ESG and CEO turnover

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Gonul Colak[a]
Timo P. Korkeamäki[b]
Niclas O. Meyer[a]

Abstract

We investigate corporate reactions to problems related to Environmental, Social, and Governance (ESG) issues by observing the connection between negative media attention to these issues and CEO turnover. We use a sample of large US and European firms, which allows us to consider covariates not only at individual-, firm-, and industry levels, but also at the country level. We find that ESG-related negative news has a robust and significant impact on CEO replacement odds, and this impact is proportional to the severity of an event. Also, CEO turnover probability is inversely proportional to the stock market reaction to an ESG incident in both common-law and civil-law countries, however, the negative media attention on itself ("shaming") can trigger CEO turnover only on latter group of countries.

Keywords: CEO Turnover, Environmental, Social, and Governance (ESG), Firm Misconduct, Legal Origin, Shareholder Value, Stakeholder Society

JEL classifications: G34, M12, M14, G15

[a]Hanken School of Economics, Arkadiankatu 22, 00101, Helsinki, Finland, gonul.colak@hanken.fi; niclas.meyer@hanken.fi
[b]Aalto University School of Business, Ekonominaukio 1, 00076, Aalto, Finland, timo.korkeamaki@aalto.fi

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1 Introduction

When corporate misbehavior has a direct effect on investors, it has a well-documented effect on Chief Executive Officer (CEO) turnover (see e.g. Karpoff, Lee, and Martin, 2008a; Desai, Hogan, and Wilkins, 2006; Hazarika, Karpoff, and Nahara, 2012; Arthaud-Day, Certo, Dalton, and Dalton, 2006). Much less is known about the effects of misconduct that impact firms' other stakeholders. Recent anecdotal evidence, such as the *Volkswagen's emission scandal* in 2015 and the *Deepwater Horizon Oil Spill* in 2010, suggests that CEOs are disciplined following scandals related to Environmental, Social, and Governance (ESG) issues. Both scandals received substantial media attention, which ultimately led to resignations of the firms' CEOs. We contribute to the literature by systematically studying how news related to ESG issues[1] affect a CEO's ability to retain his or her position.

Bénabou and Tirole (2010) note that the cost of ESG-related issues varies across countries, as variation in regulations and also societal expectations upon firms affect the level of both legal and reputational penalties. Liang and Renneboog (2017) report that the legal origin of a company's home country plays a pivotal role in a firm's rating on ESG-metrics and corporate social responsibility (CSR) rankings: firms from civil-law countries score significantly higher on ESG/CSR rankings than firms from common-law countries. As a potential explanation, Liang and Renneboog (2017) suggest that civil-law countries – which tend to be more stakeholder-oriented – rely more on ex ante preventive measures (which together with social preferences drive firms to invest more in ESG/CSR initiatives in these countries) to deter misconduct, while more shareholder-oriented common-law countries rely on ex post disciplinary mechanisms. Our sample of large US and European firms allows us to include country-level covariates

[1] With "ESG issues" we refer to corporate misbehavior or misconduct which has a negative impact on a firm's stakeholder relations – such as customer fraud, employee relations issues, child labor, environmental pollution, bribery, anti-competition, etc. When referring to economic misconduct, we follow Karpoff (2012) and refer to this type of event as misconduct relating to a company's financial statement (e.g. earnings restatements, financial misrepresentations, etc.).

– the legal origin among them – in our analysis of the effects that negative ESG-related news has on CEO turnover.

The penalties assessed on firms and managers reduce the ex ante likelihood of misconduct. Ex post, firms discipline their CEOs mainly by replacing them (Agrawal, Jaffe, and Karpoff, 1999; Karpoff, Lee, and Martin 2008a; and others), the CEO labor market punishes them by reducing their career opportunities (Desai, Hogan, and Wilkins, 2006; Aharony, Liu, Richardson, and Yawson, 2016), and the state penalizes them with fines or imprisonment. Karpoff, Lee, and Martin (2008a) note that such disciplinary measures, combined with monitoring effects arising from strong governance (Fama and Jensen, 1983; Levit and Malenko, 2016; Nguyen, Hagendorff, and Eshraghi, 2016), and a legal system with firm-level penalties, work to deter misconduct. Also, corporate accountability reporting (Christensen, 2016), corporate culture (Xiaoding, 2016), the existence of whistleblowers (Dyck, Morse, and Zingales, 2010), and even demographics such as greater female representation in management (Liu, 2018) can curb corporate misbehavior. On the other hand, greater competitive incentives within the management team can make things worse (Hass, Mueller, and Vergauwe, 2015).

CEO turnover events also involve a cost-benefit analysis. Agrawal, Jaffe, and Karpoff (1999) note that firms replace CEOs following misconduct in order to improve their financial performance, regain reputation among customers, and limit exposure to future liabilities. Beneish, Marshall, and Yang (2017) find that outside directors weigh retention costs against replacement costs when deciding on whether to replace the CEOs of misreporting firms. That is, CEOs are more likely to be replaced when retention costs are high relative to replacement costs.

Literature linking CEO turnover to the type of corporate misconduct with limited direct impact on investors remains scarce. Such inquiry is motivated by the findings of Karpoff, Lott, and Wehrly (2005) and Karpoff, Lee, and Martin (2008b) that both legal penalties and reactions in market valuations vary vastly by the type of violation. Among few studies in the area, Krüger (2015) reports that the stock market

reacts negatively to negative ESG/CSR news, which suggests that ESG risks have a detrimental effect on shareholder wealth. Similarly, Hartzmark and Sussman (2019) claim that the average investor considers firms' ESG/CSR performance when making investor decisions. One would thus expect ESG negative news to have a negative effect on the likelihood of CEOs retaining their jobs. On the other hand, it is possible that CEO turnover is unaffected by ESG issues – especially if the issues do not have a direct impact on shareholders. This could be the case especially in common-law countries, where directors – who oversee replacing CEOs – are elected by shareholders. This contrasts with civil-law countries, and especially those with two-tier board systems (such as Germany), where stakeholders have representatives serving on the board. Similarly, as approaches to ESG vary significantly between different countries depending on their legal origin (Liang and Renneboog, 2017), it is possible that negative ESG-related news affect CEO turnover in some countries but not in others.

Aharony, Liu, and Yawson (2015) examine executive turnover in US firms following non-security lawsuits and find that contractual lawsuits increase probability of turnover for both CEOs and inside directors, whereas environmental and intellectual property lawsuits have the opposite effect. In addition, Aharony, Liu, Richardson, and Yawson (2016) report that contractual lawsuits have a negative impact on CEO reemployment in US firms, whereas environmental lawsuits have no effect on it. We expand this literature by showing that in both US and Europe – with diverse underlying legal and cultural norms – the ESG-related failures are consequential for the CEOs, and they affect their job longevity.

Our data on ESG-related news come from the RepRisk database. RepRisk screens more than 80,000 media and stakeholder sources for ESG-related news in 15 different languages each day. Based on severity and expected impact of the news, RepRisk quantifies a firm's risk exposure to ESG/stakeholder issues with their Reputational Risk Index (RRI). The RRI varies between -1 and 100, where values under 50 are labelled as "normal" levels of risk exposure, values between 50 and 59 indicate "high" levels of risk exposure, 60 – 74 indicate "very high" levels, and 75 – 100 indicate "extremely" high levels. As our

sample of firm-year observations with extremely high risk exposure is small, we combine firm-year observations with very high and extremely high levels into one group named "extreme" risk exposure ($60 \leq RRI \leq 100$). By using a news-related metric on negative ESG-performance, we avoid a common critique of metrics that are affected by "greenwashing", arguing that firms tend to make overly positive claims about their corporate citizenship in order to manipulate their ESG/CSR-ratings.

We obtain the monthly RRI for the constituents of the S&P 500 and the Stoxx Europe 600 indices. Various accounting, governance, market data requirements, country-level variables, etc. leave us with a sample of 1,194 different US and European firms over a sampling period between 2007 and 2018 (11,094 firm-CEO-year observations).[2] To obtain information on CEO turnover and CEO characteristics of these firms, we rely on ExecuComp for CEOs of US firms. For European firms, we follow a manual data collection process that utilizes annual company reports from company websites, Orbis and CapitalIQ databases, and various biographical online sites for CEOs. Finally, we remove any CEO turnover that results from an acquisition, merger, spinoff, or similar reasons.[3]

We find that extreme levels ($RRI \geq 60$) of risk exposure to ESG issues lead to a significant increase in the likelihood of a CEO being replaced. To illustrate the jump in CEO turnover that occurs around the cutoff for extreme risk exposure, we estimate a logistic regression model where the dependent variable is an indicator variable for whether a CEO is replaced in year t or $t + 1$ and the independent variable is an indicator variable for extreme risk exposure. We include country fixed effects and cluster standard errors by industry (four-digit Standard Industrial Classification (SIC) codes). Figure 1 shows the predicted probabilities of CEO turnover within years t and $t + 1$ plotted against the RRI index in year t using regression discontinuity design plots. In panel A, the bin width is equal to one, i.e. every bin

[2] The sample period starts in 2007 as this is the first year of data in the RepRisk database.

[3] As Burns, Minnick, and Starks (2020) note, it may be difficult to distinguish between voluntary and forced CEO turnover (see also Peters and Wagner, 2014) as cultural differences between countries may affect the willingness of companies to communicate the real reasons behind a CEO replacement.

corresponds to one unit on the RRI scale, whereas in panel B the bin width is equal to two. As the two graphs depict, there is a distinct jump at the cutoff value.

<< FIGURE 1 HERE >>

In multivariate logistic regression models, the average marginal effects show that CEOs' probabilities of losing their job is roughly 9 percentage points higher if a firm has extreme risk exposure to ESG issues in a year. Furthermore, we find that the likelihood of CEO turnover increases proportionally to the level of risk exposure to ESG issues. These results are robust to inclusion of CEO-specific and firm-level control variables; country-level time-variant control variables; year, industry, and country fixed effects; country-year and industry-year interacted fixed effects; firm fixed effects; as well as using other nonlinear outcome estimations (e.g. probit regression).

When we consider the types of ESG issues separately, we find that all types of ESG issues – Environmental (such as pollution, impacts on ecosystems and landscapes, etc.), Governance events (corruption, bribery, "greenwashing", tax evasion, etc.), and Social issues (child labor, human rights issues, impacts on communities, poor employment conditions, etc.) – have an effect on CEO turnover.

Although firm-level ESG varies by legal origin (Liang and Renneboog, 2017), we do not find that the likelihood of an ESG-related CEO turnover varies by the legal tradition of a firm's home country: negative ESG-related news has a strong relation with CEO turnover in both common-law and civil-law countries. This finding contrasts with Liang and Renneboog (2017), who note that common-law countries tend to rely more on ex post market-based penalties while civil-law countries tend to depend on "ex ante delineation of acceptable behavior" (p. 855). A possible explanation for this finding is that the hypothesized stronger ex post penalties in common-law countries following ESG misconduct is offset by civil-law countries being more stakeholder-holder oriented (Bénabou and Tirole, 2020) as well as being more focused on ESG performance (Liang and Renneboog, 2017) – which leads firms in civil-law countries to implement strong ex post penalties for this type of misconduct.

Finally, we find that investors react on average negatively and significantly to ESG incidents with extreme or high risk exposure levels. Furthermore, the drop in shareholder wealth is inversely proportional to the likelihood of a CEO being fired: the more the stock price drops, the higher is the likelihood of a CEO being fired. However, in common-law countries, only ESG incidents which are followed by a negative stock market reaction ("market discipline") lead to CEOs being fired, while in civil-law countries, both the negative stock market reaction as well as the negative media exposure ("shaming") lead to a higher likelihood of CEOs being fired.

The remainder of the paper is organized as follows. Section 2 presents the related research and hypothesis development. Section 3 presents data, research design, and univariate results. Section 4 shows multivariate results, section 5 results for a regression discontinuity design, and section 6 for the materiality (investor reactions) of the ESG issue. Section 7 concludes the paper.

2 Related research and hypothesis development

2.1 Firm misconduct

Firms incur severe penalties following economic misconduct, fraud, and financial misconduct (see e.g. Jarrell and Peltzman, 1985; Mitchell and Maloney, 1989; Karpoff, Lee, and Martin, 2008b, Dyck, Morse, and Zingales, 2010, 2014; Cummings, Dannhauser, and Johan, 2015; Haslem, Hutton, and Smith, 2017; among others). Total penalties are constituted of both legal and market-based (so-called reputational) penalties (Karpoff and Lott, 1993). Reputational penalties are relatively large compared to legal penalties when firms are caught "cooking their books" (Karpoff, Lee, and Martin, 2008b), but they are relatively small following environmental violations, for which legal penalties tend to be of significant size (Karpoff, Lott, and Wehrly, 2005; Brady, Evans, & Wehrly, 2019). Krüger (2015) finds that investors react negatively and significantly to negative CSR news, and Fatemi, Glaum, and Kaiser (2018) document that firm value increases following positive ESG news and decreases following negative ESG news which

suggests that issues relating to other stakeholders can have a detrimental effect on shareholder wealth. These findings are consistent with Hartzmark and Sussman (2019), who report that the average investor considers ESG-related information when making investment decisions.[4]

Factors other than legal and reputational penalties can also be effective in detecting and deterring firm misconduct, such as whistleblowers (Dyck, Morse, and Zingales, 2010), corporate accountability reporting (Christensen, 2016), board monitoring in banks (Nguyen, Hagendorff, and Eshraghi, 2016), and low corruption corporate culture in a firm (Xiaoding, 2016). Liu (2018) reports that a higher percentage of women serving on the board – as well as having a female CEO in firms with low board gender diversity – lowers the probability of a firm being involved in environmental lawsuits. In contrast, factors such as "unethical" managers (managers engaging in indiscretions) (Cline, Walkling, and Yore, 2015) and CEO promotion tournaments (Hass, Müller, and Vergauwe, 2015) increase the likelihood of firm misconduct.

As noted above, securities lawsuits (Karpoff and Lott, 1993; Bizjak and Coles, 1995; Karpoff, Lee, and Martin, 2008a), securities-related class action lawsuits (Fich and Shivdasani, 2007; Gande and Lewis, 2009), and corporate litigation (Haslem, Hutton, and Smith, 2017) have been shown to lead to significant penalties for firms. The "stakeholder issues" included in this study cover a broader spectrum of controversies than securities lawsuits. Although both kinds of controversies often receive substantial attention from the media and from NGOs, stakeholder issues may not necessarily lead to lawsuits as there may be lack of effective regulation addressing the particular issue (e.g. child labor in foreign countries) (Bénabou and Tirole, 2010). Nonetheless, the negative media attention following socially questionable corporate actions (or inactions) may lead to reduced earnings and investor activism (Bénabou and Tirole,

[4] Hartzmark and Sussmann (2019) use Morningstar's inclusion of "sustainability" (ESG) rankings as a natural experiment to study inflows into mutual funds in year 2016, and find that when this information became publicly available, mutual funds which belonged to the top decile of firms in terms of ESG experienced inflows of roughly 24 billion dollars while mutual funds which belonged to the bottom decile experienced more than 12 billion dollars of outflows.

2010). Past studies have found that these issues can lead to higher interest rates on bank loans (Chava, 2014), higher demanded returns as well as negative screening by SRI and pension funds (Hong and Kacperczyk, 2009; Goss and Roberts, 2011; Ghoul, Guedhami, Kwok, and Mishra, 2011), a decrease in firm value (Fatemi, Glaum, and Kaiser, 2018), and negative investor reactions (Krüger, 2015). Furthermore, in several countries, large institutional investors track the ESG performance of firms they have invested in, and, if there is any ESG-related negative news in the media, the institutional investor may contact the firm and ask for a clarification of the situation – and could even as a a last resort divest from the company (Krüger, Sautner, and Starks, 2020), which could be costly for existing shareholder if large selling orders push the stock price down.

Finally, ESG/CSR seems to work as a kind of "insurance" during economic downturns. Lins, Servaes, and Tamayo (2017) find that firms which scored high on ESG/CSR ratings experienced less steep drops in market values during the financial crisis in 2008-2009 compared to firms which scored low on ESG/CSR ratings. Some papers document that ESG/CSR has a positive impact on firm value (Servaes and Tamayo, 2013; Ferrell, Liang, and Renneboog, 2016; Deng, Kang, and Low, 2013; and others) while other papers report contrasting results (Masulis and Reza, 2015, among others).

2.2 CEO, manager, and executive turnover

2.2.1 Turnover following poor firm performance

Although not directly related to misconduct, firm performance in general tends to significantly affect the probability of CEO replacement (Eisfeldt and Kuhnen, 2013). Weisbach (1988) finds that poor performance is more likely to cause CEO firing and that the relationship is stronger in firms with independent boards. CEO replacement is also more likely when performance is poor relative to the industry (Barro and Barro, 1990; and others) or when performance is poor relative to the market (Warner, Watts, and Wruck, 1988). Interestingly, factors that are out of the CEO's control, such as industry- or market-wide negative performance shocks, also increase the likelihood of CEO turnover (Kaplan and

Minton, 2006; Jenter and Kanaan, 2015). Huson, Parrino, and Starks (2002) examine whether the nature of CEO turnover has changed over time, as firm's internal governance and monitoring mechanisms have improved, and find that forced CEO turnovers have increased, but that the relationship between poor firm performance and CEO turnover has not changed. Bushman, Dai, and Wang (2010) report that when poor performance is a result of idiosyncratic risk-taking, CEOs are more likely to be fired. Fiordelisi and Ricci (2014) claim that a corporate culture oriented towards competition, creation, and innovation is correlated with a higher likelihood of the CEO being fired, even when performance has not been abnormally poor. Fich and Shivdasani (2006) find that firms with busy boards are less likely to remove CEOs following poor performance.

Defond and Hung (2004) examine the relationship between a country's degree of investor protection and CEO turnover following poor firm performance. They document that CEO turnover increases when performance is poor in countries with strong law enforcement institutions, but not in countries with weak law enforcement. Furthermore, the authors find that the differences in CEO turnover rates following poor performance are not explained by a country's investor protection laws.

2.2.2 Turnover following economic misconduct

Desai, Hogan, and Wilkins (2006) calculate that 60 percent of the firms involved in accounting restatements in the US between 1997-1998 replaced at least one manager within two years of the restatement. According to Arthaud-Day, Certo, Dalton, and Dalton (2006), the CEOs and CFOs are more than twice as likely to leave their job, compared to matched counterparts, following material financial restatements. Karpoff, Lee, and Martin (2008a) examine all 788 financial misrepresentation cases that lead to SEC or DOJ enforcement actions between 1978 and 2006 and find that 93% of the managers identified as responsible for the misconduct lost their job within the end of the violation period. In addition, a large percentage of the managers were fined with significant penalties or sent to jail. Collins, Reitenga, and Sanchez (2008) examine accounting restatements and find that CEO, CFO, and COO

turnover increases significantly, in cases where a restatement leads to a class-action lawsuit. Similarly, Hazarika, Karpoff, and Nahata (2012) document that forced CEO turnover (but not voluntary CEO turnover) increases following earnings restatements. Furthermore, while shareholder class actions lead to increased CEO turnover in general (Humphery-Jenner, 2012), founder-CEOs are less likely to be replaced than non-founder CEOs following accounting irregularities (Leone and Liu, 2010).

Beneish, Marshall, and Yang (2017) study CEO turnover in a sample of 427 US firms caught for misreporting between years 1993 and 2007 and find that CEOs are less likely to be fired when replacement costs are high. That is, firing is less likely when the firm has performed well relative to its industry or when the CEO is the founder of the firm; in contrast, CEOs are more likely to be fired when retention costs are high, such as when the firm is performing poorly relative to its industry or when a firm has a candidate on the board ready to replace the CEO. This suggests that outside directors weigh replacement costs versus retention costs when deciding on whether to replace CEOs following misconduct. Indeed, Haslem, Hutton, and Smith (2017) show that top executives are more likely to be fired, and that CEOs are more likely to lose outside directorships, following securities fraud. In contrast, Agrawal, Jaffe, and Karpoff (1999) examine corporate fraud cases and find no evidence of higher managerial or director turnover.

