

Backing Away from ESG? The Effect of Sovereign Rating Downgrades on Corporate ESG Policies

Periklis Boumparis

Newcastle University

Chris Florackis[†]

University of Liverpool

Sushil Sainani

University of Liverpool

Abstract

Using a comprehensive dataset of firms from 45 countries over the period 2002-2019, we study the causal effect of credit rating downgrades on firms' environmental, social and governance (ESG) policies. Our analysis exploits a quasi-experimental setting that generates exogenous variation in corporate credit ratings due to sovereign rating downgrades (the sovereign "ceiling" rule). Consistent with the prediction of shareholder- and slack resource-theories, we find that firms that are bound by the ceiling rule, and as a result are more exposed to sovereign downgrades, experience a deterioration in their ESG performance when such a downgrade occurs. We then investigate the mechanisms driving our results and explore possible consequences of the decline in ESG performance. We show that a country's weak institutional environment, managers' short-term orientation and intense market competition are key antecedents of poor ESG performance among firms that are bound by the sovereign ceiling rule. We also uncover that bound firms are more likely to incur a major ESG risk incident that damages their reputation in the period following a sovereign downgrade. Overall, our results suggest that credit rating downgrades significantly affect firms' ESG policies and performance.

JEL classification: G24, H63, M14

Keywords: Credit Ratings, Sovereign Downgrade, ESG, Corporate Social Responsibility, ESG Risk, Managerial Short-termism.

* We would like to thank Bram van der Kroft (discussant), Hitoshi Takehara (discussant), Ye Zhang (discussant), Dirk Gerritsen (discussant), Karoline Bax (discussant) and conference/seminar participants at the Money Macro and Finance (MMF) Society workshop on Environmental Finance for the Common Good 2022 (London), Sustainable Finance and Governance Conference 2022 (Bath), 1st Conference on International, Sustainable and Climate Finance and Growth (Naples), Financial Management and Accounting Conference 2022 (Limassol), Financial Management Association European Conference 2022 (Lyon) and World Finance Conference 2022 (Turin).

[†][Corresponding Author](#), Department of Accounting and Finance, University of Liverpool Management School, Chatham Street, Liverpool L69 7ZH, UK. Tel: +44(0)151 7953807. Emails: c.florackis@liv.ac.uk (Chris Florackis), periklis.boumparis@newcastle.ac.uk (Periklis Boumparis) and s.sainani@liv.ac.uk (Sushil Sainani).

1 Introduction

Rising interest rates and global borrowing costs have recently led credit rating agencies to alter their view on sovereign risk, and this has led to heightened concerns about sovereign debt downgrades and defaults.¹ While the effects of sovereign downgrades on firm financing policies and real economic activity have been studied extensively in the fields of accounting, finance and economics (e.g., Acharya, Eisert, Eufinger and Hirsch, 2018; Adelino and Ferreira, 2016; Almeida, Cunha, Ferreira and Restrepo, 2017; Arteta and Hale, 2008; Augustin, Boustanifar, Breckenfelder and Schnitzler, 2018; Basu, Naughton and Wang, 2022; Wang and Xie, 2022), their connections with firm environmental, social and governance (ESG) policies² remain largely unexplored. To help fill this gap, this study examines whether sovereign downgrades,³ induce corporate credit risk changes, and influence firms' ESG policies, exposure to ESG risks and overall ESG performance.

From an empirical perspective, an analysis of how credit rating downgrades influence ESG policies and outcomes is challenging. This is due to the difficulty of disentangling the various motives for ESG engagement, and also the potential for reverse causality; that is, ESG performance conveys important non-financial information that credit rating agencies may use in their assessment of firms' creditworthiness (see e.g. Attig, El Ghouli, Guedhami and Suh, 2013; Jiraporn, Jiraporn, Boeprasert and Chang, 2014). To mitigate these concerns, our empirical analysis exploits a quasi-experimental setting that generates exogenous variation in corporate ratings due to the sovereign

¹See "Fitch cuts view on global sovereign debt" by *Reuters* (published June 30, 2022).

²"ESG" policies, often used interchangeably with "CSR" (Corporate Social Responsibility), is an umbrella term that refers to the incorporation of **E**nvironmental, **S**ocial and **G**overnance considerations in corporate management decisions (Liang and Renneboog, 2020). Breaking down ESG into its individual factors, each letter represents various policy efforts that can be taken by a company. Firstly, the Environmental (E) element includes policies on, for example, slowing the progression of climate change and combatting resource scarcity through resource efficiency initiatives. Thus, these policies cover emissions (e.g., of greenhouse gases), the efficient use of natural resources (e.g., energy, water or materials), pollution and waste (e.g., oil spills), as well as innovation in the eco-design of products. Secondly, Social (S) policies comprise efforts to care for the workforce (e.g., working conditions, health and safety, diversity, training and development), to satisfy customers (e.g., producing quality goods and services, and ensuring data privacy) and the company being a good citizen within the communities in which it operates. Lastly, Governance (G) relates to company management and oversight, addressing issues such as safeguarding shareholder rights (e.g., limiting anti-takeover devices), a well-functioning board (e.g., with an experienced, diverse and independent composition), well-designed executive compensation policies and avoiding illegal practices such as fraud and bribery.

³Sovereign downgrades can drive corporate rating downgrades for firms that have a rating equal to or higher than the corresponding sovereign rating before the sovereign downgrade. In that sense, they can affect corporate policies and outcomes.

ceiling rule. More specifically, credit rating agencies tend to follow a rating ceiling rule that prevents firms from obtaining a rating higher than the sovereign rating of their country of domicile (which therefore serves as an upper bound).⁴ The implementation of the rule significantly increases the likelihood of a rating downgrade for firms originally rated at or above the upper bound (hereafter, bound firms) following a sovereign downgrade. This enables a direct comparison of the changes in ESG practices and performance in response to a sovereign downgrade for bound versus non-bound firms (those that were originally rated below the sovereign rating). Using a difference-in-differences framework allows us to isolate the effect of exogenous rating changes induced by the sovereign ceiling policy and largely avoid the confounding effects of changes in firm fundamentals.

We present competing hypotheses about the effect of credit rating downgrades on ESG engagement and performance. On the one hand, the shareholder theory (e.g. [Friedman and Friedman, 1962](#); [Friedman, 1970](#)) and slack resource theory ([Waddock and Graves, 1997](#)) predict that a credit rating downgrade due to the sovereign ceiling is likely to be associated with less engagement in ESG issues and worse ESG performance. In the context of shareholder theory, shareholders are the ultimate owners of a firm’s assets and hence their interests should take precedence over the interests of other stakeholders ([Friedman, 1970](#)). ESG activities are costly because they require investments and use of internal resources that reduce profits and ultimately shareholder value.⁵ Following a sovereign downgrade, some firms experience impairment of their financial and operational performance ([Almeida et al., 2017](#); [To, Wu and Zhang, 2022](#)), which makes them less inclined to divert resources to ESG and jeopardize shareholder value ([Waddock and Graves, 1997](#); [Campbell, 2007](#)). Unfavorable economic conditions also create pressure for managers to pursue short-term gains and avoid ESG initiatives, which are generally viewed as long-term strategic investments ([Zadek, 2007](#); [Porter and Kramer, 2006](#); [Kang, 2016](#)). These arguments suggest that bound firms are expected

⁴Prior to 1997, such a ceiling rule was strictly implemented by rating agencies. It was officially abandoned firstly by S&P in April 1997 for a number of dollarized Latin American economies. Fitch and Moody’s incorporated the same policy in 1998 and 2001 respectively. Nevertheless, the sovereign ceiling rule still plays a crucial role in determining corporate ratings, which is why firms with a credit rating above their sovereign rating are still extremely rare. Indeed, our sample analysis shows that only 2.7% of rated firms receive a rating higher than the corresponding sovereign rating. This suggest that sovereign rating still serves as an upper bound for corporate ratings

⁵Specific ESG activities are also the outcome of a “box-ticking” culture that companies embrace ([Serafeim, 2020](#)), and of managerial preferences to establish long-term relationships with specific stakeholders ([Ghoul, Guedhami and Kim, 2017](#)).

to be less focused on ESG and to exhibit lower ESG performance following a rating downgrade.

On the other hand, in the spirit of signaling and insurance theories, a corporate credit rating downgrade may be associated with a subsequent improvement in ESG engagement and performance. Firms are under increasing pressure to manage their reputation on ESG issues (Asante-Appiah and Lambert, 2022), especially during adverse economic conditions such as those leading to sovereign downgrades. The signaling theory of Glazer and Konrad (1996) suggests that certain types of CSR activities that are observable to outside stakeholders can signal wealth or income.⁶ By sustaining good ESG performance or even improving it after a rating downgrade, firms can build moral capital or goodwill (Godfrey, 2005) and signal their commitment not to exploit their stakeholders. Additionally, the negative effects of a sovereign downgrade on firms are not immediately manifested. To the extent that firm rating downgrades triggered by sovereign downgrades damage firm reputation, maintaining a commitment to ESG has a reputation insurance effect (Shiu and Yang, 2017; Lins, Servaes and Tamayo, 2017) that tempers potential sanctions and prevents the degradation of intangible resources (Godfrey, Merrill and Hansen, 2009). As a result, bound firms that were severely impacted by the forced rating downgrade may invest more on ESG for signalling and insurance purposes.

To test these hypotheses, we use a sample of 17,895 firm-year observations representing 2,196 firms with a credit rating from 45 countries during 2002-2019. As a way of validating our empirical approach, we firstly provide evidence on a differential effect of sovereign downgrades on credit ratings of bound- versus non-bound firms. We find that about 60% (20%) of bound (non-bound) firms had their credit rating downgraded in the year of a sovereign downgrade, suggesting that bound firms have a significantly higher probability of being downgraded than non-bound firms. Using a difference-in-difference setting, we then find that bound firms experienced a deterioration in their ESG performance in the year following a sovereign downgrade. In terms of the economic significance of this finding, our results suggest that the average bound firm in our sample experienced a decline in its ESG rating by 6.65 percentage points. These results support the prediction of the

⁶For example, Lys, Naughton and Wang (2015) provide empirical evidence suggesting that firms invest in CSR activities to “signal” managements’ expectation of strong future financial performance. The authors show that the positive association between CSR expenditures and firm performance is due to the signalling value of CSR rather than to positive returns on those investments.

shareholder- and slack resource-theories that a credit rating downgrade for bound firms is likely to be associated with worse future ESG performance.

We then perform several additional tests to strengthen the causal interpretation of our main finding. First, we obtain similar results after controlling for a large set of firm and country level determinants as well as a variety of fixed effects (i.e. firm, country, industry, and country by year). Second, we show that there are no significant pre-existing differential trends across bound and non-bound firm in terms of their ESG performance. In fact, the deterioration in ESG performance of bound firms occurs in the year after the sovereign downgrade. Third, we consider the fact that the assignment of firms into bound and non-bound groups before the sovereign downgrade is not random. That is, the differences in ESG performance between bound and non-bound firms may be attributed to differences in credit quality before the downgrade rather than the sovereign downgrade itself. To alleviate this concern, we use a Regression Discontinuity Design (RDD) that focuses on firms that are rated just above, at or just below the corresponding sovereign rating, which ensures that there are no significant differences in terms of credit quality across groups. Our results confirm that, following a sovereign downgrade, bound firms are more likely to experience a deterioration in their ESG score relative to non-bound firms that have a similar credit rating. Fourth, we show that our findings cannot be explained by differences in the exposure to macroeconomic shocks (other than sovereign downgrades) between bound and unbound firms. After considering two placebo events, we find that the performance of bound firms in terms of their ESG score is not affected by the 2007-2009 financial crisis and during economic recessions as defined by the OECD. Overall, these results support the causal interpretation of our findings that bound firms possibly dedicate less resources to ESG policies upon a sovereign downgrade, which results in worse ESG performance.

In subsequent tests, we turn our attention to the mechanisms driving our results and explore possible antecedents and consequences of the deterioration of ESG performance. Drawing upon the institutional theory of [Campbell \(2007\)](#), we conjecture that firms operating in countries with a weak institutional environment are largely insulated from any sanctions against poor ESG practices and, hence, more likely to pursue short-term gains and sacrifice ESG performance in the period following a sovereign downgrade. In line with our expectations, we find that the lower ESG performance of

bound firms is more pronounced among those operating in countries with weak institutions. To further validate the view that the lower ESG scores of bound firms entail a lower degree of engagement in ESG issues following a sovereign rating downgrade, we provide evidence from corporate charitable donations. Despite its limitations, the level of expenditure on charitable donations is a tangible proxy for ESG engagement (Liang and Renneboog, 2017a). Our results show that bound firms not only have lower ESG scores but also reduce their expenditures on charitable donations in the year after a sovereign downgrade. Finally, we shift our focus on the consequences of paying less attention to ESG to actual ESG incidents. For our analysis, we use data from RepRisk and put forward a measure of reputation risk exposure based on the level of negative media and stakeholder coverage of a firm to ESG risk incidents. We find that bound firms are more likely than non-bound firms to experience a major ESG risk incident in the period following a sovereign downgrade.

This study contributes to the international business research in several ways. First, prior studies on the adverse effects of sovereign rating downgrades are concentrated in the fields of economics, finance and accounting, and focus exclusively on corporate financial/investment policies, information disclosure/ reporting quality, and firm performance (e.g., Kisgen and Strahan, 2010; Almeida et al., 2017; Wang and Yang, 2023; Wang and Xie, 2022; Basu et al., 2022; Lin et al., 2021; To, Wu and Zhang, 2022). Kisgen and Strahan (2010) and Almeida et al. (2017) provide evidence suggesting that credit rating changes have a significant effect on firms' cost of capital, as well as their investment and financial policies. Wang and Xie (2022) show that firms respond to negative changes in their credit rating by providing more information to the market. In a similar spirit, Basu et al. (2022) document that credit ratings play a regulatory role by influencing firms to voluntary disclosure of more (less) information when rating downgrades (upgrades) happen. Wang and Yang (2023) find that firms reduce R&D expenditures and generate lower quality patents after their credit rating is downgraded. Lin, Zhang and Zhang (2021) find that firms are more likely to manipulate their earnings downward after they experience a negative shock to their credit ratings. To, Wu and Zhang (2022) find that sovereign default risk has a negative impact on corporate performance via a rating spillover pooling mechanism. Hasan, Kim, Politsidis and Wu (2022) find that firms face higher borrowing cost after an increase in sovereign default risk of the firm's country of domicile. We extend this line of inquiry by documenting that credit rating downgrades

also matter to corporate ESG practices and performance.

Second, we contribute to an emerging stream of literature that examines how firms adjust their investment in strategic resources, including CSR, when negative events (macroeconomic and/or idiosyncratic) occur. For example, [Flammer and Ioannou \(2020\)](#) focus on the 2007-2009 financial crisis and show that, despite the sharp increase in borrowing costs, firms maintained their investment in CSR. [Flammer and Kacperczyk \(2019\)](#) show that firms responded to the threat of knowledge leakage due to the rejection of the "inevitable disclosure doctrine" by several U.S. states by increasing their CSR engagement. [Akey, Lewellen, Liskovich and Schiller \(2021\)](#) find that firms increase CSR investment and earn higher CSR scores in response to unexpected data breaches that damage their reputation. [Gao, He and Wu \(2021\)](#) show that firms increase their CSR activities in response to negative stock price shocks unrelated to fundamentals. By using solely data of US firms, [Karampatsas, Aktas and Witkowski \(2022\)](#) focus on changes in credit ratings driven by firm fundamentals and document an increase in CSR engagement following a downgrade from the investment to speculative grade rating. We contribute to this literature by focusing for the first time on exogenous corporate rating downgrades triggered by sovereign credit downgrades. In contrast to the predictions of the signalling and insurance theories, we find that firms that faced a rating downgrade experienced a significant deterioration in their ESG performance. Our study is the first to document that exogenous rating downgrades induce negative changes in ESG performance.

Third, our paper relates to and adds to the more general literature on the antecedents of poor CSR in international business research (e.g. [Campbell, 2007](#); [Bertrand, Betschinger and Moschieri, 2021](#); [Ding, Levine, Lin and Xie, 2022](#); [Dyck, Lins, Roth and Wagner, 2019](#); [El Ghouli, Guedhami, Wang and Kwok, 2016](#); [Ioannou and Serafeim, 2012](#); [Kolk, 2016](#); [Liang and Renneboog, 2017b](#); [Young and Makhija, 2014](#)). We offer evidence that a country's weak institutional environment, managers' short-term orientation and intense market competition are three key antecedents of poor ESG performance among bound firms. Last but not least, we uncover negative consequences for these firms due to their poor ESG practices. Specifically, bound firms are more likely to incur a major ESG risk incident that damages their reputation in the period following a sovereign rating downgrade.

The rest of the article is organized as follows. Section 2 discusses the sovereign ceiling rule

and develops our main hypotheses. Section 3 describes our sample selection and research design and presents key descriptive statistics. Section 4 presents the main results. Section 5 examines the potential channels between sovereign downgrades and ESG policies, while Section 6 provides further evidence and conducts a series of robustness tests. Finally, Section 7 concludes.

2 Institutional Framework and Hypothesis Development

2.1 Sovereign Downgrades and the Ceiling Rule

A credit rating is a particular agency’s opinion of the ability and willingness of issuers (including governments and corporations) to meet their debt obligations. When rating the creditworthiness of corporate debt issuers, all three major credit ratings agencies—Standard and Poor’s, Moody’s, and Fitch—maintain a so called “sovereign ceiling policy”. Under this rule, domestic firms are *unlikely* to receive a rating higher than the sovereign rating of their country of domicile.

The rationale behind using the sovereign rating as an upper bound for a corporate rating is that all domestic corporate issuers are potentially exposed to foreign currency “transfer” risk—i.e., an inability to convert the local currency into foreign currency in order to meet external debt obligations in a timely manner. In other words, the ceiling policy accounts for the fact that a sovereign state, when facing financial distress, has the power to limit capital flows into and out of the country, including the debt payments in foreign currency of all domiciled firms. Therefore, domestic firms’ credit rating will always be bound by the sovereign rating.

