries, models (1) and (2) indicate investment in CSR is insignificantly related to future profitability (i.e., sum of coefficients on *HighCSR_Change* and *HighCSR_Change*LowConsumerSensitivity* is insignificantly different from zero in untabulated tests).

For high consumer sensitivity firms, model (3) provides evidence that CSR investment is positively associated with future profitability in firms with high-quality financial reporting, as indicated by the significant positive coefficient on *HighCSR_Change* (coefficient of 0.0088, t-statistic of 1.88). For high consumer sensitivity firms, model (4) provides evidence that CSR investment is insignificantly negatively associated with future profitability in firms with low-quality financial reporting (coefficient on *HighCSR_Change* of -0.0004, t-statistic of -0.03).[39]

For low consumer sensitivity firms, model (3) provides evidence that CSR investment is insignificantly positively associated with future profitability in firms with high-quality financial reporting, as indicated by the sum of coefficients on *HighCSR_Change* and

[39] The fully-interacted specification shows that the coefficient on *HighCSR_Change* is statistically indistinguishable across the *HighAQ*=1 and *LowAQ*=1 partitions for high consumer sensitivity firms (difference of 0.0092, p-value of 0.58).

*HighCSR_Change*LowConsumerSensitivity* (sum of coefficients of 0.0035, p-value of 0.53). In stark contrast, for low consumer sensitivity firms, model (4) provides evidence that CSR investment is significantly negatively associated with future profitability in firms with low-quality financial reporting, as indicated by the sum of coefficients on *HighCSR_Change* and *HighCSR_Change*LowConsumerSensitivity* (sum of coefficients of -0.060, p-value of 0.01).[40, 41] Thus, model (4) shows that the negative relation between investment in CSR and future profitability for firms with low-quality financial reporting is exacerbated in low consumer sensitivity firms. Overall, the results in Table 7 suggest that in settings where CSR has a tenuous link to financial performance (e.g., firms with low consumer sensitivity), financial reporting quality plays a particularly important role in disciplining managers to avoid inefficient CSR investments that are detrimental to shareholders.

6. Conclusion

I investigate the role of financial reporting quality in disciplining managers' investments in corporate social responsibility (CSR). I hypothesize and find that higher-quality financial reporting reduces over-investment in CSR. This is consistent with the logic that higher-quality financial reporting mitigates the moral hazard problem that results in over-investment in CSR for the manager's private benefit.

To further explore whether high-quality financial reporting disciplines managers to invest efficiently in CSR, I use an ex-post measure of investment efficiency, future financial performance. I hypothesize and find that for firms with high-quality financial reporting,

[40] The fully-interacted specification shows that for low consumer sensitivity firms, the total coefficient on *HighCSR_Change* (i.e., the sum of coefficients on *HighCSR_Change* and *HighCSR_Change*LowConsumerSensitivity*) is statistically different across the *HighAQ*=1 and *LowAQ*=1 partitions (difference of 0.064, p-value of 0.01).

[41] In Table 7, models (5) and (6) provide results consistent with models (3) and (4), after controlling for firms with CSR divestments (*LowCSR_Change*=1).

investment in CSR is positively associated with future profitability. This is consistent with the logic that high-quality financial reporting disciplines managers to make investments in CSR that benefit shareholders. On the contrary, there is a negative relation between investment in CSR and future profitability for firms with low-quality financial reporting. Further analysis shows that this negative relation for firms with low-quality financial reporting is exacerbated in low consumer sensitivity firms. This suggests that in settings where CSR has a tenuous link to financial performance, financial reporting quality plays an important role in disciplining managers to avoid inefficient CSR investments.

In recent years and particularly in the wake of the financial crisis, there has been an increased focus on CSR. There has been much theoretical debate on whether CSR is a profit-motivated investment that enhances firms' future financial performance or a distribution of shareholder wealth for pursuit of managers' own interests, and while many studies have examined the valuation implications of CSR, this is still very much an open question in the literature. Given the increasing importance of CSR in the economy and the ongoing debate on its valuation implications, I view this study as an important contribution to the debate. Overall, my results suggest that higher-quality financial reporting improves CSR investment efficiency by mitigating moral hazard, resulting in an investment in CSR that benefits shareholders by improving future financial performance. Thus, I identify one channel, the disciplining role of financial reporting quality, which affects whether CSR results in value creation.