2.2.3 Turnover following other types of misconduct

The most closely related paper to ours is Aharony, Liu, and Yawson (2015), who study a sample consisting of contractual, antitrust, intellectual property, and environmental lawsuits filed for S&P 1500 firms in the United States Federal Courts between 2000 and 2007. They find that CEO turnover increases following contractual lawsuits, decreases following intellectual property (IP) and environmental lawsuits, whereas antitrust lawsuits have no effect on CEO turnover. Furthermore, utilizing the same sample, Aharony, Liu, Richardson, and Yawson (2016) find that contractual lawsuits – but not IP, environmental, and antitrust lawsuits – have a negative impact on CEO reemployment. Unsal and Rayfield (2019) study

a sample of 28,258 employee lawsuits in S&P 1500 firms between 2000 and 2014 and report that the likelihood of a CEO being fired is proportional to the number of labor lawsuits that a firm is involved in.

2.2.4 Turnover in different countries

Our study is one of few studies to investigate CEO turnover internationally. Burns, Minnich, and Starks (2020) examine a sample of CEO turnovers in several different countries. They find that CEO turnover varies across countries and depends on the degree of investor protection, as well as on cultural and legal factors in a country. The authors also report that poor stock performance is a significant determinant for CEO turnover in their full cross-country sample.

2.3 Shareholder- versus stakeholder-orientation

According to traditional economics and the shareholder value approach, firms should focus on maximizing shareholder value, whereas according to the stakeholder society context firms should also internalize the welfare of their stakeholders (Freeman, 1984; Tirole, 2001). The degree to which shareholders' rights are protected depends significantly on the legal origin of a country (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000). In common-law countries, such as in the US, shareholder rights protection is broad, whereas in civil-law countries, such as in Germany and France, society places higher demands on firms to be stakeholder-oriented (Bénabou and Tirole, 2010).

Liang and Renneboog (2017) find that legal origin is significantly correlated with firms' ESG/CSR activities, i.e. firms located in common-law countries score systematically lower on ESG rankings compared to firms in civil-law countries (the firms in Scandinavian civil-law countries score the highest, followed by firms in French civil-law countries, firms in German civil-law countries, and finally firms in common-law countries, which score the lowest). This is also mirrored in how firms' governance systems are constructed. For instance, German firms follow a two-tier board system, in which stakeholders serve on the supervisory board (Adams and Ferreira, 2007) – which provides them with power to influence corporate actions, which contrasts with the single boards in common-law countries

which are elected solely by stockholders. Similarly, Cai, Pan, and Statman (2016) assert that variations in firm-level corporate social performance is to a greater degree explained by country factors than by firm characteristics.

Dyck, Lins, Roth, and Wagner (2019) investigate whether investments by institutional investors have an impact on firms' environmental (E) and social (S) activities in a sample of non-US based firms, and report that firms' E and S rankings increase when an institutional investor invests in a company, i.e. the institutional investor pushes its values and norms onto the firm. However, this is only the case when the institutional investor comes from a country with high environmental and social norms (such as from a European country). When an institutional investor comes from a country where environmental and social norms are low, there is no impact on the E and S rankings of the firms they invest in.

2.4 Hypotheses

Given the prior literature documenting connections between financial performance and managerial turnover, as well as the links between corporate misbehavior and managerial turnover, we hypothesize that:

H1. The likelihood of CEO replacement increases following negative ESG-related news, ceteris paribus.

We also test this hypothesis separately for the three types of ESG issues:

H1a. The likelihood of CEO replacement increases following Environmental (E) issues.

H1b. The likelihood of CEO replacement increases following Social (S) issues.

H1c. The likelihood of CEO replacement increases following Governance (G) issues.

Karpoff, Lee, and Martin (2008a) find that CEOs are more likely to lose their job following more severe cases of financial misrepresentation. We hypothesize that the same holds for ESG-related negative news:

H2. All else equal, CEOs are more likely to be fired when a firm's risk exposure to ESG issues is higher.

Finally, although civil-law countries are oriented more towards stakeholder-orientation (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000; La Porta, Lopez-de-Silanes, and Shleifer, 2008) – and firms in these countries score on average higher on ESG/CSR rankings (Liang and Renneboog, 2017) – we expect CEOs to be disciplined more harshly in common-law countries following negative ESG-related news as these countries rely more on deterring firm misconduct by using ex post penalties compared to civil-law countries, which rely on ex ante preventive measures (Liang and Renneboog, 2017).

H3. All else equal, CEOs of firms located in common-law countries, which rely more on (ex post) penalties to deter misconduct, are more likely to be fired following negative ESG-related news compared to CEOs of firms located in civil-law countries, which tend to rely on ex ante measures.

3 Data sources and sample

We use RepRisk (www.reprisk.com) for information on firms' risk exposures to ESG issues. For data on board characteristics, we rely on BoardEx. Accounting variables are from COMPUSTAT. Data on total stock returns are from COMPUSTAT (for European firms) and from CRSP (US firms). Data on returns (dividends included) for the S&P 500 and the market indices of European countries, which we use as proxies for market returns, are from CRSP, COMPUSTAT, as well as from WRDS World Indices database, respectively. CEO turnover data is gathered from ExecuComp (US firms) and from CapitalIQ and Orbis (European firms), as well as manually verified using various sources (annual reports, online biographies of executives, etc.). Country-level variables are similar to those used in Liang and Renneboog (2017) and are attained from several sources including World Bank Database, Polity IV, Heritage.org, the Swiss Federal Institute of Technology Zurich, etc. Further descriptions of variables, and their data sources, are presented in Appendix Table A.1.

3.1 RepRisk

To measure the intensity of media coverage of an ESG-related issue, we rely on the RepRisk database, which is often used by major banks, financial institutions, and corporations around the world as a due diligence, research, and monitoring tool in their businesses. This database covers risk exposure for more than 120,000 public and private companies. To construct this database, RepRisk [5] screens ESG/stakeholder news reported in the media each day. When a new risk incident occurs, it analyzes the novelty and severity of the incident to estimate the impact it is expected to have on a firm's risk exposure. This process is quantified in the form of a reputational risk index (RRI), and it is mostly based on non-subjective measures such as number of news articles covering a certain ESG issue. As such, the RRI index mostly captures the negative media attention to ESG issues, and hence it differs conceptually from traditional measures of ESG and CSR performance indices (e.g., Thomson Reuters ESG scores, MSCI ESG (KLD) index, etc.) in several ways. First, ESG and CSR measures typically rely to some degree on self-reported content (such as "sustainability reports" or "sustainability sections" in annual reports). A common critique of such measures is that a firm may be able to influence its ESG score by overstating its CSR activities (so called "greenwashing"). Second, ESG measures may also vary depending on which data provider is used. We try to overcome such issues by relying instead on a measure of negative media attention, a variable which a company is not directly in control of. Additionally, we focus on negative media attention instead of on lawsuits as ESG/CSR issues may not always lead to lawsuits.[6]

The variable RRI is an integer variable that ranges from -1 to 100. Values equal to -1 indicate that a firm has no reported issues, values between 0 and 24 indicate low risk exposure, 25 – 49 medium risk exposure, 50 – 59 high risk exposure, 60 – 74 very high risk exposure, and 75 – 100 extremely high risk exposure.

[5] RepRisk is a Swiss-based company which uses machine learning algorithms to screen the media for stakeholder-related ESG-issues (www.reprisk.com). RepRisk is available via Wharton Research Data Services (WRDS).

[6] Bénabou and Tirole (2010) note that ESG-related misconduct is sometimes difficult to regulate against, and thus, by focusing solely on lawsuits, a researcher may end up with a biased sample in which certain types of issues are systematically left out. As an example, they mention "child labor in a distant country with lax regulation". Although this type of misconduct may not result in a lawsuit, it could still lead to widespread negative media attention.

If a firm in any given month has new risk incidents, the RRI may go up, depending on the impact (severity, novelty, etc.) of the news, and if there are no incidents, it decays at a rate of 25 every two months if the RRI value is 25 – 100 and at a rate of 25 every eighteen months if the value is -1 – 24. Larger firms are expected to have values between 25 and 49, even if they have no major issues, due to their larger media coverage compared to smaller firms. According to RepRisk, values under 50 indicate "normal" levels of risk exposure, and values of 50 or above indicate that a firm has been involved in an ESG issue. The database also includes information on a firm's top five ESG issues and their types, as well as the news counts for the top issues, the news counts for top issues by country, by severity, by reach, etc. Table 1 Panel A provides information regarding the distribution of RRI among our sample firms.

Due to data availability constraints about CEO turnovers in various countries, we focus only on the largest public firms in US and Europe (firms listed on the S&P 500 and the Stoxx Europe 600 indices, respectively). This sample includes a total of 1,568 large firms that were part of these stock indices for at least one year during our sampling period (2007-2018). Since we track CEO turnovers within two years of observing a spike in the RRI index values, our last year of observations for CEO turnovers is 2018 and the period for observing the spike in RRI index is between 2007 and 2017 (inclusive). This sampling procedure yields a raw sample of 1,568 (firms) * 11 (years) * 12 (months) = 206,976 firm-month-year observations.

When an ESG-related issue breaks out, the board and major shareholders may prefer to wait and see whether the issue leads to wide media coverage – reaching a larger portion of potential customers, investors, etc. – before deciding on whether to take action (such as firing the CEO). Thus, we first identify the month in which the reputational risk is at its highest level in a given calendar year, which assures we time the ESG event with the peak coverage in the media.[7] We use this method to make sure

[7] We thank Luc Renneboog for this insightful comment.

that our annual RRI data conforms with our annual CEO turnover data.[8]Then, within each firm-year we focus on that peak month in which the RRI is at its highest level; this yields a potential sample of 1,568 (firms) * 11 (years) = 17,248 observations.

<< TABLE 1 HERE >>

We group firm-year observations into three groups depending on the level of risk exposure: (1) "normal" level of risk exposure ($-1 \geq RRI \leq 49$), (2) high risk exposure firms ($50 \geq RRI \leq 59$), and (3) extreme risk exposure firms ($60 \geq RRI \leq 100$). This procedure follows the RepRisk methodology except that we include firms with very high and extremely high risk exposure into the same group (which we name "Extreme risk exposure") as there are only 13 firm-year observations with extremely high risk exposure in our sample according to the RepRisk's classification.[9]

3.2 CEO turnover

We attain data on CEO turnover in S&P 500 firms between 2007-2018 from ExecuComp, but we manually check and verify the timing of each turnover event using various online sources. For Stoxx Europe 600 firms, we hand-collect information on CEOs' names and appointment dates between 2007-2018 using various databases (such as CapitalIQ and Orbis) and various online sources. Whenever a CEO change occurs, we keep information for the CEO who is being replaced. If a firm has multiple CEO changes in a year, we remove observations for newly assigned CEOs, as we view these CEOs as less likely to be held culpable for the misconduct due to their shorter tenure as CEOs of the firm. We also manually gather information on CEOs' nationality, age, tenure, gender, chairman status, founder status, and cash compensation. In addition, for all CEO turnover events in US and Europe, we manually go

[8] If a firm's RRI is equally high for several months in the same year, and is at its highest level in that year, we include only the monthly observation for which the RRI has jumped the most. If the RRI has jumped by an equal amount in several months, and the RRI peaks in these months, we keep the first observation.

[9] These 13 firm-year observations are (listed from highest to lowest RRI): Transocean in 2010; Siemens in 2007; Baxter International in 2008; General Motors in 2014; Equifax in 2017; UBS Group in 2010; Fiat Chrysler Automotives in 2014; Volkswagen in 2015; Walmart in 2008; Rolls-Royce Holdings in 2017; Transocean in 2011; UBS Group in 2011; and Volkswagen in 2014. The average CEO turnover rate in the same or in the next year for these firms is 61.5%.

through each turnover and remove those cases in which the company was acquired, merged, or there was a spinoff.

As main dependent variable in our regressions, we use an indicator variable for whether a CEO loses his or her job within two years of the RRI spike. That is, we require a CEO replacement to occur in the yearly range of [0, 1] relative to an ESG issue occurring in year *t*.[10]

3.3 Main sample

We start by merging our RepRisk sample with our CEO turnover sample. This yields an un-balanced panel data set consisting of 13,482 firm-CEO-year observations for 1,419 firms for years 2007-2017. We then merge this sample with BoardEx data and lose 282 firm-CEO-year observations in this process. After merging with firm-level data from COMPUSTAT, we lose another 1,211 firm-CEO-year observations, and another 915 firm-year observations after merging with stock performance data from CRSP and COMPUSTAT. Finally, we merge with country-level data from different sources (no observations lost). Thus, our final sample is an un-balanced panel data set consisting of 11,094 firm-CEO-year observations for 1,194 S&P 500 and Stoxx Europe 600 firms for years 2007-2017 (see Table 1, Panel B for information on sample construction).

Within this sample, we identify 770 firm-years observations for which a firm's risk exposure to ESG issues goes above normal levels. Of these 770 observations, 436 have high risk exposure to ESG issues, 321 have very high risk exposure to ESG issues, and 13 have extremely high risk exposure to ESG issues based on RepRisk's own classification.

Panel A of Table 2 shows the distribution of firms with extreme risk exposure to ESG issues by year. In Panel B, issues are categorized based on their type of issue (E, S, G). Firm-year observations for

[10] We check whether the CEO is replaced in the same year or in the year after a firm's risk exposure to ESG issues reaches extreme levels. i.e. in the [0, 1] window. In appendix Table A.2, we show that results hold when we measure CEO turnover in the same year as the risk exposure peaks. In comparison, Aharony, Liu, and Yawson (2015) use [0, 3] years and [-1, 3] years windows, whereas Beneish, Marshall, and Yang (2017) use a fixed (-6, +12) months window in most of their regressions.

environmental issues are somewhat underrepresented in the sample, and governance issues somewhat overrepresented, with 18.0% environmental, 33.5% social, and 49.7% governance issues.

<< TABLE 2 HERE >>

3.4 Univariate results

Table 3 contrasts firm-years with extreme risk exposure (RRI ≥ 60) and firm-years with normal or high levels of risk exposure (RRI < 60). Notably, the indicator variable for whether a CEO is replaced in year *t* shows that 13.2% of CEOs in firms with extreme risk exposure were replaced, whereas only 9.4% of CEOs in the sample of firms with no issues were replaced.[11] The difference in means is 3.8 percentage points and statistically significant (p = 0.010).[12] Similarly, when examining our main dependent variable used in our regressions, we find that 23.7% of CEOs of firms with extreme risk exposure lose their job within the same year or the year after the risk exposure goes to extreme levels, whereas only 18.6% of CEOs of firms with normal or high levels lose their job. This translates to a statistically significant (p = 0.030) difference of 5.1 percentage points. These univariate results are preliminary evidence of the linkages between ESG-related news and CEO turnover likelihood.

<< TABLE 3 HERE >>

As shown in Table 3, firm-year observations with extreme risk exposure, by construction, have higher average RRI: 64.6 versus 19.2 for firms with normal or high levels of risk exposure. The exposed firms are larger, and their past stock performance is also significantly lower – possibly due to the impact of the risk exposure. However, firm-year observations in the two groups are similar in many other dimensions: prior profitability (ROA), leverage, cash-to-total assets, Market-to-Book value, Tobin's q, and Altman's

[11] In comparison, Burns, Minnich, and Starks (2020) report an average CEO turnover level of roughly 11% in their hand-collected sample consisting of firms located in 28 different countries.

[12] The p-value is obtained by regressing an indicator variable for whether a CEO is replaced in year t on a constant and an indicator variable for whether a firms has extreme risk exposure (60 ≤ RRI ≤ 100)in year t, with standard errors clustered by industry (four-digit Standard Industrial Classification (SIC) codes).

z-score. Also, firm-year observations with extreme risk exposure have larger boards, higher gender diversity on the board, and a lower proportion of directors close to retirement, but are similar in terms of board independence to firm-year observations with normal or high risk exposure. Finally, CEOs in the group of firm-year observations with extreme risk exposure are significantly shorter-tenured compared to CEOs of firm-year observations that do not have extreme risk exposure. In terms of CEO characteristics like age, gender, close to retirement, chairman status, and founder status, the two subsamples are quite similar.

The correlation matrix is presented in Appendix B.1. Notably, the indicator variables for years in which a firm has had extreme risk exposure, and for years in which a firm has had high risk exposure, are positively and significantly correlated with the main dependent variable. Furthermore, variables indicating a CEO is close to retirement, CEO's age, and CEO's tenure (at the firm) are positively and significantly correlated with the CEO turnover indicator. CEOs of poor-performing firms, and CEOs of firms with larger boards, are also correlated with the likelihood of a CEO being replaced. In contrast, CEOs of firms with independent boards, and CEOs of firms with boards with higher gender diversity, are less likely to be fired.

4 Multivariate results

4.1 Main model

We model the probability of a CEO being replaced at firm *i* in year *t* or *t + 1*, relative to the year in which a firm's RRI is measured in year *t*. Our baseline model is given by equation (1):

$$\Pr(CEO\ replaced\ in\ the\ same\ year\ or\ the\ in\ next\ year = 1_{it})$$

$$= F\Big(\beta_0 + \beta_1 * Extreme\ risk\ exposure_{it} + \beta_2 * CEO\ close\ to\ retirement_{it} + \beta_3 * CEO\ Age_{it} + \beta_4 * CEO\ Tenure\ (at\ the\ firm)_{it} + \beta_5 * CEO\ Gender\ (Male = 1)_{it} + \beta_6 * CEO\ is\ Chairman_{it} + \beta_7 * CEO\ is\ Founder_{it} + \beta_8 * Ln(Total\ Assets_{t-1})_{it-1} + \beta_9 * Return\ on\ Assets_{it-1} + \beta_{10} * Market - adjusted\ stock\ performance\ in\ past\ two\ years_{it} + \beta_{11} * Board\ independence_{it-1} + \beta_{12} * Board\ size_{it-1} + \beta_{13} * Proportion\ of\ directors\ close\ to\ retirement_{it-1} + \beta_{14} * Board\ gender\ ratio_{it-1} + \beta_{15} * Ln(GDP\ per\ capita)_{ict} + \beta_{16} * Globalization\ index_{ict} + \beta_{17} * Regulatory\ quality_{ict} + \beta_{18} * Corruption\ control_{ict} + \beta_{19} * Political\ executive\ constraints_{ict} + \beta_{20} * Economic\ freedom\ index_{ict} + \eta_{Year} + \eta_{Country} + \eta_{Industry_{Four-digit\ SIC\ codes}} + \varepsilon_{it}\Big),$$

(1)

where F(.) is the cumulative logistic distribution, *i* indicates the firm, *c* indicates the country, and *t* indicates the year. The dependent variable is an indicator variable for whether the CEO of a firm is replaced in year *t* or in year *t + 1* and the main independent variable is an indicator variable which equals one if a firm's risk exposure is extreme ($60 \leq RRI \leq 100$) in a year, and zero otherwise. As we show in Table 4, high risk exposure issues ($50 \leq RRI \leq 59$) have no additional impact on CEO turnover relative to more normal levels of risk exposure ($-1 \leq RRI < 50$). Thus, our baseline model contrasts firm-year observations with extreme risk exposure to firm-year observations with no, low, medium, or high risk exposure. In another specification, we use the peak level of RRI in a year as a continuous measure of risk exposure.

As control variables, we include several known determinants of CEO turnover identified by prior literature (Yermack, 2004; Defond and Hung, 2003, Desai, Hogan, and Wilkins, 2006; Aharony, Liu, and Yawson, 2015; Jenter and Kanaan, 2015; Beneish, Marshall, and Yang, 2017; and others). We follow Beneish, Marshall, and Yang (2017) and include an indicator variable for whether a CEO is close to retirement (aged 63 years or more), as in such cases the CEO is more likely to depart their position due to an ESG issue. We also include CEO age and CEO tenure, as such executives should have more proven

skills (Jenter and Kanaan, 2015). Indicator variables for gender and for CEO-chairman dual position (remaining as Chairman could be a form of window-dressing as the former CEO would still control the board; Beneish, Marshall, and Yang, 2017); and for founder-CEOs (according to Leone and Liu (2010), founders are less likely to be fired following economic misconduct).

