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Is firm-level political risk priced in the corporate bond market?☆

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ABSTRACT

We investigate whether political risk is priced in the cross-section of corporate bond returns by using a text-based measure of firm-level political risk. We document a positive and significant political risk premium after controlling for bond and firm characteristics, conventional risk factors, and exposure to aggregate economic policy uncertainty. Bonds with higher political and credit risk, as well as smaller, more illiquid, and longer maturity corporate bonds exhibit a larger political risk premium. Time-series analysis indicates that monetary policy shocks and common shocks in the equity and bond market exhibit a statistically significant and positive association with the political risk premium. Our findings reveal the importance of idiosyncratic political risk beyond common risk factors and aggregate economic policy uncertainty.

1. Introduction

Political risk has been an important subject for financial economists and market participants due to its impact on asset pricing (Pastor and Veronesi, 2013; Bekaert et al., 2014; Bekaert et al., 2016, Brogaard et al, 2020).[1] Most empirical studies focus on equity markets (Bilson et al., 2022; Dimic et al, 2015; Lehkonen and Heimonen, 2015; Liu et al., 2017), but recently also other asset classes have been investigated. For example, Dimic et al. (2016) research the effect of political risk on currency markets, Ding et al. (2022) on commodity markets, Huang et al. (2015) and Duyvesteyn et al. (2016) on government bond markets, Gao et al. (2019) on municipal bond markets, and Tao et al. (2022) on corporate bond markets.

Most studies that have examined the finance implications of political risk use an asset's estimated return covariance with an economy-wide measure of political risk as the prime variable to measure the asset's exposure to political risk. One reason for this is that reliable firm-specific measures of political risk were unavailable. This changed when Hassan et al. (2019) developed a novel measure of

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[1] Pastor and Veronesi (2012, 2013) define political risk in terms of uncertainty of a long-term profitability growth rate of a firm following an implementation of a new government policy.

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political risk at firm-level, based on textual analysis of the firm's quarterly earning conference calls. This novel measure has now been broadly accepted by the academic community, and has been used to study the impact of political risk on the cross-section of equity returns (Gorbatikov et al., 2021), option markets (Ho et al., 2024), private credit markets (Gad et al., 2024), creditor control (Isakin and Pu, 2019), corporate investment (Choi et al., 2022, Boah and Ujah, 2024), corporate social responsibility (Chatjuthamard et al., 2021), and the choice for public or private debt financing (Huang et al., 2023).

A glaring gap in the existing literature is the relation between *firm-level* political risk and the corporate bond market. Our study fills this gap by examining whether firm-specific political risks are priced in the cross-section of corporate bond returns. Examining the corporate bond market is especially relevant given that the corporate bond market is the main source of long-term capital in the United States (Lin et al., 2018). The political risk matters for bond markets in several aspects. In the domain of corporate bond markets, Wang (2024) shows that political risk impacts corporate credit spreads through a discount rate channel, where increased political risk leads to higher borrowing costs, increase of investors' risk aversion, and reduction of debt issuance. Gad et al. (2024) point out that political risk influences debt pricing as it can increase the likelihood of default and the loss given default. Furthermore, Gad et al. (2024) indicate that political risk can affect debt markets through the information asymmetry channel, where the actions of uninformed market participants aimed to price protection against political risk would affect both yields and liquidity in debt markets. Furthermore, in the domain of sovereign bond markets, Huang et al. (2015) provide evidence that increased international political risk leads to higher government bond yields, causing negative returns while yields increase, and higher returns after the adjustment for increased political risk. The main rationale is that political risk increases uncertainty about the repayment of government debt, monetary policy, or consumer price inflation, for which investors need to be compensated. Moreover, increase of political risk leads to a rise in global risk aversion prompting investors to sell risky assets (equities) and buy bonds as safer assets (Brogaard et al., 2020). This finding is consistent with flight-to-quality phenomenon that has been also documented in US corporate bond markets (Baele et al., 2020).

Our contribution to the literature is threefold. First, we examine whether there is a firm-level political risk premium in the US corporate bond market, and if it is priced, whether it carries a positive or negative premium. This enriches the debate on the political risk sign paradox observed in financial markets (see, Lehkonen and Heimonen, 2015). Standard models suggest that investors demand a higher return for assets with higher risk, and early studies on political risk in equity markets were aligned with this theoretical prediction (Erb et al., 1996, Bilson et al., 2002). At the same time, during periods of decreasing political risk, the discount rates of expected cash flows exposed to political risk decrease, leading to positive returns during this alignment period. Trends in political risk may even lead to predictability of asset returns. Some studies indeed find that decreases in political risk lead to higher returns in equity markets (Diamonte et al., 1996, Perotti and van Oijen, 2001, Dimic et al., 2015, Lehkonen and Heimonen, 2015). The literature on the impact of political risk on corporate bond markets provides evidence that aggregate-level political risk, as measured by the Economic Policy Uncertainty (EPU) Index, is priced in the cross-section of US corporate bonds. In particular, Tao et al. (2022) find that bonds with higher EPU beta have low expected returns. The high-beta bonds are hedges against aggregate political risk, as higher EPU beta indicates that returns are high when political risk is high. Such hedging property is preferred by risk-averse investors and it should be related to lower expected returns. Our study complements findings of Tao et al. (2022) by examining firm-level political risk and provides evidence that higher firm-level political risk is related to higher expected returns in the corporate bond market, even after controlling for market-wide political risk.

Second, we complement the growing literature on political risk in financial markets that has been primarily focused on exposure to *economy-wide* risk measures, as political risk has so far predominantly been treated as a driver of systematic risk (e.g. Pastor and Veronesi, 2012, 2013; Fernandez-Villaverde et al., 2013, Drautzburg et al., 2017). However, Hassan et al. (2019) show that the aggregate-level measure masks a lot of cross-sectional variation in political risk and points out the importance of considering political risk as a driver of idiosyncratic risk. Ho et al. (2024) provide further evidence that firm-specific political risk is priced with no homogeneous or systematic effect across stocks, as firm-level effects can be hidden when aggregated at the market level. Ho et al. (2024) argue that idiosyncratic political risk cannot be fully diversified away, as for instance some investors might be undiversified or involved in narrow framing (Barberis and Huang, 2001) or alternatively, political risk might be correlated with a specific systematic risk factor such as labor income (Herskovic et al., 2016). The finding of Ho et al. (2024) about pricing idiosyncratic political risk in the equity option market is aligned with broader literature on idiosyncratic risk pricing in equity markets (Goyal and Santa Clara, 2003, Ang et al., 2006, and Brockman et al., 2022). Therefore, our paper contributes to the debate on whether political risk is a driver of systematic or idiosyncratic risk. This distinction is important for the corporate bond market, as for instance institutional investors might be underdiversified with regard to their corporate bond holdings.[2] Since our findings indicate that idiosyncratic political risk is priced, this is consistent with such underdiversification explanation.

Third, we address the possible concern that the political risk premium captures other measures of risk premiums in the bond market. Thus, we focus on the drivers of political risk premium by applying a time-series analysis and examine how the political risk premium in the corporate bond market responds to shocks in market liquidity, uncertainty, risk aversion, and monetary policy. In particular, we investigate whether the measures of time-varying risk aversion and economic uncertainty of Bekaert et al. (2021) are drivers of the political risk premium. Furthermore, we also examine the following shocks documented by Cieslak and Pang (2021): (1) monetary policy shocks that capture pure discount rate shocks via the expected risk-free rate; (2) economic growth shocks that reflect shocks to investors' cash flow expectations; (3) common risk premium that raises both equity and bond risk premiums, reflecting the fact that stocks and bonds are both exposed to pure discount rate risk; and (4) hedge risk premium that raises the risk premium on

[2] There is some evidence of clientele effects in corporate bond markets (see, e.g., Chen et al., 2020, and Ge and Weisbach, 2021, and Boermans 2023).

stocks but lowers it on bonds because bonds provide a hedge for cash flow risk in stocks.

Our findings can be summarized as follows. Our cross-sectional regression analysis reveals that positive innovations in firm-level political risk are associated with higher corporate bond returns of about 0.4% to 0.6% per annum. This is only slightly lower than the 0.5% to 1.0% that Gorbatikov et al. (2021) find for the political risk premium in the cross-section of equity returns, using the same firm-specific measure of political risk as we do. We find that innovations in political risk are most important for firms with high levels of political risk and higher credit risk, for bonds with longer maturity, and for less liquid bonds. In our portfolio analyses, we find that the difference in average risk-adjusted returns of portfolios sorted on innovations in political risk is statistically significant. Using the same methodology, we find that other measures of political risk, such as geopolitical risk, are not priced in the cross-section of corporate bonds. Time-series analysis indicates that monetary policy shocks and common shocks in the equity and bond market exhibit a statistically significant and positive association with the political risk premium. Our results are robust after controlling for political and nonpolitical sentiment, for alternative measures of bond liquidity, and after using an alternative methodology of a panel regression including firm and industry-time fixed effects to account for variation at the firm- and industry-level.

The remainder of the paper is organized as follows. Section 2 provides a short review of the relevant literature. Section 3 describes our data and presents the methodological framework. Section 4 discusses the empirical results based on regression analysis, portfolio sorting, and the time-series analyses linking the political risk premium to other types of risk, following with a battery of robustness exercises. Lastly, Section 5 provides conclusions and policy implications.

2. Literature review

The literature on the cross-section of expected corporate bond returns is extensive. Previous studies show that several factors are priced in expected corporate bond returns. Fama and French (1993) document the default and term factors as priced risk factors in corporate bond returns. The literature also offers evidence that liquidity risk factors are priced in corporate bond returns (Chen et al., 2007; Bao et al., 2011; Dick-Nielsen et al., 2012; Helwege et al., 2014). Chen et al. (2007) identify liquidity as an important driver of corporate bond yields and find that both investment and non-investment grade bonds exhibit liquidity effects. Bao et al. (2011) show that a measure of bond-level illiquidity is relevant for explaining its yield. Dick-Nielsen et al. (2012) find that liquidity problems affected widening of corporate bond spreads during the financial crisis, while Helwege et al. (2014) argue that corporate bond spreads are affected by credit risk and liquidity, and it is challenging to disentangle the effects of those two factors. Houweling and Van Zundert (2017) find that size, low-risk, value, and momentum factors are important to price the cross-section of corporate bond returns. Furthermore, Chung et al. (2019) find that volatility risk and idiosyncratic volatility is priced in the cross- section of corporate bond returns. These corporate bond pricing models use bond- or issuer-specific characteristics, but more recently factors have been proposed that are measured as exposures to economy-wide risk indexes.

