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International Journal of Financial Studies

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*Suggested Citation:* Walton, Richard (2022) : What do the consequences of environmental, social and governance failures tell us about the motivations for corporate social responsibility?, International Journal of Financial Studies, ISSN 2227-7072, MDPI, Basel, Vol. 10, Iss. 1, pp. 1-19,  
<https://doi.org/10.3390/ijfs10010017>

This Version is available at:

<https://hdl.handle.net/10419/257835>

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Article

# What Do the Consequences of Environmental, Social and Governance Failures Tell Us about the Motivations for Corporate Social Responsibility?

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**Abstract:** This paper investigates the motivations behind corporate social responsibility (CSR) by considering the consequences of environmental, social and governance (ESG) failures that CSR is intended to avoid. Using data from 2581 public U.S. firms over 2007–2018, this paper finds that such failures are associated with increased CEO turnover. This relationship is driven primarily by CEOs with longer tenures and by environmental issues. These negative events are also found to be associated with declines in the firm’s sales growth, employment growth and equity returns. CSR activities that reduce the incidence of such events therefore benefit both the CEO and the shareholder. Interestingly, replacing the CEO does not mitigate the negative impacts of such events on the firm, nor does it reduce the incidence of such events in subsequent years. The decision to remove the CEO following such failures appears costly to both the CEO and the firm’s shareholders.

**Keywords:** corporate social responsibility (CSR); CEO turnover; corporate governance; firm performance



**Citation:** Walton, Richard. 2022. What Do the Consequences of Environmental, Social and Governance Failures Tell Us about the Motivations for Corporate Social Responsibility? *International Journal of Financial Studies* 10: 17. <https://doi.org/10.3390/ijfs10010017>

Academic Editor: Sabri Boubaker

Received: 9 January 2022

Accepted: 18 February 2022

Published: 1 March 2022

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## 1. Introduction

There is a broad literature evaluating whether investment in corporate social responsibility (CSR) benefits shareholders or simply destroys firm value by favoring other stakeholders’ interests at the expense of those of the shareholder. Traditionally, deviations by managers from value maximization have been viewed as inappropriate (Friedman 1970) or a symptom of an agency problem (Jensen 2010). Proponents of stakeholder theory argue that investments in corporate social responsibility can increase firm value, described as “doing well by doing good” (Vogel 2005; Bénabou and Tirole 2010).

Another line of research considers whether costly investments in CSR are primarily made to benefit the firm’s managers. Barnea and Rubin (2010) argue that managers invest the firms’ resources in CSR to benefit their own personal reputations rather than shareholder returns. Cespa and Cestone (2007) argue that the Chief Executive Officer (CEO) may use discretionary CSR investment as a means to enhance managerial entrenchment rather than maximize shareholder returns. Empirical studies suggest this is likely not the case. Cooper (2017) finds instead that CEO turnover is higher at firms with high CSR scores, particularly following poor financial performance. Hubbard et al. (2017) find that CSR investment increases the probability of CEO turnover at firms with poor financial performance but decreases the probability of CEO turnover at firms with superior financial performance.

It is reasonable to consider whether CSR investments might be made to benefit the CEO. The upper echelons theory argues that individual managers affect the strategic decisions of the firm and that these decisions are affected by the experiences and personalities of the executive (Hambrick and Mason 1984). It has been shown empirically that firms value certain CEO experiences and skills over others (e.g., Custódio et al. 2013) and that these experiences impact other firm policies (e.g., Custódio and Metzger 2014). Wei et al. (2018) find that a CEO’s “idiosyncratic qualities” influence corporate philanthropy, and

Boubaker et al. (2020b) show that the level of CSR investment of the firm responds directly to the structure of the CEO's compensation. It has also been shown that the firm's CSR spend, and disclosures respond to investor types (Boubaker et al. 2017) and analyst coverage (Lu and Abeysekera 2021).

This paper uses the RepRisk database of reports of actual ESG failures to test alternative rationales for CSR investments. This paper considers events that damage the environment or society or that suggest ineffective governance (referred to here as negative ESG events). CSR investment is intended to prevent such events. By analyzing the effects of ESG events on firm value, operational performance and management entrenchment, this paper sheds light on the motivations behind firm investment in CSR. This paper finds evidence to suggest both that the CEO has an incentive to invest in CSR to improve their job security and that CSR investment benefits the shareholders. CEO turnover increases when firms are involved in negative ESG events, which CSR investment is intended to avoid. On the other hand, negative ESG events are also associated with decreases in the firm's sales growth, employment growth and equity returns. Hence, preventative actions to avoid such events will also be of benefit to the shareholders. This paper finds no evidence that prior investment in CSR reduces CEO turnover in the event of a negative ESG event. These findings suggest that any improvements in CEO job security associated with CSR investment result from its impact on the actual incidence of negative ESG events rather than its impact on the CEO's personal reputation or relationships with other stakeholders (Harjoto and Jo (2011)'s "strategic-choice" hypothesis).

The decision to replace the CEO is rare and costly (Taylor 2010 estimates the cost to shareholders to be 5.9% of firm assets). It would be expected that the CEO would, therefore, only be removed following a negative ESG event if it resulted in an economic benefit for the firm or if the removal of the incumbent incentivized the CEO's successor to avoid future negative ESG events. Yet no evidence is found that CEO removal mitigates the short-term impact of a negative ESG event on firm revenues, employment and stock returns. Nor does it have any impact on the incidence of negative ESG events in the subsequent four years. The decision to replace the CEO following such an event is therefore not obviously consistent with short-term shareholder value maximization by the board and may be interpreted as a credible commitment to CSR values.

This paper has a number of other interesting, related results. The impact of negative ESG events on CEO turnover is greater when the event relates to environmental issues and increases with the reach and coverage of the event. Unlike Hubbard et al. (2017), this paper finds prior financial performance has no impact on the effect of negative ESG events on CEO turnover.

Measures of CSR tend to attempt to quantify efforts by firms to promote the interests of non-investing stakeholders rather than the actual impact of those firms on the environment and societal stakeholders. For example, the commonly used MSCI ESG KLD STATS data set relies at least partially on self-disclosure by the firm and is affected by judgments of the firm's "capacity ... commitment ... initiatives, programs and targets", though its "track record on managing a relevant risk or opportunity" also has an impact. (MSCI ESG KLD STATS: 1991–2015 DATASETS, MSCI ESG Research 2016). Rather than looking at the relationship between activities aimed at protecting environmental and societal interests and firm performance, this paper investigates the impacts on the firm and its management when these interests are actually damaged. By better understanding the consequences of corporate social irresponsibility, this paper provides a useful perspective for evaluating competing theories of the optimal CSR investment.

