Environmental Political Risk and Green Corporate Investments *

Abstract

We examine how environmental political risk (E-PRisk), a political component of climate transition risk, shapes global green corporate investment. Using firm-level E-PRisk from earnings conference calls and detailed data on green capital and R&D spending worldwide, we show that higher E-PRisk lowers the level and share of green capital expenditure over the following year, while leaving total investment largely unchanged. Firms temporarily reallocate from green to conventional projects, especially when they are carbon-intensive, financially unconstrained, or reliant on low-redeployability assets. Dynamics, including a reversal once E-PRisk resolves and complementary evidence around election cycles and disaster-driven shocks, point to a real-options delay mechanism that can materially slow decarbonization.

JEL Classifications: G11, Q54, M14, G3

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1 Introduction

Environmental externalities pose significant risks to long-term sustainability (e.g., Nordhaus, 2019; Gasparini and Tufano, 2023; Azar, Duro, Kadach, and Ormazabal, 2021). Addressing these challenges will require trillions in annual corporate investments in climate-mitigating projects (United Nations Global Compact, 2023; McKinsey&Company, 2021; Goldman Sachs, 2021).[1] Thus, green innovation and investment are central to the policy debate over how to balance economic growth with environmental protection (Acemoglu, Aghion, Bursztyn, and Hemous, 2012). Yet, firms hesitate to commit to green investment projects (GIPs). Only 16% of the 11,000 firms pledging net-zero targets are on track (Accenture, 2024; SBTi, 2025), a pattern linked to environmental policy uncertainty (United Nations DESA, 2024; OECD, 2024; Reuters, 2025).

In this paper, we analyze how environmental political risk (E-PRisk)—the unpredictability of government actions on climate regulation, carbon pricing, subsidies, and disclosure mandates, and a political dimension of climate transition risk—shapes corporate green investment. E-PRisk has risen since the Paris Agreement and is amplified by elections that reset climate agendas and regulatory priorities, with uneven firm-level exposure (Clark, 2024; Hassan, Hollander, van Lent, and Tahoun, 2019).[2] Classic theory and evidence show that uncertainty can depress investment by raising the option value of waiting (Bernanke, 1983; Abel and Eberly, 1994; Leahy and Whited, 1995; Bloom, Bond, and van Reenen, 2007). Yet, opposing mechanisms are plausible: uncertainty about future environmental policy can also spur earlier investment if firms seek first-mover advantages or anticipate tighter rules (Dean and Brown, 1995; Aragón-Correa and Sharma, 2003; Hoffmann and Trautmann, 2009; Sinn, 2008). Moreover, the applicability of traditional theories regarding investment under uncertainty to our setting where E-PRisk disproportionately affects a subset of firms' investment portfolios is unclear, depending for instance on the relative costs of adjusting firm scale versus their project mix. We therefore ask the following empirical questions: (i) Does E-PRisk change *how* firms invest—specifically, does it induce delay and reallocation away

[1] Substantial corporate investments are required to achieve a net-zero carbon emission, ranging from $3.5 trillion (McKinsey&Company, 2021) to $6 trillion (Goldman Sachs, 2021) in annual investments. Other estimates report a total of $50 trillion of investments in World Economic Forum (2022), $2.5 trillion from 2021 to 2030 for U.S. firms in Princeton University (2021), and between 0.5% and 4.5% of global GDP in International Monetary Fund (2021).

[2] Over 5,000 climate-related laws and policies are cataloged in the LSE *Climate Change Laws of the World* database, illustrating how regulatory proliferation fuels uncertainty. See also the *Financial Times*, "Inside Trump's First Strikes at Biden's Climate Legacy" (Jan. 30, 2025), and the *Wall Street Journal*, "The Regulatory State Is In Flux Like Never Before, and Businesses Are Hating It" (Sept. 3, 2024), which discuss how regulatory reversals across administrations create a "whiplash effect" that discourages long-horizon green investment.

from green projects (composition) or materially reduce total investment (level)? (ii) Under what conditions are E-PRisk's effects strongest, and through which mechanisms do they operate?

To answer these questions, we assemble an international firm-level panel that merges detailed sustainable-investment data with measures of E-PRisk. Our novel sustainable-investment data come from Corporate Knights Inc. (CK), a B-Corp that compiles firm-reported information and engages directly with companies. CK defines sustainable investments as capital, R&D, and acquisition expenditures that advance environmental objectives—for example, renewable energy, energy efficiency, or pollution reduction.[3] The resulting dataset covers over 2,500 firms across 37 countries from 2019–2022 (9,289 firm-years), with U.S. firms comprising about one-third of the sample. In our data, total green investment reaches $562 billion in 2022, a 52% increase relative to 2019.

To measure firm-specific E-PRisk, we use the Hassan et al. (2019) measure built from earnings conference call transcripts, as adapted to the environmental policy domain. This measure is the share of discussion devoted to two-word combinations ("bigrams") common to political text and environmental policy. Hassan et al. (2019) extensively validate this risk measure by showing that it intuitively spikes with political events such as elections, and realized and implied volatility, among other tests. Importantly, the nature of this measure is *firm-level* i.e., it is mostly unexplained by time-varying industry or firm-industry fixed effects. E-PRisk co-moves with but is distinct from overall political risk, non-political risk, and sentiment, which we control for, along with time-varying climate exposure (Sautner, van Lent, Vilkov, and Zhang, 2023). We interpret E-PRisk as a firm-level measure of political transition risk, capturing uncertainty about the path of climate policy rather than physical climate risk or technology risk.

Our first main result is that firms scale back their subsequent GIPs when exposed to higher E-PRisk. Estimating stringent specifications with firm, country–year, and industry–year fixed effects and time-varying firm controls for political and non-political risk, sentiment, and climate exposure (Sautner et al., 2023), we find that a one–standard deviation increase in E-PRisk is associated with a 0.64 p.p. decline (6.2% relative to the sample mean) in the fraction of investment that is green in the following year. We find a corresponding 0.48 p.p. decline in green investment scaled by total assets, which equates to roughly $32 million less green investment for the average firm–year. In contrast, we see little relation between the green-investment share and other topical

[3] CK's ratings serve as inputs for investors representing $15 trillion in AUM, and *CK Magazine*, focused on advancing a sustainable economy, reaches around 400,000 senior business and policy decision-makers.

political-risk categories (economy, health, taxes, technology, trade). Moreover, the inclusion of these other risk dimensions alongside E-PRisk has little impact on the estimated relation between E-PRisk and green investment, pointing to a specific and tight link between GIPs and E-PRisk.

Next, we examine dynamics, via local projection (Jordà, 2005), to link our empirical results to the theoretical prediction that uncertainty leads firms to delay their investment activity. We find that the negative E-PRisk–GIP relation concentrates at a one-year horizon: E-PRisk reported this year predicts lower green investment over the remainder of the fiscal year, but does not relate to past green investment levels. Consistent with the theoretically predicted reversal, E-PRisk positively predicts investment during the following fiscal year with magnitudes similar to or larger than the initial negative effect. This pattern suggests that E-PRisk primarily captures forward-looking policy risk that resolves within roughly a year, which we support with evidence of substantial mean reversion in E-PRisk at the two year horizon. Overall, the dynamic relation between E-PRisk and GIPs is consistent with the impact of uncertainty on investment predicted by classic real-options models featuring irreversibility where projects are delayed instead of canceled and then proceed once uncertainty has resolved.

In contrast to the highly dynamic relation between E-PRisk and green investment, we find little evidence that E-PRisk significantly relates to firms' total investment. Part of the reason for this is that non-green investments absorb some of the slack as firms adjust their GIP spending. Firms reduce green investment in response to E-PRisk, but simultaneously offset over half of this with (a statistically insignificant) increase in non-green spending. In the following year, when firms reverse to increase their green spending, they significantly reduce their spending on brown projects. These effects net out, leading to an insignificant relation between E-PRisk and total investment. These findings highlight how firms can hedge uncertainty shifts across their investment portfolio.

Finally, we layer on election uncertainty as a potential amplifier of E-PRisk's dynamics. National elections in a firms home country—especially uncertain ones—extend the delay window. The next-year reversal that follows an E-PRisk shock does not materialize during the year of or immediately prior to elections. In other words, election-related uncertainty appears to lengthen the effective horizon over which E-PRisk depresses green investment, delaying resolution until after the vote.

We also conduct a series of heterogeneity analyses to shed light on the types of firms and investments that are most sensitive to E-PRisk. We find that the E-PRisk effect concentrates in the green capital expenditures

of firms already undertaking green projects and among firms with less redeployable assets. By contrast, we find no significant relation between E-PRisk and R&D investment, and E-PRisk is weakly positive (statistically insignificant) for non-green investment and for the share of green investment among (i) firms with below-median asset redeployability and (ii) the approximate 30% of firms with no ongoing green investment. This pattern lines up with the predictions of a real options theory of investment: uncertainty depresses irreversible CAPEX but not multi-stage or option-like R&D, where the value of waiting can increase with uncertainty (Bernanke, 1983; Atanassov, Julio, and Leng, 2024).

As a complementary test, we exploit within-country climate disasters as plausibly exogenous shocks that raise the salience of environmental policy and trigger regulatory responses. Natural disasters are largely unanticipated from a market perspective and trigger short-lived spikes in risk and attention (e.g., Cortés and Strahan, 2017; Correa, He, Herpfer, and Lel, 2023). Personal experience shapes political behavior and policy support (e.g., Fiorina, 1981); accordingly, disaster exposure increases pro-environmental policy support and shifts electoral outcomes (e.g., Baccini and Leemann, 2020; Masiero, 2021; Duch and Stevenson, 2006; Bechtel and Hainmueller, 2011; Gasper and Reeves, 2011). Following shift-share logic, firms with higher pre-determined exposure ("beta") to aggregate political risk experience larger post-disaster increases in E-PRisk. We document that disasters are followed by transitory E-PRisk spikes for high-beta firms relative to low-beta peers, and in these windows, green CAPEX falls while non-green rises, leaving total investment flat.

We provide empirical analysis of three questions: whether E-PRisk changes how firms invest (composition versus level), when and through which mechanisms its effects are strongest, and how elections and natural disasters interact with those effects. In doing so, we contribute to several strands of research in finance and sustainability. Classic work shows that uncertainty—political, policy, or macro—reduces or delays investment via real-options and financing channels, and typically focuses on how aggregate uncertainty affects the level of capital expenditures (e.g., Bloom, Bond, and van Reenen, 2007; Pástor and Veronesi, 2012; Julio and Yook, 2012; Gulen and Ion, 2016; Jens, 2017). We extend this literature by isolating a specific uncertainty, environmental political risk, and linking it to a specific project portfolio decision: the composition of capital formation between green and non-green projects. Aggregate investment remains roughly flat, but its composition shifts away from policy-exposed green projects—a policy-relevant finding that standard investment *level* regressions can miss. This pattern is consistent

with regulatory hedging—firms reallocating toward more reversible or less policy-exposed investments (Akey and Appel, 2021)—and clarifies how managers manage risk under uncertain policy regimes. In sum, policy credibility, not only policy design, shapes the pace of green investment (Acemoglu et al., 2012).

These patterns motivate our second contribution to the political risk investment literature, by mapping E-PRisk to firms' actual green spending rather than to proxies or local program take-up. Prior work emphasizes subsidy volatility and green R&D in specific settings (e.g., China; Wang, Wurgler, and Zhang, 2023) or pre-policy acceleration consistent with a "green-paradox" timing channel (Albuquerque, Kruttli, Ma, and Watugala, 2024). Our study differs in several ways. First, we take a global perspective reflecting the global reach of climate policy. Second, our firm-level E-PRisk measure and the decomposition of investment into capital and R&D clarify how firms respond: we document substantial cross-firm and cross-industry heterogeneity not captured by aggregate political shifts (Hassan et al., 2019), and consistent with real-options predictions, the E-PRisk effect concentrates in CAPEX, not R&D. Finally, the dynamics reinforce the mechanism: heightened E-PRisk deters and delays green investment, reallocating budgets from green to non-green projects with a sharp post-spike rebound in green spending, distinguishing our evidence from green-paradox patterns. Taken together, these elements provide novel evidence that E-PRisk systematically alters the composition of corporate investment toward less policy-exposed projects, while leaving total investment roughly unchanged.

We further relate to studies on climate transition risk that link climate policy and investor expectations to asset prices and financing costs (e.g., Bolton and Kacperczyk, 2023; Ilhan, Sautner, and Vilkov, 2021; Giese, Lee, Melas, Nagy, and Nishikawa, 2019). We extend this work by showing that E-PRisk, which captures the political component of climate transition risk, is associated with firms' willingness to commit to green projects. In the climate finance literature, this political component complements transition-risk measures extracted from climate news indices and hedge portfolios (Engle, Giglio, Kelly, Lee, and Stroebel, 2020), carbon tail-risk measures based on high-emission downside exposure (Ilhan, Sautner, and Vilkov, 2021), and emission-based carbon transition risk premia (Bolton and Kacperczyk, 2021; Pástor, Stambaugh, and Taylor, 2022). Our contribution is to bring a firm-level political transition-risk proxy to the real side and show that it operates through a compositional channel in investment, tilting capital formation away from long-horizon, policy-exposed green assets. These results align with Fried, Jacob, and Nimark (2021), who demonstrate in a DSGE framework that uncertainty about future

climate policy can delay abatement and generate macroeconomic costs. Our evidence connects the pricing of transition risk in capital markets to its real-economic consequences for corporate investment.

Finally, we complement the corporate sustainability and green finance literature, which typically study sustainability using ESG scores, investor preferences, disclosure, or valuation (e.g., Pástor, Stambaugh, and Taylor, 2022; Bolton and Kacperczyk, 2021). In contrast, we focus on green corporate investments, the tangible capital and R&D expenditures that drive firms' environmental transition. In our sample, the correlation between firms' green investment ratios and their ESG scores is essentially zero (around 0.03 in our sample), underscoring that GIPs capture real investment activity rather than perceived sustainability performance.

In sum, our findings suggest that environmental political uncertainty distorts capital allocation, steering firms from long-horizon, policy-exposed green projects toward shorter-horizon, lower-exposure investments. This compositional tilt can slow decarbonization even when aggregate investment is flat, highlighting credibility as a lever for accelerating the transition.

2 Data and Sample Construction

Sustainable Investments Data on corporate sustainable investments is obtained from Corporate Knights Inc. (CK), a sustainable-economy media and research B-Corp founded in 2002. CK produces global sustainability rankings, research reports and financial product ratings based on corporate sustainability performance. It assesses all publicly-traded companies worldwide with over US$1 billion in revenue across up to 25 key performance indicators, including sustainable investment, revenue, and racial and gender diversity. Its data sources include annual reports, sustainability reports, proxy/management circulars, and direct engagement with companies.

Green investment is defined as total corporate investment directed towards projects and research categorized as "sustainable." CK provides a breakdown of total investment into capital expenditures and R&D and uses its Sustainable Economy Taxonomy in classifying investments as sustainable. This taxonomy is informed by a synthesis of the sources including Climate Bonds Taxonomy (Climate Bonds Initiative), EU Taxonomy for Sustainable Activities, Sustainability Accounting Standards Board (SASB) reporting standards, and TCFD recommended climate opportunity metrics, and is extensively validated by CK analysts. This worldwide dataset thus expands

on existing country-specific data that use a green dictionary-based approach used to identify green corporate investment among Italian firms in Accetturo, Barboni, Cascarano, Garcia-Appendini, and Tomasi (2022) and R&D spending among Chinese firms in Wang, Wurgler, and Zhang (2023).[4]

As reported in Table 1, information on sustainable investments from this dataset is available for 9,289 firm-year observations, representing over 2,500 unique firms from 37 countries spanning 2019 through 2022. The United States comprises about 1/3 of the sample, with Japan, China, Canada, and the United Kingdom rounding out the top 5. The average sustainable investment ratio, defined as the percentage of sustainable to total investment, is 12.89%. Relative to firm size, GIPs represent about 1.53% of total assets. Most of this sustainable investment is in capital expenditures, rather than research and development, which makes up over four-fifths of this ratio. Appendix Table 6 provides several examples of GIPs made by companies in our sample.