Prior to 1997, the ceiling rule was strictly implemented by rating agencies, but since then, they have revised their rating methodology to allow firms to pierce their country ceiling (i.e., to be rated higher than their sovereign rating). The likelihood of a firm being rated above the sovereign depends on whether it exhibits: (i) superior credit strength and low default dependence *relative* to the sovereign, and (ii) low sensitivity to the risk of domestic economic and financial distress.⁷ Nevertheless, the sovereign ceiling rule still plays a crucial role in determining corporate ratings, which is why very few firms have a credit rating above their sovereign rating. Consistent with this

⁷See, for example, rating methodology documentation from S&P Global *entitled*, “[Ratings Above the Sovereign – Corporate and Government Ratings: Methodology and Assumptions](#)” (published November 19, 2013). Also see “[Country Ceilings Criteria](#)” by Fitch Ratings (published on July 1, 2020).

view, [Borensztein et al. \(2013\)](#) show that sovereign ratings indeed represent a strong upper bound for rating corporate issuers.

Importantly, firms with a credit rating *at* or *above* the sovereign rating become technically bounded by the implicit ceiling rule (bound firms) and therefore are more likely to be downgraded when there is a sovereign rating downgrade, than are their counterparts that were originally rated *below* the sovereign rating (non-bound firms). This is also confirmed by [Almeida et al. \(2017\)](#) who argue that credit rating agencies continues to apply the sovereign ceiling rule in the event of a sovereign downgrade, which is a predetermined rule exogenously applied to all bound firms, regardless of any changes in their underlying fundamentals.

2.2 Validation of the Sovereign Ceiling Rule

We now proceed to examine whether the sovereign ceiling rule is indeed applied to firms in our sample. In doing so, we follow prior studies and examine the relationship between sovereign and corporate credit ratings (see [Adelino and Ferreira, 2016](#); [Almeida et al., 2017](#)). First, we confirm that very few firms have a credit rating close to *or* above their sovereign rating. Figure 1 shows the distribution of corporate ratings *relative* to their sovereign ratings (*i.e.*, the distance between corporate credit rating and the corresponding sovereign credit rating) in the year *prior* to a sovereign downgrade. The x-axis denotes the relative corporate rating. The y-axis denotes the proportion of our sample firm-years for each particular relative rating notch. As shown, majority of firms in our sample have rating lower than the sovereign (92.7%), and few firms receive the same rating (4.6%) or a rating higher (2.7%) than the sovereign rating, suggesting that the sovereign *ceiling rule* is generally binding in our sample firms.

Next, we check whether a sovereign downgrade increases the chances of rating downgrade for bound firms when compared with those of non-bound firms due to the ceiling rule. Again, we define groups based on their distance between the corporate rating and its corresponding sovereign rating before the sovereign downgrade. Figure 2 plots the proportion of firms that are downgraded one year before (-1), in the year of (0), and one year after (+1) a sovereign rating downgrade. “Grey” bars represent firms rated below their country of domicile (non-bound firms), while “navy” bars represent firms rated at or above their country of domicile (bound firms) in the year prior to a sovereign

downgrade. As can be seen in the figure, compared with non-bound firms, bound firms are more likely to be downgraded in the year of sovereign downgrade. In sharp contrast, the proportion of corporate credit rating downgrades one year before and one year after a sovereign rating downgrade is very similar between bound and non-bound firms.⁸ Put together, these findings validate the assumption that the ceiling rule sharply increases the chances of a credit rating downgrade of bound firms relative non-bound firms in response to a sovereign downgrade.

2.3 Main Hypotheses

While considerable research effort has been devoted to in understanding the effects of sovereign downgrades on firm financing policies and real economic activity (see e.g., [Almeida et al., 2017](#); [Basu et al., 2022](#); [Lin et al., 2021](#); [Wang and Xie, 2022](#)), limited attention has been paid to corporate ESG issues. In this section, we develop competing hypotheses about the effect of credit ratings downgrades, triggered by the sovereign ceiling rule, on ESG engagement and performance.

The shareholder theory (e.g. [Friedman and Friedman, 1962](#); [Friedman, 1970](#)) and slack resource theory ([Waddock and Graves, 1997](#)) predict that a corporate credit rating downgrade is likely to be associated with less engagement in ESG issues and lower ESG performance. In the context of shareholder theory, shareholders are the ultimate owners of a firm’s assets and hence their interests should take precedence over the interests of other stakeholders ([Friedman, 1970](#)).⁹ ESG activities are costly because they require investments and use of internal resources, and so reduce profits and ultimately shareholder value. For example, developing technologies for policies on carbon emission

⁸In Figure IA.1 of the Internet Appendix, we also plot the proportion firms that had a corporate rating downgrade, the month before (left panel, IA.1(a)), the month of (middle panel, IA.1(b)), and the month after (right panel, IA.1(c)) a sovereign downgrade. Figure IA.1(a) shows that one month before the sovereign downgrade, less than 5% of firms downgraded in each group. By contrast, Figure IA.2(b) shows that in the month of sovereign downgrade, the possibility of a corporate downgrade is significantly different among groups. More specifically, 40% of firms rated at and 20% of firms rated above the bound are downgraded whereas less than 5% of firms rated below the bound are downgraded. As shown in Figure IA.1(c), one month *after* the sovereign downgrade, the possibility of a corporate downgrade falls again below 15% but is again similar for bound and non-bound firms.

⁹Survey evidence in [Aupperle et al. \(1985\)](#) and [O’Neill et al. \(1989\)](#) indicates that CEOs consider ESG as a *discretionary* responsibility and last in the hierarchy in importance — first and foremost, CEOs have obligations toward their shareholders.

reduction or workplace safety programs needs immediate significant investments.¹⁰ Following a sovereign downgrade, some firms experience impaired on their financial and operational performance (Almeida et al., 2017; To et al., 2022), which makes them less inclined to divert resources to ESG and jeopardize shareholder value (Waddock and Graves, 1997; Campbell, 2007). Empirically, Cohn and Wardlaw (2016) have shown that financing frictions (such as negative cash flow shocks or lower cash balances) negatively impact ESG related investments. Such evidence also supports the view that “companies do good *because* they do well” — i.e., only well performing firms can afford to invest in ESG to improve social welfare *but* not necessarily at the expense of profits (Hong et al., 2012; Liang and Renneboog, 2021).

Unfavorable economic conditions also create pressure on managers to pursue short-term gains and avoid ESG initiatives, which are generally viewed as long-term strategic investments (Campbell, 2007; Kang, 2016; Porter and Kramer, 2006; Zadek, 2007). Because the benefits of ESG investments (if any) are not certain and take years to materialize, their immediate effect is to depress short-term profits. For example, if a mining company reduces costs by lowering environmental standards, it will increase its short-term profits.¹¹ In fact, “short-termism” is currently considered to be a first-order problem in many firms (Edmans, 2009).¹² In a recent survey by Graham et al. (2022), 80% of managers stated that it is indeed the corporate culture of short-termism that pressures them to

¹⁰See the article in the Financial Times entitled “Fortune 500 companies spend more than \$15bn on corporate responsibility” (published October 12, 2014). Although putting an accurate number on exactly how much in total firms spend on ESG initiatives is difficult, Xu and Kim (2021) show that U.S. manufacturers spent over \$26.57 billion on pollution abatement expenditures in 2005, which is approximately 1% of the manufacturing sector’s shipment value, or more than 20% of total capital expenditure. Citing evidence, Hong et al. (2012) also show that large U.S. corporations each year invest millions of dollars on energy conservation practices, employee and community development programs or other altruistic endeavors.

¹¹The short-term benefits may well be at the expense of longer-term costs. For instance, a firm renegeing on an implicit contract with its labor or suppliers so as to reduce costs, will thereby damage goodwill - making it more difficult to attract motivated workers in the future, or to induce suppliers to make relationship-specific investments. Likewise, a firm could economize on safety or pollution control; this increases short-run profits, but creates contingent liabilities down the road such as risk of future lawsuits, consumer boycotts and environmental clean-up costs (Bénabou and Tirole, 2010).

¹²See the report by the European Commission entitled “Study on directors’ duties and sustainable corporate governance” (published July 29, 2020).

overemphasize short-term goals and strategies.¹³ Moreover, managers also have an opportunity to decrease ESG activities because they can shift the blame for negative ESG outcomes to negative economic outlook. Figure 3 presents the conceptual framework for the association between sovereign downgrade and corporate ESG performance. On the basis of both shareholder and slack resource theories (but not signaling and insurance theories) bound firms are expected to be less focused on ESG and exhibit lower ESG performance following a rating downgrade. This lead to the main hypothesis:

Hypothesis 1a: *Following sovereign rating downgrades, firms bound by the ceiling rule will exhibit a decrease in ESG performance than non-bound firms.*

Conversely, based on signalling and insurance theories, we expect that a credit rating downgrade may be associated with a subsequent improvement in ESG engagement and performance. Firms are under increasing pressure to manage their reputation on ESG issues ([Asante-Appiah and Lambert, 2022](#)), especially during adverse economic conditions such as those associated with sovereign downgrades. A growing strand of recent literature provides evidence that firms strategically increase their ESG and CSR investments in response to both firm- and macro-level negative events. For example, [Flammer and Ioannou \(2020\)](#) focus on the 2007-2009 financial crisis and show that, despite the sharp increase in borrowing costs, firms maintained their investments in CSR. [Flammer and Kacperczyk \(2019\)](#) show that firms responded by increasing their CSR engagement to the threat of knowledge leakage due to the rejection of the "inevitable disclosure" doctrine by several U.S. states. [Akey et al. \(2021\)](#) examine whether firms increase their CSR engagement in a response to unexpected data breaches that damage their reputation. They find that firms increase their CSR investment and earn higher CSR scores—in pursuit of rebuilding their damaged reputational capital after experiencing a data breach. [Gao et al. \(2021\)](#) show that managers increase their CSR activities, in response to negative stock price shocks unrelated to firm fundamentals, to signal their financial strength to shareholders and other stakeholders.

¹³Similarly, [Graham et al. \(2005\)](#) survey evidence suggest that 78% of managers are willing to sacrifice long-term value in efforts to meet short-term expectations. Moreover, [Bebchuk and Tallarita \(2020\)](#) document that corporate managers do not have sufficient financial incentives and discretion to protect stakeholders. They show that while in most major firms, compensation incentives are entirely based on financial metrics that are linked to short-term targets (such as profit, cash flows or total shareholder return), only a handful of companies link them to quantified stakeholder metrics (such as employee safety or customer satisfaction).

The signalling theory of [Glazer and Konrad \(1996\)](#) suggests that certain types of CSR activities that are observable to outside stakeholders can signal wealth or income. Consistent with the signaling theory, [Lys et al. \(2015\)](#) document that firms invest in CSR activities in the current period to “signal” managements’ expectation of strong future financial performance.¹⁴ They provide evidence that the positive association between CSR expenditures and firm performance is more likely due to the signaling value of CSR than to positive returns on those investments. By sustaining good ESG performance or even improving it after a rating downgrade, firms can build moral capital or goodwill ([Godfrey, 2005](#)) and signal their commitment to not exploiting their stakeholders. Additionally, the negative effects of a sovereign downgrade on firms are not immediately manifested.¹⁵ To the extent that firm rating downgrades damage firm reputation, maintaining a commitment to ESG has a reputation insurance effect ([Shiu and Yang, 2017](#); [Lins et al., 2017](#)) that tempers potential sanctions and prevents the degradation of intangible resources ([Godfrey et al., 2009](#)). As a result, bound firms that are severely impacted by a forced rating downgrade may invest more in ESG, for signaling and insurance purposes, which leads to an alternative main hypothesis:

Hypothesis 1b: *Following sovereign rating downgrades, firms bound by the ceiling rule are likely to exhibit an increase in ESG performance than non-bound firms.*

3 Sample Collection, Research Design and Descriptive Statistics

3.1 Data Sources

We combine several databases to construct our international sample. We use Refinitiv Eikon, *formerly* Thomson Reuters Asset4, as our main source to obtain ESG scores. ESG scores from Refinitiv are designed to measure transparently and objectively a company’s ESG performance,

¹⁴Specifically, ESG can serve as a strategic signal to recruit and retain potential employees ([Greening and Turban, 2000](#)), improve worker productivity ([Baron, 2008](#)), attract customers who are willing to pay a premium for “socially desirable” products (e.g., [Baron, 2001](#), [Luo and Bhattacharya, 2006](#)), and improve operational efficiency along the supply chain ([Dai et al., 2021](#), [Schiller, 2018](#)).

¹⁵For instance, following a credit rating downgrade, employees may be less willing to work for the firm now that it has a lower credit rating and exit. Likewise, rating changes can weaken a firm’s ability to enter and maintain long-term supply contracts, especially if those contracts are tied to credit rating. During certain corporate events such as M&A negotiations, downgrades can lead to a withdrawal of a bid before a merger is completed, especially when the deal is conditional on the firm maintaining a certain credit rating ([Kisgen, 2007](#)).

commitment and effectiveness across 10 main topics¹⁶ based on publicly reported data (including annual and sustainability reports).¹⁷ The scores range from 0 (most negative) to 100 (most positive).¹⁸ We use Bloomberg to obtain information on corporate (foreign currency long-term issuer) rating¹⁹ and country credit ratings.²⁰ Of the three major rating agencies—Standard & Poor, Moody’s and FitchRatings—we choose to use S&P’s ratings because it is often more active in making rating revisions and tends to lead other rating agencies in re-ratings (Almeida et al., 2017). S&P provides corporate credit ratings using letters (AAA to SD/D). We translate these letters to a numerical scale that ranges from 1 to 22 (in one-unit increments) such that a higher number indicates a better credit rating (see Appendix B for further details).

We then use FactSet (US and International) to obtain financial and accounting information, and multiple sources to obtain country-level information. Finally, we use RepRisk,²¹ a Zurich-based provider of ESG data, to obtain data on firms’ risk exposure to ESG incidents. RepRisk collects news on 28 mutually exclusive types of ESG incident and links them to firms. These incidents were selected and defined in accordance with the key international standards related to ESG issues.²² The data is available from January 2007 to December 2020 and covers publicly listed and private firms around the world.²³ We use the Reputational Risk Index (data item: “current RRI”) provided by RepRisk, which quantifies a firm’s exposure to ESG risk incidents. The RRI scores range from 0 (lowest) to 100 (highest), such that a higher value indicates a higher exposure to ESG risk incidents.

¹⁶These 10 topics are grouped into three ESG pillars: **E**nvironmental (resources use, carbon emissions, environmental product innovation), **S**ocial (workforce, human rights, community and product responsibility), and **G**overnance (management, shareholders and corporate social responsibility (CSR) strategy).

¹⁷Refinitiv ESG score is one of the conventional ESG ratings and is commonly used in prior studies to measure firms’ engagement and performance in ESG-related activities (see Ioannou and Serafeim, 2012; Ferrell et al., 2016; Liang and Renneboog, 2017b; Dyck et al., 2019; Serafeim and Yoon, 2021).

¹⁸According to Refinitiv ESG Methodology, ESG scores below 25 indicate poor ESG performance, scores between 25 and 50 are considered as satisfactory, while scores between 50 and 75 and above 75 are considered to show good and excellent ESG performance, respectively.

¹⁹We use an issuer’s “foreign currency long-term ratings” because these are most likely to be bounded by its sovereign rating (Adelino and Ferreira, 2016; Almeida et al., 2017)

²⁰We also use Bloomberg to obtain country of domicile information for all firms in our sample.

²¹See <https://www.reprisk.com/>

²²ESG international standards that were considered include the World Bank Group Environmental Health and Safety Guidelines, the IFC Performance Standards, the Equator Principles, the OECD Guidelines for Multinational Enterprises, the ILO Conventions, and the 10 Principles of the UN Global Compact.

²³RepRisk uses a combination of artificial intelligence, machine learning algorithms and human intelligence to screen the media, over 180,000 public sources and stakeholders in 20 languages, to identify news concerning ESG incidents.

We match firms in Bloomberg to FactSet, Refinitiv Eikon and RepRisk using the following identifiers Committee on Uniform Securities Identification Procedures (CUSIP), International Securities Identification Number (ISIN) and Stock Exchange Daily Official List (SEDOL), as well as firm name.²⁴ For firms that cannot be precisely matched using these identifiers, we manually match them by company names. Panel A of Table 1 describes the sample selection process. We exclude firms without credit ratings (non-rated firms). We also exclude firm-years with missing values for the variables used in our benchmark analysis. The final sample with complete information covers the period 2002-2019 and consists of 2196 firms from 45 countries with 17,895 firm-year observations. Detailed definitions of all variables are provided in Appendix A.

3.2 Empirical Model

We use a difference-in-differences (DiD) approach to exploit the exogenous negative shock to corporate credit ratings *caused* by sovereign downgrades, similar to [Adelino and Ferreira \(2016\)](#) and [Almeida et al. \(2017\)](#). Given that sovereign downgrades have a differential impact on credit ratings of bound (and non-bound) firms due to the ceiling policy, this method allows us to evaluate differences in ESG policies between firms in the *treatment* group (firms bounded by the sovereign ceiling rule) and those in the *control* group (firms not bounded by the sovereign ceiling rule). This way, we examine and provide evidence on the causal effect of sovereign rating downgrades on firms' ESG policies. Our main DiD model takes the following form:

$$ESG_{i,t+1} = \alpha + \beta_1 Bound_{i,t-1} + \beta_2 Sovereign\ Downgrade_{i,t} + \beta_3 (Bound_{i,t-1} \times Sovereign\ Downgrade_{i,t}) + \gamma X_{i,t} + f_t + \nu_{i(j\ and\ k)} + \varepsilon_{i,t} \quad (1)$$

where, *ESG* refers to the ESG score of firm *i* in year *t+1*.²⁵ *Bound* is a dummy variable that takes the value of 1 if a company has a rating equal to *or* above the sovereign rating in year *t-1*, and 0 otherwise. *Sovereign Downgrade* is a dummy variable that takes the value of 1 if there is a

²⁴Factset provides the three identifiers for all firms. Bloomberg provides CUSIP for US/Canadian firms and ISIN and SEDOL for International firms. Thus, we match US/Canadian firms using CUSIP and firm name and international firms using ISIN, SEDOL and firm name.

