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Monetary Governance and Currencies Resilience in Times of Crisis

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Abstract

This paper explores the central role of monetary governance, i.e., high politics and low politics, in protecting a currency's exchange rate and reducing its volatility during periods of global crisis. Using annual panel data from 15 developed and emerging economies between 2001 and 2023, and applying a panel ARDL approach, the study assesses the effectiveness of high politics—captured through governance indicators—and low politics—captured through economic indicators—as a shield against external shocks, such as the 2008 financial crisis, the COVID-19 pandemic, and the Russo–Ukrainian conflict. The findings demonstrate that strong monetary governance significantly strengthens the Real Effective Exchange Rate (REER) and dampens its volatility in the long-term. In contrast, macroeconomic variables such as inflation, public spending, and trade openness exert destabilizing effects. The results highlight the strategic importance of governance as a long-term anchor of exchange rate resilience, suggesting that countries with robust institutional frameworks are better equipped to withstand global disruptions. These insights offer crucial policy implications for reinforcing monetary governance, especially in emerging economies vulnerable to financial and geopolitical turbulence.

Keywords: COVID-19; crisis; exchange rate; monetary governance; policy; Russo–Ukrainian conflict

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1. Introduction

When a virus halted the global economy, it revealed just how vulnerable—and interconnected—modern monetary systems truly are. The COVID-19 pandemic did not merely disrupt supply chains or employment figures; it redefined the boundaries of crisis, sending shockwaves through financial systems worldwide. Quickly followed by the Russo–Ukrainian conflict, the world found itself in a rare moment of compounded crises, forcing us to ask the following question: what protects a currency when everything else collapses?

At the dawn of the third decade of the 21st century, the world economy was struck by a devastating recession triggered by the COVID-19 health crisis. Government responses, such as lockdowns to curb the spread of the virus, transformed this health crisis into an unprecedented economic mega-crisis. The resulting economic downturn has been described as the worst since the Great Depression (Gopinath, 2020)[1]. This mega-crisis is distinct in the following three significant ways: (1) it is an exogenous crisis, not caused by financial imbalances, as in 2008; (2) it is inherently uncertain, with potential scenarios shaped by unpredictable non-economic factors; (3) it is a truly global crisis, affecting every region without exception (Borio, 2020). The COVID-19 pandemic has plunged the global economy into its most severe recession since World War II (World Bank, 2020)[2].

While the COVID-19 outbreak originated as an exogenous health shock, its transformation into a global economic crisis was also driven by endogenous factors inherent to the structure of the global economy. The globalization of value chains, the intensity of trade flows, and international mobility significantly amplified and accelerated the transmission of economic disruptions across borders. Thus, the deep interconnection of economies turned an initially health-related shock into a systemic economic crisis.

In 2020, global GDP contracted by approximately 2.9%, surpassing the 1.3% decline recorded during the 2009 global financial crisis (World Bank, 2009)[3]. In response, governments launched massive economic support packages. The European Union's "NextGenerationEU" plan mobilized €750 billion (Picek, 2020), while the U.S. CARES Act injected $2.2 trillion into the economy (Congress, 2020)[4].

Yet, just as recovery efforts began to take shape, the Russo–Ukrainian conflict erupted on 24 February 2022 (Choudhary et al., 2022). This geopolitical conflict emerged at a critical juncture, threatening to reverse some of the economic gains achieved during the global recovery from the pandemic (Georgieva, 2022)[5]. The war significantly undermined the post-pandemic economic recovery prospects for emerging and developing economies in the Europe and Central Asia region (World Bank, 2022)[6].

In this precarious economic and geopolitical context, the exchange rate—like other economic and financial indicators—was not immune to the resulting pressures. Several currencies experienced unprecedented levels of value and volatility. A notable example occurred in July 2022, when the U.S. dollar became stronger than the euro for the first time in twenty years, even though the inflation rate in the United States (9%) was higher than in the European Union (8%). This situation appeared to contradict the conventional theory that higher inflation usually leads to a weaker currency, but it reflected a global flight-to-safety behavior and increased demand for dollar-denominated assets during a period of heightened uncertainty.

