The Pricing of Geopolitical Risks

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Abstract

This paper examines the pricing of geopolitical risks over the last century using news-based geopolitical risk threat (GPRT) and action (GPRA) indices recently developed in the literature. To start, we find that GPRT is strongly connected to perceptions of geopolitical risk by institutional investors and firms whereas GPRA is only connected to firms' perceptions of geopolitical risk. Moreover, geopolitical risks are linked to consumption disasters, with GPRA predicting disasters over the short-term and GPRT predicting disasters over the long-term. We then show that GPRT captures risk premia variation across assets and over time. Specifically, GPRT is priced in the cross-section of single stocks, equity anomalies, and international equity and bond indices. Moreover, GPRT predicts time variation in the equity premia of these country-level indices (and not the time variation in the analogous bond risk premia). In contrast, GPRA has weaker and more unstable connections to risk premia. Our results hold while controlling for recently developed measures of war discourse, economic policy uncertainty, expected market volatility as well as real, macroeconomic, and financial uncertainty.

JEL Classification: E44, F51, G10, G11, G12, G14, G15, H56

Keywords: Geopolitical Threats, Geopolitical Risk, Cross-Section of Risk Premia, Time Variation in Risk Premia

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Introduction

Geopolitical risks have received increasing attention in the literature. In particular, recent papers have studied the effect of geopolitical tensions on many economic outcomes such as output growth, inflation, firm investment, technological innovation, employment, consumption disasters, international trade, and oil prices, (e.g., Caldara and Iacoviello (2022), Góes and Bekkers (2023), Wang, Wu, and Xu (2024), Mignon and Saadaoui (2024), and Gopinath et al. (2025)).

In this paper, we study the impact of geopolitical tensions on risk premia, with a particular focus on differentiating between the effects of geopolitical threats and actions. We measure these geopolitical risks using the geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022), updated to 2024. These indices are available monthly since 1900 and are constructed based on the fraction of newspaper articles discussing adverse geopolitical events in the New York Times, Chicago Tribune, and Washington Post. The GPRT index considers articles that discuss geopolitical threats (e.g., military buildups and terrorism threats) while the GPRA index considers articles that discuss geopolitical actions (e.g., beginning of wars and terrorism actions).

Our main finding is that GPRT captures risk premia variation across assets and over time. Specifically, GPRT is priced in the cross-section of single stocks, equity anomalies, and international equity and bond indices. Moreover, GPRT predicts time variation in the equity premia of these country-level indices (and not the time variation in the analogous bond risk premia). In contrast, GPRA tends to have weaker and more unstable links to risk premia. Importantly, our results hold while controlling for other recently developed news-based indices of war discourse (WAR from Hirshleifer, Mai, and Pukthuanthong (2025b)), economic policy uncertainty (EPU from Baker, Bloom, and Davis (2016)), expected market volatility (EMV from Manela and Moreira (2017) and Baker et al. (2025)), as well as for other real, macroeconomic, and financial uncertainty indices (RUI, MUI, and FUI from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021)). Hereafter, we refer to all

these indices as "risk and uncertainty indices" for simplicity.

To motivate our analysis of the different effects of GPRT and GPRA on risk premia, we start by showing that GPRT is strongly connected to perceptions of geopolitical risk by institutional investors and firms whereas GPRA is only connected to firms' perceptions of geopolitical risk. In terms of institutional investors, we consider two measures of geopolitical risk perceptions. The first is implied from the International Country Risk Guide (ICRG) rating of the PRS Group, covering an unbalanced panel of annual observations for 138 countries over the period from 1984 to 2021. We extract (for each country) the first principal component of the different geopolitical risk categories the ICRG provides and use that as a proxy for the geopolitical risk perception of institutional investors.[1] We find that our ICRG measure of geopolitical risk perception is positively related to GPRT and (if anything) negatively related to GPRA. The second measure of geopolitical risk perception we consider (covering from 09-2007 to 03-2024) is based on the Global Fund Manager Survey conducted monthly by the Bank of America. Both the GPRT and GPRA indices relate positively to this measure, but the GPRT link is much stronger (with a correlation of 0.56) and subsumes the effect of GPRA in a multivariate analysis. In terms of firms, we use the geopolitical risk perception from earnings calls of public US firms from Shen (2024), which is available from Q1-2002 to Q3-2024. We find that both GPRT and GPRA correlate strongly (economically and statistically) with this measure in univariate and multivariate analyses.

In turn, we study the link of GPRT and GPRA with consumption disasters. Caldara and Iacoviello (2022) also study consumption disasters, but they do not disentangle the effect of GPRT and GPRA, which is our focus here. We show that GPRA predicts disasters over the short-term while GPRT predicts disasters over the long-term. We consider both future realized consumption disasters (using the dataset from Nakamura et al. (2013)) as well as

[1] According to the International Political Science Association (https://www.ipsa.org/profile/prs-group-inc), "The PRS Group - and the geopolitical risk data and forecasts included in the International Country Risk Guide (ICRG) - has been the world's leading quant-driven geopolitical risk forecasting and rating firm. The firm's clientele includes the world's largest institutional investors, transnational companies, multilateral agencies (IMF), central banks, and leading research scientists at such institutions as Harvard, Princeton, Yale, and LSE."

the ex-ante probability of consumption disasters (using the dataset from Marfè and Penasse (2025)). In both cases, higher GPRT and GPRA are associated with higher likelihood of disasters going forward. However, the effect of GPRA tends to dominate for disasters over the next one to three years while the effect of GPRT tends to dominate for disasters after three years, with long-term disasters being particularly important for asset pricing. These findings remain valid after controlling for other risk and uncertainty indices, including WAR.

Having established a connection between GPRT, perceptions of geopolitical risk by market participants, and consumption disasters, we move to the link between GPRT and risk premia, which is our main focus. We show that GPRT captures risk premia variation across assets and over time. In contrast, other risk and uncertainty indices (including GPRA) are linked to some forms of variation in risk premia, but not in a consistent manner across different forms of risk premia variation as is the case for GPRT.

In terms of variation across assets, we start by studying single stocks through standard portfolio sorts. Specifically, we construct (from 1930 to 2024) quintile portfolios sorted on rolling window univariate betas of stock returns onto the growth rate in GPRT (and in other risk and uncertainty indices, including GPRA). We find that only GPRT beta sorts produce an economically and statistically significant risk premium. Moreover, the GPRT risk premium remains present (in the form of alpha) after controlling for the CAPM and the ICAPM (of Chabi-Yo, Gonçalves, and Loudis (2025)) as well as for traditional reduced-form factor models (from Fama and French (1993, 2015, 2018), Hou, Xue, and Zhang (2015), and Hou et al. (2021)). We also show that the GPRT risk premium is concentrated in periods of high (lagged) GPRA and GPRT levels, which suggests that investors price geopolitical risk mainly during periods when geopolitical risk (or attention to geopolitical risk) is elevated.

In turn, we study the cross-section of equity anomaly portfolios using the Supervised Principal Component Analysis (SPCA) method proposed by Giglio, Xiu, and Zhang (2025). While we also provide results over the 1930 to 2024 sample, we focus on an analysis that starts in 1963 as there are many more anomalies over that period (so that our SPCA is based on a total of 2,052 anomaly portfolios). As with the analysis of single stocks, we find that the

GPRT growth rate mimicking factor provides an economically and statistically significant risk premium that remains present after controlling for the CAPM and ICAPM. However, in this case many other risk and uncertainty indices also lead to mimicking factors with strong risk premia (including GPRA).

As our last cross-section, we consider country-level equity and government bond indices from the Jordà et al. (2019) dataset, covering annual returns on 16 countries. Since the SPCA method is not applicable for such a small cross-section, in this case we build mimicking factors using standard Fama and MacBeth (1973) regressions of returns on univariate betas relative the growth rate in GPRT (and in other risk and uncertainty indices). As with the other two cross-sections, we find that the GPRT growth rate mimicking factor provides an economically and statistically significant risk premium, which remains present after controlling for the world CAPM (note that the standard CAPM and ICAPM are not appropriate for an analysis of international asset prices). In this case, whether other risk and uncertainty indices (including GPRA) produce economically and statistically significant risk premia varies by index and time period analyzed.

Finally, we explore time variation in risk premia using the same Jordà et al. (2019) dataset of country-level indices. We find that GPRT (but not GPRA) significantly predicts equity premia variation over time. This finding is particularly strong (and robust) at long horizons (e.g., 3 or 5 years), being more sensitive to empirical specification for 1-year returns. In contrast, GPRT and GPRA have no clear link to bond risk premia variation over time. These results also hold when controlling for other risk and uncertainty indices, including the WAR variable we focus on (from Hirshleifer, Mai, and Pukthuanthong (2025b)) as well as the alternative WAR variable used for time-series return predictability in Hirshleifer, Mai, and Pukthuanthong (2025a).

Contribution to the Literature

We contribute to the broad literature on the economic effects of geopolitical tensions.[2] The closest paper to ours in this literature is Caldara and Iacoviello (2022). They propose a measure of geopolitical risk (GPR) that is effectively a composite of their GPRT and GPRA indices, which we focus on in this paper. They also study the effects of GPR on some economic outcomes, including consumption disasters. Our contribution to Caldara and Iacoviello (2022) (and this literature more broadly) is twofold. First, we show that geopolitical acts (through GPRA) and threats (through GPRT) have different fundamental links to consumption disasters and perceptions of geopolitical risks by market participants. Second, we study the pricing of geopolitical risks, which have not being previously explored in this literature. In particular, we show that GPRT (but not GPRA) consistently captures risk premia variation across assets and over time.

We also contribute to the literature on the pricing of risks related to uncertainty in economic variables. Building on classical intertemporal asset pricing models, a large part of this literature focuses on the pricing of shocks to market volatility, consumption volatility, and even other forms of volatility and uncertainty in asset prices and macroeconomic variables.[3] Some other papers study the pricing of specialized forms of uncertainty that have a stronger connection to geopolitical risks, such as policy uncertainty, general political uncertainty, and war uncertainty.[4] Among these papers, the closest to ours are Hirshleifer, Mai, and Puk-

[2]See, for example, Caldara and Iacoviello (2022), Góes and Bekkers (2023), Wang, Wu, and Xu (2024), Mignon and Saadaoui (2024), and Gopinath et al. (2025).

