Geopolitical Risk, Uncertainty, Real Options, and Corporate Social Responsibility

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Geopolitical risk, uncertainty, real options, and corporate social responsibility

Abstract

Motivated by intensified interest in corporate social responsibility (CSR) and with the backdrop of rising geopolitical risk (GPR), we examine the impact of news-based GPR on CSR activities among US public firms between 1995 and 2019. In line with real options theory, we confirm a negative relationship between GPR and CSR, that the effect is more pronounced for more irreversible investments, and it is channeled through lower profitability, reduced cash flow and asymmetric information. We further assess the differential impact across resource and financial constraints, political regimes, multinational operations, pre-existing levels of CSR, industry membership, and over time.

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1 INTRODUCTION

The impact of geopolitical risk (GPR) on firm investment activities, corporate governance, and equity market premia is more apparent over the past two decades. Ongoing geopolitical tensions, such as the Russian-Ukraine conflict, the crisis in Gaza and the broader Middle East, and escalating divisions between the West and China, have disrupted global supply chains. These disruptions compel firms to reconsider their investment strategies, including those related to environmental, social, and governance (ESG) initiatives, which lie at the core of corporate social responsibility (CSR) efforts. Understanding how GPR influences firms' ESG performance is also important for policymakers' strategies for green transition and climate change mitigation.

Our study establishes a causal link between geopolitical risk and CSR activity and performance. Using a sample of U.S. public firms from 1995 to 2019, we document a negative relationship between GPR and CSR activities. Consistent with real options theory (ROT), we show that this effect is more pronounced for investments with higher irreversibility, and is mediated through profitability, free cash flow, and asymmetric information channels. Our results hold after addressing endogeneity concerns through quasi-natural experiments, instrumental variable regressions, and change analysis.

Caldara and Iacoviello (2022) define geopolitical risk as the "threat, realization, and escalation of adverse events associated with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations." They construct a news-based GPR index derived from the share of articles in mainstream media outlets in the U.S., the U.K., and Canada that reference adverse geopolitical events. We adopt this index as our primary proxy for GPR. Unlike realized geopolitical events, which are rare and discontinuous, the news-based GPR index offers a nearly "continuous" measure by tracking public attention to geopolitical

risks. This approach overcomes the limitations of small sample sizes associated with realized events and enables meaningful time-series variation for analysis.

We relate the GPR index to measures of CSR performance, namely the KLD/MSCI scores, and document a significant negative relation in line with ROT. We furthermore show that the effect of GPR on CSR is persistent. This suggests that GPR, as an exogenous source of uncertainty, might be more impactful on corporate policy, and more so than alternative sources of business or economic uncertainty. To shed more light on the sources of the negative relation between GPR and CSR, we examine potential mechanisms through which the documented effect is channeled. Consistent with ROT, we find that GPR affects CSR adversely through reduced profitability, lower cash flow, and added asymmetric information, and is more pronounced for investments with higher irreversibility. We furthermore explore the differential impact of GPR on CSR for a number of firm-specific characteristics, as well as across industries, political regimes, and time.

To address potential endogeneity concerns,[1] we take several steps: a) we design a quasi-natural experiment using the 9/11 terrorist attack as an exogenous shock, b) we run a two-stage instrumental variable (IV) regression using a binary variable capturing international exposure as a valid instrument, and c) we conduct change analysis in which both dependent and independent variables are first-differenced. Our baseline results continue to hold, indicating that the negative relationship found between GPR and CSR is not driven by endogeneity. Our findings are also robust across two different ESG datasets, different model specifications, alternative proxies for CSR and specifications of the GPR index, and a set of firm-specific, industry, and macroeconomic control variables used in multivariate regressions.

[1] While reverse causality is unlikely, simultaneous (random) determination or omitted variable bias may give rise to endogeneity issues.

Geopolitical risk is distinct from economic and policy uncertainty (EPU)—though they collectively make up the "uncertainty trinity" (Carney, 2016). Since prior research (i.e., Jia and Li, 2020; Peng et al., 2023) already links EPU to CSR, albeit with different results, we emphasize here that GPR is not subsumed by EPU but is a distinct variable. Previous studies (e.g., Adra et al., 2023; Caldara and Iacoviello, 2022) emphasize that GPR differs from other uncertainties. Caldara and Iacoviello (2022) further show that the GPR index spikes around major geopolitical events, such as the 9/11 attacks, but remains broadly stable in periods of economic distress or in periods of presidential elections. As such, the GPR index exhibits considerable independence from EPU. We likewise show that the correlation between GPR and Baker et al.'s (2016) EPU index is only marginal and that the effect of GPR on CSR is not sensitive to the inclusion of EPU as a control in multivariate regressions.

While other studies investigate the impact of GPR on corporate investment generally, our paper establishes a specific link between GPR and CSR activities. Unlike other forms of investment, ESG-related activities are often discretionary and thus are more likely to be cut, especially during times of resource strain due to rising geopolitical tensions. Overall, our paper contributes to the extant literature in several respects, namely by: a) establishing, for the first time, a negative relationship between geopolitical risk and CSR performance, b) highlighting the channels through which this relationship takes place, c) analyzing the association between GPR and CSR conditional on firm characteristics through time, and d) establishing the relative importance of geopolitical risk on corporate policy relative to other sources of uncertainty like EPU.

The rest of the paper is organized as follows: Section 2 discusses the related literature and hypothesis development, Section 3 outlines the research design, Section 4 discusses our baseline results and robustness tests, Section 5 provides supplementary analysis, and Section 6 concludes.

2 LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 Literature review

Our paper relates to the literature on the impact of exogenous shocks on corporate investment and CSR performance, where findings remain mixed. Jia and Li (2020) show that rising uncertainty from climate change, economic policy, or political instability reduces CSR performance, as delaying investment becomes more valuable. Similar results are reported for Chinese firms by Wang et al. (2014), Niu and Zhou (2022), and Zhao et al. (2021). In contrast, Peng et al. (2023) find that large U.S. firms increase CSR investments during uncertain times to hedge risk and gain pro-social, insurance-like benefits. Positive associations between uncertainty and CSR are also documented by Chatjuthamard et al. (2021) using earnings calls, and by Yuan et al. (2022) and Cheng et al. (2022) for the Chinese market. Our study differs by linking CSR performance to a distinct source of external uncertainty: news-based geopolitical risk.

Another strand of research examines how external uncertainty affects corporate investment, with potential implications for CSR. Gulen and Ion (2016) document a negative relationship between policy-related uncertainty and capital investment, particularly so for financially constrained firms and those in less competitive markets. Bonaime et al. (2018) show that policy uncertainty reduces investment in mergers and acquisitions, especially when linked to taxation, government spending, and regulatory policies. Wang et al. (2023) find that GPR

negatively impacts firm-level investment but do not explore its effect on CSR, while Cao et al. (2023) highlight that military alliances mitigate GPR, boosting cross-border acquisitions.

Our paper uses news-based GPR as a novel factor influencing CSR performance. Gillan et al. (2021) provide a review of CSR drivers. We control extensively for micro-level drivers and reconcile our findings with prior studies. Macroeconomic factors sensitive to geopolitical risk are also quite relevant. Liang and Renneboog (2017) link CSR performance to a country's legal origin, regulatory framework, and governance, which are influenced by external shocks. Miska et al. (2018) highlight the role of cultural systems in sustainability, while Ioannou and Serafeim (2012) and Jackson and Apostolakou (2010) emphasize political, labor, educational, and institutional norms.

2.2 Hypothesis development

Companies communicate CSR efforts through sustainability reports, press releases, product labeling, and responsible investment commitments.[2] CSR performance is evaluated by institutions like KLD/MSCI and Thomson Reuters ASSET4, which provide ESG ratings. Firms perceived as good corporate citizens benefit from preferential investment opportunities (Sen et al., 2006), lower capital costs (Orlitzky, 2008), higher employee retention (Greening and Turban, 2000) and customer loyalty (Marin et al., 2009). Financial markets reflect this trend, with eco-friendly assets attracting $8.4 trillion, or 12.5% of US-domiciled assets (SIF Annual Report, 2023).

Could higher geopolitical risk disrupt CSR activity and performance? Institutions like the Bank of England, ECB, IMF, and the World Bank emphasize that rising geopolitical tensions

[2] An example of such framework is the Principles of Responsible Investment (PRI) initiative with more than 3,000 signatories as of 2020.

create significant economic uncertainty (Caldara and Iacoviello, 2022). Real options theory (ROT) suggests that increased uncertainty encourages firms to delay investments, particularly when investments are highly irreversible (McDonald and Siegel, 1986; Dixit and Pindyck, 1994; Trigeorgis, 1996). While Grenadier (2002) finds that competition reduces the value of delaying, firms still tend to postpone investments under uncertainty. Aguerrevere (2003) further shows that investment thresholds remain largely unaffected by industry competition. Even in oligopolistic markets, where early investment could yield monopoly profits, high uncertainty often leads to delays (Huisman and Kort, 2015).