This apparent anomaly highlights the importance of a less visible, but deeply influential factor, that being monetary governance (Cohen, 2007). Monetary governance refers to the institutions, processes, mechanisms, rules, and decisions—whether economic (low politics) or political (high politics)—designed to ensure the optimal and efficient functioning of a monetary system at the global, regional, or national level. These measures aim to achieve tactical or strategic objectives defined by prevailing circumstances, whether in the short, medium, or long-term.

The emergence of the field of international political economy in the late 1960s dismantled the division between low politics and high politics in international affairs, bridging the gap between economics and political science (Cohen, 2007). In this context, Cooper (1968) highlights the political challenges arising from the increasing interdependence of national economies and the adjustments required to address growing payments imbalances. Such adjustments often impose difficult choices on governments, potentially leading to tensions and conflicts between states. As a result, discussions about money inevitably intersect with discussions about politics.

Effective governance can moderate the impact of crises and reduce their effects on various macro- and micro-economic balances (Almustafa, 2022). Similarly, sound monetary governance plays a critical role in ensuring the resilience of a currency, transforming it into a tool that supports economic, social, and geopolitical development (Cohen, 2018). In essence, good monetary governance not only ensures the stability of the monetary system, but also provides a competitive edge over other currencies.

The significance of monetary governance, or governance in general, becomes particularly pronounced during critical moments (Cohen, 2007). Economic, financial, and

geopolitical crises serve as both a stern test and an opportunity to evaluate the quality of monetary governance within an economy.

This paper aims to examine the triangular relationship between exchange rates and their volatility, monetary governance, and crises, focusing on the cases of the COVID-19 pandemic and the Russo–Ukrainian conflict. Specifically, it asks the following question: to what extent can monetary governance protect a currency's exchange rate and reduce its volatility in the face of global turmoil? The next section reviews the relevant literature, followed by the data and methodology in section three. Section four presents the findings, and the fifth section concludes the study.

2. Theoretical Background and Literature Review

2.1. Theoretical Background

The Bretton Woods Conference (1944), which established an international system for managing monetary relations between states, sought to depoliticize these relations by assigning responsibility to technical experts, thereby limiting national political intervention. However, this effort to resolve exchange rate and balance of payments issues through experts—independent of political considerations—and to separate security concerns and geopolitical rivalries from the technical management of economic affairs, including currency, ultimately contributed to the system's collapse. As a result, there has been growing interest in the political and institutional dimensions of money, particularly in the pioneering work of Kindleberger (1970), Strange (1971), and Cohen (2007). These contributions have broadened the analytical framework by incorporating power dynamics, institutional factors, and geopolitical rivalries into the study of the monetary system.

In his conception of monetary governance, Cohen (2007) distinguishes between the following two spheres of analysis: low politics, which concerns economic and technical mechanisms such as exchange rate regimes and monetary policy; and high politics, which encompasses the strategic, geopolitical, and institutional issues related to money. For Cohen, international monetary relations are inseparable from power relations, interstate rivalries, and the capacity of states to defend their monetary sovereignty in a globalized environment. He argues that global monetary governance is, by definition, a matter of high politics—reflecting the tensions between state sovereignty, market logic, and currency rivalry. The challenge of monetary governance thus lies in the interaction between states, markets, and institutions.

Global economic crises—such as the 2008 financial crisis, the COVID-19 pandemic, and the Russo–Ukrainian conflict—serve as revealing tests of the resilience of governance systems. These critical periods may either worsen existing imbalances or promote the emergence of more robust governance models. They expose the weaknesses of current monetary systems and pose significant challenges for monetary governance. In this context, the quality of monetary governance becomes crucial in reducing exchange rate volatility and mitigating the negative economic effects of crises. Countries with strong monetary governance—marked by transparency, responsiveness, and international cooperation—are better equipped to withstand economic shocks.

Conversely, weak or poorly coordinated governance can intensify the impact of a crisis by increasing exchange rate volatility and undermining investor confidence. The COVID-19 crisis demonstrated how globally coordinated monetary management, supported by appropriate economic policies, can reduce disruptions and stabilize financial markets. With this in mind, and to empirically operationalize the notion of high politics, we use the Worldwide Governance Indicators (WGI) published by the World Bank. These indicators measure the following six key dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and

control of corruption. They are particularly relevant for assessing states' capacity to implement credible policies, manage internal political and economic tensions, and maintain macroeconomic stability in the face of external shocks.