Table 1. Descriptive Statistics

Panel A shows the sample descriptive statistics. Panel B shows the descriptive statistics by *HighCSR_Change*, an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise. The significance of the difference in means in Panel B is based on a t-test. ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

Descriptive Statistics

Panel A							Panel B						
	Full Sample						*HighCSR_Change*=1			*HighCSR_Change*=0			
Variable	Mean	St. Dev.	25%	Median	75%	N	Mean	Median	N	Mean	Median	N	Difference in Mean
CSR_Level	1.54	2.06	0	1	2	10,107	3.70	3	952	1.32	1	9,155	***
CSR_Change	0.12	0.71	0	0	0	10,107	1.58	1	952	-0.03	0	9,155	***
AQ	-0.045	0.038	-0.057	-0.033	-0.021	10,107	-0.044	-0.031	952	-0.046	-0.033	9,155	
AQ_Rank	0.55	0.29	0.30	0.60	0.80	10,107	0.59	0.60	952	0.55	0.50	9,155	***
HighAQ	0.10	0.30	0	0	0	10,107	0.13	0	952	0.10	0	9,155	***
MiddleAQ	0.80	0.40	1	1	1	10,107	0.79	1	952	0.80	1	9,155	
LowAQ	0.10	0.30	0	0	0	10,107	0.08	0	952	0.10	0	9,155	*
Overi	0.55	0.24	0.35	0.55	0.75	10,107	0.52	0.50	952	0.55	0.55	9,155	***
HighOveri	0.45	0.50	0	0	1	10,107	0.41	0	952	0.46	0	9,155	***
$Nibex_{t+1}$	0.05	0.10	0.02	0.06	0.10	10,107	0.06	0.06	952	0.05	0.06	9,155	**
$Nibex_{t}$	0.05	0.10	0.02	0.06	0.10	10,107	0.06	0.06	952	0.05	0.06	9,155	***
LowConsumerSensitivity	0.52	0.50	0	1	1	10,107	0.50	0	952	0.52	1	9,155	
Cash	0.10	0.13	0.02	0.06	0.14	10,107	0.11	0.06	952	0.10	0.06	9,155	
CFO	0.08	0.11	0.04	0.09	0.14	10,107	0.10	0.10	952	0.08	0.09	9,155	***
Lev	1.43	2.47	0.52	1.04	1.80	10,107	1.57	1.20	952	1.42	1.03	9,155	*
MTB	3.38	3.26	1.72	2.58	3.99	10,107	3.81	3.06	952	3.33	2.54	9,155	***
Sales Growth	0.13	0.23	0.02	0.09	0.19	10,107	0.13	0.09	952	0.13	0.09	9,155	
Size	7.48	1.52	6.38	7.43	8.48	10,107	8.21	8.21	952	7.41	7.34	9,155	***
σ_{CFO}	0.07	0.07	0.03	0.05	0.09	10,107	0.07	0.05	952	0.07	0.05	9,155	
σ_{Sales}	0.14	0.11	0.06	0.10	0.17	10,107	0.13	0.10	952	0.14	0.10	9,155	
Op. Cycle	4.64	0.64	4.32	4.71	5.03	10,107	4.60	4.68	952	4.64	4.72	9,155	
Losses	0.79	1.28	0	0	1	10,107	0.78	0	952	0.79	0	9,155	

Table 2. Correlations

Pearson (Spearman) Correlations Above (Below) the Diagonal for the sample.
Correlations significant at the 5% level are in bold.

Correlations												
	CSR_Level	*CSR_Change*	*HighCSR_Change*	*AQ*	*AQ_Rank*	*HighAQ*	*LowAQ*	*Overi*	*HighOveri*	*Nibex $_{t+1}$*	*Nibex $_{t}$*	*LowConsumerSensitivity*
CSR_Level	1	**0.30**	**0.34**	**0.11**	**0.10**	**0.05**	**-0.06**	**-0.05**	**-0.05**	**0.09**	**0.08**	**-0.08**
CSR_Change	**0.28**	1	**0.67**	0.02	0.02	0.02	-0.02	-0.02	-0.01	**0.03**	**0.03**	-0.01
HighCSR_Change	**0.32**	**0.63**	1	0.01	**0.04**	**0.03**	-0.02	**-0.04**	**-0.03**	0.02	**0.03**	-0.02
AQ	**0.12**	0.02	0.02	1	**0.81**	**0.31**	**-0.75**	**-0.35**	**-0.31**	**0.24**	**0.29**	**-0.03**
AQ_Rank	**0.08**	0.02	**0.04**	**0.97**	1	**0.52**	**-0.52**	**-0.37**	**-0.33**	**0.16**	**0.18**	**-0.04**
HighAQ	**0.05**	0.02	**0.03**	**0.51**	**0.52**	1	**-0.11**	**-0.17**	**-0.16**	**0.04**	0.05	**-0.03**
LowAQ	**-0.04**	-0.02	-0.02	**-0.50**	**-0.52**	**-0.11**	1	**0.24**	**0.21**	**-0.18**	**-0.21**	0.01
Overi	**-0.05**	-0.03	**-0.04**	**-0.36**	**-0.37**	**-0.17**	**0.24**	1	**0.85**	**0.08**	**0.10**	0.02
HighOveri	**-0.04**	-0.02	**-0.03**	**-0.33**	**-0.33**	**-0.16**	**0.21**	**0.86**	1	**0.07**	**0.09**	0.01
Nibex $_{t+1}$	**0.07**	**0.04**	0.02	**0.13**	**0.12**	**0.02**	**-0.13**	**0.18**	**0.15**	1	**0.62**	**-0.05**
Nibex $_{t}$	**0.07**	**0.03**	**0.03**	**0.12**	**0.10**	0.02	**-0.12**	**0.23**	**0.19**	**0.71**	1	**-0.04**
LowConsumerSensitivity	**-0.08**	-0.01	-0.02	**-0.04**	**-0.04**	**-0.03**	0.01	0.02	0.01	**-0.09**	**-0.08**	1