For example, Bali et al. (2021) examine how macroeconomic uncertainty is related to cross-section of corporate bond returns and find an economically and statistically significant macroeconomic uncertainty premium in the corporate bond market. The uncertainty premium that they find is almost 5% per annum for investment grade bonds, while for non-investment grade bonds it is close to 10% per annum. More recently, Tao et al. (2022) demonstrate that economic policy uncertainty, which they interpret as a measure of political risk, is also a factor that is priced in the cross-section of US corporate bonds. And Lee (2022) uses a comprehensive list of 24 economic uncertainty measures and finds that tax policy uncertainty is the most important measure affecting US corporate bond returns.

The traditional literature on political risk in financial markets emphasizes the importance of aggregate political risk for equity and bond asset pricing (Pastor and Veronesi, 2013; Bekaert et al., 2014; Bekaert et al., 2016; Duyvesteyn et al., 2016). Furthermore, political risk and political connections have been identified as relevant factors in corporate finance, affecting the cost of debt (Arifin et al., 2020; Bradley et al., 2016), the cost of equity (Pham, 2019), cash holdings (Xu et al., 2016), raising capital in international markets (Ambrocio et al., 2022), IPO pricing (Colak et al., 2021), bank loans (Ding et al., 2023) and FDI capital expenditures decisions (King et al., 2021). A new related stream of literature has emerged, following the development of a novel measure of firm-level political risk developed by Hassan et al. (2019). This measure has been utilized in several studies to examine the impact of firm-level political risk on the various market segments. Gorbatikov et al. (2021) find that firm-level political risk is priced in the cross-section of equity returns. They document a positive political risk premium between 0.5% and 1.0% per year. Ho et al. (2024) examine the pricing of firm-level political risk in the option market and find a negative relation between firm-level political risk and future delta-hedged equity option returns. Gad et al. (2024) document that increases in firm-level political risk led to an increase in the cost of private debt, which is possibly a manifestation of corporate yields that are passed through to the private market. Isakin and Pu (2019) find that the creditor control premium, measured by the yield spread between a physical corporate bond and an equivalent synthetic bond constructed using credit default swaps, is positively related to firm-level political risk. Choi et al. (2022) document a negative relationship between firm-level political risk and corporate investment. Chatjuthamard et al. (2021) find that firms with higher exposure to political risk invest significantly more in corporate social responsibility activities. Huang et al. (2023) document that the firms with higher political risk prefer private debt over public debt.

3. Data and methodology

3.1. Data

3.1.1. Political risk measure

We use the measure of firm-level political risk developed by Hassan et al. (2019). This measure is based on machine-learning textual analysis of firms' quarterly earnings conference calls. In the earning conference calls, top management of the firm shares information with market participants, discusses past and future performance of the firm, and provides answers to the questions from call participants. Hassan et al. (2019) use the transcripts of earnings conference calls to identify the proportion of discussion devoted to political risk. In particular, Hassan et al. (2019) utilize a pattern-based sequence classification method from computational linguistics to disentangle language related to political issues from the language related to nonpolitical issues. They first create two different training libraries: (i) a library of political texts, including textbooks on political science and articles published in US newspapers under political section, and (ii) a library of nonpolitical text, including articles published in US newspapers under nonpolitical sections and transcripts of discussions on nonpolitical issues. Each training library represents the set of adjacent two-word combinations (bigrams) that are commonly included in respective political and nonpolitical texts. In the following step, each conference call transcript for firm i in quarter t is decomposed into a list of bigrams that are included in the transcript. The final step of constructing the firm-level political risk measure is to divide the total number of bigrams indicating political topic surrounding a synonym for risk and uncertainty with the total number of bigrams in the transcript.

Hence, the political risk measure is the weighted sum of bigrams related to political text connected to synonyms for risk or uncertainty and as such, it captures the proportion of the discussions in the conference call related to political topics. A higher proportion is indicative of a higher level of the firm's political risk.[3] Fig. 1 displays the time-series average of the aggregate firm-level political risk measure across firms from our sample in each quarter. The prior literature (see, e.g. Tao et al. 2022) has used aggregate political risk to determine political risk premiums in corporate bond markets. We also display the Economic Policy Uncertainty (EPU) Index developed by Baker et al. (2016) in Fig. 1, as this has been used as an aggregate political risk index. Fig. 1 reveals that those two measures have similar dynamics over time, with some notable differences mainly in the period after 2013. This suggests that in aggregate, both measures seem to capture similar phenomena and that the use of the aggregate firm-level political risk measure does not add much to the EPU to obtain a macroeconomic picture of political risk. Note, however, that we do not need to resort to statistically estimate exposures to an aggregate factor, but that we can directly use the content of firm-specific quarterly earnings call reports to determine the amount of political risk a firm is exposed to.

The firm-level political risk can be decomposed into a predicted component and an innovation. The predicted component reflects events or issues that are expected (e.g. regular political events, industry-specific exposure to political risk, regulatory issues), meaning that the predicted component should be already incorporated in asset prices. In contrast to the predicted component, the innovation component should affect asset returns. Hence, our main variable of interest is the political risk innovation obtained from the residuals of an autoregressive process as follows $PRisk_{i,t} = \alpha_i + \beta_i PRisk_{i,t-1} + \mu_{i,t}$. Thus, for each firm i in the sample, the term $\mu_{i,t}$ (defined as ΔPRisk) captures the innovation in the political risk variable at quarter t. Using the innovation in political risk is common practice. Gorbatikov et al. (2021) also use this approach to determine whether political risk is priced in the cross-section of equity returns. Fig. 2 shows the time-series average of the firm-level political risk *innovation* across firms from our sample in each quarter. The dynamics of political risk innovation show rather volatile pattern with some larger oscillations over time. The idea is that innovations in the firm-specific component of political risk is important for corporate bond pricing and not time-series variation of the aggregate level of political risk that we displayed in Fig. 1.

3.1.2. Bond data and firm characteristics

We obtain monthly corporate bond returns from Wharton Research Data Services (WRDS) Bond Returns database from July 2002 to December 2019. We remove Yankee, Canadian puttable, convertible bonds, and bonds with maturity less than 1-year and higher than 30-year. Following the literature,[4] we exclude financial firms and utilities (SIC code 4900-4999 and 6000-6999) and we also drop bonds with less than 60 observations in the sample. We relax this to 36 observations in the section with robustness analyses. We consider bond characteristics such as coupon, maturity, size, and rating from WRDS Bond Returns, and for bond illiquidity we compute the illiquidity measure of Bao et al. (2011). We also collect firm characteristics such as return on assets (ROA), leverage, total assets, and market value to book value from Compustat. As political risk is available at the firm-level, we merge this dataset with bond-level dataset by mapping bond CUSIPs with PERMCO and GVKEY identifiers, using the Bond-CRSP-link database and Compustat. Finally, for firms with more than one-traded bond in each month, we compute the average of both bond returns and bonds characteristics.[5] Our final sample covers more than 50,000 bond-month observations for about 800 unique firms.

3.1.3. Bond and equity risk factors

We control for asset pricing factors in the equity and corporate bond markets. For the equity market, we consider the excess return

[3] We are grateful to Hasan et al. (2019) for providing the data on firm-level political risk available at https://www.firmlevelrisk.com/download.

[4] For instance, see Duchin et al. (2017) and Choi et al. (2018). In section 4.3 we extend our baseline sample including financials and regulated utilities.

[5] In section 4.1.3 we show that our findings are similar to using bond-level instead of issuer-level data.

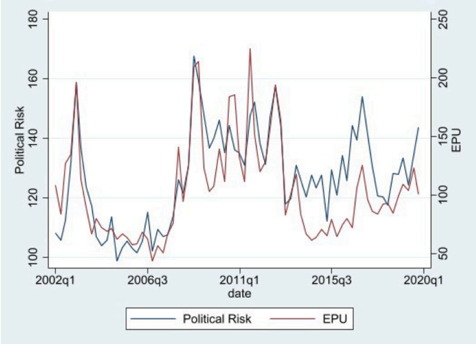

Fig. 1. Comparing Aggregate Firm-specific Political Risk with Economic Policy Uncertainty.
This figure shows the average of the political risk measure developed by Hassan et al. (2019) across firms in each quarter (blue line) and the news-based Economic Policy Uncertainty (EPU) Index developed by Baker et al. (2016) (red line).

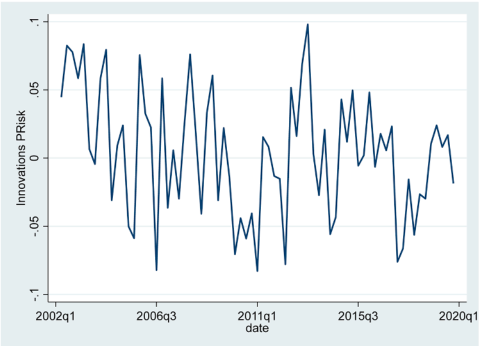

Fig. 2. Political Risk Innovations.
This figure shows the average of political risk innovation obtained from the residuals of an autoregressive process as follows $PRisk_{i,t} = \alpha + \beta PRisk_{i,t-1} + \mu_{i,t}$, where PRisk is the time-average of Political Risk variable (standardized by its standard deviation) across firms in each quarter. For each firm i in the sample, the term $\mu_{i,t}$ (defined as ΔPRisk) captures the innovation in the political risk variable at quarter t.

of the equity market portfolio (MKT), the size factor (SMB), and the value book-to-market factor (HML) following Fama and French (1993).

For the corporate bond market, we use the bond market factor (MKT Bond) based on the weighted average return of all bonds traded in a particular month. In addition, we control for interest rate risk proxied by TERM and DEF factors, following Chen et al. (1986) and Fama and French (1993). The first factor, TERM, proxies for the deviation of long-term bond returns from expected returns due to shifts in interest rates and captures the difference between the monthly long-term government bond return and the one-month T-Bill rate of return. The second factor captures shifts in economic conditions that change the likelihood of default, DEF, which is the difference between the return on the market portfolio of long-term corporate bond returns (the Composite portfolio on the corporate bond module of Ibbotson Associates) and the long-term government bond return. We also control for the exposure to aggregate economic policy uncertainty (EPU) using the measure proposed by Baker et al. (2016). For each risk factor, we compute a regression for the bond excess return over the risk factors using a rolling estimation of 60-months to obtain the bond exposure to each factor.

3.1.4. Summary statistics

Table 1 reports the summary statistics. The top Panel reports the summary statistics of bond characteristics in the bond sample. The average corporate bond in the sample exhibits a monthly excess return of 53 basis points (bps) relative to the one-month Treasury bill, a credit rating of 10.46 which is categorized as an investment-grade bond (BBB rating), an average outstanding amount of $480 million, a time to maturity of 9.07 years, a coupon of 6.32% and a liquidity according to Bao et al. (2011) of 1.35. The middle Panel shows the beta for economic policy uncertainty, and betas for bond and equity risk factors. The average exposure of excess bond returns to economic policy uncertainty beta is close to zero with a dispersion across percentiles from -0.03 (5^{th} percentile) to 0.03 (95^{th} percentile). Among bond and equity risk factors, the highest betas are for the bond market exposure (1.58) and for equity market factor (0.09).