Accordingly, monetary governance, as a form of high politics, is understood here through the lens of institutional strength and national governance quality. Although the Worldwide Governance Indicators (WGI) do not directly measure monetary governance, they reflect the institutional capacity that underpins effective monetary policy. Elements such as political stability, regulatory quality, and rule of law shape the credibility and implementation of monetary decisions. Thus, in this study, WGI indicators are used as a proxy for the 'high politics' of monetary governance. This approach offers a clearer understanding of how states with strong institutional frameworks can cushion the destabilizing effects of global economic crises on their exchange rates and manage their volatility.

Meanwhile, variables such as net foreign assets, economic openness, terms of trade, government spending, inflation rate, and interest rate are considered levers of low politics. These variables reflect the daily economic decisions made by national authorities to stabilize the macroeconomic environment and influence currency value. Thus, this analytical distinction helps clarify the interaction between political governance and economic choices in ensuring monetary resilience to exogenous shocks.

In this study, monetary resilience refers to a currency's capacity to maintain its real effective exchange rate (REER) level and to limit its volatility during external shocks. Empirically, we measure resilience through the following two dependent variables: the REER level (currency strength) and REER volatility (as a measure of stability).

2.2. Literature Review

In the scientific scene, empirical examination of the issue of monetary governance is virtually non-existent. However, some studies have analyzed the impact of monetary policy and decisions (e.g., central bank intervention, choice of exchange rate regime, changes in the key interest rate, etc.) on the exchange rate on the verge of crisis. For instance, Cepoi et al. (2023) confirmed that European currency markets react asymmetrically to monetary policy interventions aimed at encouraging spending and stimulating the economy, i.e., changes in key rates. However, these effects were observed only during extreme events, representing a secondary impact of monetary policy on the foreign exchange market.

Feng et al. (2021) examined the impact of COVID-19 and relevant government response policies on exchange rate volatility in 20 countries during the period from 13 January 2020 to 21 July 2020. Their findings revealed that economic response policies implemented during the pandemic, including income support, fiscal measures, and international aid, moderated exchange rate volatility. Similarly, Zhou et al. (2021) noted that expansionary fiscal policies and unconventional monetary policies led to an appreciation of local currencies, while the spread of the pandemic depreciated the domestic exchange rate in emerging markets. However, conventional expansionary monetary policies had the opposite effect, indicating that traditional monetary policy mechanisms prevailed, even during rare catastrophic events. Hoshikawa and Yoshimi (2021) found that the Bank of Korea's intervention had no significant effect on the volatility of the South Korean won, which intensified with each new infection peak.

The relationship between the exchange rate and the COVID-19 pandemic has been the subject of numerous studies. Most empirical research has captured a significant relationship between these variables. Kohrt et al. (2022) investigated the impact of the pandemic on the real exchange rate of 16 emerging economies from 01/2013 to 07/2020 using the behavioral equilibrium exchange rate approach augmented with pandemic variables. They concluded that behavioral factors during the pandemic's first wave significantly influenced

real exchange rate behavior. Aquilante et al. (2022) found that unfavorable news about the pandemic caused immediate depreciation of national currencies in 57 countries from January to July 2020. Beirne et al. (2021) revealed that exchange rates in emerging markets were strongly affected by COVID-19 compared to 38 emerging and advanced economies over the period from 4 January 2010 to 31 August 2020.

Jamal and Bhat (2022) used the ARDL panel data method to analyze the link between the COVID-19 crisis and exchange rate movements in the six major hotspots (Brazil, China, India, Italy, Turkey, and the UK), capturing long-run unidirectional causality from COVID-19 deaths to exchange rates. Similarly, Li et al. (2022) confirmed that exchange rates were negatively affected in both the short- and long-term due to COVID-19 cases and deaths in China and the US. Klinlampu et al. (2022) also found a significant negative impact of the COVID-19-related factors, such as case counts and Google Trends, on the exchange rates of the British pound, euro, and Chinese yuan against the US dollar.