Empirical evidence supports the value of delaying investment under uncertainty and partial irreversibility (Leahy and Whited, 1996; Gulen and Ion, 2016). Geopolitical risk has been shown to reduce investment, largely driven by the option to delay (Caldara and Iacoviello, 2022; Wang et al., 2023). Similarly, Jia and Li (2020) find that other uncertainties, such as economic policy, climate change, and political instability, also lead to investment delays. Julio and Yook (2012) show firms postpone investment until electoral uncertainty is resolved, while Kim and Kung (2017) demonstrate that firms with less redeployable (more irreversible) capital invest less.

CSR activities are particularly prone to delay for two reasons. First, they represent long-term, partly irreversible commitments to ESG goals (Flammer and Bansal, 2017), making the option to delay more valuable due to high adjustment costs (Dixit and Pindyck, 1994). Second, GPR can reduce a firm's free cash flow, forcing cuts to both CAPX and CSR, which compete for limited resources. Given CSR's voluntary nature and managerial discretion, it is more likely to be deprioritized during economic hardship, resource constraints, and heightened uncertainty.

ROT suggests delaying or scaling down investment under uncertainty, both for investment timing and capacity choice considerations (He and Pindyck, 1992; Dixit and Pindyck, 1994, ch.11;

Dangl, 1999; Aguerrevere, 2003; Huisman and Kort, 2015). Viewing CSR policy as the resource-based capacity to capitalize on future CSR opportunities offers additional insights. For small, incremental capacity investments like CSR, greater uncertainty leads to reduced investment (He and Pindyck, 1992; Dixit and Pindyck, 1994; Aguerrevere, 2003). For larger, lumpy capacity investments, uncertainty causes significant delays until cash flows reach higher thresholds (Dangl, 1999; Huisman and Kort, 2015). Another strand of ROT models risks as rare events involving sudden downward jumps that could eliminate investment opportunities altogether. This is particularly relevant for risks like wars disrupting supply chains or terminating CSR activities. Balter et al. (2022) show that sudden, extreme risks may prompt firms to invest earlier to secure short-term benefits, but at a reduced scale due to higher uncertainty.

Geopolitical uncertainty, such as the Russia-Ukraine war, disrupts global supply chains, oil supplies, and natural resources, depleting firms' available resources and constraining CSR activities. Larger, more mature firms with greater return exposure to CSR (Reverte, 2009; Cormier and Magnan, 1999; Hull and Rothenberg, 2008; D'Amato and Falivena, 2020) are likely to be most affected. In such adverse circumstances, funding voluntary CSR initiatives often comes into question, especially as firms face heightened corporate governance challenges in balancing ESG goals with financial objectives (Cespa and Cestone, 2007). Thus, both ROT and resource constraints suggest a negative relationship between GPR and CSR activities—a predicted hypothesis we explicitly test below.

H1: The relationship between geopolitical risk and corporate social responsibility activities is negative.

A counterargument however, could be made that firms may increase CSR investments to build social capital and stakeholder trust as a hedge against downside risks (Servaes and Tamayo,

2017). Social capital from CSR can cushion firms during crises, yielding higher returns (Godfrey et al., 2009; Lins et al., 2017), lowering the cost of capital (Shiu and Yang, 2017), and improving valuations during stressful times (Harjoto and Laksmana, 2018). These conflicting arguments motivate our empirical investigation, as the relationship between GPR and CSR activity is not straightforward.

2.3 Economic channels

We further explore the mechanisms through which GPR may negatively affect CSR activity. We hypothesize that this negative effect may operate through lower profitability, reduced cash flows, and increased asymmetric information. Building on Jia and Li (2020), who show that profitability moderates the impact of economic policy uncertainty (EPU) on CSR, we test whether profitability channels the effect of GPR on CSR. Declines in free cash flow caused by GPR are also likely to reduce investments in both CAPX and CSR, as they compete for limited resources. Firms may prioritize CAPX over CSR, given that CSR activities are voluntary and subject to greater managerial discretion, making them more susceptible to cuts under uncertainty. We also examine whether asymmetric information amplifies the effect of GPR on CSR. Nagar et al. (2019) show that EPU increases investor information asymmetry, influencing managerial decisions. Since GPR represents a macroeconomic shock, we test whether firms with higher levels of asymmetric information experience stronger declines in CSR spending. The above lead to our second hypothesis, namely that:

H2: Geopolitical risk negatively affects corporate social responsibility activities through reduced profitability, lower cash flow and increased asymmetric information.

Finally, ROT suggests that uncertainty has a greater negative effect on investments that have higher irreversibility (Dixit and Pindyck, 1994; Bernanke, 1983). Firms committing to more irreversible investments are thus more likely to delay under uncertainty, whereas those with options to redeploy resources or recover investment value upon exit face lower incentives to delay. Accordingly, we test whether higher investment irreversibility strengthens (moderates positively) the negative impact of GPR uncertainty on CSR activity. We state:

H3: The negative impact of geopolitical risk on corporate social responsibility activities increases with investment irreversibility.

2.4 Additional considerations

In this section, we examine additional mechanisms potentially driving the relationship between GPR and CSR, focusing on resource constraints, multinational exposure, political dynamics, time, and industry membership. We also assess the impact of GPR on firm value based on pre-existing CSR levels.

***Resource Constraints and Firm Size*:** Prior studies show that resource availability tends to support more CSR investment (Russo and Fouts, 1997; McWilliams and Siegel, 2001). Larger and more mature firms, which are more rich in resources and more engaged in CSR (Reverte, 2009; Hull and Rothenberg, 2008), may experience stronger negative effects from GPR due to tightening resource constraints, greater stakeholder complexity, and greater public scrutiny (Gallo and Christensen, 2011). Smaller firms may face fewer disruptions as they are less financially capable of undertaking substantial CSR investments to begin with (D'Amato and Falivena, 2020).

***Multinational Exposure*:** Multinational firms, which are more exposed to geopolitical shocks, may make greater CSR adjustments in response to GPR. Fillat and Garetto (2015) argue

that MNCs face additional risks abroad and are often reluctant to exit foreign markets, having incurred significant entry costs. We test whether GPR affects multinationals more severely compared to domestic firms.

***Political Dynamics*:** CSR is influenced by political dynamics, with ESG goals being contentious in U.S. elections. Republican corporate managers tend to adopt more conservative policies, including lower CSR spending (Di Giuli and Kostovetsky, 2014; Hutton et al., 2014). Regional perceptions of climate change also impact CSR decisions (Afzali et al., 2024). We thus investigate whether the GPR-CSR relationship differs under Republican versus Democratic administrations, addressing a gap in prior research.

***Time Dynamics and Nonlinearity*:** GPR effects may vary over time and magnitude. Similar to Bonaime et al. (2018) and Caldara and Iacoviello (2022), we examine the persistence of GPR effects over time and test for nonlinear responses, anticipating that small shocks are more easily absorbed while large shocks have significant impacts on CSR.

***Industry Variation*:** The impact of GPR on CSR is also likely to vary across industries. For example, defense firms may benefit from geopolitical tensions and maintain higher CSR spending, whereas industries more adversely affected by GPR may cut back, using GPR as justification. Given CSR's discretionary nature, understanding industry-specific responses to GPR is critical.

***Firm Value and CSR*:** Previous studies link CSR to higher firm value, particularly during crises (Lins et al., 2017; Malik, 2015; Friede et al., 2015). CSR can act as a buffer against negative GPR shocks, improving profitability and access to capital. Firms with higher CSR scores are expected to exhibit higher resilience to GPR shocks. Wang and Bansal (2012) further highlight

that CSR's financial costs are mitigated by a firm's long-term strategic orientation, which we incorporate into our analysis of CSR's impact on firm value under GPR.

3 RESEARCH DESIGN

3.1 Data sources and main variables

We use a sample of publicly listed U.S. firms collected from the Compustat database. We also obtain additional data which we describe in Table A1 in the Appendix. In line with prior studies, we exclude utilities (SIC codes 4900–4999) and financial firms (SIC codes 6000–6999). We also remove observations with missing key variables. Following Jia and Li (2020), we winsorize all continuous variables at the 1st and 99th percentiles. Our final sample comprises 25,694 firm-year observations for 3,241 unique firms spanning the period 1995 to 2019.

3.2 Dependent variable: corporate social responsibility

In line with prior studies (e.g., Bae et al., 2021; Sun and Gunia, 2018), we collect CSR data from Morgan Stanley Capital International (MSCI), formerly known as Kinder, Lydenberg and Domini (KLD), to measure firms' CSR performance. This dataset enables us to construct CSR net adjusted score (CSR_Net_Adj). The MSCI dataset covers seven components, including environmental issues, community relationships, human rights issues, employee relationships, corporate governance, diversity, and product safety. Each component is evaluated annually using a set of indicators representing a positive (strength) or negative (concern) rating. These indicators are binary variables, taking a value of 1 if the firm year demonstrates strength in the assessed component, and 0 if it reflects a concern. The total score of each component is calculated by adding up the strengths and subtracting the concerns.