Table 3. Determinants of investment in CSR

This table presents the results of the probit estimation of Eq. (2):

(2)

$$HighCSR\_Change_{i,t} = \beta_0 + \beta_1 Cash_{i,t-1} + \beta_2 CFO_{i,t-1} + \beta_3 Lev_{i,t-1} + \beta_4 MTB_{i,t-1} + \beta_5 Sales\ Growth_{i,t-1} + \beta_6 AQ_{i,t-1} + \sum \gamma_j Controls_{j,i,t-1} + \eta_I + \varphi_t + \varepsilon_{i,t}$$

The dependent variable, *HighCSR_Change*, is an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise. All other variables are as described in Appendix A. Z-statistics are based on standard errors clustered by firm. ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
VARIABLES	*HighCSR_Change*	*HighCSR_Change*	*HighCSR_Change*
Cash	0.6470***	0.3125*	0.3215*
	(4.14)	(1.72)	(1.76)
CFO	0.4193**	0.6767***	0.6738***
	(2.14)	(3.24)	(3.24)
Lev	-0.0331***	-0.0362***	-0.0358***
	(-3.15)	(-3.14)	(-3.09)
MTB	0.0249***	0.0283***	0.0281***
	(4.14)	(4.06)	(4.03)
Sales Growth	-0.0859	-0.0700	-0.0684
	(-1.01)	(-0.72)	(-0.71)
AQ			-0.6934
			(-0.95)
Size	0.2087***	0.2587***	0.2599***
	(15.17)	(15.94)	(15.91)
σ_{CFO}	0.4832	0.4173	0.2145
	(1.50)	(1.26)	(0.55)
σ_{Sales}	0.3265*	0.1969	0.1908
	(1.89)	(1.05)	(1.02)
Op. Cycle	-0.0296	-0.0872**	-0.0860**
	(-1.01)	(-2.01)	(-1.98)
Losses	0.0441**	0.0338*	0.0308*
	(2.55)	(1.93)	(1.74)
Observations	10,107	10,068	10,068
Fixed Effects	None	Ind and Y	Ind and Y
Clustered SEs	Firm	Firm	Firm
Pseudo R-squared	0.0476	0.123	0.123

Table 4. Relation between financial reporting quality and investment in CSR

This table presents the results of the probit estimation of Eq. (3):

(3) $HighCSR\_Change_{i,t} = \beta_0 + \beta_1 AQ\_Rank_{i,t} + \beta_2 AQ\_Rank_{i,t} * HighOveri_{i,t} + \beta_3 HighOveri_{i,t} + \sum \gamma_j Controls_{j,i,t-1} + \eta_I + \varphi_t + \varepsilon_{i,t}$

The dependent variable, *HighCSR_Change*, is an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise. *AQ_Rank* is the decile rank of *AQ*, ranked by year, where *AQ* is the standard deviation of the firm-level residuals from the modified Dechow and Dichev (2002) model during the years t-4 to t, multiplied by negative one. *HighOveri* is an indicator variable equal to 1 for firms with above median *Overi*, and 0 otherwise, where *Overi* is the average of the decile rank of *Cash* and the decile rank of (*Lev**-1), both ranked by year. All other variables are as described in Appendix A. Z-statistics are based on standard errors clustered by firm. The marginal effect of the interaction term is calculated as the cross-partial derivative with respect to the two interacted variables (Ai and Norton, 2003). To assess the statistical significance of the marginal effect, the Z-statistic is calculated using the delta method (Ai and Norton, 2003). ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

	(1)
VARIABLES	*HighCSR_Change*
AQ_Rank	0.1429
	(1.41)
AQ_Rank * HighOveri	**-0.2693***
	(-1.94)
HighOveri	0.2607***
	(2.96)
MTB	0.0186***
	(3.61)
Size	0.2539***
	(15.52)
σ_{CFO}	0.4021
	(1.19)
σ_{Sales}	0.1975
	(1.05)
Op. Cycle	-0.1000**
	(-2.33)
Losses	0.0060
	(0.36)
Marginal Effect of: *AQ_Rank * HighOveri*	-0.0398*
(Z-Statistic)	(-1.74)
Observations	10,068
Fixed Effects	Ind and Y
Clustered SEs	Firm
Pseudo R-squared	0.120