Shahrier (2022) investigated the pure and fundamental spillover effects of ASEAN-5 exchange rates during COVID-19, using daily exchange rates from June 2019 to December 2020. The wavelet power spectrum technique revealed that Indonesia, Malaysia, and Singapore experienced high and prolonged exchange rate volatility. Thailand exhibited mild short-term volatility and high long-term volatility, whereas the Philippines experienced only mild short-term volatility with no significant increase in the long-term. Similarly, Sethi et al. (2021) examined the impact of COVID-19 on exchange rate behavior in 37 developed and developing countries from 4 January 2020 to 30 April 2021, using fixed-effect regression. Their findings indicated that exchange rates responded positively to the COVID-19 outbreak, particularly to confirmed cases and daily deaths, in contrast to the World Pandemic Uncertainty Index (WPUI), which showed no significant impact.

Using fixed-effects panel regression, Zhou et al. (2021) analyzed the relationship between rare disasters, particularly COVID-19, macroeconomic policy, and the exchange rate in 27 advanced and emerging economies. The results highlighted a strong correlation between the pandemic and time-varying risk premia in the foreign exchange market. COVID-19 significantly depreciated domestic exchange rates in emerging markets but had no similar impact in advanced economies. Furthermore, Gunay (2021) compared the shock effect of the COVID-19 pandemic and the 2008 global financial crisis on currency markets in Europe, Britain, Turkey, Japan, China, and Brazil. The analysis, using Kapetanios m-break unit root tests, autonomous risk measures, and Diebold–Yilmaz volatility spillovers, found that while the early COVID-19 turmoil was less severe than the global financial crisis, the Diebold–Yilmaz static connectivity measure indicated that the pandemic's impact on volatility was approximately eight times greater. Thus, Singh et al. (2021) analyzed the relationship between exchange rates, stock market returns, temperature, and confirmed cases of COVID-19 in the G7 countries from 4 January 2021 to 31 July 2021; using wavelet coherence (WTC) and continuous wavelet transform (CWT), they identified a robust co-movement between exchange rate returns in the UK, Germany, France, the US, Italy, Japan, the EU, and Canada, alongside a surge in COVID-19 cases. Williams et al. (2021) employed the symmetric likelihood ratio test to show that pandemic fear predicts exchange rate returns for the yuan, Swiss franc, and euro, with a negative correlation between their returns and the global pandemic fear index. The asymmetric test revealed that pandemic-induced fear reduced returns for the Australian dollar, Canadian dollar, yuan, Swiss franc, and euro between 10 February 2020 and 2 April 2021. Samaniego (2021) examined the impact of the interaction between the pandemic, oil prices and exchange rates in Brazil, Mexico, Russia, Colombia, and South Africa relative to the US dollar during the first half of 2020. Autoregressive distributed lag analysis revealed a positive co-movement between mortality rates and exchange rates in Brazil, Russia, and Mexico. Conversely, Yilanci and

Pata (2022) identified no significant relationship between the COVID-19 pandemic and the exchange rate. Using WTC and CWT, they demonstrated that the pandemic had no discernible impact on exchange rates.

Regarding the effect of the Russo–Ukrainian conflict on the exchange rate, Sokhanvar and Bouri (2023), employing a dynamic ARDL model for the period from 1 February to 30 April 2020, investigated the impact of this war—measured by commodity price shocks—on the Canadian dollar, the euro, and the Japanese yen. Their findings confirmed a positive effect of commodity price shocks on the value of the Canadian dollar against the euro and the yen, as well as a long-term association between rising commodity prices and the appreciation of the Canadian dollar against the euro and the yen. Similarly, Tiwari et al. (2022) observed a negative effect of the Russo–Ukrainian conflict on the exchange rate between the Indian rupee and the US dollar. This outcome is attributed to India's significant reliance on imports of energy, food, and equipment. Finally, El Rhadbane and El Moudden (2023) explored the combined impact of the COVID-19 and the Russo–Ukrainian conflict, measured through oil prices and the food price index, on the exchange rate volatility in 23 developed and emerging economies. Using an ARDL panel approach, their results indicated that the war significantly exacerbated exchange rate volatility.

In light of the literature reviewed, this study aims to examine not only the effects of crises such as the COVID-19 pandemic and the Russo–Ukrainian conflict on exchange rates and their volatility, but also the role of monetary governance in safeguarding currencies against the economic and financial repercussions of such crises.

