Measuring Geopolitical Risk*

Dario Caldara† Matteo Iacoviello‡

May 2, 2016

Abstract

This paper presents a new monthly index of geopolitical risk (GPR index) based on a tally of newspaper stories that contain terms related to geopolitical tensions, and examines its evolution since 1985. The GPR index spikes around the Gulf War, after 9/11, during the 2003 Iraq invasion, during the 2014 Russia-Ukraine crisis, and after the Paris terrorist attacks. Overall, the GPR index offers a good proxy for movements in geopolitical risk over time. At the macro level, we find that higher geopolitical risk leads to a decline in real activity and is associated with increases in the VIX, lower oil prices, and higher corporate credit spreads. Across a sample of emerging economies, higher GPR predicts lower activity and capital outflows, especially for economies with higher country risk.

*[PRELIMINARY AND INCOMPLETE. DO NOT CITE WITHOUT PERMISSION.] We thank Nick Bloom, Christ Erceg, Nathan Converse, and seminar participats at the Federal Reserve Board. Lucas Husted provided outstanding research assistance. All errors and omissions are our own responsibility. The views expressed in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of anyone else associated with the Federal Reserve System.

†Federal Reserve Board of Governors. Email: dario.caldara@frb.gov

‡Federal Reserve Board of Governors. Email: matteo.iacoviello@frb.gov

1 Introduction

Major geopolitical events are often regarded as setting the stage for radical changes in the business cycle and in financial markets, and geopolitical risks are often cited by central banks officials, the financial press, and business investors as key determinants of investment and spending decisions.[1] As a tell-tale sign of the importance of geopolitical risks, several companies profitably publish ratings, indices and intelligence reports containing detailed and colorful information on where it is safe, or dangerous, to do business. A google search of the term "geopolitical risk map" returned 161,000 hits as of May 2016,[2] and the first 20 results contained the names of at least ten different companies, insurance agencies and organizations that publish and sell indices measuring geopolitical risk across countries, regions and over time.[3]

Yet virtually all of these indices suffer from a variety of shortcomings that make them hardly usable for quantitative research. First, these indices are often qualitative measures of geopolitical risk. Second, when these indices are quantitative, they are often constructed in a judgemental way, using a few colors, (orange and red being the favorites) few numbers, or few alphabet letters in order to tell apart the risky places and times from the safe ones. Third, these indices vary little over time, or they are available for only a short period. A notable example is the famous Doomsday Clock, which represents the countdown to a possible global catastrophe, with fewer minutes to midnight measuring higher risk. The value of this index has changed only six times in the last twenty years.

In this paper we develop a free, monthly, quantitative index of global geopolitical risk (the GPR index) that goes back to 1985 and aims at providing a complement to the many qualitative indices that are available for purchase on the internet. We then study if and how the index can explain business cycle movements and financial market fluctuations.

This is what we find. Our index is plotted in Figure 1. It peaks around 9/11. More recently, it spikes up both during the Ukraine/Russia crisis, and around the Paris terrorist attacks. We show that a 200 points rise in GPR, a magnitude corresponding to the jump in the index after the Paris terrorist attacks, depresses U.S. and advanced economies' industrial production by about [ ] percent. The effects on EMEs are negative, although somewhat smaller, but they are larger the riskier emerging economies are.

An important upshot of our index is that it quantifies episodes of geopolitical tensions that could hardly be predicted ahead of time and that are, by and large, exogenous to world economic conditions. For this reason, we warmly invite researchers to stick it into their preferred regression to see if the index can push t-stats and R-squared in the direction they are looking for. Our index is available at https://www2.bc.edu/

[1] See for instance Greenspan (2002) and Bloomberg (2016).

[2] Search perfomed on May 2, 2016.

[3] For example, one can find, among the first 20 results of the search, the following companies providing businesses with the intelligence to make the right decisions in world of uncertainties: Control Risks Online, Aon plc, Marsh-McLennan, Verisk Maplecroft, CSO Online, Euler Hermes, Risk Advisory, Strategic Risk

matteo-iacoviello/gpr.htm.

2 Construction of the Geopolitical Risk Index

2.1 Basics

We construct the geopolitical risk (GPR) index by counting the occurrence of words related to geopolitical tensions in leading newspapers. In particular, the GPR index reflects automated text-search results for 11 large national and international newspapers: The Boston Globe, Chicago Tribune, The Daily Telegraph, Financial Times, The Globe and Mail, The Guardian, Los Angeles Times, The New York Times, The Times, The Wall Street Journal, and The Washington Post. The index is constructed searching the electronic archives of each newspaper from January 1985 to December 2015 for terms related to geopolitical tensions. The search identifies articles containing any of the following eight phrases: "*geopolitical risk(s)*", "*geopolitical concern(s)*", "*geopolitical tension(s)*", "*geopolitical uncertainty(ies)*", "*war risk(s)*" (or "*risk(s) of war*"), and "*military threat(s)*", "*terrorist threat(s)*", "*terrorist act(s)*". Based on these search criteria, we calculate the index by counting in each newspaper, for each month, how many articles contain the search terms above. The index is then normalized to average a value of 100 in the 2000-2009 decade,[4] so that a reading of 200, for instance, indicates that newspaper mentions of geopolitical risk in that month are twice as large than during the 2000s.[5]

Figure 1 presents the benchmark raw index (GPRTERROR1). The index reaches its maximum after 9/11, in the month of October 2011, when it peaks at 452, rising by 400 units relative to August 2011. It also spikes in 1990 and in 2003 around the start of the Gulf War and the Iraq War. The index stays at low levels during the global financial crisis and its aftermath. It surges again in July 2014, amidst rising geopolitical tensions in Ukraine and Iraq, as well as at the end of 2015, at the time of the Paris and San Bernardino attacks.

Figure 2 elaborates further on the construction of our index. Our choice of words is motivated by the need to include phrases that minimize two types of error.

The first error is that of not capturing articles that do mention heightened geopolitical tensions. For this reason, our index has to be broad enough to include many of the words that can be believed to be associated with higher risk, such as risks, threats and tensions, together with military, war, and geopolitical. Our choice of eight keywords strikes a compromise that we regard as reasonable. As shown in the figure, no phrase dominates the index, and each contributes differently at different points in time.

The second error would be that of including articles that include words that might have to do with geopo-

[4] A monthly reading of 100 for the index corresponds roughly to [105] articles per month containing terms related to geopolitical risk.

[5] The companion Excel spreadsheet (TBA) reports the total number of articles across newspapers in each month. The number of articles is trendless around 70,000 since the mid-1990s. For one representative newspaper, this corresponds to about 200 articles per day, of which about one in 1,000 mentions terms related to geopolitical risk. As a comparison benchmark, one in 500 articles mentions the Beatles, and one in 300 articles mentions the Federal Reserve.

litical tensions, but effectively end up capturing also things other than heightened geopolitical tensions. Three notable examples are "terrorist attacks", "WMD "(weapons of mass distruction), and "arms control". The phrase "terrorist attacks "has become essentially a synonym for 9/11, but is more often than not used to mark an historical era, rather than actual fluctuations in geopolitical risk. For instance, ever since 9/11, the index including terrorist attacks spikes every year in September, as newspapers devote coverage to the anniversary of the 9/11 attacks. Including terror attacks in the index dwarfs fluctuations in the index prior to 9/11 in a way that we do not think accurately reflects the importance of geopolitical tensions in the 1980s and the 1990s. The word WMD ballooned during 2003 around the Iraq invasion, but is more a synonym of American politics than a reflection of actual geopolitical risks. [mention that it became word of the year 2002, peaking in newspapers in January 2003, at the time of the announcement of the American Dialect Society, hardly reflecting a rise in geopolitical risks in that month. See http://www.americandialect.org/] The word "arms control" is a classic reminder of the Cold War era, and essentially tilts the index in a way to give higher weight to pre-9/11 risks. It is also the word that captures the highest fraction of "false risks" among the words we searched, accounting for 15 percent of false positives throughout the sample in question. Additionally, the phrase arms control could, more than other phrases, capture positive developments on the geopolitical front, as controlling arms could highlight progress in reducing future geopolitical risks.

Figure 4 compares our benchmark index with two alternatives which include / exclude specific words that may capture different, yet equally useful, measure of geopolitical risk. The top panel shows GPR0, an index of geopolitical risk that does not include phrases related to terror or terrorism. One could argue that this index is a cleaner measure of risks, since it downplays events, such as terrorist acts, where the risk effectively materializes. Indeed, GPR0 strongly downplays 9/11 and its aftermath, and identifies the highest geopolitical risk at the time of the Gulf War, of the Iraq invasion, and the rise of ISIS in 2014. The bottom panel, by contrast, shows GPRTERROR2, an index which includes terrorist attacks as one of the phrases. As already noted in the bottom panel of Figure 2, when terrorist attacks are included in the construction of the index, they account for more than half of the successful word searches since 9/11.

2.2 Robustness

A human audit of a sample of the articles suggests that the news-based approach used to construct the index can produce a reasonable, replicable indicator of geopolitical risk. We found a very high correlation between the computer-generated indices presented here and human-generated indices, with the discrepancy mostly capturing noise, and uncorrelated to major macroeconomic variables.

Newspapers typically cite geopolitical risks in one of the following cases:[6]

- Newspapers feature articles mentioning geopolitical risks presumably when such risks warrant writing such articles (e.g. "US steps up pressure on Russia amid growing risk of war over Ukraine.")
- Newspapers quote companies, industry experts, economists, political leaders or policy-makers who refer to such uncertainties in speeches, interviews, testimonies (e.g. "[The company] said there are a range of macroeconomic and geopolitical uncertainties that could slow growth of global gross domestic product and affect sales of its products.")
- Newspapers comment on economic and financial events attributing some outcomes to rising or falling geopolitical risks (e.g. "U.S. stocks closed higher as [...] strong retail sales gave investors reasons to buy equities despite a resurgence of geopolitical uncertainties.")