²⁵We use the one-year forward ESG variable because changes in ESG policies may take year(s) to be reflected in firms' ESG scores ([Flammer and Bansal, 2017](#); [Akey et al., 2021](#))

sovereign rating downgrade in firm i 's country of domicile in year t , and 0 otherwise. The main variable of interest is the interaction term, $Bound_{i,t-1} \times Sovereign\ Downgrade_{i,t}$. The coefficient (β_3) on this interaction term captures the differential change in firms' ESG performance between bound (treatment) and non-bound (control) firms in response to the sovereign rating downgrade. $X_{i,t}$ is the vector of firm controls, f_t denotes year fixed effects and $\nu_{i(j\ and\ k)}$ denotes firm (industry and country) fixed effects. We include various firm-level characteristics following prior international studies on corporate ESG policies (Dyck et al., 2019; Liang and Renneboog, 2017b). These are: *Firm Size*, defined as the natural log of book value of total assets; *Market-to-Book*, defined as the Ratio of the book value of assets *minus* the book value of equity *plus* the market value of equity to the book value of assets; *Tangibility*, defined as the ratio of net property, plant, and equipment to total assets; *Profitability*, defined as the ratio of income before taxes to total assets and *Leverage*, defined as the ratio of total debt to total assets.

In Appendix C, we provide the full list of sovereign downgrade years *by* country as well as the sovereign ratings *before* and *after* the downgrade, and the number of bound (treatment) firms. The number of bound firms in the year of sovereign downgrade equals 162 across 18 countries. In Appendix D, we present the full list of treated firms as well as their country of domicile, sovereign downgrade year, and their rating *before* and *after* the sovereign downgrade.

3.3 Summary Statistics

Table 1 (Panel B) provides key descriptive statistics for the main variables used in our analysis. The mean (median) environmental, social and governance (ESG) performance for our sample is 48.68 (48.74), where a perfect score is 100. The mean E score is 42.03, S score is 48.54 and G score is 54.83. The average firm in our sample has a size of 9.07 (natural log of book assets), an market-to-book ratio of about 1.66 and a leverage ratio of 34%. The statistics presented in Table 2 also show that our sample firms have an average return on assets of 7.4% and hold 37.6% of all assets in property, plant and equipment (tangible assets).

The country-level data show that the mean GDP *per* capita of our sample countries is US\$ 10.62 (expressed in log terms) and, a mean globalization index score of 80.05 (out of 100); a mean anti-director rights index score of 4.24 (out of 6); a mean control of corruption score of 1.35; political

executive constraints score of 6.804 (out of 7); and a mean economic freedom index score of 74.34 (out of 100). As reported, 14.2% of our sample firms are from countries with french legal origin, 15.8% with German legal origin, and only 2.8% from Scandinavian legal origin.

Panel C of Table 1 reports mean ESG scores for the 45 countries in our sample. The statistics show a significant variation in average ESG scores across all countries. The countries where firms have the best ESG performance are mostly European (e.g., Denmark and Finland with mean score of 66.89 and 65.02, respectively). Countries where firms' ESG scores are lowest are in Asia (e.g., Philippines and China with mean scores of 32.33 and 41.08, respectively).

4 Main Results

4.1 Sovereign Downgrades and Corporate ESG Policies

Table 2 presents the DiD regression results on the effect of sovereign downgrades on ESG performance between bound firms and non-bound firms. Model 1 reports the result from our benchmark specification (Equation 1) using a simple ordinary least square regression with standard errors clustered at the country level. The dependent variable is the overall ESG score at the firm level, which attempts to capture a firm's performance and engagement in socially responsible activities across environmental, social and governance issues. The key explanatory variable of interest is the interaction (DiD) term, *Bound x Sovereign Downgrade*, which captures the differential change in firms' ESG performance between bound (treatment) and non-bound (control) firms in response to the sovereign rating downgrade.

The results in Model 1 of Table 2, show that the coefficient of *Bound x Sovereign Downgrade* is negative and statistically significant. This result is consistent with Hypothesis 1a, which suggest that firms exposed to the ceiling rule (i.e. bound firms) are more likely than non-bound firms to exhibit a *decrease* in ESG performance following a sovereign downgrade. The economic magnitude of this finding is also significant. For instance, the coefficient in Model 1 is -3.24, which implies that bound firms' ESG performance (or stock) decreases by 3.24 points relative to non- bound firms in the year after a sovereign downgrade. Speaking in relative terms, given that the average ESG score for our total sample of firms is 48.68, bound firms decrease their ESG engagement by about 6.65

percent a year (i.e., from 48.68 to 45.44) in response to sovereign downgrades.

The coefficient estimates on the control variables are consistent with those presented in prior studies (see [Dyck et al., 2019](#); [Liang and Renneboog, 2017b](#)). Specifically, the coefficients on firm size, market-to-book and profitability are positive and statistically significant, which suggests that firms that are large, more profitable, and have better growth and investment opportunities exhibit higher ESG performance. To the contrary, the coefficients on tangibility and leverage are negative and statistically significant indicating that firms with high levels of debt and fixed assets (as a proportion of total assets) exhibit lower ESG performance.

In Model 2 of Table 2, we re-estimate our benchmark specification (Model 1) with firm fixed effects to control for any firm-specific unobserved time-invariant characteristics that may drive our main findings. We find that the coefficient on the interaction term continues to remain robust even after controlling for firm-level unobserved heterogeneity. In Model 3, we run a similar analysis after replacing year fixed effects with country-by-year fixed effects to control for time-varying *unobservable* country factors. Once again, we obtain similar results.

Finally, in Model 4 we replace country-by-year fixed effects with a set of country-level controls. Following [Liang and Renneboog \(2017b\)](#), we include the country’s legal origin (French, German, Scandinavian), globalization index, anti-director rights, control of corruption, political executive constraints, economic freedom and GDP per capita. We find that the coefficient estimate on *Bound x Sovereign Downgrade* remains negative and statistically significant at the 5% level. This further eliminates our concerns that the observed effect is a result of any other contemporaneous changes in macroeconomic conditions. Collectively, the results presented in this section support our main hypothesis (H1a): compared with non-bound firms, bound firms decrease their engagement in ESG activities following a sovereign rating downgrade, and as a result damages the firm’s ESG performance.²⁶

²⁶In Section IA.2 of the Internet Appendix, we re-run the regression results from Table 2 by using the most recent version of ESG scores from Refinitiv (downloaded in October 2022). We do this because [Berg et al. \(2020\)](#) observe significant differences in Refinitiv ESG scores when they downloaded the data at *two* different dates. Specifically, they noted that Refinitiv rewrite their ESG scores on ongoing basis and therefore recommended for studies (such as the current one) use Refinitiv ESG score to do a verification check. We can confirm that our main findings are not affected but the use of the most recent Refinitiv ESG scores.

4.2 Dynamics of ESG Performance *around* Sovereign Downgrades

We interpret our main results as showing that bound firms decrease their engagement in ESG activities following a sovereign rating downgrade. This interpretation relies on a key assumption that the level of ESG activities between the bound and non-bound firms would have remained similar in the absence of a sovereign downgrade (commonly known as the parallel trend assumption). To check if this assumption holds, we follow the standard practice in the literature by looking at whether the trends in ESG performance are similar between bound and non-bound firms *before* a sovereign downgrade.

In Table 3, we re-estimate our main DiD specification (Equation 1) after replacing *Bound* with a set of dummies indicating the number of years relative to the year when a corporate rating is bounded by the sovereign ceiling ($Bound^t$, where $t = -2, -1, 0, +1$ and $+2$), and replace the *Sovereign Downgrade* with a set of dummies indicating the number of years relative to the fiscal year in which a firm’s domiciled country experiences a sovereign downgrade ($Sovereign\ Downgrade^t$, where $t = -2, -1, 0, +1$ and $+2$). The main variables of interest are a set of interactions between *Bound* and *Sovereign Downgrade* ($Bound \times Sovereign\ Downgrade^t$, where $t = -2, -1, 0, +1$ and $+2$). These interaction terms capture the dynamic effects of the ceiling rule on bound firms’ ESG performance around sovereign downgrades. Importantly, they allow us to verify that the change in ESG performance among bound firms (*vis-a-vis* non-bound firms) happens in the year or after, *but* not before, the sovereign downgrade event.

The results, as presented in Table 3, show that the coefficients on $Bound \times Sovereign\ Downgrade$ prior to the sovereign downgrade year ($t = 0$) are both economically and statistically insignificant across all specifications, which confirms that a parallel trend exist between bound and non-bound firms before the sovereign downgrade. As expected, the coefficients become negative and statistically significant in the year following the sovereign downgrade. The economic magnitudes are also substantial. Precisely, the estimates on $Bound \times Sovereign\ Downgrade$ lie between -2.02 and -2.84, which implies that following the sovereign downgrade, bound firms exhibit a decrease in ESG performance by about 4.01 – 5.83 percent a year (relative to the sample mean score of ESG).

Figure 4 displays these pattern graphically by plotting the coefficient estimates of the interaction term, $Bound \times Sovereign\ Downgrade$, and the confidence intervals (solid vertical lines) from Model

1 of Table 3. As can be seen, ESG performance exhibits no significant difference between the treatment and control firms before the sovereign downgrade. By contrast, ESG performance *falls* significantly for bound firms after the sovereign downgrade. Overall, the results indicate that the parallel trend assumption is satisfied, as ESG performance before a sovereign downgrade is statistically identical for bound and non-bound firms.

5 What are the Mechanisms Linking Credit Downgrades to ESG Policies?

Our findings thus far suggest that bound firms decrease their ESG activities in response to a sovereign downgrade event. These results are consistent with the shareholder theory (Friedman and Friedman, 1962; Friedman, 1970) and slack resource theory (Waddock and Graves, 1997) that suggests that when firms' financial and operational performance is affected by an adverse event, they are less inclined to divert resources towards ESG activities (Campbell, 2007). In this section, we provide additional evidence of the *mechanisms* linking credit rating downgrades to ESG policies and performance. We do so by conducting sub-sample analyses that focus on the conditions under which the incentives for bound firms' managers to reduce ESG activities are likely to be more pronounced. Specifically, we look at the following conditions: (1) when firms focus excessively on pursuing short-term goals, (2) when firms operate in countries with weak institutions and (3) when firms operate in a very competitive environment.

5.1 Managerial Short-termism

The first key mechanism that may play an important role in shaping ESG activities of bound firms, in response to a sovereign downgrade, is managerial short-termism. Managers are often subject to short-termism because of their incentives to maximise short-term performance (Stein, 1989) and thus are less likely to engage in ESG activities (Bénabou and Tirole, 2010; Li and Wu, 2020). Moreover, several studies document that unfavorable economic conditions may create pressure on managers to pursue short-term gains and avoid ESG initiatives (which are generally viewed as long-term-oriented strategic investments) (Kang, 2016; Porter and Kramer, 2006; Zadek,

2007). Accordingly, we expect that the negative effect of being bound firms' on ESG performance following a sovereign downgrade is likely to be more pronounced amongst those firms that are exposed to short-termism.

In Panel A of Table 4, we re-estimate our baseline specification (Model 1) from Table 2 on subsamples of firms with low and high levels of discretionary accruals. We use absolute discretionary accruals as a proxy for managerial short-termism to capture the extent to which a firm engages in managing short-term earnings, similar to [Chen et al. \(2015\)](#) and [Kim et al. \(2017\)](#). We split firms into low and high levels of discretionary accruals based on the country-yearly median values of absolute discretionary accruals. We compute discretionary accruals using the modified Jones model as suggested in [Dechow et al. \(1995\)](#). We find that the coefficient on *Bound x Sovereign Downgrade* is negative and statistically significant at the 1% level for the case of firms with high discretionary accruals. Conversely, the coefficient on the interaction term is insignificant for firms with low discretionary accruals. This suggests that bound firms are more likely to avoid ESG activities when there is excessive focus on managing short-term earnings (short-termism).

5.2 Country's Institutional Environment

The second mechanism through which bound firms may affect ESG performance is by taking advantage of the weaknesses in a country's institutional environment, such as not having well-enforced regulations or strong legal and investor protection in place. The institutional theory of [Campbell \(2007\)](#) suggests that managers are more likely to behave in socially irresponsible ways in a weaker institutional environment because they are able to avoid negative sanctions or punishments (like losing their jobs) that typically come with corporate misbehavior.²⁷ Empirically, [Ioannou and Serafeim \(2012\)](#) provide evidence that institutional factors significantly influence firms' ESG behavior. We therefore expect that the negative effect of bound firms' on ESG performance

²⁷For instance, [El Ghouli et al. \(2016\)](#) find that family firms exhibit lower ESG performance in countries with weaker institutional environments. Their study suggests that in a weaker institutional environment, firms (such as family-controlled enterprises) have higher incentives to divert firm resources, including investment in ESG activities, from minority stakeholders because firms are less likely to be punished for expropriation. Similarly, [Pinkowitz et al. \(2006\)](#) find that managers in countries with poor investor protection are more likely to extract private benefits. A study by [Johnson et al. \(2000\)](#) shows that countries with weaker corporate governance standards were hit harder during the Asian financial crisis as managers in these countries did not have an incentive to exert maximum effort to bounce back, since they knew they were unlikely to be replaced.

following a sovereign downgrade is likely to be more pronounced for those domiciled in countries with a weaker institutional environment.

We follow Li et al. (2019) and construct a composite measure that captures the overall strength of the institutional environment, namely *Overall Institutional Strength (OIS)*. OIS is the first component obtained from principal component analysis based on seven proxies of legal environment and investor protection including common law, liability standards, criminal sanctions, public enforcement, anti-director rights, one-share-one vote, and creditor rights. *Common Law*, is a dummy variable that identifies whether the country’s legal origin is English common law *or not* (Porta et al., 1998); *Liability Standard*, is an index of liability standards imposed on issuers and directors, distributors, and accountants within each country (La Porta et al., 2006); *Criminal Sanctions*, is an index of criminal sanctions imposed on issuers and directors, distributors, and accountants within each country (La Porta et al., 2006); *Public Enforcement*, is a general public enforcement index (La Porta et al., 2006); *Anti-Director Rights*, is an index that captures the rights of shareholders (La Porta et al., 2006); *one-share-one-vote*, is a dummy variable that identifies whether the company law or commercial code of the country requires that ordinary shares carry one vote per share *or not* (Porta et al., 1998); *Creditor Rights*, an index that captures the level of creditor protection (Porta et al., 1998). A higher OIS value indicates a stronger institutional environment.

In Panel B of Table 4, we re-estimate our baseline specification (Model 1) from Table 2 on sub-samples of firms headquartered in countries with a weak or a strong institutional environment. We assign firms to the weak (strong) institutional group if the OIS value of their country lies below (above) the median. The results, presented in Panel B, suggest that bound firms in countries with a weaker institutional setting are more likely to exhibit a decrease in ESG performance following a sovereign downgrade than those in countries with a stronger institutional environment.

5.3 Country’s Competition Intensity

The third mechanism that may encourage bound firms to invest less in ESG activities is the level of competition they face. The rationale behind this mechanism is that under conditions where competition is so intense that profit margins are narrow enough to put shareholder value and firm survival at risk, firms may become compelled to focus on increasing short-term profits and may do

so by cutting ESG activities that pay-off only in the long run (Campbell, 2007; Ding et al., 2022). In a competitive setting, firms may compromise on product safety and quality, sweat labor and cheat customers. From this perspective, we expect the decrease in bound firms' ESG performance following sovereign downgrades to be more pronounced in countries where firms face more intense competition as compared to those where competition is less intense.

To measure the level of competition in different countries, we follow Ding et al. (2022) and use the competition law index (CLI) constructed by Bradford and Chilton (2018). CLI is based on the relevant laws of each country in each year. The overall score is the average of the scores for two sub-indexes, Authority and Substance. The Authority sub-index captures the breadth and depth of authority regarding the enforcement of competition laws. The Substance sub-index captures provisions concerning (1) agreements among firms that limit competition (Anticompetitive Agreements), (2) mergers and acquisitions (Merger Control), and (3) strategies used by firms to exploit their dominant positions (Abuse of Dominance).

In Panel C of Table 4, we repeat the analysis after splitting the sample across countries with strict competition laws (equal to or above the median CLI values) and weak competition laws (below median values of CLI). The results in Panel C, as expected, show that the bound firms in countries with strict competition laws are more likely than bound firms in countries with weak competition laws to exhibit a decrease in ESG performance following a sovereign downgrade event. These findings are also consistent with our main hypothesis suggesting that sovereign downgrades compel bound firms to invest less in ESG and instead focus on short-term survival and thus preserve shareholder value.

6 Further Analysis and Robustness Checks

6.1 Regression Discontinuity Design

One potential concern with our main analysis so far is that the assignment of firms to the treatment group (bound) and the control group (non-bound) is determined by an observed rule (i.e., sovereign ceiling cutoff) and therefore *not* random (Roberts and Whited, 2013). This implies that a comparison of ESG policies between firms that obtain credit ratings equal to or above

their sovereign and those that do not, by construction, is a comparison between two groups of firms with *very* different levels of credit quality. Put differently, our results may be confounded by the difference in credit rating levels of these two groups of firms. In this section, we adopt a regression discontinuity design (RDD) that allows us to compare the ESG performance of bound and non-bound firms that have similar credit ratings.

To perform our RDD, we re-estimate our benchmark specification (Model 1 of Table 2) on a sub-sample of firms that are rated “close” to their sovereign rating. Specifically, we calculate the distance between each firm’s rating and its sovereign rating (ceiling rule cut-off). We then restrict the sample to a distance window [bandwidth] of 1-rating notch $[-1,0]$. A negative (positive) value indicates that the firm’s credit rating is just below (just above) the sovereign rating in the year before a sovereign downgrade, while 0 means the firm’s credit rating is *equal* to the sovereign rating.