The third Panel reports firm characteristics, including firm-level political risk as our main variable of interest. The political risk is reported in two dimensions: the predicted level and the innovation. The average predicted political risk level is 0.84, and it ranges from 0.00 (5th percentile) to 2.91 (95th percentile), while the political risk innovation variable has an average value of 0.00 by construction,

Table 1
Summary Statistics.

Variables	Mean	SD	P5	P25	P50	P75	P95
Excess return (percent)	0.53	4.08	-3.36	-0.56	0.45	1.54	4.49
Rating (AAA=1, AA=2,...)	10.46	3.72	5.00	8.00	10.00	13.00	17.00
Size (billions)	0.48	0.37	0.15	0.25	0.39	0.57	1.11
Maturity (years)	9.07	4.70	2.94	5.58	8.06	12.19	17.67
Coupon (percent)	6.32	1.43	3.98	5.32	6.33	7.29	8.53
Illiquid	1.35	16.40	-0.09	0.05	0.20	0.64	3.89
Risk factor betas	Mean	SD	P5	P25	P50	P75	P95
BEPU	0.00	0.03	-0.03	-0.01	0.00	0.01	0.03
BDEF	-0.23	1.28	-1.73	-0.52	-0.17	0.16	0.99
BTERM	-0.23	0.89	-1.55	-0.40	-0.08	0.16	0.54
BMKT	0.09	0.27	-0.19	-0.05	0.03	0.18	0.51
BSMB	0.02	0.30	-0.28	-0.05	0.02	0.12	0.37
BHML	0.03	0.31	-0.32	-0.08	0.01	0.11	0.48
BMKTBOND	1.58	1.93	-0.02	0.77	1.23	1.85	4.28
Firm characteristics	Mean	SD	P5	P25	P50	P75	P95
PRisk level	0.84	1.03	0.00	0.17	0.50	1.12	2.91
PRisk innovation	0.00	0.65	-0.56	-0.27	-0.12	0.10	0.91
log(Asssets)	9.08	1.37	6.93	8.14	9.00	9.96	11.54
MB	1.41	0.91	0.58	0.86	1.16	1.67	3.10
ROA	0.04	0.11	-0.09	0.02	0.05	0.08	0.14
Leverage	0.34	0.21	0.10	0.21	0.31	0.43	0.70
Market risk and shocks	Mean	SD	P5	P25	P50	P75	P95
ΔVIX	-0.10	3.95	-5.38	-1.98	-0.35	1.00	5.56
ΔTED	0.00	0.20	-0.20	-0.04	0.00	0.03	0.14
ΔUncertainty	0.00	0.18	-0.28	-0.10	-0.02	0.09	0.26
ΔRisk aversion	0.00	0.47	-0.48	-0.10	0.00	0.08	0.42
ΔBond volatility	-0.02	0.76	-1.23	-0.42	-0.09	0.32	1.25
US growth	0.00	0.22	-0.36	-0.12	0.01	0.10	0.33
US monetary	0.02	0.17	-0.26	-0.06	0.03	0.13	0.26
US hedge	0.00	0.20	-0.28	-0.11	-0.02	0.09	0.38
US common	0.00	0.21	-0.26	-0.13	-0.03	0.09	0.36

This table reports the summary statistics of variables used in our empirical analysis. The top panel shows mean, standard deviation, and monthly percentiles of bond characteristics such as bond rating (Rating) from WRDS Bond Returns, the outstanding bond amount (Size), bond maturity (Maturity), bond coupon (Coupon) and for bond illiquidity we compute the illiquidity measure of Bao et al. (2011). The middle panel reports summary statistics for risk factor betas. EPU stands for the economic policy uncertainty factor; DEF denotes default factor; TERM is the term factor; MKT, SMB, and HML are the Fama-French three factors, MKTBOND stands for bond market portfolio. The bottom panel reports firm characteristics, including political risk level and innovation, total assets, market to book value, ROA, and leverage. As a proxy for market volatility, we employ the VIX index and a measure of bond market volatility, we use the TYVIX index (Bond volatility) which measures the expected volatility of the interest rate market. For market liquidity risk, we use the Treasury-eurodollar (TED) spread. We also include the analysis of risk aversion and uncertainty from Bekaert, Engstrom, and Xu (2021). Finally, we include economic shocks that capture monetary policy, economic fundamentals, and risk premiums from Cieslak and Pang (2021): (1) monetary policy shocks (US monetary) capture pure discount rate shocks via the expected risk-free rate; (2) economic growth shocks (US growth) that reflects shocks to investors' cash flow expectations; (3) common risk premium (US common) that raises both equity and bond risk premiums; and (4) hedge risk premium (US hedge) raises the risk premium on stocks but lowers it on bonds because bonds provide a hedge for cash flow risk in stocks.

but there is a high dispersion varying from -0.56 (5th percentile) to 0.91 (95th percentile).

The fourth Panel reports variables of market risk and shocks. As a proxy for equity market volatility, we employ the VIX index, and as a measure of bond market volatility we use the TYVIX index. Both measures are based on implied volatility from options markets on stocks and Treasury bonds, respectively. For market liquidity risk, we use the Treasury-eurodollar (TED) spread. We also include the analysis of risk aversion and uncertainty from Bekaert et al. (2021). Finally, we include economic shocks from Cieslak and Pang (2021): (1) monetary policy shocks (US monetary) capture pure discount rate shocks via the expected risk-free rate; (2) economic growth shocks (US growth) that reflects shocks to investors' cash flow expectations; (3) common risk premium (US common) that raises both equity and bond risk premiums; and (4) hedge risk premium (US hedge) raises the risk premium on stocks but lowers it on bonds because bonds provide a hedge for cash flow risk in stocks. Since we use shocks rather than the levels of these variables, the averages and medians are close to zero. The shocks to expected equity and bond volatility are the largest in absolute size, evidenced by the highest standard deviation and widest spread between the 5^{th} and 95^{th} percentile of their distribution.

3.2. Methodology

This section discusses two approaches used to capture the pricing of political risk in the corporate bond market. First, we exploit the cross-sectional response of one-month excess returns in the cross section of corporate bonds over the political risk innovation variables. Specifically, we estimate Fama and MacBeth (1973) regressions at the firm-level as follows:

$$R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1} \tag{1}$$

where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill, $\Delta PRisk_{i,t}$is the political risk measure innovation for firm i at time t, $X_{i,t}$ denotes alternative controls as follows: (i) bond characteristics (rating, size, maturity, coupon, lagged bond return, and bond liquidity), (ii) betas for the equity risk factors (B_{MKT}, B_{SMB}, B_{HML}), (iii) betas for the bond risk factors ($B_{MKTBOND}$, B_{DEF}, B_{TERM}), (iv) beta for the aggregate economic uncertainty (B_{EPU}), and (v) firm characteristics (log assets, market-to-book ratio, ROA, and leverage). In this setting, the coefficient λ_1 captures the cross-sectional response of corporate bond returns to their innovation in political risk $\Delta PRisk_{i,t}$.

The second approach exploits a self-financing trading strategy that goes long (short) in bonds with high (low) political risk innovation. We analyze the alpha return obtained from a univariate portfolio-level analysis by sorting on the firm-level political risk

Table 2
Regression-based relation between political risk and corporate bond returns.

	(1)	(2)	(3)	(4)	(5)
ΔPRisk	0.04*	0.05*	0.07***	0.08**	0.08***
	(1.79)	(1.89)	(2.87)	(2.58)	(2.83)
Rating		0.06**	0.04*	0.02	0.05***
		(2.26)	(1.86)	(1.51)	(3.52)
Size		0.03	0.02	0.04	-0.01
		(0.73)	(0.44)	(0.97)	(-0.22)
Maturity		0.03***	0.03***	0.03***	0.03***
		(3.74)	(3.56)	(3.86)	(3.19)
Coupon		-0.01	-0.03	-0.04	-0.03
		(-0.26)	(-0.80)	(-1.17)	(-0.93)
Lagged return		-0.07***	-0.07***	-0.08***	-0.09***
		(-3.16)	(-3.00)	(-3.37)	(-3.96)
Illiquid		-0.00	-0.01	-0.01	-0.01
		(-0.06)	(-0.57)	(-0.50)	(-0.34)
Beta MKT			0.16	0.45	0.42
			(0.71)	(1.07)	(0.96)
Beta SMB			0.14	0.16	0.15
			(0.64)	(0.95)	(0.90)
Beta HML			0.22	0.29	0.31
			(1.36)	(1.57)	(1.55)
Beta MKT Bond				-0.03	-0.04
				(-0.45)	(-0.54)
Beta DEF				0.05	0.03
				(0.35)	(0.17)
Beta TERM				-0.27	-0.26
				(-1.31)	(-1.30)
Beta EPU				-2.70	-2.45
				(-1.20)	(-1.07)
log(Assets)					0.06***
					(2.66)
MB					0.03
					(0.96)
ROA					1.67***
					(2.79)
Leverage					-0.09
					(-0.78)
Intercept	0.56***	-0.33	-0.24	0.03	-0.57
	(2.62)	(-0.82)	(-0.58)	(0.07)	(-1.13)
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	82,756	61,627	51,359	51,359	50,880
Adj. R2	0.103	0.314	0.365	0.407	0.437

This table shows the results of the Fama and MacBeth (1973)regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. Model (1) includes only ΔPrisk without control variables. Model (2) controls for bond characteristics such as bond rating (Rating) from WRDS Bond Returns, the outstanding bond amount (Size), bond maturity (Maturity), bond coupon (Coupon), lagged bond return (Lagged return), and for bond illiquidity (we compute the illiquidity measure of Bao et al., 2011). Model (3) controls additionally for equity risk factor betas, where BMKT denotes beta for the excess return of the equity market portfolio, Beta SMB denotes beta for the size factor, Beta HML denotes beta for the value factor. Model (4) controls additionally for bond risk factor betas, where Beta MKT Bond denotes bond market beta, Beta DEF denotes beta for default factor, Beta TERM denotes beta for term factor, and Beta EPU denotes beta for Economic Policy Uncertainty. Model (5) controls additionally for firm characteristics (total assets, market to book value, ROA, and leverage). Industry fixed effects are included. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation- consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

innovation ΔPRisk. Each month, we create ten portfolios based on ΔPRisk where decile 1 refers to corporate bonds with the lowest political risk and decile 10 refers to corporate bonds with the highest political risk. To strengthen our results further, we consider bivariate portfolio sorts where we first split the sample in quintiles based on a characteristic that may be related to political risk. Within each quintile, we sort for a second time into quintiles, this time based on political risk. We then average each political risk quintile over the characteristic of the first sort and calculate the risk-adjusted returns (alphas with respect to bond and equity market factors).