The finding that, by avoiding ESG failures, CSR can benefit both the shareholder and the CEO is consistent with recent literature on CSR. Boubaker et al. (2020a) find that CSR can reduce the probability of financial distress, which benefits both the shareholder and the CEO's job security. Consistent with Harjoto et al. (2019), Zadeh's (2020) study of CSR and payout policy shows that CSR can act as a mechanism to reduce informational asymmetry and hence that shareholders' interests and other stakeholders' interests are "not necessarily

in conflict". Liu et al. (2021), on the other hand, show that in some situations, CSR can worsen agency costs. The importance of CSR is further highlighted by Chen et al.'s (2021) finding that it can impact not just the risk and value of the firm but also the firm's customers further down the supply chain.

## 2. Related Literature

### 2.1. Rationales and Motivations

Bénabou and Tirole (2010) outline the potential rationales and motivations for firms to invest in CSR activities and their impacts on the shareholder. Some CSR activities may improve shareholder value ("doing well by doing good"), thus benefiting both shareholders and other stakeholders. Alternatively, managers may engage in "delegated philanthropy," whereby the burdens of socially responsible activities are willingly shouldered by customers, employees or investors in the form of higher prices, lower compensation or lower costs of capital. Such activities are not necessarily inconsistent with shareholder value maximization. Vogel (2005) identifies how this type of CSR can be a source of competitive advantage, protecting the firm from customer boycotts, lowering the firm's cost of capital and attracting productive employees and profitable customers. Lastly, CSR activities may be classified as "insider-initiated corporate philanthropy", a symptom of agency problems within the firm (Jensen and Meckling 1976). These activities benefit the firm's managers at the expense of the firm's shareholders. Such activities are unambiguously bad for shareholders and are the type criticised by Friedman (1970).

When discussing the relationship between CSR and corporate governance, Harjoto and Jo (2011) test hypotheses for CSR activities and find support for the "conflict-resolution" hypothesis (that CSR promotes better dispute resolution between stakeholders). It does not find convincing evidence for the alternative value destroying "over-investment" hypothesis (that managers base CSR investment decisions on the impact on their own reputations rather than on shareholder value, Barnea and Rubin 2010) or for the "strategic-choice" hypothesis (that CSR investment is abused by managers to enhance their entrenchment). This paper aims to understand the motivation behind CSR activities by investigating the impact on CEO turnover and firm performance of ESG failures that CSR investments are intended to avoid.

### 2.2. Impact of CSR on Firm Performance

Given the theoretical potential for both positive and negative impacts on shareholder value, it is unsurprising that the relationship between CSR and firm value has been extensively evaluated empirically. Huang (2021) finds "the weight of empirical evidence shows a positive, statistically significant but economically modest" relationship. Friede et al. (2015) also conclude that "the business case [for CSR investments] is well founded". More recently, Ogachi and Zoltan (2020) agree. Other studies report a negative relationship (for example, Nollet et al. 2016; Brammer et al. 2006). Barnett and Salomon (2012) identify a U-shaped relationship between CSR and financial performance, consistent with a trade-off between the costs and benefits of increasing the degree of social responsibility. Margolis and Walsh (2003) review 127 empirical studies and find that, while there is a positive association between CSR and financial performance, econometric difficulties make claims of a causal relationship potentially "illusory". Jo and Harjoto (2011), however, still find a positive relationship "after correcting for endogeneity and simultaneity issues".

### 2.3. Mechanisms for Impacting Firm Performance

There is a vast literature proposing and testing mechanisms by which actions intended to promote better environmental, social and governance outcomes might improve firm performance. It has been proposed that CSR can improve firm values by reducing the firm's cost of capital (for example, Jiraporn et al. 2005; Verwijmeren and Derwall 2010; Derwall and Verwijmeren 2007; El Ghoul et al. 2011). Various papers suggest sound employment practices improve employee satisfaction and are positively associated with

firm performance (Edmans 2012; Faleye and Trahan 2011). Servaes and Tamayo (2013) demonstrate how socially responsible activities can beneficially protect the firm's reputation with customers. Clark et al. (2015) comprehensively review papers relating socially responsible corporate behaviors to firm performance and claim a significant correlation between ESG practices and a lower cost of capital and superior operational performance. Consistent with this literature, this paper concentrates on how ESG failures might affect firm value through the responses of customers, employees and equity investors.

#### 2.4. Measuring ESG Performance

Research into the relationship between the social responsibility of the firm and firm outcomes uses measures based on the firm's own CSR reports and official filings that are qualitative in nature (Cho et al. 2012; Krüger 2015). Ratings agencies publish standardized CSR scores, but these scores do not always align well with one another (Chatterji et al. 2016). CSR scores published by KLD are widely used in the literature, helping to create consistency across research. However, the reports they are based on relate to preemptive efforts to avoid ESG failures rather than the actual prevalence of such failures. Krüger (2015) investigates the effect on firm values of the actual incidence of negative ESG events. Akey et al. (2021) investigate whether firms use CSR to respond to exogenous shocks to their reputations following cyberattacks. The relatively new database, RepRisk, tracks media reports of actual incidences of ESG events for a large sample of firms. This allows researchers to more easily investigate the impact on firms of the events that CSR investments are meant to avoid. Colak et al. (2020) study the effects of different legal traditions (i.e., common vs. civil) on the relationship between negative reputation shocks and CEO turnover. Burke (2021) investigates the role of media reports in reducing informational asymmetry when boards evaluate CEO performance. Kölbel et al. (2017) consider the impact of negative CSR coverage and firm risk. This paper uses the RepRisk database to better understand the motivation for preemptive CSR investments by observing how managers and firm performance are affected by the occurrence of negative ESG events.

#### 2.5. CEO Turnover, ESG and CSR

Replacing the CEO is an important and costly decision (Taylor 2010). As discussed above, it has been argued that managers may implement costly CSR investments to benefit themselves rather than shareholders (Barnea and Rubin 2010) and to enhance managerial entrenchment in particular (Cespa and Cestone 2007). Jenter and Kanaan (2015) show that CEO turnover increases following bad firm performance caused by events beyond the control of the CEO. Godfrey et al. (2009) show that prior CSR can also protect reputational damage to the firm when it suffers a negative event. It is therefore plausible that this same insurance effect may protect the CEO from such negative events. Cooper (2017) finds instead that CEO turnover is higher at firms with high CSR scores, particularly following poor financial performance. Hubbard et al. (2017) find that CSR investment increases the probability of CEO turnover at firms with poor financial performance but decreases the probability of CEO turnover at firms with superior financial performance. Harjoto and Jo (2011) also find that prior CSR investment does not reduce CEO turnover. This paper aims to better understand the CEO's motivation behind CSR investments by understanding how the occurrence of negative ESG events that CSR investment is meant to prevent impacts CEO turnover.