In line with prior work in extant literature (e.g., Cheung, 2016; Deng et al., 2013), we calculate CSR net adjusted score using the following formula:

$$\text{CSR\_Net\_Adj}_t^i = \frac{\sum_{p=1}^{n_t^i} \text{Strength}_p^i}{n_t^i} - \frac{\sum_{q=1}^{m_t^i} \text{Concern}_q^i}{m_t^i} \qquad (1)$$

CSR_Net_Adj_t^i represents the net CSR score for component i at time t. $\text{Strength}_p^i(\text{Concern}_q^i)$ represents the pth strength (qth concern) indicator for each component. Both strength and concern are binary variables that take a value of 1 if the firm exhibits strength p or concern q and 0 otherwise. n_t^i is total number of strengths and m_t^i is total number of concerns at time t. This calculation results in a CSR net adjusted score ranging from -1 to +1. We exclude the corporate governance component in calculating the CSR score. We present details in Appendix Table 1.

3.3 Independent variable: geopolitical risk index

According to Caldara and Iacoviello (2022), the geopolitical risk index (GPR) is a news-based measure that captures the presence of uncertainty or adverse circumstances resulting from wars, terrorism or tensions between nations that cannot be resolved through peaceful means. GPR emerges from international crises and acts of violence. The GPR index is constructed based on methodologies developed by Saiz and Simonsohn (2013) and Baker et al. (2016). This monthly index is constructed by counting the number of articles in major newspapers that discuss the rise of geopolitical tensions. The index is the number of GPR-coverage articles divided by the total number of articles published in these newspapers. Articles are collected from 11 major newspapers using automated text searches. The 11 major newspapers are: The Boston Globe, Chicago Tribune, The Daily Telegraph, Financial Times, The Globe and Mail, The Guardian, Los Angeles Times, The New York Times, The Times, The Wall Street Journal, and The Washington Post. Monthly

data are available starting from 1985. We collect monthly GPR data from Matteo Iacoviello's website.[3]

The GPR index exhibits only variation over time, since all firms have the same GPR value within a specific fiscal year. In line with prior research (e.g., Duong et al., 2020; Nguyen and Phan, 2019), we construct geopolitical risk (GPR) by taking the natural logarithm of the arithmetic average of the GPR index over the past 12 months of fiscal year t. Consistent with the existing literature (e.g., Duong et al., 2020; Nguyen and Phan, 2019), we exclude year dummies from our regression models. However, we conduct a robustness test by introducing year dummies, and report the results in Table IA.7 (Panel A) of the online appendix. Our findings remain robust after controlling for year dummies.

3.4 Control variables

We use control variables in line with previous literature (e.g., Attig and Cleary, 2015; Branco and Rodrigues, 2006; Hegde and Mishra, 2019; Sun and Gunia, 2018). We include a set of 10 firm-level and 2 macroeconomic variables. Specifically, firm-level variables consist of the natural logarithm of firm size (book assets), market-to-book, financial leverage, research and development expenses as a proportion of total assets, return on assets, dividend payments as a proportion of total assets, cash holdings as a percentage of book assets, capital expenditure as a proportion of book assets, the natural logarithm of firm age, and the volatility of cash flow. To account for macroeconomic effects, we control for economic policy uncertainty (EPU; Baker et al., 2016), and GDP growth (GDP). Consistent with prior literature, we estimate EPU by taking the natural

[3] https://www.matteoiacoviello.com/gpr.htm.

logarithm of the average EPU over the preceding 12 months of fiscal year t (Nguyen et al., 2017; Gulen and Ion, 2016).

3.5 Baseline regression model

Following previous studies on CSR (e.g., Attig and Cleary, 2015; Branco and Rodrigues, 2006; Hegde and Mishra, 2019; Sun and Gunia, 2018), we use the following regression model to examine the association between GPR and CSR activity:

$$CSR_{i,t+1} = \alpha_0 + \beta_1 GPR(LN)_t + \beta_2 Size_{i,t} + \beta_3 MTB_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 R\&D/TA_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Dividend_{i,t} + \beta_8 Cash/TA_{i,t} + \beta_9 CAPX/TA_{i,t} + \beta_{10} Age(LN)_{i,t} + \beta_{11}\sigma(CashFlow)_{i,t} + \beta_{12} EPU(LN)_t + \beta_{13} GDP_t + Firm\ Effects + \varepsilon_{it} \quad (2)$$

In the above equation, the primary dependent variable is CSR activity proxied by the yearly CSR net adjusted score (CSR_Net_Adj) from the KLD/MSCI database. Our primary independent variable of interest is GPR (described in section 3.4). Following previous literature (e.g., Lee and Wang, 2021; D'Mello and Toscano, 2020), we estimate GPR as the natural logarithm of the average GPR over the past 12 months of fiscal year t. Based on our hypotheses, we predict a negative coefficient on GPR. In line with existing literature (see e.g., Gulen and Ion, 2016; Nguyen and Phan, 2017; Phan et al., 2019; Duong et al., 2020), we exclude year dummies from our regression models. We do include macroeconomic variables to capture annual events along with 10 firm-specific controls. We address firm-specific time-invariant characteristics and within-firm serial correlation via clustered robust standard errors at the firm level as in Petersen (2008). Finally, to address firm-level unobserved heterogeneity, we include firm-fixed effects in all our models.

4 EMPIRICAL RESULTS

4.1 Summary statistics

Table 1 presents summary statistics for the key variables. The average value of CSR is 0.003. For GPR (LN), the average value is 4.408, with a standard deviation of 0.240. The typical firm in our sample exhibits certain characteristics: it is relatively large (Size = 7.207) and profitable (ROA = 2.10%) with moderate levels of growth proxied by market-to-book (MTB = 1.966), research and development (R&D/TA = 4.6%), leverage (Leverage = 22.2%), and cash flow volatility (CFO_VOL = 5.4%). On average, these firms hold 19.4% of their total assets in cash. In addition, we categorize our sample based on Fama-French 12 industry groups and report these in Table IA.1 in the online appendix. Our sample represents diverse industries.

4.2 Correlation results

We first report the pairwise correlations between GPR, the macro variables, and other sources of uncertainty. For space considerations, we show Table IA.2 in the online appendix. The correlation coefficients between GPR and macro variables range from -0.16 to 0.06; none of these correlations are statistically significant at the 10% level. In contrast, other commonly used uncertainty indices such as EPU, macro uncertainty and the CBOE Volatility Index exhibit statistically significant correlations with various macro variables. The weak insignificant correlation between GPR and other commonly used measures of uncertainty suggests that GPR represents a district type of uncertainty. In addition, we find a negative association between GPR and CSR (correlation coefficient ρ = -0.08; $p < 0.01$) (un-tabulated). These findings provide initial support for the prediction that GPR is negatively associated with CSR.

4.3 Baseline regression

Table 2 reports the results of our baseline regression analysis. Column 1 shows the specification without including control variables. Column 2 presents results with the firm-level control

variables. Column 3 presents results using the full specification of the model, incorporating both firm-level and macroeconomic variables as controls. We account for firm fixed effects in all specifications, with standard errors clustered at the firm level. GPR consistently exhibits significantly negative coefficients at the 1% level across all specifications. Focusing on column 3, which includes the most comprehensive set of controls, we find a negative and significant association between GPR and CSR (coefficient = -0.006; $p < 0.01$). The coefficient indicates a substantial economic effect. Holding other control variables constant at their sample mean, a one standard deviation increase in GPR leads to a 0.144% (= -0.006* 0.240*100) decrease in CSR. For the typical firm in our sample, which has an average CSR score of 0.003, this decrease corresponds to a 48% (0.144% /0.003) reduction in CSR. In summary, our baseline findings are in support of the prediction that geopolitical risk may curtail firm's CSR initiatives, confirming a negative relationship between GPR and CSR. These results are consistent with previous studies (e.g., Gulen and Ion, 2016; Bonaime et al., 2018) which show that external uncertainty discourages firms from making long-term investments, such as irreversible commitments to ESG goals.

We next discuss the consistency of our results with those in the literature regarding the effects of other variables. Our results confirm positive associations found between CSR and firm size (Di Giuli and Kostovetsky, 2014; Liang and Renneboog, 2017) and leverage ratio (Ferrell et al., 2016). We also find positive associations between CSR and market-to-book ratio, return on assets, and dividends (DiGiuli and Kostovetsky, 2014; Peng et al., 2023). Moreover, we confirm a positive link between CSR and R&D (Padgett and Galan, 2010), CAPEX (Hegdea and Mishra, 2019), age (El Ghoul et al., 2016), and EPU (Peng et al., 2023). We find a negative association between CSR and cash flow volatility (Hedge and Mishra, 2019).

4.4 Relation of CSR performance to CSR investment

Our prediction regarding a negative relationship between GPR and CSR is premised on ROT. While KLD/MSCI ratings are used extensively as proxies for CSR investment, the relation between third-party ratings and CSR investment is not explicit. For example, positive CSR ratings can be subject to "greenwashing", a practice by which companies project a favorable CSR outlook but do not back it up with actual CSR investment (Inderst and Opp, 2025). To provide more confidence that our baseline results are not influenced by measurement error in CSR investment, we relate GPR to a proxy for firm investment in CSR. Following Di Giuli and Kostovetsky (2014), we utilize Selling, General, and Administrative (SG&A) expenses as a proxy for firm investment in CSR and test the relationship between CSR score and SG&A. The results are presented in Table IA.3. of the internet appendix. As anticipated, the coefficient on the KLD Score is positive and statistically significant. Specifically, the coefficient of 1.029 indicates that a one-standard deviation increase in the CSR rating (KLD Score) is associated with an additional 7.3% in SG&A expenses. This result suggests that MCSI/KLD performance scores are significantly correlated with CSR investment and supports our ROT predictions.