4. Empirical results

4.1. Is political risk priced in the corporate bond market?

To examine whether firm-level political risk is priced in the cross-section of US corporate bonds, we first follow a regression procedure that allows to control for other characteristics that may impact corporate bond returns. We then proceed to show how portfolios formed on firm-level political risk have performed, including risk-adjustments from established factor models.

4.1.1. Identifying a political risk premium

Table 2 presents the Fama-MacBeth regressions for the political risk variable at the firm-level. The results are reported for 5 different model specifications. Model (1) includes only ΔPrisk without control variables, while Model (2) controls for bond characteristics such as bond rating, size, maturity, coupon, lagged bond return, and bond illiquidity (we compute the illiquidity measure of Bao et al., 2011). Model (3) controls additionally for equity risk factor betas, Model (4) adds controls for bond risk factor betas, while Model (5) controls additionally for firm characteristics (total assets, market to book value, ROA, and leverage).

The variable of interest, innovations in political risk, is in the top row. It shows that there is a clear positive relation between a firm's innovation in political risk and its return in the following month. The coefficient ranges from 0.04 in Model 1 (without controls) to 0.08 in Model 5 (with all controls), and all are statistically significant with t-values well above 1.65 on a sample with only 17 years of data. The standard deviation of the innovation of political risk is 0.65 (see Table 1), so the effect for one standard deviation difference is between 3 and 5 basis points per month, or between 0.3% and 0.6% per year.[6] This is only slightly lower than the 0.5% to 1.0% that Gorbatikov et al. (2021) find for the political risk premium in the cross-section of equity returns. The variable which is proxy for market-wide political risk (EPU) has a negative coefficient, which is in line with Tao et al. (2022). A negative sign indicates that firms with high political risk, i.e. firms that perform poorly when political risk is high, earn a political risk premium in the long run. While the sign in our regression is the same as in Tao et al. (2022), we do not find statistical significance (t-statistics of -1.20 and -1.07 for Model (4) and (5), respectively). Overall, our results complement those in the existing literature and strengthen the notion that political risk is priced in corporate bond markets.

Regarding the control variables, Model (5) shows a positive and statistically significant coefficient for bond rating and maturity, indicating that bond with higher credit risk earn higher average returns. The significantly negative coefficient for lagged returns is consistent with a short-term mean-reversion effect as documented in Chordia et al. (2017). Furthermore, most of the firm characteristics are also statistically significant.

To better understand what drives the result, we create subsamples based on firm characteristics that may exacerbate political risk and examine the magnitude of the political risk premium within each subsample. We split the full sample each month into two groups based on the level of political risk, credit rating, maturity, bond size, and illiquidity. Specifically, in each month of the sample, we divide the sample into two groups -high and low- based on the cross-sectional median value of each bond characteristic in the preceding month. The results of this analysis are in Table 3.

The subsample split based on political risk level show that innovations in political risk are primarily important for firms with high levels of political risk. The coefficient within this subsample is 0.08 and statistically significant with a t-value of 2.72, while in the subsample with low levels of political risk the sign is negative, but not statistically significant. It seems logical that changes in political risk are relatively unimportant for firms where political risk in general is not so relevant, but that changes in political risk are more important when political risk is high. For the subsample split on credit risk, a similar explanation may prevail why for the subsample with high credit risk innovations in political risk are priced (0.10, t-value 2.19), while for subsamples with low credit risk this is not the case (0.02, t-value 0.69). The subsample split based on maturity indicates that innovations in political risk are more relevant for long maturity bonds (coefficient is statistically significant for long maturity bonds, while for short maturity bonds it is positive, but significant only at 10 percent level). This result is intuitive, as longer maturities are related to higher level of political uncertainty in the long run relative to lower uncertainty in the short run. The last two subsamples are related to the ease of arbitrage. We see that both for smaller and more illiquid bonds the political risk premium is highest and statistically significant. This is consistent with many empirical observations that for groups of assets that are more difficult to arbitrage, anomalies tend to be stronger; see, e.g., Nagel (2005) and Chu et al. (2020).

[6] To put the political risk premium estimates into context, we report here some estimates of the market risk premium offered by corporate bonds over government bonds. Ng and Phelps (2011) report annual credit risk premium of 0.48% over the period 1990-2009, Asvanunt and Richardson (2017) an annual 0.50% over the period 1988 to 2014, and Giesecke et al. (2011) an annual 0.80% over their 150-year long sample period 1866 to 2008.

Table 3
Regression-based relation between political risk and corporate bond returns in subsamples.

	PRisk (level)		Credit risk		Maturity		Size		Illiquid	
	High	Low	High	Low	Short	Long	High	Low	High	Low
ΔPRisk	0.08***	-0.07	0.10**	0.02	0.05	0.18***	0.05**	0.15**	0.10***	0.04*
	(2.72)	(-0.70)	(2.19)	(0.69)	(1.34)	(3.10)	(2.41)	(2.58)	(2.61)	(1.83)
Rating	0.05***	0.04**	0.08***	0.02**	0.02*	0.09***	0.03**	0.08***	0.05**	0.05***
	(2.94)	(2.45)	(2.89)	(2.54)	(1.70)	(4.55)	(2.31)	(3.35)	(2.42)	(3.66)
Size	-0.00	-0.01	-0.11	0.01	0.00	0.43	0.05	-0.09	-0.06	-0.02
	(-0.01)	(-0.06)	(-0.81)	(0.33)	(0.04)	(0.80)	(1.30)	(-1.44)	(-0.72)	(-0.45)
Maturity	0.02**	0.02***	0.04***	0.02**	0.03***	0.03***	0.02***	0.03	0.03***	0.02**
	(2.50)	(2.73)	(2.88)	(2.33)	(2.93)	(3.24)	(2.62)	(1.50)	(2.84)	(2.05)
Coupon	-0.07*	0.01	-0.04	-0.01	-0.01	-0.04	0.04	-0.10*	-0.05	0.01
	(-1.74)	(0.16)	(-0.77)	(-0.25)	(-0.53)	(-0.85)	(1.62)	(-1.88)	(-0.82)	(0.30)
Lagged return	-0.10***	-0.09***	-0.09***	-0.26***	-0.09***	-0.12***	-0.18***	-0.07**	-0.11***	-0.13***
	(-4.00)	(-3.07)	(-3.35)	(-14.87)	(-3.62)	(-3.02)	(-7.24)	(-2.47)	(-4.03)	(-5.27)
Illiquid	-0.00	0.01	-0.00	-0.02*	-0.01	0.00	-0.03	-0.01	-0.01	-0.00
	(-0.09)	(0.24)	(-0.01)	(-1.80)	(-0.30)	(0.13)	(-1.59)	(-0.34)	(-0.47)	(-0.00)
BMKT	0.65	0.36	0.61	-0.03	0.73	-0.11	0.24	0.76	0.58	0.41
	(1.45)	(0.85)	(1.38)	(-0.10)	(1.45)	(-0.23)	(0.76)	(1.46)	(1.08)	(1.43)
Beta SMB	0.31	-0.03	0.15	-0.23*	0.18	0.06	0.28	0.17	0.13	0.09
	(1.48)	(-0.13)	(0.82)	(-1.88)	(0.96)	(0.25)	(1.38)	(0.77)	(0.60)	(0.38)
Beta HML	0.62**	0.20	0.37	0.19	0.15	0.43	0.17	0.44	0.34*	0.24
	(2.36)	(0.87)	(1.58)	(1.53)	(0.64)	(1.62)	(1.00)	(1.19)	(1.82)	(0.84)
Beta MKT Bond	0.01	-0.06	-0.10	0.10*	-0.07	0.03	-0.16**	-0.02	-0.09	0.13*
	(0.07)	(-0.61)	(-1.11)	(1.76)	(-0.70)	(0.28)	(-2.31)	(-0.10)	(-0.89)	(1.80)
Beta DEF	0.03	0.09	0.04	0.07	0.05	-0.11	0.01	-0.07	0.12	0.04
	(0.17)	(0.45)	(0.20)	(0.71)	(0.29)	(-0.48)	(0.13)	(-0.25)	(0.62)	(0.29)
Beta TERM	-0.06	-0.46	-0.44**	0.08	-0.37	0.09	-0.39**	-0.05	-0.37	0.11
	(-0.23)	(-1.57)	(-2.03)	(0.47)	(-1.35)	(0.32)	(-2.22)	(-0.18)	(-1.56)	(0.55)
Beta EPU	-0.82	-4.27	-2.85	-4.11**	-3.18	-0.26	-1.84	-3.18	-6.91**	1.70
	(-0.29)	(-1.62)	(-1.23)	(-2.23)	(-0.93)	(-0.11)	(-0.91)	(-1.12)	(-2.52)	(0.65)
log(Assets)	0.05*	0.07*	0.06	0.03	0.05*	0.04	0.04*	0.04	0.07*	0.06**
	(1.71)	(1.78)	(1.62)	(1.56)	(1.87)	(0.79)	(1.87)	(1.25)	(1.97)	(2.14)
MB	0.08**	-0.02	0.19*	0.05**	0.06**	0.02	-0.01	-0.02	0.01	0.07**
	(2.14)	(-0.46)	(1.83)	(2.37)	(2.33)	(0.31)	(-0.49)	(-0.26)	(0.13)	(2.39)
ROA	1.00*	2.06**	1.93***	0.22	0.92*	2.81***	1.76***	2.03***	2.40***	1.16**
	(1.70)	(2.44)	(2.63)	(0.63)	(1.85)	(3.17)	(3.15)	(2.93)	(2.98)	(2.13)
Leverage	-0.04	-0.00	-0.28*	-0.14*	-0.09	0.16	0.03	-0.09	0.06	-0.25*
	(-0.21)	(-0.02)	(-1.73)	(-1.74)	(-0.80)	(0.58)	(0.23)	(-0.49)	(0.30)	(-1.79)
Intercept	-0.40	-0.80	-2.18***	-0.08	0.04	-0.71	-0.01	-0.77	-0.30	-1.26***
	(-0.82)	(-1.09)	(-2.70)	(-0.27)	(0.05)	(-0.83)	(-0.01)	(-1.23)	(-0.49)	(-2.83)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,784	25,096	27,611	23,269	29,492	21,388	25,993	24,887	26,205	24,675
Adj. R2	0.552	0.552	0.473	0.535	0.579	0.551	0.563	0.514	0.535	0.579

This table shows the subsample results of the Fama and MacBeth (1973) regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. We split the sample based on High and Low values of political risk level, credit risk, maturity (Short and Long maturity), size and illiquidity based on the cross-section median value at each month. Industry fixed effects are included. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation-consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

4.1.2. *Portfolio analysis*

In the regression analysis above we have isolated the political risk premium from a plethora of bond and firm characteristics. Now we turn to a portfolio analysis in which we examine whether returns on portfolios of bonds with the most positive innovations in political risk are higher than those on portfolios of bonds with the most negative innovations. And if so, whether these excess returns can be explained by well-known factors in the corporate bond and equity market.