3 Relation to Measures of Economic Uncertainty

3.1 Relation to Other Measures of Geopolitical Risk

See this paper http://www.bnymellonwealthmanagement.com/Resources/documents/perspectives/managing-geopolitical-risks.pdf

which references the Militarized Interstate Disputes Dataset.

See also the doomsday clock: http://thebulletin.org/timeline.

3.2 Relation to Other Measures of Economic Uncertainty

Figure 3 compares our benchmark index with other measures of uncertainty: VIX, gold, Nick Bloom's....

4 Macroeconomic Effects of Geopolitical Risk

4.1 Overview

In this section, we investingate the macroeconomic and financial effects of geopolitical risk. We first show results from two SVARs estimated on international and US data. We then present evidence on the heterogeous response of real activity in emerging economies. Finally, we examine the impact of geopolitical risk on cross-country capital flows both for advanced economies and for a group of emerging economies.

[6] In a very limited number of cases, there are articles mentioning geopolitical risks that do not use any of the phrases above. There are also very few cases (about 1 percent) of articles mentioning the phrases above for reasons not related to geopolitical risks (e.g., "The arrest of the Mafia boss leads to a higher risk of war for succession", or "100 years ago today, The Globe reported that the Japanese bombardment of Port Arthur continued and three Russian cruisers were sunk. Insurance rates against the risk of war between France and Britain rose from 20 to 30 per cent").

4.2 Global Effects

We first provide an encompassing overview about the global macroeconomic effects of geopolitical risk by estimating a monthly VAR from 1985M1 through 2015M12. The model consists of six variables ordered as follows: (1) the GPR index; (2) the option-implied volatility on the S&P 100 stock futures index constructed by the Chicago Board of Option Exchange (VIX); (3) log US industrial production; (4) the log of advanced economies industrial production; (5) the log of emerging economies industrial production; and (6) the log of the Brent price of oil expressed in real terms dividing by the U.S. CPI index.[7] The IP indexes and the real price of oil are linearly detrended prior to estimation. All VAR models presented in the paper are estimated using Bayesian techniques. We impose a Minnesota prior on the reduced-form VAR parameters by using dummy observations as in Del Negro and Schorfheide (2011). The resulting specification, which includes a constant, is estimated using six lags of the endogenous variables.[8]

We identify the structural shocks by using a Cholesky decomposition of the covariance matrix of the VAR reduced-form residuals. Our ordering implies that the GPR index reacts contemporaneously only to its own shock. Hence, any contemporaneous correlation between the real and financial variables and the GPR index reflects the effect of the latter on the former. While the characteristics of the GPR index discussed in Section 2 land support to this assumption, in Section 5 we explore robustness to alternative Cholesky orderings.

The solid lines in Figure 5 show the median impulse responses of the six endogenous variables to an exogenous increase in the GPR index of 165 points, while the dashed lines represent the corresponding 68-percent pointwise credible bands. The shock equals the average change in the index following the eight episodes of largest increases in geopolitical risk.[9] Such an unanticipated jump in the GPR index induces a short-lived increase in overall global risk, as proxied by the VIX. On the real side, IP in various geographical regions responds quickly to the increase in geopolitical risk. The decline in the US bottoms out at 0.8 percent after 6 months, and converges back to trend within 2 years from the shock. The dynamic response of IP in advanced economies is broadly similar, albeit slighlty smaller, to the response in the United States. IP in emerging economies contracts with a peak response of -0.5 percent 4 months after the shock. Finally, an increse in GPR induces a decline in oil prices. One potential explenation is that investors move away from oil at times of heightened risk, which in some cases is concentrated in oil producing countries. The decline in oil prices alleviates the contractionary effects of geopolitical risk.

All told, the VAR evidence presented above is suggestive of sizeable recessionary effects of an increase in GPR spread. Real effects are mostly concentrated in advanced economies, with emerging economies experiencing

[7] Caldara et al. (2016) provides details on the construction of the IP indexes for advanced and emerging economies.

[8] The vector of hyperparameters of the Minnesota prior is $\lambda = [1, 3, 1, 1, 1]$. We use the first year of the sample as a training sample for the Minnesota prior. All the results reported in the paper are based on 10,000 draws from the posterior distribution of the structural parameters, where the first 2,000 draws were used as a burn-in period.

[9] These episodes are U.S. bombing of Lybia in 1986, the Gulf War, 9/11, the Iraq invasion, the 2005 London bombings, the tensions over the Iran nuclear program in 2006, the ISIS offensive in 2014, and the 2015 Paris terrorist attacks.

only a moderate reduction in activity.

4.3 U.S. Domestic Evidence

Next, we evaluate the transmission of geopolitical risk through U.S. financial markets and consumer sentiment. We estimate a monthly consisting of six endogenous variables ordered as follows: (1) the GPR index; (2) the VIX; (3) Moody's Seasoned Baa Corporate Bond Yield Relative to Yield on 10-Year Treasury Constant Maturity; (4) the term spread, measured as the difference between the nominal 10-year Treasury yield and the nominal 3-month Treasury rate; (5) the Standard and Poors 500 index; and (6) the log of the Conference Board index of consumer confidence;

The impulse responses to a GPR shock are summarized in Figure 6. The responses of the GPR index and the VIX are identical to those reported in Figure 5, suggesting that the estimation of two separate VARs has no impact on the identification of the GPR shock. The increase in GPR elicits an immediate deterioration in financial conditions. Corporate debt markets become tighter for about 3 months, with corporate credit spreads increasing on impact by 8 basis points. The term spread increases by 17 basis points, as a weaker short-term outlook induces a drop in yields on short maturities.[10] The stock market drops by about 2.5 percent and remains subdued for 3 months. As shown in the bottom right panel, a shock to the GPR seems to transmit through consumer confidence, which drops by about 4 percent.

4.4 Real Activity in Emerging Economies

The VAR results presented above showed a significant response of the IP index in emerging economies to an increase in geopolitical risk. In this section we characterize the heterogenous response of emerging economies and show how it depends on country specific risk. To this end, we use thhe OECD country risk classification. For nearly every country in the world, the OECD publishes a rating from 0 (no risk) to 7 (highest risk) that is meant to establish the minimum level of credit insurance premia that export credit agencies are allowed to charge in their insurance contracts for each risk category. (see Iranzo, Delving into Country Risk).

For each country, we run a regression of log IP on its lag and the GPR index:

$$\ln ip_{i,t} = \rho_i \ln ip_{i,t-1} + \beta_i(1-\rho_i)G\bar{P}R_t + u_{i,t}, \tag{1}$$

where $G\bar{P}R_t$ is the three-month average of IP. We use $G\bar{P}R_t$ as the VAR evidence suggests that the effects of GPR on real activity might materialize with a lag. In equation (1), β_i is the long-run elasticity of IP to changes in the GPR index. If all the countries were to respond the same to an increase in GPR, we would not expect a significant dependence of β_i on a country-specific risk factor. Instead, Figure **??** shows that country

[10] In a model that includes the 3-month Treasury yield instead of the term spread, we find that the 3-month yield drops in response to a shock to the GPR index.

risk is negatively correlated with the IP response. Two notable exceptions to this relationship are Russia and South Africa, which experience a positive IP response even though they are classified as mid-risk countries. Moreover, there seems to be a strong regional component in the IP responses, as countries in Latin America all experience a strong reduction in IP, except for Brazil whose response is not statistically significant.

4.5 Capital Flows

There is a growing empirical literature that investigates the determinants of global capital flows. One factor that has received particular attention is global risk, which in most studies is proxied by the VIX. In this section we characterize the role of GPR for shaping cross border movements in capital flows. We take data on capital flows from the IMF's Balance of Payments Statistics (BoPS) database. In particular, we use quarterly data on the current account deficit measured in current U.S. dollars divided by GDP in current U.S. dollars. Our sample consists of 25 advanced economies and 108 emerging economies.

If we define $y_{i,t} = flow_{i,t}/GDP_{i,t}$, our baseline specification takes the form:

$$y_{i,t} = \alpha_i + rhoy_{i,t-1} + \beta GPR_t + \Gamma X_t + u_{i,t} \tag{2}$$

where $alpha_i$ are country fixed effects and X_t is a vector of control variables. We estimate equation (2) for four different group of countries by assuming that the effect of GPR on the current account deficit is equal within each group of countries. Table 1 reports the results for a specification that includes VIX to control for global risk (aversion).[11] The first column reports the OLS estimates for advanced economies. A an increase in GPR has no significant impact on flows towards advanced economies, while an increase in the VIX induces inflows. Since the advanced economies include countries that are not safe heavens, such as belgium, Israel, Italy, and Spain, we run a specification that only includes the U.S. and Japan. As shown in the second column, a 100-point increase in GPR induces a raise in the current account to GDP ratio of 0.15 percentage points, while the VIX has no explenatory power.

The last two columns report results for the full set of emerging economies, and for the subset of emerging economies studied in the previous section for which we have IP data available. For both set of countries, an increase in GPR leads to a raise in the outflow-to-GDP ratio of -0.15 percentage points.

To investigate the heterogenous effects of geopolitical risk in emerging economies, Figure shows the results of the same country-specific regressions described in equation (1). As for IP, there is a clear negative relationship between country risk and capital inflows, as more risky countries are likely to experience larger outflows at times of heighted global geopolitical tensions.

[11] In Section 5 we present results for a specification that includes more control variables.

5 Robustness

In this section, we investigate the robustness of our main results with respect to several issues. For the VAR models, the analysis focuses on the benchmark specification presented in Section 4.2, while we refer to the Appendix for results related to the U.S. specification presented in Section **??**.