### 3. Material and Methods

#### 3.1. Hypothesis Development

As discussed above, it has been argued that managers may implement costly CSR investments to benefit themselves or to benefit the firm's shareholders. If the CEO invests in CSR activities in order to avoid negative ESG events that might damage the firm and hence result in the CEO losing their job, it would be expected that the incidence of such events will increase CEO turnover.

**Hypothesis 1a (H1a).** *The probability of CEO turnover will increase following negative ESG events.*

If the CEO invests the firm's resources in CSR activities to build good relationships with other stakeholders in order to protect the CEO from being fired following a bad event (in line with [Cespa and Cestone 2007](#)), it would be expected that prior CSR investments will reduce the probability of CEO turnover and the incidence of negative ESG events that will not impact CEO turnover.

**Hypothesis 1b (H1b).** *The probability of CEO turnover will decrease with prior CSR investment and be unaffected by negative ESG events.*

If CSR investment is intended to avoid damaging responses by stakeholders that result from negative ESG events, it would be expected that there would be observable negative impacts on firm performance when such events do actually occur. Given the research suggesting CSR promotes positive firm performance through its impact on stakeholders such as employees, customers and equity investors, this paper measures such negative performance by considering changes to sales growth, employee growth and equity returns.

**Hypothesis 2a (H2a).** *Firm performance measures will decrease following negative ESG events.*

The decision to remove and replace the CEO is costly to the firm. If the removal of the CEO following a negative ESG event is intended to mitigate the short-term damage to the firm, it would be expected that firms that replace their CEO following such events will experience less economic damage than comparable firms that choose not to.

**Hypothesis 2b (H2b).** *Firm performance will deteriorate less for firms that replace their CEO after suffering negative ESG events than for those that do not replace their CEO.*

Testing these hypotheses provides valuable insight into the motivations for investments in corporate social responsibility.

### 3.2. Data

To test the hypotheses outlined above, a sample was created consisting of all US firms in the following data sources for years 2007 to 2018. The sample includes 2581 unique firms and 25,157 firm-year observations. The main variables of interest are summarized in [Table 1](#).

#### 3.2.1. CEO Turnover

CEO turnover is sourced from Audit Analytics' Director and Officer Changes database, which covers all SEC registrants who have disclosed a director or officer change in Item 5.02 of an 8-K or 8-K/A since August 2004. To ensure turnover only related to the firm's operations is used, turnover due to changes in control and death and other unrelated reasons is excluded from the sample<sup>1</sup>. CEOs who are fired before the middle of the fiscal year are assigned to the prior year.

**Table 1.** Summary Statistics. This table presents summary statistics for the main variables of interest. See Appendix A for variable definitions. All financial variables are constructed using Compustat and are Winsorized at the 1% level at both tails.

	N	Mean	Std. Dev.	25th Pct	Med	75th Pct
<b>Panel A: Reputation and CEO Variables</b>						
RRI	25,157	0.13	0.00	0.00	0.25	0.80
Log (# Events)	25,157	0.54	0.90	0.00	0.00	0.69
KLD CSR	15,518	−0.06	2.33	−1.00	0.00	0.00
Execdir	14,682	0.48	0.16	0.40	0.50	0.58
Log(Total Comp)	14,676	0.52	0.28	0.25	0.52	0.78
Equity Pay	14,682	0.12	0.69	−0.09	0.00	0.67
Tenure	14,682	4.55	2.92	2.00	4.00	6.00
Age 60	14,682	0.31	0.46	0.00	0.00	1.00
Delta	11,827	3.57	2.15	2.05	4.04	5.24
Vega	11,774	5.43	1.49	4.45	5.43	6.42
<b>Panel B: Firm Fundamentals</b>						
Capex	24,211	0.37	0.25	0.19	0.30	0.48
Q	22,963	2.04	1.35	1.21	1.61	2.34
Size	24,690	7.15	1.55	6.01	7.01	8.15
Cash	24,204	0.17	0.22	0.03	0.09	0.24
Leverage	24,221	0.26	0.24	0.06	0.22	0.37
Profit	24,201	0.14	0.10	0.09	0.14	0.19
Stock Return	22,550	0.12	0.56	−0.20	0.05	0.32
Sales Growth	21,272	0.32	0.47	0.00	0.00	1.00
Emp Growth	20,372	0.08	0.27	0.00	0.00	0.00

### 3.2.2. Reputation Data

Time-varying measures of corporate reputation are obtained from RepRisk AG. RepRisk AG is a commercial company that uses over 80,000 news sources in 20 different languages to monitor for company-specific news events related to 28 different CSR issues (such as child labor, animal mistreatment, local pollution, etc.) and creates a monthly reputational risk index (RRI) number for over 70,000 public and private companies worldwide. RepRisk data is used by the Dow Jones Sustainability Index as a metric for inclusion and by various business entities that include ESG criteria in their investment decisions.

Once data regarding a company or issue is found, it is compiled into the RRI using a proprietary algorithm. The factors used to calculate the RRI include the type of issues, the severity of the issues, the reach of the information sources, and the frequency and timing of the information. The severity of the issue is a function of the consequence of that incident (e.g., death, violation of national law), the extent of the incident (e.g., one person, a community), and the cause (e.g., negligence, intent). Reach is determined by the source, with international media (e.g., *Wall Street Journal*, NGO, BBC, etc.) weighted higher than less influential sources (e.g., blogs, local news). Incidences are only entered once unless certain criteria are met such as story development, source escalation, or the six-week rule where an issue appears again after a six-week period.

This paper primarily uses RRI (the maximum monthly value during each firm year) but other measures are also used in robustness checks including the following: the Trend (the largest monthly difference, bounded at zero), Events (the number of new events reported), Severity, Reach, and Novelty of news, and the breakdown by environmental, social, and governance dimensions of the RRI measure. Descriptions of these variables can be found in Appendix A.

Table 2A presents the mean annual RRI measured by two-digit SIC code. The industries with the highest media exposure to reputational shocks are either resource intensive, belong to “sin” industries, or rely on low-wage human capital for value creation. The industries with the lowest exposure are not resource-intensive and are generally service-oriented. To aid the understanding of the RRI measure, Table 2A also shows the mean

annual number of individual ESG incidences by two-digit SIC. Table 3 summarizes the results of regressions examining the other potential determinants of reputational risk. Due to likely systematic differences across the sample, industry and firm-fixed effects are used to account for time-invariant unobservable differences.