[3]This literature is too large to be properly summarized here. However, for a set of representative papers empirically studying the pricing of market volatility risk, see Ang et al. (2006), Adrian and Rosenberg (2008), Dew-Becker et al. (2017), Campbell et al. (2018), Kilic and Shaliastovich (2019), Berger, Dew-Becker, and Giglio (2020), and Chabi-Yo, Gonçalves, and Loudis (2025). Similarly, for examples of empirical papers studying the pricing of consumption volatility risk, see Bansal and Shaliastovich (2013), Boguth and Kuehn (2013), Bansal et al. (2014), Segal, Shaliastovich, and Yaron (2015), and Tédongap (2015). Finally, for a few empirical papers studying the pricing of other forms of volatility in asset prices and macroeconomic variables, see Bali and Zhou (2016), Bali, Brown, and Tang (2017), Huang et al. (2019), Segal (2019), Bali, Subrahmanyam, and Wen (2021), Gao et al. (2022), Bali et al. (2024), and Grigoris and Segal (2024).

[4]In terms of policy uncertainty, Pástor and Veronesi (2012) provide a model where government policy uncertainty is priced and Baker, Bloom, and Davis (2016) construct a measure of economic policy uncertainty (EPU), with several papers empirically study the pricing of policy uncertainty using EPU or other

thuanthong (2025a,b) as their WAR variables can be viewed as a component of geopolitical tensions.[5] We add to Hirshleifer, Mai, and Pukthuanthong (2025a,b) by showing that geopolitical threats are generally connected to risk premia across assets and over time, with these results holding even after controlling for WAR. In fact, we show that GPRT is the only uncertainty index among the ones we study that is economically and statistically linked to variation in risk premia across single stocks.

Finally, our work broadly contributes to the literature on disaster risk (see Tsai and Wachter (2015) for a review). In particular, we show that GPRA and GPRT affect the probability of disasters over the short- and long-term, respectively. Moreover, GPRT has strong links to geopolitical risk perceptions by market participants and to risk premia, highlighting the importance of changes in the likelihood of long-term disasters for asset pricing.

The rest of this paper is organized as follows. Section 1 describes data sources and measurement. In turn, Section 2 studies the link between geopolitical risks, risk perceptions, and the macroeconomy. Then, Sections 3 and 4 provide results on the link between geopolitical risks and the cross-section and time-series of risk premia. Finally, Section 5 concludes. The Internet Appendix provides data, measurement, and econometric details, as well as empirical results that supplement the findings reported in the main text.

measures (e.g., Belo, Gala, and Li (2013), Brogaart and Detzel (2015), Liu and Shaliastovich (2022), and Gala, Pagliardi, and Zenios (2023)). Similarly, Pástor and Veronesi (2013) build a model in which political uncertainty is priced in general, with several papers studying the general pricing of political uncertainty (e.g., Kelly, Pástor, and Veronesi (2016), Liu, Shu, and Wei (2017), Brogaard et al. (2020), Gala, Pagliardi, and Zenios (2023), Gala et al. (2023), Liu and Shaliastovich (2023)). Uncertainty can also arise from wars, with Hirshleifer, Mai, and Pukthuanthong (2025a,b) studying the pricing of war uncertainty (in the form of war discourse).

[5]Hirshleifer, Mai, and Pukthuanthong (2025a,b) frame their paper around war discourse and not geopolitical risks. Indeed, they only refer to geopolitical risks when discussing the GPR index from Caldara and Iacoviello (2022), which they argue is not priced. As we show, it is important to separate geopolitical threats (through GPRT) and acts (through GPRA) when studying the pricing of geopolitical risks (with GPRT and GPRA bundled together in the GPR index). In particular, GPRT is more strongly connected to investors perception of geopolitical risks. Moreover, GPRT is strongly linked to risk premia whereas GPRA has generally weaker and more unstable links to risk premia.

1 Data Sources and Measurement

1.1 Geopolitical Risk Variables

1.2 Other Risk and Uncertainty Variables

1.3 Asset Returns

2 Geopolitical Risks, Risk Perceptions, and the Macroeconomy

2.1 Link Between Geopolitical Risks and Perceptions of Risk

2.2 Link Between Geopolitical Risks and Consumption Disasters

3 Geopolitical Risks and the Cross-Section of Risk Premia

3.1 The Cross-Section of Single Stocks Risk Premia

3.2 The Cross-Section of Equity Anomaly Risk Premia

3.3 The Cross-Section Country-Level Equity and Bond Risk Premia

4 Geopolitical Risks and the Time-Series of Risk Premia

4.1 The Time-Series of Equity Risk Premia

4.2 The Time-Series of Bond Risk Premia

5 Conclusion

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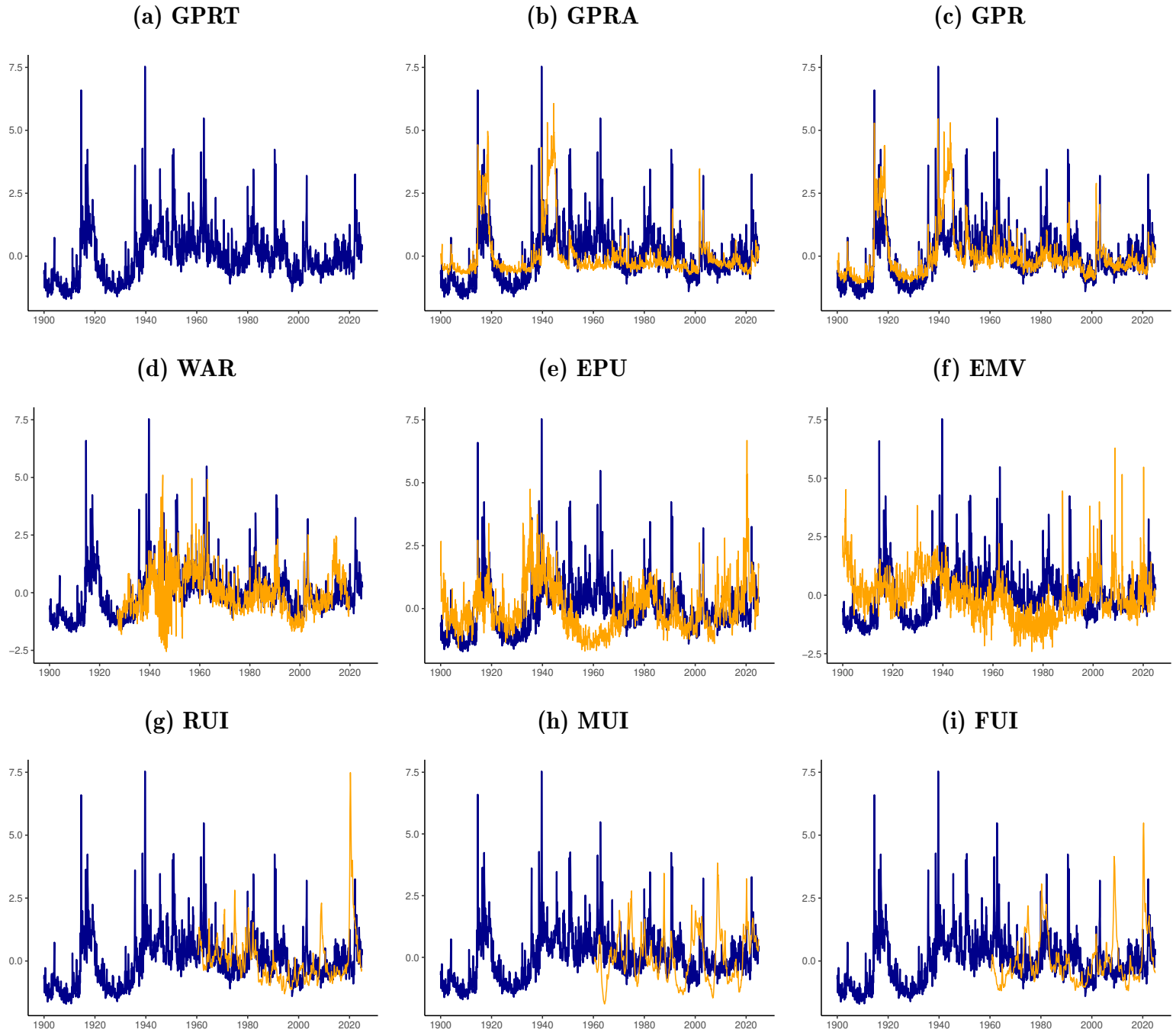


Figure 1
Risk and Uncertainty Indices (in z-scores)

This figure plots the (z-scores of the) nine risk and uncertainty indices we use throughout the paper. The first three indices are the news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions). The next three indices are also based on news articles: the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. The last three indices (available since July of 1960) are the real uncertainty index (RUI), macro uncertainty index (MUI), and financial uncertainty index (FUI), all from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021) and based on an econometric model that summarizes the forecasting uncertainty associated with a large number of macroeconomic and financial variables. Panel (a) plots the GPRT index and each other panel plots the index under the respective panel title (in yellow) together with the GPRT index (in blue), with the correlation between the two provided in the upper right of the graph. Section 1 provides measurement details for these risk and uncertainty indices.