5.1 VAR Models

In Section xxx we presented, along our main geopolitical risk index, two alternative indexes based on a different selection of words. Consequently, Figure 9 reports the impulse responses identified using a SVAR that replaces our main GPR index with GPR0 (the red dotted lines) and with GPRTERROR2 (the blue ticked lines). An increase in geopolitical risk as proxied by these alternative indexes is associated with a raise in the VIX of only 1-2 points, about half compared to the baseline indicator. Nonetheless, the identified shocks to the GPR has significant effects on real activity. The peak responses of IP in the United States and in advanced economies are about 30 to 40 percent smaller compared to the benchmark specification, but are both economically and statistically significant. The impact response of IP in emerging economies is nearly identical to the benchmark model, while the medium term response is stronger with the GPR0 index and weaker with the GPRTERROR2 index. A similar difference emerges for the response of oil prices: The near term decline is similar across indexes, but the response under the GPR0 index reverts back to zero within 6 months, while the response under the GPRTERROR2 index remains negative for more than two years.

As can be clearly seen in Figure 1 the 9/11 terrorist attacks are by far the episode that induced the largest increase in the index. Moreover, 9/11 is potentially associated with a structural break in the index, which remained persistently elevated after the terrorist attacks converging towards a higher level compared to the first part of the sample. But the 9/11 terrorist attacks were not a typical geopolitical event, as they targeted the world financial center and provoked direct financial effects by forcing the closure of the U.S. stock market and other major financial institutions. Moreover, the 9/11 attacks had also a great impact on news coverage of terrorism and more broadly of geopolitical events outside the U.S., which might account for the level change of our index.

For the aformentioned reasons, we plot in Figure 9 the impulse responses to a GPR index shock from a VAR model that includes dummies for September and October 2001 (the red dotted lines) and for a censored version of the GPR index (the blue ticked line).[12] The censored GPR index is constructed by setting to zero all observations that are smaller than one standard deviation of the change in the GPR index. The resulting index captures uniquely relatively large changes in geopolitical risk, and hence is less affected by a a potential long-term shift in vocabulary usage.

[12] We included a dummy for both September and October because news coverage of the 9/11 terrorist attacks and especially their geopolitical implications was higher in October than in September.

The impulse responses of all variables to a GPR shock in the model with the 9/11 dummies is nearly identical to the baseline model. A notable exception is represented by the response of oil prices, which is about 50 percent smaller than in the baseline model, although both economically and statistically significant. This result is consistent with the evidence that ...

As shown in the top left panel, by censoring the GPR index, a GPR shock induces a very temporary increase in geopolitical risk, which is zero 3 months after the shock. The lack of persistance translates into a more muted response of IP in advanced economies, while the response of IP in emerging economies is unaffected. Interestingly, the decline in oil prices becomes larger, reaching 10 percent 3 months after the shock.

FInally, in Figure 11 we explore the robustness to an alternativa Cholesky ordering where we order the GPR index after the VIX and oil prices, that is, last in the block of fast-moving variables. By construction, the impact respnse of the VIX is zero. This exclusion restriction lowers the entire dynamic response of the VIX, which reaches -2.5 4 months after the shock. Despite the decline in the VIX, a shock to GPR has the same effects on IP and on the price of oil. Hence, this result highlights that while geopolitical risk might transmit through higher global volatility, it has a significant independent effect.

5.2 Cross-Country Evidence

The panel regressions presented in Section 4.5 included only the VIX as control variable. Table 2 presents results for specifications that include three additional controls. In particular, we use the Moody's BAA corporate yield over a 10-year Treasury bond yield to measure the tightness of financial conditions in U.S. corporate bond markets. We also include the term spread, defined as the difference between a 10-year yield and 3-month yield on U.S. treasuries to capture changes in the path of U.S. monetary policy as well as changes in expectations about the U.S. economy. Finally, we include the stock market return measured as the log difference in the S&P 500 stock market index. All these variables also contain information about the state of the world economy, as the U.S. is both largest world economy and home of financial markets that include all major financial institution operating worldwide.

The estimated effect of geopolitical risk on capital flows is extremely robust to the inclusion of these variables. Interestingly, none of these variables has a statistically significant effect on flows, except for stock returns, which have a strong negative relationship with inflows towards advanced economies.

Table 3 tabulates the effects of geopolitical risk on capital flows for two alternative GPR indexes. As shown in Panel (a), an increase in GPR0 predicts an outflow from the subset of emerging economies for which we have IP data. By constract an increase in GPRTERROR2 increases the inflow towards the U.S. and Japan, and the magnitude is similar to the baseline specification. The response of emerging economies has the correct sign but is not statistically significant.

6 Conclusions

[ ]

References

Bloomberg (2016). Investors weigh taking risk amid geopolitical risk. http://my.url.com/.

Caldara, D., M. Cavallo, and M. Iacoviello (2016). Oil price elasticities and oil price fluctuations. Mimeo, Federal Reserve Board.

Del Negro, M. and F. Schorfheide (2011). Bayesian macroeconometrics. In H. van Dijk, G. Koop, and J. Geweke (Eds.), *Handbook of Bayesian Econometrics*, pp. 293–389. Oxford University Press.

Greenspan, A. (2002). Remarks by chairman alan greenspan: banking. In *Washington, DC: Federal Reserve Board (At the annual convention of the American Bankers Association, Phoenix, Arizona.*

A Construction of the Index

[ ]

Table 1: The Impact of Increased Geopolitical Risk on Global Flows

Dependent Variable	Advanced Economies	US & JPN	Emerging Economies	Selected EEs
GPR Index	-0.11	0.15**	−0.16**	−0.14*
	[0.87]	[2.20]	[1.99]	[1.92]
VIX	0.03***	0.00	-0.01	−0.02***
	[3.54]	[0.01]	[0.55]	[5.13]
y_{t-1}	0.12***	0.39***	0.22***	0.41***
	[6.39]	[6.30]	[21.3]	[20.7]
N. Observations	2632	238	6158	2061
N. Countries	25	2	108	22
R^2	0.05	0.50	0.36	0.27

NOTE: The dependent variable in each specification is p_{t+h}. Each row reports the estimates of the OLS coefficients. Each specification also includes a constant and country fixed effects. Absolute t-statistics reported in brackets are based on the heteroskedasticity- and autocorrelation-consistent asymptotic variance-covariance matrix computed according to **?** with the automatic lag selection method of **?**: * $p < .10$, ** $p < .05$, and *** $p < .01$.

Table 2: Global Activity and Oil Prices

Dependent Variable	Advanced Economies	US & JPN	Emerging Economies	Selected EEs
GPR Index	-0.11	0.15**	−0.16**	−0.12*
	[0.80]	[2.07]	[1.99]	[1.64]
VIX	0.02	0.00	-0.01	−0.02***
	[1.34]	[0.68]	[0.55]	[3.45]
y_{t-1}	0.12***	0.37***	0.26***	0.41***
	[6.24]	[6.02]	[21.3]	[20.8]
BAA-10Y	-0.03	0.06	0.81	0.08
	[0.27]	[0.94]	[6.33]	[1.14]
Term Spread	-0.09	0.03	0.81	0.04
	[1.47]	[0.84]	[6.33]	[0.97]
SMR	−0.03**	0.01	0.81	0.01
	[2.54]	[0.33]	[6.33]	[1.23]
N. Observations	2632	238	6158	2061
N. Countries	25	2	108	22
R^2	0.05	0.66	0.36	0.27

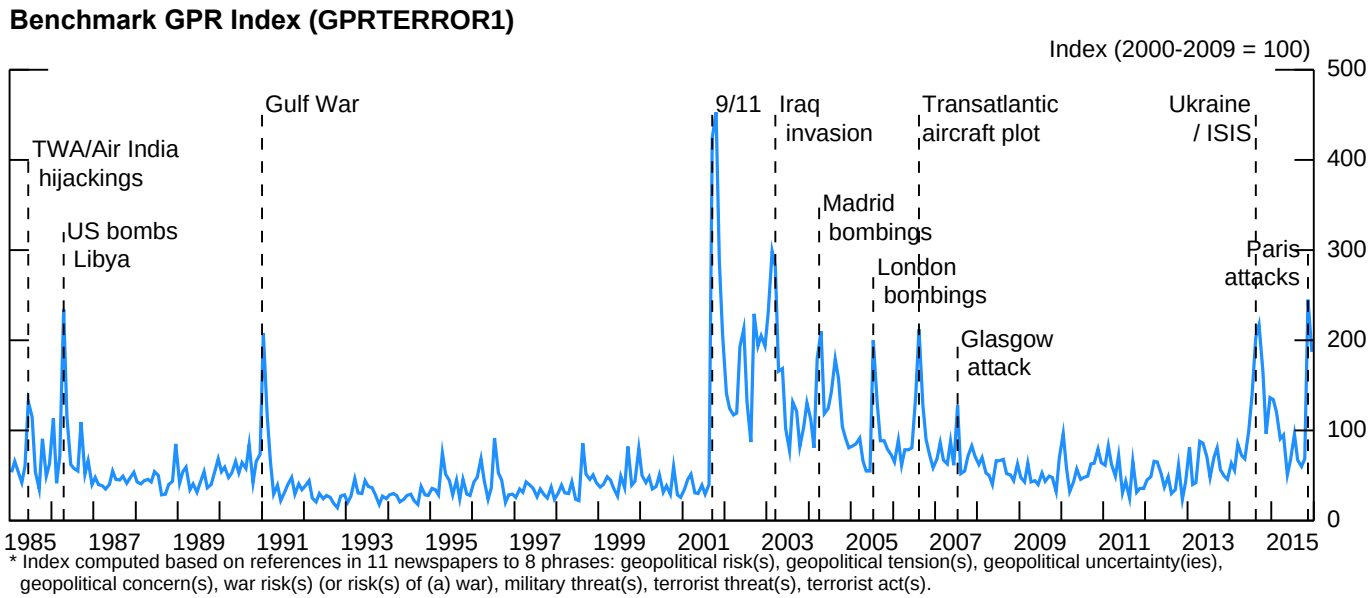
NOTE: The dependent variable in each specification is $flow_{i,t}/GDP_{i,t}$ for the specificed group of countries. Each row reports the estimates of the OLS coefficients; Absolute t-statistics are reported in brackets. All specifications also include country fixed effects. * $p < .10$, ** $p < .05$, and *** $p < .01$.