[Table 1 here]

In dollar terms, the total green investment was $562 billion in 2022 up from $370 billion in 2019, with an upward trend in these investments over time for most countries. This trend comports with major policy initiatives such as the U.S. Inflation Reduction Act and the European Green Deal during this period and the backing by influential investors like BlackRock. These GIPs further reflect the growing recognition by firms that long-term business success is increasingly tied to sustainability.[5] For example, in its 2019 annual report, Unilever states that it invested in renewable energy, energy efficiency, sustainable packaging, and sustainable agriculture committed to achieving net-zero emissions by 2030.[6]

[4]Other sources include the Environmental Goods and Services Sector (Eurostat), the China Green Bond Endorsed Project Catalogue, the Green Bond Principles, and other private-sector rating agencies with sustainability taxonomies. Additionally, the taxonomy incorporates consultation with industry experts and feedback from government agencies to ensure comprehensive coverage of all relevant sub-sectors and a clear definition of sustainability. The CK Sustainable Economy Taxonomy is available at https://www.corporateknights.com/resources/corporate-knights-sustainable-taxonomy. For non-financial companies, sustainable investments are defined as any investments aligned with the CK Taxonomy. For financial sector companies, sustainable CAPEX includes investments that enhance operational sustainability, such as greening bank branches or purchasing EVs, and sustainable R&D refers to research and development focused on sustainable finance solutions, such as developing new wealth-management platforms to support values-aligned investing.

[5]These investment projects can take many forms in renewable energy, energy efficiency, waste reduction, sustainable agriculture, and responsible sourcing.

[6]Firms frequently note in their financial reports that integrating sustainability into their investment strategies helps internalize environmental externalities, capture the growing demand for green products and services, and enhance resilience and competitive positioning.

Firm-level Political Risk and Sentiment To analyze the relation with firm-level environmental political uncertainty, we also merge in firm-level political risk measures derived from earnings conference call data (Hassan et al., 2019). This measure is the term frequency and inverse document frequency (tf–idf) weighted share of discussion devoted to two-word combinations ("bigrams") common to political text as expressed in political science textbooks or speeches by politicians. Hassan et al. (2019) extensively validate this risk measure by showing that it intuitively spikes with political events such as elections, and realized and implied volatility, among other tests. Importantly, the nature of this measure is *firm-level* i.e., it is mostly unexplained by time-varying industry or firm-industry fixed effects. We confirm these findings in our sample for both overall and environmental-related political risk, indicating that environmental policy uncertainty is unevenly assigned to firms in a time-varying way. Hassan et al. (2019) also provide related measures of non-political risk and political sentiment that we use as controls throughout our tests, and uncertainty related to other topics such as economic policy, health, institutions, security & defense, tax, technology, and trade.

Other Data Throughout the paper, we also merge this dataset with Compustat Global, FactSet, and LSEG for financial, institutional investor, and ESG-specific data, respectively, which creates minor fluctuations in the number of firm-year observations as seen in Table 2. We also merge in the climate change exposure sentiment measures of Sautner et al. (2023). Finally, we introduce additional datasets used in specific analyses in subsequent sections when describing the corresponding tests.

[Table 2 here]

Summary Statistics Table 2 reports on summary statistics for our baseline sample. Requiring conference calls alongside a set of controls reduces the sample size to 3,966 firm-years, but focuses our analysis the most relevant companies that regularly communicate with investors. This finalized sample includes 1,134 unique firms from 31 countries. The average sustainable investment percentage is 10.30% after our sample restrictions, which is a slight reduction from the unrestricted average. Relative to total assets, green (non-green) investment is about 1.05% (9.41%), of which around four-fifths (two-thirds) are capital expenditures. This difference highlights that GIPs tilt toward capital rather than R&D investment. The average conference call discussion of environmental political

risk (E-PRisk) is 4.75 with standard deviation being about 4 to 5 times higher, indicating large dispersion in the assignment of E-PRisk across firms. The arrival of uncertainty is typically also associated with directional shocks, which we observe to be on average 1.39 (14.02) for political (non-political) sentiment. We observe that the average political and non-political sentiment is 1.39 and 14.02, respectively. The remainder of our summary statistics report on other control variables that we use throughout such as market capitalization, market-to-book, profitability, climate change exposure and sentiment, and ESG scores, among others.

3 Does Environmental Political Uncertainty Affect GIPs?

Our central objective is to study the consequences of E-PRisk for sustainable corporate investments around the world. On one hand, the extensive theoretical literature on investment under uncertainty and investment irreversibility highlights the option value of delay and predicts that uncertainty should lower investment at the firm level (e.g., Bernanke (1983), Dixit and Pindyck (1994), or Bloom, Bond, and van Reenen (2007)). However, several factors suggest that the actual effect of E-PRisk on GIPS may deviate from this theoretical benchmark. First, GIPs are relatively small proportions of overall investment. Thus, standard theories that study the timing of *single* projects or *total* investment have unclear implications about project composition when uncertainty differentially hits the opportunity set. The baseline effect on firm investment level and composition, which we aim to use our data to infer, can depend for instance on the relative costs of adjusting firm scale versus their project mix. Second, opposing mechanisms are plausible: first-mover advantages, anticipation of tighter regulation, or green-washing may provide offsetting incentives to the option value of waiting (Dean and Brown, 1995; Aragón-Correa and Sharma, 2003; Hoffmann and Trautmann, 2009; Sinn, 2008; Delmas and Burbano, 2011). Thus, the manner in which E-PRisk change how firms invest, including whether it delays GIPs, triggers reallocation away from GIPs toward other projects, or affects total investment levels are all unanswered empirical questions.

3.1 Baseline Regressions

As a first step toward addressing these empirical questions, we estimate panel regressions where the dependent variable reflects measures of investment, including the extent of GIPs, and the explanatory variable of interest

measures E-PRisk, extracted from earnings conference calls. Specifically, for investment by firm i in year $t+1$, we estimate the following panel regression,

$$\text{Investment}_{i,t+1} = \gamma_1 \text{E-PRisk}_{i,t} + \gamma_2 \text{PRisk}_{i,t} + \gamma_3 \text{Non-PRisk}_{i,t} + \lambda \mathbf{X_{i,t}} + \text{FEs} + \epsilon_{i,t}, \tag{1}$$

where $\text{E-PRisk}_{i,t}$ is the firm's E-PRisk in year t, $\text{PRisk}_{i,t}$ ($\text{Non-PRisk}_{i,t}$) is overall political (non-political) risk, and $\mathbf{X_{i,t}}$ is a possible set of controls. Our primary investment variable is the percentage of total investment devoted to sustainable projects (% green investment). Throughout, we standardize E-PRisk by dividing by its full sample standard deviation for interpretation. Across specifications, we also progressively include tighter controls to Eq. (1) with combinations of firm, country×year, industry×year fixed effects and time-varying firm variables that control for constant firm effects (such as carbon-intensiveness), any time-varying country and industry unobserved effects (such as country or sector-related regulations and shocks), and distinct time-varying firm effects that can independently affect sustainable investment. For inference, we report t-statistics based on robust standard errors clustered by firm.

Table 3 reports on our main results. Column (1) reports our baseline specification with a basic set of controls, firm fixed effects, and year fixed effects. The inclusion of overall political and non-political risk as controls means that we interpret the coefficient on E-PRisk as the effect of E-PRisk on next year's investment orthogonal to the effect of overall conference call discussions of uncertainty. We observe that heightened E-PRisk reduces total sustainable investments with significance at the 1% level ($t = -2.86$). In contrast, controlling for E-PRisk, the coefficients on PRisk and Non-PRisk are insignificant, showing that non-environmental political and non-political uncertainty do not affect the fraction of investments that are green. These findings highlight the novelty of our empirical setting as E-PRisk, but not total political risk, affects the subset of projects most directly exposed to environmental policy.

[Table 3 here]

Across the remaining columns of Table 3, we sharpen these interpretations in five important ways, none of which materially affect our interpretation of the baseline result in Column (1). First, news about uncertainty often accompanies news about the level. Thus, following Hassan et al. (2019), we augment the regression with

political and non-political sentiment in Column (2). Second, we also add in country-year and industry-year fixed effects in Column (3). Third, although we already include firm fixed effects, other distinct time-varying firm effects may confound the effects of E-PRisk. Therefore, in Column (4) similar to Gad, Nikolaev, Tahoun, and van Lent (2024), to isolate the effect of E-PRisk, we include a battery of firm-level controls in $\mathbf{X_{i,t}}$ that may help explain investment: firm size as measured by the natural log of market capitalization, log market-to-book, profitability measured by ROA, leverage via , foreign ownership shares, "generic" firm risk as measured by return volatility (Return SD), and ESG scores (see Internet Appendix Table IA.3 for control variable coefficient estimates). We also include the climate change exposure and sentiment measures of Sautner et al. (2023) as E-PRisk may simply proxy for overall environmental and climate exposure and not necessarily the political aspect. Fourth, in Column (5), to account for the disproportionate presence of U.S. firms in our sample, we estimate a weighted least squares regression using the inverse of the number of firms from a given country as weights. Lastly, in Columns (6) and (7), we alternatively scale dollar sustainable investment by total assets and find that the compositional shift away from green is driven by cuts in GIPs, which is substituted (insignificantly) toward non-GIPs.

Our most stringent specification in column (4) indicates a highly statistically significant and economically sizeable sensitivity of GIPs to E-PRisk ($t = -3.85$). A one standard deviation increase in E-PRisk, which is already standardized, is associated with a -0.64 percentage point drop in the share of green investment. This is a $0.64/10.30 = 6.2\%$ drop relative to the sample mean. In dollar terms, the estimate in Column (6) indicates that one standard deviation increase in E-PRisk is associated with a -0.48 drop in green investment relative to assets, which, evaluated at the average total assets, is around $-0.48/1000 \times \$68.34$ billion $= -\$32$ million.

3.2 Controlling for Concurrent Managerial Discussions

We next control for the potential confounding effects of other call topics co-existing with discussion of E-PRisk, which helps to isolate the effect of E-PRisk from correlated managerial discussion of other risks. Likely due to firms' bundling together political uncertainty discussion, Appendix Table IA.1 shows that E-PRisk is not only positively correlated with PRisk and non-PRisk but also to various degrees with other political uncertainty topics such as healthcare and technology. If we omit these topics, the estimated coefficient on E-PRisk will absorb variation due to these co-occurring narratives (e.g., firms that talk more about regulatory or technological risk

may also talk more about the environment and simultaneously scale back capex). Despite our prediction that only the environmental component of policy risk withh directly affect the fraction of green investment, it is possible that the omission of these other risk categories produces some attribution error.

In the top panel of Figure 2, we assess whether political risk related to non-environmental categories such as economic policy, health, institutions, security & defense, tax, technology, and trade predicts the percentage of a firm's investment that is in GIPs. Focusing on our strictest specification in Column (4) of Table 3, we observe that replacing E-PRisk one-by-one with these other topics indeed generates a negative point estimate similar to E-PRisk. But, at the 5% level, only health and technology are statistically significant, consistent with our conjecture that these topics are either incidentally bundled with E-PRisk or that they are multi-dimensional aspects related to the sensitivity of GIPs to E-PRisk.

[Figure 2 here]

To directly highlight the marginal effect of E-PRisk above and beyond other conference-call policy risk measures, the bottom panel of Figure 2, horseraces E-PRisk with the other policy risk topics. Across all of the other seven topics, we consistently observe that the effect of E-PRisk is significant and negative, and drives out the significance of any of the other topics. These conclusions remain when we alternatively examine green investment relative to total assets in Appendix Figure IA.2. This superior performance of E-PRisk in predicting investment in GIPs is consistent with E-PRisk directly impacting the subset of firms' projects that are most directly exposed to the environmental policy risks being measured.

3.3 Dynamics: A Reversal upon E-PRisk Resolution

Our finding that GIPs drop in response to E-PRisk supports the predictions of standard models of investment under uncertainty as motivated by the option value of delay. A key supporting and testable plank of these models is that the investment impact of E-PRisk will reverse when uncertainty fades. To examine whether the 1-year subsequent drop in GIPs are permanent or reversible, we examine the empirical impulse response of investment to E-PRisk via local projection (Jordà, 2005).

Specifically, we replace E-PRisk as of time t in Eq. (1) with its lead and lag values from time $t-1$ to $t+4$.

Figure 3 plots the resulting coefficients, where the x-axis represents the interval between the arrival of E-PRisk and the sustainable investment response by firms, and the y-variable is the one standard deviation effect on percentage green investment. Accordingly, the value plotted at time $t+1$ corresponds to the coefficient in Column (4) of Table 3. As we discuss above, we interpret it as showing a negative relation between E-PRisk and percentage green investment over the coming fiscal year, whereby firms invest less (more) in green projects when E-PRisk is high (low). Comfortingly, the coefficients at time t and time $t-1$ indicate that there is no relation between E-PRisk and the extent of current and past green investment. The lack of pre-trends highlights the forward looking nature of the uncertainty measure, and that it is an idiosyncratic *shock* consistent with Hassan et al. (2019).

[Figure 3 here]

More importantly, the coefficient at time $t+2$ in Figure 3 supports a key prediction of investment under uncertainty models: it is positive, statistically significant, and *larger* in magnitude than the negative coefficient at time $t+1$. This indicates a complete reversal of the sustainable investment cut two years after the arrival of E-PRisk. Thus, firms do not permanently reduce their long-run green investments, but rather delays their investment until future periods when the uncertainty resolves.

Table 4 provides empirical support rationalizing the idea that E-PRisk (but not other confounders) indeed resolves beyond a one-year horizon, which is consistent with observed sustainable investment reversal. Panel A reports on how firms' risk and sentiment one year later respond to the arrival of E-PRisk. In Column (1) of Panel A, a one standard deviation increase in E-PRisk is associated with a -0.47 reversal in future E-PRisk. Columns (2) and (3) show that the reversal is not due to broad movements in political risk, though the remaining columns show some evidence that there is additional future sentiment. To align with the timing with observed the investment reversal, Panel B shows the effects in two years. Again, we see that E-PRisk reverses by -0.45, partially driven by lower overall PRisk. Notably, in the remaining columns, there is no change in various measures of sentiment, showing that it is the resolution of uncertainty that drives the reversal.

[Table 4 here]

3.4 Investment Composition Shifts due to E-PRisk

The results thus far show that E-PRisk affects green investment in a manner consistent with real options theories of investment: Firms delay green investment until uncertainty passes. A unique feature of our empirical setting, that is largely absent from classic real-options models (e.g., Dixit and Pindyck (1994)), is that the impact of the uncertainties we examine concentrates around a subset of firms' investment portfolios (see e.g., Columns (6) and (7) of Table 3).

Specifically, standard models typically consider economy- or firm-wide uncertainty shocks, enabling the study of "how much and when" to invest. However, the uneven of impact of E-PRisk across a firm's opportunity set that we document creates a portfolio problem inside the firm. Faced with a green-specific uncertainty shock, the firm can (a) contract overall scale, or (b) reoptimize its mix by tilting from high-exposure to low-exposure projects, subject to cross-sectional properties such as adjustment costs, financial constraints, and irreversibilities. This compositional dimensional is important for understanding green investment because sustainable policy uncertainties such as subsidies and compliance costs are project type-specific.