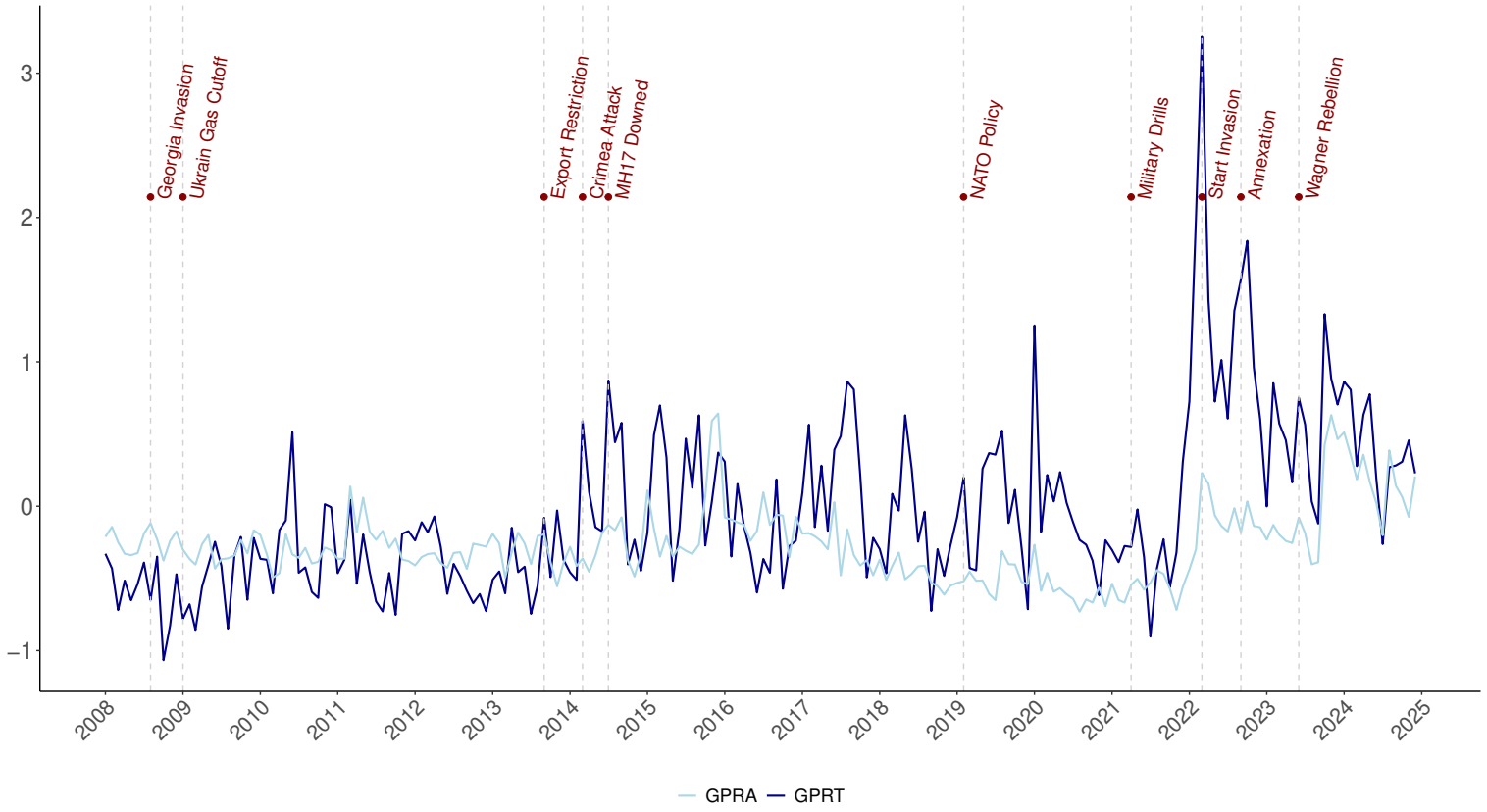


Figure 2
Case Study: Russia-Ukrain Conflict

This figure plots the (z-scores of the) news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) over the period starting in January of 2008. It also identifies important events related to the Russia-Ukrain conflict. Section 1.1 provides measurement details for the GPRT and GPRA indices while Section 2.1 covers results from this figure.

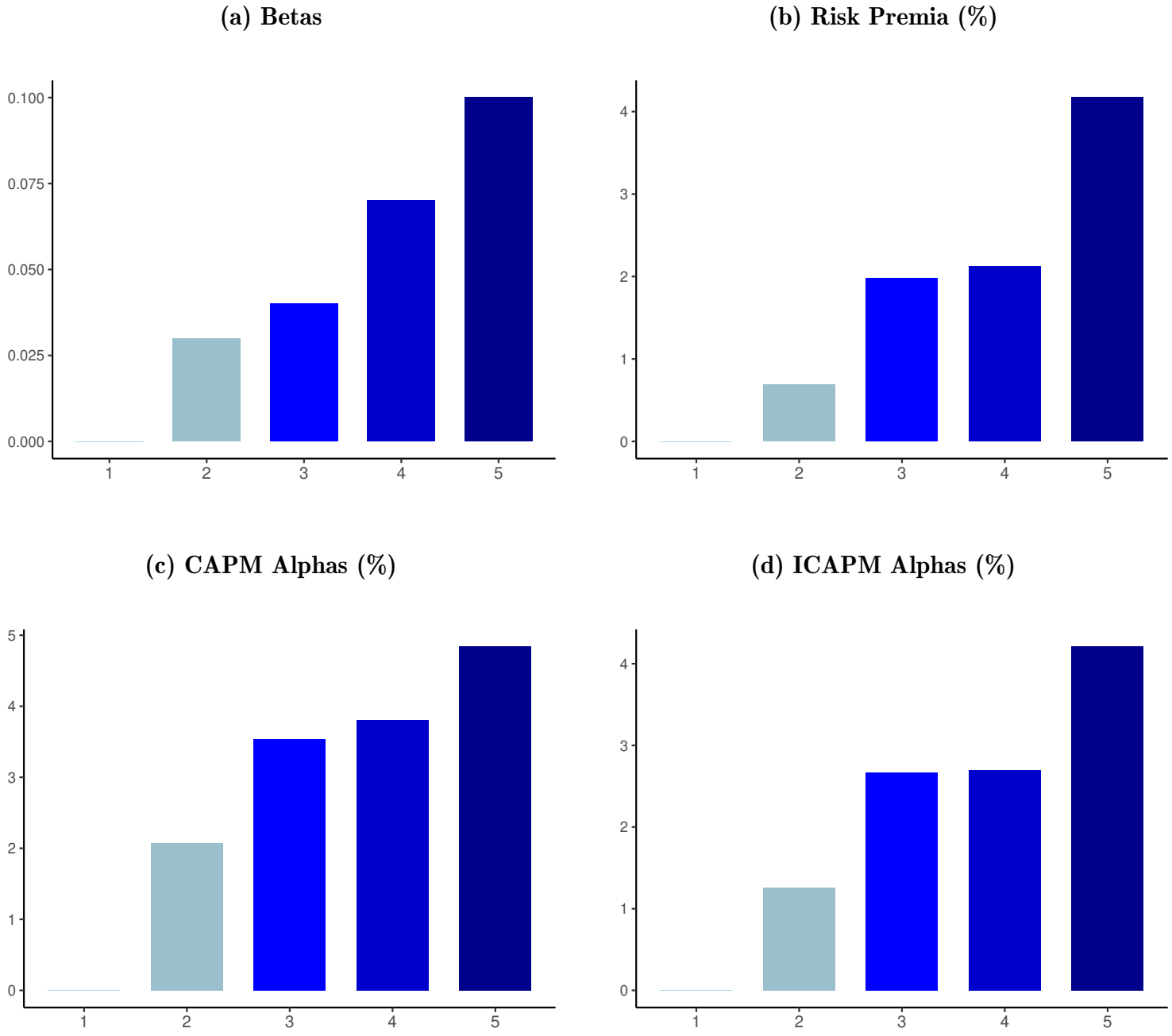


Figure 3
GPRT Beta Quintile Portfolios: Betas, Risk Premia, and Alphas

This figure plots betas (i.e., univariate regression slopes onto the GPRT mimicking factor), annualized risk premia (i.e., average returns multiplied by twelve), and annualized alphas (factor regression intercepts multiplied by twelve) of quintile portfolios sorted on stock-level betas on the news-based geopolitical risk threat (GPRT) index of Caldara and Iacoviello (2022). The sample period is from 01-1930 to 12-2024. Portfolios are value-weighted and use NYSE breakpoints, as suggested by Hou, Xue, and Zhang (2019). The GPRT mimicking factor used to estimate betas (with risk premia summarized in Table 5) is constructed applying the Supervised Principal Component Analysis (SPCA) method proposed by Giglio, Xiu, and Zhang (2025) to anomaly portfolios (as described in Section 3.2). Stock-level betas are estimated from the (negative of the) three-year rolling window univariate beta on the given index growth rate. All statistics are reported relative to quintile 1 (so that the quintile 1 values are zero by construction). Panel (a) reports betas, Panel (b) reports risk premia, Panel (c) reports CAPM alphas, and Panel (d) reports ICAPM alphas from the model in Chabi-Yo, Gonçalves, and Loudis (2025). Section 1 provides measurement details for the stock returns as well as the GPRT index used in this figure while Section 3.1 covers the results from this figure.

