Political Risk and Commodity Currencies

ABSTRACT

We examine the impact of political risk on the relationship dynamics between commodity and currency returns in commodity-exporting countries. We find that the typically positive contemporaneous relationship between commodity and currency returns disappears when political risk increases. This finding is in line with the rare disasters model of Farhi and Gabaix (2016), with the negative effect of political risk being transmitted to foreign exchange rates indirectly by affecting the relationship between the foreign exchange and commodity returns. The results hold for various measures of political risk. The documented effect on the commodity-currency pricing relationship is driven by political risk, not economic uncertainty, and not by appreciation of the US dollar during periods of heightened political risk. The documented effect is stronger for countries with high political risk. The implication is that commodity currencies do not benefit from commodity price increases during periods of heightened political risk.

Keywords: commodity currency, political risk, rare disaster risk, geopolitical risk, foreign exchange rate, commodity return

JEL classifications: F31; F51; G13; G14

THIS VERSION: 1 December 2024

1. Introduction

Political risk has been increasingly on the agenda of governments, policymakers, businesses, and researchers. The ongoing war between Ukraine and Russia started in 2022, and the recent Israel-Hamas conflict started in 2023, have drawn renewed attention to the impact of geopolitical issues on financial markets. Political instability and disasters can impose profound social costs and devastate economies and financial markets (e.g., Nordhaus, 2002; Berkman *et al.*, 2011). For instance, Caldara and Iacoviello (2022) show that an increase in political risk predicts lower investment, employment, and stock prices and increases the probability of an economic disaster and downside risks to GDP growth, confirming that political risk impacts the real economy and financial markets. In this study, we examine the impact of political risk on the pricing dynamics of commodity and foreign exchange markets in commodity-exporting countries.

The positive relationship between commodity prices and the value of currencies of countries where primary commodities constitute a significant component of their exports ("commodity currencies") is well documented. Theoretically, there are several explanations for this relationship, including a terms-of-trade channel (Chen and Rogoff, 2003; Chen, 2005) and a risk premium channel (Van Huellen and Palazzi, 2023). Empirically, there is ample evidence of a positive relationship between commodity prices and the value of commodity currencies (see, e.g., Chen, 2005; Cashin *et al.*, 2004; Chen *et al.*, 2010; Bodart *et al.*, 2012; Bodart and Carpantier, 2023). While there is a consensus in the literature on a positive co-movement of commodity prices and currencies of commodity-exporting countries, there are trends in the commodity and currency markets that the terms of trade of commodity-exporting countries cannot explain. For example, in February 2022, around the outbreak of the war in Ukraine, the expected positive relationship between commodity and currency returns reversed and became negative (Dodd *et al.*, 2022).

We examine how political risk impacts the relationship between commodity and commodity currency returns using a sample of eight commodity currencies of Australia, Brazil, Canada, Chile, Colombia, Norway, Russia, and South Africa from 1980 to 2021. We use the IMF's Real Effective Exchange Rates (e.g., Cashin *et al.*, 2003, 2004) and the IMF's commodity country-specific indices (Gruss and Kebhaj, 2019) to calculate monthly foreign exchange and commodity returns, respectively. Our primary measure of political risk is the country-specific geopolitical risk (GPR) index of Caldara and Iacoviello (2022).

Dynamic conditional correlations (DCC) series between a country's commodity and currency returns reveal substantial volatility and heterogeneity in correlations across time and countries. While the correlations between commodity and currency returns are mainly positive, there are periods where these correlations revert and become negative. The multivariate panel fixed effects regression analysis confirms the expected positive relationship between commodity and currency returns. However, we document that this positive significant relationship disappears when political risk increases. Notably, political risk on its own has no significant impact on commodity currency returns.

The theoretical rare disaster model of Farhi and Gabaix (2016) predicts that an increase in the rare disaster probability is associated with a contemporaneous decrease in the exchange rate as the currency becomes riskier. While we do not find empirical evidence of the direct negative relationship between political risk and commodity currency returns, we document a significant indirect impact of political risk on the currency's value via its impact on the commodity-currency return relationship. We suggest that increased political risk increases commodity prices by raising market uncertainty, increasing the probability of supply chain disruptions, and causing demand or supply shocks. This phenomenon occurs without a corresponding increase in foreign exchange rates as risk premium rises. Consequently, the typically positive relationship between commodities and commodity currencies is diminished or eliminated.

Furthermore, we show that our main finding, the effect of political risk on the commodity-currency returns relationship, is not driven by the choice of the measure of political risk. We employ alternative measures of political risk, including the War Risk indices of Manela and Moreira (2017) and Hirshleifer *et al.* (2023), and the implied political risk component extracted from sovereign credit default swap (CDS) returns, and find that our main result holds when we use these alternative measures.

Next, we rule out the possibility that the documented impact on the commodity-currency relationship is driven by economic uncertainty rather than political risk. We employ various measures of economic uncertainty, including the economic policy uncertainty of Baker et al. (2016) and the trade policy uncertainty of Caldara *et al.* (2020). We find that the impact of changes in economic uncertainty on the pricing dynamics of commodities and currencies is insignificant, and the documented effect of political risk remains significant.

Additionally, we show that the appreciation of the US dollar, as a result of flight-to-safety during periods of heightened political risk, can not explain the documented effect. We also account for the effects of equity returns, interest rate differentials, and changes in consumer confidence when political risk increases and find that the effect of political risk remains significant. Furthermore, we show that foreign exchange regimes do not affect the results: the results remain unchanged when we include only periods when the sample currencies had free-floating exchange rate regimes. Finally, our findings survive several robustness tests, including alternative fixed effects and clusters and alternative foreign exchange and commodity indices data.

Our study contributes to the literature on the impact of political uncertainty shocks on pricing in commodity and foreign exchange markets. Several recent studies investigate how political shocks impact commodity market prices (e.g., Joëts *et al.*, 2017; Hanedar, 2022; Gong and Xu, 2022). For instance, Gong and Xu (2022) find that rising political risk increases the interconnectedness across commodity markets, making them more susceptible to shocks from other commodities. Similarly, there is ample empirical evidence of the impact of uncertainty on the behavior of foreign exchange rates (e.g., Prati and Sbracia, 2010; Beckmann and Czudaj, 2017; Bartsch, 2019; Chen *et al.*, 2020). Regarding the impact of political risk on exchange rates, Eldor and Melnick (2004) and Narayan et al. (2018) show that terrorist attacks have a negative effect on foreign exchange market returns. We contribute to this literature by focusing on the pricing dynamics of commodity and commodity currencies.

The rest of this paper is organized as follows. Section 2 reviews the existing literature on the impact of political risk on the commodity and foreign exchange markets. Section 3 describes the data, while Section 4 explains the empirical design and reports the findings. Lastly, Section 5 provides a conclusion.

2. Literature review

2.1 Commodity prices and commodity currencies

The literature offers insights into the relationship between commodity prices and the value of currencies of commodity-exporting countries ("commodity currencies"). Chen and Rogoff (2003) and Chen (2005) put forward the terms of trade theory, suggesting that increases in commodity prices benefit the terms of trade of the exporting country. As a result, there is an upward pressure on the exporter's currency, leading to its appreciation. Van Huellen and Palazzi (2023) distinguish two channels of the co-movement between commodity and currency returns:

a terms-of-trade channel and a risk premium channel. The risk premium channel assumes that, since commodity currencies are tradable assets, their prices are affected by market participants' risk perceptions and expectations. Van Huellen and Palazzi (2023) highlight the importance of the risk premium channel for understanding the relationship between commodity and commodity currency prices.

Numerous studies provide empirical evidence of a positive relationship between commodity prices and the value of commodity currencies. Chen (2005), using quarterly data from 1973 to 2000, shows that commodity prices impact the real exchange rates of commodity-exporting economies. Cashin *et al*. (2004), using data on 44 commodity prices and the export compositions of 58 commodity-exporting countries from 1980 to 2002, provide evidence of a long-term positive association between the real exchange rates and the real export price index. Chen *et al.* (2010) analyze the relationship between the prices of the commodity bundles exported by Australia, Canada, Chile, New Zealand, and South Africa and find that these five countries' exchange rates outperform several alternative benchmarks in terms of forecasting global commodity prices, both inside and outside of samples. Bodart *et al.* (2012) report that when a commodity makes up at least 20% of a nation's total merchandise export, its price will significantly influence the real exchange rate. Breen and Hu (2021) show that oil price and volatility predict the exchange rate in small open oil-exporting economies, particularly when oil constitutes a substantial portion of the country's exports.

More recently, Wang and Cheung (2023) investigate the explanatory power of real commodity prices to forecast real effective exchange rates using quarterly data on four commodity-exporting nations. They pay particular attention to the distinct roles of different sectoral commodity prices during alternate periods and find that the impact of commodity prices is not constant over time and is not uniform across countries or commodity sectors. Furthermore, macroeconomic conditions, the impact of crises, and the currency rates of major trading partners all affect the pattern of commodity price effects. Haider *et al.* (2023) analyze the relationship between commodity prices and the exchange rate of 77 commodity-dependent developed and emerging countries. They document that primary commodity prices can predict exchange rates in nearly two-thirds of export-dependent developed countries. In contrast, a random walk model renders a better forecasting performance for most export-dependent emerging, import-dependent emerging, and developed countries. Bodart and Carpantier (2023) examine if declines in commodity prices can account for the concurrent occurrence of currency crises in 104 emerging and developing nations from 1970 to 2018. Their results suggest that for every 10% decline in global commodity price indices, the number of currency crises that affect commodity-exporting countries increases by roughly 7%.

2.2 Political risk

Many theoretical and empirical studies have demonstrated the predictive power of rare disaster risks for excess returns and volatility in financial markets. In the case of currencies, building on the works of Rietz (1988) and Barro (2006), Farhi and Gabaix (2016) propose a novel exchange rate model based on the idea that the likelihood of rare but extreme disasters significantly influences risk premia in currency markets. Similarly, Berkman et al. (2011), Wachter (2013), and Berkman et al. (2017) demonstrate that changes in the probability of rare disasters affect stock market prices and volatility. Chen *et al*. (2017) find that political instability (proxied by the growth of global militarisation) is a valid systematic risk factor in international stock markets.

Another strand of literature finds that rare events cause flight-to-quality incidents. Namely, investors sell riskier holdings and become more conservative during turbulent events (Baur and Lucey, 2010). More recently, Caldara and Iacoviello (2022) computed (using textual analysis) the geopolitical risk (GPR) index, defining geopolitical risk as "the threat, realization, and escalation of adverse events associated with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations" (p.1195) Caldara and Iacoviello (2022) show that their GPR index predicts declines in investment, employment, and stock prices for the U.S. and increases the likelihood of economic disasters, lowers expected GDP growth and raises downside risks to GDP growth for cross-country data over 120 years.

Next, we summarize the literature on the impact of political risk on commodity (Section 2.2.1) and foreign exchange (Section 2.2.2) markets.

2.2.1 Political risk and commodity markets

Commodity market prices are prone to volatility, especially in the short-term price movement, when significant political risk events occur. Political risk substantially impacts the commodity markets because it increases market uncertainty and the probability of supply chain disruptions and demand or supply shocks.