4.5 Robustness checks

In this section we examine the robustness of our main results. Specifically, we provide a series of tests aiming to preclude the possibility of an accidental association, omitted variable bias and sample specific effects. Tables IA.4 – IA.12 in the online appendix present the results.

4.5.1 Controls for other sources of macroeconomic uncertainty

Controlling for other sources of macroeconomic risk is important in order to establish GPR as a distinct source of uncertainty. To this end, we follow Bonaime et al. (2018) who provide a composite proxy for external uncertainty from several macroeconomic variables. Based on their

methodology, we first collect data including the Jurado et al. (2015) monthly index of macroeconomic uncertainty and the CBOE S&P 100 implied volatility index (VXO). Next, we incorporate the cross-sectional standard deviations of monthly returns from CRSP and those of year-on-year sales growth from Compustat. Finally, we reduce these four proxies for economic uncertainty into their first principal component, which we include in our baseline regressions. We present the results in Table IA.4 in the online appendix. Our findings remain qualitatively similar.[4]

4.5.2 Alternative ESG scores

Berg et al. (2022) document significant divergence between ESG scores from alternative vendors, with correlations reported as low as 38%. This raises the question of whether a specific result using ESG scores from a single vendor is sample specific. To circumvent this caveat, we re-estimate our baseline model using Thomson Reuters ASSET4 data, a popular dataset in related studies (e.g., Ioannou and Serafeim, 2012). Following Jia and Li (2020) and Ioannou and Serafeim (2012), we calculate the CSR activity score as the average of the environmental and social components and report the analysis in Table IA.5 in the online appendix. The results remain qualitatively similar.

4.5.3 Alternative measures of GPR

In this section, we test the consistency of our results against several alternative measures of GPR, namely a weighted average GPR (WGPR), an aggregated measure of GPR based on daily data (DGPR), and a decomposition of GPR to GPR Threats (GPRT) versus GPR Actions (GPRA). In line with prior studies (e.g., D'Mello and Toscano, 2020), we employ weighted average GPR (WGPR) as an alternative measure. In the calculation of WGPR, we assign higher weights to GPR

[4] We thank an anonymous referee for suggesting this analysis.

index values near the end of the fiscal year compared to values at the start of the year.[5] We present the results in Panel A of Table IA.6 in the online appendix. In all specifications, WGPR is negative ($p < 0.01$). We conclude that GPR has a negative effect on CSR, consistent with our baseline results. Using a measure of GPR based on daily data also produces results that are almost identical to the baseline results (un-tabulated). Following Phan et al. (2022), we also use GPR Threats (GPRT) and GPR Actions (GPRA) as alternative proxies for GPR. Results are given in Panel B, Table IA.6 in the online appendix. While both variables remain statistically significant, the impact of GPR on CSR is more pronounced when it is attributed to an act (such as war) than a threat.

4.5.4 Including dummy years and industry fixed effects

Following previous studies (e.g., Lee and Wang, 2021 for GPR; D'Mello and Toscano, 2020; Nguyen et al., 2017; Gulen and Ion, 2016; Phan et al., 2019; Attig et al., 2021; Adra et al., 2023; Wang et al., 2023), we do not include year fixed effects in our baseline regression model. However, to ensure the robustness of our findings, we re-estimate our baseline model by including dummy years and report the results in Panel A of Table IA.7 in the online appendix. We further re-estimate the model by incorporating industry fixed effects, proxied by SIC2 (see Panel B of Table IA.7). Our results indicate that the coefficients of GPR remain significantly negative after the inclusion of year or industry effects.

4.5.5 Controlling for additional firm-level and macro variables

Previous studies (e.g., Adra et al., 2023; Caldara and Iacoviello, 2022) emphasize that GPR differs from other uncertainties. In our baseline analysis we included a comprehensive set of firm-level

[5] $WGPR_t = [(GPR_m) \times 12 + (GPR_{m-1}) \times 11 + (GPR_{m-2}) \times 10 + (GPR_{m-3}) \times 9 + (GPR_{m-4}) \times 8 + (GPR_{m-5}) \times 7 + (GPR_{m-6}) \times 6 + (GPR_{m-7}) \times 5 + (GPR_{m-8}) \times 4 + (GPR_{m-9}) \times 3 + (GPR_{m-10}) \times 2 + (GPR_{m-11}) \times 1] / 78$.

and macro variables based on previous CSR studies (e.g., Attig and Cleary, 2015; Branco and Rodrigues, 2006; Hegde and Mishra, 2019; Sun and Gunia, 2018). Yet, our results may be influenced by an omitted variable. To address this concern, we include additional firm-level and macro variables. Specifically, we include advertising, sales growth, K-Z Index, corporate governance, board size (Ln), inflation, CBOE S&P 100 Volatility Index (VXO), macroeconomic uncertainty (MU), and political uncertainty/presidential election dummy[6] as control variables. MU is obtained from Jurado et al. (2015), and inflation and VXO are collected from FRED economic data by the Saint Louis Fed.[7] We describe the details of our variables in Table A.1 in the Appendix.

Table IA.8 in the online appendix presents the results of our extended analysis. In panel A, corporate governance has a significant positive association with CSR as expected ($p < 0.01$). Furthermore, the other control variables exhibit the expected signs. GPR continues to exhibit a negative and significant association with CSR ($p < 0.01$). In panel B, we orthogonalize GPR against other commonly used uncertainties and macro variables, including EPU, GDP, inflation, VXO, MU, and the presidential election dummy. We also include the orthogonalized GPR in our model. Once again, we find a negative and significant association between orthogonalized GPR and CSR. The magnitudes of the GPR coefficients in both panels are comparable with our baseline results in Table 2. These results suggest that the negative association between CSR and GPR is unlikely to be a disguised version of the association between CSR and some other macro-level uncertainty. Notably, these additional analyses produce similar results. Taken together, the overall results indicate that omitted variables are unlikely to be driving our results.

[6] We follow Julio and Yook (2012) and include the presidential election year dummy as a proxy for political uncertainty.

[7] https://fred.stlouisfed.org/

4.5.6 Controlling for different weights in CSR components across industries

Different industries are bound to emphasize specific components of CSR. For example, the coal industry is more likely to weight environmental performance heavily than, say, the financial industry. To address concerns about potential variations in the weights of the environmental (ENV) and social (SOC) components across industries, we provide two additional robustness tests. First, following prior literature (Khan et al., 2016; Gormley and Matsa, 2014), we incorporate industry and year fixed effects capturing industry-specific shocks that may account for differences in the relevance of CSR activities across diverse industries. Second, we de-mean CSR by industry-year and re-estimate our results. Our findings, presented in Table IA.9 and Table IA.10 in the online appendix, remain robust.

4.6 Addressing endogeneity concerns

Previous studies (e.g., Caldara and Iacoviello, 2022; Wang et al., 2023) suggest that GPR represents exogenous shocks that introduce uncertainty into the economy. Moreover, the possibility of reverse causality, where CSR affects GPR, is improbable. We include firm-fixed effects in our analysis to account for unobservable time-invariant firm characteristics that may influence CSR. However, our analysis may still have endogeneity concerns such as arising from the potential impact of omitted variables that could affect both GPR and CSR. To mitigate these concerns, we conduct three endogeneity tests, namely (1) a quasi-natural experiment involving the 9/11 terrorist attacks, (2) instrumental variable regression, and (3) change analysis.

4.6.1 A quasi-natural experiment: 9/11 attacks

We employ a quasi-natural experiment to test the causal relationship between GPR and CSR. Previous research (e.g., Caldara and Iacoviello, 2022) suggests that actual risks and public

perception of risks related to wars or terrorism significantly increased after the terrorist attacks of September 11, 2001 (9/11). It is evident that the 9/11 attacks are exogenous to the US economy. Hence, we use the 9/11 terrorist attacks as an exogenous shock in GPR. We report the results in Table 3. In panel A of Table 3, we use the same baseline model (equation 2) but replace GPR with a 9/11 dummy variable. This dummy variable takes the value of 1 after 2001 and 0 before 2000. We restrict our analysis to a 9-year period to reduce noise. We find that the impact of the 9/11 terrorist attacks on CSR is negative and significant ($p < 0.01$). This suggests that CSR decreased significantly after the 9/11 attacks, underscoring the negative impact of GPR on CSR.

We next test the consistency of our results against several alternative measures. If the link between GPR and CSR is causal, the negative impact of GPR on CSR should intensify following the 9/11 terrorist attacks. To attribute the observed reduction in CSR activities specifically to geopolitical risk, we relate CSR to an orthogonalized measure of GPR. We first regress geopolitical risk as the dependent variable against other commonly-used uncertainties and macro variables including economic policy uncertainty, gross domestic product, inflation, the VXO index, macroeconomic uncertainty, and the presidential election dummy. We then extract the residuals of the regression as the orthogonal component of geopolitical risk that is unrelated to other uncertainties. Finally, we substitute the original geopolitical risk variable with the orthogonal residual in baseline Eq. (2) and redo the estimation.