Table 5. Relation between financial reporting quality and investment in CSR

This table presents the results of the probit estimation of Eq. (4):

(4) $HighCSR\_Change_{i,t} = \beta_0 + \beta_1 HighOveri_{i,t} + \sum \gamma_j Controls_{j,i,t-1} + \eta_I + \varphi_t + \varepsilon_{i,t}$

The dependent variable, *HighCSR_Change*, is an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise. *HighAQ* is an indicator variable equal to 1 for firm-years in the top decile of *AQ_Rank*, 0 otherwise. *MiddleAQ* is an indicator variable equal to 1 for firm-years in the second through ninth deciles of *AQ_Rank*, 0 otherwise. *LowAQ* is an indicator variable equal to 1 for firm-years in the bottom decile of *AQ_Rank*, 0 otherwise. *AQ_Rank* is the decile rank of *AQ*, ranked by year, where *AQ* is the standard deviation of the firm-level residuals from the modified Dechow and Dichev (2002) model during the years t-4 to t, multiplied by negative one. *HighOveri* is an indicator variable equal to 1 for firms with above median *Overi*, and 0 otherwise, where *Overi* is the average of the decile rank of *Cash* and the decile rank of (*Lev**-1), both ranked by year. All other variables are as described in Appendix A. Z-statistics are based on standard errors clustered by firm. ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

		***HighAQ*=1**	***MiddleAQ*=1**	***LowAQ*=1**
	(1)	(2)	(3)	(4)
VARIABLES	*HighCSR_Change*	*HighCSR_Change*	*HighCSR_Change*	*HighCSR_Change*
HighOveri	**0.1101*****	**-0.1320**	**0.1261*****	**0.4281*****
	(2.64)	**(-0.86)**	**(2.71)**	**(2.72)**
MTB	0.0186***	0.0520**	0.0200***	0.0161
	(3.63)	(2.15)	(3.34)	(1.07)
Size	0.2543***	0.2838***	0.2585***	0.2343***
	(15.71)	(5.49)	(13.66)	(3.77)
σ_{CFO}	0.4455	3.3110*	0.3220	-0.2034
	(1.38)	(1.90)	(0.73)	(-0.32)
σ_{Sales}	0.1643	-0.1859	0.2125	-0.5611
	(0.90)	(-0.25)	(1.00)	(-1.02)
Op. Cycle	-0.1017**	0.1097	-0.1141**	-0.2722**
	(-2.38)	(0.76)	(-2.22)	(-2.36)
Losses	0.0047	-0.0799	0.0225	-0.0554
	(0.28)	(-0.82)	(1.15)	(-1.30)
Observations	10,068	897	8,034	805
Fixed Effects	Ind and Y	Ind and Y	Ind and Y	Ind and Y
Clustered SEs	Firm	Firm	Firm	Firm
Pseudo R-squared	0.119	0.177	0.124	0.117

Table 6. Investment in CSR and future financial performance

This table presents the results of the ordinary-least-squares estimation of Eq. (5) and Eq. (6):

(5) $Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1}$

(6) $Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \beta_3 LowCSR\_Change_{i,t} + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1}$

The dependent variable, $Nibex_{i,t+1}$, is net income before extraordinary items scaled by average total assets. *HighCSR_Change* is an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise. *LowCSR_Change* is an indicator variable equal to 1 for firm-years in the bottom decile of firms each year ranked by *CSR_Change*, 0 otherwise. All other variables are as described in Appendix A.

T-statistics are based on standard errors clustered by firm. ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

			***HighAQ*=1**	***LowAQ*=1**	***HighAQ*=1**	***LowAQ*=1**
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$
$Nibex_t$	0.5610***	0.5609***	0.8793***	0.4037***	0.8745***	0.4039***
	(28.58)	(28.58)	(11.80)	(9.11)	(11.79)	(9.09)
HighCSR_Change	**0.0040**	**0.0041**	**0.0064***	**-0.0321****	**0.0073***	**-0.0319****
	(1.32)	**(1.36)**	**(1.71)**	**(-2.05)**	**(1.91)**	**(-2.02)**
LowCSR_Change		0.0015			0.0105**	0.0024
		(0.52)			(2.18)	(0.16)
Lev	-0.0005	-0.0005	0.0002	0.0014	0.0002	0.0014
	(-1.08)	(-1.08)	(0.37)	(0.61)	(0.29)	(0.61)
Size	0.0015**	0.0015*	0.0017	0.0144***	0.0016	0.0143***
	(2.00)	(1.94)	(1.23)	(3.63)	(1.16)	(3.58)
σ_{CFO}	-0.0200	-0.0201	-0.0126	0.0776	-0.0105	0.0776
	(-0.96)	(-0.96)	(-0.16)	(1.40)	(-0.13)	(1.40)
σ_{Sales}	0.0039	0.0039	-0.0324	0.0317	-0.0325	0.0316
	(0.41)	(0.41)	(-1.53)	(0.87)	(-1.54)	(0.87)
Op. Cycle	-0.0024	-0.0024	-0.0048	0.0025	-0.0050	0.0025
	(-1.09)	(-1.08)	(-1.25)	(0.24)	(-1.31)	(0.25)
Losses	-0.0099***	-0.0099***	0.0039	-0.0170***	0.0038	-0.0170***
	(-8.85)	(-8.85)	(1.03)	(-4.52)	(0.99)	(-4.51)
			(3)-(4)		(5)-(6)	
Difference in *HighCSR_Change* Coefficient			0.0385**		0.0392**	
P-Value			0.0145		0.0136	
Difference in *LowCSR_Change* Coefficient					0.0081	
P-Value					0.5890	
Observations	10,107	10,107	1,004	1,004	1,004	1,004
Adjusted R-squared	0.4177	0.4176	0.5420	0.3734	0.5433	0.3728
Fixed Effects	Ind and Y	Ind and Y	Ind and Y	Ind and Y	Ind and Y	Ind and Y
Clustered SEs	Firm	Firm	Firm	Firm	Firm	Firm