Key to answering our main research question of the E-PRisk effect on how firms invest is understanding the extent that E-PRisk induces compositional shifts in firms' investment portfolios. If adjustment costs are lower between green and non-green investments, but higher in terms of scaling firm size, then we expect firms to substitute toward non-green projects, which buoy total investment even as green investment declines. If instead, the costs to adjusting firm scale is low or it is hard to substitute inputs between green and brown projects, then brown investment may remain flat leading total investment to decline in tandem with green investment.

Figure 4 investigates this tension by reporting the contrasting dynamics of *green* investment relative to total assets with *non-green* investment. In the top panel, we find that green investment scaled by total assets drops for one year, but then fully reverses the following year after the resolution of E-PRisk. This dynamic effect of E-PRisk on firms' green investment scaled by total assets evolves similarly to corresponding effect in Figure 3, where we scale green investment by total investment. In the bottom panel, we observe a mirror image: non-green investment is (insignificantly) higher in year $t+1$, which reverses downwards in $t+2$.

[Figure 4 here]

Comparing the magnitudes across the two panels indicates an almost complete substitution between green and non-green investments in years $t+1$ and $t+2$. In year $t+1$, a one SD increase in E-PRisk leads green investment to fall by just under 0.5% of total assets, while non-green investment rises over 0.3% of total assets. In year $t+2$, both effect switch indicating that green investment rises by 0.8% of total assets and non-green investment falling by 1.0% of total assets. Notably, in Appendix Figure IA.3, we show how these effects net out leading to a flat pattern in the sum of green and non-green investment that is insignificantly different from zero in all periods. Thus, E-PRisk appears to restructure the green investment pipeline even as overall investment remains unchanged.

3.5 Role of Election Uncertainty

We next conduct an event study around country elections to investigate the role of election-induced political uncertainty for investment (Bloom, Bond, and van Reenen, 2007; Julio and Yook, 2012; Jens, 2017). Election uncertainty is especially relevant given the cycles of brinksmanship among political parties around the world. Moreover, Hassan et al. (2019) document that overall political risk indeed spikes around elections, suggesting that elections may contribute to E-PRisk.

To test for the role of elections, we collect data on general election dates, during which voters determine majority party control of the government. Year t for a given country is labeled as an election year if the election date occurs in calendar year Q3 or Q4, and the previous year otherwise. Using a news media search, we further create an "uncertain" election year indicator to identify when the election issues comprised of polarized debate around environmental policy. In our tests, we augment Eq. (1) with an election year interaction with E-PRisk either one-year or two-years prior to the year of the percentage green investment to examine differences in the effect of E-PRisk around elections. Table 5 reports on the results.

[Table 5 here]

The baseline regressions in Column (1) indicate that upcoming elections have little interactive effect with E-PRisk's impact on investment over the remainder of the fiscal year. Thus, the propensity for firms to delay investment in response to E-PRisk is similar whether there is an upcoming election or not, suggesting that firms

treat election-induced E-PRisk and other types of E-PRisk similarly in their investment decisions.

Column (2) shows that upcoming elections do, however, significantly affect the extent to which the delayed investments reverse in the upcoming year. The negative and significant interaction ($t = -2.09$) between time $t-2$ E-PRisk and GIPs, summed against the baseline E-PRisk coefficient of similar magnitude, indicates that there is no immediate reversal when the reversal was set to occur during an election year. Column (3) indicates a similar result measuring future elections over the two subsequent years. Thus, election cycles can have a multi-year impact on the resolution of E-PRisk as it pertains to firms' investment decisions. In Columns (4) through (6), we show that this impact on E-PRisk resolution is most pronounced for uncertain elections, defined as the subset of elections where the media reported significant policy uncertainty on sustainability and the environment. Lastly, as Jens (2017) reports that investment rebounds depend on political positions, we separately examine sub-samples based on if the incumbent party tilted toward sustainable green policies or not. We find significant delays in the investment reversal due to E-PRisk across these sub-samples, however the magnitude of effect is more than twice as large when non-green parties are the incumbents.

4 Mechanism Tests of the Option Value of Delay

The evidence presented thus far addresses our central research question of how E-PRisk changes the way firms invest. We find that E-PRisk acts as a distinct, green-specific policy shock that reshapes both the timing and composition of investment rather than simply depressing the level. Heightened E-PRisk robustly and sizably reduces the share of investment allocated to sustainable projects, even after conditioning on other uncertainty topics, sentiment, and a rich set of fixed effects and controls. The combination of subsequent reversal in green investment, the substitution of non-green investment, and the flat response of total investment are consistent with firms temporarily reallocating their investment portfolios in line with real options logic.

We next conduct a series of additional tests to further address our second main research question, regarding the driving forces behind E-PRisk's investment impact. We motivate most of these tests from the predictions of theories of investment under uncertainty.

4.1 Decomposing Capital and R&D Investment

In interpreting our results, we importantly note that the option value of delay in models of investment under uncertainty applies much more naturally to traditional capital expenditures than to growth options such as R&D. Capital investments in plants, equipment, or long-lived green assets are typically large, illiquid, and difficult to reverse, so committing today exposes the firm to substantial downside risk if uncertainty resolves unfavorably, making the option to wait valuable. By contrast, R&D is more flexible and multi-staged: firms can ramp effort up or down, terminate unpromising projects, and often reuse accumulated capital and knowledge stock, which limit the downside of acting early. Moreover, R&D spending itself generates information and capabilities that expand the firm's opportunity set, creating convex payoffs for which uncertainty can increase, rather than decrease, the incentive to invest (Atanassov, Julio, and Leng, 2024). In Table 6, we decompose total investment to empirically study the relative impact of E-PRisk on capital expenditure, R&D, and acquisition activity.

[Table 6 here]

The results indicate that the entirety of E-PRisk's investment impact resides in capital expenditure investment. Column (1) shows that % green capital expenditure significantly drops by -0.70 ($t = -1.99$) with a 1 SD increase in E-PRisk, while Columns (2) and (3) detect no effects on R&D and acquisitions. Column (4) shows that E-PRisk's effect on capital spending becomes even more statistically significant when scaling by total assets, while columns (5) and (6) continue to indicate no significant relation with R&D or acquisition spending using the total assets scaler.

At the bottom of Table 6 we present the year after reversal partitioned by investment type. We find that the entirety of the reversal concentrates in the same, capital expenditures, segment of investment as the initial investment sensitivity to E-PRisk. Taken together, the findings in Table 6 support the option value of delay mechanism as opposed to the growth option view.

4.2 Investment Irreversibility and the Role of Asset Redeployability

The option value of delay increases when invested assets are less easily disinvested. One way this effect manifests is via the redeployability channel, which highlights that economically specialized assets are more adversely affected

by economic uncertainty (Kim and Kung (2017)). In essence, less redeployable assets are those that cannot easily repurpose or liquidate during uncertain times, making firms cautious and leading to reduced investment. In contrast, firms with highly redeployable assets are able to flexibly manage uncertainty. As a result, we expect the effects of E-PRisk to concentrate in firms that hold less redeployable assets.

To test this proposition, we use the asset redeployability score, provided by Kim and Kung (2017), that measures the extent to which assets are deployed and salable across industries. We focus on the industry measure rather than the US-only firm-level measure in order to extend redeployability to an international sample. After merging to our data, the sample average redeployability is 0.39, which matches the average reported for US firms by Kim and Kung (2017). However, the variability measured by standard deviation is higher in our setting at 0.15 vs. 0.06. We then split our sample into more or less redeployable sub-samples based on the sample cross-sectional median of lagged redeployability each year.

[Table 7 here]

Table 7 reports on the results. Comparing Columns (1)–(3) with (4)–(6), we observe positive (but insignificant) coefficients for the former and negative and significant coefficients for the latter, except for R&D. Thus, the sensitivity of sustainable investment to E-PRisk, which concentrates for capital expenditures, is driven by firms in less redeployable industries. At the bottom, we again see a tight sub-sample link with reversal afterwards, supporting the predictions of real options theories.

4.3 Investment Irreversibility and the Intensive Margin of Investment

In our next set of tests, we hone on the prediction that the green investment sensitivity to E-PRisk should operate largely within firms that are already conducting green investment, who can defer or resize their existing projects, i.e, on the intensive margin. In a standard setup, the extensive margin (to invest vs. not invest at all) is governed by a NPV threshold and an inaction region: firms enter only once the expected NPV is positive and after accounting for the value of waiting in the inaction region to avoid incurring positive fixed costs (Abel and Eberly, 1994). Because this extensive margin choice is divided in between by the inaction region, only large sharp shifts in uncertainty can flip the binary decision to invest in green projects. In contrast, once a firm has invested

in green capital, its incremental capital expenditures can be accelerated, scaled back, or paused at relatively low adjustment cost. Thus, the firm has a strong incentive to stretch out, downsize, or postpone additional irreversible spending rather than fully exiting.

Table 8 investigates these predictions by first replacing our main dependent variable of interest in Eq. (1) with an indicator for whether a firm has non-zero total GIPs. Column (1) shows no sensitivity between the choice of investing in GIPs and E-PRisk. Columns (2) and (3) further demonstrate that neither positive nor negative E-PRisk shocks affect the extensive margin. In comparison, Columns (4)–(6) examine the sub-sample of firms with pre-existing GIPs. We consistently observe that firms cut % green investment due to E-PRisk once they have green capital in place, with these cuts reversing again after a year. Economically, the point estimates are also larger than in the overall sample, with a one standard deviation increase in E-PRisk decreasing % green investment by -0.72 ($t = -3.98$).

[Table 8 here]

These results suggest that firms with no ongoing green projects contribute little to the overall effect of E-PRisk on green investment. It is not the case that E-PRisk is actively preventing firms that would have started to invest in GIPS from doing so. Rather, the E-PRisk to green investment relation resides entirely among firms that are already conducting some amount of green investment. We note that a limitation of our data is that we cannot say for sure whether firms within this GIP-investing subsample are acting on the project-level intensive or extensive margins.

4.4 Additional Sub-sample Analysis

4.4.1 Role of Financial Constraints

We next examine the role of financial constraints (e.g., Hennessy, Levy, and Whited (2007)), an important friction that contributes to investment irreversibility and the real effects of political uncertainty. How it influences the effect of environmental political uncertainty on GIPs is unclear, as the impact of financial constraints on green investments can result in either reallocation or overall contraction.

On one hand, uncertainty should be more costly for financially constrained firms because they want to avoid risky bets that may worsen their constraints, face higher costs of capital when switching investments, and are more risk averse due to their limited ability to recover from bad economic states, which points to a financing-rationing channel. On the other, Gilchrist, Sim, and Zakrajšek (2014) show that the effect of uncertainty on investment operates through the financial constraint channel: uncertainty increases credit spreads, unless credit spreads are already high. Thus, one can alternately expect that constrained firms, whose credit spreads are already high, are insensitive to heightened environmental political uncertainty. Less constrained firms are therefore more likely to apply positive NPV reasoning underlying the option value of delay.

To explore this tension, we adopt firm total payout, inclusive of dividends and net share repurchases and scaled by total assets, as a natural proxy for financial constraints. More (less) constrained sub-samples are defined by being less (more) than the median payout by year within our sample. In Panel A of Table 9, we find that less constrained firms drive our documented effect. Among more constrained firms, the sensitivity to E-PRisk is zero or positive. Among less constrained firms, we observe economically large cuts in % green investment, including capital expenditures and even R&D, which is not present in our overall sample. The capital expenditure, but not R&D, cuts reverse in the following year.

[Table 9 here]

These findings suggest that financially constrained firms, which may have distorted investment policies, are not driving the decrease in green investments around E-PRisk spikes. More broadly, they support the economic mechanism proposed by Gilchrist, Sim, and Zakrajšek (2014) that uncertainty operates through the financial constraints channel. Thus, only unconstrained firms with low credit spreads have the "room" to let environmental political uncertainty impact their GIPs.

4.4.2 Role of Carbon-intensity

Next, we examine the impact of carbon-intensiveness on the relationship between green investments and environmental political uncertainty. Specifically, there are strong reasons to focus on highly carbon intense firms. First, such non-green firms have meaningful portfolio margin in the sense that they have both non-green and potential

green assets in place. So, these firms can respond to E-PRisk via shifting investment composition as we document overall. Moreover, non-green firms have the highest stakes (Hartzmark and Shue, 2023), as they account for the most emissions, face the sharpest regulatory risk, and are the ones policymakers explicitly want to push toward greener assets. Under environmental political uncertainty, they may delay GIPs until there is more clarity on the direction of future regulations.

Panel B of Table 9 reports on sub-samples tests focusing on non-green firms. In Columns (1)–(3), we examine non-green firms as classifed by the yearly median of CO2 emissions relative to sales (Zhang, 2024). We indeed observe strong negative cuts and subsequent reversal in % green investment due to E-PRisk. In Columns (4)–(6), we alternatively classify non-green firms based on industry, following Choi, Gao, and Jiang (2020), and find similar results. Consequently, non-green firms appear to be the type of firm where E-PRisk matters.

5 Disaster Driven Variation in E-PRisk

The evidence presented so far strongly supports E-PRisk affecting GIPs through mechanisms predicted by models of investment under uncertainty. Specifically, we show how GIP-targeted uncertainty raises the option value of waiting, resulting in the delay of GIPs. In the current equilibrium, in which GIPs remain a relatively small fraction of total corporate investment, we find this shift has little effect on total investment as firms adjust non-green spending to compensate. The strong mapping between our results and the theoretical predictions of real options theories of investment under uncertainty make alternative mechanisms unlikely drivers of our findings. Nevertheless, we acknowledge the general possibility that investment decisions and environmental political risk may be endogenously determined due to possible omitted variables, reverse causality, or strategic firm actions.

One particular class of endogenous explanations centers on the possibility that managers selectively discuss E-PRisk during their conference call in a manner that correlates with the extent of green investment in the coming periods. If managers are being overly cautious about GIPs, this may lead them to selectively discuss E-PRisk while heavily cutting green investment. Although it remains unclear whether this alternative would manifest in this direction in practice or how this narrative would explain the subsequent reversal, we still seek variation in E-PRisk that is unrelated to managers' specific conference call disclosure choices.

For this purpose, we propose a shift-share-style (or Bartik (1991)) exogenous exposure based on the differential impact of country-level climate disaster shocks for firm-level environmental political risk. Specifically, motivated by the fact that firms have heterogeneous exposure to aggregate political risk, we follow Hassan et al. (2019) and construct a firm-level rolling 2-year quarterly environmental "political risk beta" by estimating,

$$\text{E-PRisk}_{i,q} = \alpha + \beta_{\text{E-PRisk},i}\overline{\text{PRisk}}_q + \epsilon_{i,t}, \tag{2}$$

where $\overline{\text{PRisk}}_q$ is the world average in year-quarter q and the 2-year window used in the estimation ends in year-quarter q.[7] With these time-varying environmental political risk exposures, our shift-share exposure measure is then defined as,

$$\text{Exposure}_{i,t} = \underbrace{\beta_{\text{E-PRisk},i,t-1}}_{\text{Share}} \times \underbrace{\text{Country Disaster Shock}_{c,t}}_{\text{Shift}}, \tag{3}$$

where $\beta_{\text{E-PRisk},i,t-1}$ is the most recent environmental "political risk beta" in year $t-1$, and Country Disaster Shock$_{c,t}$ is a climate disaster shock measured by year-to-year changes in the number of climate disasters for country c in year t.[8] This measure exploits the interaction of two sources of variation: First, the cross-sectional predetermined (i.e., lagged) variation in heterogeneous exposure to aggregate political risk, and second, the time-series exogenous shock induced by country-specific climate disaster shocks.