Geopolitical events may considerably impact aggregate demand and commodity output, ultimately leading to significant commodity price changes (Su *et al*., 2019). According to Abdel-Latif and El-Gamal (2020), oil prices rise as a result of both political and financial unpredictability. Antonakakis *et al.* (2017), using historical data from 1899 to 2016, find that political risk triggers a negative effect mainly on oil returns and volatility, while Plakandaras *et al.* (2019) demonstrate that political risk can reasonably accurately predict medium- and long-term oil returns. Liu *et al*. (2019) and Smales (2021) show that political risk plays a vital role in oil price volatility. Furthermore, Chowdhury *et al*. (2021) utilize the quantile-on-quantile regression method to examine the impact of political risk on the energy market from a global perspective and find that political risk has a unidirectional causal effect on the energy market. Qin *et al*. (2020) show that geopolitical concerns have asymmetric effects on energy returns and volatility under various market conditions. Baur and Smales (2020) demonstrate that political risk significantly impacts the stability of the markets for precious metals and agricultural products.

Regarding the impact of rare disasters such as political crises and wars, Omar *et al.* (2017) document significant jumps in the price of crude oil in the aftermath of wars and global crises. Moreover, Demirer *et al.* (2018) show that rare disaster risks contribute to excess oil returns and volatility as a jump component in the price process.

More recently, Mitsas *et al.* (2022) show that political risk harms crude oil, gold, platinum, and silver returns, and Tiwari *et al.* (2021) contend that when significant political risk events happen, investors' panic will cause anomalous market fluctuations, ultimately impacting the returns and fluctuations of commodity markets. Using a Markov-Switching model, Abid *et al. (*2023) demonstrate how different commodities returns respond to political risk shocks; the energy market is found to be the most volatile, agricultural products and precious metals experience some variability, and livestock and industrial metals appear to be more stable over time. Lastly, recent research shows that the war in Ukraine, a significant geopolitical risk event, has led to extreme volatility in food prices (Saâdaoui *et al.*, 2022) and oil prices (Adekoya *et al*., 2022). Wang et al. (2022) assess how returns and volatility are transmitted in the commodities universe around the war in Ukraine and find that overall volatility spillover rises from 35% to 85%, surpassing the level observed during the Covid-19 pandemic.

In summary, since the commodity markets are diverse in terms of levels of financial speculation, the ability to store goods, the practicality of supply, and weather sensitivity (Lyu et al., 2021), existing research focuses on the relationship between political risk and prices of specific commodities. The evidence highlights the sensitivity of oil to political risk, with both short- and long-term effects on returns and volatility. Political risk also impacts other commodity markets, such as precious metals and agricultural products.

2.2.2 Political risk and foreign exchange markets

Several studies provide theoretical contributions exploring how political risk influences exchange rate returns and volatility through various mechanisms, including diminishing global trade flows (Gupta *et al.*, 2019a; Ding *et al.*, 2021), modifying global capital or portfolio flows (Broner *et al.*, 2013; Fratzscher, 2012; Cheng and Chiu, 2018; Chiang, 2021), or changing how market participants build their expectations (Davis and Van Wincoop, 2018; Balcilar *et al.*, 2017).

Numerous studies provide empirical evidence on the impact of political risk on foreign exchange rates. Filippou *et al.* (2018) show that political risk is priced in the cross-section of currency momentum, which provides information not contained in other risk indicators. Iyke *et al.* (2022) show that the information content embedded in political risk is economically useful and can improve the forecasting accuracy of exchange rate returns. Cepni *et al*. (2023) find that political risk considerably impacts carry trade returns and volatility for individual BRICS countries throughout various sub-periods. Liu and Zhang (2024) examine the predictive power of geopolitical risk (GPR) for currency returns and report that a zero-cost strategy of buying currencies of high-GPR countries and selling those of low-GPR countries yields a significant annual excess return of 5.72%.

According to Balcilar *et al.* (2017), terrorist acts impact the exchange rate volatility and returns, showing that the lower and upper quantiles of the conditional distribution of exchange rate returns are largely affected by terrorist attacks. Using the non-linear ARDL model, Kisswani and Elian (2021) document that political risk has symmetric and asymmetric effects on exchange rates. Bossman *et al.* (2023) use a nonparametric quantile-on-quantile regression analysis and report that the influence of political risk on exchange rates is currency-specific and asymmetric, particularly at the low and high extremes of exchange rate returns. Salisu *et al.* (2022) report that the exchange rates of the BRICS countries are more susceptible to global political risks than domestic (country-specific) ones, highlighting the significant internationalization and interconnectivity of the global financial markets.

Recently, Jeanneret and Sokolovski (2023) study commodity currencies and find that monthly fluctuations in a country's commodity export prices can be used to predict its exchange rate, particularly in high-uncertainty situations. They argue that this predictability is unique to the carry trade and is driven by currency investments exposed to commodities. Finally, Chortane and Pandey (2022) show that the war in Ukraine has raised geopolitical concerns, leading to highly volatile foreign exchange rates.

Several empirical studies test predictions of the rare disaster models. For example, Kugler and Weder (2005) find that mean returns on Swiss assets have been significantly lower than in other currencies, suggesting that this anomaly may be due to an insurance premium against very rare catastrophic events, such as the fall of the Berlin Wall, or sudden death of Soviet leaders. The influential paper of Farhi and Gabaix (2016) shows that the likelihood of rare but extreme disasters is a significant factor in determining exchange rate volatility and returns, especially for riskier currencies. Gupta *et al.* (2019b) examine the in-sample predictability of global political crises as proxies for rare disaster risks and find that they impact returns and volatility of the BRICS's dollar-based exchange rates. More recently, Bonato *et al.* (2023) find that climate-related risks predict the intraday data-based realized volatility of exchange rate returns of eight major fossil fuel exporters (Australia, Brazil, Canada, Malaysia, Mexico, Norway, Russia, and South Africa), using proxies related to climate risks to capture the role of rare disaster risks.

Our study advances the understanding of political risk's impact on commodity and foreign exchange markets by analyzing how political risk influences the relationship dynamics between commodity and currency returns of major commodity-exporting countries.

3. Data

Our analysis focuses on commodity currencies (Chen and Rogoff, 2003; Norland, 2020). Our sample includes currencies of commodity-exporting countries with available political risk data: Australia, Brazil, Canada, Chile, Colombia, Norway, Russia, and South Africa. Throughout most of the sample period, these countries maintained intermediate or flexible exchange rate regimes (Ilzetzki et al., 2021). We will assess the sensitivity of this selection in the robustness section.

We obtain the data from several sources. Monthly foreign exchange and commodity indices data are downloaded from the International Monetary Fund (IMF Data). To calculate monthly foreign exchange returns for each country, we use the Real Effective Exchange Rate Index based on the Consumer Price Index obtained from the International Monetary Fund's (IMF) International Financial Statistics (IFS) (e.g., Cashin *et al.*, 2003, 2004).[1,2] The IMF's real effective exchange rate index for each country is defined as the trade-weighted average of bilateral exchange rates against trading partners' currencies, adjusted for price differentials between the home country and trading partner countries; a higher (lower) value of the real effective exchange rate index represents an appreciation (depreciation) of the currency. We also use the nominal WM/Refinitiv foreign exchange rates (expressed as the US dollar price) downloaded from LSEG Datastream in the robustness tests. Monthly commodity country-specific indices come from the IMF's database developed by Gruss and Kebhaj (2019). In this comprehensive database, country-specific commodity price indices account for the changes in global market prices of up to 45 individual commodities weighted by commodity-level trade data for individual countries. As our baseline commodity index, we use the Commodity Export Price Index returns based on individual commodities weighted by the Ratio of Exports to GDP,

[1] We use real exchange rates in the baseline results as these are typically employed in foreign exchange (FX) models (Hassan and Zhang, 2021).
[2] Data source: https://data.imf.org

using rolling weights in real terms.[3] We use alternative commodity indices in the robustness section. The sample period is from February 1980 to December 2021, with some variations across countries.

To measure political risk, we use the monthly geopolitical risk (GPR) index of Caldara and Iacoviello (2022) that estimates adverse geopolitical events and associated risks based on a tally of 10 newspapers (Chicago Tribune, the Daily Telegraph, Financial Times, The Globe and Mail, The Guardian, the Los Angeles Times, The New York Times, USA Today, The Wall Street Journal, and The Washington Post) covering geopolitical tensions.[4] We use the country-specific GPR indices for the sample commodity-exporting countries. Figure 1 plots the monthly country-specific GPR indices. There is considerable time variation in the GPR indices across countries, showing that periods of heightened geopolitical risk do not necessarily coincide in different countries. In addition, we observe high volatility in these indices. Since we are interested in evaluating the impact of the changes in political risk, we use the changes in GPR (ΔGPR) in our analysis.

[Insert Figure 1 around here]

In addition, we download the following monthly variables from LSEG Datastream: MSCI equity market indices in local currencies, local 3-month interest rates,[5] and local OECD consumer confidence indices. We use these variables as controls in the panel regression analysis. Appendix A reports the LSEG Datastream series codes. All continuous series are winsorised at 1% and 99% for each country to deal with outliers. The beginning and the end of the sample (initial and final dates) for each country are reported in the last two columns of Table 1 for the main variables and Appendix B for the control variables.

[3] Data source: https://data.imf.org/?sk=2CDDCCB8-0B59-43E9-B6A0-59210D5605D2&sId=1390030341854
[4] Data source: https://www.matteoiacoviello.com/gpr.htm
[5] We download the 3-month government interest rates for all countries, except for Colombia we use the 3-month implied deposit rate. Additionally, we download the 3-month government interest rate for the United States, which we use to calculate the interest rate differentials for each sample country.

Table 1 reports the descriptive statistics for the foreign exchange, commodity returns, and *ΔGPR* by country and the pooled sample (all countries). The monthly mean return for the foreign exchange ranges from -0.1276% (Colombia) to 0.2534% (Russia), with a significant variation across countries (-0.0164% per month, on average, across countries). On average, the commodity index's monthly mean return is positive (0.0147%) with monthly volatility of 0.7259%. Finally, the average monthly *ΔGPR* is 0.0171%, with a large standard deviation of 9.5246%. The large standard deviation confirms the observed large swings in GPR indices in Figure 1. Appendix B reports the descriptive statistics for the control variables. These statistics show stylized facts such as positive mean stock market returns (1.5856% across countries, on average) and large volatility (8.6685%), positive interest differentials over the 3-month US T-bill (3.0453%), and low changes in the consumer confidence (0.0145%) with a large standard deviation (2.6734%).

[Insert Table 1 around here]

4. Empirical Results

4.1 Dynamic conditional correlations

We hypothesize that political risk may distort the relationship between commodity and currency returns in commodity-exporting countries. Before formally testing this hypothesis, we conduct a preliminary analysis of the co-movement between commodity index and commodity currency returns. Figure 2 plots the dynamic conditional correlations (DCC) series between the country's commodity and currency returns (Engle, 2002).[6] There are two

[6] The dynamic Conditional Correlation (DCC) of Engle (2002) is a statistical model for estimating a time-varying correlation between multiple time series. Unlike static correlation, which assumes a constant relationship over time, DCC allows for correlation to change dynamically in response to new information. The DCC model first estimates the volatility of each time series using a GARCH model and then estimates the time-varying correlation based on the standardized residuals from these GARCH models.

observations from these graphs. First, the correlations between currency and commodity returns for commodity currencies are mainly positive; however, there are periods when this relationship weakens or even reverts, and the correlations become negative. For instance, these correlations were negative for Chile between the late 1980s and early 1990s, coinciding with the transition from authoritarianism to democracy (Barton, 2002). Second, these correlations exhibit substantial volatility and heterogeneity across time and countries. These results motivate a further examination of the dynamics of the relationship between commodity and currency returns and, particularly, how political risks may explain them.