Second, following prior studies (e.g., Painter, 2020), we introduce an interaction term between the orthogonalized GPR and the 9/11 dummy variable. This interaction term tests whether the negative impact of GPR on CSR strengthens or remains unchanged after the 9/11 attacks. We present the results in Panel B of Table 3. Consistent with expectations, we find that GPR continues to negatively influence CSR. Furthermore, the interaction term between orthogonalized GPR and

the 9/11 dummy variable is negative and statistically significant ($p < 0.01$). This implies that the negative association between GPR and CSR is more pronounced following the 9/11 attacks.

Finally, we include a set of dummy variables to account for each year before, during, and after September 11, 2001, resulting in a reduced 9-year window. Specifically, we include dummy variables for the years 1997–2005. We report the results in Panel C of Table 3. Notably, we observe that firms exhibit increased investments in CSR from 1997 to 2001 prior to the terrorist attacks. However, following the 9/11 attacks, firms significantly reduce their CSR activities. Thus, these findings provide evidence of a negative causal relationship between GPR and CSR.

4.6.2 Instrumental variable regression

We next employ a two-stage instrumental variable (IV) regression. To incorporate the IV, we create a binary variable for multinational companies. This variable takes the value of 1 for multinational companies and 0 otherwise. We define a company as multinational if it reports any foreign income.[8] We report the results in Table IA.11 in the online appendix. As hypothesized, the results in column 1 show a positive and statistically significant association between the multinational company dummy and GPR ($p < 0.01$). Moving to the second stage, we observe that GPR exhibits a negative and significant relationship with CSR, confirming our prediction. The Kleibergen-Paap rk LM test indicates that our model is well-identified by rejecting the null hypothesis of under-identification. Similarly, the Kleibergen-Paap Wald F statistic dismisses the null hypothesis of weak identification.

4.6.3 Change analysis

[8] We thank the anonymous referee for suggesting this IV.

We further address the possibility of omitted variable bias by taking first-difference (FD) regressions. In FD estimation, potential bias due to latent time-invariant effects is alleviated through the repeated application of observations over time. Hence, we modify our "level" model (Equation 2) to a "change" (difference) model in which we examine the relationship between changes in CSR and changes in GPR. Analogously, we include changes in other control variables. We again find a significant negative association ($p < 0.01$) between changes in GPR and changes in CSR (results reported in Table IA.12 in the online appendix).

5. ECONOMIC CHANNELS AND FURTHER ANALYSIS

In this section we expand our analysis to provide further insights into the effect of GPR on CSR, looking at economic channels through which the relation between GPR and CSR is exerted, differences between investment and firm characteristics, political dynamics, time effects, industry-wide exposure, and firm value.

5.1 Economic channels

We have found robust empirical evidence that shows an adverse impact of GPR on CSR activities. A key question is what are the underlying mechanisms through which GPR impacts on a firm's CSR activities. Our Hypothesis 2 suggests that GPR results in lower CSR activity due to its negative impact on profitability and free cash flows (FCF),[9] as well as heightened asymmetric information, which lead firms to shift resources away from CSR activities.

Table 4 provides the results of this economic channel analysis. Panel A presents the results of our analyses regarding the profitability and free cash flow hypotheses. We find a significant

[9] We follow To et al. (2024) to construct free cash flow (FCF): FCF equals operating income before depreciation minus interest expense minus income taxes minus capital expenditure, all scaled by the book value of total assets.

negative association between GPR and profitability (ROA) (column 1; $p < 0.01$) as well as with free cash flows (column 2; $p < 0.01$). This provides evidence in support of the economic channel idea that GPR's negative effect on CSR is channeled through lowering profitability and free cash flow. Panel B of Table 4 presents results regarding another economic channel, asymmetric information. We proxy for the level of asymmetric information via the degree of leverage (e.g., see Bharath et al., 2009)], where high (above the median) leveraged firms are subject to higher asymmetric information.[10] We find that GPR has a negative and statistically significant coefficient for higher-leveraged firms subject to higher asymmetric information. In contrast, the coefficients for low-leveraged firms are statistically insignificant. This indicates that GPR has a more pronounced negative impact on high-leveraged firms. High-leveraged firms, which face more asymmetric information, experience a more negative impact from GPR due to greater uncertainty about their financial condition.

5.2 GPR effect conditional on investment irreversibility

Previous research (e.g., Wang et al., 2023) suggests that GPR acts as an exogenous shock resulting in increased uncertainty and a reduction in investment through the real option channel. As pointed out in the hypothesis section, viewing an investment opportunity as a real option (e.g., McDonald and Siegel, 1986; Dixit and Pindyck, 1994) implied that higher uncertainty causes firms with a higher level of irreversibility to more significantly delay their investment. In line with this, we hypothesize in *H3* that the negative relationship between GPR and CSR will be more pronounced for firms with a greater degree of investment irreversibility.

[10] The pecking order theory provides the theoretical basis for the use of leverage as a proxy for asymmetric information suggesting that firms tend to avoid issuing new equity when there is high information asymmetry, as equity issuances could be undervalued by the market due to a lack of insider information.

To test this hypothesis, we employ a firm-level measure of asset redeployability based on Kim and Kung (2017). Using the 1997 Bureau of Economic Analysis (BEA) capital flow table, they obtain a classification of capital expenditures into 180 asset categories across 123 industries. For each asset category, they compute a "redeployability score" as the proportion of industries or firms in which the asset is used, and then an industry-level redeployability index as the value-weighted average of each asset's redeployability score. Finally, they arrive at a firm-level measure of redeployability by taking the weighted average of the industry-level redeployability indexes across the various business segments in which the firm operates. Asset redeployability is the degree to which assets can be utilized for alternative purposes. Assets with low redeployable capital have a lower liquidation value, exhibiting a higher level of irreversibility. We divide our sample based on the level of asset irreversibility using the median value of asset redeployability. Firms with asset redeployability below (or above) the median are categorized as belonging to the high (or low) irreversibility group. In Panel A of Table 5, we report the results of our analysis. Our results show that the coefficients for GPR are negative in both groups but the negative impact is more pronounced for firms with a greater level of investment irreversibility. Notably, we observe a statistically significant difference in coefficients between the two groups ($p < 0.05$).

5.3 GPR effect conditional on resources and financial constraints

As noted, the negative impact of GPR on CSR activities will likely be more pronounced for larger and more mature firms which are more engaged in CSR activities. We present the results of our tests in Panel B of Table 5. We divide the sample into two subgroups based on the median value of size (Size). We observe a stronger negative relationship between CSR and GPR among larger firms. Analogously, we create two subgroups based on the median value of age (Age) to represent more and less mature firms. In Panel C of Table 5, we provide the results for these subgroups.

Consistent with our prediction, we find that the negative association between CSR and GPR is more salient for more mature firms ($p < 0.01$).

We further divide our sample based on firm financial constraints. Following Whited and Wu (2006),[11] we define financial constraints using the WW index.[12] Based on Dak-Adzaklo et al. (2024), we create an indicator variable that equals 1 if a firm's WW index of financial constraints is greater than the sample median, and 0 otherwise. In Panel D of Table 5, we find a stronger negative relationship between CSR and GPR among less financially constrained firms ($p < 0.05$). This result is consistent with our earlier finding which showed that the negative effect of GPR is more pronounced for larger and more mature firms which are more engaged in CSR activities.

5.4 GPR exposure: Multinational firms vs domestic firms

We further explore the exposure to GPR by dividing the sample into multinational and domestic firms. We define a company as multinational if it reports foreign income; otherwise, it is classified as a domestic company. We report the results in Panel E of Table 5 and observe a strong negative relationship between CSR and GPR for both groups. However, the negative effect is more pronounced for multinational firms which are more exposed to GPR.

5.5 Moderating effects of political regime

Prior research suggests that companies invest less in CSR during Republican administrations (Di Giuli and Kostovetsky, 2014). However, less is known about firms' adjustments in CSR activities due to GPR. We thus further investigate whether the GPR effect on CSR is different during

[11] We thank the referee for suggesting this analysis.

[12] The financial constraint index is computed using the following formula: -0.091 * Cash flow - 0.062 * Dividend + 0.021 * Leverage - 0.044 * log (Assets) + 0.102 * Industry sales growth + 0.035 * Sales growth. A higher WW index value indicates greater financial constraint for a firm.

different political regimes. The two-party political system of the United States makes it easy to examine the effect of different administrations in sample partitions based on the president in office during the year. We report the results in Table 6. As expected, we find that during Republican administrations, GPR exhibits a significant negative effect on CSR (coefficient = -0.011, $p<0.01$). We note that Republican administrations appear to coincide with higher levels of GPR (and greater uncertainty), as indicated by the sample mean. In such an environment, businesses might prioritize financial stability over long-term CSR investments –an effect reinforced by a more "CSR-tolerant" administration. In contrast, we find that the impact of GPR on CSR during Democratic presidencies is positive (coefficient = 0.013, $p<0.01$). The reversal is a bit puzzling. It suggests that under Democratic leadership, firms may respond to GPR by enhancing their CSR initiatives due to a more favorable regulatory environment or increased public scrutiny. We also test for the overall impact of the political regime on our baseline regression results. As shown in Table IA.4, we find that a dummy taking a value of 1 for Democratic presidencies is positive but not statistically significant, while all other results remain unaffected. While these results may be inconclusive, they do not preclude the idea that Democratic administrations may be viewed more favorable towards CSR activities in periods of high geopolitical risk.