Table 3: Global Activity and Oil Prices

Dependent Variable	Advanced Economies	USA & JPN	Emerging Economies	Selected EEs
(a) GPR0				
GPR Index	-0.02	0.01	-0.06	-0.07^{*}
	[0.20]	[0.15]	[1.25]	[1.64]
VIX	0.03^{***}	0.00	-0.01	-0.02^{***}
	[3.49]	[0.21]	[0.61]	[5.22]
y_{t-1}	0.13^{***}	0.42^{***}	0.42^{***}	0.41^{***}
	[6.40]	[7.00]	[21.35]	[20.8]
R^2	0.05	0.52	0.37	0.27
(b) GPRTERROR2				
GPR Index	-0.07	0.10^{**}	-0.06	-0.04
	[0.83]	[2.26]	[1.10]	[0.90]
VIX	0.03^{***}	0.00	0.00	-0.02^{***}
	[3.57]	[0.16]	[0.40]	[5.04]
y_{t-1}	0.12^{***}	0.39^{***}	0.42^{***}	0.41^{***}
	[6.39]	[6.48]	[21.31]	[20.8]
R^2	0.05	0.51	0.37	0.27
N. Observations	2632	238	6158	2061
N. Countries	25	2	108	22

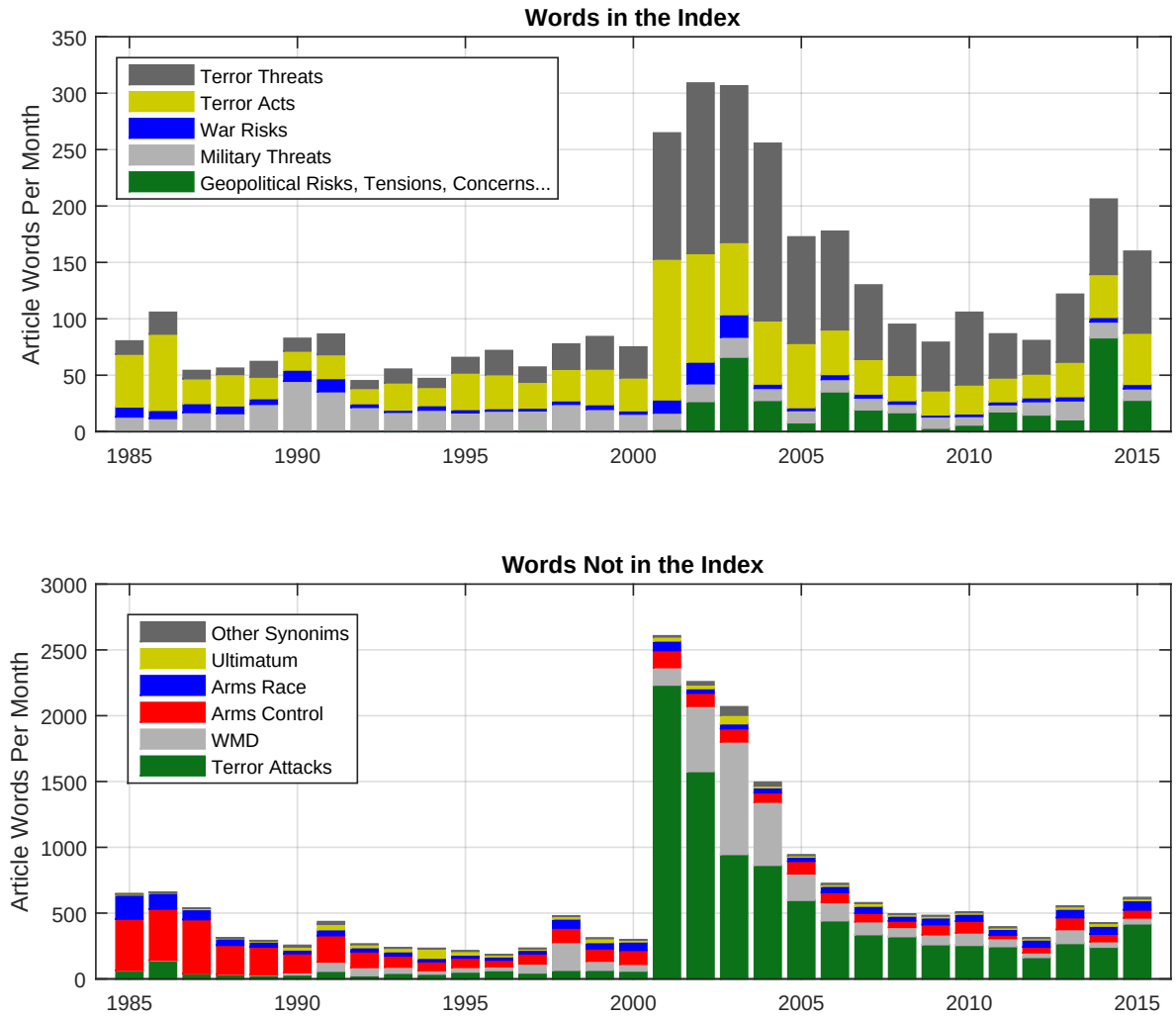
NOTE: The dependent variable in each specification is $flow_{i,t}/GDP_{i,t}$ for the specificed group of countries. Each row reports the estimates of the OLS coefficients; Absolute t-statistics are reported in brackets. All specifications also include country fixed effects. * $p < .10$, ** $p < .05$, and *** $p < .01$.

Figure 1: The Geopolitical Risk Index



Note: The line plots our GPR index.

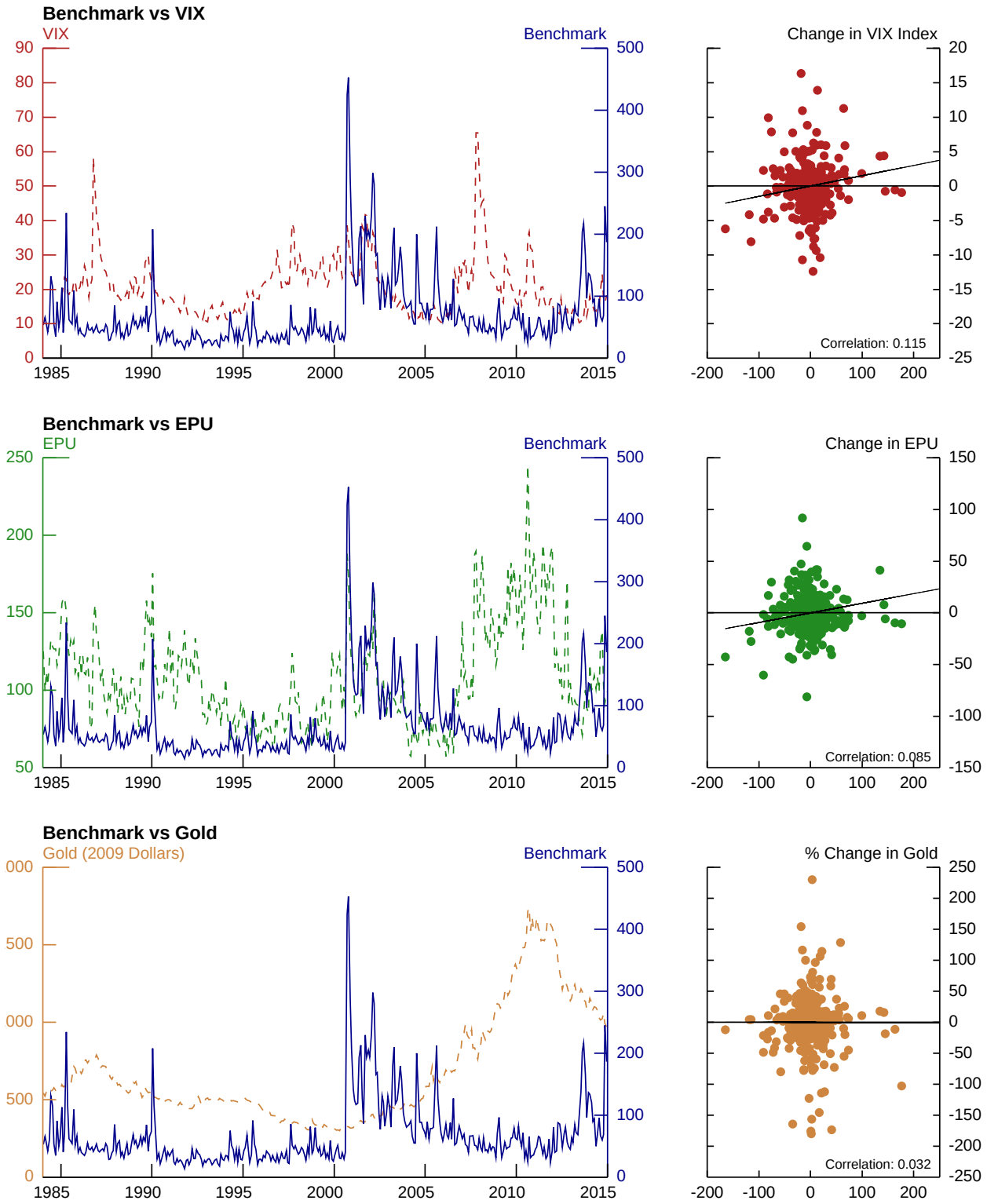
Figure 2: The Geopolitical Risk Index: Contribution of Various Words



Note1: The top panel plots the cumulative contribution of the various phrares that enter the benchmark GPR index. Higher geopolitical risk since the 2000s reflects increased mentions of both terrorist acts and terrorist threats, as well as an increased use of terms directly mentioning geopolitical uncertainties.