We control for firm size by including the natural logarithm of total assets in year *t – 1*, for prior performance by including ROA in year *t – 1*, and for stock performance using monthly market-adjusted stock returns for the past 24 months (relative to the month in which the RRI peaks in a year). Controlling for prior poor stock performance is important because it has been shown to negatively affect CEO retention (Weisbach, 1988; Warner, Watts, and Wruck, 1988; Barro and Barro, 1990; Kaplan and Minton, 2006). Furthermore, we control for governance and board characteristics by including variables for board independence, board size, succession (percentage of directors close to retirement age), and gender ratio.[13]

To account for potential cross-country variation in CEO turnover rates (Defond and Hung, 2003, p. 272; Burns, Minnick, and Starks, 2020), we include country-specific time-variant country variables as well as country fixed effects (based on the country in which the firm has its headquarters). Following Liang and Renneboog (2017), we include the following time-variant variables: the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality index (World Bank), the Corruption Control index (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom index (www.heritage.org).

Unless otherwise specified, all of our regressions include year fixed effects to account for potential yearly variation in CEO turnover rates, as well as industry fixed effects (based on four-digit Standard Industry

[13] As discussed in Beneish, Marshall, and Yang (2017), higher board independence, and smaller and younger boards are associated with firings of CEOs due to poor performance. Liu (2018) documents that a higher board gender ratio is related to a lower number of environmental violations, which could lead boards with a higher ratio of females serving on it to be more likely to fire the CEO following ESG misconduct.

Classification (SIC) codes). The standard errors are clustered by industry (based on four-digit SIC codes), and all the continuous variables are winsorized at the 1st and 99th percentiles.

4.2 Multivariate results

Table 4 presents our main results for estimating equation 1 without industry fixed effects (shown under column 1), and with year, country, and industry fixed effects (under column 2). The coefficient for the variable *Extreme risk exposure* changes from 0.41 (column 1) to 0.61 (column 2) after including industry fixed effects and remains statistically significant ($p < 0.001$), which suggests that the likelihood of a CEO losing his or her job increases significantly following years with extreme risk exposure to ESG issues. When we interpret the coefficient in column 2 as an average marginal effect, we find that CEOs of firms with extreme risk exposure have a 9.00 ($p_{\text{marginal effect}} < 0.001$) percentage points higher probability of losing their job.[14] These results provide strong support for Hypothesis 1.

<< TABLE 4 HERE >>

The coefficients for the control variables are mostly as expected: older CEOs and the ones closer to retirement are significantly more likely to be replaced; founder-CEOs are significantly less likely (consistent with Leone and Liu (2010) and Beneish, Marshall, and Yang (2017)) and the CEOs of poor performing firms (measured as market-adjusted stock performance) are significantly more likely to be replaced (consistent with Warner, Watts, and Wruck (1988); Beneish, Marshall, and Yang (2017); Aharony, Liu, and Yawson (2015)); CEOs who are also Chairman of the Board are less likely (consistent

[14] The marginal effect is measured as the average marginal effect (average adjusted predictions) for the indicator variable for extreme risk exposure. The average marginal effect is attained by calculating the difference between the probability that a CEO is fired if the CEO's firm would not have had extreme risk exposure (= 0) in a year and the probability that the same CEO is fired if the firm would have had extreme risk exposure (= 1) for each observation, leaving all other variables unchanged, and then averaging these differences for the whole sample. In comparison, calculating marginal effects at the means, where the other independent variables are held at their means, yields a 9.21 percentage points higher probability for CEOs of firms with extreme risk exposure. In the remainder of the paper, if not mentioned otherwise, we report average marginal effects (average adjusted predictions).

with Beneish, Marshall, and Yang (2017)); and longer-tenured CEOs are significantly more likely to be replaced.

A Hosmer-Lemeshow test indicates that the data in column 2 (our baseline model) fits the model well ($p = 0.875$). The area under the ROC-curve for this specification is 0.759. Including the indicator variable for extreme risk exposure (column 2) significantly improves the models: a likelihood ratio test returns a chi-squared value of 11.80 which translates to a p-value of 0.0006 with one degree of freedom.

In columns 3 through 6, we find that the coefficients for the indicator variable for high risk exposure issues vary between 0.22 and 0.24 and are not statistically significant at conventional levels in any of the regressions. This suggests that high risk exposure issues do not have any incremental impact on CEO turnover above and beyond what "normal" levels of risk exposure have, and thus for the remainder of the paper we use the indicator variable for extreme risk exposure as our main independent variable.

In column 7, we use the level of RRI as main independent variable. The coefficient for the level of RRI is 0.0094 and statistically significant ($p < 0.001$). This suggest that the likelihood of CEOs losing their jobs is proportional to the severity of an ESG issue, thus providing support for Hypothesis 2.

In addition, to convey the effects that higher levels of risk exposure have on the probability that a CEO is replaced, we graph the marginal effects at representative values. We first divide the continuous variable RRI (ranging from -1 to 100) into intervals. The lengths of each interval is five (RRI) units wide. As only a few RRI values ever exceed 80, we include these observations in the [76, 80] interval group. We then estimate equation (1) using firms with RRI values of -1 or 0 as benchmark group and include indicator variables for all other groups as independent variables; we also include the control variables from equation (1), and year, country, and industry fixed effects. Finally, we calculate the average marginal effects and plot the estimated probabilities of CEO turnover at representative values for the RRI index. As shown in figure 2, although the probabilities are on elevated levels already for values above 40, the

probability of CEO turnover starts to increase rapidly when the RRI reaches 60. This graph clearly depicts the relationship between RRI (ESG) risk and CEO turnover.

<< FIGURE 2 HERE >>

Next, we conduct a series of robustness tests. First, we rerun our equation (1) using as dependent variable an indicator variable for whether a CEO loses his/her position in year *t* and find similar results as our main specification (see Appendix Table B.2). For example, the coefficient for the indicator variable for extreme risk exposure (column 1) is 0.74 and statistically significant ($p < 0.001$).

Furthermore, in Appendix Table B.3's column 1, we estimate the baseline regression but exclude CEOs who are close to retirement (63 years or older). This does not change our qualitative conclusions: we find that the coefficient for the indicator variable for extreme risk exposure is 0.63 and statistically significant ($p < 0.001$). In column 2, we estimate the baseline regression but include also a variable for the ESG performance (*Total Score*) of a company, provided by Asset4 by Thomson Reuters Eikon. The variable measures the ESG performance without correcting for the impact of ESG controversies. We do not include this variable in the main analysis as we would lose almost 2,000 firm-year observations (depending on column and regression) due to the missing observations for ESG data (*Total Score*). As shown in column 2, the lagged ESG score enters significantly into the regressions but the inclusion of this variable does not qualitatively change our conclusions. Interestingly, the coefficient of *Total Score* suggest that CEOs are more likely to be fired in companies which score high on ESG[15], implying that such CEOs are held accountable more severely than the CEOs who were not ranked high on ESG issues by Asset4.

In Table 5, we also check that our main results hold up when using alternative estimation methods. In column 1, we estimate the baseline model equation (1) using a logistic regression model with firm-fixed

[15] Results for including the ESG variable in all regressions in the paper are qualitatively the same as when we leave it out. These results are available upon request.

effects (excluding country and industry fixed effects, but including all time-variant CEO, firm, and country-level control variables). Tracking the same firm over time helps alleviate concerns for endogeneity bias, concerns that firms that are more inclined to fire their CEO are very similar to the firms that are more likely to end up in our ESG violation sample, as well as concerns that results are driven by industry- or size-related factors. The coefficient for the extreme risk exposure indicator variable is 0.62 and statistically significant ($p = 0.017$). In column 2, we use a random (firm) effects model and find similar results. In column 3, we include country-year and industry-year fixed effects; this allows us to control for potential country- or industry-specific events that may have occurred in a given year (such as new regulation) and could have affected CEO turnover. We find that results are robust to the inclusion of these fixed effects. Finally, in columns 4 and 5, we estimate probit models for the baselines model, as well as for the baseline model with country-year and industry-year fixed effects, respectively, and again find that results hold.

<< TABLE 5 HERE >>

4.3 By ESG category

We then examine how different types of ESG (E, S, G) events affect CEO. We use the variables *Environmental (%)*, *Social (%)*, and *Governance (%)* – the variables indicate the proportion of E, S, and G related risk incidents relative to all risk incidents, respectively, that make up the current RRI – to assign firms with extreme risk exposure into three groups: (1) Environmental, (2) Social, and (3) Governance. Grouping is based on which of the variables *Environmental (%)*, *Social (%)*, or *Governance (%)* has the highest value in the month in which the RRI is at its highest level in a year. If the percentages for two, or three, of the groups are equally high, the indicator variables for both groups are assigned a value equal to one (i.e. the groups are not mutually exclusive). We identify 60 firm-year observations for Environmental issues, 112 for Social issues, and 166 for Governance issues.

<< TABLE 6 HERE >>

In Table 6, we test hypotheses 1a, 1b, and 1c by estimating equation (1) for Environmental, Social, "Stakeholder" (Environmental and Social)[16], and Governance issues, respectively. As shown in columns 1 through 8, we find that CEOs are more likely to lose their job following all types of ESG issues. In columns 1-4, the main independent variable is an indicator variable for Extreme risk exposure. The coefficients for this variable are significant for all types of issues, albeit only borderline significant for Environmental issues. The marginal effects suggest that CEOs are 9.24 percentage points (p = 0.087) morel likely to be fired following environmental issues, 8.12 percentage points (p = 0.053) following social issues, 8.58 percentage points (p = 0.011) following "stakeholder" issues, and 9.34 percentage points (p = 0.011) following governance issues. In columns 5-8, we find that the RRI value enters significantly and positively for all types of issues, as well as for the "stakeholder" issues, suggesting that the probability of a CEO being fired is proportional to the severity of an issue. These results provide support for hypotheses 1a, 1b, and 1c.

Finding that CEO turnover increases following environmental issues contrasts with results reported in Aharony, Liu, and Yawson (2015), who find that CEO turnover in US firms in fact decreases following environmental lawsuits. A potential explanation for this difference is that: first, they do not control for the severity of the ESG issue (i.e. the level of media coverage), and second, our sample covers European countries, which tend to be more sensitive to ESG issues (Liang and Renneboog, 2017). Our results suggest that environmental issues which draw extreme negative media attention lead to systematic penalties for CEOs (consistent with anecdotal examples such as the BP oil spill), but not necessarily the environmental issues that reach high risk exposure. Also, there could be a time trend where in recent years ESG issues have become much more important for the media and for the firms; our sample covers

[16] Of the three types of ESG issues, environmental and social issues tend to be more related to stakeholders. This is in contrast to governance issues, which tend to relate more to shareholder issues.

firm-years between 2007-2018 whereas Aharony, Liu, and Yawson's sample cover firm-years between 2000-2007.

4.4 By legal origin

We then turn to test Hypothesis 3 that the CEOs from common-law countries experience more severe penalties following ESG-related misconduct than the CEOs of firms located in civil-law countries. Such a result would be expected if common-law countries focus more on ex post disciplinary measures to deter stakeholder-related misconduct than civil-law countries (Liang and Renneboog, 2017), which rely on preventing misconduct ex ante (strong corporate governance, state intervention, regulation, etc.).

We follow La Porta, Lopez-de-Silanes, and Shleifer (2008) and divide firms into five groups: (1) firms headquartered in English common-law countries, (2) firms headquartered in French civil-law countries, (3) firms headquartered in German civil-law countries, (4) firms headquartered in Scandinavian civil-law countries, and (5) firms headquartered in Socialist countries.[17] Of the original sample consisting of 11,094 firm-year observations, we identify 7,647 as English common-law countries, 1,610 as French civil-law countries, 1,198 as German civil-law countries, 617 as Scandinavian civil-law countries, and 22 as Socialist countries. In the remainder of the analysis in this section, we do not include Socialist countries as the sample size for this group is very small.

We identify 227 firm-years with recorded extreme risk exposure issues for firms located in English common-law countries, whereas the number for firms in civil-law countries is 107 (36 in French civil-law countries, 64 in German civil-law countries, and 7 in Scandinavian civil-law countries). In un-tabulated univariate results, we find that following extreme risk exposure issues, 20.7% of the CEOs from the English common-law countries are replaced within two years of an ESG-related incident covered in the media (in contrast to 17.1% for firms which do not have extreme risk exposure). The same

[17] We use Appendix B in Liang and Renneboog (2017) as reference for determining a country's legal origin. Czech Republic is the only country in our sample that is defined as a Socialist country.

percentage for firms located in civil-law countries is 29.9% (33.3% for French civil-law country firms, 29.7% for German civil-law country firms, and 14.3% for Scandinavian civil-law country firms). The probability of CEO turnover for firms located in common- versus civil-law countries, conditional on these firms experiencing an extreme risk exposure in a year, is 9.2 percentage points and statistically significant ($p = 0.017$).[18] This univariate result contrasts with Hypothesis 3, as it suggests that CEOs of firms located in civil-law countries are more likely to be replaced following extreme risk exposure than CEOs of firms located in common-law countries. However, to verify this result in a more controlled setting, we next proceed with multivariate regression tests. In column 1 of Table 7, we estimate equation (1) with an indicator variable for whether a firm has an extreme risk exposure during a given year, an indicator variable for civil-law countries, and their interaction term as main independent variables. Consistent with the findings in the previous tables, we find that the coefficient for the indicator variable for extreme risk exposure issues is significant ($p = 0.009$) and positive. However, the coefficient for the interaction term is not significant, which suggests that CEOs of firms located in common-law and civil-law countries are equally likely to be fired following ESG-related misconduct. Again, we do not find support for Hypothesis 3. A potential explanation for this finding is that stronger ESG norms in stakeholder-oriented civil-law countries offsets the hypothesized stronger ex post penalties in common-law countries.

<< TABLE 7 HERE >>

Figure 3 shows predictive margins for (1) common-law firms with no issues, (2) civil-law with no issues, (3) common-law firms with extreme risk exposure, and (4) civil-law firms with extreme risk exposure, respectively. As the figure depicts, the likelihood of CEO turnover increases substantially in both types

[18] We regress the indicator variable CEO replaced in year t or t + 1 on a constant and an indicator variable for civil-law countries, clustering standard errors by four-digit SIC codes and including only firm-year observations with extreme risk exposure.

of legal origins following extreme risk exposure, and the steepness of the lines are not substantially different from each other, which is consistent with our findings in Table 7.

<< FIGURE 3 HERE >>

In columns 2, 3, and 4, we contrast firms located in countries with the different types of civil-law legal origins (French, German, and Scandinavian) against firms with English common-law legal origins. In column 2, we include English common-law firms and French civil-law firms, and thus the indicator variable for civil-law firms corresponds to firms located in French civil-law countries. Similarly, in column 3, the indicator variable corresponds to firms located in German civil-law countries, and in column 4 it corresponds to firms located in Scandinavian civil-law countries. We find that, across all columns, the coefficient for the indicator variable for extreme risk exposure is positive and significant, whereas the coefficient for the interaction term is not significant. In summary, these results suggest that CEOs are significantly more likely to be fired following negative ESG-related news, and the probability of being fired does not depend on the legal origin of the country in which the firm is headquartered in. All firms, regardless of the legal origin of their country, appear to react to a severe ESG issue covered intensely in the media (which is what the RRI measure captures).

4.4.1 Investor protection, economic freedom, political institutions, culture, etc.

Liang and Renneboog (2017) discuss country-level differences, including among others economic freedom, globalization, social norms, cultural norms, which could be related to firms' propensities to invest in ESG activities.[19] In this section, we investigate whether ESG-related CEO turnover rates differ between countries depending on these factors. In Panel B, we consider a subset of these variables by

[19] Liang and Renneboog (2017) include, among other country-level variables, the variables *Regulatory Quality* (World Bank), as countries with more effective government might be more prone to address corporate social irresponsibility; *GDP*, as richer countries might put more emphasis on ESG; and *Globalization Index*, as firms in globalized economies might be required to focus more on ESG than firms in closed economies. However, they find that legal origin dominates other country-level variables in explaining the firm-level ESG. In our estimations, we include these controls suggested by Liang and Renneboog (2017).

including an indicator variable for countries which score greater or equal to the median on investor protection (columns 1-3), public sector ethics (column 4), and corporate governance (column 5) for the 18 countries included in the sample. We proxy for investor protection using the anti-director rights index (Djankov, La porta, Lopez-de-Silanes, and Schleifer, 2008; and Spamann, 2010), the anti-self-dealing index (Djankov, La porta, Lopez-de-Silanes, and Schleifer, 2008), for public sector ethics using the public sector ethics index provided by Kaufmann (2004), and for corporate governance effectiveness using the corporate governance index by Kaufmann (2004).

Across all columns, we find that the extreme risk exposure indicator variable is positive and significant, that the indicator variable for greater or equal to the median for the country-level variable of interest is not significant, and that the interaction term is not significant. This suggests that there are no significant differences in CEO turnover rates following negative ESG-related news for firms located in countries with high investor protection versus for firms located in countries low investor protection; or for firms located in countries with high public sector ethics (corporate governance) versus for firms located in countries low investor protection public sector ethics (corporate governance). As long as the media covers the ESG issue extremely negatively (RRI spikes), the CEOs get punished regardless of the country characteristics.

Furthermore, in the internet appendix Table 3 Panel A, we find no differences in CEO turnover following extreme risk exposure between firms located in countries with high versus countries low scores on: i) the original anti-director rights index (La Porta, Lopez-de-Silanes, Schleifer, and Vishny, 1998), ii) the Employment Laws index (Botero, et al., 2004), iii) the Collective Bargaining index (Botero, et al., 2004), iv) the Social Security index (Botero, et al., 2004), v) and the Corporate Sector Ethics index (Kaufmann, 2004). Also, we obtain qualitatively similar results when we use Hofstede (1991) cultural country-level measures in Panel B.

4.5 Probability of being involved in an extreme ESG issue and country

Given our finding that ex post penalties are similar in common- and civil-law countries, Next, we investigate whether the ex ante preventive measures implemented in civil-law countries (Liang and Renneboog, 2017), together with social and cultural norms, may work to deter ESG-related misbehavior of firms locate in those countries. We expect that the probability of an extreme ESG issue occurring in civil-law countries should be lower than the common-law countries. We, essentially, estimate a logistic regression model where the dependent variable is a dummy that equals one if a firm is involved in an extreme risk exposure issue in year *t*, and zero otherwise. As control variables, we include the same variables as in our baseline model in equation (1). We also include year and industry (one-digit SIC codes) fixed effects. We use one-digit SIC codes instead of four-digit SIC codes, because including four-digit SIC codes reduces the sample size to only 4,102 firm-year observations in column 1 (as some industries perfectly predict failure or success). Observations for firms located in "Socialist" countries are again excluded, which means that we contrast civil- to common-law countries. We estimate the following equation:

$$
\begin{aligned}
&\Pr(Extreme\ risk\ exposure = 1_{it}) \\
&= F\Big(\beta_0 + \beta_1 * Civil - law\ country_{ci} + \beta_2 * CEO\ close\ to\ retirement_{it} + \beta_3 * CEO\ Age_{it} + \beta_4 \\
&* CEO\ Tenure\ (at\ the\ firm)_{it} + \beta_5 * CEO\ Gender\ (Male = 1)_{it} + \beta_6 * CEO\ is\ Chairman_{it} + \beta_7 \\
&* CEO\ is\ Founder_{it} + \beta_8 * Ln(Total\ Assets_{t-1})_{it-1} + \beta_9 * Return\ on\ Assets_{it-1} + \beta_{10} \\
&* Market - adjusted\ stock\ performance\ in\ past\ two\ years_{it} + \beta_{11} * Board\ independence_{it-1} \\
&+ \beta_{12} * Board\ size_{it-1} + \beta_{13} * Proportion\ of\ directors\ close\ to\ retirement_{it-1} + \beta_{14} \\
&* Board\ gender\ ratio_{it-1} + \beta_{15} * Ln(GDP\ per\ capita)_{ict} + \beta_{16} * Globalization\ index_{ict} + \beta_{17} \\
&* Regulatory\ quality_{ict} + \beta_{18} * Corruption\ control_{ict} + \beta_{19} * Political\ executive\ constraints_{ict} \\
&+ \beta_{20} * Economic\ freedom\ index_{ict} + \eta_{Year} + \eta_{Country} + \eta_{Industry_{One-digit\ SIC\ codes}} + \varepsilon_{it}\Big),
\end{aligned}
\tag{2}
$$

where F(.) is the cumulative logistic distribution, *i* is the firm, *t* is the year, and *c* is for country. As shown in Panel A in Table 8 (column 1), there are no differences in the likelihood that a firm is involved in ESG incidents depending on whether the firms are located in civil- or common-law countries.