5.6 Persistence effects and non-linearities

We follow Bonaime et al. (2018) to examine the long-term (persistence) effects of GPR on CSR. Results are presented in Table 7, where Column 1 represents our baseline model. Columns 2-5 investigate the effect of GPR on CSR in subsequent years. We observe negative and significant GPR coefficients for up to five years into the future. We conclude that the negative effect is moderately persistent through time.

Another line of investigation on the relation between GPR and CSR pertains to possible non-linearities. We examine non-linear effects of GPR by replicating the baseline results across different quantiles of GPR. Column 1 of Table IA.13 in the online appendix contains these results. Our findings reveal a significant negative impact of GPR on CSR, particularly in the higher percentiles. These results indicate that as GPR increases, the negative effects on CSR become more pronounced, especially in the upper percentiles of geopolitical risk. Following Colak et al. (2021), we further examine the non-linear effects of GPR (Column 2 of IA.13 in the online appendix) by interacting GPR with a dummy variable, "GPR Up," which equals 1 if the GPR index increases from the previous year. The significant negative coefficient for this interaction term indicates that CSR scores decrease more when GPR is expected to rise in the future. An additional investigation examines whether the effect of GPR on CSR differs from its effect on CAPX. We report results in Table IA.14 of the online appendix. We find that GPR has a negative and significant effect on both CSR and capital expenditure. However, we are unable to compare the effects because there is no significant difference in the coefficients of GPR between the two subsamples ($p > 0.10$).

5.7 Industry analysis

An additional consideration is the effect of GPR on CSR across industries. We apply the Fama-French 30 industry classification (removing Utilities and Finance) and generate interactive terms between contemporaneous GPR and dummy variables, one assigned for each of the 28 industries. We then run one-year forward CSR against the interactive terms, keeping all firm-specific and macro controls. The results are shown in Table 1A.15 in the online appendix. We find that the impact of GPR on CSR remains mostly negative, nevertheless the strength of the association, as evidenced by statistical significance, varies across industries. An exemption to the negative impact of GPR on CSR appears in the Coal industry, in which the regression coefficient is positive and

highly significant. While the results suggest some variability across industries, we fail to find overwhelming evidence of increased CSR activities in industries that may benefit from heightened geopolitical risk. It is plausible that even companies experiencing valuation increases during times of war might reduce CSR spending since societal expectations, which initially drive CSR spending, diminish amid greater uncertainty, highlighting the discretionary nature of CSR spending and the flexibility in setting CSR policies to meet investors' and clients' ethical considerations.

5.8 GPR impact on firm value with different pre-existing levels of CSR activities

Following previous studies (e.g., Fedaseyeu et al., 2018; Colak and Korkeamaki, 2021), we estimate the indirect impact of GPR on shareholder value through CSR. In line with prior research (Lo and Sheu, 2007; Fauver et al., 2017), we use Tobin's Q as a measure of firm value (see Table A.1. in the Appendix). GPR here serves as the independent variable, CSR as the mediator, and Tobin's Q as the dependent variable, potentially affected by both. We present the results in Table 8. We find that the negative effect of GPR is mitigated, suggesting that a portion of GPR's impact on shareholder value occurs through CSR. The size of the mediation effect shown in Column 2 is 1.48% when controlling for firm fixed effects, and 5.30% (Column 4) when controlling for industry fixed effects. This finding is consistent with the view that building CSR resource capacity (Aguerrevere, 2003) enables firms to withstand external shocks.

6 CONCLUSION

This paper establishes a novel and robust link between geopolitical risk (GPR) and corporate social responsibility (CSR) activities, contributing to the understanding of firms' CSR investments under uncertainty. Using a large sample of U.S. public firms from 1995 to 2019, we document a significant negative relationship between GPR and CSR. Consistent with real options theory, firms

respond to rising geopolitical tensions and uncertainty by delaying or scaling back discretionary CSR activities, particularly those involving high irreversibility. This effect is driven by economic channels: lower profitability and cash flows, and heightened asymmetric information. It also varies across firm characteristics, industries, political regimes, and over time.

Our findings open several avenues for future research. First, while we focus on U.S. firms, extending this analysis to global markets would provide a broader perspective on how geopolitical risk influences CSR, particularly in countries and regions more directly affected by geopolitical conflicts. Second, it would be interesting to examine whether firms that maintain CSR spending during geopolitical uncertainty periods outperform peers in the long run, shedding further light on CSR's potential strategic value as a resilience mechanism. Third, further research could explore the role of firm-specific governance structures, such as boards or shareholders, in prioritizing CSR investments under geopolitical tensions.

Our results also offer several important policy implications. Given that CSR investments contribute to long-term societal and environmental goals, policymakers should consider tax incentives or subsidies that encourage sustained CSR efforts, even during times of uncertainty. Since asymmetric information exacerbates the negative impact of GPR on CSR, regulators should further promote transparency and corporate disclosures, particularly during periods of geopolitical instability. Institutionalizing ESG goals as part of broader economic strategies will also help insulate CSR investments, regardless of political cycles.

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SUPPORTING INFORMATION

Additional Supporting Information can be found online in the supporting information tab for this article.

TABLE 1 Summary statistics.

Variable	Obs.	Mean	Std.dev.	p25	Median	p75
CSR	25,694	0.003	0.071	-0.032	0.000	0.030
GPR (LN)	25,694	4.408	0.240	4.248	4.425	4.484
Size	25,694	7.207	1.605	6.064	7.081	8.225
MTB	25,694	1.966	1.552	1.002	1.461	2.332
Leverage	25,694	0.222	0.207	0.027	0.194	0.339
R&D/TA	25,694	0.046	0.086	0.000	0.006	0.058
ROA	25,694	0.021	0.154	0.009	0.049	0.088
Dividend	25,694	0.012	0.024	0.000	0.000	0.017
Cash/TA	25,694	0.194	0.210	0.036	0.112	0.280
CAPEX/TA	25,694	0.052	0.057	0.018	0.034	0.064
Age (LN)	25,694	2.756	0.840	2.197	2.890	3.466
CF_VOL	25,694	0.054	0.057	0.022	0.037	0.063
EPU (LN)	25,694	4.679	0.264	4.467	4.702	4.851
GDP	25,694	0.022	0.015	0.017	0.023	0.028

Note: This table reports summary statistics for the key variables used in the main analysis. CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm *i* in year *t* the CSR score is calculated as: $(\sum_{p=1}^{n_t^i} Strength_p^i/n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). Size is the natural logarithm of total assets. MTB is the ratio of market value of assets to the book value of assets. Leverage is the ratio of total debt to total assets. R&D/TA is the ratio of research and development expense to total assets. ROA is the ration of income before extraordinary items to total assets. Dividend is total dividend payout over total assets. Cash/TA is the ratio of cash and marketable securities over total assets. CAPEX/TA is capital expenditure scaled by total assets. Age (LN) is the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database. CF_VOL is cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. EPU(LN) is the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016). GDP is the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis.

TABLE 2 Geopolitical risk and corporate social responsibility: Main evidence.

Dependent Variable	**CSR**		
	(1)	(2)	(3)
GPR (LN)	**-0.013*** **	**-0.005*** **	**-0.006*** **
	(0.002)	(0.002)	(0.002)
Size		0.011***	0.011***
		(0.002)	(0.002)
MTB		0.002***	0.002***
		(0.001)	(0.001)
Leverage		0.017***	0.017***
		(0.005)	(0.005)
R&D		0.018	0.019
		(0.014)	(0.014)
ROA		0.013***	0.009**
		(0.004)	(0.004)
Dividend		0.123***	0.117***
		(0.037)	(0.037)
Cash		0.001	0.002
		(0.005)	(0.005)
CAPEX		0.016	0.012
		(0.014)	(0.014)
Age		0.019***	0.018***
		(0.002)	(0.002)
CF_VOL		-0.047***	-0.051***
		(0.014)	(0.014)
EPU (LN)			0.013***
			(0.002)
GDP			0.324***
			(0.025)
Constant	0.062***	-0.113***	-0.175***
	(0.007)	(0.016)	(0.018)
Observations	25,694	25,694	25,694
Adj. R^2	0.536	0.563	0.567
Firm FE	Yes	Yes	Yes
Firm Clustering	Yes	Yes	Yes

Note: This table reports the results of baseline regression model. CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm i in year t the CSR score is calculated as: $(\sum_{\rho=1}^{n_t^i} Strength_\rho^i / n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). Size is the natural logarithm of total assets. MTB is the ratio of market value of assets to the book value of assets. Leverage is the ratio of total debt to total assets. R&D/TA is the ratio of research and development expense to total assets. ROA is the ratio of income before extraordinary items to total assets. Dividend is total dividend payout over total assets. Cash/TA is the ratio of cash and marketable securities over total assets. CAPEX/TA is capital expenditure scaled by total assets. Age (LN) is the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database. CF_VOL is cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. EPU(LN) is the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016). GDP is the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

TABLE 3 Quasi-natural experiment: 9/11 attacks.