[Insert Figure 2 around here]

4.2 Political risk and the commodity-currency return relationship

In this section, we test our hypothesis that political risk affects the relationship between commodity and currency returns in commodity-exporting countries. To test this hypothesis, we run a multivariate panel fixed effects regression of foreign exchange returns on commodity returns and the changes in the geopolitical risk index including an interaction term between them. Specifically, we estimate the following OLS panel regressions with fixed effects:

$$fx_{i,t} = \beta_0 + \beta_1 Comm_{i,t} + \beta_2 \Delta GPR_{i,t} + \beta_3 Comm_{i,t} \times \Delta GPR_{i,t} + Controls_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where $fx_{i,t}$ is the foreign exchange return of commodity currency *i* at month *t*, $Comm_{i,t}$ is the commodity index return, and $\Delta GPR_{i,t}$ is the changes in the GPR index.[7] Controls are the MSCI equity market index returns in local currencies, local 3-month interest rate differentials with the 3-month US interest rate and the changes in local OECD consumer confidence indices, and $\varepsilon_{i,t}$

[7] We estimate a contemporaneous relationship between commodity and foreign exchange returns based on a common assumption that country-specific commodity index values are exogenous (e.g., Gruss and Kebhaj, 2019). Also, Mendoza (1995) and Broda (2004) provide evidence that small open economies are price takers in international markets for standard terms-of-trade measures.

are the residuals.[8] Since some countries exhibit higher average levels of political risk than others (Figure 1), we include country fixed effects to control for time-invariant country-specific characteristics. We also include year fixed effects to control for common trends in foreign exchange rates and cluster the standard errors by country and year-month. The main coefficient of interest is β_3, which captures the effect of the changes in geopolitical risk on the relationship between currency and commodity returns. A significant β_3 would suggest that changes in political risk influence the relationship between currency and commodity returns. When the signs of β_1 and β_3 align (diverge), it indicates that the changes in political risk amplify (diminish) the relationship between currency and commodity returns. Table 2 reports the estimation results.

[Insert Table 2 around here]

First, we report the estimation results without the interaction term (Model 1). All variables, except *ΔGPR*, are significant and have expected signs. We document the expected positive and significant at the 1% level relationship between commodity and currency returns. Specifically, one standard deviation increase in the commodity index return (0.73% per month across countries) is associated with a 0.57% per month increase in the foreign exchange return. This figure is economically significant, representing 21% of the exchange rate volatility (2.76% per month across countries).

Furthermore, increases in local equity market returns, larger interest rate differentials, and increases in consumer confidence are associated with a significant appreciation of the commodity currency.

Interestingly, there is no significant direct relationship between the geopolitical risk index and foreign exchange returns. Farhi and Gabaix (2016) show that an increase in the rare disaster

[8] Unreported Pearson correlations between the independent variables in Equation (1) are low, suggesting that there are no multicollinearity issues in our panel regressions.

probability is associated with a contemporaneous decrease in the exchange rate. Our empirical results do not support this proposition. We suggest that for commodity currencies, the effect of political risk may be indirect, as it impacts the relationship of the currency returns with commodity prices.[9] We empirically test this premise and report the estimation results in Models 2 to 4 of Table 2.

Model 2 includes only the commodity return, *ΔGPR*, and their interaction term without fixed effects, and Model 3 additionally includes country and year fixed effects. Finally, Model 4 includes the control variables. The commodity index return is positive and significant at the 1% level, and *ΔGPR* is insignificant in all three models. Notably, the coefficient estimate on the interaction term between the commodity return and *ΔGPR* is negative and significant at the 1% level in all models. The last row of Table 2 reports the Wald test *p*-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$. In other words, we test the total effect of commodity returns on foreign exchange returns conditional on the changes in political risk. The null hypothesis is not rejected at the 5% significance level in all models. Thus, the positive relationship between commodity index and commodity currency returns vanishes when political risk increases.

Therefore, an increase in the rare disaster probability associated with political risk does not directly impact commodity currencies but has an indirect impact through its relationship with commodity prices. This finding carries significant implications for commodity-exporting economies, indicating that their currencies do not benefit from the commodity price increases during periods of heightened political risk (e.g., Li *et al*., 2023; Mo *et al.*, 2024).[10]

[9] We additionally evaluate the impact of the changes in geopolitical risk on commodity prices. We estimate panel fixed effects regressions of commodity returns, the dependent variable, on changes in geopolitical risk as an explanatory variable with different sets of controls. The (unreported) results suggest that increases in political risk are associated with higher commodity index returns.

[10] Li *et al*. (2023) find that GPR positively impacts precious metals and crude oil prices, while Mo *et al.* (2024) show that GPR positively affects commodity prices during bull markets.

We interpret our findings as plausible evidence that rising political risk significantly impacts commodity markets by increasing uncertainty, increasing the probability of supply chain disruptions, and causing demand and supply shocks. Political risk affects investment decisions in commodity markets through the financial channel - increasing financial constraints and risk aversion among investors, and the real channel - changing trade patterns and disrupting supply chains. At the same time, political risk prevents the increase in the value of currencies due to the rising risk premium. These combined effects distort or eliminate the typically positive relationship between commodities and commodity currencies.[11,12]

4.3 Alternative measures of political risk

In this section, we test the sensitivity of our main result to the choice of the political risk measure. In the baseline results, we use the changes in the geopolitical risk index (GPR) of Caldara and Iacoviello (2022), the most widely used measure of political risk in the literature. As a robustness test, we employ several alternative measures of political risk based on the War Risk indices of Manela and Moreira (2017) and Hirshleifer *et al.* (2023) and sovereign credit default swap (CDS) returns.[13] Manela and Moreira (2017) and Hirshleifer *et al.* (2023) construct their War Risk indices using text-based analysis that assumes that investors' expectations about future prospects can be shaped by media coverage, which in turn can affect their behavior and decision-making (Shiller, 2019). The co-movement between the Wall Street

[11] The effect of rising political risk may vary during periods of high versus low political risk levels. To test this argument, we create a dummy equal one when the country's GPR in levels is at its highest total sample tercile and zero otherwise, and examine the effect of high-level political risk on the commodity and foreign exchange returns relationship. The unreported results confirm the findings reported in Table 2. That is, the positive and significant relationship between commodity and foreign exchange returns weakens during periods of high political risk. These results are available upon request.
[12] As a robustness test, we include a one-month lagged foreign exchange return as an additional control in Equation (1), given the moderate persistence of foreign exchange returns (see AR(1) in Table 1, Panel A). The main findings remain unchanged with this control variable. These estimation results are available upon request from the authors.
[13] The data source for the War Risk Index of Manela and Moreira (2017) is https://apps.olin.wustl.edu/faculty/manela/data.html. The data source for the War Risk Index of Hirshleifer et al. (2023) is https://www.kuntara.net/working-papers.html.

Journal's front-page coverage of war-related words and options implied volatility (VIX) is the source of Manela and Moreira's (2017) index, while Hirshleifer *et al.'s* (2023) index is based on New York Times articles on war-related topics. These series are available from the late 1800s until March 2016 in Manela and Moreira (2017) and October 2019 in Hirshleifer *et al.* (2023). These indices capture war risk, with higher values indicating periods of high political uncertainty. These two War Risk Indices are positively correlated, but their correlation is low (Pearson correlation is 0.3633 in their common sample from July 1889 to March 2016), suggesting that they capture different aspects of political risk.

We use the global War Risk indices of Manela and Moreira (2017) and Hirshleifer *et al.* (2023) to estimate country-specific exposure to war risk. Specifically, we run OLS contemporaneous regressions of the local equity market returns as a barometer of a country's economic conditions on the War Risk Index using 5-year rolling windows.[14] The absolute values of the betas of these rolling regressions capture the country's exposure to war risk, with higher values indicating a greater exposure of the country to war risk. We use the estimates of country-specific exposure to war risk as a measure of political risk instead of ΔGPR in Equation (1). The estimation results (Models 1 and 2 in Table 3) confirm that our main results hold when we use these alternative measures of political risk.

Next, we use sovereign CDS returns as another proxy for country-specific political risk (e.g., Della Corte et al., 2022). CDS series are downloaded from Bloomberg. We acknowledge that sovereign CDS returns, in addition to changes in political risk, capture changes in economic uncertainty. Indeed, the estimation results (Model 3 of Table 3) show that, in line with the analysis of the impact of economic uncertainty (in Section 4.4), the interaction term of commodity returns and sovereign CDS returns, although negative, is insignificant.

[14] The results are similar when we use alternatives 3- or 7-year windows.

Lastly, we estimate our fourth alternative measure of political risk, the implied changes in political risk from sovereign CDS returns. First, we decompose sovereign CDS returns into different components, including the political risk component, by estimating the following model:

$$CDS_{i,t} = \beta_0 + \beta_1 Comm_{i,t} + \beta_2 \Delta GPR_{i,t} + \beta_3 Equity_{i,t} + \beta_4 IR\_diff_{i,t} + \\ + \beta_5 \Delta Cons\_confid_{i,t} + \varepsilon_{i,t}. \quad (3)$$

We use the β_2 estimate from Equation (3) to calculate the implied change in political risk as:

$$Implied\Delta PR\_CDS_{i,t} = \hat{\beta}_2 \Delta GPR_{i,t}. \quad (4)$$

The estimation results with the implied changes in political risk (*ΔPR*) from sovereign CDS returns as a measure of political risk (Model 4 of Table 3) confirm that the positive relationship between commodity and currency returns disappears when political risk increases. Overall, our main findings hold when we use alternative measures of political risk.

[Insert Table 3 around here]

4.4 Political risk versus economic uncertainty

It is well documented that economic uncertainty affects pricing in commodity markets and foreign exchange markets (e.g., Gozgor *et al.*, 2016; Kido, 2016; Bakas and Triantafyllou, 2018). One possibility is that political risk is correlated with economic uncertainty, and we are capturing the effect of economic uncertainty, rather than political risk, on the relationship between commodity and currency returns. To rule this out, we re-estimate Equation (3), additionally controlling for the changes in economic uncertainty. We employ various measures of economic uncertainty, including the US equity market uncertainty index (EMU), the trade policy uncertainty index (TPU), the climate policy uncertainty index (CPU), the global economic policy uncertainty index (in PPP-adjusted GDP) (GEPU), the US monetary policy uncertainty index (US_MPU), and the US VIX index (US_VIX). All series are downloaded from Prof. S.C. Baker's website,[15] except for VIX, which is downloaded from LSEG Datastream.

Table 4 reports the estimation results. The economic uncertainty measures are either insignificant or negative and significant (GEPU and US_MPU) determinants of foreign exchange returns. The interaction terms of commodity returns with the changes in economic uncertainty are insignificant for all measures except for EMU, which is negative and significant at the 10% level. Overall, there is no evidence that the changes in economic uncertainty affect the relationship between commodity and currency returns. More importantly, the interaction term of commodity returns with the changes in political risk remains negative and significant at the 1% level in all models after controlling for the effects of various measures of economic uncertainty. To conclude, the documented effect of political risk on commodity-currency pricing is driven by political risk, not economic uncertainty.