<< TABLE 8 HERE >>

In column 2 of Panel A, we divide the indicator variable for civil-law countries into sub-types of civil-law (French, German, or Scandinavian), and find that firms located in French civil-law countries are significantly less likely, and that firms in German civil-law countries are significantly more likely, to be involved in extreme risk exposure ESG issues in a year, compared to firms located in English common-law countries. We do not find a significant difference between the likelihood that a firm is involved in an extreme ESG issue between firms located in Scandinavian civil-law countries and firms located in English common-law countries (it is worth noting that the sample size of firms with extreme risk exposure in Scandinavian civil-law countries is very small, $n = 7$, which could affect the results).

In Panel B, we focus on the differences between countries with respect to investor protection (Djankov, La porta, Lopez-de-Silanes, and Vishny, 2008; Spamann, 2010), public sector ethics (Kaufmann, 2004), and corporate governance (Kaufmann, 2004). Again, we do not find any differences in the probability of being involved in extreme risk exposure across countries. Similarly, as reported in the internet appendix, we do not find any significant differences when we consider a country's employment laws index (Botero, et al., 2004), a country's collective bargaining index (Botero, et al., 2004), social security index (Botero, et al., 2004), and corporate sector ethics (Kaufmann, 2004). Finally, in Panel B, we do not find any differences when controlling for a country's cultural norms using the Hofstede (1991) measures, except that firms in countries which score high on Power Distance (more autocratic leaders) have a significantly lower likelihood of being involved in an extreme ESG issues.

5 Regression Discontinuity Design

A potential criticism of our research approach is that our choice of cutoff value (RRI = 60), which is based on the RepRisk's methodology, is endogenously chosen. To demonstrate that the probability of a CEO being fired jumps significantly as the RRI index reaches extreme risk exposure levels (RRI ≥ 60), we use a sharp regression discontinuity design where the dependent variable is the predicted probability of a CEO being replaced in the same year or the next year, attained when estimating our baseline regression.

<< FIGURE 4 HERE >>

Figure 4 shows regression discontinuity plots, where the values on the y-axis represent predicted probabilities and the values on the x-axis represent the RRI value in the month in which the RRI peaks in a year. The grey dots represent averages within sample bins. Bin widths are chosen so that a dot in panel A equals the sample average for one unit on the RRI scale, and a dot in Panel B equals the sample average for two units on the RRI scale. We use a polynomial fit of order two to estimate the local polynomial regressions and the kernel function is specified as triangular. The bandwidth is 25 in both figures, and thus covers values between 35 and 85 on the RRI scale. As shown in both figures, the predicted probability of a CEO being fired jumps visibly when the RRI is greater or equal to 60, and the shape and the slope of the fitted curve shifts from flat to being steep upward sloping

<< TABLE 9 HERE >>

In table 9, we show robust estimates for a regression discontinuity design, where standard errors are clustered by year. We show results for bandwidths of 10, 20, and 30 (expressed in RRI units). We find that the coefficients for the indicator variable for extreme risk exposure across columns 1-3 are positive and significant (bandwidth = 10, coef = 0.107, p = 0.020; bandwidth = 20, coef = 0.077, p = 0.013; bandwidth = 30, coef = 0.056, p = 0.043). This suggests that the jump is significant around the cutoff

value of 60. In the internet appendix, we find no such significant jump when we choose a cutoff value equal to 50, or to 40.

6 Materiality of ESG issue

Our results so far show that negative ESG-related news in the media lead to an increased probability of a CEO being fired in the same or in the next year. An important question is whether CEOs are more likely to be fired only when shareholders are hurt by the news (i.e., stock price declines substantially in response to the news), or if the media attention to ESG issues is enough for the board (regardless of whether the stock drops) to make the decision to fire the CEO. Such an effect could also differ between countries. As the final choice of whether the CEO is fired is made by the board of directors, it may matter whether stakeholders serve on the board (such as in German firms with two-tier board systems) or whether directors are elected solely by shareholders (such as in the USA).

To assess the impact of the ESG incidences on shareholders' wealth, we conduct an event study using the 770 firm-year observations with extreme or high levels of risk exposure. RepRisk collects each news article – by issue, severity, reach, and novelty – of a company published in the media for each day. Using this detailed dataset about news articles, we implement the following testing procedure. To find the start date of a major negative ESG-related event, we begin by screening for the months in which the RRI is above the extreme risk exposure level ($RRI \geq 60$), or high ($RRI \geq 50$) for high risk firms, in a given year[20] and it has the highest jump (measured in RRI units) for those months. [21] If jumps in RRI are equally high for two or more months with extreme risk exposure, we keep the first monthly observation. Within the

[20] Almost all companies have at least one news article each day that refers to an ESG issue. Most of that coverage is considered "normal" and it is usually inconsequential as RRI index stays low (e.g., below 60). regardless of whether there is a real risk of a serious and consequential ESG-related media coverage or not.

[21] As illustrated in Appendix Table A.2 Panel B, the RRI for Volkswagen peaked in November 2015 when in fact the first news about the emission scandal was revealed in September 2015 when the United States Environmental Protection Agency (EPA) issued its notice of violation. This is also when the RRI jumped the most in that year; by 17 units. See, for example, https://www.epa.gov/sites/production/files/2015-10/documents/vw-nov-caa-09-18-15.pdf

month for which the RRI has jumped the most, we search for news items with the highest severity (how many people are affected) and the highest reach (the highest level of reach corresponds to widely-read international media sources such as Financial Times, etc.), in that order. We include a news item only if it has at least medium severity and reach, to ensure that the event has reached a large pool of investors (as compared to news item with low severity published in a local newspaper in a local language). The date of publication of that news article is considered as the event date.

We find such event dates for 439 out of 770 firm-year observations. For the two firms used as anecdotal examples (Volkswagen and BP) in this paper, we identify the dates 22nd September 2015 for the outbreak of the Volkswagen emission scandal and April 30th 2010 for the BP oil spill, respectively. Both events have highest possible severity and reach on the RepRisk scale. We fail to identify event dates for 331 firm-year observations, and thus we drop them from our sample. It is worth noting that most of the observations are for firms with high risk exposure. A potential reason for this is that the RRI for a firm may have jumped to high or extreme levels because of several less severe news items published in the media in the same month (which means that there would be no single "major event").

We estimate cumulative abnormal returns (CAR) using the market model, where the estimation period is -270 trading days to -30 trading days, the event window is -30 through +30 trading days (or shorter when specified), and the proxy for the market return is the return for the market index of the country in which the company is headquartered in. Data for US stocks is from CRSP (for returns individual stock returns and for the market returns for the S&P500 index). The data for European stocks is from COMPUSTAT Global and the data for each European country's stock indices is from WRDS World Indices database. We find that cumulative average abnormal returns (CAAR) are –0.53% (median is -0.32%) for the [-1, 1] event window, -1.24% (-1.00%) for the [-5, 5] window, and -3.31% (-1.10%) for

the [-30, 30] window.[22] The means (and medians) are all statistically significantly different from zero. This is an important finding, as it suggests that the extreme risk exposure issues identified using the RepRisk database have a strong detrimental effect on shareholder value. This also strengthens our argument of the validity of the approach of using a news-based measure to "quantify" negative ESG/CSR performance, in contrast to using more traditional ESG/CSR rating scores like MSCI ESG (KLD) or the Asset4 index.

We also conduct a multivariate analysis on these CAARs. The results from logistic regressions models where we regress the 15-day event window CARs on an indicator variable for whether a CEO loses his or her job in year *t* or *t + 1* are presented in Table 10. In column 1, we include no control variables and find that the coefficient for the variable CAR[-7, 7] is, as expected: negative and significant. In column 2, we include also an indicator variable for extreme risk exposure as well as the change in RRI between the month in which the event took place and the month before that. We find that the coefficient for CAR[-7, 7] is negative and significant, whereas the coefficients for the jump in RRI and the extreme risk exposure indicator variable are not significant. In column 3, we include all control variables, and in column 4 we include all control variables as well as year, country, and industry fixed effects, and find that the results in columns 1 and 2 hold up albeit the coefficient for the jump in RRI is borderline significant. Finally, in column 5, we find that CEOs of firms located in common-law countries are fired because of the impact the ESG issues have on shareholders, whereas in column 6[23], we find that both the negative shareholder reaction as well as the negative media attention following an ESG incident makes directors of firms located in civil-law countries decide on firing the CEO. We exclude fixed effects in columns 5 and 6 as sample sizes are not very large.

[22] In addition, these abnormal returns are similar to those reported in Krüger (2015) for 1,542 negative CSR events for US firms: he reports a -0.88% CAAR for the [-5, 5] event window and a -1.31% return for the [-10, 10] window.
[23] The indicator variables *Founder* and *Gender* are dropped from the regression in column 6 as all CEOs of firms located in civil-law countries in our event study sample are males and non-founder-CEOs.

An important result emerges from the analyses in this section. We document that the ESG-related CEO firings are not driven solely by the shareholder wealth loss of a misbehaving firm – except may be for the shareholder-oriented common-law countries. The coefficient for the jump in RRI is positive in all columns (albeit, significant only in columns 3, 4, and 6). This variable captures the incremental effect of media coverage (i.e., stakeholder-related social pressure; "shaming") on CEO turnover probability above and beyond the stock price performance (i.e., shareholder wealth loss; "market discipline"). While market-based disciplining through shareholder wealth is effective in both, civil and common-law countries, "shaming" by stakeholders (public opinion as formed by the media) seems to have distinct effect of its own only in civil-law countries.

<< TABLE 10 HERE >>

7 Conclusions

Corporate misconduct has a documented effect on firm value when the misconduct concerns the firm's investors, but evidence regarding misconduct that affects the firm's other stakeholders is weaker. For instance, Karpoff, Lott, and Wehrly (2005), and Brady, Evans, and Wehrly (2019), document that the valuation effect of environmental violations tends to be limited to the extent of legal penalties, which suggests that the financial markets fail to see, beyond the value of legal penalties, the reputational effects in environmental violations. Several studies also document significant turnover for CEOs following financial misconduct, as well as following poor firm performance. We add to this literature by studying whether ESG violations, i.e. negative news about a firm's stakeholder (customers, communities, employees, polluttees, etc.) relations, are reflected in the CEO labor market outcomes in a sample of large US and European firms.

The rich variation of legal traditions represented in our sample of S&P 500 and Stoxx Europe 600 firms allows us to also consider whether regulatory framework of a country has an effect on the relation

between ESG violations and CEO turnover. Liang and Renneboog (2017) pinpoint some key differences between common-law and civil-law traditions that may influence a firm's view on corporate social responsibility. In the common-law tradition, the focus is on ex post settling of issues, whereas the civil-law tradition relies on ex ante dictation and monitoring of norms and regulations.

Our results show that negative publicity related to ESG issues has a robust effect on CEO turnover. We find that this effect is both statistically as well as economically significant: it is more likely for CEOs of large US and European firms to get fired following extreme risk exposure to ESG issues, controlling for various known determinants of CEO turnover and country-level characteristics. Our estimate is, when estimating average marginal effects, that CEOs are roughly 9 percentage points more likely to lose their position in the same or in the next year if their firms have extreme risk exposure to ESG issues in a year (unconditional probability turnover is 5.1 percentage points). The effect is proportional to the severity of an issue: while extreme risk exposure leads to a higher likelihood of a CEO being fired, high or normal risk exposure does not. In addition, we find that all types of issues (Environmental, Social, and Governance) have a significant impact on CEO turnover. Finally, we find that the effects of negative ESG-related news on CEO turnover do not vary by legal origin of the firm's home country: CEOs are equally likely to be fired in common-law countries as in civil-law countries following ESG issues with extreme risk exposure in the media. In conclusion, our results suggest that ESG violations may work as a catalyst for the board of directors to decide on firing the CEO of a public company.

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Figure 1 Predicted probabilities in CEO turnover following extreme risk exposure

The figures depict the jump in the predicted probability of a CEO being fired in year t or t + 1 following a year when a firm has had extreme risk exposure to ESG issues (RepRisk's Reputational Risk Index (RRI) ≥ 60). We estimate a logit model where the dependent variable is an indicator variable for whether a CEO loses his or her job in year t or t + 1, and the independent variable is an indicator variable for whether a firm has extreme risk exposure in year t. We include country (headquarter of the company) fixed effects, and cluster standard errors by four-digit SIC codes. Predicted probabilities are then plotted against the RRI index using regression discontinuity plots. The plot in panel (A) is constructed such that every point represents the sample average within a specific RRI value (the index uses integer values ranging from -1 through 100), i.e. the bin width equals 1, whereas the bin width is set to 2 in panel (B). The bandwidth is 30 on both sides of the cutoff. The cutoff value is 60 and values equal to, or greater than, this value represent firms with extreme risk exposure. A triangular kernel function is used to construct the local-polynomial estimator, the polynomial fit is quadratic (p = 2), and we exclude observations for bins with only one observation (n = 3). The sample period is 2007-2018.

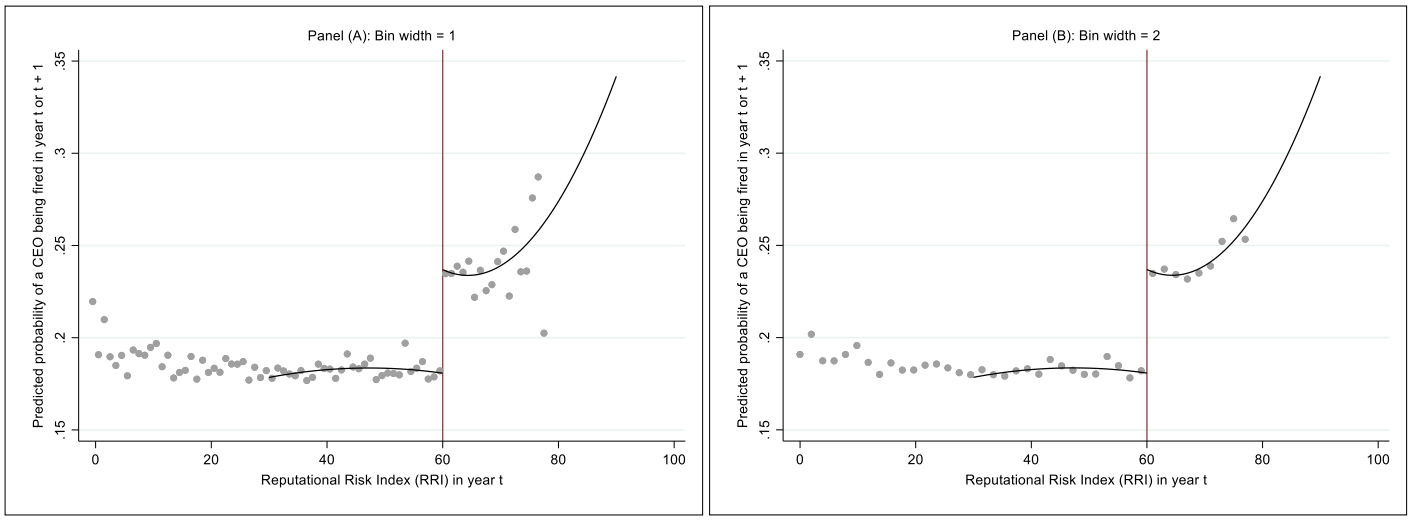


Figure 2 Adjusted predictions at representative values

The figure depicts the adjusted predictions at representative values for the baseline regression model (equation 1, column 2 Table 4) (n = 9,303). The y-axis shows the adjusted prediction of a CEO being replaced in year t or year t + 1. The x-axis shows the reputational risk exposure (RRI) divided into groups. The first group (left-most) shows the estimated probability for CEOs of firms with no risk exposure (RRI equal to, or lower than, zero) in year t. This group (n = 3,706) is used as the benchmark group in the logistic regression model. The intervals for the remaining groups ([1-5], [6-10], etc.) are 5 units. The last group [76-] includes also values over 80, as there are only 2 observations with RRI values above 80.

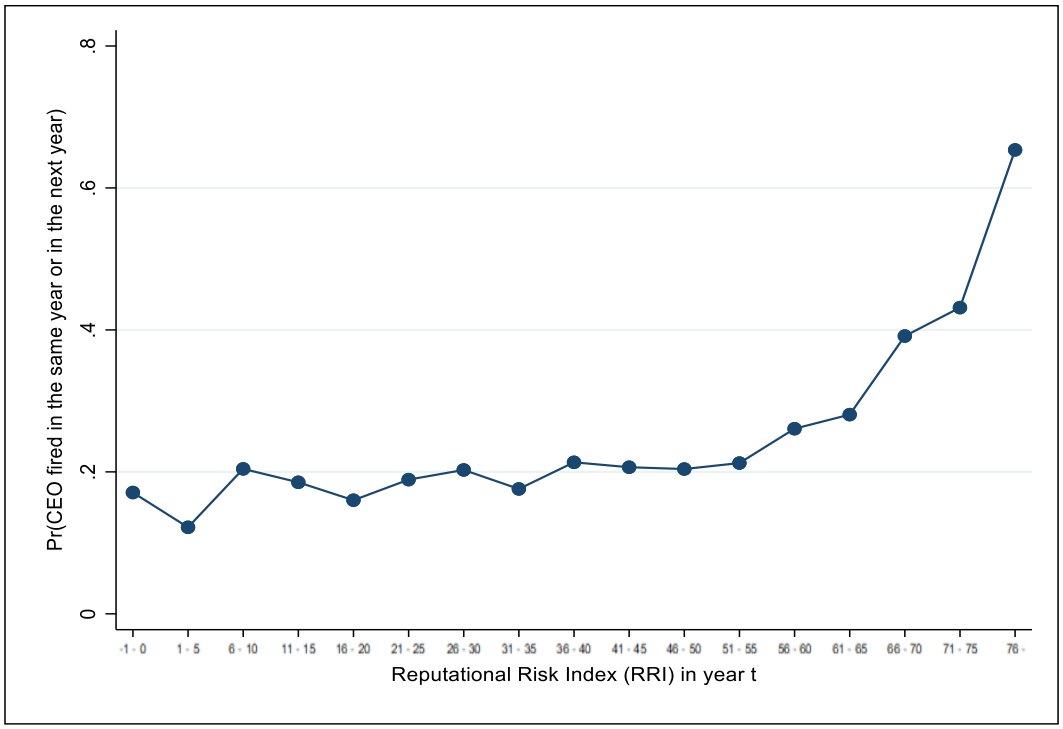


Figure 3 Average marginal effects for CEO turnover following years with extreme risk exposure for firms in civil- vs. common-law countries

The figure shows average marginal effects for CEO turnover following years with extreme risk exposure for firms in civil- versus in common-law countries. The straight line shows the average predicted probability (using average marginal effects) of CEO turnover following years when a common-law country has extreme risk exposure to ESG issues (= 1) and following years with normal or high risk exposure (= 0). Similarly, the dotted line shows predicted probabilities for CEO turnover in civil-law countries. The average marginal effects are calculated using the regression estimated in Table 7 column 1: $\Pr(CEO\ replaced\ in\ same\ year\ or\ in\ next\ year = 1_{it}) = F(\beta_0 + \beta_1 * Extreme\ risk\ exposure_{it} + \beta_2 * Civil - law\ country_{ci} + \beta_3 * (Extreme\ risk\ exposure_{it} * Civil - law\ country_{ci}) + CEO\ Controls + Firm\ Controls + Country\ Controls + \eta_{Year} + \eta_{Country} + \eta_{Industry_{SIC4}} + \varepsilon_{it})$,We track risk exposure between years 2007 and 2017 and CEO turnover between years 2007 and 2018.