Therefore, we identify causal effects on GIPs using the heterogeneous impact of an aggregate exogenous shock as in Borusyak, Hull, and Jaravel (2022) instead of exogeneity in the shares as in Goldsmith-Pinkham, Sorkin, and Swift (2020). Specifically, Borusyak, Hull, and Jaravel (2022) show that shift-share IV moment conditions are satisfied when shock-level orthogonality is satisfied. In our setting, this requires that the exposure-weighted country-level shocks be exogenous. We argue that this assumption is plausible. At the shock level, an extensive line of research documents that natural disasters generate largely unexpected shocks to financial markets (e.g., Cortés and Strahan, 2017; Correa et al., 2023), supporting the exogeneity assumption. Moreover, a large literature in political economy shows that personal experience influences political behavior and policy support (e.g., Fiorina,

[7] Although we use the world average in our main specifications, we find nearly identical results using betas relative to country-specific political risk averages.

[8] Results are robust to using shocks relative to 3- or 5-year moving averages.

1981). Consistent with this view, Baccini and Leemann (2020) find that climate-related disasters increase support for pro-environmental policies, and several studies show that firsthand disaster and other personal experience affects electoral outcomes (e.g., Masiero, 2021; Duch and Stevenson, 2006; Bechtel and Hainmueller, 2011; Gasper and Reeves, 2011).

Armed with this measure, we estimate regressions that replace E-PRisk in Eq. (1) with the $\text{Exposure}_{i,t}$ from Eq. (3). Importantly, we also add in the interaction of $\text{Exposure}_{i,t}$ with the number of direct disaster hits to firms' headquarters by city or region. This allows us to interpret the coefficient on the standalone $\text{Exposure}_{i,t}$ when firms are not directly hit by disasters. Economically, this design mitigate concerns that other channels (such as investment opportunities) related to disaster hits affects the firm, and focuses on how aggregate disaster shocks in environmental uncertainty heterogeneously propagate based on lagged $\beta_{\text{E-PRisk},i,t-1}$.

Moreover, our inclusion of country×year fixed effects in all specifications addresses two additional threats to identification. First, it controls for the fact that political risk beta exposures don't sum to 1 at the country-level i.e., $(\sum_{i \in c} \beta_{\text{E-PRisk},i,t-1} \neq 1)$, which resolves the "incomplete shares" concern in Borusyak, Hull, and Jaravel (2022) that bias is introduced by systematically different levels of political risk exposures in each country.[9] Second, it helps to satisfy the exclusion criteria as country×year fixed effects absorb any indirect effect on E-PRisk from aggregate country-level time-varying disasters, and bases the identification solely on the interaction effect of heterogeneous risk exposures and the aggregate shocks for explaining E-PRisk.

[Table 10 here]

Table 10 reports on the results of this shift-share analysis. In Column (1), we first verify that $\text{Exposure}_{i,t}$ indeed is relevant for explaining E-PRisk. We find that among firms that are not hit by disasters, E-PRisk goes up significantly with $\text{Exposure}_{i,t}$ ($t = 3.18$) at the 1% level. Furthermore, controlling for firm direct hits is important as we see the interaction with $\text{Exposure}_{i,t}$ has a negative and significant effect on E-PRisk. Turning to Column (2), we see that % green investment drops with higher exposure to aggregate disaster shocks, consistent with the increase in E-PRisk observed in Column (1). This effect survives in Column (3) when we examine green investment relative to total assets, and notably, is substituted into non-green investment as seen in Column (4). Overall, our

[9] Specifically, Borusyak, Hull, and Jaravel (2022) recommend adding the lagged country-level total exposure as a control variable, which is naturally absorbed by country×year fixed effects.

shift-share-style analysis helps to mitigate endogeneity concerns, and shows that firm-level environmental political uncertainty robustly causes firms to cut GIPs.

6 Conclusion

Instead of accelerating the green transition, unpredictable policies may have the unintended consequence of reinforcing short-term decision-making, where firms favor investments with immediate returns and lower regulatory risks. For instance, a firm investing in electric vehicle charging infrastructure has limited flexibility to re-purpose these assets if policies shift, whereas a firm investing in conventional machinery faces fewer constraints in reallocating capital. This hesitation could delay progress toward climate goals, ultimately undermining global sustainability efforts.

Our study provides strong evidence that environmental political uncertainty significantly dampens GIPs, leading firms to reallocate capital away from green initiatives and toward conventional projects. A one standard deviation increase in E-PRisk is followed by a 6.2% drop in the share of investment that is green (relative to the sample mean) and a 4.5% decline in green investment scaled by assets (about $32 million for the average firm–year), with little effect on total investment. The contraction is concentrated in green capital expenditures (not R&D), among firms with ongoing GIPs and low asset redeployability, and is stronger for financially unconstrained and more carbon–intensive firms. Dynamics point to delay rather than cancellation—green spending rebounds the following year—while elections lengthen the deferral window. Results remain specific to environmental political risk, not to generic political or macro risk.

The broader implication is that *policy credibility is capital formation policy.* When policy signals are unstable, firms do not simply scale back investment, they reallocate it, diverting capital from long-horizon, policy-exposed projects toward short-horizon, low-exposure ones. Stabilizing the rules of the game such as the duration of subsidies, carbon-pricing trajectories, and disclosure regimes can therefore shrink the option value of waiting and keep green dollars in the pipeline. From a broader perspective, credibility functions as an investment friction: uncertainty distorts not only the timing but also the composition of capital formation, with aggregate consequences for innovation, emissions, and long-term growth. In this sense, E-PRisk is a real-side manifestation

of climate transition risk, reallocating investment away from policy-exposed green assets even when aggregate CAPEX appears unchanged. Priority avenues for future work include mapping firm-level reallocation to realized emissions paths, tracing valuation and weighted-average cost of capital effects of GIP slowdowns and rebounds, and testing alternative policy architectures (e.g., sunset clauses, automatic stabilizers, or cross-party agreements) that institutionalize credibility without additional fiscal outlays.

References

Abel, A. B., and J. C. Eberly. 1994. A unified model of investment under uncertainty. *The American Economic Review* 84:1369–.

Accenture. 2024. Destination net zero: Corporate progress and challenges.

Accetturo, A., G. Barboni, M. Cascarano, E. Garcia-Appendini, and M. Tomasi. 2022. *Credit supply and green investments*. University of Warwick, Centre for Competitive Advantage in the Global Econo.

Acemoglu, D., P. Aghion, L. Bursztyn, and D. Hemous. 2012. The environment and directed technical change. *American Economic Review* 102:131–66. doi: 10.1257/aer.102.1.131.

Akey, P., and I. Appel. 2021. Corporate governance and the environment: Evidence from shareholder proposals. *Journal of Financial Economics* 142:697–718. doi: 10.1016/j.jfineco.2021.06.008.

Albuquerque, R., M. S. Kruttli, Y. Ma, and S. W. Watugala. 2024. Financing and the green paradox. Working Paper, Working Paper.

Aragón-Correa, J. A., and S. Sharma. 2003. A contingent resource-based view of proactive corporate environmental strategy. *Academy of management review* 28:71–88.

Atanassov, J., B. Julio, and T. Leng. 2024. The bright side of political uncertainty: The case of r&d. *The Review of Financial Studies* hhae023.

Azar, J., M. Duro, I. Kadach, and G. Ormazabal. 2021. The big three and corporate carbon emissions around the world. *Journal of Financial Economics* 142:674–96.

Baccini, L., and L. Leemann. 2020. Do natural disasters help the environment? how voters respond and what that means. *Political Science Research and Methods* 8:802–18. doi: 10.1017/psrm.2020.25.

Bartik, T. J. 1991. Who benefits from state and local economic development policies? .

Bechtel, M. M., and J. Hainmueller. 2011. How lasting is voter gratitude? an analysis of the short- and long-term electoral returns to beneficial policy. *American Journal of Political Science* 55:852–68. doi: 10.1111/j.1540-5907.2011.00533.x.

Bernanke, B. S. 1983. Irreversibility, uncertainty, and cyclical investment. *The quarterly journal of economics* 98:85–106.

Bloom, N., S. Bond, and J. van Reenen. 2007. Uncertainty and investment dynamics. *The review of economic studies* 74:391–415.

Bolton, P., and M. Kacperczyk. 2021. Do investors care about carbon risk? *Journal of Financial Economics* 142:517–49.

———. 2023. Global pricing of carbon-transition risk. *The Journal of Finance* 78:3677–754. doi: 10.1111/jofi.13272.

Borusyak, K., P. Hull, and X. Jaravel. 2022. Quasi-experimental shift-share research designs. *The Review of economic studies* 89:181–213.

Choi, D., Z. Gao, and W. Jiang. 2020. Attention to global warming. *The Review of Financial Studies* 33:1112–45.

Clark, P. 2024. Climate politics could be about to go into reverse. *Financial Times* .

Correa, R., A. He, C. Herpfer, and U. Lel. 2023. The rising tide lifts some interest rates: Climate change, natural disasters and loan pricing. *European Corporate Governance Institute – Finance Working Paper* .

Cortés, K. R., and P. E. Strahan. 2017. Tracing out capital flows: How financially integrated banks respond to natural disasters. *Journal of Financial Economics* 125:182–99.

Dean, T. J., and R. L. Brown. 1995. Pollution regulation as a barrier to new firm entry: Initial evidence and implications for future research. *Academy of Management Journal* 38:288–303.

Delmas, M. A., and V. C. Burbano. 2011. The drivers of greenwashing. *California management review* 54:64–87.

Dixit, A. K., and R. S. Pindyck. 1994. *Investment under uncertainty*. Princeton university press.

Duch, R. M., and R. T. Stevenson. 2006. Assessing the magnitude of the economic vote over time and across nations. *Electoral Studies* 25:528–47. doi: 10.1016/j.electstud.2005.06.003.

Engle, R. F., S. Giglio, B. Kelly, H. Lee, and J. Stroebel. 2020. Hedging climate change news. *The Review of Financial Studies* 33:1184–216.

Fiorina, M. P. 1981. *Retrospective voting in american national elections*. New Haven, CT: Yale University Press. ISBN 0300025572.

Fried, S., B. Jacob, and K. Nimark. 2021. Climate policy uncertainty. *American Economic Journal: Macroeconomics* 13:1–26. doi: 10.1257/mac.20190276.

Gad, M., V. Nikolaev, A. Tahoun, and L. van Lent. 2024. Firm-level political risk and credit markets. *Journal of Accounting and Economics* 77:101642–.

Gasparini, D., and P. Tufano. 2023. The economic consequences of climate risk. Working Paper, Working Paper.

Gasper, J. T., and A. Reeves. 2011. Make it rain? retrospection and the attentive electorate in the context of natural disasters. *American Journal of Political Science* 55:340–55. doi: 10.1111/j.1540-5907.2010.00493.x.

Giese, G., L. E. Lee, D. Melas, Z. Nagy, and L. Nishikawa. 2019. Foundations of esg investing: How esg affects equity valuation, risk, and performance. *The Journal of Portfolio Management* 45:69–83.

Gilchrist, S., J. W. Sim, and E. Zakrajšek. 2014. Uncertainty, financial frictions, and investment dynamics .

Goldman Sachs. 2021. Green capex: Making infrastructure happen.

Goldsmith-Pinkham, P., I. Sorkin, and H. Swift. 2020. Bartik instruments: What, when, why, and how. *American Economic Review* 110:2586–624.

Gulen, H., and M. Ion. 2016. Policy uncertainty and corporate investment. *The Review of Financial Studies* 29:523–64.

Hadlock, C. J., and J. R. Pierce. 2010. New evidence on measuring financial constraints: Moving beyond the kz index. *The review of financial studies* 23:1909–40.

Hartzmark, S. M., and K. Shue. 2023. Counterproductive impact investing: The impact elasticity of brown and green firms. *Available at SSRN 4359282* .

Hassan, T. A., S. Hollander, L. van Lent, and A. Tahoun. 2019. Firm-level political risk: Measurement and effects. *The Quarterly Journal of Economics* 134:2135–202.

Hennessy, C. A., A. Levy, and T. M. Whited. 2007. Testing q theory with financing frictions. *Journal of financial economics* 83:691–717.

Hoffmann, V. H., and T. Trautmann. 2009. Regulatory uncertainty: A reason to postpone investments? not necessarily. *Journal of Management Studies* 46:1227–53. doi: 10.1111/j.1467-6486.2009.00866.x.

Ilhan, E., Z. Sautner, and G. Vilkov. 2021. Carbon tail risk. *The Review of Financial Studies* 34:1540–71.

International Monetary Fund. 2021. G20: Reaching net zero emissions.

Jens, C. E. 2017. Political uncertainty and investment: Causal evidence from u.s. gubernatorial elections. *Journal of Financial Economics* 124:563–79. doi: 10.1016/j.jfineco.2017.03.007.

Jordà, Ò. 2005. Estimation and inference of impulse responses by local projections. *American economic review* 95:161–82.

Julio, B., and Y. Yook. 2012. Political uncertainty and corporate investment cycles. *The Journal of Finance* 67:45–83.

Kim, H., and H. Kung. 2017. The asset redeployability channel: How uncertainty affects corporate investment. *The Review of Financial Studies* 30:245–80.

Leahy, J. V., and T. Whited. 1995. The effect of uncertainty on investment: Some stylized facts.

Masiero, G. 2021. Natural disasters and electoral outcomes. *Journal of Public Economics* 197:104362–. doi: 10.1016/j.jpubeco.2020.104362.

McKinsey&Company. 2021. The net-zero transition: What it would cost, what it could bring.

Nordhaus, W. 2019. Climate change: The ultimate challenge for economics. *American Economic Review* 109:1991–2014.

OECD. 2024. Finance and investment for climate goals.

Pástor, L., R. F. Stambaugh, and L. A. Taylor. 2022. Dissecting green returns. *Journal of Finance* 77:601–63. doi: 10.1111/jofi.13093.

Pástor, Ľ., and P. Veronesi. 2012. Uncertainty about government policy and stock prices. *Journal of Finance* 67:1219–64. doi: 10.1111/j.1540-6261.2012.01746.x.

Princeton University. 2021. Net-zero america: Potential pathways, infrastructure, and impacts.

Reuters. 2025. Sustainability is under unprecedented attack. here's how we can fight back .

Sautner, Z., L. van Lent, G. Vilkov, and R. Zhang. 2023. Firm-level climate change exposure. *The Journal of Finance* 78:1449–98.

SBTi. 2025. Companies with validated targets and commitments to set targets (as of july 2025). https://sciencebasedtargets.org/companies-taking-action. Accessed October 5, 2025.

Sinn, H.-W. 2008. Public policies against global warming: a supply side approach. *International Tax and Public Finance* 15:360–94. doi: 10.1007/s10797-008-9082-z.

United Nations DESA. 2024. Un report finds high trade tensions and policy uncertainty continue to damage economic growth.

United Nations Global Compact. 2023. Corporate investments to achieve climate ambitions: Un global compact cfo coalition for the sdgs.

Wang, J., J. Wurgler, and J. Zhang. 2023. Environmental subsidy uncertainty and green r&d investment. Working Paper, Working Paper.

World Economic Forum. 2022. Financing net-zero: Can investors help stop climate change?

Zhang, S. 2024. Carbon returns across the globe. *The Journal of Finance* .