[Insert Table 4 around here]

4.5 The US dollar effect

The US dollar (USD) is the most traded currency globally, and commodities are typically priced in USD. The USD has been coined a 'safe-haven' currency that tends to appreciate during political and economic crises as a result of flight-to-safety (Ahmed, 2023). Since the U.S. is typically an important trading partner for commodity-exporting countries, the USD would have a significant weight in the IMF's real effective exchange rates. Therefore, the observed negative relationship between commodity and currency returns during periods of heightened political risk could be due to the effect of political risk on the USD value. To rule out this possibility,

[15] Data source: https://www.policyuncertainty.com/index.html

we re-estimate our baseline model with the USD return as an additional control variable and report the results in Table 5. We calculate USD return using the USD index downloaded from LSEG Datastream, which measures the value of the USD relative to a basket of currencies; an increase (decrease) in the USD index signals USD appreciation (depreciation). As expected, the coefficient of the USD index is negative and significant. That is, a USD appreciation is associated with a depreciation of commodity currencies. In Model 2 of Table 5, we additionally include an interaction term between USD return and ΔGPR to control for the effect of the changes in the USD value during periods of political risk increases. This interaction term is insignificant. Importantly, the main results are not affected by the inclusion of USD return and the interaction term of USD return with ΔGPR as controls. We conclude that the documented reversal in the commodity-currency return relationship is not driven by the appreciation of USD during periods of heightened political risk.

[Insert Table 5 around here]

4.6 The effects of other factors during periods of heightened political risk

We have documented that changes in political risk affect the relationship between commodity and currency returns. However, this effect might also encompass the impact of other factors, such as local equity market returns, interest rate differentials, and consumer confidence changes. To rule out this possibility, we estimate regressions that include interaction terms of these variables with ΔGPR. The interaction terms capture the effects of these other factors when political risk increases. Table 6 reports the estimation results. Interacting these factors with ΔGPR does not impact the main finding of the negative commodity-currency returns relationship in periods of increased political risk. Notably, in Model 4 of Table 6, the only significant interaction term is with equity returns, exhibiting the same positive sign as the coefficient on equity return without the interaction. It implies that the positive impact of equity returns on foreign exchange returns is amplified during periods of heightened political risk. Notably, the interaction term of commodity return and *ΔGPR* remains positive and significant at the 1 % level in all models after controlling for the impact of other factors. This confirms that our results are not influenced by the indirect effects of these other factors when political risk increases.

[Insert Table 6 around here]

4.7 Robustness tests

In this section, we test the robustness of our findings by using alternative fixed effects and clusters, alternative exchange rates, and commodity indices.

4.7.1 Alternative fixed effects and clusters

To rule out the possibility that our results may be driven by the choice of fixed effects or clusters, we estimate the baseline model (as in Model 4 of Table 2) with alternative fixed effects and clusters. Table 7 reports the estimation results with the fixed effects and cluster selections specified in the last rows. Although some controls turn insignificant in some models depending on the fixed effect or cluster choices, the effects of the commodity index return and its interaction with *ΔGPR* remain significant in all specifications, consistent with the baseline analysis in Table 2. The null hypothesis in the Wald test is rejected at the 5% level in all specifications, confirming that the positive relationship between commodity and foreign exchange returns in commodity currencies disappears when geopolitical risk increases. We can conclude that the choice of fixed effects or clusters does not drive our findings.

[Insert Table 7 around here]

4.7.2 Alternative exchange rates and regimes

In this section, we test the sensitivity of our main result to the choice of exchange rates. In the baseline results, we use the real effective exchange rates from the IMF. As a robustness test, we use the nominal exchange rates against the US dollar from LSEG Datastream (USD price of a commodity currency), where an increase (decrease) in the exchange rate represents an appreciation (depreciation) of the commodity currency. Table 8 reports the estimation results. The main result is not affected by the choice of the exchange rates. The positive and significant commodity-currency returns relationship disappears during periods of heightened political risk.

[Insert Table 8 around here]

Next, we test the sensitivity of the results to prevailing exchange rate regimes. Our sample spans the period from 1980 to 2021, during which the exchange rate markets underwent significant changes, including shifts from managed to freely floating exchange rate regimes (Ilzetzki et al., 2021). At the beginning of this period, only Brazil had a freely floating exchange rate. Under pegged or managed exchange rate regimes, central banks may have prevented their currencies from responding to fluctuations in commodity prices, thereby weakening the link between exchange rates and commodity prices.

To address this issue, we focus on periods when the exchange rate regimes of our sample currencies were classified as "freely floating" or "freely falling" (Ilzetzki et al., 2021). We re-estimate Equation (1) using this restricted subsample of the IMF's real effective exchange rate indices. These estimation results are not reported for brevity but are available upon request. Although the number of observations is considerably reduced (from 1,604 to 529), our primary findings remain consistent: the impact of commodity prices on exchange rates continues to be positive and significant, with a coefficient of 1.897 and a t-statistic of 3.69. This effect diminishes in periods of increased political risk, as indicated by an interaction term coefficient of -2.003 with t-statistic of -3.39. The Wald test p-value for the overall effect of commodity prices on exchange rates is 0.906, reinforcing the robustness of our findings.

4.7.3 Alternative commodity indices

The IMF provides a set of country-specific commodity price indices that differ in how the commodity weights are calculated (Gruss and Kebhaj, 2019). In the baseline analysis, we use the commodity export price index returns based on individual commodities weighted by the ratio of exports to GDP using rolling weights in real terms. As a robustness test, we employ the other available commodity-specific price indices: 1) commodity net export price index, individual commodities weighted by the ratio of net exports to GDP using fixed weights (Net_export_to_GDP_Fixed), 2) commodity net export price index, individual commodities weighted by the ratio of net exports to GDP using rolling weights (Net_export_to_GDP_Rolling), 3) commodity net export price index, individual commodities weighted by the ratio of net exports to total commodity exports using fixed weights (Net_export_to_TotalCom_Fixed), 4) commodity net export price index, individual commodities weighted by the ratio of net exports to total commodity exports using rolling weights (Net_export_to_TotalCom_Rolling), 5) commodity export price index, individual commodities weighted by the ratio of exports to GDP using fixed weights (Export_to_GDP_Fixed), 6) commodity export price index, individual commodities weighted by the ratio of exports to total commodity exports using fixed weights (Export_to_TotalCom_Fixed), and 7) commodity export price index, individual commodities weighted by the ratio of exports to total commodity exports using rolling weights (Export_to_TotalCom_Rolling). Table 9 reports the estimation results. Notably, the commodity return coefficients are smaller when the individual commodities are weighted by the ratio of exports to total commodity exports. Nevertheless, the main finding holds when we use alternative country-specific commodity price indices.

[Insert Table 9 around here]

4.8 Cross-sectional heterogeneity in the impact of political risk

The theoretical model of Farhi and Gabaix (2016) offers testable hypotheses on the impact of rare disasters on exchange rates, several of which are relevant to our analysis. First, countries with high rare disaster risk have high interest rates (Hypothesis 1). Second, currencies of countries with high rare disaster risks have high expected currency returns (Hypothesis 2). Third, a contemporaneous negative relationship exists between the rare disaster risk and the exchange rates (Hypothesis 3).

To test these hypotheses in our setting, we divide the sample countries into high and low political risk groups using the cross-sectional median of the full sample averages of GPR (in levels) as the cutoff point. In our sample, the countries with high average political risk are Australia, Canada, Russia, and South Africa, while the countries with low average political risk are Brazil, Chile, Colombia, and Norway. We acknowledge the caveat of this analysis due to the limited number of countries in our sample compared to the sample of Farhi and Gabaix (2016). However, we can still confirm their hypotheses. Specifically, we find that countries with high political risk have higher average interest rate differentials (3.65 in Appendix B) than countries with low political risk (3.51), which confirms Hypothesis 1. Similarly, countries with high political risk have a higher average foreign exchange return (0.0430% in Table 1) than countries with low political risk (-0.0535%), which confirms Hypothesis 2. It shows that countries with high political risk are riskier and, consequently, have higher interest rates and higher foreign exchange returns.

To test Hypothesis 3, the most relevant for our analysis, we estimate the baseline regression (Equation (1)) for two subsamples: countries with high and low political risk. Table 10 reports these results. We find that the documented indirect impact of political risk on exchange rates is present only in countries with high political risk. This finding further validates our argument, rooted in Farhi and Gabaix's (2016) rare disaster model, that for commodity currencies, the impact of political risk on exchange rates manifests indirectly by neutralizing the relationship between commodity prices and exchange rates.

[Insert Table 10 around here]

5. Conclusions

Our study provides insights into the relatively under-explored topic of how political risk influences pricing in the foreign exchange markets. Our study confirms that political risk significantly influences commodity and foreign exchange markets. We contribute to the literature by analyzing the relationship between commodity and currency returns conditional on political risk in major commodity-exporting countries. We document that the typically positive relationship between commodity and currency returns disappears when political risk escalates.

Our findings have important practical implications for market participants and policymakers. They highlight the importance of incorporating political risk in investment decision-making, risk management strategies, and foreign exchange trading strategies in commodity-exporting countries, especially those with high political risk. Also, policymakers in these countries should be aware of the impact of political risk on their economies. Even during periods of high commodity prices, political instability may prevent corresponding gains in currency values, limiting the economic resilience of the commodity-exporting countries. Political stability can be crucial for maintaining stable commodity prices and foreign exchange rates, which, in turn, significantly contribute to macroeconomic and financial stability.

Funding:

Adrian Fernandez-Perez and Olga Dodd have received funding for this project - the 2023 Contestable Research Grant from the Faculty of Business, Economics and Law, Auckland University of Technology, New Zealand.

Simon Sosvilla-Rivero acknowledges financial support from the Spanish Ministry of Science and Innovation [grants PID2019-105986GB-C21 and TED2021-129891B-I00], the Generalitat de Catalunya [grant 2023 CLIMA 00012], and the Spanish State Investigation Agency [grant AEI/10.13039/501100011033].

Acknowledgments and Disclaimer:

We thank Rimona Palas (discussant) for her comments, as well as other participants at the Ninth (2024) Cross Country Perspective in Finance (CCPF) Conference.

The authors declare that they have no relevant or material financial interests that relate to the research described in this paper.

References

Abdel-Latif, H. and El-Gamal, M. (2020). Financial liquidity, geopolitics, and oil prices. Energy Economics 87: 104482.

Abid, I., Dhaoui, A., Kaabia, O. and Tarchella, S. (2023). Geopolitical risk on energy, agriculture, livestock, precious and industrial metals: New insights from a Markov Switching model. Resources Policy 85: 103925.

Adekoya, O. B., Oliyide, J. A., Yaya, O. S. and Al-Faryan, M. A. S. (2022). Does oil connect differently with prominent assets during war? Analysis of intra-day data during the Russia-Ukraine saga. Resources Policy 77: 102728.

Ahmed, R. (2023). Flights-to-safety and macroeconomic adjustment in emerging markets: The role of US monetary policy. Journal of International Money and Finance, 133, 102827.

Antonakakis, N., Gupta, R., Kollias, C. and Papadamou, S. (2017). Geopolitical risks and the oil-stock nexus over 1899–2016. Finance Research Letters 23: 165-173.

Bakas, D. and Triantafyllou, A. (2018). The impact of uncertainty shocks on the volatility of commodity prices. Journal of International Money and Finance 87: 96-111.

Baker, S. R., Bloom, N., and Davis, S. J. (2016). Measuring economic policy uncertainty. The Quarterly Journal of Economics 131: 1593–1636.