**Table 2.** (A) Average RRI by industry. This table sorts industries by how firms' exposure to negative media coverage. RRI Ind is the average RRI for each firm by industry. Events is the average annual number of events per firm in each industry. (B) Correlation matrix—RRI and CSR measure. The table below shows the correlation coefficients between the various measures of reputational risk (RRI, Events, RRI Gov, RRI Soc and RRI Env) and CSR investment (KLD CSR). See Appendix A for variable definitions. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5% and 1% level, respectively.

(A)						
# Firms	Industry (SIC2)	RRI Ind	Events			
2	83: Social and Child Services	0.000	0.00			
1	41: Local and Interurban Passenger Transit	0.030	0.08			
3	17: Special Trade Contractors	0.055	0.31			
9	64: Insurance Agents, Brokers, and Service	0.065	0.28			
11	14: Nonmetallic Minerals, Except Fuels	0.066	0.25			
35	50: Wholesale Trade—Durable Goods	0.071	0.32			
17	55: Automotive Dealers and Service Stations	0.074	0.39			
81	67: Holding and Other Investment Offices	0.075	0.45			
4	22: Textile Mill Products	0.077	0.37			
32	87: Engineering and Management Services	0.084	0.48			
23	23: Apparel and Other Textile Products	0.178	1.82			
9	39: Miscellaneous Manufacturing Industries	0.185	2.24			
32	45: Transportation by Air	0.188	2.64			
24	12: Coal Mining	0.190	4.69			
6	40: Railroad Transportation	0.214	3.46			
40	10: Metal, Mining	0.234	8.98			
4	52: Building Materials and Gardening Supplies	0.255	5.56			
20	53: General Merchandise Stores	0.263	11.39			
32	29: Petroleum and Coal Products	0.278	20.16			
6	21: Tobacco Products	0.389	12.76			
(B)						
	RRI	Events	RRI Gov	RRI Soc	RRI Env	KLD CSR
RRI	1.000					
Events	0.871 ***	1.000				
RRI Gov	0.583 ***	0.512 ***	1.000			
RRI Soc	0.701 ***	0.627 ***	0.072 ***	1.000		
RRI Env	0.547 ***	0.517 ***	−0.015 ***	0.312 ***	1.000	
KLD CSR	0.196 ***	0.201 ***	0.155 ***	0.138 ***	0.059 ***	1.000



**Table 3.** Reputational risk index determinants. The dependent variable is the reputational risk index (RRI) in year  $t + 1$ . See Appendix A for variable definitions. Standard errors are clustered by firm and reported in parentheses. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5%, and 1% level, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
KLD CSR					0.001 (0.001)	0.000 (0.001)
Domestic	−0.048 *** (0.006)		−0.049 *** (0.007)		−0.047 *** (0.008)	
Execdir			−0.004 (0.008)	−0.004 (0.008)	−0.009 (0.008)	−0.004 (0.008)
Log(Delta)			0.002 ** (0.001)	0.002 ** (0.001)	0.002 (0.001)	0.001 (0.001)
Log(Vega)			−0.004 *** (0.002)	−0.005 ** (0.002)	−0.003 * (0.002)	−0.005 ** (0.002)
Size	0.044 *** (0.001)	0.030 *** (0.003)	0.054 *** (0.002)	0.038 *** (0.005)	0.056 *** (0.002)	0.038 *** (0.006)
Q	0.008 *** (0.001)	0.003 ** (0.001)	0.008 *** (0.002)	0.006 ** (0.002)	0.009 *** (0.002)	0.007 ** (0.003)
Capex	−0.023 (0.019)	0.012 (0.020)	−0.022 (0.034)	0.002 (0.038)	0.012 (0.039)	0.0278 (0.044)
R&D	−0.047 * (0.025)	−0.028 (0.036)	−0.052 (0.055)	0.021 (0.065)	−0.126 ** (0.056)	0.026 (0.083)
Profit	−0.062 *** (0.009)	−0.017 * (0.009)	0.031 (0.023)	−0.008 (0.023)	0.039 (0.026)	−0.012 (0.026)
Leverage	−0.023 *** (0.005)	−0.005 (0.005)	−0.026 *** (0.009)	−0.019 ** (0.008)	−0.022 ** (0.009)	−0.026 *** (0.009)
Cash	0.018 *** (0.007)	−0.009 (0.007)	0.034 *** (0.012)	−0.011 (0.012)	0.041 *** (0.013)	−0.007 (0.014)
Observations	20,227	20,145	11,264	11,233	9435	9382
R-squared	0.400	0.623	0.443	0.636	0.457	0.645
Fixed Effects	Industry Year	Firm Year	Industry Year	Firm Year	Industry Year	Firm Year

### 3.2.3. CSR Data

Following the literature, corporate social responsibility is measured by MSCI ESG KLD Stats (“KLD”) measure of CSR. These scores are developed to provide an independent assessment of firms’ social responsibility. The score is an index that equals the number of strengths minus the number of concerns. Therefore, a firm can increase its index score by one point if it eliminates one concern or adds on a strength. As described above, the CSR scores measure the preemptive policies of the firm; whereas, the RRI scores reflect the actual incidence of negative ESG events that CSR policies are meant to avoid. To aid understanding of the relationship between the different measures, Table 2B shows the correlation coefficients of the various RRI variables with the KLD CSR score. It should be noted that the correlation coefficients are statistically significant (with all  $p$ -values less than 1%) but low-to-moderate and positive. It might be expected that CSR scores would be negatively correlated with the incidence of the events they are meant to prevent. However, the positive correlation likely reflects the endogeneity in this relationship: firms that are most prone to such negative events have the greatest incentive to invest in preventative CSR policies.

### 3.2.4. Other Control Variables

Data on firm fundamentals is sourced from Compustat and executive characteristics from Execucomp. We use standard control variables *Size*, *Q*, *Capex*, *R&D*, *Profit*, and *Leverage* to account for time-varying firm characteristics. To account for the delayed timing of reputational events on performance, e.g., events occurring in November may not affect

sales until the next year, outcome variables (such as sales growth and employment growth), are calculated as the following fiscal year's value (i.e.,  $EMP_{t+1}$  and  $Sales_{t+1}$ ) as a percentage of the beginning-of-year value (i.e.,  $EMP_t$  and  $Sales_t$ ). As share prices adjust more quickly to new information, stock returns are calculated conventionally (PRCC  $f_t$  as a percentage of PRCC  $f_{t-1}$  after adjusting for stock splits and dividends). This paper uses CEO characteristics shown in the existing literature to affect the probability of CEO turnover such as total compensation, an indicator for equity pay, CEO tenure, an indicator variable for whether the CEO is nearing retirement age, and an indicator for whether the CEO is a director. Following Coles et al. (2006), the delta and vega of the CEO's compensation are included to control for risk-taking incentives.