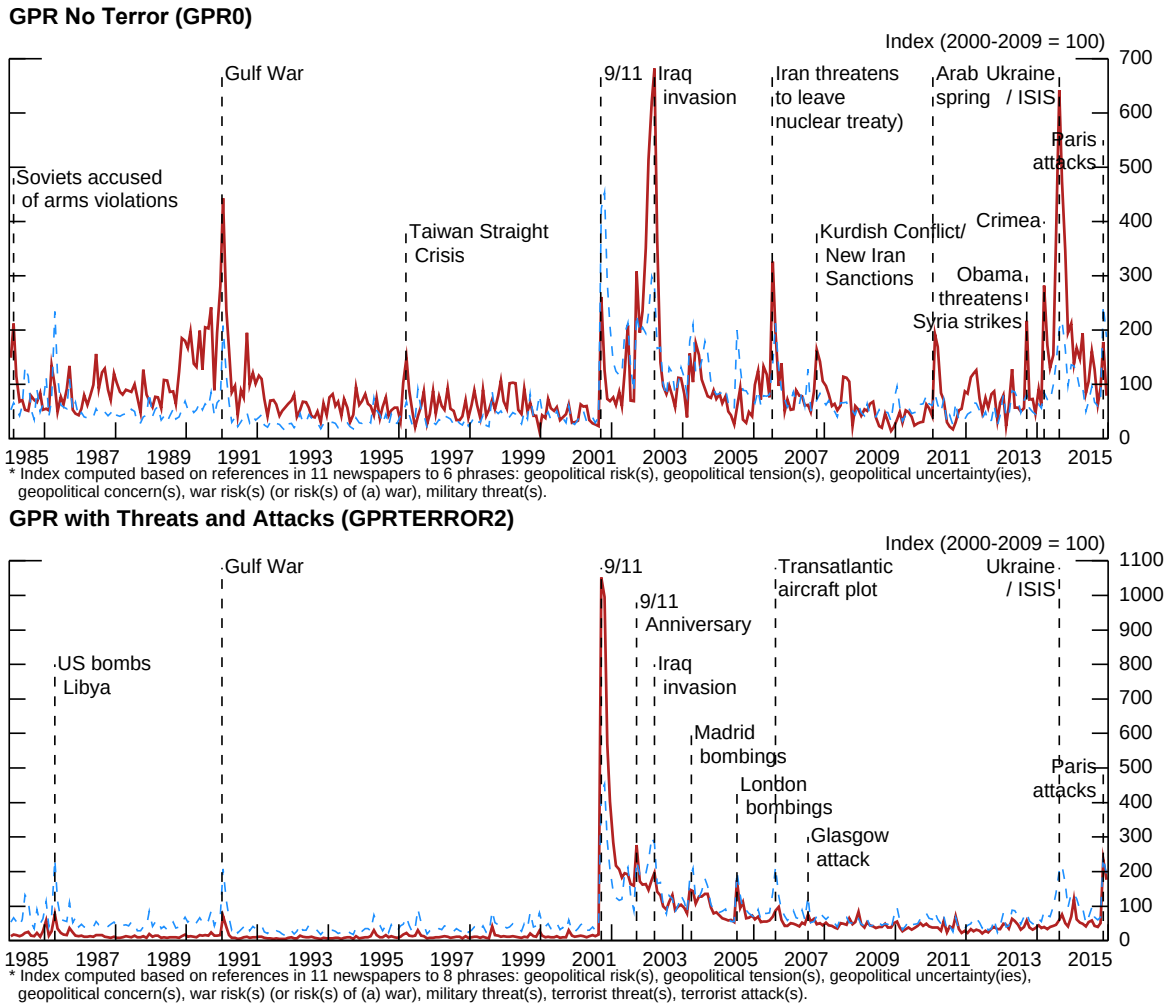
Note2: The bottom panel plots the cumulative contribution of the various phrares that do not enter the benchmark GPR index. Terror attacks appear to be a synonym for 9/11, and are excluded. The word WMD is essentially a by-product of the Bush presidency. Arms control captures the Cold War.

Figure 3: The Geopolitical Risk Index and other Measures of Risk



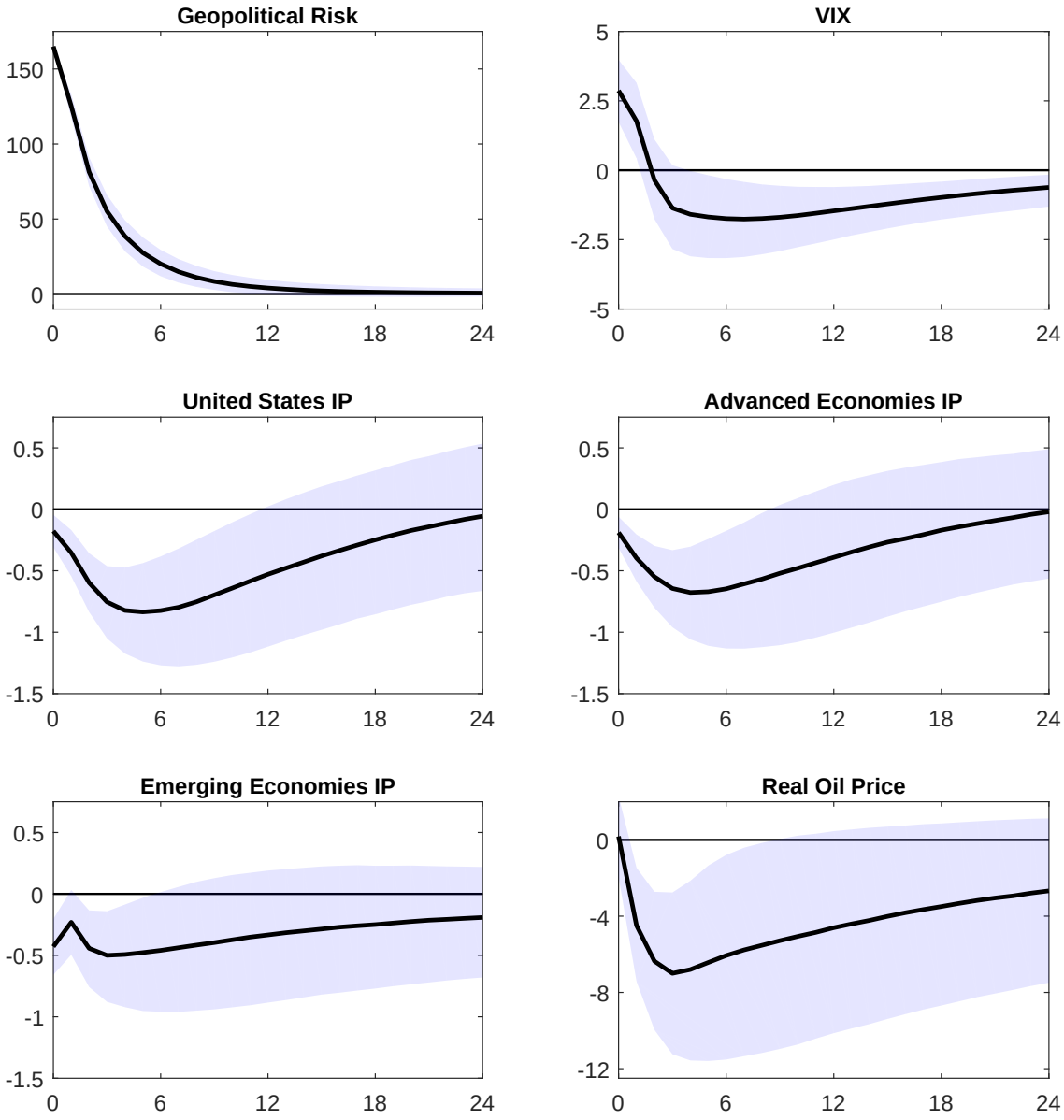
Note: This figure compare our benchmark GPRTERROR1 index with VIX, Bloom's EPU Index, and with the price of Gold

Figure 4: The Geopolitical Risk Index: Alternative Indices



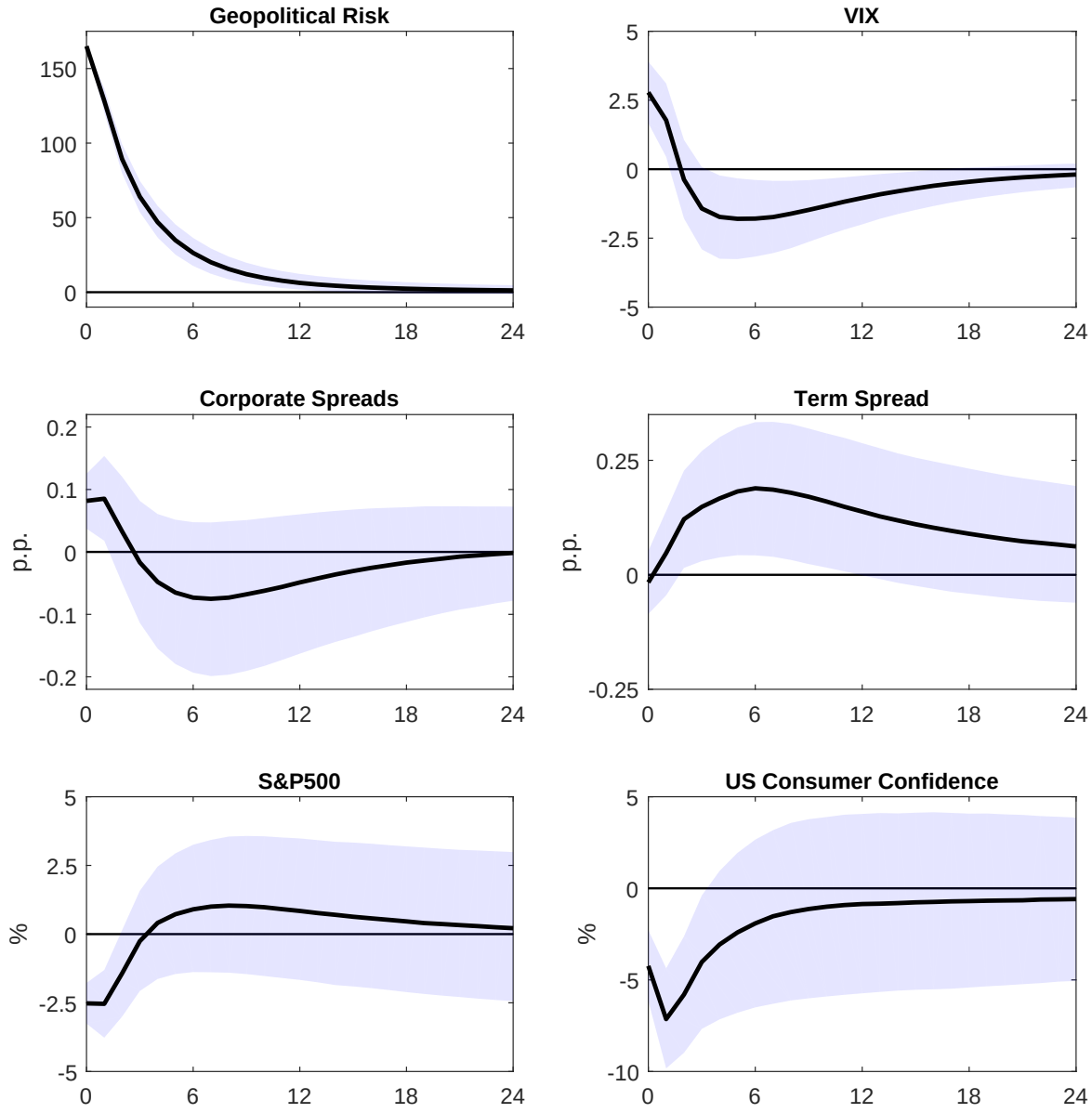
Note1: GPR0 excludes the word terror. Note2: GPRTERROR2 includes terrorist threats and attacks. Note3: GPRTERROR1ARMS includes the phrase arms control.