Panel A: 9/11 dummy—9-year windows		
Dependent Variable	**CSR**	**CSR**
	(1)	**(2)**
9/11 Dummy	**-0.043*** **	**-0.026*** **
	(0.004)	(0.004)
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	7,913	7,913
Adj. R^2	0.208	0.775
Industry FE	Yes	No
Firm FE	No	Yes
Firm Clustering	Yes	Yes

Panel B: Orthogonalized GPR and 9/11×GPR interaction term—9-year windows		
Dependent Variable	**CSR**	**CSR**
	(1)	**(2)**
Orthogonalized GPR	**-0.035*** **	**-0.017*** **
	(0.005)	(0.005)
Orthogonalized GPR* 9/11 Dummy	**-0.030*** **	**-0.023*** **
	(0.011)	(0.009)
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	7,913	7,913
Adj. R^2	0.209	0.770
Industry FE	Yes	No
Firm FE	No	Yes
Firm Clustering	Yes	Yes

Panel C: GPR and Year 1997-2005 Dummies -full sample		
Dependent Variable	**CSR**	**CSR**
	(1)	**(2)**
1997 $Dummy_t$	0.009***	0.003
	(0.004)	(0.003)
1998 $Dummy_t$	0.008**	0.000
	(0.004)	(0.003)
1999 $Dummy_t$	0.008**	0.002
	(0.004)	(0.003)
2000 $Dummy_t$	0.006**	0.001
	(0.002)	(0.003)
2001 $Dummy_t$	0.004	0.005
	(0.003)	(0.003)
2002 $Dummy_t$	**-0.003***	**-0.002**
	(0.001)	(0.002)
2003 $Dummy_t$	**-0.018*** **	**-0.011*** **
	(0.001)	(0.002)
2004 $Dummy_t$	**-0.021*** **	**-0.012*** **

	(0.002)	(0.002)
2005 Dummy$_t$	**-0.019*** **	**-0.011*** **
	(0.002)	(0.001)
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	25,694	25,694
Adj. R ^{2}	0.216	0.570
Industry FE	Yes	No
Firm FE	No	Yes
Firm Clustering	Yes	Yes

Note: This table presents tests for endogeneity. Panel A presents regression results of CSR against a 9/11 dummy controlling for firm/economy effects. Panel B shows regression results of CSR against an orthogonalized measure of GPR, and its interaction with the 9/11 Dummy. Panel C shows regression results of CSR against year-dummy variables for the period 1997-2004. CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm *i* in year *t* the CSR score is calculated as: $(\sum_{\rho=1}^{n_t^i} Strength_\rho^i/n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. The 9/11 dummy variable takes the value of one after 2001 and zero before 2000, over a window of 9 years. Orthogonalized GPR is the residual from regressing geopolitical risk against economic policy uncertainty, gross domestic product, inflation, the VXO index, macroeconomic uncertainty and a presidential election year dummy. Firm controls include: Size, estimated as the natural logarithm of total assets, MTB, estimated as the ratio of market value of assets to the book value of assets, Leverage, estimated as the ratio of total debt to total assets, R&D/TA estimated as the ratio of research and development expense to total assets, ROA, estimated as the ratio of income before extraordinary items to total assets, Dividend, estimated as the total dividend payout over total assets, Cash/TA, estimated as the ratio of cash and marketable securities over total assets, CAPEX/TA, estimated as the capital expenditure scaled by total assets, Age (LN), estimated as the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database, and CF_VOL, cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. Macro controls include EPU(LN), as the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016) and GDP, as the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Firm controls and macro controls include all variables used in the baseline regression. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

TABLE 4 Impact of GPR on CSR via Economic Channels and Investment Irreversibility.

Panel A: Impact of GPR on CSR through profitability and free cash flow

Dependent Variable	**ROA**	**FCF**
	(1)	(2)
GPR (LN)	**-0.012*** **	**-0.007*** **
	(0.003)	(0.002)
Size	0.008**	-0.001
	(0.003)	(0.002)
MTB	0.018***	0.004***
	(0.001)	(0.001)
Leverage	-0.177***	-0.024***
	(0.013)	(0.006)
R&D	-1.177***	-0.205***
	(0.058)	(0.038)
ROA		0.502***
		(0.019)
Dividend	0.206***	0.186***
	(0.058)	(0.030)
Cash	0.014	
	(0.014)	
CAPEX	0.059*	-0.894***
	(0.034)	(0.019)
Age	0.019***	0.007***
	(0.005)	(0.002)
CF_VOL	0.029	0.008
	(0.048)	(0.024)
EPU (LN)	-0.001	0.009***
	(0.003)	(0.002)
GDP	0.618***	-0.070**
	(0.057)	(0.029)
Constant	0.003	0.040**
	(0.030)	(0.016)
Observations	25,694	23,958
Adj. R^2	0.574	0.715
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Panel B: Impact of GPR on CSR through asymmetric information

Dependent Variable	**CSR**	
	High leverage Firms	**Low leverage Firms**
	(1)	(2)
GPR (LN)	**-0.011*** **	**0.001**
	(0.003)	(0.002)
	$\beta_1 = \beta_2$	
	p-value= 0.000	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	12,591	12,594
Adj. R^2	0.587	0.578
Firm FE	Yes	Yes

Firm Clustering	Yes	Yes

Note: In this table, Panel A presents results regarding the influence of profitability and free cash flow on the relation of GPR and CSR. ROA is income before extraordinary items over total assets. FCF equals operating income before depreciation minus interest expense minus income taxes minus capital expenditure, the result scaled by the book value of total assets. CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm i in year t the CSR score is calculated as: $(\sum_{\rho=1}^{n_t^i} Strength_\rho^i/n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). Size is the natural logarithm of total assets. MTB is the ratio of market value of assets to the book value of assets. Leverage is the ratio of total debt to total assets. R&D/TA is the ratio of research and development expense to total assets. ROA is the ratio of income before extraordinary items to total assets. Dividend is total dividend payout over total assets. Cash/TA is the ratio of cash and marketable securities over total assets. CAPEX/TA is capital expenditure scaled by total assets. Age (LN) is the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database. CF_VOL is cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. EPU(LN) is the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016). GDP is the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Panel B presents results regarding the influence of asymmetric information on the relation of GPR and CSR. Firms are classified as High (Low) Leverage if their leverage ratio is above (below) the sample median. The same firm controls and macro controls from panel A are maintained. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

TABLE 5 Subsample Analysis: Cross sectional tests.

Panel A: High-irreversible firms (low-redeployable) versus Low-irreversible firms (high-redeployable)

Dependent Variable	**CSR**	
	High IRREV	**Low IRREV**
	(1)	(2)
GPR (LN)	**-0.011*** **	**-0.007*** **
	(0.003)	(0.003)
	$\beta_1 = \beta_2$	
	p-value= 0.017	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	10,535	10,551
Adj. R^2	0.594	0.582
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Panel B: Large versus small firms

Dependent Variable	**CSR**	
	Size	
	Large	**Small**
	(1)	(2)
GPR (LN)	**-0.020*** **	**-0.007*** **
	(0.003)	(0.002)
	$\beta_1 = \beta_2$	
	p-value=0.000	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	12,748	12,757
Adj. R^2	0.593	0.529
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Panel C: More matured versus less matured firms

Dependent Variable	**CSR**	
	Maturity	
	More	**Less**
	(1)	(2)
GPR (LN)	**-0.016*** **	**-0.006*** **
	(0.003)	(0.002)
	$\beta_1 = \beta_2$	
	p-value=0.000	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	12,358	12,066
Adj. R^2	0.598	0.589
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Panel D: Less financially constrained versus more financially constrained firms

Dependent Variable	**CSR**	
	Financially constrained firms	
	Less	**More**
	(1)	(2)
GPR (LN)	**-0.009*** **	**-0.004***
	(0.003)	(0.002)
	$\beta_1 = \beta_2$	
	p-value=0.029	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	12,549	12,578
Adj. R^2	0.593	0.572
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Panel E: Multinational Firms vs Domestic Firms

Dependent Variable	**CSR**	
	Multinational Firms vs Domestic Firms	
	Multinational Firms	**Domestic Firms**
	(1)	(2)
GPR (LN)	**-0.008*** **	**-0.005** **

	(0.002)	(0.002)
	$\beta_1 = \beta_2$	
	p-value=0.003	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	15,578	9,872
Adj. R^2	0.593	0.540
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Note: This table presents results of cross-sectional effects via sample partitions. Panel A shows the results for higher (lower) irreversibility investment firms. Higher (lower) irreversibility firms are classified based on the median value of asset redeployability as estimated in Kim and Kung (2017). Panel B shows the results for large (above the median size) firms vs small (below the median size) firms. Panel C shows the results for more mature (above the median age) firms vs less mature (below the median age) firms. Panel D shows the results for a split partition based on financial constraints. The financial constraint index (WW index) is computed as : -0.091 * Cash flow - 0.062 * Dividend + 0.021 * Leverage - 0.044 * log (Assets) + 0.102 * Industry sales growth + 0.035 * Sales growth. Following Dak – Adzaklo et al. (2024), firms are classified as less (more) financially constrained if their WW index is greater (lower) than the sample median. Panel E presents the results for multinational firms vs domestic firms. A company is classified a multinational if it reports any foreign income. CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm *i* in year *t* the CSR score is calculated as: $(\sum_{p=1}^{n_t^i} Strength_p^i/n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). Firm controls include: Size, estimated as the natural logarithm of total assets, MTB, estimated as the ratio of market value of assets to the book value of assets, Leverage, estimated as the ratio of total debt to total assets, R&D/TA estimated as the ratio of research and development expense to total assets, ROA, estimated as the ratio of income before extraordinary items to total assets, Dividend, estimated as the total dividend payout over total assets, Cash/TA, estimated as the ratio of cash and marketable securities over total assets, CAPEX/TA, estimated as the capital expenditure scaled by total assets, Age (LN), estimated as the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database, and CF_VOL, cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. Macro controls include EPU(LN), as the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016) and GDP, as the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Firm controls and macro controls include all variables used in the baseline regression. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

TABLE 6 Moderating Effects of Political Party on CSR in Response to GPR.