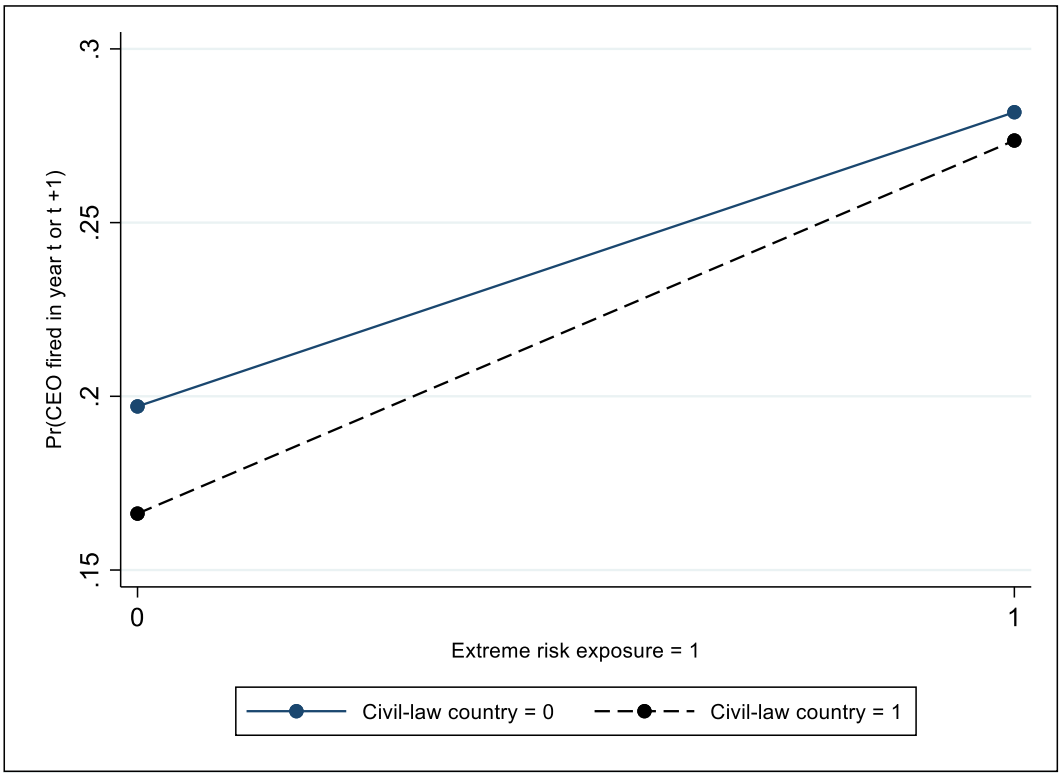


Figure 4 Regression Discontinuity Design Plots

The figures depict the predicted probabilities of a CEO being fired in year t or t + 1 following a year when a firm has had extreme risk exposure to ESG issues (RepRisk's Reputational Risk Index (RRI) ≥ 60). We estimate the baseline logit model (equation (1)) where the dependent variable is an indicator variable for whether a CEO loses his or her job in year t or t + 1, and the main independent variable is an indicator variable for whether a firm has extreme risk exposure in year t. CEO control variables include *CEO close to retirement* (aged 63 years or more), *CEO age* (in years), *Tenure* (at the firm in years), *Gender* (male = 1), *CEO is Chairman* (Chairman of the Board = 1), *CEO is Founder* (founder = 1). Firm-level control variables include *Ln(Total assets$_{t-1}$)*, *Return on Assets$_{t-1}$*, *Market-adjusted total stock performance* in past 24 months (the month in which the RRI peaks is included), *Board independence$_{t-1}$* (the proportion of independent directors serving on the board), *Board size$_{t-1}$* (the total number of directors), *Succession$_{t-1}$* (the proportion of directors close to retirement age (70 years)), and *Gender ratio$_{t-1}$* (the proportion of female directors). Country-level control variables are similar to those used in Liang and Renneboog (2017) and include the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality as well as Corruption Control (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom (www.heritage.org). All continuous variables are winsorized at 1st and 99th percentiles. We include year fixed effects, industry (based on four-digit SIC codes), and country (headquarter of the company) fixed effects. Predicted probabilities are plotted against the RRI index using regression discontinuity plots. The plot in panel (A) is constructed such that every point represents the sample average within a specific RRI value (the index uses integer values ranging from -1 through 100), i.e. the bin width equals 1, whereas the bin width is set to 2 in panel (B). The bandwidth is 25 on both sides of the cutoff. The cutoff value is 60 and values equal to, or greater than, this value represent firms with extreme risk exposure. A triangular kernel function is used to construct the local-polynomial estimator, the polynomial fit is quadratic (p = 2), and we exclude observations for bins with only one observation. The sample period is 2007-2018.

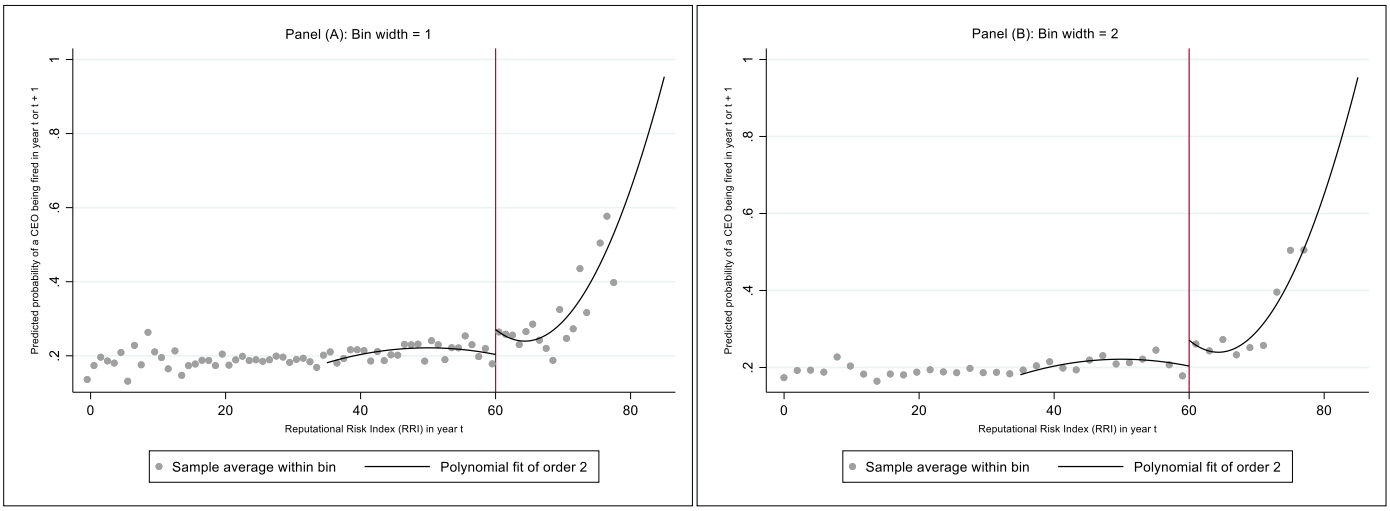


Table 1 Panel A: Distribution for monthly values of the Reputational Risk Index (RRI) among firms included in our final sample (n = 11,094), 2007-2017. Panel B: Sample construction

PANEL A: RISK CLASS	**Value**	**Number of firm-year obs.**	**% of obs.**
"No reported issues"	-1	11	.10%
"Low risk exposure"	0-24	5,922	53.38%
"Medium risk exposure"	25-49	4,391	39.58%
"High risk exposure"	50-59	436	3.93%
"Very high risk exposure"	60-74	321	2.89%
"Extremely high risk exposure"	75-100	13	.12%

PANEL B: SAMPLE CONSTRUCTION	**Firm-year obs.**	**Number of firms**
RepRisk sample (firm-month-year obs.)	206,976	1,568
- After including only the month in which the value for the risk exposure is at its highest level in a year	17,248	1,568
- After merging with CEO turnover sample	13,482	1,419
- After merging with Boardex	13,220	1,311
- After merging with COMPUSTAT	12,009	1,282
- After merging with CRSP and COMPUSTAT stock price data	11,094	1,194
- After merging with country-level data	11,094	1,194

Table 2 Main sample, by year

Table 2 Panel A shows the distribution of firm-year observations with extreme risk exposure to ESG issues ($60 \leq RRI \leq 100$) in a year (column 1), and for firm-year observations with "normal" or high levels of risk exposure in a year ($-1 \leq RRI < 60$) in a year (column 2). Column 3 shows the proportion of firm-year observations with extreme risk exposure in a year, column 4 shows the distribution of firm-year observations with extremely high risk exposure ($75 \leq RRI \leq 100$) in a year, column 5 shows the distribution of firm-year observations with very high risk exposure $60 \leq RRI \leq 74$) in a year, column 6 shows the distributions of firm-year observations with high risk exposure $50 \leq RRI \leq 59$) in a year, column 7 shows the distribution of firm-year observations with environmental issues, column 8 shows the distribution of firm-year observations with social issues, and column 9 shows the distribution of firm-year observations with governance issues. Panel B shows the distribution of E, S, and G issues, respectively, in the sample of firms with extreme risk exposure in a year. We track firm's risk exposure in years 2007-2017 (and CEO turnover in years 2007-2018).

PANEL A: ESG ISSUES BY YEAR

Year	(1) *Firms with extreme risk exposure to* ESG *issues (RRI ≥ 60)*	(2) *Firms with "normal" or high levels of risk exposure to ESG issues (RRI < 60)*	(3) *% of firms with extreme risk exposure to* ESG *issues (RRI ≥ 60)*	(4) *Firms with extremely high risk exposure (RRI ≥ 75)*	(5) *Firms with very high risk exposure (60 ≤ RRI <75)*	(6) *Firms with high risk exposure (50 ≤ RRI <60)*	(7) *Environ-mental (E) issues*	(8) *Social (S) issues*	(9) *Gover-nance (G) issues*
2007	12	961	1.23%	1	11	12	7	4	1
2008	21	952	2.16%	2	19	23	8	12	2
2009	12	981	1.21%	0	12	14	3	7	2
2010	15	1,003	1.47%	2	13	27	4	5	7
2011	28	1,018	2.68%	2	26	34	7	7	14
2012	38	1,007	3.64%	0	38	40	9	11	18
2013	37	1,025	3.48%	0	37	58	3	11	23
2014	68	994	6.40%	2	66	51	8	26	35
2015	46	936	4.68%	1	45	64	8	14	24
2016	25	952	2.56%	1	24	49	1	5	19
2017	32	931	3.32%	2	30	64	2	10	21
Sum	**334**	**10,760**	**3.01%**	**13**	**321**	**436**	**60**	**112**	**166**

PANEL B: TYPE OF ISSUE

ESG Issues by Type[24] (firm-year observations with extreme risk exposure)	**Variable**	**Observations**	**% of Extreme obs.**
Environmental issues	Epercentage (%)	60	17.96%
Social issues	Spercentage (%)	112	33.53%
Governance issues	Gpercentage (%)	166	49.70%

[24] Issues are divided into types based on which of the three variable Epercentage, Spercentage, or Gpercentage (the variables show the portions of the RRI that is made up of E, S, or G issues, respectively) has the highest value for a firm in the month in which its RRI peaks. If two or more types have equally high percentages, the indicator variables for both (or all three) types receive a value equal to one.

Table 3 Descriptive statistics

The table reports descriptive statistics for firm-year observations with extreme risk exposure to ESG issues ($60 \leq RRI \leq 100$) (Columns 1-3) and for firm-year observations with normal or high risk exposure to ESG issues ($-1 \leq RRI \leq 59$) (Columns 4-6). Year t refers to the year in which a firm's risk exposure is measured. All firm-level, performance, and governance variables are reported for year t – 1, whereas RepRisk and CEO-level variables are for year t. All continuous variables are winsorized at the 1% and 99% levels. Column 7 reports the difference in means between the two groups. Standard errors are attained by regressing an indicator variable for whether a firm has had extreme risk exposure to ESG issues on the variable reported on the left-hand side of the table, clustered at the industry-level (four-digit SIC codes). *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. We track risk exposure in years 2007-2017 and CEO turnovers in years 2007-2018 (as the dependent variable measures CEO turnover in year t or t +1).

	Extreme risk exposure to ESG issues in year t (RRI ≥ 60)			*Normal or high risk exposure to ESG issues in year t* (RRI < 60)			(7) Difference in means
	(1)	(2)	(3)	(4)	(5)	(6)	
Variables	Firm-year obs.	Mean	Median	Firm-year obs.	Mean	Median	
CEO replaced in year t	334	0.132	0	10,760	0.094	0	0.038**
CEO replaced in year t or t + 1	334	0.237	0	10,760	0.186	0	0.051**
RepRisk variables							
Reputational Risk Index (RRI)	334	64.58	63	10,760	19.21	23	45.37***
Highest value for RRI in past two years	334	66.53	65	10,760	24.64	29	41.89***
CEO-level variables							
Age	329	56.09	56	10,416	55.82	56	-0.26
Retirement close (= 1) (⩾63 years)	329	0.112	0	10,416	0.138	0	-0.025
Tenure	327	5.42	5	10,662	7.02	5	-1.60***
Gender (Male = 1)	331	0.961	1	10,748	0.965	1	-0.004
Chairman (= 1)	328	0.564	1	10,713	0.485	0	0.079
Founder (= 1)	331	0.048	0	10,748	0.042	0	0.006
Firm-level variables							
Ln(Total assets) in year t – 1	334	11.97	11.94	10,759	9.28	9.10	2.69***
Return on Assets in year t - 1	318	0.119	0.103	10,403	0.130	0.121	-0.011
Market-adjusted monthly total returns [-24, 0]	331	0.064	0.002	10,305	0.167	0.115	-0.103***
Cash-to-Total Assets in year t - 1	333	0.088	0.062	10,625	0.074	0.061	-0.014*
Market-to-Book value in year t – 1	313	2.74	1.81	10,078	3.19	2.35	-0.45
Tobin's q in year t - 1	313	1.72	1.23	10,078	1.82	1.45	-0.09
Leverage in year t - 1	332	0.687	0.690	10,743	0.628	0.626	0.059
Altman's z-score in year t - 1	238	3.74	3.02	8,634	3.50	2.78	0.244
ESG Total Score in year t - 1 (Asset4)	321	76.17	78.76	8,255	58.66	60.01	17.51***
Governance characteristics							
Board independence in year t – 1	332	0.718	0.786	10,572	0.681	0.750	0.037
Number of directors in year t - 1	332	14.02	13	10,572	11.26	11	2.76***
Succession in year t - 1	332	0.303	0.300	10,572	0.323	0.300	-0.020*
Gender ratio (% females) in year t - 1	332	0.196	0.2	10,572	0.158	0.154	0.038***
Country-level variables							
Natural logarithm of GDP in year t	334	51,584.48	49,883.11	10,760	50,439.78	48,466.82	1,115.77
Globalization Index	334	84.33	82.21	10,760	84.10	82.20	0.23
Regulatory Quality	334	1.45	1.46	10,760	1.47	1.49	-0.02
Control of Corruption	334	1.48	1.40	10,760	1.49	1.40	-0.01
Political Executive Constraints	334	6.94	7.00	10,760	6.93	7.00	0.01
Economic Freedom Index	334	74.93	75.50	10,760	75.32	76.00	-0.38
Corrected Anti-director Rights Index 2005 (Spamann, 2010)	334	3.06	2.00	10,698	3.07	2.00	-0.01