Figures and Tables

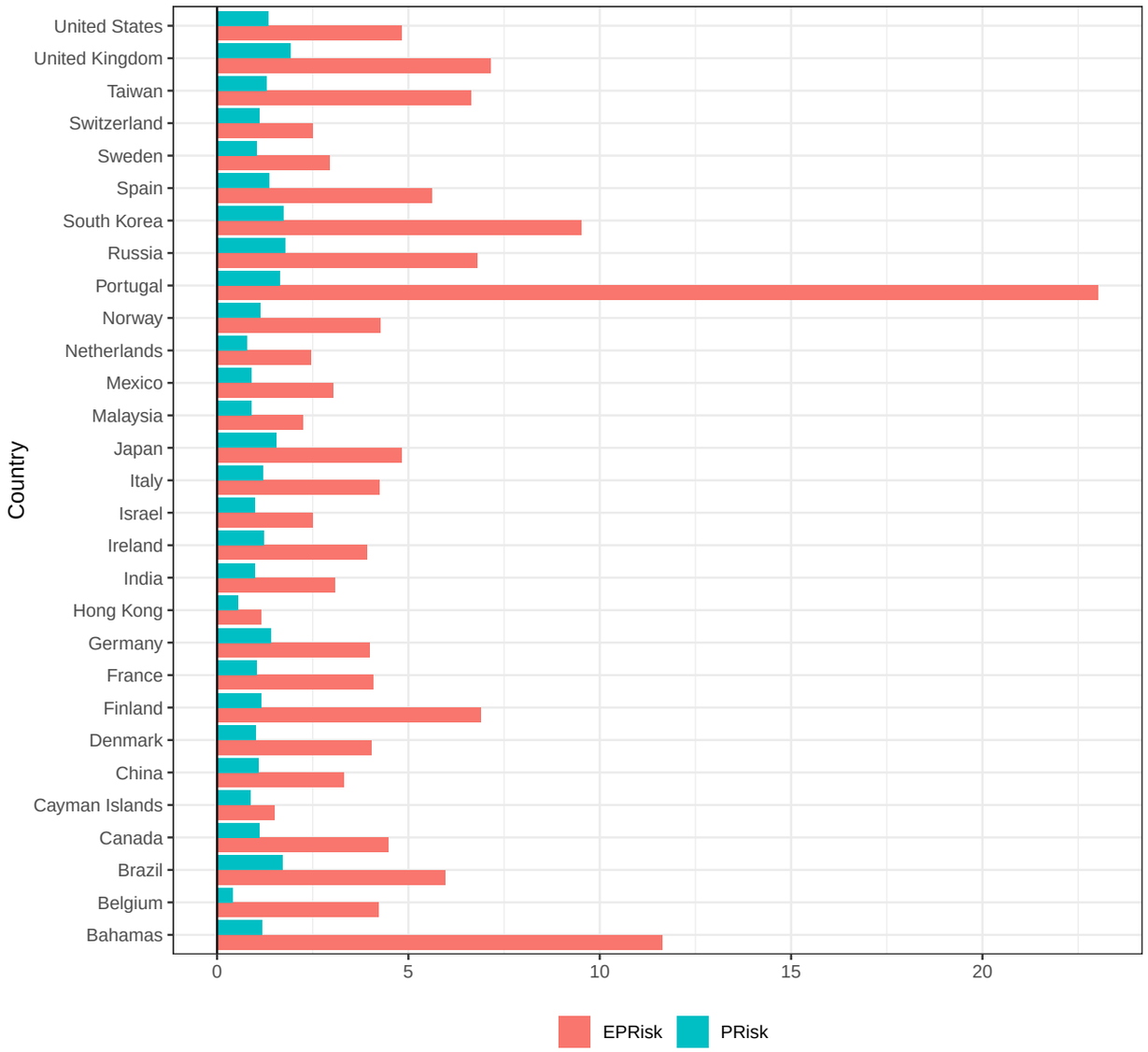


Figure 1: Environmental and Overall Firm-level Political Risk around the World

The top figure plots a bar-chart comparison of environmental (E-PRisk) and overall (PRisk) firm-level political risk across the countries in our sample. Political risk from Hassan et al. (2019) is extracted from earnings conference text.

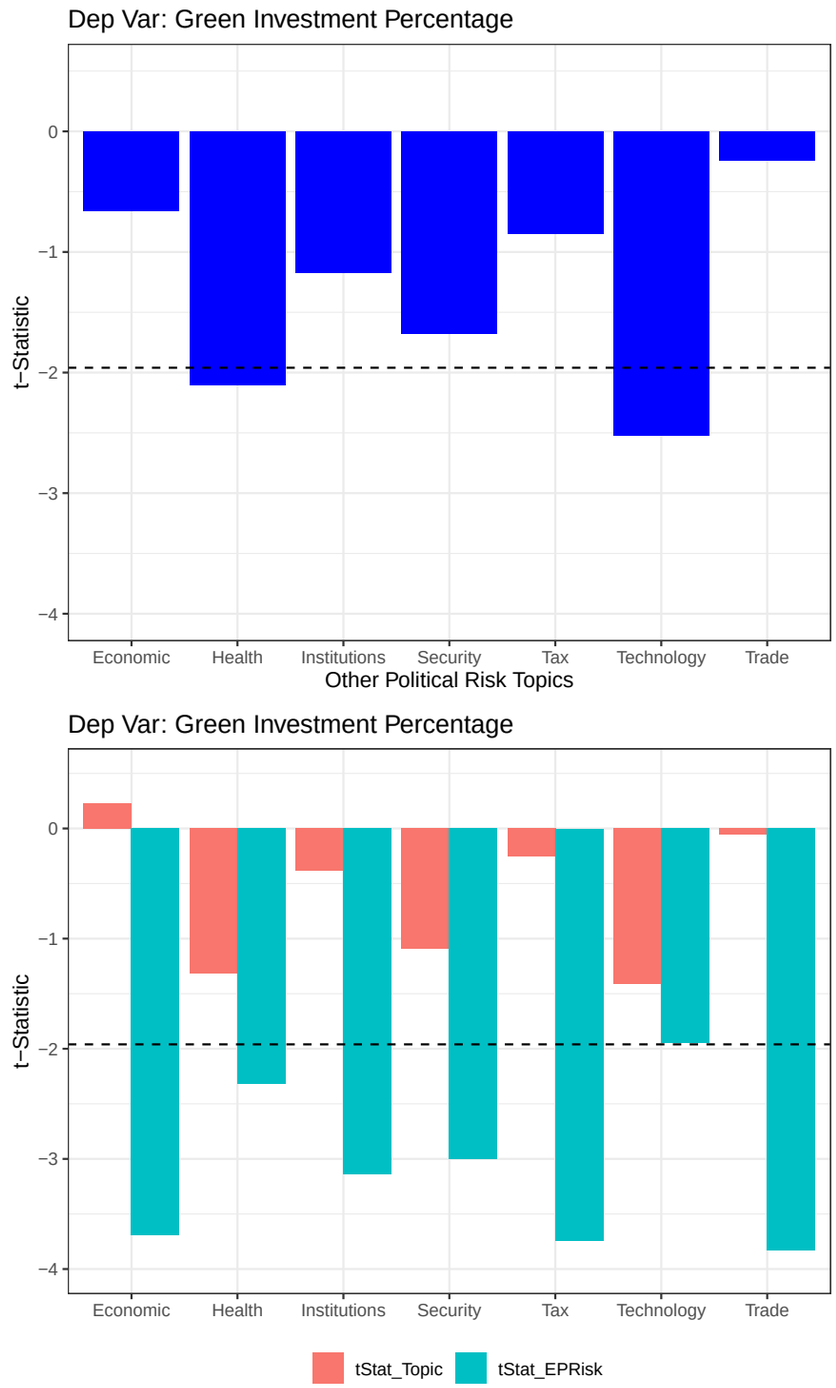


Figure 2: Role of the Other Non-Environmental Political Risk Topics
The top figure plots the t-statistic associated with replacing E-PRisk with the other political risk topics in our baseline regressions with Green Investment % as the dependent variable. The bottom figure plots the t-statistics when the regression focuses on E-PRisk controlling for the other political risk topics. The dashed horizontal line is the 5% level for statistical significance.

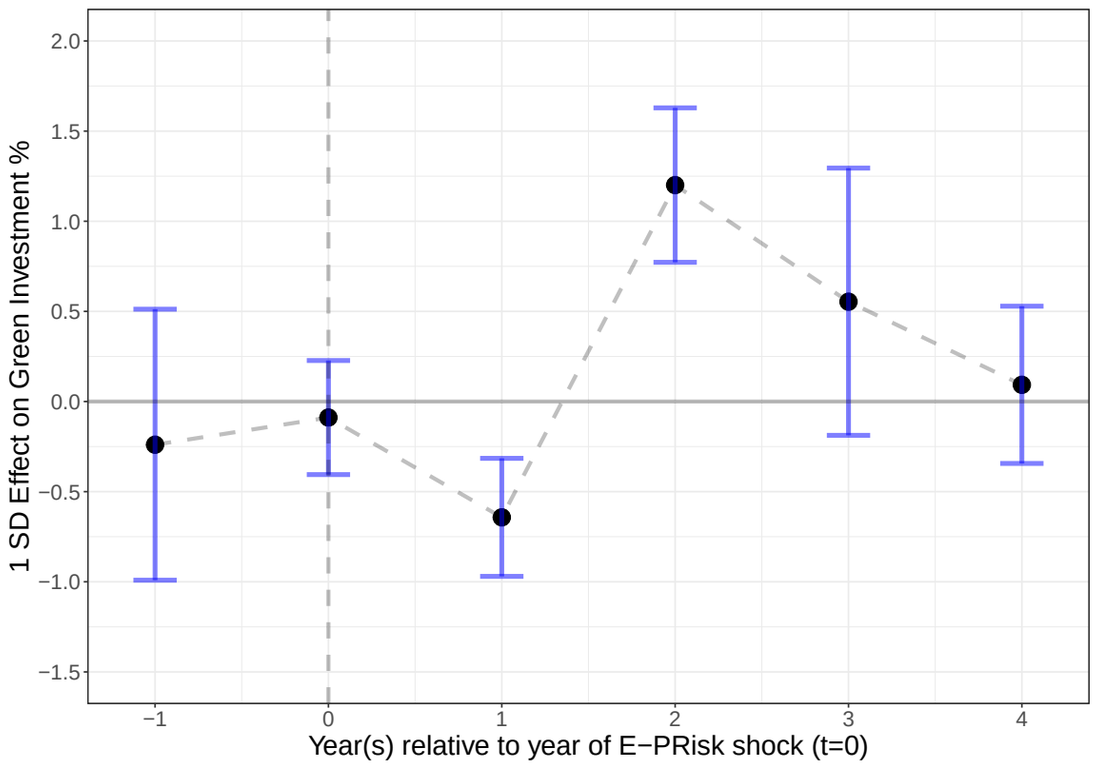


Figure 3: Impulse Response of Green Investment Percentage surrounding E-PRisk Shocks
The top figure plots the impulse response from $t-1$ to $t+4$ surrounding the year of a E-PRisk shock. All E-PRisk effects are standardized by its full-sample standard deviation. The error bars represent 95% confidence intervals.

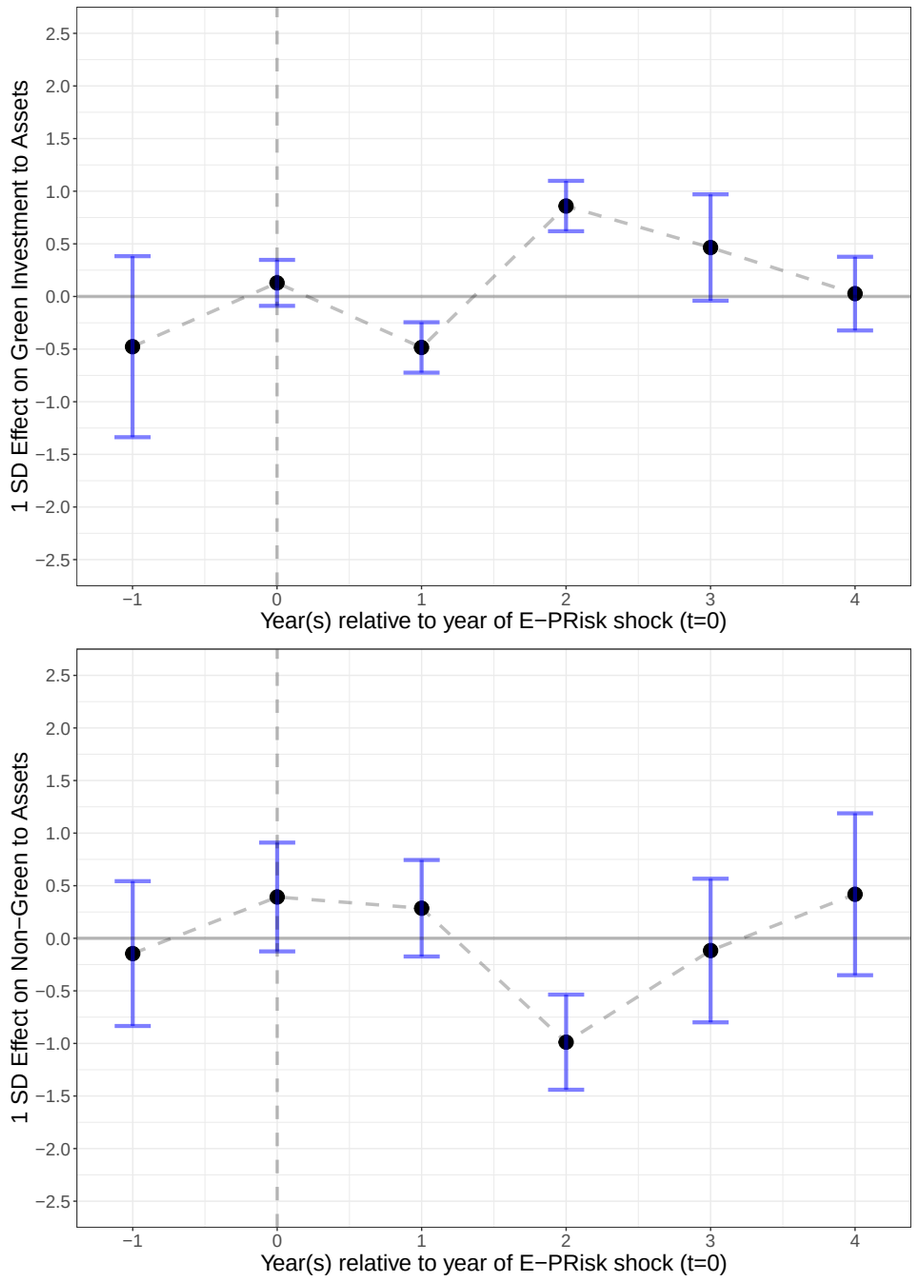


Figure 4: Impulse Responses for Green and non-Green Investment

The top figure plots the impulse response for green investment (top) and non-green investment (bottom) scaled by total assets from $t-1$ to $t+4$ surrounding the year of a E-PRisk shock. All E-PRisk effects are standardized by its full-sample standard deviation. The error bars represent 95% confidence intervals.

Table 1: Firm-level Green Corporate Investment Projects by Country
This table reports the distribution of average firm-level total assets and green investment as a percentage of total investment or relative to total assets across countries from 2019 to 2022. We report the top 20 countries by number of firm-years observations, and group all other countries together. See Appendix Table IA.1 for the estimates based on our final sample that requires firm-level political risk from Hassan et al. (2019).