The narrow bandwidth of $[-1,0]$ allows us to make bound and non-bound firms more comparable in terms of their credit quality.²⁸ However, due to the sovereign ceiling rule, the latter will be affected by a sovereign downgrade but the former not. In that sense, firms rated just below the cut-off point (non-bound firms) serve as an appropriate counterfactual for firms rated at the cut-off point (bound firms). This further sharpens the identification of the effect of the sovereign ceiling rule on bound firms’ ESG performance.

Model 1 of Table 5 presents the results. Consistent with our main findings in Table 2, the coefficient on *Bound x Sovereign Downgrade* is both negative and statistically significant at the conventional level. This suggest that bound firms are more likely than non-bound firms to have worse ESG performance following a sovereign downgrade even when the two sets of firms have near-identical credit ratings. Economically, the ESG performance of firms rated at or just above the sovereign (bound firms) falls by more than 3.5 points (equivalent to 7 percent of the sample mean ESG score) as compared to those rated just below (non-bound firms).

For robustness purposes, we repeat our RDD exercise in Models 2-3 of Table 5 with different bandwidth denoted by the distances $[-1, 1]$ and $[-2, +1]$. The results remain consistent, which gives

²⁸Our rationale is as follows. Rating agencies rate firms based on their characteristics and incorporate a rating scale with 22 points. Prior studies suggest that, as a result of the narrowness of the ratings scale, firms with neighboring credit ratings have similar characteristics. For example, [Chernenko and Sunderam \(2012\)](#) show that firms rated just above and just below the investment-grade cutoff have similar characteristics including average investment rates.

us additional confidence that we capture a genuine effect rather than one driven by the differences in credit ratings of bounded and non-bounded firms.

6.2 Evidence From ESG Risk Incidents

The results thus far imply that, following sovereign downgrades, managers of bound firms do not invest enough in ESG because they are short-term oriented. While reducing investments in ESG activities may increase short-term profits, it is also expected to increase the risk of ESG incidents as a direct consequence of neglecting ESG matters.²⁹ Consistent with this argument, [Cohn and Wardlaw \(2016\)](#) find that when firms operating cash flows are adversely affected, they reduce investments in workplace safety, which in turn results in higher injury rates among employees.

In this section, we examine whether sovereign downgrades lead to an increase in negative ESG incidents in bound firms, when compared with non-bound firms. To test this, we rely on a novel and innovative measure, the Reputational Risk Index (RRI), developed by RepRisk, which identifies firms' poor ESG practices based on the news related to their negative ESG incidents. The variable RRI captures the level of risk exposure to ESG incidents that firm i is exposed to in year t . RRI is an integer variable that ranges from 0 to 100, such that a higher value indicates a higher risk exposure to ESG incidents.³⁰

Table 6 reports the results. The dependent variable is *Extreme ESG Risk Incident*, which is a dummy variable that takes the value of 1 if a firm has a high incident rate (i.e., the value of RRI is between 60 and 100) in year $t+1$ (Model 1 of Table 2) and if a firm has a high incident

²⁹For example, a mining company may reduce costs by lowering environmental standards, which would increase short-term profits, but would also create the risk of an environmental incident. The case of British Petroleum (BP) provides anecdotal evidence of this. BP's long history of poor ESG practices (such as neglecting basic environmental and safety rules, failure to invest in critical infrastructure) led to incidents such as the Texas City Refinery explosion and the Deepwater Horizon oil spill.

³⁰According to [RepRisk documentation](#), an index value of 0-25 indicates a low incident rate, 25-49 a medium incident rate, 50-59 a high incident rate, 60-74 a very high incident rate and 75-100 an extremely high incident rate. The RRI of a firm increases whenever a firm experiences a new ESG incident. The magnitude of that increase depends on the severity, reach, and novelty of the incident. A large increase in the RRI indicates that a firm had more or more severe ESG incidents in that month. In general, whenever a firm has no new incidents for at least two weeks, then the index decays within a few months to an RRI of 25 and within two years to an RRI of 0.

rate either in year $t+1$ or $t+2$ (Model 2) (see Colak et al., 2020; Glossner, 2021).³¹ We use the same control variables as in our benchmark specification (Model 1 of Table 2). The results show that bound firms are more likely to experience an ESG related risk incident following a sovereign downgrade. These results are consistent with our conjecture, and provide corroborating evidence, that managers of bound firms are more likely to engage in *poor* ESG practices, leading to more ESG risk incidents following the year of sovereign downgrade.

6.3 Evidence from Corporate Charitable Contributions

One common criticism that relates to our measure of ESG performance obtained from Refinitiv is that it typically depends on, to some degree, information self-reported by firms. This means that firms may provide misleading positive information about their corporate citizenship to manipulate their ESG rating (see Christensen et al., 2019). This type of corporate behavior is often labelled as “greenwashing” i.e., firms pretending to be more sustainable than they actually are.³² If such is the case, then it makes it difficult to reliably assess a firm’s ESG practices based on ESG rating metrics. One ideal alternative to measure ESG performance is to look at the firm’s actual ESG expenditures. However, a major limitation is that such data is extremely hard to obtain because these types of expenses are not directly observable, which is why most studies (including ours) use ESG performance as a reliable proxy for such expenditures.

In this section, we introduce a direct (though partial) measure of ESG-related expenditure, namely “corporate charitable contributions”, (the actual amount donated). The amount includes total charitable contributions by the company as well as by its foundations or trusts such as product donation, charity, philanthropy, sponsorship, and grants. We use this measure to examine in a more direct way whether bound firms decrease their ESG expenditures following sovereign downgrades.

To examine the effect, we repeat in Table 7 our baseline regression (Model 1 of Table 2) after replacing ESG scores with corporate charitable contributions *per* one million in sales revenue (Model

³¹We measure RRI for the firm i after converting monthly “current RRI” data to annual data. Specifically, we choose the RRI of the month in which the RRI in that year is at its highest level. If the RRI is equally high in two or more months, we choose the month for which the RRI first peaks. This procedure is suggested by RepRisk and is used in prior studies (Colak et al., 2020; Glossner, 2021) to analyze the risk exposure of a company over a time-frame of 12 months.

³²See a related article by Reuters entitled, [EU watchdog says ESG rating firms need rules to stop ‘greenwashing’](#) (Published on February 12, 2020).

1) and with corporate charitable contributions in US dollars (Model 2) as our dependent variable. The results show that bound firms indeed decrease their direct charitable donations in the year after sovereign downgrades. These findings are statistically significant at the 5% level. The magnitude of the cutting down on charitable donations by bound firms is also economically meaningful.

6.4 Evidence From Negative Credit Watch

We have thus far documented that a sovereign downgrade is an exogenous shock to bound firms and therefore affects their ESG practices and policies (as compared to non-bound). However, there may be a concern that sovereign downgrades are not strictly exogenous. This is because, under certain circumstances when a downgrade is likely to happen, rating agencies (in our case S&P) may release valuable information to investors and the financial market about the credit risk of the sovereign and place them under a formal review before a downgrade happens (Binici and Hutchison, 2018). To mitigate this concern, in this section, we look at the changes in bound firms' ESG performance following only those sovereign downgrades that were *not* notified or placed under credit watch by S&P in the year before the downgrade— and thus are more likely to be exogenous. The results, as presented in Table 8, show that the effect of sovereign downgrades on bound firms' ESG policies remains consistent. Moreover, as expected, the results suggest that a more immediate shock induces an even stronger negative effect on bound firms' ESG performance.

6.5 Placebo Tests

Another possible question related to our identification setting could be whether other macro level shocks (apart from sovereign rating downgrades) can be driving the differential effect between bound and non bound firms following a sovereign downgrade. For instance, bound firms could be more sensitive to adverse economic events such as financial crisis or economic recessions and not specifically to sovereign downgrades. If this is the case, bound firms' ESG performance would decrease significantly relative to non bound firms during those periods.

To rule out this concern, we perform a placebo test. Specifically, we re-estimate our baseline specification (Model 1 of Table 2) after replacing our *Sovereign Downgrade* with two “placebo events” dummies, namely *Financial Crisis* and *Economic Recession*. Financial crisis is a dummy

variable that equals 1 for the years - 2007, 2008 and 2009, and 0 otherwise. *Economic Recession* is a dummy variable that equals 1 if a country has more than six months of recession (as defined by OECD) in year t and 0 otherwise. Our main variables of interest are the interactions between Bound and the two placebo events (*Bound x Financial Crisis* and *Bound x Economic Recession*), which captures the DiD effect of placebo events on bound firms ESG performance.³³

Table 9 presents the results. The coefficient on the interaction term in Models 1 and 2 is statistically insignificant, suggesting that bound firms' ESG performance is not sensitive to financial crisis *or* economic recessions when compared to non bound firms. It is important to highlight that these results do not imply that (other) adverse macroeconomic conditions do not have any effects on firm level ESG performance. They merely show that economic downturns do not exert a differential effect on ESG policies of bound firms and non-bound firms. These results mitigate any concerns about the sensitivity of bound firms to macroeconomic conditions and strengthen our interpretation regarding the causal effect of sovereign downgrades on bound firms' ESG performance.

6.6 Additional Robustness Checks

In this section, we perform additional robustness checks to mitigate the concern that our main findings may be driven by sample composition. First, we observe that our sample includes certain countries, such as Germany, Canada and Switzerland that have never experienced a sovereign downgrade. We, therefore, re-estimate our baseline specification (Model 1 of Table 2), after restricting our sample to those countries that experienced at least one sovereign downgrade (see Model 1 of Table 10).

Second, we take into account the heterogeneous effect of country level shocks across industries. For instance, certain industries, such as utilities, are arguably more likely to have direct links to the government by either receiving support or selling goods and services to it. In that sense, they are more exposed to sovereign rating downgrades since the latter reduces a government's ability to support a utility industry. If this is the case, then our main finding would merely capture the effect of reduced government spending on certain industries instead of the real effect of sovereign

³³To disentangle placebo events from sovereign downgrades, we exclude country-year observations that involved a sovereign downgrade during the financial crisis or a domestic recession.

downgrades through the sovereign ceiling rule. To eliminate this possibility, we exclude utilities (SIC codes 4900-4999) and re-examine the relationship between credit rating downgrades and ESG performance (see Model 2 of Table 10).

Next, we account for the fact that some countries affect dis-proportionally our bound and total firms samples. For instance, US firms account for around 50% of our sample but the US has experienced only one sovereign rating downgrade and has only four firm year observations in our bound firms sample. On the other hand, Brazil has only 365 observations but according to Appendix C accounts for 46 out of 162 bound firm year observations. To reduce concerns about over-representation of US firms in our total sample and of Brazil firms in our bound firms sample, in Models 3 and 4, we re-estimate the results after excluding US firms and Brazilian firms, respectively. Furthermore, we acknowledge that our sample includes countries with very few observations and is limited to rated companies. To that end, we exclude firms from countries with fewer than 100 observations over our sample period (Model 5 of Table 10) and add companies that do not have a credit rating over our sample period (Model 6 of Table 10).

Last but certainly not the least, we acknowledge that our *Sovereign Downgrade* variable does not capture those cases where a country has been downgraded and subsequently upgraded within the same calendar if the end of this year's sovereign rating is not lower than previous year's rating. To address this, we define *Sovereign Downgrade* as a dummy variable that equals 1 if a country faced one or more sovereign downgrades followed by one or more sovereign upgrades³⁴ and re-estimate our benchmark specification in Model 7.

The results, as presented in Table 10, show that the effect of sovereign downgrade on bound firms' ESG performance remains negative and statistically significant across all specifications, which further validates the robustness of our main findings.

³⁴Over our sample period, it is only Greece in 2012 that was downgraded and subsequently upgraded by the end of the calendar year. So, we set *Sovereign Downgrade* equal to 1 for Greece at 2012. That adds three more bound firm-year observations to our sample.

7 Conclusion

Sovereign rating downgrades exhibit an asymmetric effect on corporate ratings. Firms rated at or above their country of domicile (bound) face a significantly higher probability of being downgraded after a sovereign downgrade than those rated below (non-bound). We exploit this exogenous variation to examine the causal effect of sovereign downgrades on firm-level ESG performance using a panel of 17,895 firm year observations of 2,196 firms from 45 countries for the period 2002-2019. We find that sovereign downgrades exhibit a negative impact on bound firms' ESG performance. This primarily reflects bound firms' opportunistic decision to focus on short term profitability by sacrificing investments in ESG related activities. Consistent with the institutional theory, the effect is more prolonged in countries with weaker institutions.

We provide a set of further tests to fortify the causal interpretation. Firstly, we show the effect is not driven by differences between bound and non-bound firms' ESG performance before sovereign downgrades occur. Secondly, we verify that differences in the credit quality between bound and non bound firms do not falsify our findings. Finally, we confirm that it is the sovereign downgrade and not the deterioration in macroeconomic conditions that drives the reduction in ESG performance.

Our analysis captures a real decrease in ESG related investments, an increase in ESG related risk and not merely an artificial reduction in ESG performance. We observe a reduction in corporate charitable donations and an increase in ESG-related risk of bound firms in the year of and after, but not before, a sovereign downgrade. Our study provides new evidence on the effect of credit ratings on firms' ESG performance.

References

- Acharya, V.V., Eisert, T., Eufinger, C., Hirsch, C., 2018. Real effects of the sovereign debt crisis in Europe: Evidence from syndicated loans. *The Review of Financial Studies* 31, 2855–2896.
- Adelino, M., Ferreira, M.A., 2016. Bank ratings and lending supply: Evidence from sovereign downgrades. *The Review of Financial Studies* 29, 1709–1746.
- Akey, P., Lewellen, S., Liskovich, I., Schiller, C., 2021. Hacking corporate reputations. Rotman School of Management Working Paper .
- Almeida, H., Cunha, I., Ferreira, M.A., Restrepo, F., 2017. The real effects of credit ratings: The sovereign ceiling channel. *The Journal of Finance* 72, 249–290.
- Arteta, C., Hale, G., 2008. Sovereign debt crises and credit to the private sector. *Journal of International Economics* 74, 53–69.
- Asante-Appiah, B., Lambert, T.A., 2022. The role of the external auditor in managing environmental, social, and governance (ESG) reputation risk. *Review of Accounting Studies* , 1–53.
- Attig, N., El Ghouli, S., Guedhami, O., Suh, J., 2013. Corporate social responsibility and credit ratings. *Journal of Business Ethics* 117, 679–694.
- Augustin, P., Boustanifar, H., Breckenfelder, J., Schnitzler, J., 2018. Sovereign to corporate risk spillovers. *Journal of Money, Credit and Banking* 50, 857–891.
- Aupperle, K.E., Carroll, A.B., Hatfield, J.D., 1985. An empirical examination of the relationship between corporate social responsibility and profitability. *Academy of Management Journal* 28, 446–463.
- Baron, D.P., 2001. Private politics, corporate social responsibility, and integrated strategy. *Journal of Economics & Management Strategy* 10, 7–45.
- Baron, D.P., 2008. Managerial contracting and corporate social responsibility. *Journal of Public Economics* 92, 268–288.
- Basu, R., Naughton, J.P., Wang, C., 2022. The regulatory role of credit ratings and voluntary disclosure. *The Accounting Review* 97, 25–50.
- Bebchuk, L.A., Tallarita, R., 2020. The illusory promise of stakeholder governance. *Cornell L. Rev.* 106, 91.
- Bénabou, R., Tirole, J., 2010. Individual and corporate social responsibility. *Economica* 77, 1–19.
- Berg, F., Fabisik, K., Sautner, Z., 2020. Is history repeating itself? the (un) predictable past of ESG ratings. European Corporate Governance Institute–Finance Working Paper 708.
- Bertrand, O., Betschinger, M.A., Moschieri, C., 2021. Are firms with foreign CEOs better citizens? A study of the impact of CEO foreignness on corporate social performance. *Journal of International Business Studies* 52, 525–543.
- Binici, M., Hutchison, M., 2018. Do credit rating agencies provide valuable information in market evaluation of sovereign default risk? *Journal of International Money and Finance* 85, 58–75.
- Borensztein, E., Cowan, K., Valenzuela, P., 2013. Sovereign ceilings “lite”? the impact of sovereign ratings on corporate ratings. *Journal of Banking & Finance* 37, 4014–4024.
- Bradford, A., Chilton, A.S., 2018. Competition law around the world from 1889 to 2010: The competition law index. *Journal of Competition Law & Economics* 14, 393–432.