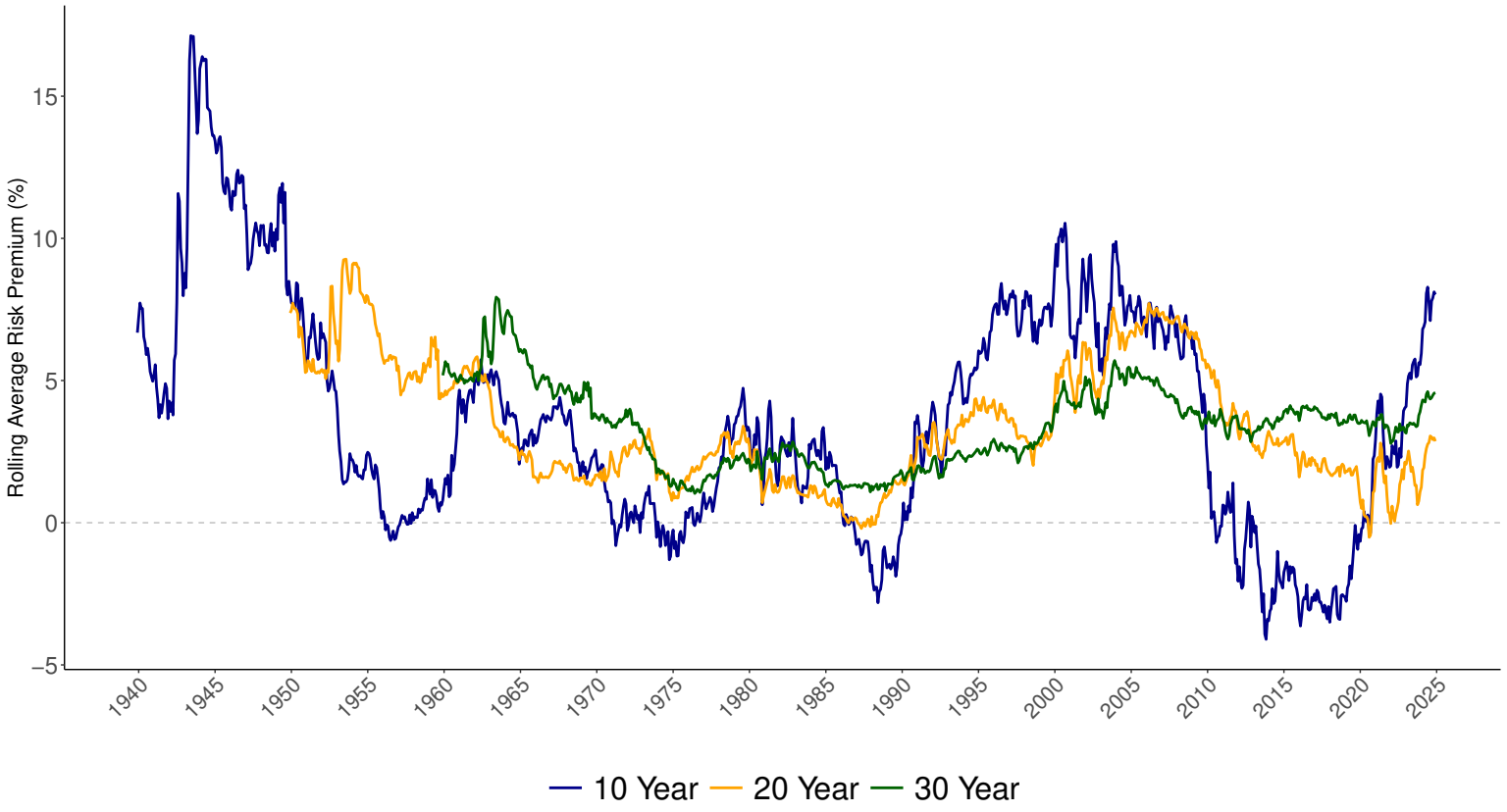
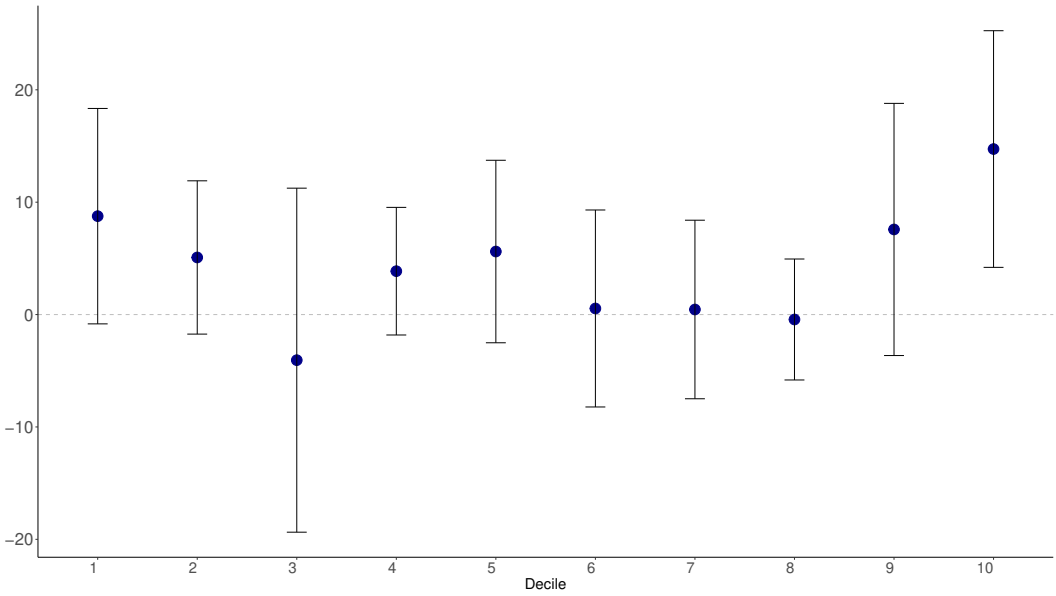


Figure 4
GPRT High-Low Beta Quintile Portfolio Realized Risk Premia on a Rolling Window

This figure plots the annualized risk premia (i.e., average returns multiplied by twelve) of the high-low, H-L, returns on beta sorted portfolios that buy (sell) stocks with high (low) stock-level betas on the news-based geopolitical risk threat (GPRT) index of Caldara and Iacoviello (2022). We consider 10-year, 20-year and 30-year rolling windows for the realized risk premia. Portfolios are value-weighted and use NYSE breakpoints, as suggested by Hou, Xue, and Zhang (2019). Stock-level betas are estimated from the (negative of the) three-year rolling window univariate beta on the given index growth rate. Section 1 provides measurement details for the stock returns as well as the GPRT index used in this figure while Section 3.1 covers the results from this figure.

(a) GPRT Risk Premia Conditional on GPRA Level



(b) GPRT Risk Premia Conditional on GPRT Level

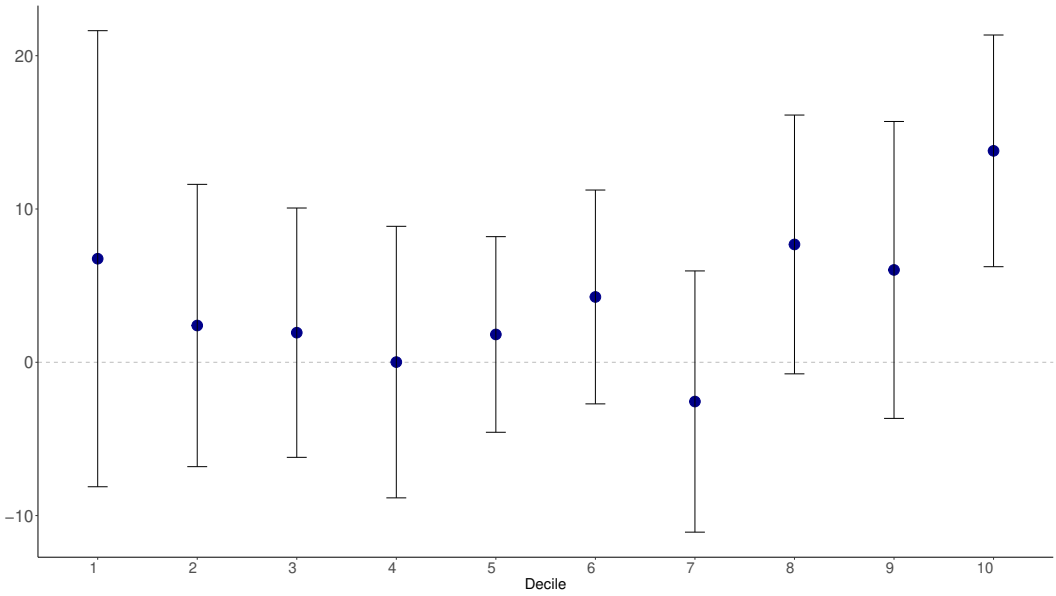


Figure 5
GPRT High-Low Beta Quintile Portfolio Risk Premium as a Function of the GPRA and GPRT Levels

This figure plots annualized risk premia (i.e., average returns multiplied by twelve) of the high-low, H-L, returns on beta sorted portfolios that buy (sell) stocks with high (low) stock-level betas on the news-based geopolitical risk threat (GPRT) index of Caldara and Iacoviello (2022). Portfolios are value-weighted and use NYSE breakpoints, as suggested by Hou, Xue, and Zhang (2019). Stock-level betas are estimated from the (negative of the) three-year rolling window univariate beta on the given index growth rate. The risk premia are conditioned on the level of GPRA (in Panel A) or the level of GPRT (in Panel B) in the prior month. Specifically, we consider ten deciles of the GPRA or GPRT index, with the decile levels (in the x-axes) going from low to high levels of the GPRA or GPRT index. Section 1 provides measurement details for the stock returns as well as the GPRT and GPRA indices used in this figure while Section 3.1 covers the results from this figure.

Table 1

Correlations Between Geopolitical Threats and other Measures of Risk and Uncertainty

This table reports information on the sample period for the nine risk and uncertainty indices we use throughout the paper. It also provides their pairwise correlations based on the longest sample available for each pair of indices. The first three indices are the news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions). The next three indices are also based on news articles: the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. The last three indices are the real uncertainty index (RUI), macro uncertainty index (MUI), and financial uncertainty index (FUI), all from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021) and based on an econometric model that summarizes the forecasting uncertainty associated with a large number of macroeconomic and financial variables. These last three indices are only available since July of 1960, and thus only enter the subset of our empirical analyses that require no data before then. Section 1 provides measurement details for these risk and uncertainty indices and covers the results from this table.