Country	Observations	Assets ($Bil)	% Green Invest.	$\frac{\text{Green}}{\text{Assets}}$ ($\times$ 1000)
United States	2,647	65.16	8.10	8.02
Japan	1,115	85.26	4.75	4.05
China	963	61.60	24.37	30.09
Canada	449	80.99	17.06	11.52
United Kingdom	415	139.27	12.60	9.10
India	411	23.75	12.47	45.67
South Korea	374	49.40	10.73	11.27
Taiwan	369	32.08	9.62	13.47
France	294	139.14	16.18	14.31
Germany	286	95.09	17.00	14.08
Brazil	195	36.57	27.30	35.09
Switzerland	194	68.12	10.64	7.30
Hong Kong	170	14.95	19.44	20.87
Sweden	163	34.86	18.24	15.38
Italy	140	122.05	35.28	35.64
Saudi Arabia	136	39.53	9.31	8.78
Netherlands	134	78.17	8.55	12.40
Malaysia	123	25.35	8.65	15.86
Spain	101	168.53	36.39	53.87
Ireland	92	28.49	7.75	4.58
Other Countries	518	39.82	17.92	27.15
World	9,289	68.34	12.89	15.34

Table 2: Summary Statistics
This table reports baseline sample summary statistics on firms' investment, political risk and sentiment, and other characteristics from 2019 to 2022. Obs., Mean, SD, Median, Q0.10, Q0.25, Q0.75, and Q0.90 report on the sample observations, average, standard deviation, median, the 10th, 25th, 75th, and 90th percentiles, respectively.

Variable	Obs.	Mean	SD	Median	Q0.1	Q0.25	Q0.75	Q0.9
				Investment Measures				
% Green Investment	3,966	10.30	24.63	0.03	0.00	0.00	2.90	43.70
Green Investment to Assets (× 1000)	3,966	10.55	58.57	0.01	0.00	0.00	1.83	27.32
Green CAPEX (× 1000)	3,966	8.16	38.34	0.00	0.00	0.00	1.09	22.36
Green R&D (× 1000)	3,966	2.39	43.52	0.00	0.00	0.00	0.00	0.00
Non-Green Investment to Assets (× 1000)	3,966	94.11	397.95	52.18	10.48	27.23	92.24	156.74
Non-Green CAPEX (× 1000)	3,966	63.92	369.49	31.14	6.18	14.78	56.89	102.72
Non-Green R&D (× 1000)	3,966	30.19	130.51	2.61	0.00	0.00	30.19	83.98
				Political Risk and Exposure Measures				
E-PRisk	3,966	4.75	18.65	1.87	0.09	0.60	4.31	9.78
PRisk	3,966	0.13	0.24	0.07	0.00	0.02	0.15	0.29
Non-PRisk	3,966	0.76	1.18	0.43	0.02	0.14	0.94	1.72
PSentiment	3,966	1.39	1.33	1.33	-0.03	0.61	2.11	2.91
Non-PSentiment	3,966	14.02	14.81	12.66	-0.82	5.64	20.90	31.48
$\beta_{\text{E-PRisk}}$	3,376	0.02	0.54	0.01	-0.15	-0.04	0.08	0.22
				Other Firm- and Country-level Variables				
CC Exposure	3,966	2.47	4.14	0.71	0.09	0.25	2.48	7.78
CC Sentiment	3,966	0.53	1.11	0.15	-0.12	0.00	0.56	1.70
Market Capitalization ($Bil)	3,966	35.32	99.95	13.28	3.30	6.90	29.89	69.85
Market-to-Book	3,966	2.75	9.36	1.36	0.59	0.84	2.57	4.95
ROA	3,966	0.13	0.10	0.12	0.05	0.08	0.17	0.23
Cash Constrained	3,966	0.50	0.50	0.00	0.00	0.00	1.00	1.00
Total Debt Ratio	3,966	0.32	0.21	0.31	0.09	0.19	0.43	0.54
Foreign Ownership	3,966	14.30	14.30	12.20	0.00	0.00	19.85	32.67
Return SD	3,966	0.34	0.32	0.26	0.11	0.17	0.39	0.60
ESG Score	3,966	62.01	17.37	64.47	36.97	50.55	75.54	82.98
CO2 to Sales	3,316	80.30	4596.23	0.05	0.01	0.02	0.32	1.15

Table 3: Environmental Political Risk and Investment
This table reports on results from regressions of investment on environmental political risk as described in Eq. (1). The key variable of interest is E-PRisk, which is environmental political risk measured from firms' conference calls. In Panel A, the dependent variable at time $t+1$ is firms' % green investment or green/non-green investment relative to total assets. Columns (1)–(4) and (6)–(7) focus on OLS regressions, while Column (5) reports on weighted least squares (WLS) regressions using the inverse of the number of firm-year observations in each country and year as the weights. Other controls (e.g., firm size) are omitted for presentation purposes. See Appendix Table IA.3 for the full table. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Dep Var. in Year $t+1$:	% Green Investment					$\frac{\text{Green}}{\text{Assets}}$	$\frac{\text{Non-Green}}{\text{Assets}}$
Specification:	OLS				WLS	OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
E-PRisk	-0.54^{***}	-0.56^{***}	-0.64^{***}	-0.64^{***}	-1.59^{**}	-0.48^{***}	0.29
	(-2.86)	(-2.80)	(-3.63)	(-3.85)	(-2.45)	(-3.97)	(1.22)
PRisk	1.52	1.57	1.79	1.85	-0.90	1.60^{*}	-0.74
	(1.33)	(1.36)	(1.37)	(1.43)	(-0.38)	(1.93)	(-0.37)
Non-PRisk	0.26	0.26	0.21	0.20	0.05	0.26	0.32
	(1.17)	(1.20)	(1.12)	(1.07)	(0.18)	(1.35)	(0.73)
PSentiment		0.13	0.08	0.10	-0.05	0.09	0.62^{*}
		(0.73)	(0.46)	(0.54)	(-0.19)	(0.75)	(1.73)
Non-PSentiment		-0.001	-0.002	-0.002	0.04	-0.01	-0.02
		(-0.09)	(-0.14)	(-0.16)	(1.41)	(-0.75)	(-0.61)
CC Exposure				0.15	0.28	0.08	-0.22
				(0.72)	(0.88)	(0.52)	(-0.65)
CC Sentiment				-0.58	-1.20^{**}	-0.31	1.23^{*}
				(-1.37)	(-2.31)	(-1.09)	(1.75)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	No	No	No
Country × Year FE	No	No	Yes	Yes	Yes	Yes	Yes
Industry × Year FEs	No	No	Yes	Yes	Yes	Yes	Yes
Other Controls	No	No	No	Yes	Yes	Yes	Yes
N	3,966	3,966	3,966	3,966	3,966	3,966	3,966
Adjusted R^2	0.87	0.87	0.86	0.86	0.90	0.83	0.85

Table 4: Characterizing Risk and Sentiment after E-PRisk Shocks
This table reports on the future risk and sentiment after environmental political risk (E-PRisk) shocks. In Panel A, we examine the future arrival in one year of various measures of risk and sentiment. In Panel B, we examine the same variables in two years. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Panel A: Risk and Sentiment One Year after E-PRisk Shocks

	Associated Risk			Associated Sentiment			
Dep Var. in Year $t+1$:	E-PRisk	PRisk	Non-PRisk	PSent.	Non-PSent.	CC Exp.	CC Sent.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
E-PRisk$_{i,t}$	-0.47^{***}	-0.01	0.01	0.07^{***}	0.25	0.04	0.07^{***}
	(-7.24)	(-1.13)	(0.54)	(3.41)	(1.03)	(1.14)	(4.91)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,832	2,832	2,832	2,832	2,832	2,832	2,832
Adjusted R^2	0.15	0.33	0.40	0.38	0.46	0.91	0.65

Panel B: Risk and Sentiment Two Years after E-PRisk Shocks

	Associated Risk			Associated Sentiment			
Dep Var. in Year $t+1$:	E-PRisk	PRisk	Non-PRisk	PSent.	Non-PSent.	CC Exp.	CC Sent.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
E-PRisk$_{i,t-1}$	-0.45^{***}	-0.11^{***}	-0.06	0.06	0.26	0.09	0.04
	(-4.40)	(-5.57)	(-0.90)	(1.19)	(0.30)	(0.78)	(0.74)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,755	2,755	2,755	2,755	2,755	2,755	2,755
Adjusted R^2	0.01	0.38	0.40	0.38	0.47	0.91	0.66

Table 5: Dynamics Around Elections
This table reports on the differential effect of E-PRisk for % Green investment around country elections. Columns (1)–(3) examine interactions with an election indicator in our 2019 to 2022 sample, while Columns (4)–(6) focus on the subset of elections with high environmental uncertainty, identified via a news media search. Column (5) and (6) are the sub-samples split by if the pre-election government supported or were against green policies, respectively, based on a news media search. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Dep Var. in Year t:	% Green Investment					
	All Elections			Uncertain Elections		
					Green Pre-Election	Non-Green Pre-Election
	(1)	(2)	(3)	(4)	(5)	(6)
E-PRisk$_{i,t-1}$	-0.65^{***}					
	(-3.96)					
E-PRisk$_{i,t-2}$		1.23^{***}	1.27^{***}	1.28^{***}	1.22^{***}	3.25^{***}
		(6.55)	(7.86)	(8.47)	(6.65)	(2.94)
E-PRisk$_{i,t-1}$ × Election Year$_c$	0.27					
	(0.39)					
E-PRisk$_{i,t-2}$ × Election Year$_c$		-1.16^{**}				
		(-2.09)				
E-PRisk$_{i,t-2}$ × Election and Post-Election Year$_c$			-1.10^{***}	-1.40^{***}	-1.38^{**}	-3.37^{**}
			(-2.62)	(-3.08)	(-2.58)	(-2.37)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	3,960	3,847	3,847	3,847	2,992	855
Adjusted R^2	0.86	0.87	0.87	0.87	0.88	0.80

Table 6: Decomposition into Component Investments

This table reports on results from regressions of investment decomposed into capital expenditures, R&D, and acqusitions on environmental political risk as described in Eq. (1). The key variable of interest is E-PRisk, which is environmental political risk measured from firms' conference calls. Other controls (e.g., firm size) are omitted for presentation purposes. The bottom panel labeled "Impulse Response in Two Years" reports the impulse response 2-years after the year of the E-PRisk shock. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

	% Green Investment			Green/Assets		
Dep Var. in Year $t+1$:	CAPEX	R&D	Acquisitions	CAPEX	R&D	Acquisitions
	(1)	(2)	(3)	(4)	(5)	(6)
E-PRisk	-0.70^{**}	0.15	0.18	-0.46^{***}	-0.01	0.0000
	(-1.99)	(0.22)	(0.21)	(-3.86)	(-1.06)	(0.18)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	3,966	3,966	3,966	3,966	3,966	3,966
Adjusted R^2	0.41	0.87	-0.12	0.53	-0.06	0.09
	Impulse Response in Two Years					
E-PRisk	1.17^{***}	0.01	-0.24	0.81^{***}	0.001	-0.001
	(5.65)	(0.04)	(-0.33)	(5.22)	(0.10)	(-1.51)

Table 7: Role of Asset Re-deployability

This table reports on the results of OLS regressions of % Green investment on E-PRisk for sub-samples split on the industry-level asset re-deployability measure of Kim and Kung (2017). Sub-samples are determined by the median of lagged asset re-deployability by year. Other controls (e.g., PRisk, Non-PRisk, firm size, etc.) consistent with the OLS regression described in Eq. (1) are omitted for presentation purposes. The bottom panel labeled "Impulse Response in Two Years" reports the impulse response 2-years after the year of the E-PRisk shock. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

	More Redeployable			Less Redeployable		
Dep Var. in Year $t+1$:	Total	CAPEX	R&D	Total	CAPEX	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
E-PRisk	0.29	3.16	1.55	-0.76^{***}	-1.15^{**}	0.19
	(0.30)	(1.28)	(0.69)	(-4.26)	(-2.32)	(0.25)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1,928	1,928	1,928	2,038	2,038	2,038
Adjusted R^2	0.87	0.58	0.97	0.85	0.38	0.06
	Impulse Response in Two Years					
E-PRisk	0.35	0.20	-1.14	1.34^{***}	1.35^{***}	-0.14
	(0.52)	(0.21)	(-0.72)	(8.43)	(8.56)	(-0.42)

Table 8: Intensive vs. Extensive Margins of Green Investment

This table reports on the results of the OLS regressions along the intensive and extensive margins of green investment. I(Green>0) is an indicator in percentages for if a firm has above zero green investment. Extensive (Intensive) samples are the sub-samples for firms with zero (above zero) green investment. Positive E-PRisk is equal to E-PRisk when (the fixed effects de-meaned) E-PRisk is positive and zero otherwise. Negative E-PRisk is equal to -1 times E-PRisk when (the fixed effects de-meaned) E-PRisk is negative and zero otherwise. Other controls (e.g., PRisk, Non-PRisk, firm size, etc.) consistent with the OLS regression described in Eq. (1) are omitted for presentation purposes. The bottom panel labeled "Impulse Response in Two Years" reports the impulse response 2-years after the year of the E-PRisk shock. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

	Ext. Margin: I(Green>0)			Int. Margin: % Green		
Dep Var. in Year $t+1$:	% Green Investment					
	(1)	(2)	(3)	(4)	(5)	(6)
E-PRisk	0.09			-0.72^{***}		
	(0.24)			(-3.98)		
Positive E-PRisk		0.06			-0.99^{***}	
		(0.12)			(-4.38)	
Negative E-PRisk			-0.69			2.24^{**}
			(-0.42)			(2.45)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	3,966	3,966	3,966	2,826	2,826	2,826
Adjusted R^2	0.62	0.62	0.62	0.85	0.85	0.85
	Impulse Response in Two Years					
E-PRisk	0.14			1.29^{***}		
	(0.43)			(7.74)		
Positive E-PRisk		0.19			1.73^{***}	
		(0.47)			(6.73)	
Negative E-PRisk			-0.23			-4.36^{***}
			(-0.15)			(-5.65)

Table 9: Financially Unconstrained and Carbon-Intense Firms
This table reports on the results of OLS regressions of % Green investment (Total, CAPEX, and R&D) on E-PRisk in sub-samples. In Panel A, sub-samples are determined by the median of lagged financial constraints, as proxied by total payout, by year. In Panel B Columns (1)–(3), Non-Green firms are those with above median of lagged carbon emissions intensity (i.e., firms' CO2 emissions scaled by revenues) by year. In Panel B Columns (4)–(6), Non-Green industries defined based on the Inter-governmental Panel on Climate Change (IPCC) classification following Choi, Gao, and Jiang (2020). Other controls (e.g., PRisk, Non-PRisk, firm size, etc.) consistent with the OLS regression described in Eq. (1) are omitted for presentation purposes. The bottom panel labeled "Impulse Response in Two Years" reports the impulse response 2-years after the year of the E-PRisk shock. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Panel A: Role of Financial Constraints

	More Constrained			Less Constrained		
Dep Var. in Year $t+1$:	Total	CAPEX	R&D	Total	CAPEX	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
E-PRisk	−0.07	0.39	3.74	−1.00***	−1.04***	−0.47**
	(−0.14)	(0.64)	(1.34)	(−6.17)	(−3.08)	(−2.18)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1,985	1,985	1,985	1,981	1,981	1,981
Adjusted R^2	0.91	0.71	−0.07	0.83	0.20	0.97
	Impulse Response in Two Years					
E-PRisk	0.89*	1.22*	−0.21	1.32***	1.22***	0.48
	(1.68)	(1.75)	(−0.08)	(7.53)	(6.08)	(1.33)

Panel B: Non-Green Firms and Industries

	Non-Green Firms			Non-Green Industries		
Dep Var. in Year $t+1$:	Total	CAPEX	R&D	Total	CAPEX	R&D
	(1)	(2)	(3)	(4)	(5)	(6)
E-PRisk	-0.82^{***}	-0.83^{***}	-0.38	-0.70^{***}	-0.65^{***}	0.002
	(-3.47)	(-2.98)	(-1.10)	(-3.76)	(-2.60)	(0.002)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1,366	1,366	1,366	2,480	2,480	2,480
Adjusted R^2	0.81	0.80	0.14	0.87	0.77	0.88
	Impulse Response in Two Years					
E-PRisk	1.36^{***}	1.39^{***}	-0.06	1.26^{***}	1.24^{***}	0.22
	(7.31)	(8.26)	(-0.18)	(6.30)	(5.79)	(0.53)