- Campbell, J.L., 2007. Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *Academy of Management Review* 32, 946–967.
- Chen, X., Cheng, Q., Lo, A.K., Wang, X., 2015. CEO contractual protection and managerial short-termism. *The Accounting Review* 90, 1871–1906.
- Chernenko, S., Sunderam, A., 2012. The real consequences of market segmentation. *The Review of Financial Studies* 25, 2041–2069.
- Christensen, H.B., Hail, L., Leuz, C., 2019. Adoption of CSR and sustainability reporting standards: Economic analysis and review. *European Corporate Governance Institute-Finance Working Paper* .
- Cohn, J.B., Wardlaw, M.I., 2016. Financing constraints and workplace safety. *The Journal of Finance* 71, 2017–2058.
- Colak, G., Korkeamaki, T., Meyer, N.O., 2020. ESG and CEO turnover. *Proceedings of Paris December 2020 Finance Meeting EUROFIDAI-ESSEC* .
- Dai, R., Liang, H., Ng, L., 2021. Socially responsible corporate customers. *Journal of Financial Economics* 142, 598–626.
- Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting earnings management. *The Accounting Review* , 193–225.
- Ding, W., Levine, R., Lin, C., Xie, W., 2022. Competition laws, ownership, and corporate social responsibility. *Journal of International Business Studies* , 1–27.
- Dyck, A., Lins, K.V., Roth, L., Wagner, H.F., 2019. Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics* 131, 693–714.
- Edmans, A., 2009. Blockholder trading, market efficiency, and managerial myopia. *The Journal of Finance* 64, 2481–2513.
- El Ghoul, S., Guedhami, O., Wang, H., Kwok, C.C., 2016. Family control and corporate social responsibility. *Journal of Banking & Finance* 73, 131–146.
- Ferrell, A., Liang, H., Renneboog, L., 2016. Socially responsible firms. *Journal of Financial Economics* 122, 585–606.
- Flammer, C., Bansal, P., 2017. Does a long-term orientation create value? Evidence from a regression discontinuity. *Strategic Management Journal* 38, 1827–1847.
- Flammer, C., Ioannou, I., 2020. Strategic management during the financial crisis: How firms adjust their strategic investments in response to credit market disruptions. *Strategic Management Journal* .
- Flammer, C., Kacperczyk, A., 2019. Corporate social responsibility as a defense against knowledge spillovers: Evidence from the inevitable disclosure doctrine. *Strategic Management Journal* 40, 1243–1267.
- Friedman, M., 1970. A friedman doctrine: The social responsibility of business is to increase its profits. *The New York Times Magazine* 13, 32–33.
- Friedman, M., Friedman, R.D., 1962. *Capitalism and freedom*. University of Chicago Press .
- Gao, L., He, J., Wu, J., 2021. Standing out from the crowd *via* CSR engagement: Evidence from non-fundamental-driven price pressure. *Journal of Financial and Quantitative Analysis*, *Forthcoming* .

- Ghoul, S.E., Guedhami, O., Kim, Y., 2017. Country-level institutions, firm value, and the role of corporate social responsibility initiatives. *Journal of International Business Studies* 48, 360–385.
- Glazer, A., Konrad, K.A., 1996. A signaling explanation for charity. *The American Economic Review* 86, 1019–1028.
- Glossner, S., 2021. Repeat offenders: ESG incident recidivism and investor underreaction. Available at SSRN 3004689 .
- Godfrey, P.C., 2005. The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of Management Review* 30, 777–798.
- Godfrey, P.C., Merrill, C.B., Hansen, J.M., 2009. The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. *Strategic management journal* 30, 425–445.
- Graham, J.R., Harvey, C.R., Popadak, J., Rajgopal, S., 2022. Corporate culture: Evidence from the field. *Journal of Financial Economics* 146, 552–593.
- Graham, J.R., Harvey, C.R., Rajgopal, S., 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40, 3–73.
- Greening, D.W., Turban, D.B., 2000. Corporate social performance as a competitive advantage in attracting a quality workforce. *Business & Society* 39, 254–280.
- Hasan, I., Kim, S.J., Politsidis, P.N., Wu, E., 2022. Lending at arm’s length: How do sovereign ceiling policies really matter for corporate borrowers? Available at SSRN 3661271 .
- Hong, H., Kubik, J.D., Scheinkman, J.A., 2012. Financial constraints on corporate goodness. Technical Report. National Bureau of Economic Research.
- Ioannou, I., Serafeim, G., 2012. What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies* 43, 834–864.
- Jiraporn, P., Jiraporn, N., Boeprasert, A., Chang, K., 2014. Does corporate social responsibility (CSR) improve credit ratings? Evidence from geographic identification. *Financial Management* 43, 505–531.
- Johnson, S., Boone, P., Breach, A., Friedman, E., 2000. Corporate governance in the Asian financial crisis. *Journal of Financial Economics* 58, 141–186.
- Kang, J., 2016. Labor market evaluation versus legacy conservation: What factors determine retiring CEOs’ decisions about long-term investment? *Strategic Management Journal* 37, 389–405.
- Karampatsas, N., Aktas, N., Witkowski, A., 2022. Do firms adjust corporate social responsibility engagement after a focal change in credit ratings? *Business & Society* 61, 1684–1722.
- Kim, Y., Su, L.N., Zhu, X.K., 2017. Does the cessation of quarterly earnings guidance reduce investors’ short-termism? *Review of Accounting Studies* 22, 715–752.
- Kisgen, D.J., 2007. The influence of credit ratings on corporate capital structure decisions. *Journal of Applied Corporate Finance* 19, 65–73.
- Kisgen, D.J., Strahan, P.E., 2010. Do regulations based on credit ratings affect a firm’s cost of capital? *The Review of Financial Studies* 23, 4324–4347.
- Kolk, A., 2016. The social responsibility of international business: From ethics and the environment to CSR and sustainable development. *Journal of World Business* 51, 23–34.

- La Porta, R., Lopez-de Silanes, F., Shleifer, A., 2006. What works in securities laws? *The Journal of Finance* 61, 1–32.
- Li, J., Wu, D., 2020. Do corporate social responsibility engagements lead to real environmental, social, and governance impact? *Management Science* 66, 2564–2588.
- Li, W., Ng, J., Tsang, A., Urcan, O., 2019. Country-level institutions and management earnings forecasts. *Journal of International Business Studies* 50, 48–82.
- Liang, H., Renneboog, L., 2017a. Corporate donations and shareholder value. *Oxford Review of Economic Policy* 33, 278–316.
- Liang, H., Renneboog, L., 2017b. On the foundations of corporate social responsibility. *The Journal of Finance* 72, 853–910.
- Liang, H., Renneboog, L., 2020. Corporate social responsibility and sustainable finance: A review of the literature. *European Corporate Governance Institute–Finance Working Paper* .
- Liang, H., Renneboog, L., 2021. Corporate social responsibility and sustainable finance. *Oxford Research Encyclopedia of Economics and Finance* .
- Lin, Y., Zhang, B., Zhang, Z., 2021. Earnings management upon a sovereign downgrade. Available at SSRN 3810491 .
- Lins, K.V., Servaes, H., Tamayo, A., 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance* 72, 1785–1824.
- Luo, X., Bhattacharya, C.B., 2006. Corporate social responsibility, customer satisfaction, and market value. *Journal of Marketing* 70, 1–18.
- Lys, T., Naughton, J.P., Wang, C., 2015. Signaling through corporate accountability reporting. *Journal of Accounting and Economics* 60, 56–72.
- O’Neill, H.M., Saunders, C.B., McCarthy, A.D., 1989. Board members, corporate social responsiveness and profitability: Are tradeoffs necessary? *Journal of Business Ethics* 8, 353–357.
- Pinkowitz, L., Stulz, R., Williamson, R., 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. *The Journal of Finance* 61, 2725–2751.
- Porta, R.L., Lopez-de Silanes, F., Shleifer, A., Vishny, R.W., 1998. Law and finance. *Journal of Political Economy* 106, 1113–1155.
- Porter, M.E., Kramer, M.R., 2006. The link between competitive advantage and corporate social responsibility. *Harvard Business Review* 84, 78–92.
- Roberts, M.R., Whited, T.M., 2013. Endogeneity in empirical corporate finance 2, 493–572.
- Schiller, C., 2018. Global supply-chain networks and corporate social responsibility. 13th Annual Mid-Atlantic Research Conference in Finance (MARC) Paper .
- Serafeim, G., 2020. Social-impact efforts that create real value. *Harvard Business Review* 98, 38–48.
- Serafeim, G., Yoon, A., 2021. Stock price reactions to ESG news: The role of ESG ratings and disagreement. *Forthcoming in Review of Accounting Studies* .
- Shiu, Y.M., Yang, S.L., 2017. Does engagement in corporate social responsibility provide strategic insurance-like effects? *Strategic Management Journal* 38, 455–470.
- Stein, J.C., 1989. Efficient capital markets, inefficient firms: A model of myopic corporate behavior.

- The Quarterly Journal of Economics 104, 655–669.
- To, T.Y., Wu, E., Zhang, L., 2022. Mind the sovereign ceiling on corporate performance. *Journal of Corporate Finance* , 102253.
- Waddock, S.A., Graves, S.B., 1997. The corporate social performance–financial performance link. *Strategic Management Journal* 18, 303–319.
- Wang, D.S., Xie, W., 2022. Credit ratings and corporate information production: Evidence from sovereign downgrades. *Journal of Financial and Quantitative Analysis* 57, 1591–1620.
- Wang, R., Yang, S., 2023. Credit ratings and firm innovation: Evidence from sovereign downgrades. *Journal of Banking & Finance* 148, 106719.
- Xu, Q., Kim, T., 2021. Financial constraints and corporate environmental policies. *The Review of Financial Studies* 00, 1–60.
- Young, S.L., Makhija, M.V., 2014. Firms’ corporate social responsibility behavior: An integration of institutional and profit maximization approaches. *Journal of International Business Studies* 45, 670–698.
- Zadek, S., 2007. The path to corporate responsibility. *Corporate Ethics and Corporate Governance* , 159–172.

Appendix A

Definitions of Study Variables

This table provides definitions for the key variables used in our analysis. All names within square brackets refer to FactSet item names.

Variable Name	Data Definition	Source
<i>Credit Ratings</i>		
Bound	Dummy variable coded 1 if the firm has a credit rating <i>equal</i> to or <i>above</i> the sovereign credit rating at the previous fiscal year end (t-1).	Bloomberg
Sovereign Downgrade	Dummy variable coded 1 if a sovereign downgrade event takes place in firm <i>i</i> 's country of domicile in year (t).	Bloomberg
<i>Environmental, Social and Governance (ESG)</i>		
ESG Rating (Score)	ESG score of the firm. ESG scores can range from 0 to 100 and are based on ESG performance relative to the company's sector (for environmental and social) and country of incorporation (for governance).	Refinitiv
E Score	Environmental pillar score of the firm	Refinitiv
S Score	Social pillar score of the firm	Refinitiv
G Score	Governance score of the firm	Refinitiv
Reputation Risk Index (RRI)	This is the RepRisk's "current RRI" of firm <i>i</i> in month <i>m</i> of year <i>t</i> . The variable captures the level of negative media and stakeholder coverage of a firm to ESG risk incidents. The RRI can range from 0 (lowest) to 100 (highest) such that a higher value indicates a <i>higher</i> risk exposure to ESG incidents. According to RepRisk documentation, an index value of 0-25 indicates a low incident rate, 25-49 a medium incident rate, 50-59 a high incident rate, 60-74 a very high incident rate and 75-100 an extremely high incident rate.	RepRisk
Extreme ESG Risk Incident	Dummy variable coded 1 if a firm's RRI is between 60 and 100. We measure RRI for each firm for each calendar year and choose RRI of the month in which the RRI in that year is at its highest. If the RRI is equally high in two or more months, we choose the month in which the RRI first peaks.	RepRisk
Total Charitable Donations	Total donations (in US\$) includes donations by the company as well as by its foundations or trusts such as product donation, charity, philanthropy, sponsorship, and grants.	Refinitiv
Donations <i>per</i> one million in Sales	Ratio of total donations (US\$) to total sales revenue (US\$) multiplied by one million.	Refinitiv
<i>Firm Characteristics</i>		
Firm Size	Natural log of book value of total assets [ff_assets]	FactSet
Market-to-Book Ratio	Ratio of the book value of assets [ff_assets] minus the book value of equity [ff_com_eq] plus the market value of equity [ff_mkt_val] to the book value of assets [ff_assets]	FactSet
Leverage	Ratio of debt [ff_debt] to total assets [ff_assets]	FactSet

Appendix A (Continued)

Variable Name	Data Definition	Source
Profitability	Ratio of income before taxes [ff_ptx_inc] to total assets [ff_assets]	FactSet
Tangibility	Ratio of net property, plant, and equipment [ff_ppe_net] to total assets [ff_assets]	FactSet
<i>Country Characteristics</i>		
French Legal Origin	Dummy variable taking the value of 1 if the country has French legal origin and 0 otherwise	Porta et al. (1998)
German Legal Origin	Dummy variable taking the value of 1 if the country has German legal origin and 0 otherwise	Porta et al. (1998)
Scandinavian Legal Origin	Dummy variable taking the value of 1 if the country has Scandinavian legal origin and 0 otherwise	Porta et al. (1998)
Globalization Index	The KOF Index of Globalization measures three main dimensions of globalization: (1) economic, (2) social, and (3) political. In addition to the three indices measuring these dimensions, an overall index of globalization and sub-indices are also calculated, which capture (1) actual economic flows, (2) economic restrictions, (3) data on information flows, (4) data on personal contact, and (5) data on cultural proximity. Data are available on a yearly basis over the period 1970 to 2019. A higher score indicates a higher degree of globalization.	KOF Swiss Economic Institute
Anti-Director Rights Index	The index is formed by adding 1 when (1) the country allows shareholders to mail their proxy vote to the firm, (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting, (3) cumulative voting or proportional representation of minorities in the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent (the sample median), or (6) shareholders have preemptive rights that can be waived only by a shareholders' vote. The index thus ranges from zero to six	Porta et al. (1998)
Control of Corruption	The extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. Coded from -2.5 to 2.5, with higher values corresponding to better governance outcomes.	World Bank
Political Executive Constraints	The Political Executive Constraints (Decision Rules) Index consists of the following dimensions: (1) Unlimited Authority: (there are no regular limitations on the political executive's actions as distinct from irregular limitations such as the threat or actuality of coups and assassinations); (2) Intermediate Category; (3) Slight to Moderate Limitation on Political Executive Authority: (there are some real but limited restraints on the executive);	

Appendix A (Continued)

Variable Name	Data Definition	Source
	(4) Intermediate Category; (5) Substantial Limitations on Political Executive Authority: (the executive has more effective authority than any group to which it is accountable but the executive is subject to substantial constraints which that group imposes on it); (6) Intermediate Category; (7) Executive Parity or Subordination: (accountability groups have effective authority equal to or greater than the executive in most areas of activity).	Polity IV
Economic Freedom Index	The Heritage Index of Economic Freedom focuses on four key aspects of the economic environment over which governments typically exercise policy control: rule of law (including property rights and freedom from corruption), government size (including fiscal freedom and government spending), regulatory efficiency (including business freedom—the efficiency of government regulation of business, labor freedom, and monetary freedom), and market openness (including trade freedom, investment freedom, and financial freedom). The index ranges from 0 to 100, with a higher score indicating the country has a higher degree of freedom (0 indicating “repressive” and 100 indicating “negligible government interference”). More detailed definitions of each individual category of freedom can be found at: www.heritage.org .	Source: Heritage Index of Economic Freedom
GDP per Capita	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of the gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for the depreciation of fabricated assets or for the depletion and degradation of natural resources. Data are in 2010 constant U.S. dollars.	World Bank
Common Law	Dummy variable taking the value of 1 if the country’s legal origin is English common law and 0 otherwise	Porta et al. (1998)
Liability Standard Index	The index is formed as the arithmetic mean of (1) liability standard for the issuer and its directors index; (2) liability standard for distributors index; and (3) liability standard for accountants index.	Porta et al. (1998)
Criminal Sanctions Index	The index is formed as the arithmetic mean of (1) criminal director index; (2) criminal distributor index; and (3) criminal accountant index	Porta et al. (1998)
Public Enforcement Index	The index is formed as the arithmetic mean of (1) supervisor characteristics index; (2) rule-making power index; (3) investigative powers index; (4) orders index; and (5) criminal index.	Porta et al. (1998)

Appendix A (Continued)

Variable Name	Data Definition	Source
Anti-director Rights	This index of anti-director rights is formed by adding one when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10% (the sample median); or (6) when shareholders have preemptive rights that can only be waived by a shareholders' meeting. The range for the index is from 0 to 5.	Porta et al. (1998)
One share-one vote	Dummy variable coded one if the company law or commercial code of the country requires that ordinary shares carry one vote per share, and zero otherwise. Equivalently, this variable equals one when the law prohibits the existence of both multiple-voting and nonvoting ordinary shares and does not allow firms to set a maximum number of votes per shareholder irrespective of the number of shares owned, and zero otherwise.	La Porta et al. (2006)
Creditor Rights Index	An index aggregating different creditor rights. The index is formed by adding 1 when (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4	Porta et al. (1998)
Overall Institutional Strength	First principal component from principal component analysis based on the following variables representing legal environment and investor protection including: <i>Common Law</i> , <i>Liability Standard</i> , <i>Criminal Sanctions</i> , <i>Public Enforcement</i> , <i>Anti-director Rights</i> , <i>One share-one vote</i> , and <i>Creditor Rights</i> , following Li et al. (2019).	Li et al. (2019)
<i>Placebo Events</i>		
Financial Crisis Dummy	Dummy variable coded 1 for years 2007, 2008, 2009 for every country that did not experience a sovereign downgrade over those years.	
Economic Recession Dummy	Dummy variable coded 1 if a country has more than six months of recession (as defined by OECD) without experiencing a sovereign downgrade in year t and zero otherwise	WorldBank

Appendix B
Credit Ratings Numerical Scale

This table presents the conversion of Standard & Poor's credit rating notation to a numerical scale.

Numerical Rating	S&P's Rating
22	AAA
21	AA+
20	AA
19	AA-
18	A+
17	A
16	A-
15	BBB+
14	BBB
13	BBB-
12	BB+
11	BB
10	BB-
9	B+
8	B
7	B-
6	CCC+
5	CCC
4	CCC-
3	CC
2	C
1	SD/D

Appendix C
List of Sovereign Rating Downgrades

This table lists the sovereign rating downgrades alongside the number of bound firms related to each downgrade in our sample.