#### 4. Empirical Results

##### 4.1. Effects of Negative ESG Events on CEO Turnover

In order to test Hypothesis 1(a), that negative ESG events result in higher CEO turnover, a linear probability model is created using the indicator variable  $CEO\ Turnover_{ft}$ , which has a value of one if the CEO left the firm in fiscal year  $t$ , and zero otherwise.

$$CEO\ Turnover_{ft} = \beta_0 + \beta_1 RRI_{ft} + \beta_2 Controls_{ft} + \alpha_f + \alpha_t + \epsilon_{ft} \quad (1)$$

The variable of interest is  $RRI_{ft}$ , a measure of the negative ESG events in the fiscal year  $t$  calculated as described in the above Section 2.2. If the estimated coefficient  $\beta_1$  is positive, then an increased incidence of negative ESG events is associated with an increased likelihood of CEO turnover in the same fiscal year, consistent with Hypothesis 1(a). If  $\beta_1$  is negative, then negative ESG events are associated with a decreased likelihood of CEO turnover in the same fiscal year. If  $\beta_1$  is not statistically different from zero, then there is no empirical support for a relationship between negative ESG events and CEO turnover.

The controls include other variables known to impact the probability of CEO turnover, including the following: the size and structure of the CEO's compensation, the CEO's age and tenure and the firm's size, growth opportunities and recent stock returns (see, for example, Campbell et al. (2011); Peters and Wagner (2014); Hubbard et al. (2017)). All models also include year-fixed effects and either industry-fixed effects (models 1 and 3) or firm-fixed effects (models 2 and 4). The standard errors are robust and clustered at the firm level.

The results of the linear probability model are summarized in Table 4. In all four models, the estimated coefficient  $\beta_1$  is statistically significant (with  $p$ -values less than 1% in Models 1 and 3 and less than 5% in Models 2 and 4), and positive, indicating that negative ESG events are associated with an increased probability of the CEO losing their job. This is consistent with Hypothesis 1(a) and thus supports the claim that CSR investment, which is intended to reduce the incidence of negative ESG events, benefits the CEO by reducing the probability of CEO turnover. The R-squareds of these models show that up to 16% of the variation in CEO turnover is explained by these models. The signs of the estimated coefficients for the control variables are all as expected. CEO turnover increases with CEO tenure and proximity to retirement age. CEO turnover decreases with recent stock performance and growth opportunities; it decreases further when the CEO is also an executive director.

**Table 4.** Baseline Results. The dependent variable is CEO turnover, the main explanatory variable is the reputational risk index (RRI) for each firm. See Appendix A for variable definitions. Standard errors are clustered by firm and reported in parentheses. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5% and 1% level, respectively.

Variables	(1)	(2)	(3)	(4)
RRI	0.058 *** (0.019)	0.056 ** (0.026)	0.064 *** (0.021)	0.057 ** (0.027)
Execdir	−0.054 *** (0.013)	−0.072 *** (0.022)	−0.053 *** (0.013)	−0.072 *** (0.022)
Log(Total Comp)	−0.008 * (0.004)	−0.007 (0.006)	−0.005 (0.005)	−0.001 (0.006)
Equity Pay	0.004 (0.004)	0.001 (0.004)	0.003 (0.004)	0.001 (0.005)
Tenure	0.007 *** (0.001)	0.027 *** (0.001)	0.007 *** (0.001)	0.028 *** (0.001)
Age 60	0.076 *** (0.007)	0.103 *** (0.009)	0.076 *** (0.007)	0.103 *** (0.009)
Size			−0.001 (0.003)	−0.024 ** (0.009)
Return			−0.014 *** (0.004)	−0.012 ** (0.005)
Q			−0.014 *** (0.002)	−0.024 *** (0.005)
Observations	13,222	13,222	12,871	12,871
R-Squared	0.029	0.029	0.158	0.158
Fixed Effects	Industry Year	Firm Year	Industry Year	Firm Year

To test the robustness of the relationship between the occurrence of negative ESG events and CEO turnover, the analysis was repeated using different measures of reputation-damaging ESG events. The results of these tests are shown in columns 1 to 5 of Table 5.  $Trend_{ft}$  measures whether the reputational risk of negative ESG events is increasing during the fiscal year  $t$ .  $Events_{ft}$  is a measure of the number of distinct negative ESG events during the fiscal year  $t$ . The estimated coefficient of both variables is statistically significant and positive, again, supporting the claim that negative ESG incidents harm CEO entrenchment.

Column 4 of Table 5 attempts to evaluate the relative importance of environmental, social and governance events on CEO turnover. The estimated coefficient of  $RRI_{Env_{ft}}$  is the highest of the three and the only estimated coefficient statistically different from zero, suggesting that the impact on CEO turnover is driven primarily by environmentally damaging events. Column 5 of Table 5 investigates how different dimensions of reputational risk affect CEO turnover and suggests that CEO turnover increases with the coverage of a negative ESG event and the reach of the news media reporting the event. Interestingly, the severity of the event does not appear to impact CEO turnover; however, the severity of the event is likely to be highly correlated with both the reach of the news media reporting the events and the coverage of the events.

**Table 5.** Robustness. The dependent variable is CEO turnover. See Appendix A for variable definitions. Standard errors are clustered by firm and reported in parentheses. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5% and 1% level, respectively.

Variables	(1)	(2)	(3)	(4)	(5)
RRI	0.057 ** (0.027)				
Trend		0.067 ** (0.027)			
Events			0.016 *** (0.006)		
RRI Gov				0.022 (0.039)	
RRI Soc				0.042 (0.038)	
RRI Env				0.102 * (0.055)	
Severity					0.014 (0.009)
Reach					0.015 ** (0.007)
Novelty					−0.016 * (0.009)
Execdir	−0.072 *** (0.022)	−0.072 *** (0.023)	−0.071 *** (0.022)	−0.072 *** (0.022)	−0.072 *** (0.022)
Log(Total Comp)	−0.001 (0.006)	−0.001 (0.006)	−0.001 (0.006)	−0.001 (0.006)	−0.001 (0.006)
Equity Pay	0.002 (0.005)	0.002 (0.005)	0.002 (0.005)	0.002 (0.005)	0.002 (0.005)
Tenure	0.028 *** (0.001)	0.028 *** (0.001)	0.028 *** (0.001)	0.028 *** (0.001)	0.028 *** (0.001)
Age 60	0.103 *** (0.009)	0.103 *** (0.009)	0.102 *** (0.009)	0.103 *** (0.009)	0.102 *** (0.009)
Size	−0.024 ** (0.009)	−0.024 ** (0.010)	−0.024 ** (0.0109)	−0.024 ** (0.010)	−0.024 ** (0.010)
Return	−0.012 ** (0.005)	−0.012 ** (0.005)	−0.012 ** (0.005)	−0.012 ** (0.005)	−0.012 ** (0.005)
Q	−0.024 *** (0.005)	−0.024 *** (0.005)	−0.024 *** (0.005)	−0.024 *** (0.005)	−0.024 *** (0.005)
Observations	12,871	12,871	12,871	12,871	12,871
R-Squared	0.158	0.158	0.158	0.158	0.158
Fixed Effects	Firm Year	Firm Year	Firm Year	Firm Year	Firm Year