Table 4 Multivariate results, logistic regression models

The table shows results for estimating equation (1): $\Pr(CEO\ replaced\ in\ same\ year\ or\ in\ next\ year = 1_{it}) = F(\beta_0 + \beta_1 * Extreme\ risk\ exposure_{it} + CEO\ Controls + Firm\ Controls + Country\ Controls + \eta_{Year} + \eta_{Country} + \eta_{Industry_{SIC4}} + \varepsilon_{it})$, where F is the cumulative logistic distribution function and the dependent variable is an indicator variable for whether a CEO is replaced in year t or t + 1. The main independent variable in columns 1 and 2 is an indicator variable for extreme risk (60 ≥ RRI ≥ 100) exposure; in columns 3 and 4, it is an indicator variable for high risk (50 ≥ RRI ≥ 59) exposure; in columns 5 and 6, we use both; in column 7, it is the level of RRI in the month in a year in which the RRI peaks. Columns 1-2 and 4-7 show results for the full sample, whereas in columns 3 and 4 we include only firms with high risk exposure or normal levels of risk exposure. In columns 1, 2, and 7, the benchmark group constitutes of firm-years with "normal" or high risk exposure, and in columns 3-6, it constitutes of firm-years with "normal" risk exposure. CEO control variables include *CEO close to retirement* (aged 63 years or more), *CEO age* (in years), *Tenure* (at the firm in years), *Gender* (male = 1), *CEO is Chairman* (Chairman of the Board = 1), *CEO is Founder* (founder = 1). Firm-level control variables include *Ln(Total assets$_{t-1}$)*, *Return on Assets$_{t-1}$*, *Market-adjusted total stock performance* in past 24 months (the month in which the RRI peaks is included), *Board independence$_{t-1}$* (the proportion of independent directors serving on the board), *Board size$_{t-1}$* (the total number of directors), *Succession$_{t-1}$* (the proportion of directors close to retirement age (70 years)), and *Gender ratio$_{t-1}$* (the proportion of female directors). Country-level control variables are similar to those used in Liang and Renneboog (2017) and include the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality as well as Corruption Control indices (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom (www.heritage.org). All continuous variables are winsorized at 1st and 99th percentiles. We track risk exposure to ESG issues in years 2007-2017 and CEO turnovers from 2007 through 2018. Column 1 includes year and country fixed effects, column 2 and 7 include year, country, and industry (four-digit SIC codes) fixed effects (i.e. equation (1)), columns 3 and 5 include no fixed effects, and columns 4 and 6 include year fixed effects. T-statistics based on robust standard errors (clustered by four-digit SIC codes) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t or year t + 1*							
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	20.9**	24.2**	-16.2***	-15.6***	-16.3***	-16.0***	24.4**
	(2.15)	(2.17)	(-4.38)	(-3.82)	(-4.45)	(-4.07)	(2.20)
Extreme risk exposure	0.41***	0.61***			0.46***	0.47***	
	(3.25)	(4.12)			(3.69)	(3.72)	
High risk exposure			0.23	0.22	0.24	0.24	
			(1.54)	(1.53)	(1.60)	(1.61)	
RRI Index Level							0.0094***
							(3.34)
CEO close to retirement (1/0)	0.55***	0.61***	0.52***	0.53***	0.56***	0.56***	0.60***
	(4.02)	(4.24)	(3.78)	(3.87)	(4.04)	(4.12)	(4.22)
CEO Age	0.085***	0.096***	0.085***	0.085***	0.083***	0.083***	0.097***
	(8.13)	(7.75)	(7.96)	(7.86)	(7.93)	(7.83)	(7.82)
CEO Tenure (at firm)	0.015*	0.039***	0.013	0.013	0.014*	0.014*	0.040***
	(1.72)	(3.77)	(1.57)	(1.57)	(1.68)	(1.69)	(3.76)
CEO Gender (Male = 1)	0.020	-0.043	0.049	0.033	0.044	0.034	-0.031
	(0.11)	(-0.20)	(0.25)	(0.17)	(0.25)	(0.19)	(-0.15)
CEO is Chairman of the Board (1/0)	-0.063	-0.14	-0.095	-0.092	-0.099	-0.100	-0.13
	(-0.77)	(-1.44)	(-1.17)	(-1.11)	(-1.28)	(-1.27)	(-1.40)
Founder-CEO (1/0)	-1.03***	-1.23***	-1.04***	-1.04***	-1.03***	-1.03***	-1.24***
	(-3.88)	(-4.01)	(-4.00)	(-4.02)	(-3.93)	(-3.94)	(-4.09)
Ln(Total Assets$_{t-1}$)	-0.037	-0.0022	-0.033	-0.032	-0.039	-0.039	-0.045
	(-1.20)	(-0.044)	(-0.98)	(-0.96)	(-1.17)	(-1.18)	(-0.87)
Return on Assets$_{t-1}$	0.47	-0.41	0.28	0.29	0.37	0.37	-0.51
	(0.82)	(-0.53)	(0.51)	(0.52)	(0.68)	(0.68)	(-0.68)
Market-adj. stock performance in past two years	-0.50***	-0.56***	-0.49***	-0.48***	-0.48***	-0.48***	-0.56***
	(-5.72)	(-5.91)	(-5.60)	(-5.50)	(-5.62)	(-5.59)	(-5.83)
Board independence $_{t-1}$	0.26	0.12	0.11	0.13	0.16	0.19	0.10
	(1.03)	(0.39)	(0.46)	(0.52)	(0.67)	(0.78)	(0.33)
Board size $_{t-1}$	0.023	0.015	0.0092	0.0076	0.010	0.0090	0.014
	(1.55)	(0.81)	(0.68)	(0.56)	(0.79)	(0.69)	(0.76)
Proportion of directors close to retirement $_{t-1}$	0.48	0.61	0.60*	0.59*	0.56*	0.53	0.62
	(1.40)	(1.48)	(1.82)	(1.77)	(1.73)	(1.61)	(1.50)
Gender ratio $_{t-1}$	-0.68	-0.95*	-1.01***	-0.89**	-0.91**	-0.83*	-0.90*
	(-1.45)	(-1.84)	(-2.70)	(-2.03)	(-2.46)	(-1.91)	(-1.74)
Ln(GDP)$_t$	-0.88	-0.83	0.20	0.17	0.20	0.20	-0.84
	(-1.63)	(-1.48)	(0.85)	(0.66)	(0.88)	(0.83)	(-1.49)
Globalization Index$_t$	-0.16*	-0.18**	0.088***	0.083***	0.091***	0.087***	-0.18**
	(-1.95)	(-2.00)	(4.37)	(3.78)	(4.59)	(4.08)	(-1.97)
Regulatory Quality$_t$	0.32	0.33	0.59*	0.46	0.60**	0.50	0.38
	(0.77)	(0.76)	(1.86)	(1.24)	(1.96)	(1.40)	(0.86)
Control of Corruption$_t$	-0.22	-0.12	-0.32	-0.20	-0.36*	-0.26	-0.063
	(-0.49)	(-0.25)	(-1.58)	(-0.82)	(-1.82)	(-1.11)	(-0.13)
Political Executive Constraints$_t$	-0.18	-0.24	-0.12	-0.046	-0.12	-0.031	-0.29
	(-0.27)	(-0.26)	(-0.52)	(-0.19)	(-0.52)	(-0.13)	(-0.31)
Heritage Economic Freedom index$_t$	-0.040	-0.046	0.018	0.013	0.017	0.0088	-0.044
	(-1.43)	(-1.52)	(1.24)	(0.77)	(1.14)	(0.54)	(-1.48)
Observations	9,765	9,303	9,465	9,465	9,765	9,765	9,303
Year fixed effects	Yes	Yes	No	Yes	No	Yes	Yes
Country fixed effects	Yes	Yes	No	No	No	No	Yes
Industry fixed effects	No	Yes	No	No	No	No	Yes
Pseudo-R^2	0.0942	0.1422	0.0850	0.0869	0.0862	0.0881	0.1426

Table 5 Multivariate results, alternative estimation methods

The table shows results for estimating (i) a logistic regression model with firm (and year) fixed effects included, (ii) a logistic regression model with random (firm) effects included, (iii) a logistic regression model with country-year and industry (two-digit SIC codes)-year fixed effects included, (iv) the baseline model estimated as a probit model, and (v) a probit model with country-year and industry (two-digit SIC codes)-year fixed effects included. The dependent variable in all regressions is an indicator variable for whether a CEO is replaced in the same year or the next year. The main independent variable is an indicator variable for extreme risk ($60 \geq RRI \geq 100$) exposure. The benchmark group in all regressions constitutes of firm-years with "normal" or high risk exposure. CEO control variables include *CEO close to retirement* (aged 63 years or more), *CEO age* (in years), *Tenure* (at the firm in years), *Gender* (male = 1), *CEO is Chairman* (Chairman of the Board = 1), *CEO is Founder* (founder = 1). Firm-level control variables include *Ln(Total assets$_{t-1}$)*, *Return on Assets$_{t-1}$*, *Market-adjusted total stock performance* in past 24 months (the month in which the RRI peaks is included), *Board independence$_{t-1}$* (the proportion of independent directors serving on the board), *Board size$_{t-1}$* (the total number of directors), *Succession$_{t-1}$* (the proportion of directors close to retirement age (70 years)), and *Gender ratio$_{t-1}$* (the proportion of female directors). Country-level control variables are similar to those used in Liang and Renneboog (2017) and include the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality as well as Corruption Control indices (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom (www.heritage.org). All continuous variables are winsorized at 1st and 99th percentiles. We track risk exposure to ESG issues in years 2007-2017 and CEO turnovers from 2007 through 2018. T-statistics based on robust standard errors (clustered by four-digit SIC codes in columns 3-5; and the observed information matrix in columns 1-2) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t or in year t + 1*					
Variables	(1) Logit with firm fixed effects	(2) Logit with firm random effects	(3) Logit with country-year and industry-year fixed effects	(4) Probit – Baseline regression	(5) Probit with country-year and industry-year fixed effects
Constant		-25.0***		14.2**	
		(-3.87)		(2.28)	
Extreme risk exposure	0.62**	0.64***	0.50***	0.36***	0.31***
	(2.39)	(2.84)	(3.16)	(4.47)	(3.49)
CEO close to retirement (1/0)	1.02***	0.96***	0.66***	0.37***	0.38***
	(6.19)	(7.02)	(4.33)	(4.47)	(4.28)
CEO Age	0.15***	0.16***	0.084***	0.053***	0.049***
	(11.0)	(13.6)	(7.47)	(7.84)	(7.92)
CEO Tenure (at firm)	0.40***	0.18***	0.016*	0.023***	0.0096*
	(22.1)	(12.7)	(1.72)	(3.95)	(1.81)
CEO Gender (Male = 1)	0.79**	0.35	0.062	-0.018	0.050
	(2.45)	(1.32)	(0.35)	(-0.15)	(0.49)
CEO is Chairman of the Board (1/0)	-0.27**	-0.092	-0.13	-0.080	-0.077
	(-2.05)	(-0.86)	(-1.45)	(-1.53)	(-1.57)
Founder-CEO (1/0)	-4.93***	-3.45***	-1.05***	-0.69***	-0.59***
	(-7.43)	(-8.92)	(-3.57)	(-4.18)	(-3.80)
Ln(Total Assets$_{t-1}$)	0.57***	-0.00025	-0.041	-0.00084	-0.023
	(3.68)	(-0.0043)	(-1.03)	(-0.031)	(-1.02)
Return on Assets$_{t-1}$	-1.89*	-0.21	-0.58	-0.23	-0.29
	(-1.86)	(-0.28)	(-0.74)	(-0.56)	(-0.68)
Market-adj. stock performance in past two years	-0.56***	-0.61***	-0.63***	-0.30***	-0.34***
	(-5.55)	(-6.74)	(-5.91)	(-5.84)	(-6.07)
Board independence $_{t-1}$	-1.11**	0.097	0.087	0.062	0.047
	(-2.26)	(0.29)	(0.30)	(0.36)	(0.30)
Board size $_{t-1}$	0.075**	0.037*	0.012	0.0071	0.0065
	(2.44)	(1.79)	(0.71)	(0.70)	(0.71)
Proportion of directors close to retirement $_{t-1}$	0.077	0.62	0.47	0.40*	0.35
	(0.14)	(1.41)	(1.22)	(1.75)	(1.62)
Gender ratio $_{t-1}$	-0.023	-0.88*	-0.91*	-0.48*	-0.43
	(-0.033)	(-1.65)	(-1.83)	(-1.67)	(-1.55)
Ln(GDP)$_t$	-1.33*	-0.17	-0.085	-0.52	-0.054
	(-1.92)	(-0.42)	(-0.040)	(-1.60)	(-0.048)
Globalization Index$_t$	-0.21*	0.11***	-0.00018	-0.10**	0.00075
	(-1.95)	(3.07)	(-0.00086)	(-1.99)	(0.0071)
Regulatory Quality$_t$	0.92**	0.63	0.023	0.21	0.018
	(1.99)	(1.62)	(0.0071)	(0.88)	(0.011)
Control of Corruption$_t$	-0.37	0.21	1.35	-0.078	0.97
	(-0.64)	(0.63)	(0.47)	(-0.29)	(0.67)
Political Executive Constraints$_t$		0.69*	-0.17	-0.13	-0.11
		(1.73)	(-0.053)	(-0.29)	(-0.066)
Heritage Economic Freedom index$_t$	-0.056*	-0.010	-0.019	-0.025	-0.013
	(-1.73)	(-0.46)	(-0.059)	(-1.48)	(-0.078)
Observations	6,822	9,765	8,766	9,303	8,766
Number of firm-fixed effects	713	1,130	-	-	-
Year fixed effects	Yes	Yes	No	Yes	No
Country fixed effects	No	No	No	Yes	No
Industry fixed effects	No	No	No	Yes	No
Firm-fixed effects	Yes	Yes (random)	No	No	No
Industry (SIC2)-year fixed effects	No	No	Yes	No	Yes
Country-year fixed effects	No	No	Yes	No	Yes
Pseudo-R^2			0.1531	0.1427	0.1537

Table 6 Multivariate results, by ESG category

The table shows results for estimating equation (1): $\Pr(CEO\ replaced\ in\ same\ year\ or\ in\ next\ year = 1_{it}) = F(\beta_0 + \beta_1 * Extreme\ risk\ exposure_{it} + CEO\ Controls + Firm\ Controls + Country\ Controls + \eta_{Year} + \eta_{Country} + \eta_{Industry_{SIC4}} + \varepsilon_{it})$, where F is the cumulative logistic distribution function and the dependent variable is an indicator variable for whether a CEO is replaced in year t or t + 1. In columns 1-4, the main independent variable is an indicator variable for extreme risk (60 ≥ RRI ≥ 100) exposure issues, and in columns 5-8, it is the RRI level. Columns 1 and 5 show results for environmental issues, columns 2 and 6 for social issues, columns 3 and 7 for "stakeholder" (Environmenal and Social) issues, and columns 4 and 8 for governance issues. The benchmark group in all regressions constitutes of firm-years with "normal" or high risk exposure. CEO control variables include *CEO close to retirement* (aged 63 years or more), *CEO age* (in years), *Tenure* (at the firm in years), *Gender* (male = 1), *CEO is Chairman* (Chairman of the Board = 1), *CEO is Founder* (founder = 1). Firm-level control variables include *Ln(Total assets$_{t-1}$)*, *Return on Assets$_{t-1}$*, *Market-adjusted total stock performance* in past 24 months (the month in which the RRI peaks is included), *Board independence$_{t-1}$* (the proportion of independent directors serving on the board), *Board size$_{t-1}$* (the total number of directors), *Succession$_{t-1}$* (the proportion of directors close to retirement age (70 years)), and *Gender ratio$_{t-1}$* (the proportion of female directors). Country-level control variables are similar to those used in Liang and Renneboog (2017) and include the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality as well as Corruption Control indices (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom (www.heritage.org). All continuous variables are winsorized at 1st and 99th percentiles. We track risk exposure to ESG issues in years 2007-2017 and CEO turnovers from 2007 through 2018. T-statistics based on robust standard errors (clustered by four-digit SIC codes) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t or year t + 1*								
Variables	(1) Environ-mental issues	(2) Social issues	(3) "Stake-holder" issues	(4) Gover-nance issues	(5) Environ-mental issues	(6) Social issues	(7) "Stake-holder" issues	(8) Gover-nance issues
Constant	22.5**	23.8**	23.3**	23.8**	22.6**	23.7**	23.4**	24.1**
	(2.01)	(2.11)	(2.11)	(2.09)	(2.02)	(2.11)	(2.11)	(2.12)
Extreme risk exposure	0.62*	0.55**	0.58***	0.63***				
	(1.92)	(2.15)	(2.84)	(2.88)				
Reputational Risk Index (RRI)					0.0073**	0.0073***	0.0081***	0.0080***
					(2.55)	(2.59)	(2.89)	(2.76)
CEO close to retirement (1/0)	0.60***	0.58***	0.61***	0.57***	0.59***	0.57***	0.60***	0.56***
	(4.15)	(4.04)	(4.22)	(3.98)	(4.12)	(4.00)	(4.18)	(3.97)
CEO Age	0.098***	0.099***	0.098***	0.097***	0.099***	0.100***	0.099***	0.098***
	(7.76)	(7.92)	(7.80)	(7.87)	(7.84)	(7.99)	(7.88)	(7.90)
CEO Tenure (at firm)	0.039***	0.039***	0.039***	0.039***	0.039***	0.039***	0.039***	0.039***
	(3.68)	(3.70)	(3.71)	(3.74)	(3.68)	(3.70)	(3.70)	(3.75)
CEO Gender (Male = 1)	-0.035	-0.064	-0.058	-0.027	-0.029	-0.058	-0.052	-0.013
	(-0.15)	(-0.29)	(-0.26)	(-0.12)	(-0.12)	(-0.27)	(-0.24)	(-0.056)
CEO is Chairman of the Board (1/0)	-0.14	-0.13	-0.14	-0.13	-0.14	-0.13	-0.13	-0.13
	(-1.39)	(-1.36)	(-1.41)	(-1.36)	(-1.38)	(-1.30)	(-1.36)	(-1.37)
Founder-CEO (1/0)	-1.29***	-1.20***	-1.22***	-1.28***	-1.30***	-1.22***	-1.23***	-1.30***
	(-4.14)	(-3.91)	(-3.95)	(-4.19)	(-4.22)	(-3.99)	(-4.03)	(-4.27)
Ln(Total Assets$_{t-1}$)	0.0028	0.0091	0.0087	-0.0071	-0.040	-0.033	-0.034	-0.049
	(0.055)	(0.18)	(0.17)	(-0.14)	(-0.77)	(-0.64)	(-0.65)	(-0.94)
Return on Assets$_{t-1}$	-0.46	-0.50	-0.47	-0.44	-0.57	-0.61	-0.57	-0.56
	(-0.60)	(-0.66)	(-0.61)	(-0.57)	(-0.75)	(-0.81)	(-0.75)	(-0.74)
Market-adj. stock performance in past two years	-0.57***	-0.56***	-0.55***	-0.59***	-0.57***	-0.55***	-0.55***	-0.58***
	(-5.91)	(-5.80)	(-5.77)	(-6.07)	(-5.85)	(-5.74)	(-5.70)	(-6.03)
Board independence $_{t-1}$	0.075	0.076	0.083	0.11	0.064	0.058	0.067	0.090
	(0.23)	(0.24)	(0.26)	(0.34)	(0.20)	(0.18)	(0.21)	(0.29)
Board size $_{t-1}$	0.0098	0.010	0.010	0.014	0.0089	0.0095	0.0097	0.013
	(0.51)	(0.53)	(0.55)	(0.75)	(0.47)	(0.50)	(0.51)	(0.69)
Proportion of directors close to retirement $_{t-1}$	0.69*	0.63	0.63	0.67	0.69*	0.64	0.64	0.67
	(1.66)	(1.53)	(1.54)	(1.61)	(1.66)	(1.55)	(1.55)	(1.61)
Gender ratio $_{t-1}$	-1.01*	-1.00**	-1.00*	-0.96*	-0.98*	-0.96*	-0.96*	-0.92*
	(-1.94)	(-1.97)	(-1.93)	(-1.87)	(-1.85)	(-1.89)	(-1.84)	(-1.79)
Ln(GDP)$_t$	-0.81	-0.98*	-0.88	-0.87	-0.80	-0.97*	-0.87	-0.87
	(-1.42)	(-1.74)	(-1.55)	(-1.52)	(-1.41)	(-1.72)	(-1.54)	(-1.53)
Globalization Index$_t$	-0.17*	-0.16*	-0.17*	-0.18*	-0.16*	-0.16*	-0.16*	-0.17*
	(-1.76)	(-1.78)	(-1.81)	(-1.94)	(-1.73)	(-1.74)	(-1.77)	(-1.92)
Regulatory Quality$_t$	0.27	0.28	0.29	0.30	0.30	0.31	0.33	0.34
	(0.60)	(0.63)	(0.65)	(0.70)	(0.68)	(0.70)	(0.74)	(0.79)
Control of Corruption$_t$	0.076	0.016	0.030	-0.096	0.12	0.063	0.075	-0.035
	(0.15)	(0.031)	(0.061)	(-0.19)	(0.23)	(0.13)	(0.15)	(-0.071)
Political Executive Constraints$_t$	-0.30	-0.22	-0.28	-0.20	-0.34	-0.25	-0.31	-0.25
	(-0.33)	(-0.24)	(-0.30)	(-0.21)	(-0.36)	(-0.27)	(-0.33)	(-0.27)
Heritage Economic Freedom index$_t$	-0.044	-0.043	-0.043	-0.048	-0.044	-0.044	-0.043	-0.046
	(-1.43)	(-1.43)	(-1.39)	(-1.58)	(-1.45)	(-1.44)	(-1.41)	(-1.55)
Observations	9,075	9,112	9,165	9,159	9,075	9,112	9,165	9,159
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.1431	0.1429	0.1432	0.1418	0.1438	0.1435	0.1437	0.1422

Table 7 Multivariate results, by legal origin

The table shows results for estimating equation (1) (excluding country fixed effects), where the dependent variable is an indicator variable for whether a CEO is replaced in year t or t + 1. In column 1 of Panel A, we include as main independent variables an indicator variable for whether a firm has had extreme risk exposure in year t (RRI ≥ 60), an indicator variable for civil-law countries, and their interaction term. Columns 2-4 of Panel A show results for subsamples contrasting English common-law countries to the different types of civil-law countries (French civil-law (column 2); German civil-law (column 3); and Scandinavian civil-law countries (column 4)). Legal origin categories are based on La Porta, Lopez-de-Silanes, and Shleifer (2008) and are taken from Appendix B in Liang and Renneboog (2017). In Panel B, we use as main independent variables an indicator variable for Extreme risk exposure, an indicator for whether a country scores greater or equal to the median for the time-invariant country-level variable shown in the header (the median is calculated for the 18 countries included in the analysis), and their interaction term. The country-level variables of interest are the anti-director rights index (Revised ADRI, Djankov, La Porta, Lopez-de-Silanes, and Schleifer (DLLS), 2008) (column 1), the anti-director rights index (Corrected ADRI 2005, Spamann, 2010) (column 2), the Anti-Self Dealing Index (DLLS, 2008), (column 3), the public sector ethics index (Kaufmann, 2004) (column 4), and the corporate governance index (Kaufmann, 2004) (column 5). The descriptions of the variables are found in Appendix A.1. The benchmark group in all regressions constitutes of firm-years with no, low, medium, or high risk exposure. Control variables (same as in Table 4) are included in all regressions but are not reported to save space. We exclude "Socialist" countries from the analysis in Panel A (Czech Republic is the only country in our sample categorized as a "Socialist" country). In Panel B, countries with all types of legal origins are included in the analysis. We identify ESG issue firms in years 2007-2017 and track CEOs from 2007-2018. T-statistics based on robust standard errors (clustered by four-digit SIC codes) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t or year t + 1*				
Panel A: Legal Origin	(1) Common-law vs. civil-law	(2) Common-law vs. French civil-law	(3) Common-law vs. German civil-law	(4) Common-law vs. Scandinavian civil-law
Constant	-18.6***	-8.57	-21.9***	-26.2**
	(-3.72)	(-1.12)	(-3.72)	(-2.25)
Extreme risk exposure	0.56***	0.56***	0.61***	0.57***
	(2.63)	(2.66)	(3.11)	(2.74)
Civil-law country	-0.24	-0.52	-0.75**	0.091
	(-1.33)	(-1.47)	(-2.22)	(0.17)
(Civil-law country) * (Extreme risk exposure)	0.19	0.55	-0.010	-0.44
	(0.52)	(1.26)	(-0.020)	(-0.77)
Observations	9,283	7,745	7,323	6,854
Control variables included	Yes	Yes	Yes	Yes
Year and industry fixed effects	Yes	Yes	Yes	Yes
Pseudo-R^2	0.1359	0.1353	0.1467	0.1511