	Sample Period			**Correlations**								
	First Month	**Last Month**	**# of Months**	**GPRT**	**GPRA**	**GPR**	**WAR**	**EPU**	**EMV**	**RUI**	**MUI**	**FUI**
GPRT	01-1900	12-2024	1500	1								
GPRA	01-1900	12-2024	1500	0.45	1							
GPR	01-1900	12-2024	1500	0.68	0.96	1						
WAR	01-1927	10-2019	1114	0.51	0.22	0.36	1					
EPU	01-1900	12-2024	1500	0.15	0.26	0.25	-0.11	1				
EMV	01-1900	12-2024	1500	-0.16	0.06	-0.01	-0.1	0.31	1			
RUI	07-1960	12-2024	774	0.09	-0.11	0	0.1	0.5	0.12	1		
MUI	07-1960	12-2024	774	-0.06	0.03	-0.04	-0.15	0.41	0.34	0.46	1	
FUI	07-1960	12-2024	774	0.05	0	0.01	-0.09	0.57	0.15	0.8	0.62	1

Table 2
Link Between Geopolitical Risks and Perceptions of Risk

This table reports panel regressions of perceptions of risk from relevant economic agents (through indices, surveys, and conference calls) onto the news-based geopolitical risk threat (GPRT) and action (GPRA) indices from Caldara and Iacoviello (2022). Panel A focuses on perceptions of geopolitical risk. The first and second measures are based on geopolitical risk perceptions implied from the International Country Risk Guide (ICRG) rating of the PRS Group, covering an unbalanced panel of annual observations for 138 countries over the period from 1984 to 2021. For these two measures, for each country we extract the first principal component from a Principal Component Analysis (PCA) on the (negative of the) rating across the different geopolitical risk categories present in the data. We then perform panel regressions (with country fixed effects) of the resulting geopolitical risk perception measures onto the GPRT and GPRA indices. The two measures differ on how the PCA is implemented, with the correlation matrix across geopolitical risk categories obtained from the pooled data in the case of the first measure and separately for each country in the case of the second measure. The third measure is the geopolitical risk perception from surveys of asset managers conducted by the Bank of America (BofA), resulting in a single time series from 09-2007 to 03-2024. The fourth measure is the geopolitical risk perception from conference calls of public US firms, resulting in a single time-series from Q1-2002 to Q3-2024 (see Shen (2024) for construction details). Panel B focuses on perceptions of other types of risk, all obtained from the BofA surveys of asset managers, and each resulting in a time-series from 09-2007 to 03-2024. Predictive variables are always normalized to z-scores and t-statistics (in brackets) are based on Newey and West (1987, 1994) for time-series regressions and on Driscoll and Kraay (1998) (with the number of autocorrelation lags selected following Newey and West (1994)) for panel regressions. Section 1.1 provides measurement details for the GPRT and GPRA indices while Section 2.1 covers the measurement of risk perception variables as well as the econometric specifications and results from this table.

PANEL A - Perceptions of Geopolitical Risk

	ICRG (Polled PCA)			**ICRG (PCA by Country)**			**Bank of America Surveys**			**Earnings Calls (US Firms)**		
	[1]	**[2]**	**[3]**	**[1]**	**[2]**	**[3]**	**[1]**	**[2]**	**[3]**	**[1]**	**[2]**	**[3]**
GPRT	0.59		0.67	0.97		1.1	0.95		0.9	0.9		0.55
	[3.59]		[4.34]	[3.33]		[3.71]	[6.32]		[5.53]	[3.6]		[3.32]
GPRA		-0.04	-0.43		-0.01	-0.65		1.2	0.32		1.82	1.32
		[-0.15]	[-1.69]		[-0.03]	[-1.47]		[2.98]	[1.09]		[4.1]	[4.13]
R^2_{within}	9%	0%	10%	5%	0%	5%	32%	8%	32%	37%	45%	55%
$\mathbb{C}or[Y_t, \widehat{Y}_t]$	0.13	0.01	0.14	0.21	0.00	0.23	0.56	0.29	0.57	0.61	0.67	0.74
# Obs	4,970	4,970	4,970	4,970	4,970	4,970	199	199	199	91	91	91

PANEL B - Perceptions of Other Risks

BofA =	**Business Cycle Risk**			**Credit Risk**			**Counterparty Risk**			**Monetary Risk**		
	[1]	**[2]**	**[3]**	**[1]**	**[2]**	**[3]**	**[1]**	**[2]**	**[3]**	**[1]**	**[2]**	**[3]**
GPRT	0.05		0.07	-0.07		-0.17	-0.23		-0.31	0.78		0.65
	[0.28]		[0.37]	[-0.33]		[-0.75]	[-1.24]		[-1.28]	[5.65]		[3.85]
GPRA		-0.07	-0.14		0.46	0.63		0.19	0.5		1.41	0.77
		[-0.16]	[-0.29]		[1.32]	[1.42]		[0.55]	[1.02]		[2.87]	[1.36]
R^2_{within}	0%	0%	0%	0%	1%	2%	2%	0%	3%	21%	11%	24%
$\mathbb{C}or[Y_t, \widehat{Y}_t]$	0.03	0.02	0.04	0.04	0.11	0.15	0.14	0.05	0.18	0.46	0.34	0.49
# Obs	199	199	199	199	199	199	199	199	199	199	199	199

Table 3
Link Between Geopolitical Risks and Consumption Disasters

This table reports panel regressions of disaster-related outcomes onto the news-based geopolitical risk threat (GPRT) and action (GPRA) indices from Caldara and Iacoviello (2022) as well as on three other indices that are also based on news articles. They are the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. Observations are at the country-year level and all specifications consider an unbalanced panel from 1927 to 2019, with country fixed effects and 26 (42) countries when predicting disasters (disaster probabilities). Panel A predicts the number of disasters over the next year as well as the disaster probability level at the end of the current year. Panels B, C, and D provide analogous results considering a period of $H = 3, 5, 10$ years. For instance, Panel D predicts the average number of disasters over the next ten years as well as the average disaster probability level at the end of the current and next nine years. The data on realized disasters and disaster probability levels come from Nakamura et al. (2013) and Marfè and Penasse (2025), respectively. Following the prior literature exploring disasters empirically (e.g., Nakamura et al. (2013) and Caldara and Iacoviello (2022)), all specifications control for structural changes in the expectation and variability of consumption growth using dummy variables for Pre-1946, 1946-1972, and Post-1972. Predictive variables are always normalized to z-scores and t-statistics (in brackets) are based on Driscoll and Kraay (1998), with the number of autocorrelation lags selected following Newey and West (1994). Section 1 provides measurement details for the risk and uncertainty indices used in this table and Section 2.2 covers results from this table.

PANEL A - Disasters over the Next 1 Year

	$Y_t = Disaster_{t+1}$								$Y_t = Prob_t[Disaster_{t+1}]$							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
GPRT	9.3					3.7	9.5	3.3	1.4					0.4	1.5	0.4
	[3.16]					[1.45]	[3.15]	[1.14]	[3.00]					[1.61]	[3.26]	[1.64]
GPRA		13.2				11.6		11.6		2.6				2.5		2.5
		[6.63]				[6.56]		[6.67]		[5.18]				[5.15]		[5.55]
WAR			3.9				-1	-1			0.6				-0.2	-0.3
			[1.49]				[-0.51]	[-0.65]			[1.42]				[-0.62]	[-1.02]
EPU				6.8				2.7				1				0.6
				[2.01]				[1.04]				[1.89]				[1.97]
EMV					-1.1			1.9					-0.6			0.1
					[-0.45]			[0.98]					[-1.40]			[0.52]
R^2_{within}	21%	26%	18%	19%	17%	26%	21%	27%	24%	36%	19%	21%	19%	36%	24%	37%
# Obs	2,418	2,418	2,392	2,418	2,418	2,418	2,392	2,392	3,666	3,666	3,666	3,666	3,666	3,666	3,666	3,666

PANEL B - Disasters over the Next 3 Years

	$Y_t = 1/3 \cdot \sum_{h=0}^{2} Disaster_{t+h+1}$								$Y_t = 1/3 \cdot \sum_{h=0}^{2} Prob_{t+h}[Disaster_{t+h+1}]$							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
GPRT	8.6					4.2	9	4.1	1.5					1	1.8	1.1
	[3.27]					[1.55]	[3.38]	[1.50]	[3.12]					[2.46]	[4.18]	[3.01]
GPRA		10.9				9		9		1.8				1.4		1.4
		[5.49]				[4.58]		[4.49]		[2.73]				[2.42]		[2.67]
WAR			3.2				-1.6	-1.6			0.6				-0.4	-0.4
			[1.33]				[-0.88]	[-1.20]			[1.30]				[-1.50]	[-1.70]
EPU				6.2				2.2				1.1				0.6
				[1.90]				[0.80]				[2.16]				[1.74]
EMV					-0.9			1.4					-0.5			0.1
					[-0.44]			[0.90]					[-1.82]			[0.29]
R^2_{within}	25%	28%	23%	23%	21%	28%	25%	29%	33%	35%	26%	29%	26%	38%	34%	40%
# Obs	2,366	2,366	2,340	2,366	2,366	2,366	2,340	2,340	3,576	3,576	3,576	3,576	3,576	3,576	3,576	3,576

Table 3
Link Between Geopolitical Risks and Consumption Disasters
(Continued)

PANEL C - Disasters over the Next 5 Years

	$\mathbf{Y_t = 1/5 \cdot \sum_{h=0}^{4} Disaster_{t+h+1}}$								$\mathbf{Y_t = 1/5 \cdot \sum_{h=0}^{4} Prob_{t+h}[Disaster_{t+h+1}]}$							
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**	**[1]**	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
GPRT	8.4					5.4	9.5	5.7	1.3					1.1	1.6	1.2
	[3.79]					[2.27]	[4.19]	[2.38]	[2.72]					[2.41]	[3.52]	[2.67]
GPRA		8.5				6.1		6.1		1				0.4		0.5
		[4.21]				[3.32]		[3.34]		[1.64]				[0.94]		[1.09]
WAR			2.8				-2.4	-2.2			0.5				-0.5	-0.4
			[1.30]				[-1.56]	[-1.80]			[1.11]				[-2.45]	[-2.22]
EPU				6.1				2.4				1.1				0.7
				[2.20]				[0.96]				[2.61]				[2.09]
EMV					-0.9			1.1					-0.3			0.1
					[-0.57]			[0.80]					[-1.52]			[0.36]
$\boldsymbol{R^2_{within}}$	29%	29%	26%	27%	25%	31%	29%	32%	39%	34%	32%	36%	31%	39%	39%	41%
# Obs	2,314	2,314	2,288	2,314	2,314	2,314	2,288	2,288	3,486	3,486	3,486	3,486	3,486	3,486	3,486	3,486