#### 4.2. Mitigating Factors Reducing the Impact of Bad News on CEO Turnover

In order to investigate which factors mitigate or exacerbate the impact of negative ESG events on CEO tenure, a linear probability model was created with the indicator variable  $CEO\ Turnover_{ft}$  again as the dependent variable, but now including interaction terms as explanatory variables.

$$CEO\ Turnover_{ft} = \beta_0 + \beta_1 RRI_{ft} + \beta_2 RRI_{ft} \times Controls_{ft} + \beta_3 Controls_{ft} + \alpha_f + \alpha_t + \epsilon_{ft} \quad (2)$$

The variable of interest is the interaction of  $RRI_{ft}$  and the potentially mitigating control variable. If the estimated coefficient  $\beta_2$  is positive, then increases in the control variable increase the impact of negative ESG events on CEO turnover in the same fiscal year. If  $\beta_2$  is negative, then increases in control variable 1 reduce the impact of negative ESG events on CEO turnover in the same fiscal year. If  $\beta_2$  is not statistically different from zero, then there is no empirical support for an interaction effect.

The controls are the same as those used in the linear probability models whose results are shown in Tables 4 and 5. All models also include year-fixed effects and firm-fixed effects with robust standard errors that are clustered by firm. The results of the linear probability model are summarized in Table 6.

**Table 6.** Heterogenous effects. The dependent variable is CEO turnover. See the Appendix A for variable definitions. Standard errors are clustered by firm and reported in parentheses. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5% and 1% level, respectively.

Variables	(1)	(2)	(3)	(4)
RRI	−0.012 (0.038)	0.053 * (0.027)	0.025 (0.032)	0.059 ** (0.030)
RRI × Tenure	0.016 ** (0.007)			
RRI × Return		0.034 (0.037)		
RRI × Rolling RRI			0.291 (0.207)	
RRI × KLD CSR				0.002 (0.007)
Rolling RRI			−0.166 * (0.093)	
KLD CSR				−0.000 (0.002)
Execdir	−0.072 *** (0.022)	−0.072 *** (0.022)	−0.071 *** (0.024)	−0.017 (0.041)
Log(Total Comp)	−0.001 (0.006)	−0.001 (0.006)	0.001 (0.006)	0.009 (0.009)
Equity Pay	0.002 (0.005)	0.002 (0.005)	−0.001 (0.005)	0.003 (0.007)
Tenure	0.025 *** (0.002)	0.028 *** (0.001)	0.029 *** (0.001)	0.042 *** (0.003)
Age 60	0.102 *** (0.009)	0.103 *** (0.009)	0.100 *** (0.011)	0.129 *** (0.017)
Size	−0.024 ** (0.009)	−0.024 ** (0.009)	−0.028 ** (0.009)	−0.017 (0.018)
Return	−0.012 ** (0.005)	−0.016 ** (0.006)	−0.012 ** (0.005)	−0.011 (0.007)
Q	−0.024 *** (0.005)	−0.024 *** (0.005)	−0.026 *** (0.005)	−0.027 *** (0.008)
Observations	12,871	12,871	12,065	10,634
R-squared	0.158	0.158	0.167	0.175
Fixed Effects	Firm Year	Firm Year	Firm Year	Firm Year

Model 1 investigates the impact of both the occurrence of negative ESG events and CEO tenure on CEO turnover. The statistically significant and positive estimated coefficient of the interaction between RRI and CEO tenure suggests that increased CEO tenure increases the effect of negative ESG events on CEO turnover. In other words, having held the CEO position for a long period increases the probability of a CEO losing their job following a negative ESG event rather than offering them protection. This is consistent with the interpretation that the longer a CEO has been in office, the more difficult it is to convincingly argue that the event was due to their predecessor rather than the result of their own policies.

Model 2 investigates whether the recent performance of the firm's stock reduces the probability of CEO turnover following a negative ESG event. The estimated coefficient of the interaction between RRI and recent stock returns is not statistically different from zero. This suggests that whilst superior recent stock performance generally reduces the likelihood of CEO turnover, it does not offer any protection for the CEO following a negative ESG event. Model 3 investigates the sensitivity of CEO turnover to new ESG events in firms with typically high levels of negative events. Rolling RRI is the rolling average RRI value for the firm. The estimated coefficient is both negative and statistically significant, suggesting that higher prior reputational risk reduces the impact on CEO turnover of new negative events. In other words, CEOs of firms that regularly have negative news coverage surrounding environmental, social and governance issues are less likely to lose their jobs when a new event occurs.

Model 4 investigates whether the firm's prior CSR investments affect the probability of CEO turnover following a negative ESG event, thereby testing Hypothesis 1(b). The estimated coefficient of the interaction between RRI and previous CSR investments is not statistically different from zero. There is therefore no evidence that a CEO's previous CSR investments, intended to reduce the incidence of negative ESG events, offer the CEO protection from losing their job following an actual negative incident. Consistent with the rejection of Hypothesis 1(b), this result does not support the theory that CSR investment is a symptom of agency problems whereby CEOs make wasteful investments in CSR in order to increase managerial entrenchment. Investment in CSR in order to reduce the probability that the CEO will lose their job following a negative ESG event is apparently an ineffective strategy.

In summary, Tables 4–6 provide evidence to suggest that the occurrence of a negative ESG event increases the likelihood that the CEO will lose their job, particularly if they have been in office a long time. This supports Hypothesis 1(a). Contrary to Hypothesis 1(b), however, there is no evidence that prior investments in CSR activities provide protection to the CEO if such an event occurs. Together, these results suggest that CEOs might be motivated to invest in CSR activities in order to reduce the incidence of events that damage the firm and hence the probability of the CEO being replaced. Consistent with [Harjoto and Jo \(2011\)](#), the results suggest that CSR investment is ineffective at building stakeholder alliances to protect the CEO from being fired for bad performance.