Balcilar, M., Gupta, M., Pierdzioch, C. and Wohar, M. E. (2017). Do terror attacks affect the dollar-pound exchange rate? A nonparametric causality-in-quantiles analysis. North American Journal of Economics and Finance 41: 44-56.

Barro, R. J. (2006). On the welfare costs of consumption uncertainty. Working Paper 12763, Cambridge, MA: National Bureau of Economic Research.

Barton, J. R. (2002). State "Continuismo" and "Pinochetismo:" The keys to the Chilean transition. Bulletin of Latin American Research 21: 358-374.

Bartsch, Z. (2019). Economic policy uncertainty and dollar-pound exchange rate return volatility. Journal of International Money and Finance, 98: 102067.

Baur, D. G. and Lucey, B. M. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold. Financial Review, 45: 217–229.

Baur, G. and Smales, L. A. (2020). Hedging geopolitical risk with precious metals. Journal of Banking and Finance 117: 105823.

Beckmann, J., and Czudaj, R. (2017). The impact of uncertainty on professional exchange rate forecasts. Journal of International Money and Finance, 73, 296-316.

Berkman, H., Jacobsen, B., and Lee, J. B. (2011). Time-varying rare disaster risk and stock returns. Journal of Financial Economics 101: 313-332.

Berkman, H., Jacobsen, B. and Lee, J. B. (2017). Rare disaster risk and the expected equity risk premium. Accounting and Finance 57: 351-372.

Bodart, V. and Carpantier, J.-F. (2023). Currency crises in emerging countries: The commodity factor. Journal of Commodity Markets 30: 100287.

Bodart, V., Candelon, B. and Carpantier, J. (2012). Real exchanges rates in commodity producing countries: A reappraisal. Journal of International Money and Finance 31: 1482–1502.

Bonato, M., Cepni, O., Gupta, R. and Pierdzioch, C. (2023). Climate risks and realised volatility of major commodity currency exchange rates. Journal of Financial Markets 62: 100760.

Bossman, A., Gubareva, M. and Teplova, T. (2023). Asymmetric effects of geopolitical risk on major currencies: Russia-Ukraine tensions. Finance Research Letters 51: 103440.

Breen, J. D., and Hu, L. (2021). The predictive content of oil price and volatility: New evidence on exchange rate forecasting. Journal of International Financial Markets, Institutions and Money, 75, 101454.

Broda, C. (2004). Terms of trade and exchange rate regimes in developing countries. Journal of International Economics 63: 31-58.

Broner, F., Didier, T., Erce, A. and Schmukler, S.L. (2013). Gross capital flows: Dynamics and crises. Journal of Monetary Economics 60: 113–133.

Caldara, D. and Iacoviello, M. (2022). Measuring geopolitical risk. American Economic Review 112: 1194-1225.

Caldara, D., Iacoviello, M., Molligo, P., Prestipino, A., and Raffo, A. (2020). The economic effects of trade policy uncertainty. Journal of Monetary Economics 109: 38-59.

Cashin, P., Céspedes, L., and Sahay, R. (2003). Commodity Currencies. Finance & Development 40: 45-48.

Cashin, P., Céspedes, L., and Sahay, R. (2004). Commodity currencies and the real exchange rate. Journal of Development Economics 75: 239-268.

Cepni, O., Emirmahmutoglu, F., Guney, I. E. and Yilmaz, M. H. (2023). Do the carry trades respond to geopolitical risks? Evidence from BRICS countries. Economic Systems 47: 101000.

Chen, Y. C. (2005). Exchange rates and fundamentals: Evidence from commodity currencies. Technical Report. Washington: University of Washington.

Chen, Y. C. and Rogoff, K. (2003). Commodity currencies. Journal of International Economics 60: 133-160.

Chen, Y.-C., Rogoff, K. and Rossi, B. (2010). Can exchange rates forecast commodity prices? The Quarterly Journal of Economics 125: 1145–1194.

Chen, Z., Lu, A. Y. and Yang, Z. (2017). Growing pains: International instability and equity market returns. Financial Management 46: 59-87.

Chen, L., Du, Z., and Hu, Z. (2020). Impact of economic policy uncertainty on exchange rate volatility of China. Finance Research Letters 32: 101266.

Cheng, C. H. J. and Chiu, C.-W. (2018). How important are global geopolitical risks to emerging countries? International Economics 156: 305-325.

Chiang, T. C. (2021). Geopolitical risk, economic policy uncertainty and asset returns in Chinese financial markets. China Finance Review International 11: 474–501.

Chowdhury, M. A. F., Meo, M. S. and Aloui, C. (2021). How world uncertainties and global pandemics destabilised food, energy and stock markets? Fresh evidence from quantile on quantile regressions. International Review of Financial Analysis 76: 101759.

Chortane, S. G. and Pandey, D. K. (2022). Does the Russia-Ukraine war lead to currency asymmetries? A US dollar tale. The Journal of Economic Asymmetries 26: e00265.

Davis, J. S. and Van Wincoop, E. (2018). Globalization and the increasing correlation between capital inflows and outflows. Journal of Monetary Economics 100: 83-100.

Della Corte, P., Sarno, L., Schmeling, M. and Wagner, C. (2022). Exchange rates and sovereign risk. Management Science 68: 5591-5617.

Demirer, R., Gupta, R., Suleman, T. and Wohar, M. E. (2018). Time-varying rare disaster risks, oil returns and volatility. Energy Economics 75: 239-248.

Ding, Q., Huang, J., and Zhang, H. (2021). The time-varying effects of financial and geopolitical uncertainties on commodity market dynamics: A TVP-SVAR-SV analysis. Resources Policy 72: 102079.

Dodd, O., Fernandez-Perez, A., and Sosvilla-Rivero, S. (2022). Currency and commodity return relationship under extreme geopolitical risks: Evidence from the invasion of Ukraine. Applied Economics Letters 30: 46-55.

Eldor, R., and Melnick, R. (2004). Financial markets and terrorism. European Journal of Political Economy 20: 367-386.Engle, R. (2002). Dynamic conditional correlation: A simple class of multivariate generalised autoregressive conditional heteroskedasticity models. Journal of Business and Economic Statistics 20: 339-350.

Farhi, E. and Gabaix, X. (2016). Rare disasters and exchange rates. The Quarterly Journal of Economics 131: 1-52.

Filippou, I., Gozluklu, A. E., and Taylor, M. P. (2018). Global political risk and currency momentum. Journal of Financial and Quantitative Analysis, 53: 2227-2259.

Fratzscher, M. (2012). Capital flows, push versus pull factors and the global financial crisis. Journal of International Economics 88: 341-356.

Gong, X., and Xu, J. (2022). Geopolitical risk and dynamic connectedness between commodity markets. Energy Economics 110: 106028.

Gozgor, G., Lau, C. K. M., and Bilgin, M. H. (2016). Commodity markets volatility transmission: Roles of risk perceptions and uncertainty in financial markets. Journal of International Financial Markets, Institutions and Money, 44, 35-45.

Gruss, B. and Kebhaj, S. (2019). Commodity terms of trade: A new database. Working Paper 2019/021. Washington, DC: International Monetary Fund. https://www.imf.org/en/Publications/WP/Issues/2019/01/24/Commodity-Terms-of-Trade-A-New-Database-46522

Gupta, R., Gozgor, G., Kaya, H. and Demir, E. (2019a). Effects of geopolitical risks on trade flows: evidence from the gravity model. Eurasian Economic Review 9: 515-530.

Gupta, R., Suleman, T., and Wohar, M. E. (2019b). Exchange rate returns and volatility: the role of time-varying rare disaster risks. The European Journal of Finance 25: 190-203.

Haider, S., Nazir, M. S., Jiménez, A. and Jibran Qamar, M.A. (2023). Commodity prices and exchange rates: evidence from commodity-dependent developed and emerging economies. International Journal of Emerging Markets. 18: 241-271.

Hanedar, A. Ö. (2022). Have Commodity Markets Political Nature?. In *Advances in Econometrics, Operational Research, Data Science and Actuarial Studies: Techniques and Theories* (pp. 171-187). Cham: Springer International Publishing.

Hassan, T. A., and Zhang, T. (2021). The economics of currency risk. Annual Review of Economics 13, 281-307.

Hirshleifer, D., Mai, D. Y. and Pukthuanthong, K. (2023). War discourse and disaster premia: 160 Years of Evidence from Stock and Bond Markets. Working Paper 31204. Cambridge, MA: National Bureau of Economic Research.

Ilzetzki, E., Reinhart, C., and Rogoff, K., (2021). Rethinking Exchange Rate Regimes (with Carmen Reinhart and Ken Rogoff). Handbook of International Economics, vol 5, Gita Gopinath, Elhanan Helpman and Kenneth Rogoff, eds.

Iyke, B. N., Phan, D. H. B. and Narayan, P. K. (2022). Exchange rate return predictability in times of geopolitical risk, International Review of Financial Analysis 81: 102099.

Jeanneret, A. and Sokolovski, V. (2023). Commodity prices and currencies. Research Paper Forthcoming, Kensington: UNSW Business School. Available at SSRN: https://ssrn.com/abstract=4564504

Joëts, M., Mignon, V., and Razafindrabe, T. (2017). Does the volatility of commodity prices reflect macroeconomic uncertainty? Energy Economics 68: 313-326.

Kido, Y. (2016). On the link between the US economic policy uncertainty and exchange rates. Economics Letters 144: 49–52.

Kisswani, K. M. and Elian, M. I. (2021). Analysing the (a)symmetric impacts of oil price, economic policy uncertainty, and global geopolitical risk on exchange rate. The Journal of Economic Asymmetries 24: e00204.

Kugler, P. and Weder, B. (2005). Why are returns on Swiss Franc assets so low? Rare events may solve the puzzle. Discussion Paper 5181. London: Centre for Economic Policy Research.

Li, S., Zhang, W. and Zhang, W. (2023). Dynamic time-frequency connectedness and risk spillover between geopolitical risks and natural resources. Resources Policy 82: 103554

Liu, J., Ma, F., Tang, Y. and Zhang, Y. (2019). Geopolitical risk and oil volatility: A new insight. Energy Economics 84: 104548.

Liu, X. and Zhang, X. (2024). Geopolitical risk and currency returns. *Journal of Banking & Finance*, *161*, 107097.

Lyu, Y., Yi, H., Hu, Y. and Yang, M. (2021). Economic uncertainty shocks and China's commodity futures returns: a time-varying perspective. Resources Policy 70: 101979.

Manela, A. and Moreira, A. (2017). News implied volatility and disaster concerns. Journal of Financial Economics, 123, 137-162.

Mendoza, E. G. (1995). The terms of trade, the real exchange rate, and economic fluctuations. International Economic Review, 101-137.

Mitsas, S., Golitsis, P., Khudoykulov, K. and McMillan, D. (2022). Investigating the impact of geopolitical risks on the commodity futures. Cogent Economics & Finance 10: 2049477.

Mo, B., Nie, H. and Zhao, R. (2024). Dynamic nonlinear effects of geopolitical risks on commodities: Fresh evidence from quantile methods. Energy 288: 129759.

Narayan, P. K., Narayan, S., Khademalomoom, S., and Phan, D. H. B. (2018). Do terrorist attacks impact exchange rate behavior? New international evidence. Economic Inquiry 56: 547-561.

Nordhaus, W. D. (2002). The economic consequences of a war in Iraq. Working Paper 9361. Cambridge, MA: National Bureau of Economic Research.