PANEL D - Disasters over the Next 10 Years

	$\mathbf{Y_t = 1/10 \cdot \sum_{h=0}^{9} Disaster_{t+h+1}}$								$\mathbf{Y_t = 1/10 \cdot \sum_{h=0}^{9} Prob_{t+h}[Disaster_{t+h+1}]}$							
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**	**[1]**	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
GPRT	6					5.6	7.8	4.2	0.6					0.8	0.9	0.5
	[4.17]					[3.56]	[4.81]	[2.95]	[2.12]					[2.89]	[3.03]	[2.12]
GPRA		3.2				0.7		0.5		-0.1				-0.4		-0.4
		[1.82]				[0.56]		[0.57]		[-0.18]				[-1.49]		[-2.78]
WAR			2.1				-3.3	-1.6			0.2				-0.4	-0.2
			[1.17]				[-2.22]	[-1.42]			[0.74]				[-2.22]	[-1.03]
EPU				7.3				5.4				1.2				1.1
				[5.65]				[4.58]				[5.95]				[5.43]
EMV					-0.3			0.7					-0.2			0
					[-0.23]			[0.77]					[-0.90]			[0.15]
$\boldsymbol{R^2_{within}}$	36%	34%	34%	37%	33%	36%	37%	38%	48%	46%	46%	54%	46%	49%	49%	55%
# Obs	2,184	2,184	2,158	2,184	2,184	2,184	2,158	2,158	3,261	3,261	3,261	3,261	3,261	3,261	3,261	3,261

Table 4
Single Stocks: Betas, Risk Premia, and Alphas of High-Low Beta Quintile Portfolios

This table reports betas (i.e., univariate regression slopes onto the mimicking factors for the indices), annualized risk premia (i.e., average returns multiplied by twelve), and annualized alphas (factor regression intercepts multiplied by twelve) of high-low, H-L, returns on beta quintile portfolios that buy (sell) stocks with high (low) stock-level betas on the given risk or uncertainty index. Portfolios are value-weighted and use NYSE breakpoints, as suggested by Hou, Xue, and Zhang (2019). The mimicking factors used to estimate betas (with risk premia summarized in Table 5) are constructed applying the Supervised Principal Component Analysis (SPCA) method proposed by Giglio, Xiu, and Zhang (2025) to anomaly portfolios (as described in Section 3.2). Stock-level betas are estimated from the (negative of the) three-year rolling window univariate beta on the given index growth rate. We consider nine risk and uncertainty indices in total. The first three indices are the news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions). The next three indices are also based on news articles: the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. The last three indices are the real uncertainty index (RUI), macro uncertainty index (MUI), and financial uncertainty index (FUI), all from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021) and based on an econometric model that summarizes the forecasting uncertainty associated with a large number of macroeconomic and financial variables. These last three indices are only available since July of 1960 (so that H-L returns are available as of August of 1963 given the three-year rolling window betas). Rows differ based on the statistic reported, with ICAPM alphas based on the model in Chabi-Yo, Gonçalves, and Loudis (2025). The t-statistics (in brackets) are based on Newey and West (1987, 1994). Section 1 provides measurement details for the stock returns as well as the risk and uncertainty indices used in this table while Section 3.1 covers the results from this table.

	01-1930 to 12-2024						08-1963 to 12-2024								
INDEX =	**GPRT**	**GPRA**	**GPR**	**WAR**	**EPU**	**EMV**	**GPRT**	**GPRA**	**GPR**	**WAR**	**EPU**	**EMV**	**RUI**	**MUI**	**FUI**
Beta on Mimicking Factor	0.1	0.03	0.08	-0.07	0.2	0.07	0.1	0.05	0.09	0.17	0.2	0.07	0.73	0.99	0.79
	[3.15]	[1.06]	[2.46]	[-0.53]	[9.18]	[4.79]	[3.58]	[2.86]	[3.43]	[2.43]	[9.52]	[4.76]	[2.45]	[4.07]	[2.62]
Risk Premium (%)	4.17	1.69	2.71	1.22	2.99	0.68	3.36	2.33	3.51	-0.46	1.15	1.21	2.56	2.39	2.4
	[2.85]	[0.98]	[1.65]	[0.87]	[1.42]	[0.4]	[1.99]	[1.14]	[1.87]	[-0.28]	[0.5]	[0.6]	[1.36]	[1.22]	[1.05]
CAPM Alpha (%)	4.84	1.18	3.06	2.41	-1.08	0.15	3	1.75	3.02	-0.39	-2.44	-1.77	0.26	-0.11	-0.42
	[3.23]	[0.72]	[1.9]	[1.61]	[-0.59]	[0.09]	[1.8]	[0.85]	[1.69]	[-0.24]	[-1.14]	[-0.95]	[0.15]	[-0.06]	[-0.2]
ICAPM Alpha (%)	4.21	0.93	2.28	1.48	0.45	-1.27	3.24	2.01	3.44	-0.32	-1.57	-1.5	1.18	0.99	0.62
	[2.91]	[0.53]	[1.38]	[0.97]	[0.25]	[-0.86]	[1.9]	[0.96]	[1.87]	[-0.19]	[-0.81]	[-1.05]	[0.88]	[0.66]	[0.27]
GPRT Alpha w.r.t INDEX		3.81	4.11	3.39	4.15	4.44		3.25	3.31	2.22	3.47	3.78	3.38	3.37	3.42
		[2.28]	[2.62]	[2.15]	[2.63]	[2.64]		[1.94]	[1.99]	[1.3]	[2.02]	[2.21]	[2.09]	[2.02]	[2.03]
INDEX Alpha w.r.t GPRT		1.91	2.9	1.34	3.5	0.85		2.67	3.73	-0.56	1.51	1.57	2.69	2.68	2.42
		[1.13]	[1.75]	[0.93]	[1.73]	[0.46]		[1.24]	[2.02]	[-0.36]	[0.67]	[0.76]	[1.45]	[1.34]	[1.07]

Table 5
Equity Anomaly Portfolios: Risk Premia and Alphas of Mimicking Factors

This table reports annualized risk premia (i.e., average returns multiplied by twelve) and annualized alphas (i.e., factor regression intercepts multiplied by twelve) from mimicking factors for the (negative of the growth in the) given risk and uncertainty indices. Mimicking factors are normalized to have an annual volatility of 20%, which is similar to the market annual volatility. We consider nine risk and uncertainty indices in total. The first three indices are the news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions). The next three indices are also based on news articles: the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. The last three indices are the real uncertainty index (RUI), macro uncertainty index (MUI), and financial uncertainty index (FUI), all from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021) and based on an econometric model that summarizes the forecasting uncertainty associated with a large number of macroeconomic and financial variables. These last three indices are only available since July of 1960. Mimicking factors for the (negative of the growth in the) risk and uncertainty indices are constructed using the Supervised Principal Component Analysis (SPCA) method proposed by Giglio, Xiu, and Zhang (2025) (with details provided in Section 3.2). The test assets are 2,052 anomaly portfolios. The first group of anomaly portfolios is from the Open Source Asset Pricing (OSAP) dataset of Chen and Zimmermann (2022), and comprises 1,780 decile portfolios from 89 anomaly signals (one set based on the original publication weights and another set based on value-weights). The second group of anomaly portfolios is from the factor dataset of Jensen, Kelly, and Pedersen (2023), and comprises 272 long-short portfolios based on 136 anomaly signals (one set based on value-weights and another based on equal-weights). Each mimicking correlation reflects the correlation between the given mimicking factor and the (negative of the growth in the) respective non-tradable index. The t-statistics (in brackets) are based on Newey and West (1987, 1994). Section 1 provides measurement details for the returns as well as the risk and uncertainty indices used in this table while Section 3.2 covers the results from this table.

	01-1930 to 12-2024						08-1963 to 12-2024								
INDEX =	**GPRT**	**GPRA**	**GPR**	**WAR**	**EPU**	**EMV**	**GPRT**	**GPRA**	**GPR**	**WAR**	**EPU**	**EMV**	**RUI**	**MUI**	**FUI**
Mimicking Correlation	29%	42%	36%	15%	34%	34%	36%	43%	41%	31%	42%	38%	37%	21%	25%
Risk Premium (%)	2.62	2.77	2.53	2.66	3.17	1.8	3.43	3.53	3.24	4.14	4.22	2.8	1.58	1.33	-0.2
	[4.31]	[4.82]	[4.31]	[3.97]	[5.69]	[3.17]	[3.86]	[4.61]	[3.88]	[4.89]	[5.51]	[3.2]	[1.55]	[1.43]	[-0.17]
CAPM Alpha (%)	2.21	2.6	2.19	2.87	1.96	1.09	3.01	2.9	2.59	4.12	2.57	1.43	0.79	-0.1	-0.99
	[3.7]	[4.78]	[3.98]	[4.22]	[4.21]	[1.88]	[3.22]	[3.77]	[3.04]	[4.8]	[3.43]	[1.6]	[0.93]	[-0.13]	[-1.07]
ICAPM Alpha (%)	1.86	1.66	1.57	2.38	1.74	1.18	2.78	2.41	2.19	3.83	2.89	1.99	1.04	0.13	-0.71
	[3]	[3.07]	[2.79]	[3.36]	[3.58]	[2.1]	[2.81]	[2.95]	[2.4]	[4.17]	[4.25]	[2.45]	[1.15]	[0.17]	[-0.66]
GPRT Alpha w.r.t INDEX		3.21	3.28	2.76	2.86	2.65		4.23	4.25	3.71	3.76	3.48	3.44	3.44	3.45
		[5.06]	[5.34]	[4.28]	[4.63]	[4.35]		[4.43]	[4.66]	[4.14]	[4.08]	[3.85]	[3.85]	[3.85]	[3.89]
INDEX Alpha w.r.t GPRT		3.18	3.04	2.85	3.32	1.81		4.05	3.91	4.47	4.4	2.8	1.65	1.37	-0.14
		[5.6]	[5.33]	[4.12]	[4.78]	[3.07]		[5.31]	[4.56]	[5.18]	[4.23]	[2.77]	[1.63]	[1.47]	[-0.12]

Table 6
Country-Level Equity and Bond Portfolios: Risk Premia and Alphas of Mimicking Factors

This table reports annual risk premia and world CAPM alphas from mimicking factors for the (negative of the growth in the) nine risk and uncertainty indices in our analysis. The first three indices are the news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions). The next three indices are also based on news articles: the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. The last three indices are the real uncertainty index (RUI), macro uncertainty index (MUI), and financial uncertainty index (FUI), all from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021) and based on an econometric model that summarizes the forecasting uncertainty associated with a large number of macroeconomic and financial variables. These last three indices are only available since July of 1960. Mimicking factors are constructed from the slope coefficients on annual Fama and MacBeth (1973) regressions of returns on full sample univariate betas on the (negative of the) respective index growth rate. These regressions use annual returns from the 16 country-level equity and bond portfolios of developed countries from the Jordà et al. (2019) dataset. The world market portfolio is constructed as the GDP-weighted average return on the same 16 countries. Each mimicking correlation reflects the correlation between the given mimicking factor and the (negative of the growth in the) respective non-tradable index. The t-statistics (in brackets) are based on Newey and West (1987, 1994) and each mimicking factor is normalized to have an annual volatility of 20%, which is similar to the market annual volatility. Section 1 provides measurement details for the returns as well as the risk and uncertainty indices used in this table while Section 3.3 covers the results from this table.