Table 4 reports the next-month excess bond returns for portfolios sorted on innovations in political risk.[7] The first column shows that the risk-adjusted return of the low political risk decile portfolio is -0.00% per month and for the high political risk portfolio this is 0.17%. The difference, displayed in the row 'High-Low', is statistically significant (t-stat 2.00). This indicates that the political risk

[7] These results are equally weighted and the alphas control for both bond and equity market factors. Unreported results indicate that our results are robust with respect to value instead of equal weighting (see Hou et al., 2020, for potential problems with equal weighting) and leaving out equity factors for risk-adjustment.

Table 4
The political risk premium in portfolio sorts.

	Univariate	Bivariate			
		Maturity	Credit	Liquidity	Size
Low-ΔPRisk	-0.00	0.03	-0.02	0.02	0.04
	(-0.04)	(0.39)	(-0.17)	(0.24)	(0.47)
High-ΔPRisk	0.17**	0.11	0.13	0.15*	0.12
	(2.10)	(1.29)	(1.56)	(1.85)	(1.49)
High-Low	0.17**	0.08*	0.15*	0.11**	0.08*
	(2.00)	(1.69)	(1.78)	(2.34)	(1.73)

This table shows the alpha return after controlling for equity and bond market risk factors by single sorting in deciles on firm-level political risk innovations (ΔPRisk) and by double-sorting portfolios in quintiles based on firm-level political risk innovations (ΔPRisk) and bond characteristics. In each month of the sample, quintile portfolios are formed based on bond characteristics. Within each quintile bond portfolio, a new quintile-sorted portfolios are formed based on ΔPRisk. This procedure creates quintile portfolios with dispersion on ΔPRisk while controlling for bond-characteristics. Low-ΔPRisk (High-ΔPRisk) represents the lowest (highest) ΔPRisk-sorted portfolio within each bond characteristics. The first column reports the result for quintile portfolios sorted by maturity. Second column reports the alpha return for bivariate-sorted quintile portfolios controlling for credit risk. Third column presents the bivariate results from liquidity and ΔPRisk. Last column presents the bivariate analysis controlling for bond size. Standard errors are calculated using Newey and West (1987) heteroscedasticity and autocorrelation-consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively

premium derived from portfolio sorts is about 0.17% per month, or about 2.0% per annum. The difference in $\Delta PRisk$ for the High-Low portfolios is 1.95, about three standard deviations. In the Fama-MacBeth regressions, we found that each standard deviation corresponds to about 0.6% annual excess returns, which would lead to an estimate of 1.8% per annum from the regression equation. Since the methodologies employed are so different, these estimates of the political risk premium are close.

To strengthen our results further, we consider bivariate portfolio sorts where we first split the sample in quintiles based on a characteristic that may be related to political risk. Consistent with the subsample regression in Table 3, we choose maturity, credit risk, liquidity, and size. Within each quintile, we sort for a second time into quintiles, this time based on political risk. We then average each political risk quintile over the characteristic of the first sort and calculate the alphas relative to the equity and bond market factors. So, the "low $\Delta PRisk$" quintile in the "maturity" column contains the risk-adjusted return of the average of five low political risk portfolios within each maturity quintile, which is 0.03 (t-value 0.39). The "high $\Delta PRisk$" column shows a return of 0.11 (t-value 1.29) and the long-short portfolio of high minus low political risk shows a significant alpha of 0.08 (t-value 1.69). For each of the other columns, the t-values are even higher, indicating positive risk-adjusted returns for these long-short portfolios based on political risk. This additional analysis provides further empirical evidence for the existence of a political risk premium in corporate bond markets and is consistent with the regression results presented in Table 3.

4.1.3. *Heterogeneity at the bond-level*

As political risk is available at the firm level, important heterogeneity in the political risk premium can be missed when aggregating bond-level information at the firm level as we explain in Section 3.1. Specifically, as a particular firm can issue multiple bonds, these can exhibit important heterogeneity in their characteristics such as coupon, maturity, size, liquidity, etc., and thus the pricing of political risk can vary within the firm level. We address this concern by re-estimating the cross-sectional Eq. (1) using the sample of corporate bond returns at the bond level and the aggregate measure of political risk at the firm level. Thus, the bond sample is larger and contains more than 165,000 bond-month observations, instead of the 50,000 firm-month observation in our previous analyses.

Table 5 presents the Fama-MacBeth regressions for the political risk variable at the bond level. The variable of interest, innovations in political risk, is in the top row. Consistently with our findings presented in Table 2, we document a positive coefficient between political risk innovation and bond returns for the sample of corporate bond returns at the bond level. The specification without controls (column 1) shows a positive coefficient of 0.06 statistically significant at 5%. After controlling for bond characteristics (column 2) we document a statistically significant and positive coefficient of 0.06. After controlling for equity and bond risk factors, and firm characteristics (columns 3, 4 and 5), the point estimate has a coefficient of 0.09, significant at the 1% level. The economic interpretation of these findings suggests that one standard deviation of the innovation of political risk is associated with a premium between 5 and 10 basis points per month, or between 0.6% and 1.2% per year. Overall, the political risk premium at the bond-level is higher than the premium documented in Table 2, using an aggregate measure of corporate bond returns at the firm level.

4.2. *The political risk premium and market risk*

This section provides evidence on the drivers of the political risk premium in corporate bond markets by applying time-series analysis. In particular, we ask the question: How des political risk premium respond to different measures of market liquidity, uncertainty, risk aversion, and monetary policy shocks? Following the analysis presented in Section 4.1.2, we proceed to construct a time-series of political risk premium embedded in the corporate bond market by a constructing deciles portfolios sorted by political risk innovation. Thus, we identify high-political-risk (decile 10) and low-political-risk (decile 1) portfolios and examine the time-series of the return for the 'high minus low' portfolio. We examine whether this political risk premium can be explained by proxies for financial market risk or economic shocks with a linear regression:

Table 5
Regression-based relation between political risk and corporate bond returns: bond-level data.

	(1)	(2)	(3)	(4)	(5)
ΔPRisk	0.06**	0.06**	0.09***	0.08***	0.09***
	(1.99)	(2.31)	(2.97)	(2.97)	(3.31)
Rating		0.06**	0.03	0.02	0.05***
		(2.09)	(1.38)	(1.59)	(3.09)
Size		0.06*	0.02	0,02	0.02
		(1.80)	(0.82)	(1.21)	(0.99)
Maturity		0.02***	0.02***	0.02***	0.02***
		(2.98)	(2.75)	(2.83)	(2.87)
Coupon		-0.01	-0.01	-0.02	-0.02
		(-0.88)	(-1.11)	(-1.47)	(-1.25)
Lagged return		-0.14***	-0.14***	-0.16***	-0.17***
		(-7.88)	(-6.21)	(-7.88)	(-8.42)
Illiquid		0.00	0.00	-0.00	0.00
		(0.06)	(0.02)	(-0.02)	(0.02)
Beta MKT			0.22	0.41	0.44
			(0.88)	(0.96)	(0.99)
Beta SMB			0.13	0.14	0.14
			(0.82)	(1.19)	(1.28)
Beta HML			0.31**	0.33	0.29
			(2.25)	(1.13)	(1.33)
Beta MKT Bond				-0.03	-0.04
				(-0.44)	(-0.52)
Beta DEF				-0.05	-0.03
				(-0.31)	(-0.21)
Beta TERM				-0.01	-0.05
				(-0.05)	(-0.26)
Beta EPU				-2.61	-2.55
				(-1.28)	(-1.40)
log(Assets)					0.04
					(1.65)
MB					0.05
					(1.38)
ROA					1.41**
					(2.54)
Leverage					-0.18
					(-1.29)
Intercept	0.51***	-0.08	0,08	0,21	-0,41
	(3.97)	(-0.33)	(0.42)	(1.39)	(-1.49)
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	316,481	221,931	168,677	168,677	166,222
Adj. R2	0.002	0.211	0.278	0.282	0.321

This table shows the subsample results of the Fama and MacBeth (1973)regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation- consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

$$R_t = \alpha + \sum_{i=1}^{M} \beta_i \Delta MarketRisk_{i,t} + \sum_{\gamma=1}^{N} \gamma_i \Delta EconomicShocks_{i,t} + \epsilon_{d,t} \tag{3}$$

where R_t is the portfolio return spread from the high-political risk (decile 10) minus the low-political risk (decile 1) in the month t. For measures of market risk ($\Delta MarketRisk_{i,t}$) we use several proxies for market volatility, risk aversion and uncertainty. As a proxy for market volatility, we employ the VIX index which is constructed of options on the S&P 500 index and contains market's expectations of future volatility. A positive (negative) change in VIX indicates an increase (decrease) in investors' fear. As a measure of bond market volatility, we use the TYVIX index which measures the expected volatility of the interest rate market. The index is calculated using prices from the CBOT's 10-year Treasury note options. A positive (negative) change in the TYVIX indicates an increase (decrease) in uncertainty in the Treasury bond market. For market liquidity risk, we use the Treasury-eurodollar (TED) spread which measures the yield difference between the 3-month London interbank offered rate (LIBOR) and US Treasury bills with the same maturity. An increase (decrease) in the TED spread indicates a tightening (loosening) of corporate funding conditions and thus it captures liquidity risk.

We also include the analysis of risk aversion and uncertainty beyond what VIX captures. Bekaert et al. (2021) identify time-varying uncertainty in fundamentals, using macro data, and time-varying aggregate risk aversion using macroeconomic data and financial asset prices. The risk aversion measure is highly correlated with the variance risk premium, and it correlates with existing confidence/sentiment indices. The economic uncertainty is highly correlated with corporate bond volatility and, especially, with credit spreads. Finally, we include economic shocks ($\Delta EconomicShocks_{i,t}$) that captures monetary policy, economic fundamentals, and risk premiums. We follow Cieslak and Pang (2021) and apply a sign restriction to the comovement between stocks and the yield curve, allowing us to identify several shocks: (1) monetary policy shocks (US monetary) capture pure discount rate shocks via the expected risk-free rate, (2) economic growth shocks (US growth) that reflects shocks to investors' cash flow expectations, (3) common risk premium (US common) that raises both equity and bond risk premiums, reflecting the fact that stocks and bonds are both exposed to pure discount rate risk, and (4) hedge risk premium (US hedge) raises the risk premium on stocks but lowers it on bonds because bonds provide a hedge for cash flow risk in stocks.