Country	Downgrade Year	Sovereign Rating		No. of Bound Firms
		Before	After	
Argentina	2018	B+	B	4
Brazil	2014	BBB	BBB-	6
	2015	BBB-	BB+	13
	2016	BB+	BB	15
	2018	BB	BB-	12
China	2017	AA-	A+	1
Colombia	2017	BBB	BBB-	2
Greece	2011	BB+	CC	3
	2015	B	CCC+	4
Hong Kong	2017	AAA	AA+	1
Hungary	2012	BB+	BB-	1
Ireland	2011	A	BBB+	3
Italy	2004	AA	AA-	1
	2006	AA-	A+	2
	2011	A+	A	2
	2012	A	BBB+	2
	2013	BBB+	BBB	7
	2014	BBB	BBB-	9
Japan	2002	AA	AA-	2
	2011	AA	AA-	12
	2015	AA-	A+	12
Mexico	2009	BBB+	BBB	4
Portugal	2010	A+	A-	2
	2011	A-	BBB-	2
Russia	2014	BBB	BBB-	5
	2015	BBB-	BB+	13
Saudi Arabia	2015	AA-	A+	1
	2016	A+	A-	3
South Korea	2018	AA	AA-	1
Spain	2012	AA-	BBB-	2
Turkey	2016	BB+	BB	6
	2018	BB	B+	5
United States	2011	AAA	AA+	4
Total				162

Appendix D
List of Treated (Bound) Firms

This table reports the full list of bounds firms alongside their country of domicile, the year of the sovereign downgrade, and their rating at the beginning and the end of the year of the sovereign downgrade.

Country	Year of sovereign downgrade	Company	Corporate Rating		
			Before Sov. Downgrade	After Sov. Downgrade	
Argentina	2018	Capex SA	B+	B	
		Pampa Energia SA	B+	B	
		Transportadora de Gas del Sur SA	B+	B	
		YPF SA	B+	B	
Brazil	2014	Ambev SA	A	A	
		Centrais Eletricas Brasileiras SA	BBB	BBB-	
		Embraer SA	BBB	BBB	
		Petroleo Brasileiro SA	BBB	BBB-	
		Ultrapar Participacoes SA	BBB	BBB	
		Vale SA	A-	A-	
		2015	Ambev SA	A	A-
			Braskem SA	BBB-	BBB-
	Brf SA		BBB-	BBB	
	Companhia Energetica de Sao Paulo		BBB-	BB+	
	Centrais Eletricas Brasileiras SA		BBB-	BB+	
	Embraer SA		BBB	BBB	
	Gerdau SA		BBB-	BBB-	
	Klabin SA		BBB-	BBB-	
	Localiza Rent A Car SA		BBB-	BBB-	
	Petroleo Brasileiro SA		BBB-	BB	
	Transmissora Alianca De Energia		BBB-	BB+	
	Ultrapar Participacoes SA		BBB	BBB-	
	2016	Vale SA	A-	BBB	
		Ambev SA	A-	BBB+	
		Braskem SA	BBB-	BBB-	
		Brf SA	BBB	BBB	
		Companhia Energetica de Sao Paulo	BB+	BB	
		Eletrobras-Centr Eletr Bras	BB+	BB	
		Embraer SA	BBB	BBB	
		Gerdau SA	BBB-	BBB-	
		Hypera SA	BB+	BB+	
		Jbs SA	BB+	BB	
Klabin SA		BBB-	BB+		
Localiza Rent A Car SA		BBB-	BB+		
Oi SA		BB+	D		
Transmissora Alianca De Energia		BB+	BB		
Ultrapar Participacoes SA		BBB-	BB+		
Vale SA		BBB	BBB-		

Appendix D (Continued)

Country	Year of sovereign downgrade	Company	Corporate Rating	
			Before Downgrade	After Downgrade
Brazil	2018	Ambev SA	BBB+	BBB
		Braskem SA	BBB-	BBB-
		BRF SA	BBB-	BB
		Companhia de Saneamento	BB	BB-
		Centrais Eletricas Brasileiras SA	BB	BB-
		Energisa SA	BB	BB-
		Gerdau SA	BBB-	BBB-
		Klabin SA	BB+	BB+
		Sao Martinho SA	BB+	BB+
		Suzano SA	BB+	BBB-
		Transmissora Alianca De Energia	BB	BB-
		Vale SA	BBB-	BBB-
China	2017	China Shenhua Energy Co Ltd	AA-	A+
Colombia	2017	Ecopetrol SA	BBB	BBB-
		Interconexion Electrica SA	BBB	BBB-
Greece	2011	Hellenic Tel. Organization SA	BBB-	B
		Public Power Corporation SA	BB+	CCC
		Titan Cement Co SA	BB+	BB-
	2015	Ellaktor SA	B+	CCC+
		Hellenic Tel. Organization SA	BB	B+
		Public Power Corporation SA	B	CCC-
Titan Cement Co SA	BB	BB		
Hong Kong	2017	Mtr Corp Ltd	AAA	AA+
Hungary	2012	MOL Hungarian Oil & Gas Plc	BB+	BB+
Ireland	2011	Accenture Plc	A+	A+
		Covidien Plc	A	A
		Medtronic Plc	AA-	AA-
Italy	2004	Eni Spa	AA	AA
		Eni Spa	AA	AA
	2006	Terna Spa	AA-	AA-
		Eni Spa	A+	A+
	2011	Terna Spa	A+	A
		Eni Spa	A+	A
	2012	Terna Spa	A	A-
		Atlantia Spa	BBB+	BBB+
	2013	Enel Spa	BBB+	BBB
		Eni Spa	A	A
		Hera Spa	BBB+	BBB
		Luxottica Group Spa	BBB+	BBB+
		Snam Spa	A-	BBB+
		Terna Spa	A-	BBB+
		2014	A2A Spa	BBB
Atlantia Spa			BBB+	BBB+

Appendix D (Continued)

Country	Year of sovereign downgrade	Company	Corporate Rating		
			Before Downgrade	After Downgrade	
Japan	2002	Edison Spa	BBB+	BBB+	
		Enel Spa	BBB	BBB	
		Eni Spa	A	A	
		Hera Spa	BBB	BBB	
		Luxottica Group Spa	BBB+	A-	
		Snam Spa	BBB+	BBB	
		Terna Spa	BBB+	BBB	
		FUJIFILM Holdings Corp	AA	AA	
	2011	Toyota Motor Corp.	AAA	AAA	
		Canon Inc.	AA	AA	
		Chubu Electric Power Company	AA	A+	
		Denso Corporation	AA	AA-	
		Elec Power Development Co	AA	A+	
		Nippon Telegraph and Telephone Co	AA	AA	
		NTT DoCoMo, Inc.	AA	AA	
		Osaka Gas Co Ltd	AA	AA-	
		Shikoku Electric Power Co	AA	A+	
		Takeda Pharmaceutical Co	AA	AA-	
		Tokyo Electric Power Co	AA	B+	
		Tokyo Gas Co Ltd	AA	AA-	
	2015	Toyota Motor Corp.	AA	AA-	
		Canon Inc	AA	AA	
		Denso Corporation	AA-	AA-	
		East Japan Railway Company	AA-	AA-	
		FUJIFILM Holdings Corp	AA-	AA-	
		Japan Tobacco Inc.	AA-	AA-	
		Nippon Telegraph and Telephone Co	AA	AA-	
		NTT DoCoMo, Inc.	AA	AA-	
		Osaka Gas Co., Ltd.	AA-	AA-	
		Seven & I Holdings Co., Ltd.	AA-	AA-	
Mexico	2009	Tokyo Gas Co., Ltd.	AA-	AA-	
		Toyota Industries Corp.	AA-	AA-	
		Toyota Motor Corp.	AA-	AA-	
		America Movil Sa De CV	BBB+	BBB+	
		Grupo Bimbo Sa De CV	BBB+	BBB	
		Grupo Televisa Sab	BBB+	BBB+	
Portugal	2011	Kimberly-Clark de Mexico SAB de CV	A-	A-	
		EDP-Energias de Portugal SA	A-	BBB	
		2012	Cimentos de Portugal SGPS SA	BBB-	BB
			EDP-Energias de Portugal SA	BBB	BB+
		PHarol SGPS SA	BBB-	BB+	

Appendix D (Continued)

Country	Year of sovereign downgrade	Company	Corporate Rating	
			Before Downgrade	After Downgrade
Russia	2014	Federal Grid Co Of The Unif	BBB	BBB-
		Gazprom PJSC	BBB	BBB-
		LUKOIL PJSC	BBB	BBB-
		Rosneft Oil Co	BBB	BBB-
		Transneft PJSC	BBB	BBB-
	2015	Federal Grid Co Of The Unif	BBB-	BB+
		Gazprom PJSC	BBB-	BB+
		Gazprom Neft Pjsc	BBB-	BB+
		LUKOIL PJSC	BBB-	BBB-
		MegaFon PJSC	BBB-	BB+
		Mmc Norilsk Nickel Psjc	BBB-	BBB-
		Mobile TeleSystems PJSC	BBB-	BB+
		Novatek PJSC	BBB-	BB+
		PhosAgro PJSC	BBB-	BBB-
		Rosneft Oil Co.	BBB-	BB+
		Rosseti PJSC	BBB-	BB+
		Transneft PJSC	BBB-	BB+
		Uralkali PJSC	BBB-	BB-
		Saudi Arabia	2015	Saudi Electricity Co.
2016	Saudi Basic Industries Corp.		A+	A-
	Saudi Electricity Co.		A+	A-
	Saudi Telecom Co.		A+	A-
South Korea	2018	Korea Electric Power Corporation	AA	AA
Spain	2012	Enagas Sa	AA-	BBB
		Red Electrica Corp Sa	AA-	BBB
Turkey	2016	Anadolu Efes Biracilik ve Malt Sanayii AS	BBB-	BBB-
		Arcelik AS	BB+	BB+
		Koc Holding AS	BBB-	BBB-
		Turkiye Sise ve Cam Fabrikalari AS	BB+	BB
		Turk Telekomunikasyon AS	BBB-	BBB-
		Turkcell Iletisim Hizmet	BBB-	BBB-
		2018	Anadolu Efes Biracilik ve Malt Sanayii AS	BBB-
	Arcelik AS		BB+	BB+
	Koc Holding AS		BBB-	BB-
	Turk Telekomunikasyon AS		BBB-	BB-
	Turkcell Iletisim Hizmet		BBB-	BB-
	United States	2011	Automatic Data Processing	AAA
Exxon Mobil Corp			AAA	AAA
Johnson & Johnson			AAA	AAA
Microsoft Corp			AAA	AAA

Appendix E
ESG Pillars, Categories and Themes

The table below provides a detailed view on the ESG themes covered in each category within each pillar.

Pillars	Categories	Themes	
<i>Environmental</i>	Emission	Emissions	
		Waste	
		Biodiversity	
		Environmental management system	
		Innovation	
	Resource Use	Product Innovation	
		Green revenues, research and development (R&D) and capital expenditures (CapEx)	
		Water	
	<i>Social</i>	Energy	Sustainable packaging
			Environmental supply chain
Community		Community	
		Human Rights	
Human Rights		Human Rights	
		Product Responsibility	Responsible marketing
		Product quality	
Workforce		Data privacy	
		Diversity and inclusion	
		Career development and training	
	Working conditions		
	Health and safety		
<i>Governance</i>	CSR strategy	CSR strategy	
		ESG reporting and transparency	
	Management	Structure independence, diversity, committees	
		Compensation	
	Shareholders	Shareholder rights	
		Takeover defenses	

Appendix F
ESG Incident Types (with ID)

This table presents the ESG incidents as defined by RepRisk.

ESG Incidents	ID
<i>Environment Incidents</i>	
Climate change, GHG emissions, and global pollution	16
Local pollution	13
Impacts on landscapes, ecosystems and biodiversity	6
Overuse and wasting of resources	38
Waste issues	19
Animal mistreatment	39
Other environmental issues	18
<i>Social Incidents</i>	
<i>(i) Community Relations</i>	
Human rights abuses and corporate complicity	23
Impacts on communities	4
Local participation issues	30
Social discrimination	36
<i>(ii) Employee Relations</i>	
Forced labor	47
Child labor	48
Freedom of association and collective bargaining	46
Discrimination in employment	49
Occupational health and safety issues	28
Poor employment conditions	42
Other social issues	24
<i>Governance Incidents</i>	
Corruption, bribery, extortion and money laundering	35
Executive compensation issues	37
Misleading communication	44
Fraud	50
Tax evasion	51
Tax optimization	53
Anti-competitive practices	52
<i>Cross Cutting Incidents</i>	
Controversial products and services	34
Products (health and environmental issues)	25
Supply chain issues	26
Violation of international standards	11
Violation of national legislation	21
Other issues	27

Figure 1

The Distribution of Differences between Corporate and Sovereign Ratings

The figure shows the distribution of corporate ratings *relative* to sovereign credit ratings (i.e., the difference between corporate credit rating and the corresponding sovereign credit rating) for the firm's country of domicile in the year prior to a sovereign downgrade. The x-axis denotes the relative corporate rating. The y-axis denotes the proportion of our sample firm-years for each particular relative rating notch. Grey bars represent firms rated below their country of Domicile (non-bound firms), while navy bars represent firms rated at or above their country of Domicile (bound firms).

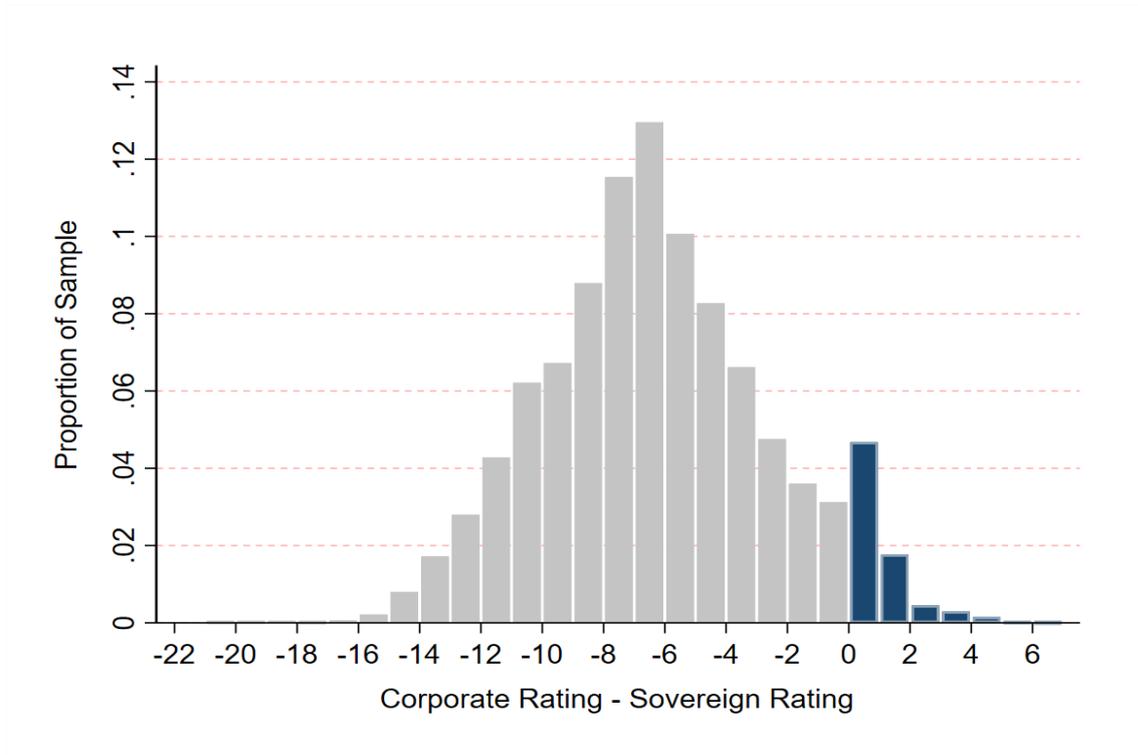


Figure 2

Proportion of all firms downgraded one year before, in the year of and one year after a sovereign downgrade

The figure shows the fraction of all firms downgraded one year before, the year of and one year after a sovereign downgrade, according to the pre-downgrade difference between the corporate credit rating and its corresponding sovereign ratings. Grey bars represent firms rated below their country of domicile (non-bound firms), while navy bars represent firms rated at or above their country of domicile (bound firms) in the year prior to a sovereign downgrade event.

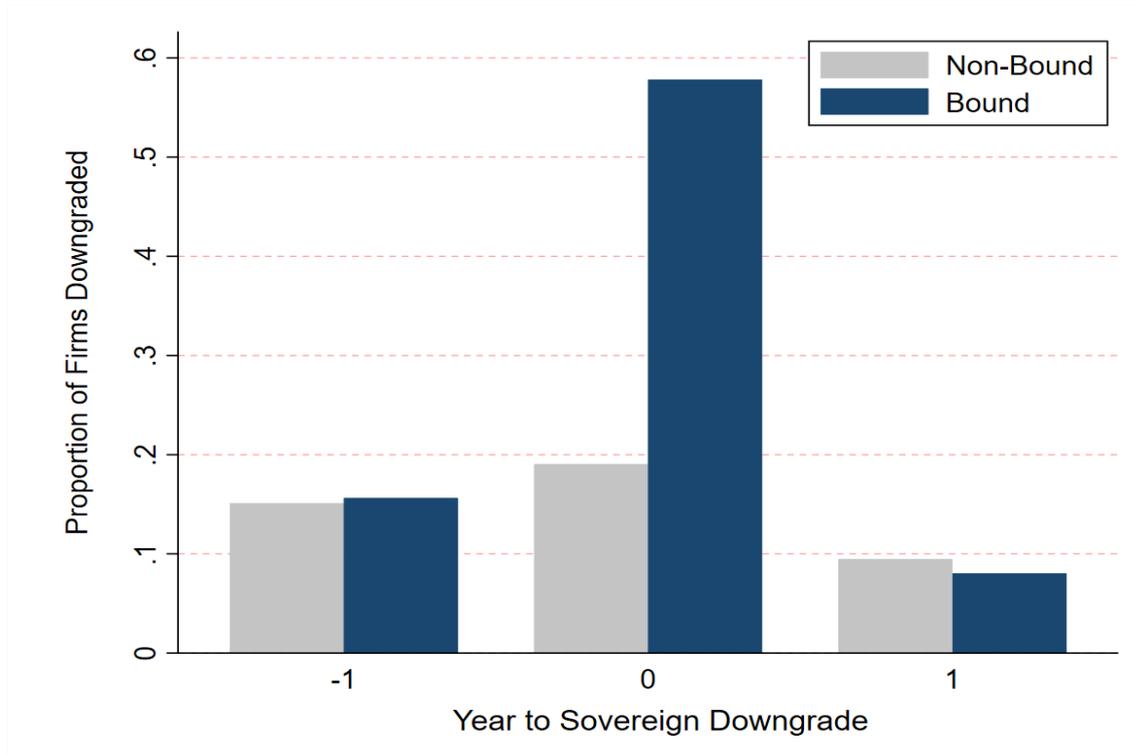


Figure 3
A Conceptual Framework

The figure depicts a conceptual framework for our main hypothesis, which predicts that the firms that are bound by the ceiling rule, and as a result are more exposed to sovereign downgrades, experience a decrease in their ESG performance when such a downgrade occurs. Analytical definitions of all variables are provided in Appendix A.