#### *4.3. Effects of Negative ESG Events on Firm Performance*

The analysis above shows there is a statistically significant association between the occurrence of negative ESG events and the subsequent change in the CEO of the affected firm. If the negative event causes a reduction in the CEO's job security, then this would provide motivation for a self-interested CEO to engage in CSR investment activity in an attempt to reduce the occurrence of such career-threatening events. This section investigates the impact of such events on firm performance. Firstly, if Hypothesis 2(a) is correct and negative ESG events harm firm performance, then this would provide an explanation for the decrease in the CEO's job security: inferior firm performance should be expected to increase the probability of the CEO being removed. Secondly, it would suggest that investments in CSR that are intended to reduce the probability of negative ESG events also benefit shareholders. In this case, CSR investment can be seen as both enhancing shareholder interests by reducing the probability of events that damage firm performance and enhancing CEO interests, as such events also harm the CEO's career prospects.

This paper also tests Hypothesis 2(b) by investigating to what extent CEO turnover mitigates negative impacts on firm performance following a damaging event. The analysis in Section 4.2 above shows that the probability of the CEO losing their job is not reduced by previous good stock performance. This would be a rational response by shareholders if firing the CEO in response to a damaging event prevents the deterioration in firm performance (for example, by preventing a backlash from customers, employees and other

stakeholders) or if firing the CEO regardless of prior performance encourages the CEO to take preventative action to avoid such a fate.

To evaluate the impact of negative ESG events on firm performance, this paper performs the following ordinary least-squares regression:

$$Y_{ft} = \beta_0 + \beta_1 RRI_{ft} \times Turnover_{ft} + \beta_2 RRI_{ft} + \beta_3 Turnover_{ft} + \beta_4 Controls_{ft} + \alpha_f + \alpha_t + \epsilon_{ft} \quad (3)$$

As changes in firm performance following a negative ESG event are likely to be the result of reactions by customers, employees and investors, this paper uses  $\Delta Sales_{ft}$ ,  $\Delta Return_{ft}$  and  $\Delta Employment_{ft}$  as measures of change in performance.  $\Delta Sales_{ft}$  represents the percentage change in sales from fiscal year  $t$  to fiscal year  $(t + 1)$ .  $\Delta Employment_{ft}$  represents the percentage change in the number of employees from fiscal year  $t$  to fiscal year  $(t + 1)$ .  $\Delta Return_{ft}$  represents the stock returns in the next fiscal year. The variables of interest include the following:  $RRI_{ft}$ , CEO  $Turnover_{ft}$  and the interaction of  $RRI_{ft}$  and CEO  $Turnover_{ft}$ . If Hypothesis 2(a) is correct and negative ESG events damage firm performance, then the estimated coefficient  $\beta_2$  should be negative as higher values of  $RRI_{ft}$  will be associated with decreases in firm performance. If negative ESG events have no impact on firm performance, then the estimated coefficient  $\beta_2$  should not be statistically different from 0. Models 1, 2 and 3 of Table 7 all have statistically significant and negative estimates of  $\beta_2$  suggesting sales growth, firm value, and growth in employees all deteriorate in response to negative ESG events. This evidence is supportive of Hypothesis 2(a).

**Table 7.** Does turnover mitigate the negative effects of RRI? The dependent variable for column (1) is sales growth, (2) is stock returns and (3) is employment growth. See the Appendix A for variable definitions. Standard errors are clustered by firm and reported in parentheses. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
Variables	$\Delta Sales$	$\Delta Return$	$\Delta Emp$
RRI $\times$ Turnover	0.150 (0.097)	0.064 (0.094)	−0.015 (0.028)
RRI	−0.144 *** (0.047)	−0.083 ** (0.039)	−0.044 *** (0.015)
CEO Turnover	−0.073 *** (0.023)	−0.055 ** (0.024)	−0.026 *** (0.008)
Size	−0.088 *** (0.030)	−0.071 *** (0.016)	−0.068 *** (0.008)
Q	0.112 *** (0.015)	0.174 *** (0.009)	0.031 *** (0.003)
Capex	2.537 *** (0.262)	−0.467 *** (0.137)	0.180 *** (0.055)
R&D	−0.483 (0.503)	0.034 (0.318)	−0.359 *** (0.098)
Leverage	0.742 *** (0.067)	0.029 (0.037)	−0.019 (0.014)
Cash	0.612 *** (0.085)	0.634 *** (0.064)	0.235 *** (0.021)
Observations	19,967	22,282	19,694
R-squared	0.460	0.284	0.295
Fixed Effects	Firm Year	Firm Year	Firm Year

A statistically significant estimated coefficient  $\beta_3$  indicates an association between the performance measure and CEO dismissal rather than a causal relationship. It would be expected that events that impact firm performance will also impact CEO turnover. As expected, Models 1, 2 and 3 of Table 7 all have statistically significant and negative estimates of  $\beta_3$  suggesting a positive association between CEO removal and a deterioration in firm performance.

If Hypothesis 2(b), that removing the CEO following a negative ESG event reduces the damage to firm performance of the event, is correct, then the estimated coefficient  $\beta_1$  should be positive: removing the CEO would reduce the negative impact of the ESG event on firm performance. If  $\beta_1$  is negative, it would suggest that removing the CEO would worsen the impact of ESG events on firm performance. Models 1, 2 and 3 of Table 7 all have estimates of  $\beta_1$  that are not statistically different from zero. Therefore, this analysis finds no support for Hypothesis 2(b) that removing the CEO following a negative ESG event will mitigate the consequent deterioration in firm performance.

#### 4.4. Effects of CEO Turnover on Subsequent ESG Events

The results presented in Section 4.2 above suggest that CEO turnover increases following negative ESG events. Replacing the CEO is a costly decision, so a shareholder value-maximizing board should only replace the CEO if there is an offsetting economic benefit from doing so. As discussed in Section 4.3, Table 7 finds no support for the Hypothesis 2(b) that removing the CEO reduces the economic damage to the firm of a negative ESG event. Boards may instead remove the CEO to encourage the successor CEO to avoid negative ESG events in the subsequent years, hence reducing economic damage in future years.

To identify such an impact on the subsequent years' RRI scores, this paper performs the following ordinary least-squares regression:

$$RRI_{f_t+y} = \beta_0 + \beta_1 RRI_{f_t} \times Turnover_{f_t} + \beta_2 RRI_{f_t} + \beta_3 Turnover_{f_t} + \beta_4 Controls_{f_t} + \alpha_f + \alpha_t + \epsilon_{ft} \quad (4)$$

$RRI_{f_t+y}$  represents the RRI score in fiscal years 2, 3 or 4 after a firm-year observation. The variables of interest include the following: CEO Turnover<sub>f<sub>t</sub></sub> and the interaction of RRI<sub>f<sub>t</sub></sub> and CEO Turnover<sub>f<sub>t</sub></sub>. If removing the CEO reduces the incidence of negative ESG events in subsequent years, then the estimated coefficients  $\beta_1$  and  $\beta_3$  should be negative and statistically significant.