PANEL A - Only Equities

	1930 to 2024						1961 to 2024								
	GPRT	GPRA	GPR	WAR	EPU	EMV	GPRT	GPRA	GPR	WAR	EPU	EMV	RUI	MUI	FUI
Mimicking Correlation	23%	19%	20%	43%	40%	24%	17%	17%	17%	47%	49%	23%	17%	47%	32%
Risk Premium (%)	8.84	9.81	10.05	9.47	8.78	-7.58	8.45	7.7	8.09	7.57	7.55	-6.96	8.18	7.86	7.94
	[4.33]	[4.17]	[4.66]	[4.78]	[5.41]	[-3.86]	[3.9]	[2.74]	[3.15]	[3.2]	[4.02]	[-4.2]	[3.86]	[4.78]	[5.38]
World CAPM Alpha (%)	2.73	3.82	3.78	2.77	2.38	-2.09	3.3	1.98	2.48	1.17	1.55	-0.97	2.16	1.96	2.56
	[1.92]	[2.14]	[2.44]	[1.91]	[1.72]	[-1.14]	[1.78]	[0.88]	[1.14]	[0.73]	[1.18]	[-0.68]	[1.4]	[1.65]	[2.04]

PANEL B - Only Bonds

	1930 to 2024						1961 to 2024								
	GPRT	GPRA	GPR	WAR	EPU	EMV	GPRT	GPRA	GPR	WAR	EPU	EMV	RUI	MUI	FUI
Mimicking Correlation	25%	14%	18%	28%	32%	25%	20%	12%	11%	30%	47%	21%	27%	39%	32%
Risk Premium (%)	6.9	6.21	6.74	-5.75	-2.75	7.09	7.06	6.31	7.15	-3.36	-0.33	7.44	-1.04	0.11	6.38
	[3.61]	[3.05]	[3.36]	[-3.16]	[-1.55]	[3.6]	[3]	[2.68]	[2.83]	[-1.74]	[-0.23]	[3.02]	[-0.33]	[0.04]	[3.33]
World CAPM Alpha (%)	5.85	5.78	5.96	-6.14	-4.22	7.04	6.42	6.57	6.61	-5.48	-2.66	7.68	0.08	-0.88	5.72
	[2.6]	[2.77]	[2.78]	[-2.77]	[-2.19]	[3.34]	[2.29]	[2.57]	[2.32]	[-2.14]	[-1.56]	[3.14]	[0.03]	[-0.33]	[2.1]

PANEL C - Equities and Bonds

	1930 to 2024						1961 to 2024								
	GPRT	GPRA	GPR	WAR	EPU	EMV	GPRT	GPRA	GPR	WAR	EPU	EMV	RUI	MUI	FUI
Mimicking Correlation	26%	21%	22%	44%	41%	27%	20%	17%	18%	47%	50%	25%	19%	48%	34%
Risk Premium (%)	9.49	10.33	10.77	9.14	8.6	-6.89	9.64	7.93	8.78	7.44	7.42	-6.33	8.15	7.8	8.34
	[4.49]	[4.31]	[4.77]	[4.65]	[5.3]	[-3.56]	[3.82]	[2.78]	[3.21]	[3.15]	[3.99]	[-4.19]	[4.02]	[4.75]	[5.26]
World CAPM Alpha (%)	3.44	4.34	4.52	2.45	2.21	-1.39	4.52	2.22	3.14	1.05	1.43	-0.33	2.18	1.92	3.09
	[2.49]	[2.46]	[3.04]	[1.68]	[1.61]	[-0.82]	[2.51]	[0.98]	[1.47]	[0.69]	[1.19]	[-0.23]	[1.39]	[1.58]	[2.36]

Table 7
Predicting the Equity Risk Premia over Time

This table reports regressions of equity excess returns (relative to the risk-free asset) over the next 1 or 5 years onto current values of the news-based geopolitical risk threat (GPRT) and action (GPRA) indices from Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions) as well as on three other indices that are also based on news articles. They are the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. We estimate panel regressions with country fixed effects and observations at the country-year level (from 1927 to 2019), and the predicted returns are based on the 16 country-level equity indices of developed countries from the Jordà et al. (2019) dataset. Predictive variables are always normalized to z-scores and t-statistics (in brackets) are based on Driscoll and Kraay (1998) (with the number of autocorrelation lags selected following Newey and West (1994)). Section 1 provides measurement details for the returns as well as the risk and uncertainty indices used in this table and Section 4.1 covers the results from this table.

PANEL A - Next 1 Year Returns

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
GPRT	2.8						2.7	2.7	3.9	2.7	2.8	3.4
	[1.42]						[1.32]	[1.24]	[2.03]	[1.42]	[1.52]	[1.80]
GPRA		1.1					0.2					-0.5
		[1.07]					[0.24]					[-0.56]
GPR			1.8					0.2				
			[1.23]					[0.21]				
WAR				1.3					-1			-0.3
				[0.70]					[-0.55]			[-0.13]
EPU					1.6					1.5		1.8
					[1.26]					[1.16]		[0.95]
EMV						-0.4					0.2	-0.4
						[-0.20]					[0.12]	[-0.22]
R^2_{within}	1%	0%	0%	0%	1%	0%	1%	1%	1%	1%	1%	2%
# Obs	1,488	1,488	1,488	1,472	1,488	1,488	1,488	1,488	1,472	1,488	1,488	1,472

PANEL B - Next 5 Year Returns

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
GPRT	15						16.8	18.7	14.2	14.4	16.2	14.1
	[2.66]						[2.70]	[2.79]	[2.15]	[2.86]	[2.74]	[1.99]
GPRA		0.6					-5.1					-10.4
		[0.15]					[-1.68]					[-4.45]
GPR			4.8					-6.4				
			[0.78]					[-1.91]				
WAR				8.3					0			5
				[1.70]					[-0.01]			[0.80]
EPU					9					8.3		11.5
					[2.42]					[2.35]		[2.47]
EMV						1.4					4.7	2.4
						[0.27]					[1.10]	[0.50]
R^2_{within}	7%	0%	1%	3%	4%	0%	8%	8%	6%	10%	8%	12%
# Obs	1,424	1,424	1,424	1,408	1,424	1,424	1,424	1,424	1,408	1,424	1,424	1,408

Table 8
Predicting the Bond Risk Premia over Time

This table reports regressions of government bond excess returns (relative to the risk-free asset) over the next 1 or 5 years onto current values of the news-based geopolitical risk threat (GPRT) and action (GPRA) indices from Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions) as well as on three other indices that are also based on news articles. They are the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025b), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. We estimate panel regressions with country fixed effects and observations at the country-year level (from 1927 to 2019), and the predicted returns are based on the 16 country-level government bond indices of developed countries from the Jordà et al. (2019) dataset. Predictive variables are always normalized to z-scores and t-statistics (in brackets) are based on Driscoll and Kraay (1998) (with the number of autocorrelation lags selected following Newey and West (1994)). Section 1 provides measurement details for the returns as well as the risk and uncertainty indices used in this table and Section 4.2 covers the results from this table.

PANEL A - Next 1 Year Returns

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
GPRT	-0.2						-0.4	-0.5	-0.2	-0.3	0.1	-0.2
	[-0.43]						[-0.72]	[-0.83]	[-0.23]	[-0.50]	[0.11]	[-0.15]
GPRA		0.3					0.5					0.2
		[1.16]					[1.64]					[0.69]
GPR			0.1					0.4				
			[0.39]					[1.41]				
WAR				-0.1					0			0.2
				[-0.21]					[0.01]			[0.14]
EPU					0.4					0.4		0
					[0.92]					[0.95]		[0.06]
EMV						1.1					1.1	1
						[1.93]					[1.89]	[1.66]
R^2_{within}	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	2%
# Obs	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488	1,488

PANEL B - Next 5 Year Returns

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
GPRT	-2.3						-1.9	-1.4	-1.4	-2.4	-0.9	0.4
	[-1.22]						[-1.00]	[-0.69]	[-0.48]	[-1.33]	[-0.54]	[0.12]
GPRA		-1.6					-0.9					-2
		[-1.57]					[-0.94]					[-1.52]
GPR			-2.3					-1.5				
			[-1.75]					[-1.29]				
WAR				-2.2					-1.4			-1
				[-1.53]					[-0.60]			[-0.37]
EPU					1.2					1.3		0
					[0.95]					[1.03]		[0.01]
EMV						5.2					5	5.2
						[3.02]					[2.73]	[2.53]
R^2_{within}	1%	1%	1%	1%	0%	7%	1%	1%	1%	2%	7%	9%
# Obs	1,424	1,424	1,424	1,408	1,424	1,424	1,424	1,424	1,408	1,424	1,424	1,408

Internet Appendix

"The Pricing of Geopolitical Risks"

By Andrei S. Gonçalves, Alessandro Melone, and Andrea Ricciardi

This Internet Appendix is organized as follows. Section A provides details about the data and measurement used in our empirical analysis, Section B provides details about the econometric methods applied in our empirical analysis, and Section C provides empirical results that supplement the findings reported in the main text.