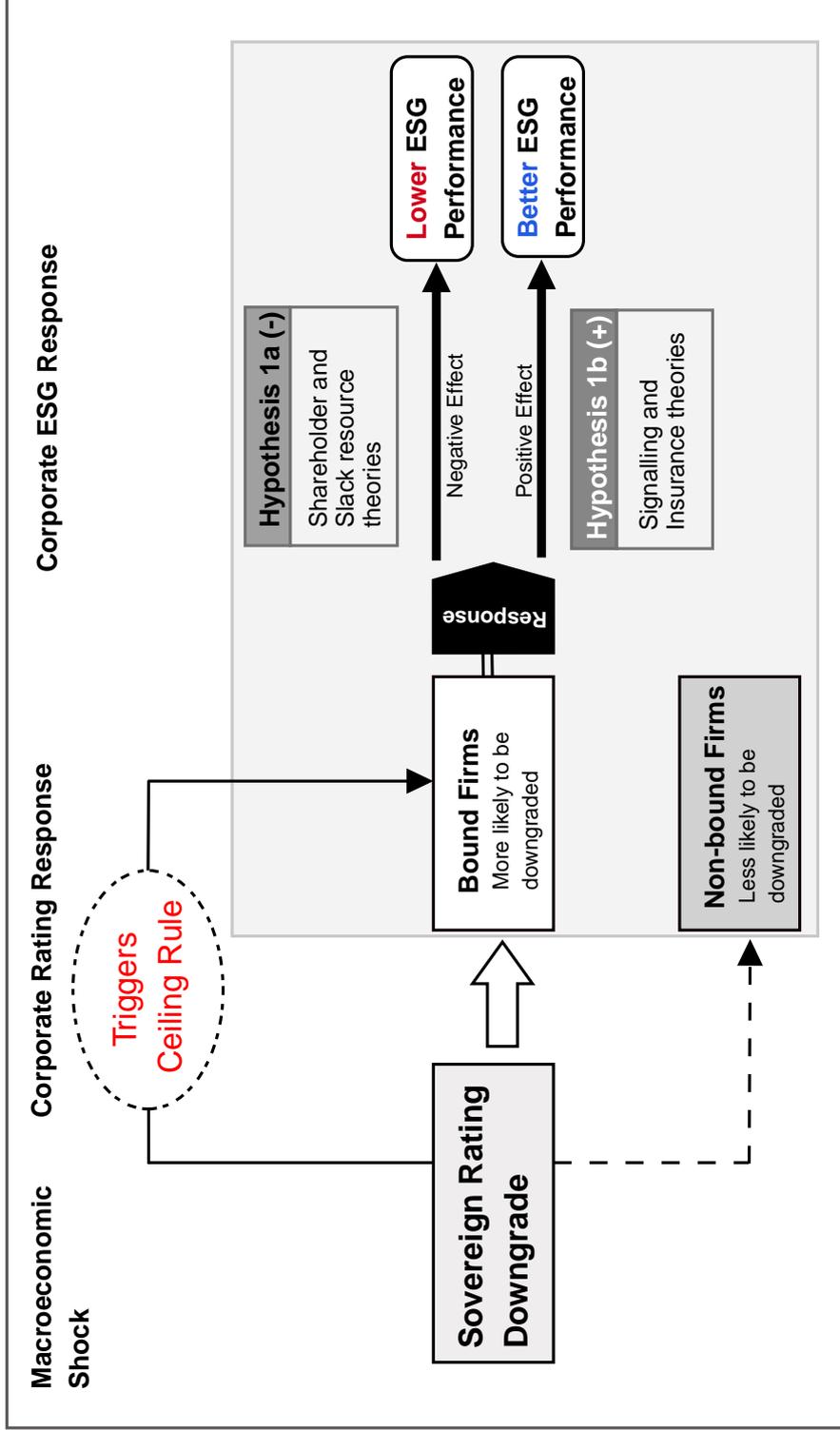


Figure 4

Dynamics of ESG Performance around Sovereign Downgrades

This figure shows analysis of changes in the ESG performance of bound firms (i.e., firms rated at or above their sovereign rating) from two years before *to* two years after a sovereign downgrade ($t=0$), ($t-2$ to $t+2$). Specifically, the figure plots the coefficient estimates of the interaction variable, *Bound x Sovereign Downgrade* and its corresponding confidence intervals (solid blue vertical lines) from the following regression specification:

$$\begin{aligned}
 ESG\ Score_{i,t} = & \sum_{k=-2}^{k=+2} (\beta_0 + \gamma_k Bound_{i,t-1}^k + \delta_k Sovereign\ Downgrade_{i,c,t}^k + \\
 & \beta_k Bound_{i,t-1}^k * Sovereign\ Downgrade_{i,c,t}^k + Firm\ Controls \\
 & + Year\ FE + Industry\ FE + Country\ FE + \varepsilon_{i,t}
 \end{aligned} \tag{1}$$

where i , c and t represent firm, country and year, respectively. $Bound_{i,t-1}$ is a dummy variable that takes the value of 1 for firm i in the k^{th} year relative to the year when the firm is bounded by the sovereign ceiling, and 0 otherwise. $Sovereign\ Downgrade_{i,c,t}^k$ (where $k = -2, -1, 0, 1$ and 2) equals 1 for firm i in the k^{th} year relative to the fiscal year in which the firm's operating country c experiences a sovereign downgrade, and otherwise. The firm control includes firm size, market-to-book, tangibility, profitability and leverage. Equation (1) also includes year, industry and country fixed effects. We estimate Equation (1) using OLS regression, with standard errors clustered at the country level. Analytical definitions of all variables are provided in Appendix A.

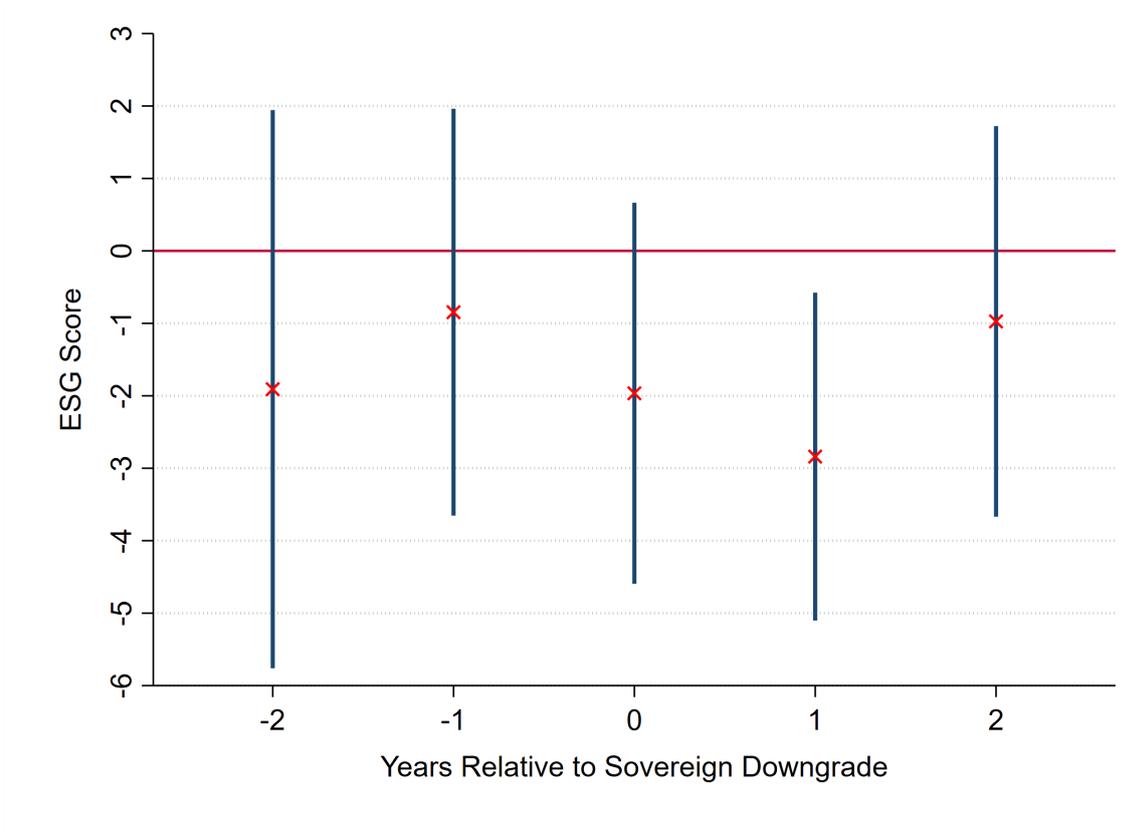


Table 1
Sample Selection and Descriptive Statistics

This table describes the selection process of our final sample (Panel A), presents descriptive statistics for the main variables used in our analysis (Panel B) and shows means of environmental, social and governance (ESG) performance by country for our sample period (Panel C). Analytical definitions for all variables are provided in Appendix A.

Panel A: Sample Selection		Obs.
Total number of firm-year observations from 2002-to 2019 with Refinitiv Eikon, FactSet, Bloomberg, KOF Swiss Economic Institute and World Bank		535,501
Exclude: Non-rated Firms		(502,157)
Exclude: Missing values for the variables used in our main regressions		(15,449)
Final Sample (Total 2196 unique firms from 45 countries)		17,895

Panel B: Full Sample Summary Statistics						
	N	Mean	Median	S.D.	P25	P75
<i>Environment, Social and Governance</i>						
ESG Performance	17,895	48.68	48.74	21.07	31.32	65.66
Environmental Score	17,895	42.03	43.38	29.64	13.77	67.74
Social Score	17,895	48.54	47.06	23.97	28.67	68.01
Governance Score	17,895	54.83	56.96	22.24	38.00	72.66
<i>Firm Characteristics</i>						
Firm Size	17,895	9.077	9.131	1.042	8.289	10.11
Total Assets (in \$billion)	17,895	23.682	9.235	39.478	3.979	24.69
Market to Book	17,895	1.658	1.404	0.809	1.131	1.902
Tangibility	17,895	0.376	0.315	0.273	0.150	0.568
Profitability	17,895	0.074	0.065	0.085	0.030	0.114
Leverage	17,895	0.339	0.309	0.202	0.205	0.432
<i>Country Characteristics</i>						
French Legal Origin	17,895	0.142	0.000	0.349	0.000	0.000
German Legal Origin	17,895	0.158	0.000	0.364	0.000	0.000
Scandinavian Legal Origin	17,895	0.028	0.000	0.164	0.000	0.000
Globalization Index	17,895	80.05	81.08	6.010	78.37	82.32
Anti-director rights	17,895	4.245	5.000	1.183	4.000	5.000
Control of Corruption	17,895	1.354	1.381	0.622	1.294	1.755
Political Executive Constraints	17,895	6.804	7.000	0.680	7.000	7.000
Economic Freedom	17,895	74.34	76.00	7.02	72.80	78.70
GDP per capita (Ln)	17,895	10.62	10.79	0.56	10.67	10.84

Panel C: Distribution by Country

Country of Domicile	# of Firms	# of Obs.	Mean ESG	Country of Domicile	# of Firms	# of Obs.	Mean ESG
Argentina	8	22	38.05	Luxembourg	8	59	50.26
Australia	47	435	52.69	Mexico	19	135	49.65
Austria	5	53	55.67	Netherlands	21	173	61.49
Belgium	9	79	56.13	New Zealand	11	102	40.71
Brazil	35	265	54.48	Norway	10	96	63.05
Canada	115	1030	44.70	Peru	9	38	44.95
Chile	16	136	46.42	Philippines	3	23	32.33
China	40	167	41.08	Poland	8	39	36.13
Colombia	5	31	59.24	Portugal	6	48	59.71
Czech Republic	3	31	46.12	Russia	28	249	43.38
Denmark	6	38	66.90	Saudi Arabia	3	36	34.46
Finland	8	85	65.73	Singapore	7	63	42.64
France	60	677	63.85	South	25	225	63.50
Germany	48	467	61.47	Spain	29	208	66.03
Greece	5	50	59.66	Sweden	23	279	60.42
Hong Kong	16	178	45.72	Switzerland	29	267	65.49
Hungary	1	12	63.93	Taiwan	10	103	43.49
India	16	144	63.99	Thailand	7	68	61.36
Indonesia	12	69	52.13	Turkey	9	57	52.40
Ireland	16	124	51.49	Ukraine	1	2	44.94
Israel	3	24	54.81	United Kingdom	110	911	60.12
Italy	20	217	62.77	United States	1,107	8925	43.92
Japan	218	1455	47.99	Total	2195	17985	49.00

Table 2
Credit Rating Downgrades and ESG Policies

This table presents the analyses of changes in firms' ESG performance following a sovereign rating downgrade. The dependent variable is the firm's ESG score in year $t+1$. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgraded in year t . The main variable of interest is the interaction between *Bound* and *Sovereign Downgrade* (*Bound* x *Sovereign Downgrade*). In Model 1, we use year, industry and country fixed effects. In Model 2, we control for firm and year fixed effects, whereas in Model 3 we include firm and two way country-year fixed effects. Model 4 incorporates year and industry fixed effects, as well as a set of country-level controls. Analytical definitions for all variables are provided in the Appendix A. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1	Model 2	Model 3	Model 4
Bound	2.854* (1.431)	0.877* (0.493)	1.242** (0.590)	4.553*** (1.544)
Sovereign Downgrade	1.380** (0.533)	0.298 (0.336)	-2.897 (6.908)	2.286*** (0.685)
Bound x Sovereign Downgrade	-3.246** (1.217)	-1.917** (0.838)	-2.558** (1.064)	-2.925** (1.451)
Firm Size	9.623*** (0.708)	3.719*** (0.250)	3.130*** (0.264)	9.568*** (0.649)
Market-to-Book	2.528*** (0.255)	0.298* (0.153)	0.338** (0.159)	2.252*** (0.366)
Tangibility	-3.607** (1.607)	-0.999 (0.725)	-0.629 (0.742)	-4.654** (2.060)
Profitability	7.662*** (2.302)	3.652*** (1.099)	4.301*** (1.106)	7.517*** (2.231)
Leverage	-8.921*** (0.693)	-1.608*** (0.450)	-1.787*** (0.454)	-8.617*** (0.670)
French Legal Origin	-	-	-	4.789 (3.624)
German Legal Origin	-	-	-	2.838 (2.950)
Scandinavian Legal Origin	-	-	-	5.217 (3.134)
Globalization Index	-	-	-	0.616*** (0.189)
Anti-director rights	-	-	-	-0.740 (1.046)
Control of Corruption	-	-	-	3.887** (1.616)
Political Executive Constraints	-	-	-	2.550*** (0.913)
Economic Freedom	-	-	-	-0.124 (0.149)
GDP per capita	-	-	-	-6.080*** (2.135)
Intercept	-49.243*** (6.411)	-7.573*** (2.270)	20.728*** (2.505)	-47.241** (20.485)
Observations	17,895	17,895	17,895	17,895
R^2	0.512	0.858	0.868	0.488
Year Fixed Effects	Yes	Yes	No	Yes
Industry Fixed Effects	Yes	No	No	Yes
Country Fixed Effects	Yes	No	No	No
Firm Fixed Effects	No	Yes	Yes	No
Country x Year Fixed Effects	No	No	Yes	No

Table 3

Dynamics of ESG Performance *around* Sovereign Downgrades

This table presents the analyses of changes in firms' ESG performance around a sovereign downgrade event. The dependent variable is the firm's ESG score in year t . The model specifications are similar to Table 2, except that we replace "Bound" with a set of dummies indicating the number of years relative to the year when a firm's rating is bounded by the sovereign ceiling (Bound^k, where $k = -2, -1, 0, 1, \text{ and } 2$), and replace the "Sovereign Downgrade" dummy with a set of dummies indicating the number of years relative to the sovereign downgrade event year (Sovereign Downgrade^k, where $k = -2, -1, 0, 1, \text{ and } 2$). The main variables of interest are the interactions between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*^k, where $k = -2, -1, 0, 1, \text{ and } 2$). The firm controls include size, market-to-book ratio, tangibility, profitability and leverage. Macro controls include French, German and Scandinavian legal origin, globalization index, anti-director rights, control of corruption, political executive constraints, economic freedom and GDP per capita (*see* Liang and Renneboog, 2017). Analytical definitions for all variables are provided in Appendix A. Standard errors are reported in parentheses. ** and * denote statistical significance at the 5% and 10% levels, respectively.