Table 6 presents the main results. In column (1) we estimate a (baseline) regression of political risk premium on changes in Treasury bond volatility (ΔBond volatility) and market liquidity (ΔTED spread). These coefficients are not statistically significant with t-values of 0.11 and 1.13, respectively. In column (2), we additionally include changes in market volatility captured by VIX (ΔVIX), but this coefficient is also not statistically significant with a t-value of -0.99. In column (3), we add to the baseline regression the risk aversion and uncertainty measures from Bekaert et al. (2021), but these are also not statistically significant.

In column (4), where we include the economics shocks from Cieslak and Pang (2021), we find mixed results. While economic shocks related to economic growth and hedge risks are not statistically significant, monetary policy shocks and common shocks in the equity and bond market exhibit a statistically significant and positive association with the political risk premium. An increase of 1 bp in the monetary policy shock is associated with an increase of 0.68 bps in the political risk premium. Similarly, an increase of 1 bp in the common shock is associated with an increase of 0.85 bps in the political risk premium. For instance, an unexpected monetary policy tightening of 25 bps is associated with an increase of 21 bps in the monthly political risk premium (2.52% per annum). Column (5) contains the kitchen-sink approach with all variables simultaneously. The shocks to monetary policy and the common shock to equity and bond markets remain the only ones that are statistically significant, albeit only marginally for the common shock.

4.3. Robustness

This section presents five robustness exercises. First, we show that our baseline results discussed in Table 2 are robust to the use of a different estimation approach and that innovation in political risk and not the expected component is priced in the corporate bond market. As our main analysis relies on cross-sectional regressions using Fama and MacBeth (1973), we address the concern that significant heterogeneity is not properly captured by including additional fixed effects. We estimate Eq. (1) using panel regressions including firm and industry-time fixed effects to account for variation at the firm- and industry-level and time fixed effects to capture

Table 6
Regressions on Measures of Market Risk and Economic Shocks.

	(1)	(2)	(3)	(4)	(5)
ΔVIX		-0.02			-0.04
		(-0.99)			(-1.55)
ΔRisk aversion			0.15		-0.11
			(1.08)		(-0.51)
ΔUncertainty			-0.10		0.58
			(-0.26)		(1.26)
US growth				-0.24	-0.41
				(-0.92)	(-1.19)
US monetary				0.68**	0.76**
				(2.20)	(2.44)
US hedge				-0.03	0.13
				(-0.13)	(0.28)
US common				0.85**	1.13*
				(2.46)	(1.97)
ΔTED	0.48	0.58	0.39	0.32	0.47
	(1.13)	(1.21)	(0.93)	(1.09)	(1.26)
ΔBond volatility	0.01	0.04	0.01	-0.03	-0.01
	(0.11)	(0.47)	(0.09)	(-0.26)	(-0.06)
Constant	0.06	0.06	0.06	0.05	0.05
	(1.56)	(1.53)	(1.59)	(1.29)	(1.28)
Observations	203	203	203	203	203
Adj. R2	0.021	0.026	0.028	0.083	0.109

This table shows the time-series regressions of portfolio bond returns on measures of market risk and economic shocks defined in Eq. (3). As a proxy for market volatility, we employ the VIX index and a measure of bond market volatility, we use the TYVIX index (Bond volatility) which measures the expected volatility of the interest rate market. For market liquidity risk, we use the Treasury-eurodollar (TED) spread. We also include the analysis of risk aversion and uncertainty from Bekaert et al. (2021). Finally, we include economic shocks that captures monetary policy, economic fundamentals, and risk premiums from Cieslak and Pang (2021): (1) monetary policy shocks (US monetary) capture pure discount rate shocks via the expected risk-free rate, (2) economic growth shocks (US growth) that reflects shocks to investors' cash flow expectations, (3) common risk premium (US common) that raises both equity and bond risk premiums, (4) hedge risk premium (US hedge) raises the risk premium on stocks but lowers it on bonds because bonds provide a hedge for cash flow risk in stocks. The t-statistics are in parentheses. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

significant autocorrelation. We also include controls for bond characteristics (rating, size, maturity, coupon, and bond liquidity), equity risk factors (SMB, HML, and MKT) and bond risk factors (MKTBOND, DEF, and TERM). In addition, we split the analysis using the expected and innovation component of political risk using the procedure described in section 3.1.1. to analyze whether unexpected political risk is the primary source of premium in the bond market.

Table 7 shows similar evidence of the pricing of political risk using panel regressions controlling for the firm and time fixed effects and clustering at the firm level using the expected and innovation component of political risk. The first column estimates the pooled regression using controls where the expected change in political risk premium has a coefficient of 0.08 and is not statistically significant at the 10% level. However, columns (2) and (3) that account for the firm and time fixed effects show statistically insignificant coefficients. The second panel shows the results for the innovation component of political risk. The first column -pooled regression- shows a coefficient of 0.06 (significant at 5%), and after including firm and time effects in columns (2) and (3), the point estimate remains 0.06 (significant at 5%). Overall, we show that the innovation component -and not the expected component- is priced in the corporate bond market and the baseline results are robust to the estimation for the cross-sectional regression.

Second, we expand our sample and include financials and utility firms in our sample. As we mention in section 3.1.2, we follow the literature and exclude financial firms and utilities (SIC code 4900-4999 and 6000-6999).

In Table 8 we expand our sample and include financials and utility firms in our sample. Overall, our results are robust to expanding

Table 7
Robustness I: Panel Regressions.

	Expected PRisk			Innovation PRisk		
	(1)	(2)	(3)	(1)	(2)	(3)
ΔPRisk	0.08*	-0.06	-0.07	0.06**	0.06**	0.06**
	(1.74)	(-0.50)	(-0.61)	(2.29)	(2.54)	(2.23)
Rating	0.02	0.15***	0.15***	0.02	0.15***	0.15***
	(1.26)	(4.15)	(4.27)	(1.29)	(4.18)	(4.30)
Size	0.02	0.19**	0.20**	0.02	0.19**	0.21**
	(0.61)	(2.03)	(2.18)	(0.57)	(2.11)	(2.25)
Maturity	0.02***	0.03***	0.03***	0.02***	0.03***	0.03***
	(5.20)	(3.52)	(3.24)	(5.17)	(3.51)	(3.22)
Coupon	-0.03*	-0.02	-0.03	-0.03*	-0.02	-0.03
	(-1.96)	(-0.55)	(-0.93)	(-1.91)	(-0.54)	(-0.92)
Lagged return	0.17***	0.15***	0.15***	0.17***	0.15***	0.15***
	(7.63)	(7.06)	(6.93)	(7.62)	(7.05)	(6.92)
Illiquid	0.02	0.02	0.02	0.02	0.02	0.02
	(1.51)	(1.46)	(1.46)	(1.51)	(1.46)	(1.46)
Beta MKT	1.16***	1.75***	1.74***	1.15***	1.75***	1.74***
	(5.50)	(5.33)	(5.33)	(5.49)	(5.31)	(5.31)
Beta SMB	0.27*	0.51**	0.50**	0.27*	0.51**	0.50**
	(1.89)	(2.28)	(2.22)	(1.88)	(2.26)	(2.21)
Beta HML	-0.16	-0.40*	-0.40*	-0.16	-0.40*	-0.40*
	(-1.07)	(-1.80)	(-1.81)	(-1.07)	(-1.81)	(-1.82)
Beta MKT Bond	-0.07	-0.10	-0.09	-0.07	-0.10	-0.10
	(-1.14)	(-1.13)	(-1.09)	(-1.12)	(-1.13)	(-1.10)
Beta DEF	0.05	0.11*	0.10*	0.05	0.10*	0.10*
	(1.33)	(1.73)	(1.69)	(1.33)	(1.72)	(1.68)
Beta TERM	-0.46***	-0.59***	-0.59***	-0.45***	-0.59***	-0.59***
	(-2.91)	(-2.74)	(-2.71)	(-2.89)	(-2.74)	(-2.71)
Beta EPU	0.39	0.75	0.73	0.38	0.77	0.75
	(0.32)	(0.32)	(0.31)	(0.31)	(0.33)	(0.32)
log(Assets)	0.01	-0.06	-0.09	0.01	-0.06	-0.09
	(0.40)	(-0.77)	(-1.13)	(0.61)	(-0.78)	(-1.13)
MB	0.02	0.11*	0.11	0.02	0.11*	0.11
	(0.65)	(1.71)	(1.61)	(0.67)	(1.72)	(1.62)
ROA	2.19***	2.38***	2.38***	2.19***	2.39***	2.38***
	(5.80)	(5.14)	(5.12)	(5.79)	(5.16)	(5.15)
Leverage	-0.15	-0.03	-0.09	-0.15	-0.03	-0.09
	(-1.00)	(-0.08)	(-0.23)	(-1.04)	(-0.07)	(-0.23)
Intercept	-0.09	-1.14	-0.79	-0.09	-1.18	-0.83
	(-0.35)	(-1.31)	(-0.91)	(-0.35)	(-1.34)	(-0.95)
Observations	50,880	50,869	50,869	50,880	50,869	50,869
Adj. R2	0.061	0.062	0.076	0.061	0.062	0.076

This table shows the subsample results of the Fama and MacBeth (1973) regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. The column Expected PRisk (Innovation PRisk) shows the pricing of the expected (unexpected) component of political risk on corporate bond returns. The specifications in column (1) is with only time fixed effects, specification in column (2) controls for firm fixed effects, while specification in column (3) controls for firm and time fixed effects. The t-statistics (in parentheses) are clustered at the firm-level. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

Table 8
Robustness II: Extending Firm Sample.