Dependent Variable	**CSR**	
	Republican administrations	**Democrat administrations**
	(1)	(2)
GPR (LN)	**-0.011*** **	**0.013*** **
	(0.004)	(0.004)
	$\beta_1 = \beta_2$	
	p-value= 0.000	
Firm Controls	Yes	Yes
Macro Controls	Yes	Yes
Constant	Yes	Yes
Observations	12,973	12,274
Adj. R^2	0.685	0.586
Firm FE	Yes	Yes
Firm Clustering	Yes	Yes

Note: This table presents results shedding light on the moderating effects of political party administration on CSR in response to GPR. The sample partition is based on the president of office during the year . CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm i in year t the CSR score is calculated as: $(\sum_{p=1}^{n_t^i} Strength_p^i/n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). Firm controls include: Size, estimated as the natural logarithm of total assets, MTB, estimated as the ratio of market value of assets to the book value of assets, Leverage, estimated as the ratio of total debt to total assets, R&D/TA estimated as the ratio of research and development expense to total assets, ROA, estimated as the ratio of income before extraordinary items to total assets, Dividend, estimated as the total dividend payout over total assets, Cash/TA, estimated as the ratio of cash and marketable securities over total assets, CAPEX/TA, estimated as the capital expenditure scaled by total assets, Age (LN), estimated as the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database, and CF_VOL, cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. Macro controls include EPU(LN), as the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016) and GDP, as the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Firm controls and macro controls include all variables used in the baseline regression. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

TABLE 7 Does the influence of geopolitical risk (GPR) on CSR change direction over time?

Dependent Variable	**CSR $_{t+1}$**	**CSR $_{t+2}$**	**CSR $_{t+3}$**	**CSR $_{t+4}$**	**CSR $_{t+5}$**	**CSR $_{t+6}$**
	(1)	(2)	(3)	(4)_	(5)	(6)
GPR (LN)	**-0.006*** **	**-0.004** **	**-0.012*** **	**-0.010*** **	**-0.008*** **	**0.002**
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,694	24,622	23,630	22,667	21,790	20,941
Adj. R^2	0.567	0.570	0.568	0.569	0.569	0.571
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm Clustering	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table presents results for the time-persistence of the effect of GPR on CSR. CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm *i* in year *t* the CSR score is calculated as: $(\sum_{p=1}^{n_t^i} Strength_p^i/n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i)/m_t^i)$. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). CSR_{t+n} represents lead n of CSR. Firm controls include: Size, estimated as the natural logarithm of total assets, MTB, estimated as the ratio of market value of assets to the book value of assets, Leverage, estimated as the ratio of total debt to total assets, R&D/TA estimated as the ratio of research and development expense to total assets, ROA, estimated as the ratio of income before extraordinary items to total assets, Dividend, estimated as the total dividend payout over total assets, Cash/TA, estimated as the ratio of cash and marketable securities over total assets, CAPEX/TA, estimated as the capital expenditure scaled by total assets, Age (LN), estimated as the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database, and CF_VOL, cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. Macro controls include EPU(LN), as the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016) and GDP, as the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Firm controls and macro controls include all variables used in the baseline regression. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

TABLE 8 GPR, CSR, and Future Firm Performance.

Mediation Analysis Tobin's Q – GPR Regression				
Dependent Variable	Tobin's Q $_{t+1}$	Tobin's Q $_{t+1}$	Tobin's Q $_{t+1}$	Tobin's Q $_{t+1}$
	(1)	(2)	(3)	(4)
GPR (LN)	**-0.135*** **	**-0.133*** **	**-0.195*** **	**-0.185*** **
	(0.029)	(0.030)	(0.024)	(0.024)
CSR		0.183		0.457***
		(0.148)		(0.087)
Firm Controls	Yes	Yes	No	No
Industry Controls	No	No	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Observations	25,265	25,265	25,265	25,265
Adj. R ^{2}	0.752	0.752	0.704	0.704
Firm FE	Yes	Yes	Yes	Yes
Firm Clustering	Yes	Yes	Yes	Yes
Total effect mediated		1.48%		5.30%

Note: This table presents results regarding the indirect impact of GPR on shareholder value through CSR. Shareholder value is measured as Tobin's Q defined as market value of equity plus total liabilities, the result scaled by book value of total assets. GPR (LN) is the natural logarithm of the mean geopolitical risk index as estimated in Caldara and Iacoviello (2022). CSR is a measure of CSR performance provided by MSCI/KLD. The measure aggregates six CSR dimensions and 'nets out' strengths and concerns. For each firm *i* in year *t* the CSR score is calculated as: $(\sum_{\rho=1}^{n_t^i} Strength_\rho^i / n_t^i) - (\sum_{q=1}^{m_t^i} Concern_q^i / m_t^i)$. Firm controls include: Size, estimated as the natural logarithm of total assets, MTB, estimated as the ratio of market value of assets to the book value of assets, Leverage, estimated as the ratio of total debt to total assets, R&D/TA estimated as the ratio of research and development expense to total assets, ROA, estimated as the ratio of income before extraordinary items to total assets, Dividend, estimated as the total dividend payout over total assets, Cash/TA, estimated as the ratio of cash and marketable securities over total assets, CAPEX/TA, estimated as the capital expenditure scaled by total assets, Age (LN), estimated as the natural algorithm of one plus number of years since the firm's inclusion in the Compustat database, and CF_VOL, cash flow volatility estimated as the 5-year standard deviation of operating cash flow over total assets. Macro controls include EPU(LN), as the natural logarithm of the average annual policy uncertainty index provided by Baker et al. (2016) and GDP, as the annual GDP growth rate obtained by the Federal Reserve Bank of St. Louis. Firm controls and macro controls include all variables used in the baseline regression. Text in bold indicates the main variable of interest. Robust standard errors reported in brackets are clustered at the firm level. ***, **, and * represent two-tailed significance. ***, **, and * represent two-tailed significance at 1%, 5%, and 10% levels, respectively.

APPENDIX

TABLE A.1 Variable definitions, measurement, and data sources

Variable	Abbr.	Measurement	Source
Dependent Variable			
Corporate Social Responsibility	CSR	We compute net CSR scores using the relative aggregation method. This method incorporates six CSR dimensions: community relations, diversity, employee relations, environment, human rights, and product safety (see methodology section)	Morgan Stanley Capital International (MSCI), formerly known as Kinder, Lydenberg and Domini (KLD)
Corporate Social Responsibility	CSR	The yearly CSR score given by the Thomson Reuters ASSET4.	Thomson Reuters ASSET4
Variable of Interest			
Geopolitical Risk Index	GPR (LN)	The natural logarithm of the mean geopolitical risk index in a year.	Caldara and Iacoviello (2022)
Control variables			
Firm levels			
Firm Size	Size	The natural logarithm of the book assets (AT).	Compustat
Market-to-book Ratio	MTB	The ratio of the market value of assets to the book value of assets.	Compustat
Financial leverage	Leverage	The ratio of total debt to total assets.	Compustat
Research and development expenses	R&D/TA	The ratio of research and development expenses to total assets, with missing values for research and development expenses replaced with zero.	Compustat
Profitability	ROA	The ratio of income before extraordinary items to the total assets.	Compustat
Dividend Payment	Dividend	Total dividend payment scaled by total assets.	Compustat
Cash	Cash/TA	The ratio of cash and marketable securities to total assets.	Compustat
Capital expenditure	CAPEX/TA	The Capital expenditure scaled by total assets.	Compustat
Age	Age (LN)	The natural logarithm of one plus number of years since the firm's inclusion in the Compustat.	Compustat
Cash flow volatility	CF_VOL	The standard deviation of the operating cash flow divided by the total assets over the past five years.	Compustat
National Level			
Economic policy uncertainty	EPU (LN)	The natural logarithm of the average annual overall policy uncertainty index.	Baker et al. (2016)
GDP growth rate	GDP	The GDP growth rate obtained from the Federal Reserve Bank of St. Louis.	https://fred.stlouisfed.org/