Panel B: Country-level variables	(1) Anti-Director Rights Index (Revised Adri, DLLS 2008)	(2) Anti-Director Rights Index (Corrected Adri 2005, Spamann, 2010)	(3) Anti-Self Dealing Index (DLLS, 2008)	(4) Public Sector Ethics (Kaufmann, 2004)	(5) Corporate Governance Index (Kaufmann, 2004)
Constant	-20.0***	-18.1***	-16.7***	-16.0***	-14.5***
	(-3.79)	(-3.86)	(-3.56)	(-3.18)	(-3.01)
Extreme risk exposure	0.68***	0.63***	0.64**	1.02***	1.00***
	(2.90)	(2.59)	(2.28)	(3.80)	(3.72)
Above or equal to median	0.25	0.17	0.026	-0.019	-0.14
	(1.48)	(0.85)	(0.17)	(-0.094)	(-0.82)
(Above or equal to median) * (Extreme risk exposure)	-0.16	-0.034	-0.043	-0.52*	-0.49*
	(-0.42)	(-0.092)	(-0.11)	(-1.78)	(-1.68)
Observations	9,303	9,303	9,303	9,303	9,303
Control variables included	Yes	Yes	Yes	Yes	Yes
Year and industry fixed effects	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.1343	0.1341	0.1339	0.1341	0.1341

Table 8 Probability of being involved in an ESG incident, by legal origin

The table shows results for estimating equation (2): $\Pr(Firm\ is\ involved\ in\ an\ ESG\ incident_{it}=1) = F(\beta_0 + \beta_1 * Civil-law\ country_i + CEO\ control + Firm\ controls + Country\ controls + \eta_{Year} + \eta_{Industry_{SIC4}} + \varepsilon_{it})$, where F is the cumulative logistic distribution function and the dependent variable takes the value 1 if a firm has extreme risk exposure in year t. In Panel A, the main independent variables are an indicator variable for civil-law countries (column 1), and indicator variables for the type of civil-law country (French, German, or Scandinavian). Legal origin categories are based on La Porta, Lopex-de-Silanes (2008) and are taken from Appendix B in Liang and Renneboog (2017). In Panel B, the main independent variables are indicator variables for whether a country score greater or equal to the median for the following time-invariant country-level variables for the 18 countries included in the analysis: anti-director rights index (Revised ADRI, Djankov, La Porta, Lopez-de-Silanes, and Schleifer (DLLS), 2008) (column 1), the anti-director rights index (Corrected ADRI 2005, Spamann, 2010) (column 2), the Anti-Self Dealing Index (DLLS, 2008), (column 3), the public sector ethics index (Kaufmann, 2004) (column 4), and the corporate governance index (Kaufmann, 2004) (column 5). The descriptions of the variables are found in Appendix Table A.1. The benchmark group in all regressions constitutes of firm-years with "normal" or high risk exposure. Control variables (same as in Table 4) are included in all regressions but are not reported to save space. We follow Liang and Renneboog (2017, Appendix B) and exclude "Socialist" countries from the analysis in Panel A (Czech Republic is the only country in our sample categorized as a "Socialist" country). In Panel B, countries with all types of legal origins are included in the analysis. We identify ESG issue firms in years 2007-2017 and track CEOs from 2007-2018. T-statistics based on robust standard errors (clustered by four-digit SIC codes) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: Extreme risk exposure (RRI ≥ 60) in year t		
Panel A: Legal Origin	(1) Common-law vs. civil-law	(2) Common-law vs. type of civil-law (French, German, Scandinavian)
Constant	-25.1* (-1.79)	-7.78 (-0.53)
Civil-law country	0.37 (0.91)	
French civil-law country		-2.45** (-2.29)
German civil-law country		1.28*** (3.02)
Scandinavian civil-law country		1.98 (1.31)
Observations	9,463	9,463
Control variables included	Yes	Yes
Year and industry (one-digit SIC codes) fixed effects	Yes	Yes
Pseudo-R^2	0.4707	0.4779

Panel B: Country-level variables	(1) Anti-Director Rights Index (Revised Adri, DLLS 2008)	(2) Anti-Director Rights Index (Corrected Adri 2005, Spamann, 2010)	(3) Anti-Self Dealing Index (DLLS, 2008)	(4) Public Sector Ethics (Kaufmann, 2004)	(5) Corporate Governance Index (Kaufmann, 2004)
Constant	-31.3** (-1.99)	-28.8* (-1.79)	-25.6* (-1.89)	-32.9** (-2.12)	-25.7* (-1.90)
Indicator variable for greater or equal to median	0.082 (0.22)	-0.13 (-0.25)	-0.56* (-1.91)	0.16 (0.32)	-0.27 (-0.66)
Observations	9,483	9,483	9,483	9,483	9,483
Control variables included	Yes	Yes	Yes	Yes	Yes
Year and industry (one-digit SIC codes) fixed effects	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.4703	0.4717	0.4704	0.4705	0.4703

Table 9 Sharp Regression Discontinuity Design

The table shows robust estimates from a sharp regression discontinuity design, where the dependent variable is the predicted probability of a CEO being replaced in year t or t + 1, attained from estimating equation 1 (our baseline model). The cutoff value for the main independent variable RRI is 60, which shows whether a firm has had extreme risk exposure in year t (variable D). The analysis covers firm-year observations between years 2007 through 2018 (we track risk exposure in years 2007-2017 and CEO turnover in years 2007-2018). We estimate a local linear regression (p = 1) and use a local quadratic regression to calculate the bias correction (q = 2). The kernel function to construct the local-polynomial estimator is chosen as triangular. Bandwidths are chosen as 10 (column 1), 20 (column 2), and 30 (column 3), respectively, and express the distance in RRI units around the cutoff-value of 60. When bandwidth = 10 is used, firms with RRI values between 50 and 60 are included in the analysis. Similarly, when the bandwidth is 20, firms with RRI values between 40 and 70 are included, and when the bandwidth is 30, firms with RRI values between 30 and 90 are included. Standard errors are clustered by year. T-statistics are shown in parentheses under coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *Predicted probability of CEO being replaced in year t or t + 1*			
	(1)	(2)	(3)
Robust estimates			
D (RRI ≥ 60)	0.107**	0.077**	0.056**
	(2.33)	(2.47)	(2.03)
Bandwidth (expressed in RRI units)	10	20	30
Observations	9,303	9,303	9,303
Number of firm-year obs. left of cutoff (RRI = 60)	350	910	2,447
Number of firm-year obs. right of cutoff (RRI = 60)	249	281	283

Table 10 Investor reactions, event study

The table shows logistic regression models where the dependent variable is an indicator variable for whether a CEO is replaced in year t or t + 1. For 770 firm-year observations with extreme or high levels of risk exposure in our sample, we screen for the months in which the RRI has crossed the extreme risk exposure levels, or the high risk exposure level, and has the highest jump measured in RRI units in those months. If jumps in RRI are equally high for two or more months, we keep the first monthly observation. For each month, we then search for news within that month with the highest severity (how many people was affected) and the highest reach (published in newspapers such as Financial Times, etc.), in that order. We focus on news with at least medium severity and reach as these news events may reach a larger pool of investor compared to e.g. news published in a local media paper with low severity. The main independent variables are the cumulative abnormal return (CAR) for the [-7, 7] window, an indicator variable for extreme risk exposure, as well as the jump in RRI since the last month. CARs are estimated using the market model (estimation period [-270, -30]), and returns for the market index of each firm's home country have been used as the proxy for market returns. We are able to identify dates for 439 out of 770 firm-year observations, and estimate CARs[-7, 7] for these dates. The first column includes only the variable CAR[-7, 7]. Column 2 includes also the indicator variable for extreme risk exposure and the jump in RRI in the month in which the event took place. The third column includes also CEO-, firm-, and country-level control variables. The fourth column is the baseline equation with all controls and fixed effects included (except that industry fixed effects are based on two-digit and not four-digit SIC codes because of the smaller sample size). Column 5 shows results for English civil-law countries for the baseline model without fixed effects, and Column 5 shows the same for civil-law countries. T-statistics (based on one-digit SIC codes) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t or year t + 1*						
	(1) Full Sample	(2) Full Sample	(3) Full Sample	(4) Full Sample	(5) Common-law countries	(6) Civil-law countries
Constant	-1.40***	-1.43***	-21.2**	-33.2	-201***	-29.5
	(-8.64)	(-5.47)	(-2.15)	(-0.91)	(-6.26)	(-0.54)
CAR[-7; 7]	-4.93***	-4.96***	-3.93***	-6.22***	-2.58**	-13.2***
	(-3.68)	(-3.93)	(-3.37)	(-2.86)	(-2.48)	(-2.97)
Extreme risk exposure		-0.26	0.013	0.19	0.11	0.097
		(-1.24)	(0.073)	(0.65)	(0.43)	(0.22)
Jump in RRI		0.018	0.048*	0.037*	0.048	0.072***
		(1.28)	(1.77)	(1.73)	(1.25)	(2.70)
CEO close to retirement (1/0)			1.60***	2.71***	2.53***	1.42*
			(2.94)	(4.06)	(5.15)	(1.66)
CEO Age			0.089**	0.14***	0.098**	0.18
			(2.24)	(2.74)	(2.44)	(1.52)
CEO Tenure (at firm)			0.12*	0.19**	0.20***	0.0058
			(1.93)	(2.41)	(3.54)	(0.056)
CEO Gender (Male = 1)			-1.12**	-2.06***	-1.08***	
			(-2.27)	(-2.73)	(-3.38)	
CEO is Chairman of the Board (1/0)			-0.15	-0.34	-1.30***	0.98
			(-0.42)	(-0.48)	(-6.79)	(1.21)
Founder-CEO (1/0)			-0.41	-0.99	-1.48	
			(-0.25)	(-0.54)	(-0.77)	
Ln(Total Assets$_{t-1}$)			0.078	-0.25	0.031	0.49
			(0.67)	(-0.70)	(0.15)	(0.97)
Return on Assets$_{t-1}$			3.33	-3.63	2.18	-5.15
			(1.28)	(-0.65)	(0.56)	(-0.53)
Market-adj. stock performance in past two years			-0.13	0.0070	0.00045	-0.077
			(-0.40)	(0.0099)	(0.0012)	(-0.14)
Board independence $_{t-1}$			2.45	3.89	2.86*	6.79***
			(1.34)	(1.56)	(1.86)	(4.62)
Board size $_{t-1}$			0.10***	0.15**	-0.034	0.10
			(3.58)	(2.11)	(-0.37)	(1.06)
Proportion of directors close to retirement $_{t-1}$			-0.52	-1.41	0.53	-5.15
			(-0.31)	(-0.81)	(0.14)	(-0.82)
Gender ratio $_{t-1}$			0.64	0.29	-0.97	0.54
			(0.35)	(0.079)	(-0.32)	(0.39)
Ln(GDP)$_t$			0.32	6.22***	7.84***	0.055
			(0.44)	(2.68)	(3.82)	(0.011)
Globalization Index$_t$			0.12	-0.85**	1.16***	0.033
			(1.59)	(-2.01)	(4.99)	(0.16)
Regulatory Quality$_t$			0.50	5.74***	-3.51**	-0.30
			(0.89)	(5.67)	(-2.39)	(-0.084)
Control of Corruption$_t$			-0.28	-12.6***	-13.5***	3.78
			(-0.55)	(-2.86)	(-3.36)	(1.39)
Political Executive Constraints$_t$			0.027	10.1*		4.39***
			(0.032)	(1.67)		(5.73)
Heritage Economic Freedom index$_t$			-0.059	-0.27	0.46***	-0.46**
			(-0.69)	(-1.50)	(3.24)	(-2.44)
Observations	406	406	364	343	241	123
Year fixed effects	No	No	No	Yes	No	No
Country fixed effects	No	No	No	Yes	No	No
Industry fixed effects (based on two-digit SIC codes)	No	No	No	Yes	No	No
Pseudo-R^2	0.0168	0.0232	0.2316	0.3989	0.2997	0.3417

Appendix A

Appendix Table A.1 Description of variables

Appendix Table A.1 shows the descriptions of the variables used in this paper, as well as the sources.

Variable Name	Variable Description	Source
RepRisk variables:		
Current Reputational Risk (RRI)	*The current Reputational Risk Exposure of firm i in month m of year t. The variable indicates the amount of risk exposure to* ESG (*stakeholder) issues that a firm is exposed to. A value of -1 indicates that the firm has no risk incidents, a value between 0 and 24 indicates low level of risk exposure, between 25 and 49 medium level, 50 and 59 high level, 60 and 74 very high level, and over 75 indicates extremely high risk exposure.*	RepRisk
Trend RRI (TRRI)	*The difference in the level for the RRI index between the current month and the previous month. A high jump in the variable's value indicates that a new risk incident has occurred.*	RepRisk
Peak RRI (PRRI)	*The highest level of RRI over the previous 24 months. Indicates the overall reputational risk exposure to ESG (stakeholder) issues.*	RepRisk
Epercentage (%)	*The proportion of Environment incidents in proportion to all incidents that make up the RRI.*	RepRisk
Spercentage (%)	*The proportion of Social incidents in proportion to all incidents that make up the RRI.*	RepRisk
Gpercentage (%)	*The proportion of Governance incidents in proportion to all incidents that make up the RRI.*	RepRisk
Top Issue	*Shows which ESG category the firm is most exposed to in a month. E.g. Top 1 Issue – "Corruption, Bribery, Extortion, and Money Laundering".*	RepRisk
News Count by Issue	*The number of media publications for Top Issue 1, Top Issue 2, etc.*	RepRisk
Severity breakdown by Issue	*Shows the severity breakdown (1, 2, or 3) for an issue (Top Issue 1, etc.) for each month; 1 represents low severity and 3 the highest.*	RepRisk
Reach breakdown by Issue	*Shows the reach breakdown (1, 2, or 3) for an issue (Top 1, Top 2, etc.) for each month; 1 represents low influence sources and 3 high influence sources (such as Financial Times, New York Times, BBC, and others).*	RepRisk
Extreme Risk Exposure (0/1)	*RRI between 60 and 100.*	
High Risk Exposure (0 / 1)	*RRI between 50 and 59.*	RepRisk
CEO variables		
CEO Turnover	*An indicator variable for CEO turnover. 1 = CEO turnover, 0 otherwise. We identify CEO changes using ExecuComp for US firms, as well as CapitalIQ and Orbis for European firms. CEO Turnover is defined is 1 if a CEO change occurs between year t and year t – 1. We manually go through each CEO turnover and check whether the CEO turnover occurred because of a merger, acquisition, CEO death, or similar reasons, in which case the indicator variable takes the value 0. To attain this information, we rely on public sources (internet sources, annual reports, etc.).*	ExecuComp, CapitalIQ, Orbis, hand-collected data from public sources (webpages, annual reports, etc.)
Retirement close (>=63 years) (0 / 1)	*An indicator variable that equals 1 if a CEO is 63 years or older, i.e. close to retirement, 0 otherwise (Beneish, et al., 2017).*	Hand-collected sample (CapitalIQ and Orbis) (Europe) and ExecuComp (US)
Age	*Age of CEO in years.*	Hand-collected sample (CapitalIQ and Orbis) (Europe) and ExecuComp (US)
CEO tenure	*The time (in years) that a person has served as CEO of a company. For US CEOs, we calculate tenure by subtracting the year for the variable "Date become CEO" from the current year. If a CEO is a former CEO, ExecuComp shows the newest date for which the CEO became CEO. In those cases, we use the variable "Date Joined Company" to calculate tenure. For European CEOs, we use data from Orbis and CapitalIQ to calculate tenure.*	Hand-collected sample (CapitalIQ and Orbis) (Europe) and ExecuComp (US)

Gender	*The gender of the CEO. 1 for males, 0 for females.*	ExecuComp (US) and hand-collected sample (CapitalIQ and Orbis) (Europe)
Chairman	*An indicator variable for whether a CEO also holds the Chairman position on the Board. 1 = yes, 0 = no. For CEOs of US firms, we use the ExecuComp variable "Titleann" to determine whether a CEO is the also the Chairman of the Board of the firm.*	ExecuComp (US) and hand-collected sample (CapitalIQ and Orbis) (Europe)
Founder	*An indicator variable for whether the CEO is the founder, or co-founder, of the firm. 1 = yes, 0 = no. For CEOs of US firms, we use ExecuComp variable "Titleann".*	ExecuComp (US) and hand-collected sample (CapitalIQ and Orbis) (Europe)
Firm-specific variables		
ROA	*Return on assets, defined as operating income before depreciation (OIBDP) divided by total assets (AT) in US dollars. Winsorized at 5th and 95th percentiles, separately for S&P500 and Stoxx600 firms, respectively.*	COMPUSTAT
Ln(Total assets)	*The natural logarithm of total assets (AT) in US dollars. Winsorized at 5th and 95th percentiles, separately for S&P500 and Stoxx600 firms, respectively.*	COMPUSTAT
Market-adjusted stock performance [-24, 0]	*The market-adjusted total stock return for the past two years, calculated as* $[(1+r_{-24})*(1+r_{-23})*...*(1+r_0)-1]$. *Returns are calculated as: [((PRCCD/AJEXDI)*TRFD)[End of month])-((PRCCD/AJEXDI)*TRFD)[End of previous month]]/ ((PRCCD/AJEXDI)*TRFD)[End of previous month]) for European firms (COMPUSTAT Price data), and using the variable "Ret" from CRSP for US firms. The returns for the markets are the returns for the S&P500 firms ("Sprtrn" in CRSP) as well as the returns for the Stoxx Europe 600 Total market index (COMPUSTAT, 150369), respectively.*	CRSP, COMPUSTAT
Board independence	*The proportion of independent non-executive directors serving on the firm's board.*	BoardEx
Board size	*The number of directors serving on the firm's board.*	BoardEx
Gender ratio	*The proportion of male directors serving on the firm's board at the Annual Report date.*	BoardEx
Succession Factor	*Measurement of directors that are close to retirement at the Annual Report date.*	BoardEx
Leverage	*Total Liabilities (LT)-to-assets (AT). All values are in US dollars (converted using year-end exchange rates).*	COMPUSTAT
Cash-to-total assets	*Cash (CH) divided by total assets (AT). All values are in US dollars (converted using year-end exchange rates).*	COMPUSTAT
Altman's z-score	*A firm's Altman z-score as defined in Liu (2018), i.e. 1.2*(working capital (WCAP)/total assets (AT)) + 1.4*(retained earnings (RE)/total assets(AT)) + 3.3*(EBIT/total assets(AT)) + 0.6*(total market capitalization(MKVALT for US firms; Outstanding shares (CSHOI) multiplied by daily closing price (PRCCD) of the last trading day of a year for European firms)/book value of total liabilities(LT)) + 1*(sales(SALE)/total assets(AT)). All values are in US dollars (converted using year-end exchange rates).*	COMPUSTAT
Tobin's Q	*Calculated as in Christensen (2016), i.e. Tobin's q is the natural logarithm of market value of assets divided by total assets (AT). Market value of assets is the market capitalization (MKVALT for US firms; Outstanding shares (CSHOI) multiplied by daily closing price (PRCCD) of the last trading day of a year for European firms), plus the book value of debt calculated as total assets (AT) - common stock (CEQ) - balance sheet deferred taxed (TXDB). Similar to Christensen (2016), we follow Bebchuk, Cohen, and Ferrell (2009) and set CEQ and TXDB equal to zero for missing variables. All values are in US dollars (converted using year-end exchange rates).*	COMPUSTAT
Market-to-book value	*Market value (MKVALT for US firms; Outstanding shares (CSHOI) multiplied by daily closing price (PRCCD) of the last trading day of a year for European firms) divided by book value of equity (CEQ). All values are in US dollars (converted using year-end exchange rates).*	COMPUSTAT
Exchange Rates	*Foreign exchange rates (at the end of a year). The exchange rates are used to calculate variables which are reported in other currencies than US dollars to US dollars (converted using year-end exchange rates).*	Federal Reserve, H10 Report (WRDS)
ESG Total Score	*The ESG performance of a company in year t-1. The "Total score" measures the ESG performance of a company without adjusting for the potential impact*	Thomson Reuters Eikon