	(1)	(2)	(3)
ΔPRisk	0.08***	0.07***	0.04**
	(2.97)	(2.75)	(2.42)
Rating	0.05***	0.05***	0.04***
	(3.41)	(3.45)	(3.22)
Size	0.01	0.01	-0.02
	(0.38)	(0.23)	(-0.52)
Maturity	0.03***	0.03***	0.03***
	(3.15)	(3.24)	(3.32)
Coupon	-0.03	-0.03	-0.04
	(-1.13)	(-1.20)	(-1.44)
Lagged return	-0.09***	-0.09***	-0.09***
	(-3.83)	(-3.85)	(-4.30)
Illiquid	-0.01	-0.01	-0.01
	(-0.26)	(-0.30)	(-0.54)
Beta MKT	0.33	0.36	0.43
	(0.84)	(0.92)	(1.15)
Beta SMB	0.19	0.16	0.09
	(1.09)	(0.87)	(0.49)
Beta HML	0.30	0.29	0.31
	(1.42)	(1.33)	(1.46)
Beta MKT Bond	-0.06	-0.05	-0.04
	(-0.68)	(-0.58)	(-0.50)
Beta DEF	-0.02	-0.00	0.03
	(-0.14)	(-0.00)	(0.19)
Beta TERM	-0.23	-0.24	-0.28
	(-1.15)	(-1.23)	(-1.46)
Beta EPU	-2.69	-2.40	-2.97
	(-1.28)	(-1.12)	(-1.56)
log(Assets)	0.05**	0.06**	0.05***
	(2.26)	(2.28)	(2.69)
MB	0.04	0.03	0.05
	(1.11)	(1.01)	(1.48)
ROA	1.57***	1.58***	1.43**
	(2.74)	(2.82)	(2.49)
Leverage	-0.18	-0.20	-0.15
	(-1.48)	(-1.56)	(-1.31)
Intercept	-0.55*	-0.56	-0.39
	(-1.74)	(-1.62)	(-1.47)
Observations	50,904	52,598	64,422
Adj. R2	0.369	0.373	0.343

This table shows the subsample results of the Fama and MacBeth (1973)regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. Column (1) shows the baseline results from Table 2 (last column). In column (2) we extend the sample to include utilities. In column (3) we include utilities and financial firms in our sample. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation- consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

the firm sample. Column (1) shows the political risk premium based on the baseline results from Table 2 (last column). In column (2) we extend the baseline sample and include utilities, adding more than 1,500 observations. We document a coefficient of 0.07 (significant at 1%) similar to the coefficient estimate of the baseline estimation. In column (3) we extend the sample further and include both utilities and financial firms, which expands the baseline sample to 64,422 observations. The coefficient estimate is slightly smaller (0.04) and significant at 5%.

Third, we control for political and nonpolitical sentiment by modifying Equation (1) to include additional control variables of innovation in political and nonpolitical sentiment. The purpose of those two measures of sentiment is to distinguish between information about the mean and information about the variance of political shock (see Hassan et al., 2019).[8] The results are reported in Table 9. The results show that our main finding of political risk innovation significance is robust after controlling for political and nonpolitical sentiment.

Fourth, we provide some additional analysis on the sample construction in Table 10. In the baseline analyses, we require the

[8] We use the same sentiment measures as in Hassan et al. (2019). Those measures are based on sentiment dictionary from Loughran and McDonald (2011).

Table 9
Robustness III: Controlling for Political and Nonpolitical Sentiment.

	(1)	(2)	(3)	(4)	(5)
ΔPRisk	0.05***	0.04*	0.07***	0.08***	0.08***
	(2.63)	(1.71)	(2.92)	(2.84)	(3.05)
ΔPSentiment	0.01	-0.01	-0.01	-0.00	-0.00
	(0.61)	(-0.59)	(-0.20)	(-0.01)	(-0.05)
ΔNonPSentiment	-0.05	-0.03	0.04	0.05**	0.03
	(-1.10)	(-0.75)	(1.58)	(2.04)	(1.19)
Rating		0.05**	0.04*	0.02*	0.05***
		(2.08)	(1.76)	(1.65)	(3.40)
Size		0.08	0.01	0.03	-0.00
		(1.44)	(0.33)	(0.81)	(-0.03)
Maturity		0.03***	0.03***	0.03***	0.02***
		(3.48)	(3.46)	(3.55)	(3.06)
Coupon		-0.01	-0.03	-0.04	-0.03
		(-0.18)	(-0.98)	(-1.36)	(-1.07)
Lagged return		-0.06***	-0.06***	-0.08***	-0.09***
		(-2.76)	(-2.79)	(-3.25)	(-3.86)
Illiquid		-0.00	-0.01	-0.01	-0.01
		(-0.26)	(-0.36)	(-0.46)	(-0.27)
Beta MKT			0.13	0.32	0.33
			(0.59)	(0.86)	(0.82)
Beta SMB			0.22	0.22	0.18
			(0.84)	(1.17)	(0.99)
Beta HML			0.25	0.26	0.30
			(1.48)	(1.37)	(1.38)
Beta MKT Bond				-0.03	-0.05
				(-0.36)	(-0.57)
Beta DEF				0.00	-0.01
				(0.02)	(-0.03)
Beta TERM				-0.18	-0.23
				(-0.82)	(-1.13)
Beta EPU				-2.97	-2.85
				(-1.40)	(-1.34)
log(Assets)					0.06**
					(2.48)
MB					0.04
					(1.17)
ROA					1.63***
					(2.86)
Leverage					-0.16
					(-1.37)
Observations	82,767	61,654	51,386	51,386	50,907
Adj. R2	0.012	0.242	0.298	0.347	0.378

This table shows the subsample results of the Fama and MacBeth (1973)regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. In addition, we control for political and nonpolitical sentiment. For the rest, the table is structured the same as Table 2. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation-consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

minimum number of observations per bond to be 60 months, and the betas are also estimated using a 60-month rolling window. In these robustness checks, we reduce the number of required observations and/or the rolling window to 36 months. In column (1) we shorten the required number of bond observations only, in column (2) we shorten the rolling window to 36-months only, and in column (3) we shorten both to 36 months. The parameter of interest hardly changes from the original 0.08 and remains statistically significant in each case.

Finally, we control for alternative measures of bond liquidity. In Table 11 we report the baseline regressions from Equation (1) by using the Amihud (2002) bond illiquid measure that captures the price impact of trades. Alternatively, we use the Roll (1984) bond which estimates liquidity from correlations in price change. In addition, we also control bond illiquidity by using bid-ask spreads from bond transactions, and finally, we also control for the percentage of zero returns following Lesmond, Ogden, and Trzcinka (1999). Overall, we show that the baseline results remain after controlling for each (or jointly) alternative bond liquidity measures.

5. Concluding remarks

We find that firm-level political risk is priced in the cross-section of the US corporate bond market. Our analysis is based on the

Table 10
Robustness IV: Sample Construction.

	Baseline	(1)	(2)	(3)
ΔPRisk	0.08***	0.07***	0.08***	0.07**
	(2.97)	(2.65)	(3.42)	(2.56)
Rating	0.05***	0.06***	0.05***	0.06***
	(3.41)	(3.14)	(3.42)	(3.20)
Size	0.01	0.03	-0.00	0.02
	(0.38)	(0.95)	(-0.11)	(0.77)
Maturity	0.03***	0.01*	0.02**	0.01*
	(3.15)	(1.93)	(2.34)	(1.75)
Coupon	-0.03	-0.01	-0.03	-0.02
	(-1.13)	(-0.57)	(-1.07)	(-0.59)
Lagged return	-0.09***	-0.06**	-0.11***	-0.07***
	(-3.83)	(-2.58)	(-4.79)	(-3.30)
Illiquid	-0.01	0.01	-0.00	0.01
	(-0.26)	(0.81)	(-0.06)	(0.51)
Beta MKT	0.33	0.18	0.25	0.20
	(0.84)	(0.38)	(0.55)	(0.41)
Beta SMB	0.19	-0.01	0.06	0.03
	(1.09)	(-0.05)	(0.34)	(0.16)
Beta HML	0.30	0.15	0.14	0.14
	(1.42)	(0.80)	(0.69)	(0.69)
Beta MKT Bond	-0.06	0.04	0.02	0.06
	(-0.68)	(0.45)	(0.23)	(0.86)
Beta DEF	-0.02	-0.17	-0.20	-0.19
	(-0.14)	(-1.17)	(-1.43)	(-1.28)
Beta TERM	-0.23	0.04	-0.01	0.02
	(-1.15)	(0.27)	(-0.10)	(0.15)
Beta EPU	-2.69	-2.46	-1.91	-2.94
	(-1.28)	(-1.22)	(-1.10)	(-1.52)
log(Assets)	0.05**	0.05**	0.06***	0.05**
	(2.26)	(2.09)	(2.70)	(2.33)
MB	0.04	0.03	0.05	0.02
	(1.11)	(0.89)	(1.52)	(0.82)
ROA	1.57***	1.78***	1.88***	1.94***
	(2.74)	(3.33)	(3.69)	(3.57)
Leverage	-0.18	-0.13	-0.19*	-0.14
	(-1.48)	(-1.28)	(-1.79)	(-1.36)
Intercept	-0.55*	-0.73***	-0.69**	-0.74***
	(-1.74)	(-2.68)	(-2.34)	(-2.78)
Observations	50,904	58,964	50,735	58,790
Adj. R2	0.369	0.371	0.388	0.378

This table provide additional analysis on the sample construction. In the baseline analyses, we require the minimum number of observations per bond to be 60 months, and the betas are also estimated using a 60-month rolling window. In these robustness checks, we reduce the number of required observations and/or the rolling window to 36 months. In column (1) we shorten the required number of bond observations only, in column (2) we shorten the rolling window to 36-months only, and in column (3) we shorten both to 36 months. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation- consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

novel machine-learning-based firm-level political risk measure developed by Hassan et al. (2019). Consistent with the literature on equity markets (Gorbatikov et al. 2021), positive unexpected *innovations* in firm-level political risk are associated with higher corporate bond returns, while expected *levels* of political risk are not. Our results are qualitatively the same when we do regression analysis or portfolio simulation. We include a battery of additional analyses confirming the robustness of our primary results. Nevertheless, we cannot completely rule out that the innovation in firm-level political risk measure is correlated with another company characteristic that causes these performance patterns. We also document a statistically significant and positive association of the monetary policy shocks and common shocks in the equity and bond market with the political risk premium.

Our study has important practical implications for corporate bond investors. Unexpected changes in firm-specific political risk can be used as a signal for positive excess returns in the near future. In addition, the finding that smaller and more illiquid bonds have higher political risk premiums is important for portfolio management. In addition, risk managers may want to use firm-level political risk as an additional characteristic to evaluate the risks embedded in corporate bond portfolios, as our results corroborate the finding of Hassan et al. (2019) that aggregate political risk measures are not providing the complete picture of the economic impact of political risk. Other valuable implications of our results are related to corporate decision-making. For instance, the finding that innovations in political risk are more relevant for firms with high political risk and high credit risk might be useful for firms' management in terms of investment policy formulation, creation of strategies for response to political shocks, and navigation of the political risk agenda. Further research could provide international evidence by expanding the sample to other countries, especially to emerging markets where the level of political risk is usually much higher.

Table 11
Robustness V: Controlling for Alternative Measures of Bond Liquidity.