Norland, E. (2020). How Commodity Currencies Performed Amid COVID-19. CME Group (12 November 2020). https://www.cmegroup.com/education/featured-reports/how-commodity-currencies-performed-amid-covid-19.html

Omar, A. M., Wisniewski, T. P., and Nolte, S. (2017). Diversifying away the risk of war and cross-border political crisis. Energy Economics 64: 494-510.

Plakandaras, V. Gupta, R. and Wong, W-K. (2019). Point and density forecasts of oil returns: The role of geopolitical risks. Resources Policy 62: 580-587.

Prati, A., and Sbracia, M. (2010). Uncertainty and currency crises: evidence from survey data. Journal of Monetary Economics 57: 668-681.

Qin, Y., Hong, K., Chen, J., and Zhang, Z. (2020). Asymmetric effects of geopolitical risks on energy returns and volatility under different market conditions. Energy Economics 90: 104851.

Rietz, T. A. (1988). The equity risk premium a solution. Journal of monetary Economics 22: 117-131.

Saâdaoui, F. ben Jabeur, S. and Goodell, J. W. (2022). Causality of geopolitical risk on food prices: Considering the Russo–Ukrainian conflict. Financial Research Letters 49: 103103.

Salisu, A. A., Cuñado, J. and Gupta, R. (2022). Geopolitical risks and historical exchange rate volatility of the BRICS. International Review of Economics & Finance 77: 179-190.

Shiller, R. J. (2019). Narrative Economics: How stories go viral and drive major economic events. Princeton: Princeton University Press.

Smales, L. A. (2021). Geopolitical risk and volatility spillovers in oil and stock markets. The Quarterly Review of Economics and Finance 80: 358-366,

Su, C.-W., Khan, K., Tao, R. and Nicoleta-Claudia, M. (2019).- Does geopolitical risk strengthen or depress oil prices and financial liquidity? Evidence from Saudi Arabia. Energy 187: 116003.

Tiwari, A.K., Boachie, M.K., Suleman, M.T. and Gupta, R. (2021). Structure dependence between oil and agricultural commodities returns: The role of geopolitical risks. Energy 219: 119584.

van Huellen, S., and Palazzi, R. B. (2023). Commodity currencies: Unpicking the asymmetric relationship between commodity prices and exchange rates. Available at SSRN 4628629. https://ssrn.com/abstract=4628629

Wang, W. and Cheung, Y.-W. (2023). Commodity price effects on currencies. Journal of International Money and Finance 130: 102745.

Wang, Y., Bouri, E., Fareed, Z. and Dai, Y. (2022). Geopolitical risk and the systemic risk in the commodity markets under the war in Ukraine. Finance Research Letters 49: 103066.

Wachter, J. (2013). Can time-varying risk of rare disasters explain aggregate stock market volatility? Journal of Finance 68: 987-1035.

Table 1. Descriptive statistics: Main variables

The table reports descriptive statistics for foreign exchange returns, commodity returns, and ΔGPR by country and the pooled sample (all countries). STD represents the standard deviation. AR(1) represents the first autocorrelation values. The Augmented Dickey-Fuller (ADF) p-values are reported, with the null hypothesis that the series are non-stationary. The last two columns report the start and the end year and month of the sample period for each country.

	Obs.	Mean	STD	Min	Max	Skewness	Kurtosis	AR(1)	ADF p-values	Initial date	Final date
Panel A: Foreign exchange rates (%)											
Australia	503	0.0187	2.185	-12.066	5.643	-0.908	5.827	0.308	0.001	1980/02	2021/12
Brazil	503	0.0230	4.458	-22.879	30.503	0.371	12.894	0.167	0.001	1980/02	2021/12
Canada	503	-0.0104	1.455	-9.024	5.489	-0.325	5.888	0.214	0.001	1980/02	2021/12
Chile	503	-0.0979	2.250	-13.529	6.926	-0.808	6.847	0.314	0.001	1980/02	2021/12
Colombia	503	-0.1276	2.390	-9.182	14.056	-0.199	6.516	0.276	0.001	1980/02	2021/12
Norway	503	-0.0116	1.311	-8.267	4.909	-0.837	7.382	0.268	0.001	1980/02	2021/12
Russia	337	0.2534	3.630	-35.824	14.367	-2.907	33.293	0.362	0.001	1993/12	2021/12
South Africa	503	-0.0897	3.242	-17.899	15.959	-0.161	9.713	0.216	0.001	1980/02	2021/12
Pooled series	3858	-0.0164	2.763	-35.824	30.503	-0.526	23.434	0.245	0.001	1980/02	2021/12
Panel B: Commodity index returns (%)											
Australia	503	0.0069	0.359	-1.818	1.861	-0.002	7.779	0.305	0.001	1980/02	2021/12
Brazil	503	-0.0034	0.163	-0.821	0.643	-0.179	5.373	0.363	0.001	1980/02	2021/12
Canada	503	0.0052	0.383	-2.674	1.680	-1.245	11.283	0.329	0.001	1980/02	2021/12
Chile	503	0.0242	0.939	-7.612	3.707	-1.267	16.445	0.430	0.001	1980/02	2021/12
Colombia	503	-0.0038	0.493	-3.548	1.988	-1.287	11.412	0.353	0.001	1980/02	2021/12
Norway	503	0.0258	1.256	-5.786	3.685	-0.683	6.535	0.345	0.001	1980/02	2021/12
Russia	337	0.0840	1.226	-6.358	3.736	-1.079	6.735	0.335	0.001	1993/12	2021/12
South Africa	503	0.0016	0.188	-0.920	0.878	-0.218	7.023	0.346	0.001	1980/02	2021/12
Pooled series	3858	0.0147	0.726	-7.612	3.736	-1.256	18.635	0.360	0.001	1980/02	2021/12
Panel C: ΔGPR (x100)											
Australia	502	0.0148	6.016	-22.480	35.663	0.697	8.284	-0.449	0.001	1980/03	2021/12
Brazil	502	-0.0081	4.426	-23.194	24.535	0.000	7.906	-0.412	0.001	1980/03	2021/12
Canada	502	0.0196	8.367	-30.107	49.160	0.820	7.645	-0.408	0.001	1980/03	2021/12
Chile	502	-0.0094	2.972	-18.129	17.795	-0.084	11.281	-0.395	0.001	1980/03	2021/12
Colombia	502	-0.0012	4.734	-20.488	24.496	0.153	6.282	-0.394	0.001	1980/03	2021/12
Norway	502	0.0084	4.486	-20.937	21.300	0.076	7.360	-0.447	0.001	1980/03	2021/12
Russia	336	0.1770	26.990	-95.476	125.937	0.438	4.806	-0.350	0.001	1994/01	2021/12
South Africa	502	-0.0111	5.718	-32.840	25.414	-0.415	8.592	-0.293	0.001	1980/03	2021/12
Pooled series	3850	0.0171	9.525	-95.476	125.937	0.988	28.021	-0.366	0.001	1980/03	2021/12

Table 2. Commodity currencies and political risk

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. White's t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return	(1)	(2)	(3)	(4)
Commodity_return	0.789***	0.616***	0.528***	0.768***
	(2.830)	(4.356)	(4.374)	(2.979)
ΔGPR	-0.001	-0.003	-0.002	-0.001
	(-0.193)	(-0.761)	(-0.696)	(-0.167)
Commodity_return × ΔGPR		-0.610***	-0.620***	-1.688***
		(-7.790)	(-11.979)	(-8.678)
Equity_return	0.069**			0.070**
	(1.998)			(2.053)
IR_diff	0.001***			0.001***
	(3.711)			(5.379)
ΔCons_confid	0.043*			0.041*
	(1.721)			(1.667)
Constant	-0.004***	-0.000	-0.000	-0.004***
	(-4.367)	(-0.421)	(-0.575)	(-5.155)
Observations	1,604	3,858	3,858	1,604
R-squared	0.181	0.030	0.068	0.187
Country FE	Yes	No	Yes	Yes
Year FE	Yes	No	Yes	Yes
Wald test p-value		0.979	0.604	0.060

Table 3. Alternative measures of political risk

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *Political risk* represents the political risk measure used: (1) *War risk index Manela and Moreira (2017)* is the exposure of a country to the War Risk index of Manera and Moreira (2017), with data ending in March 2016; (2) *War risk index Hirshleifer et al. (2023)* is the exposure of a country to the War Risk index of Hirshleifer et al. (2023), with data ending in October 2019; and (3) S*overeign CDS returns*; and (4) *Implied ΔPR from sovereign CDS returns* is the implied change in a country's political risk constructed as in Equation (4). *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return	(1)	(2)	(3)	(4)
	War risk index Manela and Moreira (2017)	War risk index Hirshleifer et al. (2023)	Sovereign CDS returns	Implied ΔPR from sovereign CDS returns
Commodity_return	1.043**	0.901**	1.329***	1.601***
	(2.426)	(2.447)	(6.732)	(5.196)
Political risk	0.008	0.003***	-0.055***	-0.165***
	(0.470)	(2.995)	(-3.316)	(-3.229)
Commodity_return × ΔGPR	-3.144***	-0.409*	-1.442	-8.522*
	(-2.398)	(-1.684)	(-0.884)	(-1.672)
Equity_return	0.040	0.047	0.018	0.099**
	(1.378)	(1.377)	(0.454)	(2.253)
IR_diff	-0.000***	0.001**	0.001***	0.001***
	(-2.728)	(2.362)	(5.345)	(4.344)
ΔCons_confid	0.046*	0.048**	1.387***	1.521***
	(1.892)	(1.979)	(3.045)	(2.872)
Constant	-0.001	-0.004***	-0.006***	-0.007***
	(-0.556)	(-3.633)	(-8.492)	(-6.479)
Observations	1,051	1,367	629	629
R-squared	0.178	0.167	0.316	0.263
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Wald test p-value	0.066	0.141	0.948	0.247

Table 4. The impact of political risk versus economic uncertainty

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. *ΔEMU* is the change in the US equity market uncertainty index. *ΔTPU* is the change in the trade policy index. *ΔCPU* is the change in the climate policy index. *ΔGEPU* is the change in the global economic policy index (in PPP-adjusted GDP). *ΔUS_MPU* is the change in the US monetary policy index. *ΔUS_VIX* is the change in the US VIX index. Controls are the MSCI equity market return in local currency, the 3-month interest rate differential between the local and the US 3-month interest rates, and the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. White's t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return	(1)	(2)	(3)	(4)	(5)	(6)
Commodity_return	0.752***	0.767***	0.768***	0.724***	0.756***	0.765***
	(3.024)	(2.976)	(2.969)	(3.156)	(3.059)	(2.976)
ΔGPR	-0.001	-0.001	-0.001	-0.002	-0.000	-0.001
	(-0.218)	(-0.252)	(-0.156)	(-0.352)	(-0.082)	(-0.311)
Commodity_return × ΔGPR	-1.673***	-1.812***	-1.693***	-1.492***	-1.675***	-1.442***
	(-7.113)	(-9.886)	(-7.938)	(-6.760)	(-8.652)	(-5.786)
ΔEMU	-0.000					
	(-1.127)					
Commodity × ΔEMU	-0.001*					
	(-1.943)					
ΔTPU		0.000				
		(0.799)				
Commodity × ΔTPU		0.006				
		(0.968)				
ΔCPU			-0.000			
			(-0.040)			
Commodity × ΔCPU			-0.000			
			(-0.057)			
ΔGEPU				-0.0001***		
				(-3.107)		
Commodity × ΔGEPU				0.002		
				(1.227)		
ΔUS_MPU					-0.0001*	
					(-1.743)	
Commodity × ΔUS_MPU					0.000	
					(0.052)	
ΔUS_VIX						-0.000
						(-1.217)
Commodity × ΔUS_VIX						0.017
						(1.552)
Observations	1,604	1,604	1,600	1,443	1,604	1,567
R-squared	0.192	0.189	0.187	0.207	0.190	0.193
Controls, country, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
Wald test p-value	0.073	0.020	0.064	0.106	0.048	0.182