Table 10: Effects Around Natural Disasters

This table reports on the effects on E-PRisk and future green investment using the differential effect of country disaster shocks for firms with heterogeneous prior exposure to country-level E-PRisk ($\beta_{\text{E-PRisk}}$). Country Disaster Shock in year t is the year-to-year change in the number of natural disasters at the country-level. $\beta_{\text{E-PRisk}}$ in year $t-1$ is the firm-level coefficient from regressing firm-level E-PRisk on the country-level average E-PRisk in 8-quarter moving windows. Firm Direct Hits in year t is the number of natural disasters that directly hit a firm's headquarters. Columns (1)–(2) is the baseline shock effect on E-PRisk in year t and % Green investment in year $t+1$ while Columns (3)–(4) focuses on the effect for green and non-green investment relative to total assets. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Dep Variable:	$\text{E-PRisk}_{i,t}$	$\%\ \text{Green}_{i,t+1}$	$\frac{\text{Green}}{\text{Assets}}_{i,t+1}$	$\frac{\text{Non-Green}}{\text{Assets}}_{i,t+1}$
	(1)	(2)	(3)	(4)
$\beta_{\text{E-PRisk}} \times$ Country Disaster Shock	2.53^{***}	-0.62^{***}	-0.41^{***}	0.61^{***}
	(3.18)	(−4.51)	(−5.16)	(4.17)
$\beta_{\text{E-PRisk}} \times$ Country Disaster Shock $\times$ Firm Direct Hits	-0.74^{***}	0.12^{**}	0.03	-0.22^{**}
	(−2.76)	(2.12)	(1.08)	(−2.19)
Country Disaster Shock $\times$ Firm Direct Hits	-0.07^{*}	-0.05^{**}	−0.01	0.08^{**}
	(−1.88)	(−2.54)	(−0.52)	(2.11)
Firm Direct Hits	0.74^{**}	0.10	−0.06	−0.43
	(2.04)	(0.54)	(−0.50)	(−1.02)
$\beta_{\text{E-PRisk}}$	5.29^{*}	-0.99^{**}	-0.57^{**}	1.15^{**}
	(1.80)	(−2.44)	(−2.58)	(2.32)
Firm FE	Yes	Yes	Yes	Yes
Country $\times$ Year FE	Yes	Yes	Yes	Yes
Industry $\times$ Year FEs	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
N	3,062	3,062	3,062	3,060
Adjusted R^2	0.30	0.88	0.84	0.87

Appendix for
"Environmental Political Risk and Green Corporate Investments "

A1. Variable Definitions

Investment Measures	
Green Investment Projects$_{i,t}$	Firm i's total sustainable investment in year t.
Green CAPEX$_{i,t}$	Firm i's sustainable capital expenditure investment in year t.
Green R&D$_{i,t}$	Firm i's sustainable research and development investment in year t.
Non-Green Investment Projects$_{i,t}$	Firm i's total non-sustainable investment in year t.
Non-Green CAPEX$_{i,t}$	Firm i's non-sustainable capital expenditure investment in year t.
Non-Green R&D$_{i,t}$	Firm i's non-sustainable research and development investment in year t.
Political Risk and Exposure Measures	
E-PRisk$_{i,t}$	Firm i's environmental political risk level in year t. The measure is constructed by Hassan et al. (2019) from firms' conference call transcripts based on a bag-of-words approach.
$\beta_{\text{E-PRisk},i,t}$	Firm i's environmental political risk beta in year t, estimated using 2-year rolling window regressions of E-PRisk on aggregate political risk as in Eq. (2).
PRisk$_{i,t}$	Firm i's overall political risk level in year t. The measure is constructed by Hassan et al. (2019) from firms' conference call transcripts based on a bag-of-words approach.
Non-PRisk$_{i,t}$	Firm i's overall non-political risk level in year t. The measure is constructed by Hassan et al. (2019) from firms' conference call transcripts based on a bag-of-words approach.
PSentiment$_{i,t}$	Firm i's overall political sentiment level in year t. The measure is constructed by Hassan et al. (2019) from firms' conference call transcripts based on a bag-of-words approach.
Non-PSentiment$_{i,t}$	Firm i's overall non-political sentiment level in year t. The measure is constructed by Hassan et al. (2019) from firms' conference call transcripts based on a bag-of-words approach.
Other Firm- and Country-level Variables	
CC Exposure$_{i,t}$	Firm i's climate change exposure in year t. The measure is constructed by Sautner et al. (2023) from firms' conference call transcripts based on a bag-of-words approach.
CC Sentiment$_{i,t}$	Firm i's climate change sentiment (positive minus negative words) in year t. The measure is constructed by Sautner et al. (2023) from firms' conference call transcripts based on a bag-of-words approach.

Market Capitalization$_{i,t}$	Firm i's market capitalization measured by shares outstanding times price in year t.
Market-to-Book$_{i,t}$	Firm i's market capitalization divided by book value of assets in year t.
ROA$_{i,t}$	Firm i's return on assets measured as net income divided by total assets in year t.
Cash Constrained$_{i,t}$	An indicator for if firm i is cash constrained in year t.
Total Debt Ratio$_{i,t}$	Firm i's ratio of total debt to total assets in year t.
Domestic Ownership$_{i,t}$	Firm i's institutional ownership from domestic investors in year t.
Foreign Ownership$_{i,t}$	Firm i's institutional ownership from foreign investors in year t.
Return SD$_{i,t}$	Firm i's return standard deviation in year t.
ESG Score$_{i,t}$	Firm i's ESG score in year t.
Disasters$_{c,t}$	The number of country-level disasters that hit the headquarter country of domicile for firm i in year t.
Disaster Damages$_{c,t}$	The damages of country-level disasters that hit the headquarter country of domicile for firm i in year t.
ESG Score$_{i,t}$	Firm i's ESG score in year t.
Re-deployability$_{i,t}$	The industry-level asset re-deployability score from Kim and Kung (2017) in year t.
SA Index$_{i,t}$	The Size-Age index for financial constraints constructed following Hadlock and Pierce (2010) in year t.
COS Intensity$_{i,t}$	Firm i's total CO2 emissions scaled by revenues in year t.
Big-3 Ownership$_{i,t}$	Firm i's percentage institutional ownership from BlackRock, Vanguard, and State Street in year t.
UN PRI Ownership$_{i,t}$	Firm i's percentage institutional ownership from investors who are signatories on the United Nations Principles of Responsible Investment in year t.
Control of Corruption Index$_{i,t}$	Firm i's control of corruption index based on its headquarter country of domicile in year t.
Political Stability$_{i,t}$	Firm i's political stability index based on its headquarter country of domicile in year t.
World Values ES Index$_{i,t}$	Firm i's World Values ES index based on its headquarter country of domicile in year t.
Climate Worries Index$_{i,t}$	Firm i's climate worries index based on its headquarter country of domicile in year t.

A2. Corporate Statements on Green Investment Projects

Below, we present several examples of corporate statements regarding their green investments, as found in their recent annual reports and news articles.

- **ROCKWOOL Group**: ROCKWOOL's 2022 Annual Report underscores its dedication to decarbonization: "We continue investing in developing new and improved technologies to ensure we meet our ambitious decarbonisation goals."
- **Microsoft Corporation**: "Microsoft is investing in carbon removal technologies to achieve negative emissions by 2030."
- **IKEA**: "IKEA has committed to significant investments aimed at reducing its carbon footprint, achieving a 30.1% reduction in emissions since 2016."
- **Siemens AG**: "Siemens is committed to achieving carbon neutrality by 2030. Our investments in energy-efficient technologies and renewable energy sources are pivotal to this goal."
- **Lockheed Martin Corporations**: "We invested $3.4 billion in Independent Research and Development and capital investments to accelerate the capabilities that our customers need and for our operations to meet those needs."
- **Nordic Investment Bank (NIB)**: "R&D investments (EUR 477 million, 14%), green buildings (EUR 363 million, 10%), and energy generation (EUR 357 million, 10%). This will allow for the integration of more renewables, the mass deployment of sustainable mobility, and the creation of cleaner, more efficient energy systems."
- **Metso Outotec**: "Our investments in sustainable technologies aim to improve energy efficiency and reduce emissions in the minerals processing industry."
- **American Water Works Company**: "Investing in sustainable water management ensures we provide safe, clean, and reliable water services for future generations."
- **AGL Energy**: "AGL has invested significantly in grid-scale batteries, renewables, and enhancing flexibility in their existing thermal units to address the challenges and opportunities of Australia's energy transition."
- **Regenerative Agriculture Principles**: "We are working with farmers to adopt regenerative agriculture practices, which improve soil health, enhance biodiversity, and sequester carbon."
- **H&M**: "H&M has invested in recycled polyester firm Syre, aiming to create scalable, recyclable polyester for H&M and the wider fashion industry.
- **Apple**: "Apple has committed to reducing their greenhouse gas emissions by 2030, investing more into renewable energy and integrating sustainability into their core operations.
- **Intel**: "Intel has been investing in reducing its manufacturing environmental footprint for over two decades. We aim to achieve net-zero greenhouse gas emissions for Scopes 1 and 2 by 2040 and have already achieved 99% renewable electricity usage globally."
- **Walmart**: "Walmart aims to achieve zero emissions by 2040, investing in renewable energy and sustainable practices across our supply chain."
- **Tesla Inc.**: "Tesla's mission is to accelerate the world's transition to sustainable energy through investing in electric vehicles and renewable energy products."

A3. Additional Appendix Tables and Figures

A Two-Period Real-Options Model: Delay Now, Rebound Later

This section provides a stylized, back-of-the-envelope model showing how environmental–political risk creates an *option to delay* green investment and a subsequent rebound once policy uncertainty resolves. The goal of this model is to show that the effects we document empirically: green CAPEX falling during high EPR periods and rising once EPR subsides, with total investment roughly unchanged—can arise even in a simple two-period real-options setting.

Economic environment

Time is discrete: t and $t{+}1$. The firm has one investment slot per period and faces two irreversible projects, each costing I:

- A **green project** (G), whose payoff depends on future climate-policy credibility.
- A **non-green project** (B), largely insensitive to policy outcomes.

At t, EPR is elevated. At $t{+}1$, policy credibility resolves to either a *Good* or *Bad* state:

$$\Pr_t(S = \text{Good}) = \pi, \qquad \Pr_t(S = \text{Bad}) = 1 - \pi. \tag{4}$$

The per-period discount factor is $\delta \in (0, 1)$. We focus on payoffs, not discount-rate shifts in this model.

Payoffs and the option to delay

Let the annuity factor be

$$A(N) \equiv \frac{1 - \delta^N}{1 - \delta}. \tag{5}$$

If the green project is undertaken at time t, its expected present value is

$$PV_G^{\text{now}} = \Big[\pi C_G^{\text{Good}} + (1 - \pi) C_G^{\text{Bad}}\Big] A(N_G) - I, \tag{6}$$

while for the non-green project,

$$PV_B^{\text{now}} = C_B A(N_B) - I. \tag{7}$$

If the firm waits one period before investing in G, uncertainty resolves, and the expected value of waiting is

$$Wait_G = \delta\Big[\pi PV_G^{\text{Good}} + (1 - \pi) PV_G^{\text{Bad}}\Big], \tag{8}$$

where

$$PV_G^{\text{Good}} = C_G^{\text{Good}} A(N_G) - I, \tag{9}$$

$$PV_G^{\text{Bad}} = C_G^{\text{Bad}} A(N_G) - I. \tag{10}$$

Investment rules and composition effects

With one project slot, the firm compares three options:

$$PV_G^{\text{now}} \quad \text{vs.} \quad Wait_G \quad \text{vs.} \quad PV_B^{\text{now}}.$$

1. **Delay green (real option):** The firm waits if

$$Wait_G > PV_G^{\text{now}}, \tag{11}$$

   which is more likely when the policy-dependent payoff gap ($C_G^{\text{Good}} - C_G^{\text{Bad}}$) is large—that is, when policy uncertainty is high and exposure to it is strong.
2. **Substitute into non-green at t:** If, in addition,

$$PV_B^{\text{now}} \geq \max\{PV_G^{\text{now}}, 0\}, \tag{12}$$

   the firm uses its slot for B instead of G. Total investment remains roughly constant, but its *composition* shifts toward non-green assets.
3. **Rebound at t+1:** After uncertainty resolves, the firm invests in G if

$$PV_G^S \geq \max\{PV_B^{\text{now}}, 0\}, \tag{13}$$

   where $S \in \{\text{Good}, \text{Bad}\}$. If the state is Good, this inequality holds, and green CAPEX rebounds; if Bad, the firm stays with non-green.

These simple inequalities generate the same pattern observed in the data: when EPR spikes, green investment drops and non-green rises (holding total investment roughly flat), followed by a reversal once uncertainty subsides.

Illustrative calibration

To visualize magnitudes, consider the following parameterization:

$$\delta = 0.92, \quad I = 100, \quad N_G = 15, \quad N_B = 5,$$

$$C_G^{\text{Good}} = 14, \quad C_G^{\text{Bad}} = 10, \quad C_B = 27.$$

With high EPR (low policy credibility, say $\pi = 0.4$):

$$\begin{aligned} PV_G^{\text{now}} &= [0.4 \cdot 14 + 0.6 \cdot 10]A(15) - 100 \approx 0, \\ Wait_G &= \delta[0.4PV_G^{\text{Good}} + 0.6PV_G^{\text{Bad}}] > PV_G^{\text{now}}, \\ PV_B^{\text{now}} &> 0. \end{aligned}$$

Hence the firm delays G and invests in B at t. When EPR resolves at t+1 and the policy state is Good, PV_G^{Good} exceeds PV_B^{now}, leading the firm to switch to green CAPEX. This stylized model therefore rationalizes our empirical findings: a one-year dip in green investment, offset by non-green substitution, followed by a rebound when political uncertainty subsides.