Table 7. Investment in CSR and future financial performance

This table presents the results of the ordinary-least-squares estimation of Eq. (7) and Eq. (8):

(7) $Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \beta_3 HighCSR\_Change_{i,t} * LowConsumerSensitivity_{i,t} + \beta_6 LowConsumerSensitivity + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1}$

(8) $Nibex_{i,t+1} = \beta_0 + \beta_1 Nibex_{i,t} + \beta_2 HighCSR\_Change_{i,t} + \beta_3 HighCSR\_Change_{i,t} * LowConsumerSensitivity_{i,t} + \beta_4 LowCSR\_Change_{i,t} + \beta_5 LowCSR\_Change_{i,t} * LowConsumerSensitivity_{i,t} + \beta_6 LowConsumerSensitivity + \sum \gamma_j Controls_{j,i,t} + \eta_I + \varphi_t + \varepsilon_{i,t+1}$

The dependent variable, $Nibex_{i,t+1}$, is net income before extraordinary items scaled by average total assets. *HighCSR_Change* is an indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise. *LowCSR_Change* is an indicator variable equal to 1 for firm-years in the bottom decile of firms each year ranked by *CSR_Change*, 0 otherwise. *LowConsumerSensitivity* is an indicator variable equal to 1 for firms in industries classified as low consumer sensitivity, and 0 otherwise. All other variables are as described in Appendix A. T-statistics are based on standard errors clustered by firm. ***, **, * represent significance at the 1%, 5%, and 10% level, respectively.

			***HighAQ*=1**	***LowAQ*=1**	***HighAQ*=1**	***LowAQ*=1**
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$	$Nibex_{t+1}$
Nibex $_t$	0.5609***	0.5608***	0.8788***	0.4022***	0.8741***	0.4028***
	(28.62)	(28.61)	(11.77)	(9.13)	(11.76)	(9.12)
HighCSR_Change	**0.0121*** **	**0.0125*** **	**0.0088***	**-0.0004**	**0.0096** **	**-0.0010**
	(3.15)	**(3.18)**	**(1.88)**	**(-0.03)**	**(2.03)**	**(-0.06)**
HighCSR_Change * LowConsumerSensitivity	**-0.0164*** **	**-0.0167*** **	**-0.0053**	**-0.0598** **	**-0.0052**	**-0.0583** **
	(-2.85)	**(-2.88)**	**(-0.75)**	**(-2.06)**	**(-0.73)**	**(-1.99)**
LowCSR_Change		0.0030			0.0104	-0.0097
		(0.77)			(1.47)	(-0.40)
*LowCSR_Change * LowConsumerSensitivity*		-0.0029			0.0002	0.0212
		(-0.53)			(0.02)	(0.72)
LowConsumerSensitivity	-0.0263*	-0.0260*	-0.0469**	-0.1175*	-0.0360*	-0.1172*
	(-1.72)	(-1.71)	(-2.32)	(-1.77)	(-1.81)	(-1.76)
Lev	-0.0005	-0.0005	0.0002	0.0014	0.0002	0.0015
	(-1.09)	(-1.09)	(0.33)	(0.59)	(0.25)	(0.61)
Size	0.0015**	0.0015**	0.0017	0.0144***	0.0016	0.0141***
	(2.04)	(1.97)	(1.24)	(3.65)	(1.17)	(3.51)
σ_{CFO}	-0.0197	-0.0197	-0.0145	0.0729	-0.0123	0.0718
	(-0.95)	(-0.95)	(-0.18)	(1.31)	(-0.16)	(1.29)
σ_{Sales}	0.0036	0.0037	-0.0322	0.0309	-0.0323	0.0305
	(0.38)	(0.40)	(-1.52)	(0.84)	(-1.52)	(0.83)
Op. Cycle	-0.0025	-0.0025	-0.0047	0.0021	-0.0050	0.0023
	(-1.12)	(-1.12)	(-1.23)	(0.21)	(-1.29)	(0.22)
Losses	-0.0098***	-0.0098***	0.0039	-0.0169***	0.0037	-0.0170***
	(-8.85)	(-8.85)	(1.02)	(-4.54)	(0.98)	(-4.55)
			(3)-(4)		(5)-(6)	
Difference in *HighCSR_Change* Coefficient			0.0092		0.0106	
P-Value			0.5815		0.5199	
Difference in (*HighCSR_Change + HighCSR_Change * LowConsumerSensitivity*) Coefficient			0.0637***		0.0637**	
P-Value			0.0089		0.0103	
Observations	10,107	10,107	1,004	1,004	1,004	1,004
Adjusted R-squared	0.4181	0.4181	0.5417	0.3753	0.5425	0.3743
Fixed Effects	Ind and Y	Ind and Y	Ind and Y	Ind and Y	Ind and Y	Ind and Y
Clustered SEs	Firm	Firm	Firm	Firm	Firm	Firm