A Data and Measurement Details

We measure GPRT, GPRA, and GPR directly from the dataset constructed by Caldara and Iacoviello (2022), updated to 12-2024 and available under https://www.matteoiacoviello.com/gpr.htm.

B Econometric Details

C Supplementary Empirical Results

C.1 High-Low Beta Quintile Portfolios (Alternative Specifications)

C.2 High-Low Beta Quintile Portfolios (Controlling for Factor Models)

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Table IA.1
Single Stocks: Risk Premia of High-Low Beta Quintile Portfolios (Alternative Specifications)

This table reports annualized risk premia (i.e., average returns multiplied by twelve in percentual units) of high-low, H-L, returns on beta sorted portfolios that buy (sell) stocks with high (low) stock-level betas on F_t. Unless otherwise noted, F_t reflects the growth rate of the given risk or uncertainty index (i.e., $F_t = IND_t/IND_{t-1}$), portfolios are value-weighted quintiles with NYSE breakpoints (as suggested by Hou, Xue, and Zhang (2019)), and stock-level betas are estimated from the (negative of the) three-year rolling window univariate beta on F_t. We consider nine risk and uncertainty indices in total. The first three indices are the news-based geopolitical risk threat (GPRT) and action (GPRA) indices of Caldara and Iacoviello (2022) and their overall geopolitical risk (GPR) index (which uses both threats and actions). The next three indices are also based on news articles: the war discourse (WAR) index from Hirshleifer, Mai, and Pukthuanthong (2025), the historical economic policy uncertainty (EPU) index from Baker, Bloom, and Davis (2016), and the expected market volatility (EMV) index obtained by splicing the news-implied volatility index of Manela and Moreira (2017) (until 1984) and the expected market volatility index of Baker et al. (2025) (after 1984), both in z-score units. The last three indices are the real uncertainty index (RUI), macro uncertainty index (MUI), and financial uncertainty index (FUI), all from Jurado, Ludvigson, and Ng (2015) and Ludvigson, Ma, and Ng (2021) and based on an econometric model that summarizes the forecasting uncertainty associated with a large number of macroeconomic and financial variables. These last three indices are only available since July of 1960 (so that H-L returns are available as of August of 1963 given the three-year rolling window betas). Rows differ based on the specification used, with our baseline specification results reproduced in the first row. While our baseline analysis uses $F_t = IND_t/IND_{t-1}$, rows 2 to 4 use $F_t = log(IND_t/IND_{t-1})$ (as in Adrian, Etula, and Muir (2014)), $F_t = IND_t - IND_{t-1}$ (as in Ang et al. (2006)), and $F_t = IND_t$ (as in Bali, Brown, and Tang (2017)). In turn, rows 5 and 6 replace quintile portfolios with decile or tercile portfolios, row 7 uses equal-weighted portfolios and excludes microcaps (defined as stocks below the 20% quantile of market equity from NYSE stocks), and row 8 starts the sample in the first year with at least 500 firms (01-1934). The t-statistics (in brackets) are based on Newey and West (1987, 1994). Section 1 provides measurement details for the stock returns as well as the risk and uncertainty indices used in this table while Section C.1 covers the results from this table.

PANEL A - Risk Premia

	01-1930 to 12-2024						08-1963 to 12-2024								
$IND =$	GPRT	GPRA	GPR	WAR	EPU	EMV	GPRT	GPRA	GPR	WAR	EPU	EMV	RUI	MUI	FUI
Baseline	4.17	1.69	2.71	1.22	2.99	0.68	3.36	2.33	3.51	-0.46	1.15	1.21	2.56	2.39	2.4
	[2.85]	[0.98]	[1.65]	[0.87]	[1.42]	[0.4]	[1.99]	[1.14]	[1.87]	[-0.28]	[0.5]	[0.6]	[1.36]	[1.22]	[1.05]
$F_t = log(IND_t/IND_{t-1})$	3.23	1.81	2.74	1.15	3.05	-0.11	3.16	2.04	2.81	-0.54	1.07	0.22	2.52	2.28	2.34
	[1.92]	[1.07]	[1.7]	[0.81]	[1.48]	[-0.07]	[2.02]	[1.02]	[1.44]	[-0.33]	[0.49]	[0.12]	[1.34]	[1.17]	[1.02]
$F_t = IND_t - IND_{t-1}$	3.35	1.65	2.62	1.17	3.37	-0.97	2.64	1.37	2.43	-0.81	1.76	-1.29	2.64	2.32	2.34
	[2.16]	[0.95]	[1.63]	[0.82]	[1.66]	[-0.58]	[1.65]	[0.69]	[1.31]	[-0.5]	[0.8]	[-0.64]	[1.37]	[1.17]	[0.99]
$F_t = IND_t$	4.21	1.84	3.37	-0.35	2.57	1.53	4.5	0.86	3.36	-0.39	2.16	1.81	1.22	0.47	4.69
	[2.5]	[1.04]	[1.79]	[-0.23]	[1.55]	[0.82]	[2.22]	[0.49]	[1.61]	[-0.24]	[1.26]	[0.81]	[0.63]	[0.24]	[2.2]
Decile Portfolios	4.41	2.53	3.47	0.27	2.85	2.07	4.26	3.64	3.34	-2.58	0.66	3.22	3.63	3.09	2.72
	[2.38]	[1.13]	[1.63]	[0.13]	[1.18]	[1.04]	[1.95]	[1.3]	[1.37]	[-1.15]	[0.24]	[1.3]	[1.58]	[1.21]	[0.93]
Tercile Portfolios	2.95	1.06	2.29	0.74	2.06	1.03	2.26	1.13	2.62	-0.43	1.05	1.44	1.14	2.26	2.3
	[2.55]	[0.78]	[1.67]	[0.55]	[1.26]	[0.75]	[1.62]	[0.7]	[1.73]	[-0.31]	[0.58]	[0.87]	[0.78]	[1.43]	[1.24]
Equal Weighted Portfolios	2.37	1.8	2.46	1.48	1.15	0.71	1.4	1.17	1.59	-0.14	-0.6	1.24	1.86	2.02	2.32
	[2.08]	[1.41]	[1.96]	[1.39]	[0.77]	[0.54]	[1.23]	[0.92]	[1.23]	[-0.13]	[-0.39]	[0.78]	[1.36]	[1.3]	[1.4]
At Least 500 Firms (01-1934)	4.52	1.87	3.57	1.49	2.08	1.73	3.36	2.33	3.51	-0.46	1.15	1.21	2.56	2.39	2.4
	[3.2]	[1.07]	[2.38]	[1.13]	[1.1]	[1.12]	[1.99]	[1.14]	[1.87]	[-0.28]	[0.5]	[0.6]	[1.36]	[1.22]	[1.05]

Table IA.2

High-Low Beta Quintile Portfolios: Alphas and Risk Prices Controlling for Factor Models

This table reports annualized risk premia (average returns multiplied by twelve), annualized alphas (factor regression intercepts multiplied by twelve), and risk prices in standard deviation units for long-short quintile portfolios that buy (sell) stocks with high (low) exposure to the news-based geopolitical risk threat (GPRT) index. The risk exposures are estimated from the (negative of the) three-year rolling window univariate beta on the GPRT index growth rate. Alphas are relative to the factor model under each column. Similarly, risk prices reflect the b coefficient (in standard deviation units) from the Stochastic Discount Factor (SDF) specification $SDF_t = a + c' f_t + b \cdot HML_t^{GPRT}$, where f_t reflects the vector of factors in the factor model under the respective column. The SDF estimation is done by just identified Generalized Method of Moments (GMM) to price HML_t^{GPRT} and f_t, which has efficiency and robustness benefits relative to other estimation approaches (see Chabi-Yo, Gonçalves, and Loudis (2025) for details). We consider eight factor models. The standard CAPM with only the equity market index, the ICAPM from Chabi-Yo, Gonçalves, and Loudis (2025), the Fama-French 3-Factor (FF3) and 5-Factor (FF5) models from Fama and French (1993, 2015), the Fama-French models augmented with the momentum factor (FF3+MOM and FF5+MOM), the q–theory 4-Factor (q4) model from Hou, Xue, and Zhang (2015), and the q-theory 5-Factor (q5) model from Hou et al. (2021). The t-statistics (in brackets) are based on Newey and West (1987, 1994) in the case of risk premia and alphas. In the case of b, they are based on GMM standard errors with Newey and West (1987, 1994) applied to the spectral density matrix. Section 1 provides measurement details for the stock returns as well as the risk and uncertainty indices used in this table while Section C.2 covers the results from this table.

Factor Model =	**None**	**CAPM**	**ICAPM**	**FF3**	**FF5**	**FF3+MOM**	**FF5+MOM**	**q4**	**q5**
Risk Premia (%)	4.17	4.17	4.17	4.17	3.34	4.17	3.34	3.25	3.25
	[2.85]	[2.85]	[2.85]	[2.85]	[1.98]	[2.85]	[1.98]	[1.83]	[1.83]
Alphas (%)	4.17	4.84	4.21	5.16	3.22	5.17	3.75	4.45	4.59
	[2.85]	[3.36]	[2.90]	[3.36]	[1.94]	[3.20]	[2.11]	[2.33]	[2.37]
SDF Risk Prices	-0.08	-0.1	-0.09	-0.11	-0.08	-0.11	-0.1	-0.12	-0.12
	[-2.44]	[-3.24]	[-2.68]	[-3.33]	[-1.96]	[-3.23]	[-2.15]	[-2.33]	[-2.33]
First Month	01-1930	01-1930	01-1930	01-1930	07-1963	07-1963	07-1963	01-1967	01-1967
Last Month	12-2024	12-2024	12-2024	12-2024	12-2024	12-2024	12-2024	12-2023	12-2023