Models 1, 2 and 3 of Table 8 all have estimates of  $\beta_1$  and  $\beta_3$  that are not statistically different from zero. Therefore, this analysis finds no support for the hypothesis that removing the CEO following a negative ESG event reduces the incidence of negative ESG events in the subsequent years.



**Table 8.** Does turnover impact RRI in subsequent years? The dependent variable for columns (1)–(3) are the firm’s average reputational risk index (RRI) over the subsequent 2, 3 and 4 years. See Appendix A for variable definitions. Standard errors are clustered by firm and standard errors are reported in parentheses. \*, \*\* and \*\*\* represent statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
Variables	RRI <sub>t+2</sub>	RRI <sub>t+3</sub>	RRI <sub>t+4</sub>
RRI × Turnover	−0.007 (0.013)	0.004 (0.012)	0.001 (0.010)
RRI	0.052 *** (0.007)	−0.027 *** (0.006)	−0.070 *** (0.006)
CEO Turnover	0.005 (0.004)	0.003 (0.003)	0.000 (0.003)
Size	0.029 *** (0.003)	0.031 *** (0.003)	0.031 *** (0.003)
Q	0.003 *** (0.001)	0.004 *** (0.001)	0.004 *** (0.001)
Capex	−0.001 (0.018)	−0.007 (0.017)	−0.009 (0.016)
R&D	−0.033 (0.032)	−0.031 (0.031)	−0.028 (0.026)
Profit	−0.006 (0.009)	0.002 (0.008)	−0.008 (0.008)
Leverage	−0.004 (0.005)	−0.005 (0.005)	−0.006 (0.004)
Cash	−0.002 (0.006)	−0.004 (0.005)	0.004 (0.005)
Observations	17,484	15,154	12,969
R-squared	0.737	0.818	0.878
Fixed Effects	Firm Year	Firm Year	Firm Year

## 5. Conclusions

To better understand the motivations behind CSR activity, this paper studies how the incidence of negative ESG events affects both CEO turnover and firm performance. Using data from RepRisk, this paper finds that an increase in negative ESG events is associated with a higher probability of CEO turnover. This suggests effective CSR actions benefit the CEO: actions that reduce the actual incidence of negative ESG events improve CEO job security. However, this study finds no empirical support for the claim that prior CSR investments otherwise protect CEOs from dismissal once a negative ESG event occurs.

This paper finds that sales growth, equity returns and employment growth all suffer following negative ESG events. This suggests that effective CSR actions also benefit the firm’s shareholders: actions that reduce the incidence of negative ESG events will avoid these negative impacts on firm performance. However, this study finds no evidence that removing the CEO after a negative ESG event either reduces the negative impacts on firm performance or the incidence of negative ESG events in subsequent years. This suggests that the costly decision to remove the CEO following a negative ESG event does not have a purely economic rationale.

In summary, this paper finds support for the literature that claims CSR investments are consistent with profit maximization rather than agency problems as CSR investments that reduce the incidence of negative ESG events avoid economic damage to the firm. The threat of removal following a damaging ESG event incentivizes CEOs to invest in activities that reduce the incidence of such events, but CSR investments do not otherwise protect the CEO. These are useful results with practical implications for both CEOs wanting to keep their jobs and for boards wanting to promote shareholder value. These results are based on a sample of public US firms, and so, may not be universally applicable. There are reasons

to believe that the stakeholders of private firms and of firms from outside the United States may behave differently.

This paper shows how data on the actual incidence of negative ESG events can be used to evaluate the impact of CSR policies. This type of analysis might be extended to better evaluate the effectiveness of CSR investments. Similarly, RepRisk data might also be used to evaluate the relative validity of different CSR rating methodologies.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Source data is from public sources as described in the manuscript.

**Conflicts of Interest:** The author declares no conflict of interest.

## Appendix A

This appendix contains definitions for the variables used in this study.

### *Variable Descriptions*

**CEO Turnover:** Indicator variable equal to one if the CEO leaves the firm in the current fiscal year.

**RRI:** The maximum monthly reputation risk index (RRI) for the current fiscal year.

**Trend:** The maximum of the monthly difference between RRI measures and zero for the current fiscal year.

**Events:** The natural log of the total number of events for the current fiscal year.

**RRI Gov:** The proportion of RRI that is due to governance related issues.

**RRI Soc:** The proportion of RRI that is due to socially related issues.

**RRI Env:** The proportion of RRI that is due to environmentally related issues.

**Severity:** The average severity of all events during the current fiscal year ranging from one to three with three being the most severe.

**Reach:** The average influence of all news coverage during the current fiscal year ranging from one to three, where one indicates low influence sources such as local media, two indicates medium influence sources such as most national and regional media, and three indicates high influence sources such as BBC News, NY Times, etc.

**Novelty:** The average newness of all news coverage during the current fiscal year ranging from one to two, where one indicates issues are covered for the first time and two indicates repeated coverage or new coverage of same issues.

**Rolling RRI:** The average RRI for each firm over the same period, measured in the prior year.

**KLD CSR:** The net of all CSR categories using the KLD SOCRATES database.

**Log(Total Comp):** Natural log of executives' total compensation in the prior year.

**Equity Pay:** Indicator equal to one if an executive received equity-based compensation in the prior year.

**Tenure:** Number of years an executive was CEO at the firm, measured in the prior year.

**Age 60:** Indicator equal to one if the CEO is over the age of 60, measured in the prior year.

**Delta:** Dollar change in CEO wealth associated with a 1% change in the firm's stock price (Coles et al. 2006).

**Vega:** Dollar change in CEO wealth associated with a 0.01 change in the standard deviation of the firm's returns (Coles et al. 2006).

**Size:** Natural log of beginning-of-year total book assets.

**Return:** Stock return measured in the prior year.

**Q:** Tobin's Q (Put calculation here).

**Capex:** Total capital expenditures normalized by beginning-of-year total assets.

**R&D:** Total R&D expenditures normalized by beginning-of-year total assets, where missing is equal to zero.

Profit: Total operating profits normalized by beginning-of-year total assets.  
 Leverage: Total book leverage normalized by beginning-of-year total assets.  
 Cash: Total cash holdings normalized by beginning-of-year total assets.  
 Domestic: Indicator variable equal to one if the firm operated only in the United States.  
 Execdir: Indicator variable equal to one if the CEO served as a director of the firm during the period.

## Note

<sup>1</sup> The following causes of CEO change are excluded: death, mandatory retirement policy, personal or health reasons, M&As, sale of assets, change in control, bankruptcy or dissolution, corporate restructuring, sale of assets or spin-off and restructuring of the board.

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