Appendix A. Variable Definitions

Variable Name	Description	Definition	Source
CSR_Level	CSR level	The firm's sum of CSR strength scores from the Community, Diversity, Employee Relations, and Environment categories.	KLD Research and Analytics
CSR_Change	CSR change	The firm's change in CSR strength scores, calculated as: CSR_Level_t - CSR_Level_{t-1}.	KLD Research and Analytics
HighCSR_Change	High *CSR_Change*	Indicator variable equal to 1 for firm-years in the top decile of firms each year ranked by *CSR_Change*, 0 otherwise.	KLD Research and Analytics
LowCSR_Change	Low *CSR_Change*	Indicator variable equal to 1 for firm-years in the bottom decile of firms each year ranked by *CSR_Change*, 0 otherwise.	KLD Research and Analytics
AQ	Accruals Quality	The standard deviation of the firm-level residuals from the modified Dechow and Dichev (2002) model during the years t-4 to t, multiplied by negative one. The model is a regression of working capital accruals on lagged, current, and future cash flows from operations plus the change in revenue and PPE. All variables are scaled by average total assets. The model is an annual, cross-sectional estimation for each industry with at least 20 observations in a given year based on the Fama and French (1997) 48-industry classification.	Compustat
AQ_Rank	Accruals Quality decile rank	The decile rank of *AQ*, ranked by year.	Compustat
HighAQ	High Accruals Quality	Indicator variable equal to 1 for firm-years in the top decile of *AQ_Rank*, 0 otherwise.	Compustat
MiddleAQ	Middle Accruals Quality	Indicator variable equal to 1 for firm-years in the second through ninth deciles of *AQ_Rank*, 0 otherwise.	Compustat
LowAQ	Low Accruals Quality	Indicator variable equal to 1 for firm-years in the bottom decile of *AQ_Rank*, 0 otherwise.	Compustat
Overi	Likelihood of Over-Investment	The average of the decile rank of *Cash* and the decile rank of (*Lev* *-1), both ranked by year. Leverage is multiplied by minus one before ranking so that both variables are increasing in the likelihood of over-investment.	Compustat
HighOveri	Above median likelihood of Over-Investment	Indicator variable equal to 1 for firms with above median *Overi*, and 0 otherwise.	Compustat
$Nibex_{t+1}$	Net Income before extraordinary items	Net income before extraordinary items scaled by average total assets at year t+1.	Compustat
$Nibex_t$	Net Income before extraordinary items	Net income before extraordinary items scaled by average total assets at year t.	Compustat
LowConsumerSensitivity	Low consumer sensitivity	Indicator variable equal to 1 for firms in industries classified as low consumer sensitivity, and 0 otherwise. To classify industries by consumer sensitivity, the median advertising expense to sales is obtained for each Fama and French (1997) industry using the Compustat population from 1992-2009. Those industries with below-median industry-median advertising expense to sales are classified as low consumer sensitivity.	Compustat
Cash	*Cash*	Cash scaled by average total assets.	Compustat
CFO	Cash flow from operations	Cash flow from operations (calculated using the indirect method as described in Section 4) scaled by average total assets.	Compustat
Lev	Leverage	Total liabilities divided by book equity.	Compustat
MTB	Market to Book ratio	Market value of equity divided by book equity.	Compustat
Sales Growth	Sales growth	The ratio of change in sales to lagged sales.	Compustat
Size	*Size*	The natural logarithm of total assets.	Compustat
σ_{CFO}	Cash Flow Volatility	The standard deviation of cash flow from operations scaled by average total assets, over (t–4, t).	Compustat
σ_{Sales}	Sales Volatility	The standard deviation of sales scaled by average total assets, over (t–4, t).	Compustat
Op. Cycle	Operating Cycle	The natural logarithm of the length of the firm's operating cycle, measured as the sum of days accounts receivable and days inventory.	Compustat
Losses	Loss History	The number of years the firm reports a loss in net income before extraordinary items, over (t–4, t).	Compustat