Table 5. The impact of the US dollar returns

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. *USD_return* is the return of the USD index. Panel regressions include country and year fixed effects. White's t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return	(1)	(2)
Commodity_return	0.749***	0.748***
	(2.850)	(2.854)
ΔGPR	-0.001	-0.001
	(-0.358)	(-0.346)
Commodity_return x ΔGPR	-1.684***	-1.730***
	(-7.926)	(-7.637)
USD_return	-0.067*	-0.068*
	(-1.659)	(-1.688)
USD_index x ΔGPR		-0.204
		(-0.682)
Equity_return	0.063*	0.063*
	(1.886)	(1.878)
IR_diff	0.001***	0.001***
	(5.376)	(5.123)
ΔCons_confid	0.044*	0.044*
	(1.830)	(1.855)
Constant	-0.004***	-0.004***
	(-5.372)	(-5.195)
Observations	1,567	1,567
R-squared	0.190	0.190
Country FE	Yes	Yes
Year FE	Yes	Yes
Wald test p-value	0.058	0.055

Table 6. The impact of other factors

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. Equity_return is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. White's t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return	(1)	(2)	(3)	(4)
Commodity_return	0.656***	0.738***	0.674***	0.764***
	(3.091)	(3.721)	(4.557)	(2.979)
ΔGPR	-0.003	0.015	-0.004	0.015
	(-0.933)	(1.608)	(-1.121)	(0.851)
Commodity_return x ΔGPR	-2.027***	-0.727***	-0.531***	-2.232***
	(-7.062)	(-6.735)	(-4.012)	(-8.262)
Equity_return	0.008			0.072**
	(0.580)			(2.105)
Equity_return x ΔGPR	0.251***			0.322***
	(3.808)			(3.775)
IR_diff		0.000		0.001***
		(0.020)		(4.468)
IR_diff x ΔGPR		-0.002**		-0.003
		(-2.239)		(-1.263)
ΔCons_confid			0.082***	0.042*
			(3.332)	(1.758)
ΔCons_confid x ΔGPR			-0.619***	-0.044
			(-4.884)	(-0.128)
Constant	-0.000	-0.001	-0.000	-0.004***
	(-0.817)	(-0.664)	(-0.925)	(-4.911)
Observations	3,146	1,724	2,916	1,604
R-squared	0.086	0.141	0.103	0.194
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Wald test p-value	0.007	0.971	0.610	0.012

Table 7. Robustness test: Alternative fixed effects and clusters

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country, year, or year-month fixed effects. White's t-statistics calculated with standard errors clustered by country and/or month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return	(1)	(2)	(3)	(4)	(5)
Commodity_return	0.364*	0.813***	0.761***	0.768***	0.768***
	(1.664)	(3.064)	(3.035)	(3.029)	(9.377)
ΔGPR	-0.006	-0.001	-0.001	-0.001	-0.001
	(-1.214)	(-0.325)	(-0.181)	(-0.435)	(-0.103)
Commodity_return x ΔGPR	-1.314***	-1.720***	-1.622***	-1.688***	-1.688**
	(-3.255)	(-6.145)	(-9.337)	(-8.359)	(-2.407)
Equity_return	-0.006	0.075**	0.069**	0.070**	0.070***
	(-0.162)	(2.137)	(2.056)	(2.251)	(3.811)
IR_diff	0.001**	0.001**	0.000	0.001***	0.001
	(2.201)	(2.426)	(1.125)	(3.279)	(1.441)
ΔCons_confid	0.029	0.050**	0.040*	0.041**	0.041*
	(1.282)	(2.433)	(1.921)	(2.168)	(1.766)
Constant	-0.003***	-0.003***	-0.002***	-0.004***	-0.004**
	(-3.255)	(-3.190)	(-3.434)	(-4.655)	(-2.379)
Observations	1,523	1,604	1,604	1,604	1,604
R-squared	0.470	0.160	0.183	0.187	0.187
Country FE	Yes	Yes	No	Yes	Yes
Year FE	No	No	Yes	Yes	Yes
Year-Month FE	Yes	No	No	No	No
Cluster	Country-Year-Month	Country-Year-Month	Country-Year-Month	Country	Year-Month
Wald test p-value	0.085	0.091	0.067	0.065	0.189

Table 8. Robustness test: Alternative exchange rates

The dependent variable, FX return, is calculated using nominal foreign exchange rates (USD price of local currency) from LSEG Datastream for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. White's t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

Dep.Var.: FX return (USD/Local currency)	(1)	(2)
Commodity_return	0.954***	0.818***
	(4.805)	(3.523)
ΔGPR	0.002	0.003
	(0.748)	(0.673)
Commodity_return x ΔGPR	-0.873***	-1.308***
	(-7.115)	(-2.825)
Equity_return		0.272***
		(4.589)
IR_diff		0.000
		(0.361)
ΔCons_confid		-0.021
		(-1.012)
Constant	-0.003***	-0.005**
	(-2.781)	(-2.462)
Observations	2,655	1,517
R-squared	0.109	0.263
Country FE	Yes	Yes
Year FE	Yes	Yes
Wald test p-value	0.789	0.461

Table 9. Robustness tests: Alternative commodity indices

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies: AUD, BRL, CAD, CLP, COP, NOK, RUB, and ZAR. *Commodity_return* is calculated using one of the IMF's country-specific commodity export price indices. *ΔGPR* is the change in the country-specific GPR index. *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. White's t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep.Var.: FX return	Net_export_ to_GDP_ Fixed	Net_export_ to_GDP_ Rolling	Net_export_to _TotalCom_ Fixed	Net_export _to_ TotalCom_ Rolling	Export_to _GDP_ Fixed	Export_to_T otalCom_ Fixed	Export_to_T otalCom_ Rolling
Commodity _return	0.738***	0.678***	0.175***	0.157***	0.793***	0.171***	0.158***
	(3.610)	(2.961)	(4.618)	(3.808)	(3.335)	(5.177)	(5.499)
ΔGPR	-0.000	-0.000	-0.000	0.000	-0.000	0.000	0.000
	(-0.084)	(-0.121)	(-0.014)	(0.001)	(-0.098)	(0.035)	(0.036)
Commodity_return x ΔGPR	-1.672***	-1.802***	-0.382***	-0.337***	-1.519***	-0.270***	-0.270***
	(-5.696)	(-7.998)	(-4.907)	(-8.048)	(-7.459)	(-4.713)	(-4.344)
Equity_return	0.078**	0.077**	0.076**	0.075**	0.072**	0.063**	0.062**
	(2.008)	(2.057)	(1.963)	(2.021)	(2.018)	(2.032)	(2.033)
IR_diff	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(5.862)	(5.291)	(5.513)	(5.167)	(6.021)	(5.055)	(4.795)
ΔCons_confid	0.045*	0.045*	0.046**	0.048**	0.043*	0.044*	0.045*
	(1.824)	(1.831)	(1.967)	(1.997)	(1.714)	(1.804)	(1.896)
Constant	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-5.552)	(-5.248)	(-5.795)	(-5.537)	(-5.466)	(-5.503)	(-5.424)
Observations	1,604	1,604	1,604	1,604	1,604	1,604	1,604
R-squared	0.157	0.164	0.168	0.173	0.173	0.209	0.218
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald test p-value	0.074	0.028	0.091	0.048	0.111	0.191	0.144

Table 10. The impact of political risk in countries with high versus low political risk

The dependent variable, FX return, is calculated using the IMF's real effective foreign exchange rates for eight commodity currencies, divided into high political risk (AUD, CAD, RUB, and ZAR) and low political risk (BRL, CLP, COP, and NOK) groups, using the cross-sectional median of the full sample averages of GPR (in levels) as the cutoff point. *Commodity_return* is the country-specific commodity export price index return based on individual commodities weighted by the ratio of exports to GDP using rolling weights. *ΔGPR* is the change in the country-specific GPR index. *Equity_return* is the MSCI equity market return in local currency. *IR_diff* is the 3-month interest rate differential between the local and the US 3-month interest rates. *Cons_confid* is the changes in the country-specific consumer OECD confidence index. Panel regressions include country and year fixed effects. White t-statistics calculated with standard errors clustered by country and month-year are reported in parentheses. Wald test p-values for the null hypothesis $H_0: Comm_{i,t} + Comm_{i,t} \times \Delta GPR_{i,t} = 0$ are reported in the last row. The sample is from February 1980 to December 2021; country-specific variations in the sample period are reported in Table 1. ***, **, ** represent significance at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
Dep.Var.: FX return	High GPR	Low GPR	High GPR	Low GPR
Commodity_return	0.721***	0.426***	1.294***	0.570***
	(2.869)	(4.104)	(7.416)	(2.889)
ΔGPR	-0.003	0.001	-0.001	-0.006
	(-0.694)	(0.146)	(-0.207)	(-0.414)
Commodity_return x ΔGPR	-0.578***	0.821	-1.336***	0.208
	(-3.845)	(0.848)	(-5.419)	(0.195)
Equity_return			0.050***	0.081
			(4.743)	(1.383)
IR_diff			0.001***	0.001***
			(3.052)	(4.071)
ΔCons_confid			0.060	0.033
			(1.187)	(1.174)
Constant	0.000	-0.001*	-0.004***	-0.004***
	(0.613)	(-1.956)	(-4.148)	(-4.528)
Observations	1,846	2,012	823	781
R-squared	0.097	0.064	0.233	0.185
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Wald test p-value	0.745	0.315	0.904	0.558

Figure 1. Geopolitical risk (GPR) index

This figure plots the monthly geopolitical risk (GPR) index of Caldara and Iacoviello (2022) by country.