	Model 1	Model 2	Model 3	Model 4
Bound x Sovereign Downgrade ⁻²	-1.909 (1.913)	-0.104 (0.896)	-0.180 (1.129)	-1.621 (1.834)
Bound x Sovereign Downgrade ⁻¹	-0.846 (1.394)	0.088 (0.874)	-0.068 (1.105)	-0.686 (1.307)
Bound x Sovereign Downgrade ⁰	-1.965 (1.306)	-1.099 (0.862)	-1.906* (1.097)	-1.736 (1.426)
Bound x Sovereign Downgrade ⁺¹	-2.839** (1.123)	-2.017** (0.899)	-2.560** (1.141)	-2.823** (1.140)
Bound x Sovereign Downgrade ⁺²	-0.973 (1.338)	-0.493 (0.921)	-0.583 (1.159)	-1.926 (1.411)
Observations	17,375	17,375	17,375	17,375
R^2	0.504	0.855	0.865	0.479
Bound ^{-2,-1,0,1,2,}	Yes	Yes	Yes	Yes
Sovereign Downgrade ^{-2,-1,0,1,2,}	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
Macro Controls	No	No	No	Yes
Year Fixed Effects	Yes	Yes	No	Yes
Industry Fixed Effects	Yes	No	No	Yes
Country Fixed Effects	Yes	No	No	No
Firm Fixed Effects	No	Yes	Yes	No
Country x Year Fixed Effects	No	No	Yes	No

Table 4

Sub-sample Analyses: Credit Rating Downgrades and ESG Policies

Panel A presents the sub-sample analyses of changes in ESG performance following a sovereign downgrade across firms with high and low discretionary accruals. We use *absolute discretionary accruals* to capture the extent of agency problems (i.e., managerial short-termism) within the firm, similar to Chen et al. (2015) and Kim et al. (2017). We split firms into high (where short-termist behavior is more likely to occur) and low discretionary accruals groups based on the country-industry-yearly median value of absolute discretionary accruals. We compute discretionary accruals using the modified Jones model as suggested in Dechow et al. (1995). Panel B presents the sub-sample analyses across countries with a “strong” *versus* a “weak” institutional environment. We split firms into weaker and stronger institutional groups based on the median value of strength of institutional environment. *Institutional Strength* is the first component obtained from principal component analysis based on seven proxies that capture strength of a country’s legal environment and investor protection including legal origin (common law), liability standard index, criminal sanctions index, public enforcement index, anti-director rights, one-share one vote, and creditor protection (following Li et al., 2019). *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm’s country rating is downgraded in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. Standard errors, clustered at the country level, are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Managerial Short-termism		
	<i>High Discretionary Accruals</i>	<i>Low Discretionary Accruals</i>
Bound	4.225*** (0.871)	2.505*** (0.752)
Sovereign Downgrade	1.864** (0.870)	0.897 (0.773)
Bound x Sovereign Downgrade	-6.360*** (2.328)	-2.763 (1.796)
Observations	7,505	8,769
R^2	0.523	0.505
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes
Panel B: Country’s Institutional Environment		
	<i>Weak Institutional Strength</i>	<i>Strong Institutional Strength</i>
Bound	1.825 (1.341)	4.133 (2.832)
Sovereign Downgrade	-0.006 (0.599)	2.076** (0.908)
Bound x Sovereign Downgrade	-3.117*** (0.857)	-2.472 (2.327)
Observations	4,623	13,272
R^2	0.544	0.486
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes

Table 4 (Continued)
Sub-sample Analyses: Credit Rating Downgrades and ESG Policies

Panel C: Country's Competition Laws		
	<i>Weak Competition Laws</i>	<i>Strict Competition Laws</i>
Bound	2.656 (1.958)	2.861 (2.005)
Sovereign Downgrade	1.765 (1.295)	1.219*** (0.434)
Bound x Sovereign Downgrade	-2.657* (1.560)	-4.231*** (1.494)
Observations	3,273	14,622
R^2	0.539	0.501
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes

Table 5
Regression Discontinuity Design

This table presents the results *after* restricting the sample of bound (treatment) and non-bound (control) firms that are similar in terms of their credit rating (i.e., those rated “just above” or “at” *versus* those rated “just below” their sovereign rating). We compute the distance between each firm’s rating and its sovereign rating (cut-off) in year ($t-1$). In Model 1, our sample includes only firms with a distance window [bandwidth] of $[-1,0]$. A negative (positive) value indicate the firm’s credit rating is just below (just above) the sovereign rating in the year before a sovereign downgrade, while 0 means the firm’s credit rating is equal to (or at) the sovereign rating. In Model 2, our sample uses firms with a rating one notch below, at or one notch above the corresponding sovereign rating [i.e., $-1,+1$]. In Model 3, our sample includes firms with a rating ranging from two notches below to one notch above the sovereign rating [i.e., $-2,+1$]. The dependent variable is the firm’s ESG score in year $t+1$. In Model 1, *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to the sovereign rating in year $t-1$. In Models 2 and 3, *Bound* takes the value of 1 if a firm has a credit rating equal to or one notch above the sovereign rating in year $t-1$. *Sovereign Downgrade* is a dummy variable that takes the value 1 one if a firm’s country rating is downgraded in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

<i>Distance = Firm Rating - Sovereign Rating</i>	Distance Window		
	<i>[Just Below, At or Just Above]</i>		
	<i>[-1,0]</i> Model 1	<i>[-1,+1]</i> Model 2	<i>[-2,+1]</i> Model 3
Bound	1.401 (0.870)	1.661* (0.923)	2.782*** (0.958)
Sovereign Downgrade	1.276 (1.383)	1.507 (1.411)	2.203** (1.015)
Bound x Sovereign Downgrade	-3.444* (1.821)	-4.178** (1.729)	-4.711*** (1.262)
Observations	1,363	1,660	2,290
R^2	0.541	0.526	0.546
Firm Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes

Table 6
Evidence From ESG Risk Incidents

This table presents evidence from logit models that predict the likelihood of major ESG risk incidents following a sovereign downgrade. The dependent variable in Model 1 is *Extreme ESG Risk Incident*, which is a dummy variable that takes the value of 1 if a firm has a high incident rate (i.e., the value of RRI index between 60 and 100) in year $t+1$; and in Model 2 if a firm has a high incident rate either in year $t+1$ or in year $t+2$. The RRI (RepRisk Index) ranges from 0 to 100 and captures the firm-level risk exposure to ESG incidents. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgraded in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. Standard errors are reported in parentheses. ** and * denote statistical significance at the 5% and 10% levels, respectively.

	Extreme ESG Risk Incident	
	Model 1	Model 2
Bound	1.200** (0.477)	1.044** (0.477)
Sovereign Downgrade	0.390* (0.229)	0.250 (0.260)
Bound x Sovereign Downgrade	0.799** (0.394)	0.674** (0.319)
Observations	15,618	15,618
Pseudo R^2	0.400	0.393
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes

Table 7
Evidence From Corporate Charitable Donations

This table presents evidence from corporate charitable donations. The dependent variable is the total amount of charitable donations *per* one million in sales revenue in year $t+1$ (Model 1) and the total amount of charitable donations in year $t+1$ (Model 2). Total donations (in US\$) include donations by the company as well as by its foundations or trusts such as product donation, charity, philanthropy, sponsorship, and grants. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgraded in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound* x *Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. Standard errors are reported in parentheses. ** denote statistical significance at the 5% level.

	Corporate Charitable Donations	
	(Donations <i>per</i> one million revenues)	(Total US\$ mil. Donations)
	Model 1	Model 2
Bound	536.069** (253.469)	43.076** (19.428)
Sovereign Downgrade	106.562** (47.393)	4.173 (2.971)
Bound x Sovereign Downgrade	-460.363** (182.040)	-18.544** (8.536)
Observations	7,750	7,755
R^2	0.303	0.278
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes

Table 8
Evidence From Negative Credit Watch

This table presents the analyses of changes in bound firms' ESG performance following those downgrades that were not placed under (neutral or negative) credit watch by rating agencies in the year before the sovereign downgrade. The dependent variable is the firm's ESG score in year $t+1$. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgraded in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1
Bound	1.171 (2.028)
Sovereign Downgrade	1.530*** (0.522)
Bound x Sovereign Downgrade	-4.902*** (1.555)
Observations	17,363
R^2	0.510
Firm Controls	Yes
Year Fixed Effects	Yes
Industry Fixed Effects	Yes
Country Fixed Effects	Yes

Table 9
Placebo Events and ESG Performance

This table presents the placebo analyses on the changes in firms' ESG performance following two placebo events (Financial Crisis and Economic Recession). The dependent variable is the firm's ESG score in year $t+1$. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$. *Financial Crisis* is an indicator equal to 1 for all countries over the period 2007 – 2009. *Economic Recession* is an indicator equal to 1 if a country has more than six months in recession (based on the composite economic indicators from OECD) in year t . The main variable of interest is the interaction between *Bound* and *Financial Crisis* in Model 1, and *Bound* and *Economic Recession* in Model 2. Analytical definitions for all variables are provided in the Appendix A. Standard errors are reported in parentheses. *** and ** denote statistical significance at the 1% and 5% levels, respectively.

	Model 1	Model 2
Bound	2.805** (1.316)	2.011 (1.619)
Financial Crisis	12.911*** (0.781)	- -
Bound x Financial Crisis	-2.235 (1.406)	- -
Economic Recession	- -	-0.008 (0.291)
Bound x Economic Recession	- -	1.145 (1.204)
Observations	17,895	17,895
R^2	0.512	0.512
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes

Table 10
Additional Robustness Checks

This table presents results from additional robustness tests. Model 1 excludes firms from countries that never experience a sovereign downgrade in our sample period. Model 2 excludes firms from the utilities industry. Model 3 excludes firms from countries with fewer than 100 observations in our sample period. Models 4 and 5 exclude US and Brazilian firms, respectively. Model 6 includes firms without a credit rating. Finally, Model 7 accounts for cases where a country has been downgraded and then subsequently upgraded within the same calendar year. The dependent variable is the firm's ESG score in year $t+1$. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgraded in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. Standard errors are reported in parentheses. ***, **, * and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Exclude countries without sovereign downgrades	Exclude Utility firms	Exclude US firms	Exclude Brazilian firms	Exclude countries with fewer than 100 obs	Include non-rated firms	Country(ies) with downgrades and subsequent upgrades
Bound	3.362** (1.394)	2.725 (1.760)	2.284* (1.217)	3.217** (1.491)	3.211* (1.669)	7.355*** (1.376)	2.855* (1.434)
Sovereign Downgrade	1.487** (0.597)	0.918* (0.494)	1.277* (0.725)	1.437** (0.575)	1.158** (0.537)	0.235 (0.537)	1.380** (0.533)
Bound x Sovereign Downgrade	-3.688*** (1.085)	-2.670* (1.413)	-2.705** (1.242)	-2.630** (1.261)	-4.412*** (1.261)	-4.270*** (1.488)	-3.220** (1.211)
Observations	14,659	13,720	8,970	17,630	16,868	46,828	17,895
R^2	0.512	0.538	0.520	0.515	0.517	0.434	0.512
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Internet Appendix:
**Backing Away from ESG? The Effect of Sovereign
Rating Downgrades on Corporate ESG Policies**

Abstract

In this Internet Appendix, we offer supplementary results for our paper “Backing Away from ESG? The Effect of Sovereign Rating Downgrades on Corporate ESG Policies”

IA.1 Disentangling E, S and G Dimensions

Our main findings show that bound firms are negatively associated with the aggregated measure of ESG performance in the year after a sovereign downgrade. In this section, we examine which components of firms' ESG score are most likely to decrease following a downgrade. Specifically, we split firms' ESG score into two components — stakeholder (E&S) performance and governance (G) performance — and repeat the analysis of our baseline specification (Model 2) in Table 2 of the paper.

The results, as presented in Table IA.1, show a negative relationship between the interaction term (*Bound x Sovereign Downgrade*) and various components of ESG performance. The results are also statistically significant at conventional levels (with an exception of environmental score). We interpret these findings as an indication that bound firms' decrease their ESG investments at an aggregate level rather than on a particular ESG dimension.

IA.2 Evidence From Recent Version of Refinitiv ESG Data

In this section, we re-run the regression results from Table 4 by using the most recent version of ESG scores from Refinitiv (downloaded in October 2022). We are doing this because [Berg et al. \(2020\)](#) observe significant differences in Refinitiv ESG scores when they downloaded the data on different dates. Specifically, they noted that Refinitiv rewrite their ESG scores on an ongoing basis and therefore recommended that studies (such as the current one) use Refinitiv ESG score to do a verification check. We can confirm that our main findings are not affected even after downloading the most recent version of Refinitiv ESG scores.

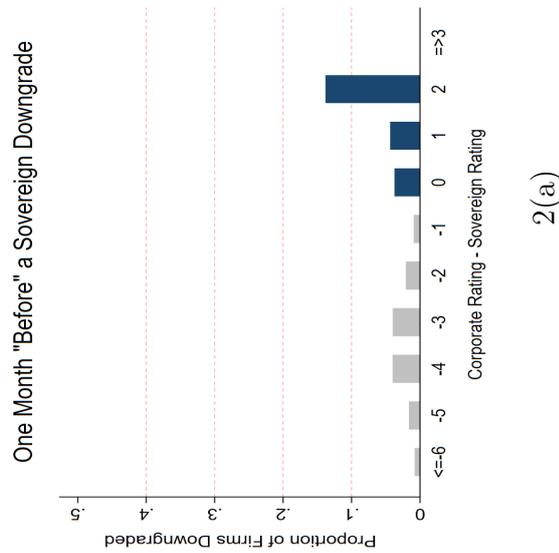
References

Berg, F., Fabisik, K., Sautner, Z., 2020. Is history repeating itself? the (un) predictable past of ESG ratings. European Corporate Governance Institute–Finance Working Paper 708.

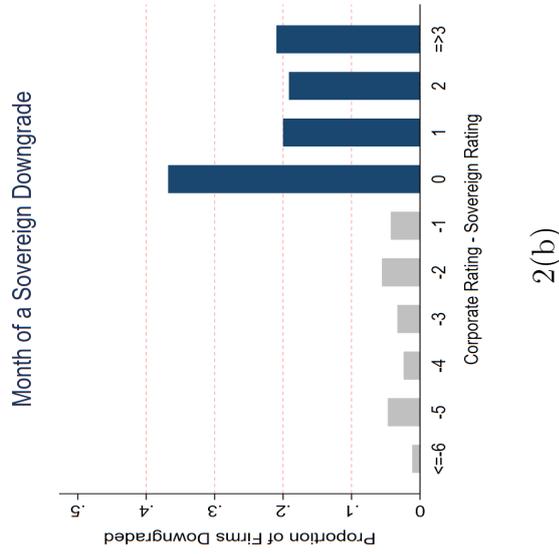
Figure IA.1

Proportion of firms in each group whose rating is downgraded in the month before, the month of, and the month after a sovereign downgrade.

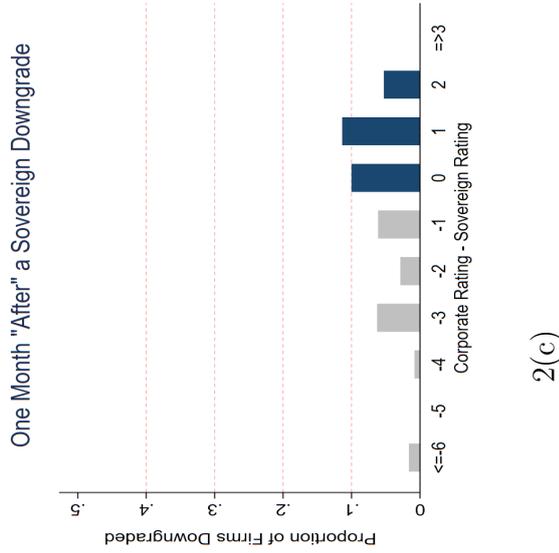
The figure depicts the proportion of firms that had a corporate rating downgrade, grouped by the pre-downgrade distance between corporate credit rating and the corresponding sovereign credit rating, the month before (left panel), the month of (middle panel), and the month after (right panel) a sovereign downgrade. Grey bars represent firms rated below their country of domicile (non-bound firms), while navy bars represent firms rated at or above their country of domicile (bound firms).



2(a)



2(b)



2(c)

Table IA.1
Governance (G) and Stakeholders' (E&S) Performance

This table presents regression results on the effect of sovereign downgrade on Governance and Stakeholder performance. The dependent variable in Models 1 and 2 is Governance (G) and Stakeholder (E&S) score in year $t+1$, respectively. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgrades in year t . The main variable of interest is the interaction between Bound and Sovereign Downgrade (*Bound x Sovereign Downgrade*). Analytical definitions for all variables are provided in Appendix A. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Governance Performance	E&S Performance
Bound	1.397 (1.621)	3.146* (1.748)
Sovereign Downgrade	-0.108 (0.459)	1.969*** (0.730)
Bound x Sovereign Downgrade	-2.602 (1.575)	-3.244** (1.510)
Observations	17,895	17,895
R^2	0.170	0.556
Firm Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes

Table IA.2

Evidence From Recent Version of Refinitiv ESG Data

This table presents the analyses of changes in firms' ESG policies following a sovereign rating downgrade using more recent ESG data (downloaded in October 2022). The dependent variable is the firm's ESG score^{Recent Version} in year $t+1$. *Bound* is a dummy variable that takes the value of 1 if a firm has a credit rating equal to or above the sovereign rating in year $t-1$, and *Sovereign Downgrade* is a dummy variable that takes the value of 1 if a firm's country rating is downgraded in year t . The main variable of interest is the interaction between *Bound* and *Sovereign Downgrade* (*Bound* x *Sovereign Downgrade*). In Model 1, we use year, industry and country fixed effects. In Model 2, we control for Firm and Year fixed effects, whereas in Model 3 we include Firm and two way Country-Year fixed effects. Model 4 incorporates Year and Industry fixed effects, as well as a set of country level controls. Analytical definitions for all variables are provided in Appendix A. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1	Model 2	Model 3	Model 4
Bound	2.500** (1.184)	1.035** (0.498)	1.689*** (0.598)	4.337*** (1.303)
Sovereign Downgrade	1.513*** (0.544)	0.445 (0.343)	-2.719 (7.028)	2.425*** (0.708)
Bound x Sovereign Downgrade	-2.800** (1.120)	-1.858** (0.845)	-2.646** (1.073)	-2.545* (1.431)
Observations	18,014	18,014	18,014	18,014
R^2	0.511	0.851	0.862	0.488
Year Fixed Effects	Yes	Yes	No	Yes
Industry Fixed Effects	Yes	No	No	Yes
Country Fixed Effects	Yes	No	No	No
Firm Fixed Effects	No	Yes	Yes	No
Country x Year Fixed Effects	No	No	Yes	No