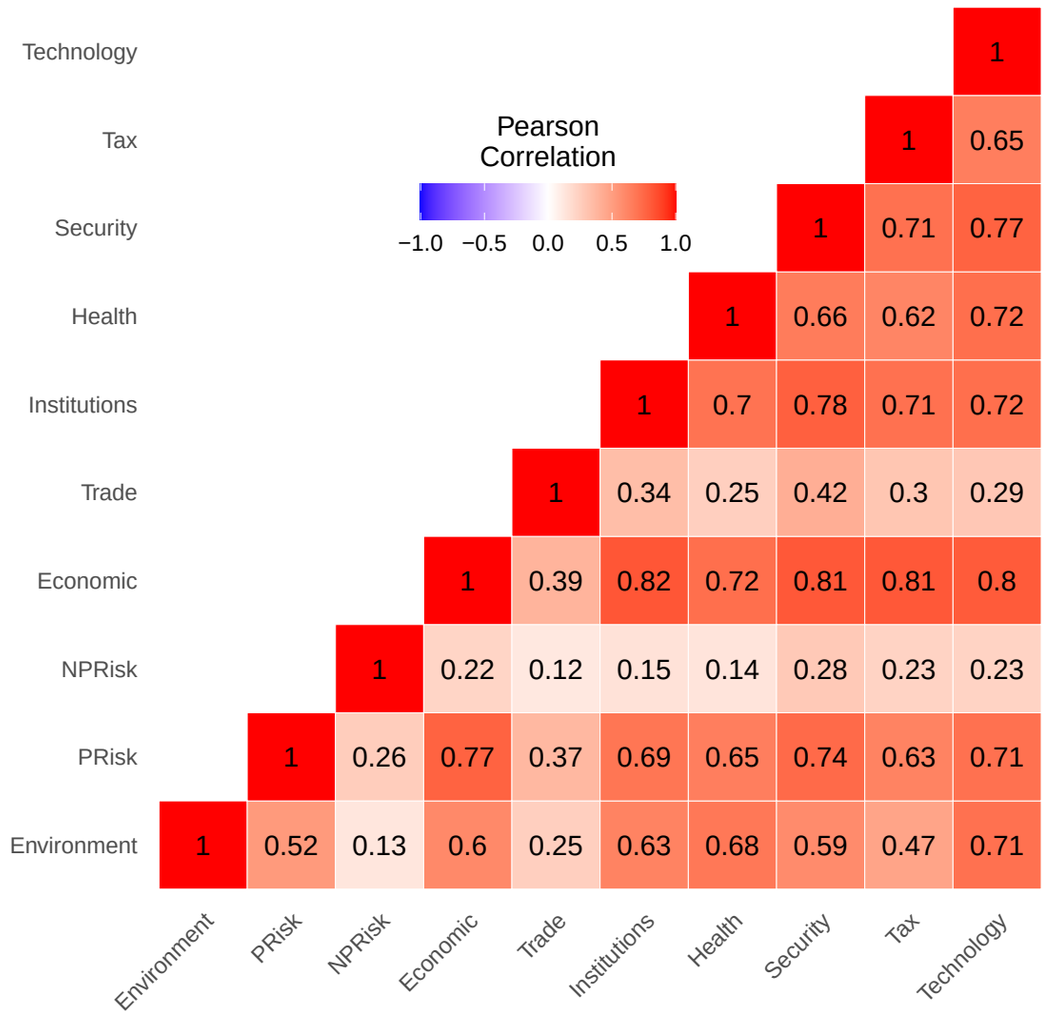


Figure IA.1: Correlation Matrix of Political Risk Topics
The top figure plots a heat map of the Pearson correlation matrix between the eight political risk topics, overall political risk, and overall non-political risk measured from earnings conference calls in our sample.

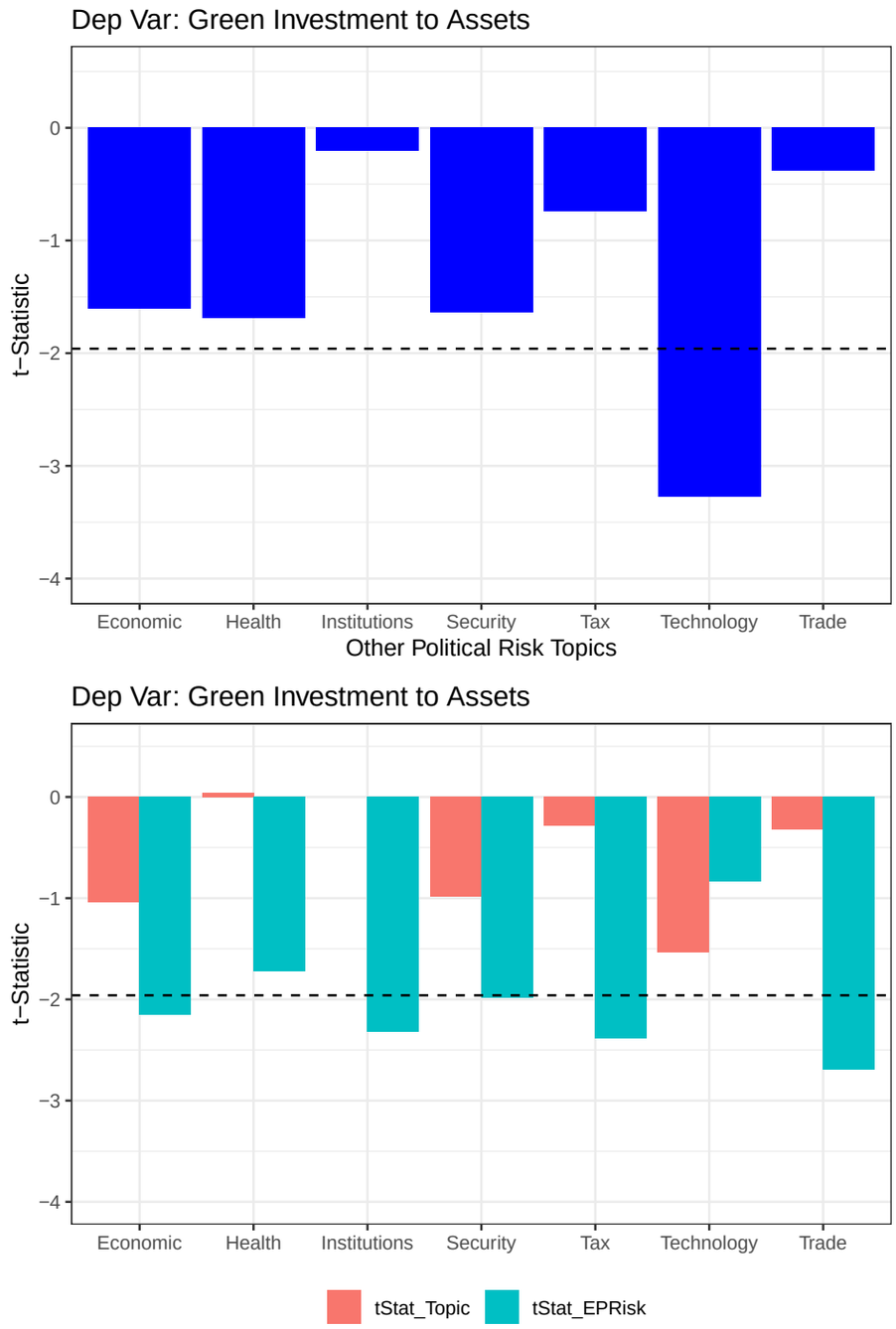


Figure IA.2: Other Political Risk Topics
The top figure plots the $t-$statistic associated with replacing EPR with the other political risk topics in our baseline regressions with Green Investment to Assets as the dependent variable. The bottom figure plots the t-statistics when the regression includes E-PRisk and the control for the other political risk topics. The dashed horizontal line is the 5% level for statistical significance.

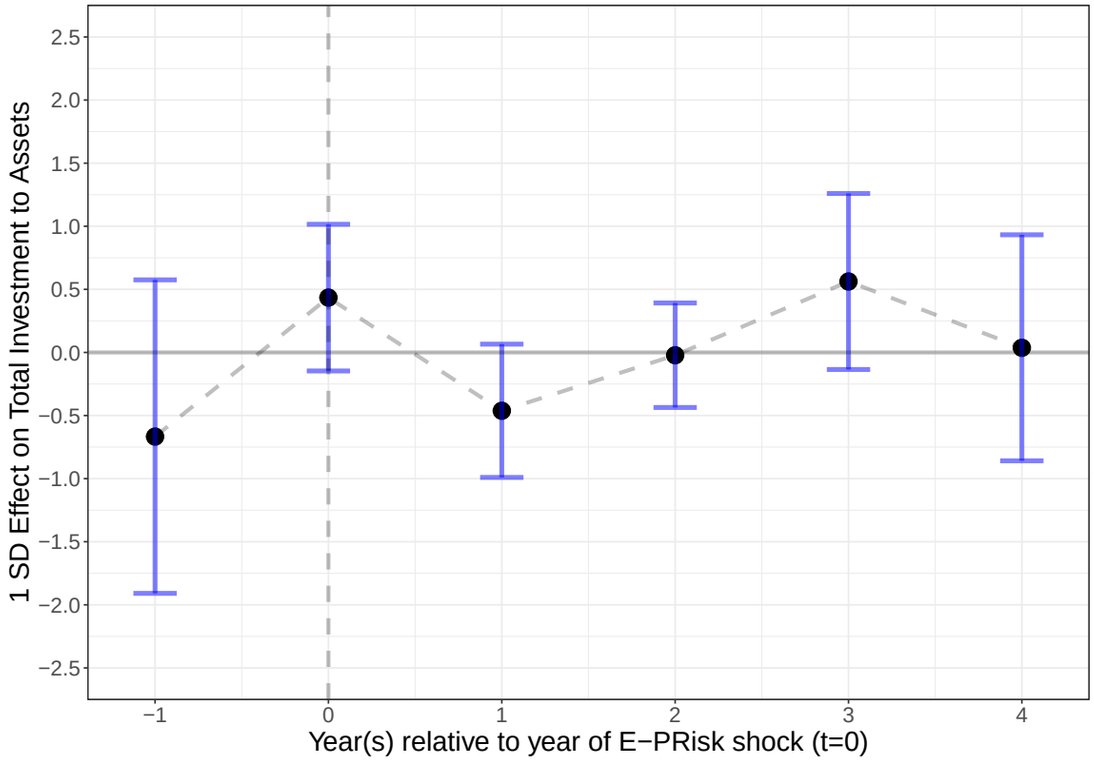


Figure IA.3: Impulse Response for Total Investment to Assets surrounding E-PRisk Shocks
The top figure plots the impulse response for total investment from $t-1$ to $t+4$ surrounding the year of an EPR shock. All EPR effects are standardized by its full-sample standard deviation. The error bars represent 95% confidence intervals.

Table IA.1: Firm-level Green Corporate Investment Projects by Country
This table reports the distribution of average firm-level total assets and sustainable investment across countries from 2019 to 2022. We report the top 20 countries by number of firm-years (Obs.). This is our final sample that requires firm-level political risk from Hassan et al. (2019) and other control variables from our baseline regressions.

Country	Observations	Assets ($Bil)	% Green Invest.	$\frac{\text{Green}}{\text{Assets}}$ ($\times$ 1000)
United States	1,890	34.42	8.11	7.97
Canada	304	16.86	14.99	8.80
Japan	283	61.80	2.97	2.62
India	175	15.38	7.62	16.69
Germany	162	57.93	13.70	12.56
United Kingdom	127	36.86	17.51	10.80
Brazil	109	21.11	12.60	10.52
Sweden	80	13.77	14.44	14.22
South Korea	68	52.95	12.07	16.48
Switzerland	62	21.70	5.18	3.82
Spain	59	41.62	30.27	24.91
Italy	59	45.29	31.76	26.71
China (Mainland)	57	46.95	19.95	34.20
Netherlands	57	24.73	5.29	6.55
Finland	56	15.48	23.91	19.97
Ireland	53	25.10	3.80	1.81
Taiwan	52	20.84	5.00	6.91
Norway	51	19.93	11.39	4.33
France	46	49.57	25.71	20.36
Russia	43	58.17	3.87	76.85
Other Countries	173	12.51	10.20	11.83
World	3,966	33.61	10.28	10.56

Table IA.2: Variance Decompositions
This table reports a variance decomposition of green investment percentage and environmental political risk under various fixed effects.

Panel A: Green Investment Percentage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
R-Squared (%)	0.25	43.7	7.53	46.4	90.15	90.35	91.55	90.72	90.72
Year FE	Yes	No	No	No	No	Yes	No	No	No
Industry × Year FE	No	Yes	No	Yes	No	No	Yes	No	Yes
Country × Year FE	No	No	Yes	Yes	No	No	No	Yes	Yes
Firm FE	No	No	No	No	Yes	Yes	Yes	Yes	Yes

Panel B: Environmental Political Risk

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
R-Squared (%)	0.31	6.73	2.02	8.38	32.23	32.56	35.73	33.77	33.77
Year FE	Yes	No	No	No	No	Yes	No	No	No
Industry × Year FE	No	Yes	No	Yes	No	No	Yes	No	Yes
Country × Year FE	No	No	Yes	Yes	No	No	No	Yes	Yes
Firm FE	No	No	No	No	Yes	Yes	Yes	Yes	Yes

Table IA.3: Full Table: Environmental Political Risk and Investment
This table reports the full set of variable coefficients for Table 3 of the main paper. t-statistics in parentheses are computed from the variance-covariance matrix clustered by firm. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Dep Var. Next Year	% Green Investment					$\frac{\text{Green}}{\text{Assets}}$	$\frac{\text{Non-Green}}{\text{Assets}}$
	OLS				WLS	OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
E-PRisk	−0.54***	−0.56***	−0.64***	−0.64***	−1.59**	−0.48***	0.29
	(−2.86)	(−2.80)	(−3.63)	(−3.85)	(−2.45)	(−3.97)	(1.22)
PRisk	1.52	1.57	1.79	1.85	−0.90	1.60*	−0.74
	(1.33)	(1.36)	(1.37)	(1.43)	(−0.38)	(1.93)	(−0.37)
Non-PRisk	0.26	0.26	0.21	0.20	0.05	0.26	0.32
	(1.17)	(1.20)	(1.12)	(1.07)	(0.18)	(1.35)	(0.73)
PSentiment		0.13	0.08	0.10	−0.05	0.09	0.62*
		(0.73)	(0.46)	(0.54)	(−0.19)	(0.75)	(1.73)
Non-PSentiment		−0.001	−0.002	−0.002	0.04	−0.01	−0.02
		(−0.09)	(−0.14)	(−0.16)	(1.41)	(−0.75)	(−0.61)
CC Exposure				0.15	0.28	0.08	−0.22
				(0.72)	(0.88)	(0.52)	(−0.65)
CC Sentiment				−0.58	−1.20**	−0.31	1.23*
				(−1.37)	(−2.31)	(−1.09)	(1.75)
log(Market Capitalization)				−0.30	−2.47	1.35**	0.13
				(−0.56)	(−1.61)	(2.48)	(0.07)
log(Market-to-Book)				−0.61	0.59	−0.45	0.48
				(−0.61)	(0.69)	(−0.88)	(0.18)
ROA				−0.30	−16.57	−3.63**	14.35
				(−0.09)	(−1.60)	(−2.08)	(1.44)
Debt Ratio				−1.61	−0.67	−5.17**	−1.18
				(−0.36)	(−0.07)	(−2.09)	(−0.14)
Foreign Ownership				0.003	−0.01	0.04	0.44***
				(0.05)	(−0.16)	(0.71)	(2.58)
Return SDr				0.69	0.63	0.59	10.38**
				(0.43)	(0.29)	(0.74)	(2.20)
ESG Score				−0.05*	−0.11*	−0.05**	0.07
				(−1.72)	(−1.93)	(−2.22)	(0.69)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	No	No	No
Country × Year FE	No	No	Yes	Yes	Yes	Yes	Yes
Industry × Year FEs	No	No	Yes	Yes	Yes	Yes	Yes
N	3,966	3,966	3,966	3,966	3,966	3,966	3,966
Adjusted R^2	0.87	0.87	0.86	0.86	0.90	0.83	0.85

Table IA.4: Positive vs. Negative E-PRisk Shocks
This table reports the results of regressing green investment on a decompostion of E-PRisk into its positive and negative components. Positive E-PRisk is equal to E-PRisk when (the fixed effects de-meaned) E-PRisk is positive and zero otherwise. Negative E-PRisk is equal to -1 times E-PRisk when (the fixed effects de-meaned) E-PRisk is negative and zero otherwise. Both are standardized by the full sample standard deviation of E-PRisk. *, **, and *** indicate statistical significance at the ten-, five-, and one-percent level, respectively.

Dep Var. Next Year:	% Green		Green/Assets	
	(1)	(2)	(3)	(4)
Positive E-PRisk Shocks	-0.89^{***}		-1.52^{***}	
	(-4.32)		(-2.84)	
Negative E-PRisk Shocks		1.95^{**}		4.31^{**}
		(2.25)		(2.21)
Firm FE	Yes	Yes	Yes	Yes
Country $\times$ Year FE	Yes	Yes	Yes	Yes
Industry $\times$ Year FEs	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
N	3,966	3,966	3,966	3,966
Adjusted R^2	0.86	0.86	0.21	0.21