3. Databases and Methodology

3.1. Databases

To examine the triangular relationship between Real Effective Exchange Rate (REER) and its volatility, monetary governance, and economic crises, we use panel annual data of the following 15 developed and emerging economies: United States, United Kingdom, Ukraine, Turkey, South Africa, Russia, Mexico, Japan, Indonesia, India, Eurozone, Chile, Canada, Brazil, and Australia, over the period of 2001–2023, yielding a balanced panel with 345 annual observations. This empirical study relies on annual data sourced from Bruegel REER, the World Bank, and the WGI. Table 1 outlines the variables included in our models, along with their respective data sources.

We consider the six dimensions of governance from the WGI to represent the high politics, as defined by Cohen (2007). The remaining indicators, excluding dummy variables, reflect the 'low politics' and thereby embody monetary governance.

The variables included—such as inflation, government spending, trade openness, terms of trade, policy rate, and net foreign assets—were selected based on established findings in the existing literature, which identifies them as key structural determinants of the REER.

Table 1. Database overview.

Variable	Name	Abbreviation	Source
Dependent	REER	LREER	Bruegel database "https://www.bruegel.org/datasets (accessed on 5 October 2024)"
	REER volatility	LvolREER	Bruegel database and calculated "https://www.bruegel.org/datasets (accessed on 5 October 2024)"

Table 1. *Cont.*

Variable	Name	Abbreviation	Source
Independent	Voice and Accountability	LVA	Worldwide Governance Indicators "https://www.worldbank.org/en/publication/worldwide-governance-indicators (accessed on 5 November 2024)"
	Political Stability and Absence of Violence/Terrorism	LPSAV	
	Government Effectiveness	LGES	
	Regulatory Quality	LRQ	
	Rule of Law	LRL	
	Control of Corruption	LCC	
	Policy Rate	LPR	International Monetary Fund "https://www.imf.org/en/Data (accessed on 13 December 2024)"
	Inflation	LINF	World Bank "https://databank.worldbank.org (accessed on 13 December 2024)"
	Terms of Trade	LTOT	
	Economic Openness	LEO	
	Government Expenditure	LGE	
	Net Foreign Assets	LNFA	
	Geopolitical Risk Index	LGPR	Economic Policy Uncertainty Index "https://www.policyuncertainty.com (accessed on 10 January 2025)"
	Financial Stress Index	LFSI	Office of Financial Research "https://www.financialresearch.gov/financial-stress-index (accessed on 10 January 2025)"
	Subprime crisis	2008 Crisis	Dummy variable takes the value of 0 or 1 to indicate the absence or presence
	COVID-19	2020 Crisis	
	Russo–Ukrainian conflict	2022 Crisis	

3.2. Methodology

To conduct the present study, we employ the ARCH/Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model to estimate REER volatility, Principal Component Analysis (PCA) to address multicollinearity issues, and the panel Autoregressive Distributed Lags (ARDL) model to examine the effects of monetary governance and economic crises on REER and its volatility.

4. ARCH/GARCH Modelling

First, a heteroscedasticity test is conducted to verify the presence of an ARCH effect in the REER series for each currency. The results, presented in Table 2, confirm the existence of the ARCH effect across the 15 developed and emerging economies analyzed. Table 2 also summarizes the findings of the ARCH (1) and GARCH (1,1) models. The estimates indicate that the coefficients of the variance equation are significantly different from zero and satisfy the constraints required to ensure the positivity of the variance.

Table 2. Heteroscedasticity test.

Individual	Heteroscedasticity Test		ARCH Model		GARCH Model		Selected Model
	Chi2	Lag	Coefficient	Lag	Coefficient	Lag	
Australia	27.103 ***	1	0.211 ***	1	0.299	1	ARCH (1)
Brazil	19.299 ***	1	0.348 ***	1	0.117	1	ARCH (1)
Canada	13.276 *	7	0.168 *	1	0.829 ***	1	GARCH (1.1)