Appendix B. Corporate Social Responsibility (CSR) Performance

This table presents a summary of the CSR strength categories included in the KLD Research and Analytics database. The data are for all firms included in the KLD Research and Analytics database from 1991-2009 that can be linked to CRSP and Compustat data. Within each of the strength categories (Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights, and Product), KLD defines a set of potential strengths and assigns a value of one if the strength exists, and zero otherwise. Panel A presents the mean, median, and maximum strength scores by category. Panel B presents the mean strength scores by category and industry for the Community, Diversity, Employee Relations, and Environment categories. Panel B also presents the mean year-to-year change in total strengths. Industry definitions are taken from Barth et al. (2005).

Panel A:

CSR Strengths by Category

Category	Sub-Categories	Mean Strength	Median Strength	Max Strength
Community	(1) Charitable Giving, (2) Innovative Giving, (3) Non-U.S. Charitable Giving, (4) Support for Education, (5) Support for Housing, (6) Volunteer Programs, and (7) Other Strengths	0.22	0	5
Corporate Governance	(1) Compensation, (2) Ownership, (3) Political Accountability, (4) Transparency, and (5) Other Strengths	0.17	0	3
Diversity	(1) Board of Directors, (2) CEO, (3) Employment of the Disabled, (4) Promotion, (5) Women & Minority Contracting, (6) Work/Life Benefits, (7) Gay & Lesbian Policies, and (8) Other Strengths	0.67	0	7
Employee Relations	(1) Health and Safety, (2) Retirement Benefits, (3) Union Relations, (4) Cash Profit Sharing, (5) Employee Involvement, and (6) Other Strengths	0.34	0	5
Environment	(1) Beneficial Products & Services, (2) Clean Energy, (3) Pollution Prevention, (4) Recycling, and (5) Other Strengths	0.17	0	4
Human Rights	(1) Labor Rights, (2) Relations with Indigenous Peoples, and (3) Other Strengths	0.01	0	2
Product	(1) Benefits the Economically Disadvantaged, (2) Quality, (3) R&D/Innovation, and (4) Other Strengths	0.09	0	3
Total Strengths		1.65	1	22

Panel B:

CSR Strengths by Category and Industry

Industry	Mean Strength					Mean Change in Strengths
	Community	Diversity	Employee Relations	Environment	Total Strengths	Total Strengths
Mining/Construction	0.18	0.22	0.23	0.11	0.74	0.09
Food	0.42	1.16	0.42	0.29	2.29	0.16
Textiles/Print/Publish	0.18	0.69	0.36	0.32	1.55	0.11
Chemicals	0.30	0.72	0.55	0.47	2.04	0.15
Pharmaceuticals	0.25	0.84	0.41	0.16	1.65	0.13
Extractive	0.21	0.25	0.56	0.23	1.25	0.10
Manf:Rubber/glass/etc	0.34	0.56	0.47	0.19	1.56	0.11
Manf:Metal	0.09	0.19	0.52	0.36	1.16	0.08
Manf:Machinery	0.14	0.32	0.34	0.25	1.04	0.08
Manf:ElectricalEqpt	0.20	0.52	0.40	0.25	1.37	0.09
Manf:TransportEqpt	0.22	0.68	0.71	0.37	1.98	0.17
Manf:Instruments	0.14	0.59	0.27	0.21	1.21	0.10
Manf:Misc.	0.50	0.70	0.29	0.06	1.56	0.08
Computers	0.15	0.87	0.45	0.14	1.62	0.12
Transportation	0.17	0.73	0.35	0.05	1.30	0.09
Utilities	0.24	0.71	0.39	0.51	1.85	0.11
Retail:Wholesale	0.05	0.38	0.16	0.08	0.67	0.07
Retail:Misc.	0.23	0.93	0.25	0.07	1.49	0.10
Retail:Restaurant	0.10	0.97	0.22	0.11	1.40	0.12
Financial	0.43	0.79	0.27	0.01	1.51	0.11
Insurance/RealEstate	0.04	0.25	0.11	0.01	0.41	0.03
Services	0.03	0.59	0.13	0.03	0.78	0.08
Total for all industries	0.22	0.67	0.34	0.17	1.39	0.10

Appendix C. Monte Carlo randomization test methodology[42]

C.1 Monte Carlo randomization test methodology with a linear model.

In a linear specification of Eq. (4), Monte Carlo randomization could be employed to test the statistical significance of the difference in the *HighOveri* coefficients across sample partitions. In a linear specification, this randomization procedure would test how frequently the actual observed difference in the coefficients across partitions would occur randomly.