Figure 5: The Global Impact of Increased Geopolitical Risk



Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set. Except for the responses of the GPR index and the VIX, all responses are measured in percent.

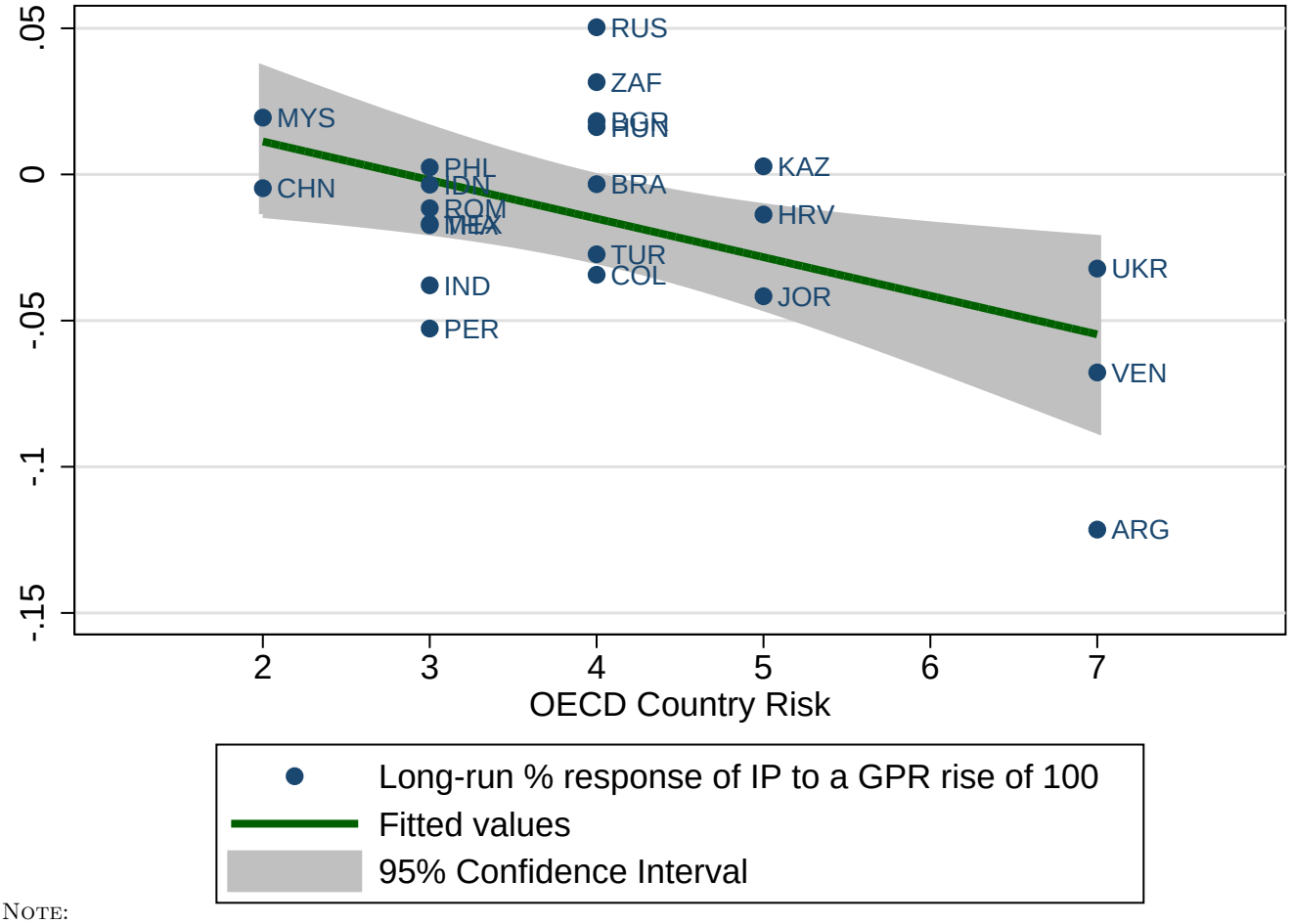
Figure 6: The Domestic Impact of Increased Geopolitical Risk



Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set.

Figure 7: The Impact of Increased Geopolitical Risk in Emerging Economies

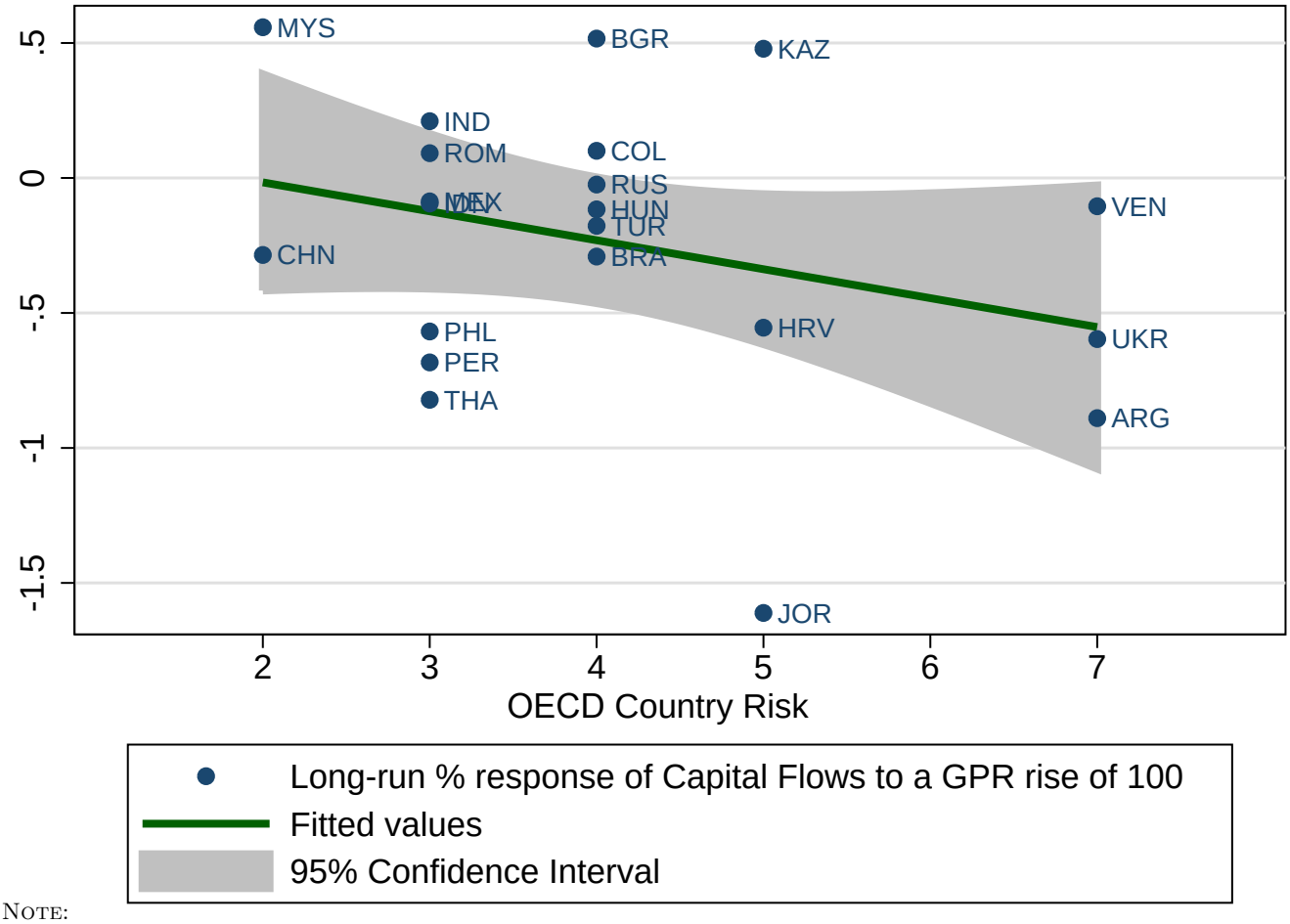
Long-run Elasticity of Industrial Production



Note:

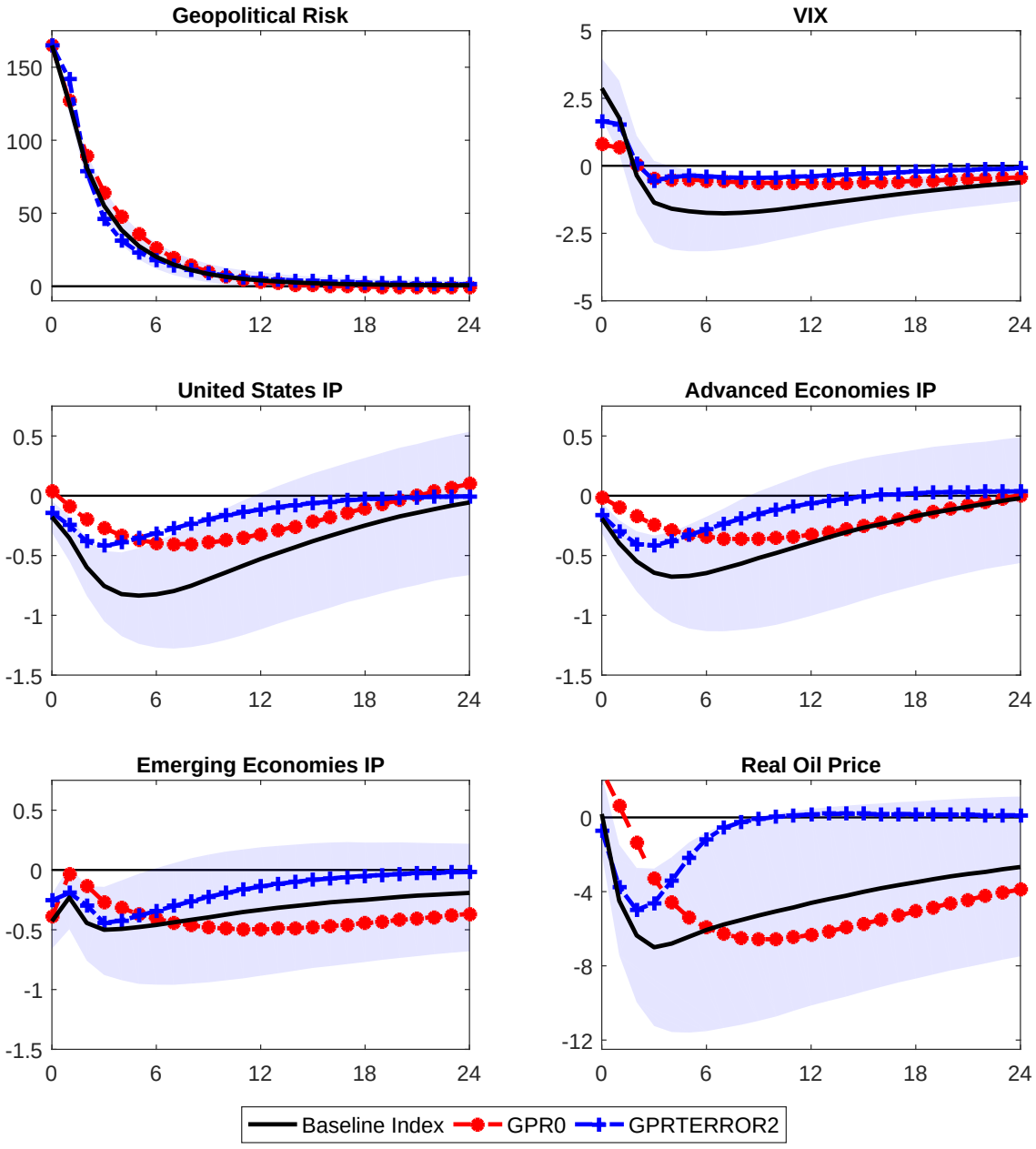
Figure 8: The Impact of Increased Geopolitical Risk in Emerging Economies

Long-run Elasticity of Capital Flows



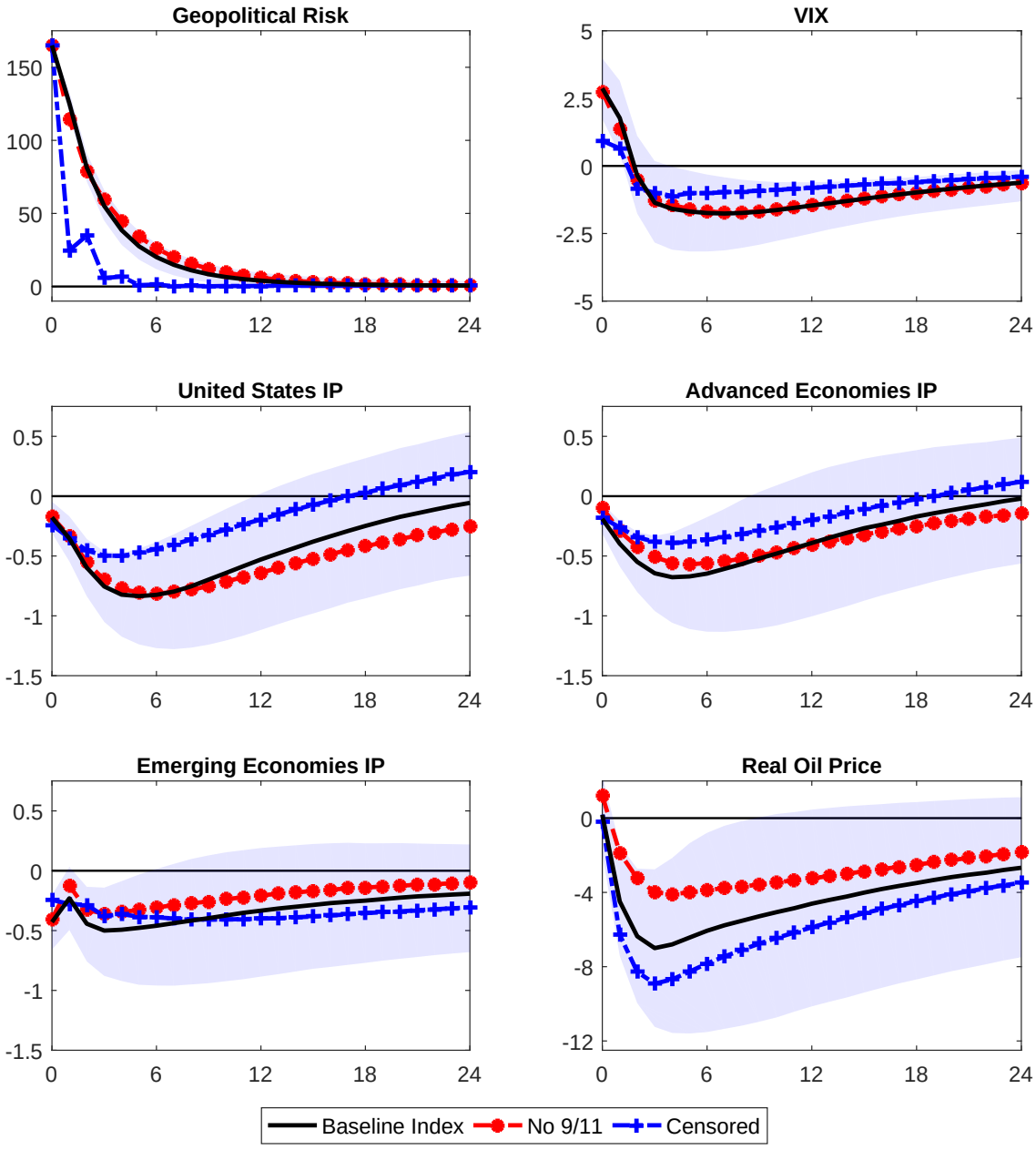
Note:

Figure 9: The Global Impact of Increased Geopolitical Risk
(Sensitivity to Alternative Measures)



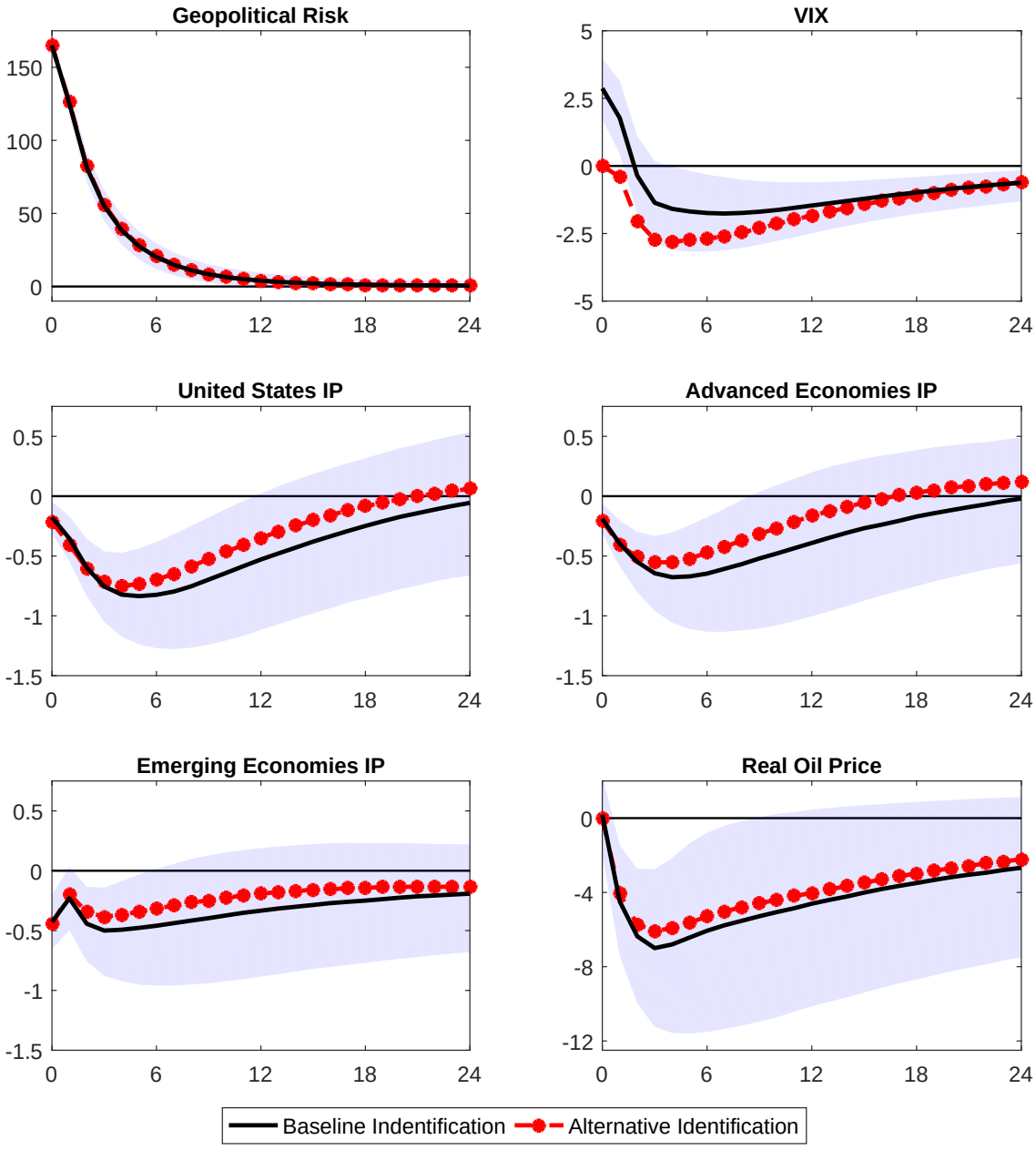
Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set. Except for the responses of the GPR index and the VIX, all responses are measured in percent.