	an ESG controversy has on the firm's ESG score. The variable ranges from 0 to 100 with higher values corresponding to better ESG performance.	
Country-specific variables		
Legal origin	*The legal origin of a country (English common-law, French civil-law, German civil-law, or Scandinavian law) in which it is headquartered (we use COMPUSTAT's "loc" variable).*	Liang and Renneboog (2017), Appendix B
Civil-law country	*An indicator variable which equals one if a firm is located in a civil-law legal origin country, and zero if it located in a English common-law country.*	
Anti-Director Rights Index	*The Anti-Director Rights Index (La Porta, Lopez-de-Silanes, Schleifer, and Vishny, 1998; Spamann, 2010). Higher values proxy for stronger investor protection.*	La Porta, Lopez-de-Silanes, Schleifer, and Vishny (1998); Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008); Spamann (2010)
Anti-Self Dealing Index	*"The index is a proxy for legal protection against corporate insiders" (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2008). Higher values correspond to higher protection.*	Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008)
Economic Freedom	*The index measures the degree to which a country's economy is free (monetary, investment, business, trade freedom, etc.). Higher values proxy for more freer economies.*	www.heritage.org
Public Sector Ethics	*"Percentage of firms in a country that give satisfactory ratings on judicial independence, judicial bribery, quality of legal framework, property protection, parliament effectiveness, and police effectiveness" (Kaufmann, 2004, p. 102). Higher values correspond to higher public sector ethics.*	Kaufmann (2004)
Corporate Governance Index	*"Percentage of firms in a country that give satisfactory ratings on protection of minority shareholders, quality of training, willingness to delegate authority, nepotism, and corporate governance" (Kaufmann, 2004, p. 102). Higher values correspond to better corporate governance.*	Kaufmann (2004)
Corruption Control	*"Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests" (World Bank). Higher values correspond to higher degrees of corruption control.*	World Bank (World Governance Indicators)
Regulatory Quality	*"Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development" (World Bank). Higher values correspond to higher regulatory quality.*	World Bank (World Governance Indicators)
GDP (in US (2015) dollars)	*The Gross Domestic Product expressed in US (2015) dollars.*	World Bank
Political Executive Constraints	*Variable XTCONST from PolityIV database. According to PolityIV, the variable measures "the extent of institutionalized constraints on the decision-making power of CEOs".*	PolityIV (www.systemic-peace.org)
Globalization Index	*"The KOF Globalisation Index measures the economic, social and political dimensions of globalisation" (https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html). Higher values correspond to more globalized economies.*	ETH Zürich KOF Swiss Economic Institute
Employment Laws Index	*The index proxies for how well labor forces and employers are protected by laws. Higher values correspond to more protection. Higher scores correspond to higher protection.*	Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004)
Collective Bargaining Index	*The index proxies for labor union power by looking at collective bargaining laws. Higher values correspond to stronger collective bargaining power.*	Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004)
Social Security Laws Index	*The variable measures how well a country covers (i) risks for older people, people with disability, and death, (ii) risks related to sickness and health, and (iii) unemployment. Higher scores relate to more coverage.*	Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004)

Appendix Table A.2 ESG issue types

Panel A of Appendix Table A.2 shows the ESG issues, as defined by RepRisk. Panel B shows the progression of the RRI for Volkswagen in year 2015. The figure illustrates how the RRI has moved (by month) in response to the emission scandal, which received widespread media attention following a notice of violation by the US Environmental Protection Agency (EPA) on September 18th, 2015 (https://www.epa.gov/sites/production/files/2015-10/documents/vw-nov-caa-09-18-15.pdf).

PANEL A: ESG ISSUE TYPES

Environmental	**Social**		**Corporate Governance**
	Community relations	*Employee relations*	
Global pollution	Human rights abuses	Forced labor	Corruption, bribery, extortion, money laundering
Local pollution	Impacts on communities	Child labor	Executive compensation
Impacts on ecosystems and landscape	Local participation issues	Freedom of association and collective bargaining	Misleading communication, e.g. "greenwashing"
Overuse and wasting of resources	Social discrimination	Discrimination in employment	Fraud (*removed from the sample*)
Waste issues		Health and safety issues	Tax evasion
Animal mistreatment		Poor employment conditions	Tax optimization
			Anti-competitive practices

Cross-cutting Issues

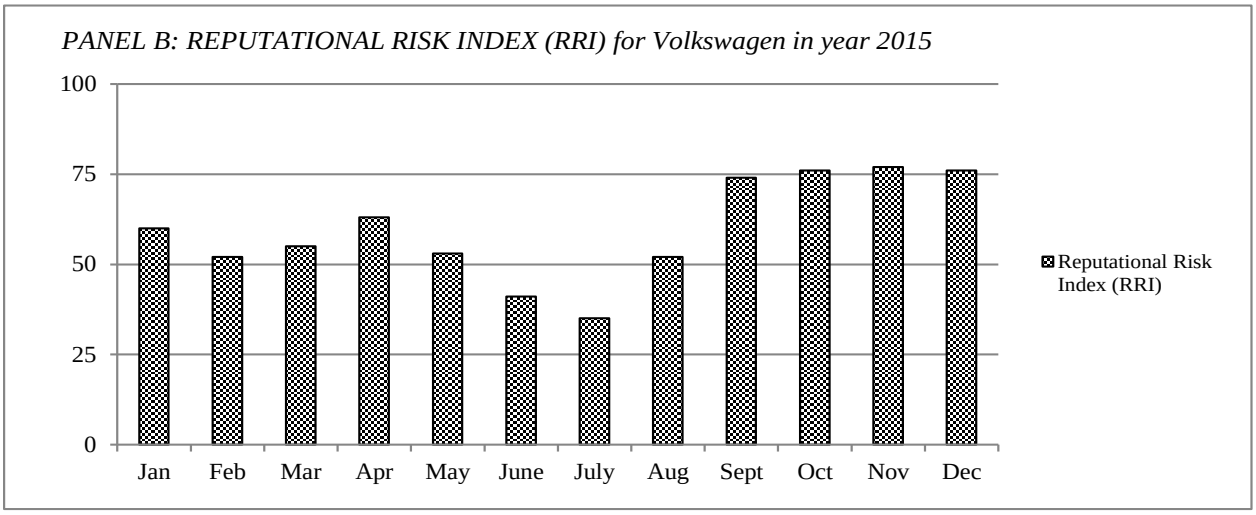
Controversial products and services

Products (health and environmental issues)

Violation of international standards

Violation of national legislation

Supply chain issues



Appendix B

Appendix Table B.1 Correlation matrix

The table shows the correlation matrix for CEO- and firm-level variables included in Table 4. * indicates significance at the 5% level. All continuous variables are winsorized at the 1st and 99th percentiles. In-depth descriptions of the variables are found in Appendix Table A.1.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) CEO fired in the same or in the next year	1.000															
(2) Extreme risk exposure	0.022*	1.000														
(3) High risk exposure	0.029*	-0.036*	1.000													
(4) CEO close to retirement (= 1)	0.205*	-0.013	0.039*	1.000												
(4) CEO age	0.216*	0.010	0.049*	0.641*	1.000											
(5) CEO Tenure	0.088*	-0.043*	-0.023*	0.301*	0.353*	1.000										
(6) CEO Gender (Male = 1)	0.011	-0.004	-0.035*	0.060*	0.068*	0.066*	1.000									
(7) CEO is the Chairman of the Board (= 1)	0.005	0.027*	0.045*	0.161*	0.269*	0.175*	0.041*	1.000								
(8) CEO is the Founder (= 1)	-0.040*	0.005	-0.001	0.081*	0.052*	0.351*	0.031*	0.050*	1.000							
(9) Ln(Total Assets) in year t – 1	0.016	0.295*	0.227*	0.073*	0.180*	-0.083*	-0.001	0.177*	-0.089*	1.000						
(10) Return on Assets in year t – 1	-0.018	-0.022*	-0.010	-0.020*	-0.041*	0.043*	-0.000	-0.029*	0.019*	-0.414*	1.000					
(11) Market-adj. stock return in past two years	-0.071*	-0.041*	-0.047*	-0.031*	-0.071*	0.061*	0.005	-0.026*	0.064*	-0.189*	0.163*	1.000				
(12) Board independence in year t – 1	-0.036*	0.026*	0.035*	0.001	0.110*	-0.008	-0.022*	0.100*	-0.005	0.098*	0.056*	-0.074*	1.000			
(13) Board size in year t – 1	0.033*	0.130*	0.111*	0.050*	0.104*	-0.074*	0.033*	0.156*	-0.087*	0.482*	-0.221*	-0.087*	-0.330*	1.000		
(14) % of directors close to retirement in year t – 1	0.011	-0.027*	-0.011	-0.061*	-0.254*	-0.054*	0.007	-0.142*	0.022*	-0.134*	-0.010	0.080*	-0.415*	0.139*	1.000	
(15) Board gender ratio in year t – 1	-0.034*	-0.061*	-0.094*	0.049*	-0.021*	0.042*	0.192*	-0.005	0.065*	-0.190*	0.033*	0.064*	-0.210*	-0.037*	0.007	1.000

Appendix Table B.2 Dependent variable: CEO replaced in year t

The table shows results for estimating equation (1): $\Pr(CEO\ replaced\ in\ same\ year = 1_{it}) = F(\beta_0 + \beta_1 * Extreme\ risk\ exposure_{it} + CEO\ Controls + Firm\ Controls + Country\ Controls + \eta_{Year} + \eta_{Country} + \eta_{Industry_{SIC4}} + \varepsilon_{it})$, where F is the cumulative logistic distribution function and the dependent variable is an indicator variable for whether the CEO is replaced in year t. The main independent variable in columns 1 through 3 is an indicator variable for extreme risk ($60 \geq RRI \geq 100$) exposure, whereas it is the level of RRI in column 4. In columns 1 and 3, the benchmark group constitutes of firm-years with "normal" or high risk exposure, and in column 2 it constitutes of firm-years with "normal" risk exposure. CEO control variables include *CEO close to retirement* (aged 63 years or more), *CEO age* (in years), *Tenure* (at the firm in years), *Gender* (male = 1), *CEO is Chairman* (Chairman of the Board = 1), *CEO is Founder* (founder = 1). Firm-level control variables include *Ln(Total assets$_{t-1}$)*, *Return on Assets$_{t-1}$*, *Market-adjusted total stock performance* in past 24 months (the month in which the RRI peaks is included), *Board independence$_{t-1}$* (the proportion of independent directors serving on the board), *Board size$_{t-1}$* (the total number of directors), *Succession$_{t-1}$* (the proportion of directors close to retirement age (70 years)), and *Gender ratio$_{t-1}$* (the proportion of female directors). Country-level control variables are similar to those used in Liang and Renneboog (2017) and include the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality as well as Corruption Control indices (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom (www.heritage.org). All continuous variables are winsorized at 1st and 99th percentiles. We track risk exposure to ESG issues in years 2007-2017 and CEO turnovers from 2007 through 2018. T-statistics based on robust standard errors (clustered by four-digit SIC codes in columns 1,2, and 4; and the observed information matrix in column 3) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t*				
Variables	(1)	(2)	(3)	(4)
Constant	18.4	18.3		18.5
	(1.54)	(1.53)		(1.55)
Extreme risk exposure	0.74***	0.80***	0.75***	
	(4.43)	(4.47)	(2.58)	
High risk exposure		0.25		
		(1.25)		
RRI Index Level				0.011***
				(3.16)
CEO close to retirement (1/0)	0.51***	0.50***	0.66***	0.49***
	(3.70)	(3.66)	(3.61)	(3.67)
CEO Age	0.094***	0.094***	0.15***	0.094***
	(8.17)	(8.19)	(8.90)	(8.22)
CEO Tenure (at firm)	0.042***	0.042***	0.36***	0.042***
	(4.15)	(4.17)	(17.0)	(4.13)
CEO Gender (Male = 1)	-0.0093	-0.0067	0.72*	0.0069
	(-0.044)	(-0.031)	(1.75)	(0.033)
CEO is Chairman of the Board (1/0)	-0.12	-0.12	-0.26	-0.11
	(-1.21)	(-1.21)	(-1.59)	(-1.19)
Founder-CEO (1/0)	-1.27***	-1.27***	-5.31***	-1.29***
	(-4.05)	(-4.10)	(-6.25)	(-4.13)
Ln(Total Assets$_{t-1}$)	-0.025	-0.038	0.22	-0.069
	(-0.51)	(-0.73)	(1.17)	(-1.33)
Return on Assets$_{t-1}$	-0.75	-0.80	-2.40*	-0.84
	(-1.00)	(-1.07)	(-1.96)	(-1.14)
Market-adj. stock performance in past two years	-0.57***	-0.57***	-0.53***	-0.57***
	(-5.05)	(-5.05)	(-4.31)	(-4.99)
Board independence $_{t-1}$	-0.077	-0.089	-2.02***	-0.096
	(-0.25)	(-0.29)	(-3.33)	(-0.32)
Board size $_{t-1}$	0.013	0.014	0.063*	0.012
	(0.72)	(0.74)	(1.69)	(0.65)
Proportion of directors close to retirement $_{t-1}$	0.55	0.54	0.69	0.56
	(1.27)	(1.25)	(1.01)	(1.28)
Gender ratio $_{t-1}$	-0.77	-0.77	0.39	-0.70
	(-1.44)	(-1.44)	(0.45)	(-1.31)
Ln(GDP)$_t$	-0.45	-0.44	-0.89	-0.45
	(-0.66)	(-0.65)	(-1.07)	(-0.66)
Globalization Index$_t$	-0.19*	-0.19*	-0.17	-0.19*
	(-1.93)	(-1.90)	(-1.33)	(-1.89)
Regulatory Quality$_t$	0.51	0.53	1.01*	0.56
	(1.11)	(1.14)	(1.83)	(1.19)
Control of Corruption$_t$	0.19	0.20	0.10	0.27
	(0.38)	(0.40)	(0.15)	(0.53)
Political Executive Constraints$_t$	-0.086	-0.084		-0.17
	(-0.080)	(-0.078)		(-0.15)
Heritage Economic Freedom index$_t$	-0.047	-0.047	-0.049	-0.044
	(-1.41)	(-1.42)	(-1.25)	(-1.36)
Observations	8,997	8,997	6,344	8,997
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	No	Yes
Industry fixed effects	Yes	Yes	No	Yes
Firm fixed effects	No	No	Yes	No
Pseudo R^2	0.1204	0.1207		0.1205

Appendix Table B.3 Robustness checks

The table shows results for estimating equation (1): $\Pr(CEO\ replaced\ in\ same\ year\ or\ in\ next\ year = 1_{it}) = F(\beta_0 + \beta_1 * Extreme\ risk\ exposure_{it} + CEO\ Controls + Firm\ Controls + Country\ Controls + \eta_{Year} + \eta_{Country} + \eta_{Industry_{SIC4}} + \varepsilon_{it})$, where F is the cumulative logistic distribution function and the dependent variable is an indicator variable for whether a CEO is replaced in year t or t + 1. The main independent variable an indicator variable for extreme risk (60 ≥ RRI ≥ 100) exposure issues. CEO control variables include *CEO close to retirement* (aged 63 years or more), *CEO age* (in years), *Tenure* (at the firm in years), *Gender* (male = 1), *CEO is Chairman* (Chairman of the Board = 1), *CEO is Founder* (founder = 1). Firm-level control variables include *Ln(Total assets$_{t-1}$)*, *Return on Assets$_{t-1}$*, *Market-adjusted total stock performance* in past 24 months (the month in which the RRI peaks is included), *Board independence$_{t-1}$* (the proportion of independent directors serving on the board), *Board size$_{t-1}$* (the total number of directors), *Succession$_{t-1}$* (the proportion of directors close to retirement age (70 years)), and *Gender ratio$_{t-1}$* (the proportion of female directors). Country-level control variables are similar to those used in Liang and Renneboog (2017) and include the natural logarithm of GDP, the globalization index (KOF Swiss Federal Institute of Technology Zurich), the Regulatory Quality as well as Corruption Control indices (World Bank), the Political Executive Constraints measure (PolityIV), and the Heritage Economic Freedom (www.heritage.org). All continuous variables are winsorized at 1st and 99th percentiles. We track risk exposure to ESG issues in years 2007-2017 and CEO turnovers from 2007 through 2018. T-statistics based on robust standard errors (clustered by four-digit SIC codes) are reported in parentheses below coefficients. *, **, and *** denote 10%, 5%, and 1% significance levels, respectively.

Dependent variable: *CEO replaced in year t*	(1) CEOs close to retirement excluded	(2) Lagged ESG variable included
Variables		
Constant	29.6**	18.1
	(2.33)	(1.38)
Extreme Risk Exposure	0.63***	0.59***
	(3.55)	(3.60)
CEO close to retirement (1/0)		0.77***
		(4.94)
CEO Age	0.12***	0.095***
	(8.80)	(7.09)
CEO Tenure (at firm)	0.062***	0.051***
	(4.54)	(4.16)
CEO Gender (Male = 1)	-0.044	0.16
	(-0.19)	(0.66)
CEO is Chairman of the Board (1/0)	-0.16	-0.13
	(-1.42)	(-1.19)
Founder-CEO (1/0)	-1.53***	-1.31***
	(-3.13)	(-3.50)
Ln(Total Assets$_{t-1}$)	-0.048	-0.088
	(-0.87)	(-1.42)
Return on Assets$_{t-1}$	-0.45	-0.92
	(-0.54)	(-1.05)
Market-adj. stock performance in past two years	-0.71***	-0.64***
	(-6.01)	(-5.45)
Board independence $_{t-1}$	-0.28	-0.35
	(-0.82)	(-0.92)
Board size $_{t-1}$	0.0075	0.039**
	(0.38)	(2.01)
Proportion of directors close to retirement $_{t-1}$	1.22***	0.39
	(2.68)	(0.92)
Gender ratio $_{t-1}$	-0.44	-0.39
	(-0.75)	(-0.67)
Ln(GDP)$_t$	-1.11	-0.57
	(-1.63)	(-0.93)
Globalization Index$_t$	-0.19*	-0.14
	(-1.92)	(-1.29)
Regulatory Quality$_t$	0.65	0.28
	(1.33)	(0.59)
Control of Corruption$_t$	-0.61	0.072
	(-1.08)	(0.14)
Political Executive Constraints$_t$	-0.66	-0.82
	(-0.55)	(-0.69)
Heritage Economic Freedom index$_t$	-0.050	-0.042
	(-1.46)	(-1.29)
ESG$_{t-1}$		0.0086**
		(2.13)
Observations	7,785	7,416
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Pseudo R^2	0.1248	0.1590