To execute this test for a linear specification of Eq. (4), I would use the following procedure. First, I would compute the actual observed test statistic (Diff) as the difference in the estimated *HighOveri* coefficient in partition A (*LowAQ*=1) minus the estimated *HighOveri* coefficient in partition B (*HighAQ*=1), where each coefficient was obtained from the estimation of Eq. (4) on the actual sample partitions. Second, from the original observations in the dataset, I would randomly assign n_1 (the original number of *HighAQ* observations, i.e., 1,004) observations without replacement to a random *HighAQ** partition and randomly assign n_2 (the original number of *LowAQ* observations, i.e., 1,004) observations without replacement to a random *LowAQ** partition. Third, I would estimate Eq. (4) for each of the randomly assigned sample partitions and compute the difference in the *HighOveri* coefficient estimates across the randomly assigned sample partitions (Diff*). I would next repeat this process 1,000 times. The resulting p-value would be calculated as the proportion of the 1,000 sample permutations where Diff*>Diff.

C.2 Monte Carlo randomization test methodology with a nonlinear model.

In the nonlinear probit specification of Eq. (4), the marginal effect of the *HighOveri* variable is conditional on the independent variables, unlike the marginal effect in the linear specification. As such, for the nonlinear specification of Eq. (4), I employ a Monte Carlo randomization procedure to test the statistical significance of the difference in the marginal effects of the *HighOveri* coefficients across sample partitions. This randomization procedure tests how frequently the actual observed difference in the marginal effects of the coefficients across partitions would occur randomly.

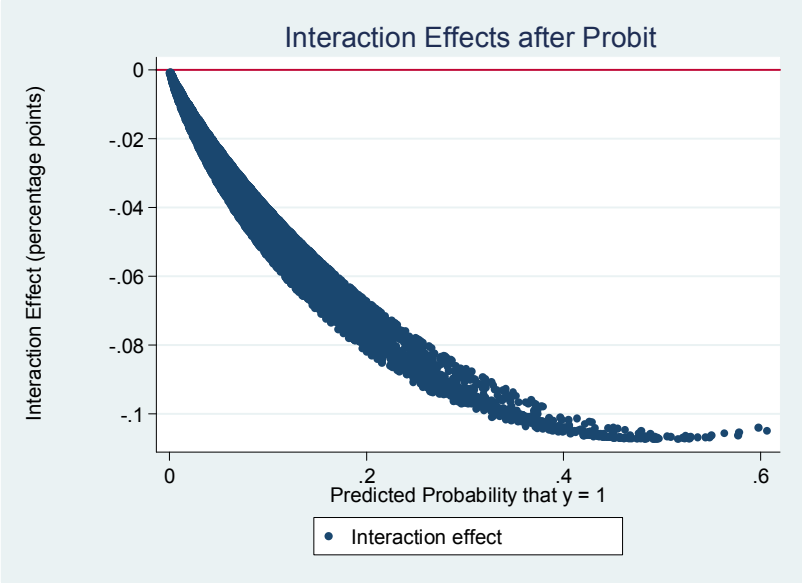
I use the following procedure. First, I compute the actual observed test statistic (MEff_Diff) as the difference in the estimated marginal effect of the *HighOveri* coefficient in partition A (*LowAQ*=1) minus the estimated marginal effect of the *HighOveri* coefficient in partition B (*HighAQ*=1). Each marginal effect is obtained from the probit estimation of Eq. (4) on the actual sample partitions and represents the partial derivative of the probit function with respect to *HighOveri*, evaluated at the mean values of all variables. Second, from the original observations in my dataset, I randomly assign n_1 (the original number of *HighAQ* observations, i.e., 1,004) observations without replacement to a random *HighAQ** partition and randomly assign n_2 (the original number of *LowAQ* observations, i.e., 1,004) observations without replacement to a random *LowAQ** partition. Third, I estimate Eq. (4) for each of the randomly assigned sample partitions and compute the difference in the marginal effects of the *HighOveri* coefficient estimates across the randomly assigned sample partitions (MEff_Diff*). Each marginal effect is obtained from the probit estimation of Eq. (4) on the randomly assigned sample partitions and represents the partial derivative of the probit function with respect to *HighOveri*, evaluated at the mean values of all variables. I

[42] The randomization procedure is adapted from procedures implemented in Owens (2011) and Bushman and Wittenberg-Moerman (2011).

next repeat this process 1,000 times. The resulting p-value is calculated as the proportion of the 1,000 sample permutations where MEff_Diff*> MEff_Diff.

Appendix D. Interaction Effects in Probit Model

This figure presents graphical analysis of the interaction effect of the probit model estimated in Table 4. The figure presents the marginal effect of the interaction term calculated as the cross-partial derivative with respect to the two interacted variables in accordance with Ai and Norton (2003).



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