Figure 10: The Global Impact of Increased Geopolitical Risk
(Robustness of Baseline Index)



Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set. Except for the responses of the GPR index and the VIX, all responses are measured in percent.

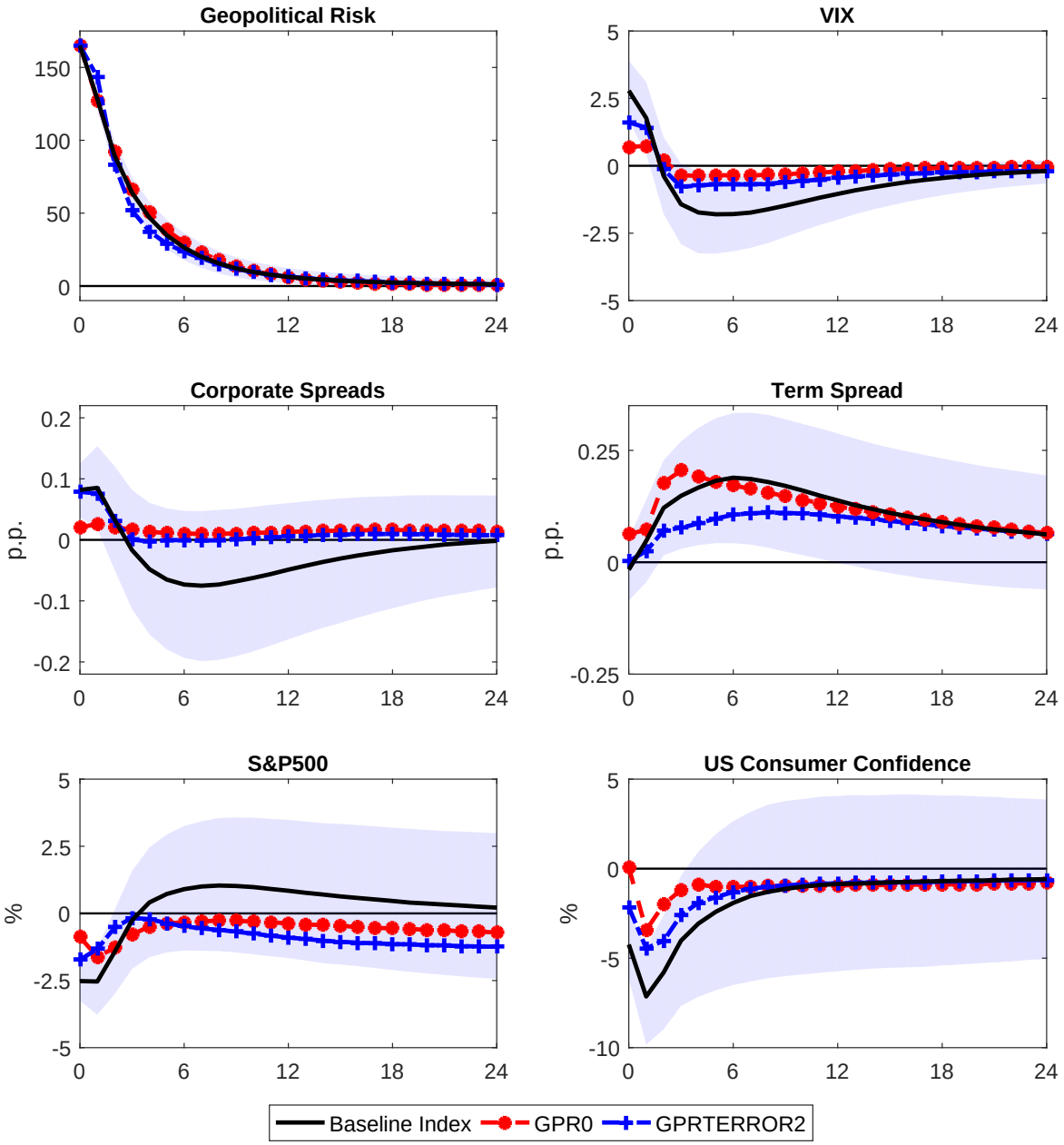
Figure 11: The Global Impact of Increased Geopolitical Risk
(Alternative Identification)



Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set. Except for the responses of the GPR index and the VIX, all responses are measured in percent.

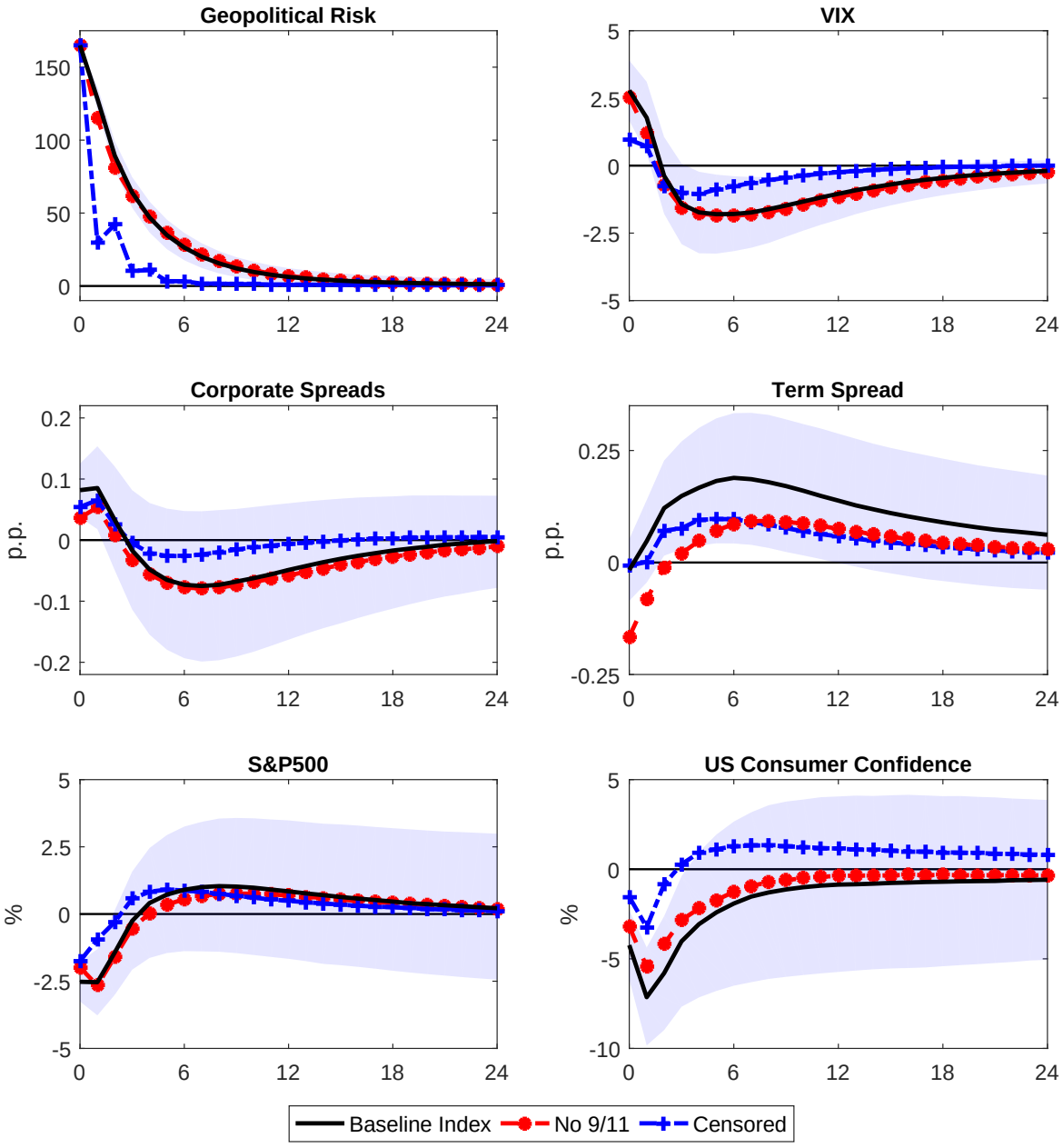
A Additional Figures

Figure A.1: The Domestic Impact of Increased Geopolitical Risk
(Sensitivity to Alternative Measures)



Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set.

Figure A.2: The Domestic Impact of Increased Geopolitical Risk
(Robustness of Baseline Index)



Note: The black solid line in each panel depicts the median impulse response of the specified variable to a rise of 165 in the GPR index, while the shaded bands represent the 68 percent pointwise credible set.