	(1)	(2)	(3)	(4)	(5)
ΔPRisk	0.09***	0.07***	0.09***	0.07***	0.09***
	(3.07)	(3.11)	(3.16)	(3.01)	(3.13)
Amihud	0.03				-0.06
	(0.21)				(-0.49)
Spread		0.16*			0.25**
		(1.69)			(2.50)
Roll			0.02		-0.00
			(0.46)		(-0.18)
LOT				0.00	0.00
				(1.08)	(1.39)
Rating	0.05***	0.05***	0.05***	0.05***	0.06***
	(3.40)	(2.93)	(3.38)	(2.95)	(3.81)
Size	0.02	0.04	0.02	0.02	0.09**
	(0.54)	(1.17)	(0.55)	(0.69)	(2.12)
Maturity	0.03***	0.02***	0.03***	0.03***	0.02**
	(3.13)	(3.05)	(3.01)	(3.32)	(2.19)
Coupon	-0.05	-0.03	-0.05	-0.04	-0.05
	(-1.62)	(-1.18)	(-1.56)	(-1.37)	(-1.59)
Lagged return	-0.08***	-0.12***	-0.09***	-0.12***	-0.08***
	(-3.42)	(-5.49)	(-3.77)	(-5.14)	(-3.72)
Beta MKT	0.40	0.46	0.33	0.60	0.30
	(0.93)	(1.25)	(0.79)	(1.39)	(0.74)
Beta SMB	0.19	0.14	0.13	0.17	0.15
	(0.86)	(0.94)	(0.64)	(1.14)	(0.78)
Beta HML	0.29	0.06	0.30	0.15	0.22
	(1.35)	(0.35)	(1.39)	(0.87)	(1.10)
Beta MKT Bond	-0.08	-0.00	-0.07	0.01	-0.08
	(-0.92)	(-0.02)	(-0.79)	(0.19)	(-1.02)
Beta DEF	0.01	0.04	-0.01	0.07	-0.02
	(0.04)	(0.27)	(-0.03)	(0.44)	(-0.14)
Beta TERM	-0.31	-0.24	-0.27	-0.25	-0.26
	(-1.55)	(-1.22)	(-1.35)	(-1.27)	(-1.39)
Beta EPU	-3.36	-3.14*	-2.96	-4.12*	-2.60
	(-1.61)	(-1.86)	(-1.45)	(-1.81)	(-1.51)
log(Assets)	0.06**	0.04	0.06**	0.04	0.06***
	(2.29)	(1.58)	(2.28)	(1.60)	(2.63)
MB	0.04	0.06	0.04	0.06*	0.05
	(1.14)	(1.58)	(1.30)	(1.68)	(1.45)
ROA	1.64***	1.64***	1.58***	1.61***	1.73***
	(2.86)	(3.07)	(2.77)	(2.76)	(3.19)
Leverage	-0.26*	-0.27**	-0.23*	-0.26*	-0.25**
	(-1.92)	(-2.01)	(-1.87)	(-1.84)	(-2.09)
Intercept	-0.46	-0.51	-0.55	-0.47*	-0.86**
	(-1.35)	(-1.61)	(-1.53)	(-1.74)	(-2.43)
Observations	49,396	58,545	49,350	60,124	49,270
Adj. R2	0.370	0.335	0.371	0.324	0.402

This table shows the subsample results of the Fama and MacBeth (1973)regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta PRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔPRisk denotes the political risk innovation measure as defined in Section 3.1.1. and X is a set of control variables. In addition, we control for alternative bond liquidity measures. In column (1) we control for the Amihud (2002) liquidity measure. In Column (2) we use the bond bid-ask spread as a proxy of bond liquidity. In Column (3) we use the Roll (1984) liquidity measure. In column (4) we use the percentage of zero returns following Lesmond, Ogden, and Trzcinka (1999). In column (5) we control the baseline specification with all bond liquidity measures. In all models we control for bond characteristics, bond and equity risk factors and firm characteristics. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation- consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

Overall, our results contribute to a more comprehensive understanding of the role that firm-level political risk plays in financial markets.

CRediT authorship contribution statement

Luis Ceballos: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Vanja Piljak:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Laurens Swinkels:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization.

Appendix A. Geopolitical risk

In addition to economic policy uncertainty and political risk as factors affecting asset returns, the recent literature also points out the importance of the geopolitical risk. However, we do not find any evidence of geopolitical risk in our sample of corporate bonds. Early studies on geopolitical risk in financial markets mainly focused on terroristic attacks as a proxy for geopolitical risk (e.g. Nikkinen et al., 2008; Graham and Ramiah, 2012). The more recent concept of geopolitical risk encompasses different facets, but in the essence, it is a systematic risk originating from events related to terroristic attacks, armed military conflicts, diplomatic disagreements, and other forms of international adversaries (Caldara and Iacoviello, 2022). Geopolitical risk is distinctive with respect to existing measures of political, economic, and financial risks and uncertainties (Baur and Smales, 2020). Geopolitical risk is perceived as a risk that might have a significant influence on asset prices via different transmission channels, having destabilizing effect on the real economy and investment activity. From an investors' perspective, increased political uncertainty and bad news about geopolitical conflicts might cause investor overreaction and panic-selling behavior (Zaremba et al., 2022). Previous studies on geopolitical risk utilize the aggregate measure of geopolitical risk on country-level and examine links between geopolitical risk and equity markets (Das et al., 2019; Sharif et al., 2020. Zaremba et al., 2022); commodity markets (Qin et al., 2020); and precious metals (Baur and Smale, 2020). The recent study by Caldara and Iacoviello (2022) makes a significant breakthrough in this line of research by providing a novel measure of geopolitical risk on firm-level. Following Caldara and Iacoviello (2022) we use a firm-level measure of geopolitical risk to disentangle whether it shows a similar premium like firm-level political risk in the bond market.

Recent research has shown that other similar measures of political risk lead to and induce a significant impact on economic policy uncertainty, which exhibits similar dynamics to the political risk as shown in Fig. 1. Specifically, Caldara and Iacoviello (2022) show that an exogenous increase in the geopolitical risk measure induces a small and short-lived increase in the EPU index. Following Caldara and Iacoviello (2022) we use a firm-level measure of geopolitical risk to disentangle whether it shows a similar premium in the corporate bond market. In a similar spirit to the economic policy uncertainty developed by Baker et al. (2016), the geopolitical risk captures the risk associated with wars, terrorist acts, and tensions between states that affect the normal and peaceful course of international relations. Thus, geopolitical risk captures both the risk that these events materialize, and the new risks associated with an escalation of existing events.

We re-estimate the baseline results defined in Eq. (1) using the geopolitical firm-level measure following the same procedure defined in section 3.1.1 to obtain the innovation component of geopolitical risk and exploit the cross-sectional response of one-month excess returns in the cross-section of corporate bonds over the innovation term of the geopolitical risk measure. Specifically, we estimate Fama and MacBeth (1973) regressions at the firm level as follows:

$$R_{i,t+1} = \lambda_0 + \lambda_1 \Delta GRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$$

where $R_{i,t+1}$ is the excess return from corporate bond return for firm *i* over the one-month Treasury bill, ΔGRisk is the geopolitical risk measure innovation for firm *i*, X denotes alternative controls for bond characteristics (rating, size, maturity, coupon, and bond liquidity), betas for equity risk factors (MKT, SMB, HML), betas for bond risk factors (MKTBOND, DEF, and TERM), beta for EPU, and firm characteristics.

Table A1 shows that this alternative measure of political risk does not exhibit a risk premium in our sample. Table A1 presents the Fama-MacBeth regressions using the geopolitical risk innovation as the predictor of future corporate bond returns. The variable of interest, innovations in geopolitical risk, is in the top row. We document a positive coefficient for geopolitical risk innovation and bond returns for the sample of corporate bond returns, but it is not statistically significant. The specification without controls (column 1) shows a positive coefficient of 0.03, which is statistically insignificant. After controlling for bond characteristics (column 2), for equity and bond risk factors (columns 3 and 4), and for firm characteristics (column 5), we document a positive (but again insignificant) coefficient of 0.01 0.01, 0.02 and 0.02 respectively. Hence, the geopolitical risk premium is not priced in the corporate bond market as the main measure of political risk presented in the main text. This evidence suggests that the political risk premium that we find is not a manifestation of the geopolitical risk measure.

Table A1
Cross-sectional Regressions using Geopolitical Risk

	(1)	(2)	(3)	(4)	(5)
ΔGRisk	0.03	0.01	0.01	0.02	0.02
	(1.30)	(0.63)	(0.69)	(0.93)	(0.91)
Rating		0.05*	0.04*	0.02	0.05***
		(1.82)	(1.92)	(1.27)	(2.86)
Size		0.09*	0.07	0.12**	0.06
		(1.84)	(1.58)	(2.52)	(1.33)
Maturity		0.03***	0.03***	0.03***	0.03***
		(3.71)	(3.70)	(3.81)	(3.35)
Coupon		0.00	-0.02	-0.04	-0.03
		(0.08)	(-0.75)	(-0.96)	(-0.85)
Lagged return		-0.08***	-0.09***	-0.10***	-0.11***
		(-2.65)	(-3.17)	(-3.37)	(-3.93)

(continued on next page)

Table A1 (*continued*)

	(1)	(2)	(3)	(4)	(5)
Illiquid		-0.04	-0.04	-0.04	-0.04
		(-1.24)	(-1.46)	(-1.42)	(-1.62)
BMKT			0.19	0.35	0.39
			(0.73)	(0.80)	(0.84)
Beta SMB			0.02	0.06	0.11
			(0.10)	(0.28)	(0.49)
Beta HML			0.25	0.43*	0.37
			(1.28)	(1.93)	(1.59)
Beta MKT Bond				-0.06	-0.04
				(-0.85)	(-0.45)
Beta DEF				0.10	0.11
				(0.65)	(0.62)
Beta TERM				-0.36*	-0.30
				(-1.83)	(-1.56)
Beta EPU				-1.62	-1.52
				(-0.64)	(-0.58)
log(Assets)					0.06
					(1.61)
MB					0.06
					(1.19)
ROA					1.57***
					(2.68)
Leverage					-0.12
					(-0.81)
Intercept	0.55***	-0.26	-0.10	-0.02	-1.16*
	(2.83)	(-0.64)	(-0.21)	(-0.04)	(-1.86)
Observations	54489	40978	36632	36632	36193
Adj. R2	0.003	0.268	0.332	0.389	0.431

This table shows the subsample results of the Fama and MacBeth (1973)regression $R_{i,t+1} = \lambda_0 + \lambda_1 \Delta GRisk_{i,t} + X_{i,t}\Gamma + \epsilon_{i,t+1}$, where $R_{i,t+1}$ is the excess return from corporate bond return for firm i over the one-month Treasury bill in quarter t+1, ΔGRisk denotes the geopolitical risk innovation measure using the firm-level geopolitical risk measure developed by Caldara and Iacoviello (2022) and X is a set of control variables. The t-statistics (in parentheses) are calculated using Newey and West (1987) heteroscedasticity and autocorrelation- consistent standard errors. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively.

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