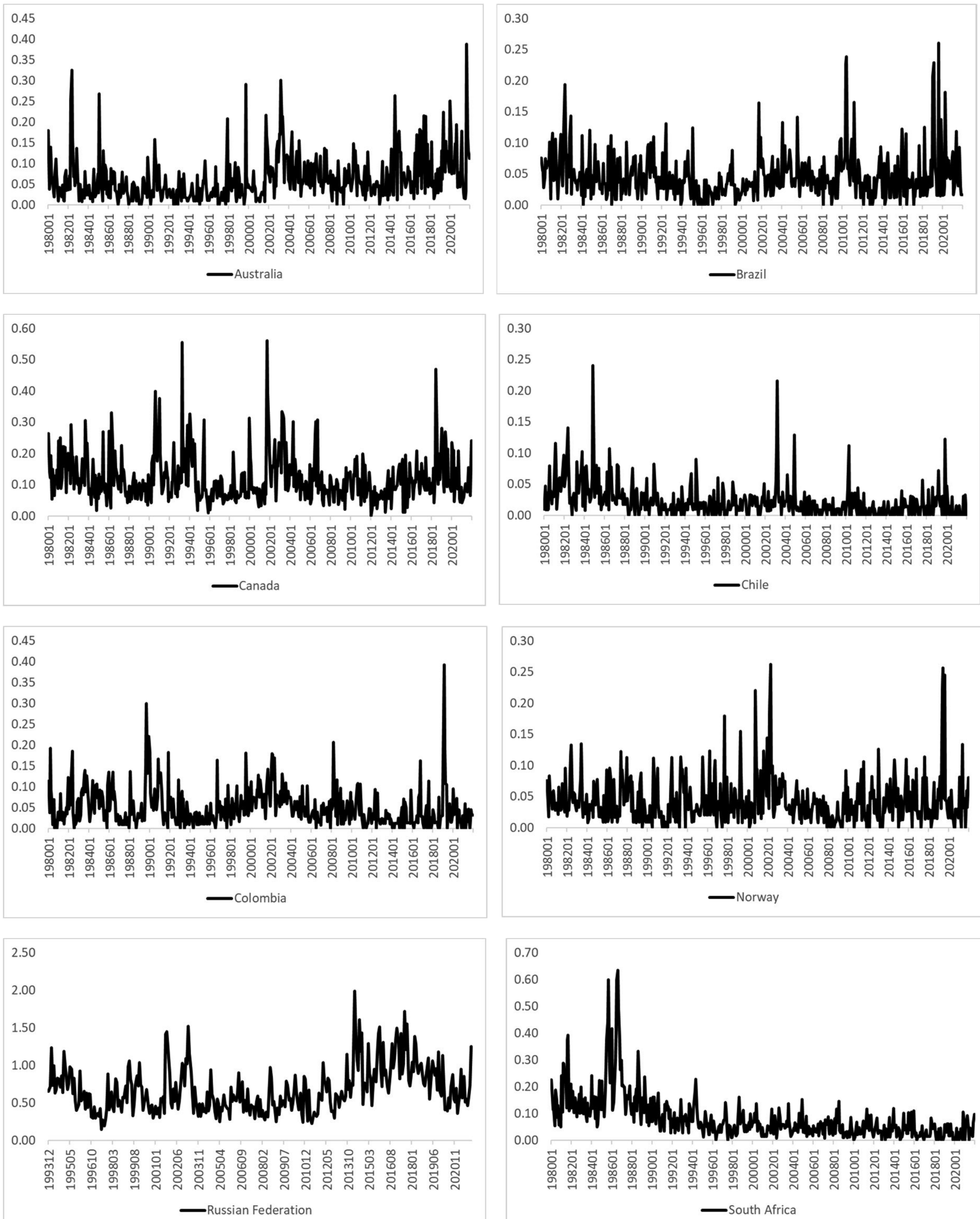
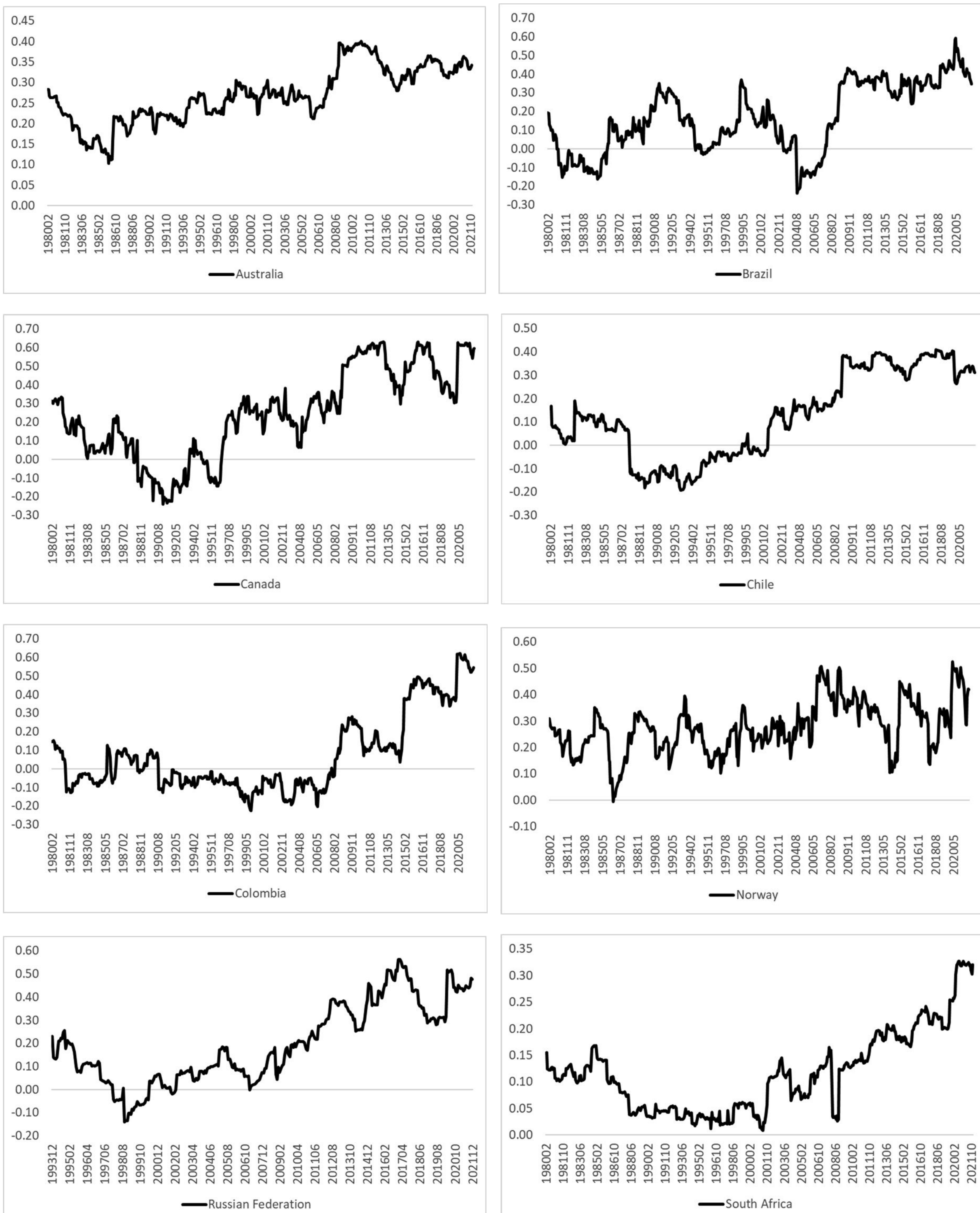


Figure 2. Dynamic conditional correlation between foreign exchange and commodity returns

The figure plots dynamic conditional correlations (DCC) (Engle, 2002) between foreign exchange and commodity index returns for each country.



Appendix A. LSEG Datastream codes

Country	Foreign exchange rates	MSCI Equity indices	3-month interest rates	Consumer confidence index
Australia	AUSTDOI	MSAUSTL	TRAUZ3M	AUMCS002Q
Brazil	BRACRU$	MSBRAZL	TRBR3MT	BROCS005Q
Canada	CNDOLL$	MSCNDAL	TRCN3MT	CNOCS005Q
Chile	CHILPE$	MSCHILL	TRCCZ3M	CLMCS005Q
Colombia	COLUPE$	MSCOLML	COP3MID	CBMCS005Q
Norway	NORKRO$	MSNWAYL	TRNW3MT	NWCNFCONQ
Russian Federation	CISRUB$	MSRU25L	TRRS3MT	RSMCS005Q
South Africa	COMRAN$	MSSARFL	TRSA3MT	SAOCS005Q
USA			TRUS3MT	

Appendix B. Descriptive statistics: Control variables

The table reports descriptive statistics for the MSCI equity returns, 3-month interest rate differentials (local 3-month interest rate minus the US 3-month interest rates), and changes in the consumer confidence index by country and for the pooled sample (all countries). STD represents the standard deviation. AR(1) represents the first autocorrelation values. The Augmented Dickey-Fuller (ADF) p-values are reported, with the null hypothesis that the series are non-stationary. The initial and final sample dates are reported in the last two columns.

	Obs.	Mean	STD	Min	Max	Skewness	Kurtosis	AR(1)	ADF p-values	Initial date	Final date
Panel A: MSCI equity returns (%)											
Australia	503	0.6228	4.855	-41.496	15.320	-1.617	14.672	0.016	0.001	1980/02	2021/12
Brazil	408	6.7970	18.103	-44.370	96.679	2.150	9.702	0.350	0.011	1988/01	2021/12
Canada	503	0.5883	4.499	-21.786	15.944	-0.738	6.370	0.064	0.001	1980/02	2021/12
Chile	408	1.0515	5.926	-28.060	21.517	0.162	4.628	0.109	0.001	1988/01	2021/12
Colombia	348	1.2088	7.519	-33.090	34.735	0.131	5.772	0.118	0.001	1993/01	2021/12
Norway	503	0.7238	6.481	-29.848	20.088	-0.682	5.180	0.113	0.001	1980/02	2021/12
Russia	348	0.9209	5.299	-27.631	16.771	-0.469	5.554	-0.049	0.001	1993/01	2021/12
South Africa	125	0.5730	5.193	-14.579	15.238	-0.129	3.593	-0.051	0.001	2011/08	2021/12
Pooled series	3146	1.5856	8.669	-44.370	96.679	3.379	32.380	0.279	0.001	1980/02	2021/12
Panel B: 3M interest rates differentials (%)											
Australia	126	1.2989	1.506	-1.056	4.787	0.326	2.070	0.968	0.001	2011/07	2021/12
Brazil	152	9.1114	3.951	1.869	13.935	-0.565	1.710	0.995	0.573	2009/05	2021/12
Canada	420	0.8451	1.572	-2.379	5.977	1.027	4.075	0.975	0.022	1987/01	2021/12
Chile	127	0.0686	2.150	-3.853	5.951	0.349	2.570	0.929	0.025	2011/06	2021/12
Colombia	163	3.5824	2.495	-8.156	11.098	-0.022	6.320	0.844	0.047	2008/06	2021/12
Norway	339	0.8971	1.793	-2.155	5.900	0.657	3.063	0.975	0.046	1993/10	2021/12
Russia	245	6.5795	4.685	-1.910	27.367	1.133	5.550	0.947	0.132	2001/08	2021/12
South Africa	152	5.5116	1.042	2.782	7.915	-0.271	2.850	0.854	0.207	2009/05	2021/12
Pooled series	1724	3.0453	3.930	-8.156	27.367	1.375	5.667	0.973	0.001	1987/01	2021/12
Panel C: ΔConsumer confidence (%)											
Australia	503	0.0099	5.189	-19.000	15.000	-0.273	3.895	-0.129	0.001	1980/02	2021/12
Brazil	330	0.0018	0.288	-1.453	0.985	-0.524	6.496	0.787	0.001	1994/07	2021/12
Canada	503	0.0001	0.287	-1.734	0.852	-0.697	7.572	0.806	0.001	1980/02	2021/12
Chile	237	0.0033	0.412	-1.170	1.144	-0.106	2.710	0.795	0.001	2002/04	2021/12
Colombia	241	0.0045	0.443	-1.503	1.304	-0.426	3.776	0.716	0.001	2001/12	2021/12
Norway	352	0.0815	4.484	-31.790	22.515	-1.635	21.851	0.000	0.001	1992/09	2021/12
Russia	276	0.0266	0.421	-1.931	0.900	-1.647	8.135	0.891	0.001	1999/01	2021/12
South Africa	474	-0.0025	0.327	-1.180	1.571	0.411	5.733	0.821	0.001	1982/07	2021/12
Pooled series	2916	0.0145	2.673	-31.790	22.515	-1.250	30.193	-0.074	0.001	1980/02	2021/12