Table 2. *Cont.*

Individual	Heteroscedasticity Test		ARCH Model		GARCH Model		Selected Model
	Chi2	Lag	Coefficient	Lag	Coefficient	Lag	
Chile	8.302 *	4	0.032	1	−0.882 ***	2	GARCH (1.2)
Euro area	8.657 **	2	0.056	1	0.836 ***	1	GARCH (1.1)
India	15.192 ***	2	−0.038	1	0.774 **	1	GARCH (1.1)
Indonesia	5.138 **	1	0.753 ***	1	0.247 ***	1	GARCH (1.1)
Japan	44.321 ***	1	0.309 ***	1	0.392 ***	1	GARCH (1.1)
Mexico	3.790 **	1	0.217 ***	1	0.225	1	ARCH (1)
Russian federation	145.401 ***	1	10.69 ***	1	0.369 ***	1	GARCH (1.1)
South Africa	1.528	1	0.233 **	1	0.087	1	ARCH (1)
Turkey	18.988 ***	1	0.235 ***	1	0.342 **	1	GARCH (1.1)
Ukraine	14.642 ***	1	0.910 ***	1	0.013	1	ARCH (1)
United Kingdom	12.748 ***	1	0.284 ***	1	0.671 ***	1	GARCH (1.1)
United States	3.534 *	1	0.240 ***	1	0.529 ***	1	GARCH (1.1)

Note: ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Source: Stata 17 estimates.

5. Principal Component Analysis

- Pearson correlation coefficient:

The Pearson correlation coefficient reveals a very strong positive correlation among the six governance indicators. It also shows that the governance indicators, inflation rate, and policy interest rate are well-correlated, with negative correlations between these indicators and both the inflation rate and the policy interest rate. Conversely, the correlation between the inflation rate and the policy interest rate is positive, at approximately 80%.

- Multicollinearity Test/Vif:

Based on the multicollinearity test (VIF), the results—before adjustment—in Table 3 confirm that the six governance indicators, the policy rate, and the inflation exhibit multicollinearity, evidenced by VIF values greater than 3.

Table 3. Multicollinearity statistics—VIF.

Before Adjustment			After Adjustment		
Variables	VIF	1/VIF	Variables	VIF	1/VIF
LRL	18.50	0.054056	LGOV	1.93	0.519271
LCC	14.71	0.067997	LINF	1.86	0.536269
LGES	12.67	0.078949	LGE	1.43	0.698374
LRQ	9.33	0.107192	LEO	1.19	0.840286
LVA	5.84	0.171193	LGPR	1.19	0.841946
LPR	4.60	0.217270	LNFA	1.08	0.924650
LINF	3.98	0.251376	LFSI	1.07	0.933759
LPSAV	3.85	0.259690	LTOT	1.07	0.937868
LGE	1.76	0.567772			
LEO	1.52	0.659860			
LGPR	1.23	0.810774			
LTOT	1.21	0.824561			
LFSI	1.14	0.874646			
LNFA	1.12	0.895233			
Mean VIF	6.81		Mean VIF	1.35	

Source: Stata 17 estimates.

To address this multicollinearity, we use PCA to reduce the six governance indicators to principal components that capture most of the original information. Thus, we eliminate the policy rate variable while retaining the inflation rate.

- KMO Test:

The KMO results in Table 4 confirm that the six governance indicators are suitable for factor analysis, with a calculated KMO value of 0.8938. A KMO value between 0.8 and 1 indicates that the collected data are appropriate for this method of analysis.

Table 4. KMO Test.

Variables	KMO
LRL	0.9017
LCC	0.9499
LGES	0.8750
LRQ	0.8934
LVA	0.8490
LPSAV	0.9149
Global	0.8938

- Principal Components:

As shown in Table 5, the PCA transforms the six governance indicators into a new uncorrelated variable, or principal components.

Table 5. Main components.

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.20752	4.87925	0.8679	0.8679
Comp2	0.328266	0.0829152	0.0547	0.9226
Comp3	0.245351	0.135609	0.0409	0.9635
Comp4	0.109741	0.0416597	0.0183	0.9818
Comp5	0.0680815	0.0270409	0.0113	0.9932
Comp6	0.0410407	.	0.0068	1.0000

Source: Stata 17 estimates.

After reducing the six governance indicators to a single variable, named Governance ("LGOV"), and eliminating the policy rate variable, the multicollinearity test (VIF) results in Table 3—after adjustment—show a mean VIF value of less than 2, indicating no multicollinearity issues.

6. Panel ARDL Modelling

- Stationarity Test:

At this stage, we conduct a stationarity test on the different variables, which is a necessary step before applying the panel ARDL model. To this end, we use the tests proposed by Pesaran et al. (1995) (IPS) and Levin et al. (2002) (LLC) to test the null hypothesis of the presence of a unit root. The results in Table 6 show that all variables are stationary at first difference at a 1% significance level.

Table 6. Unit root test results.

Variables	IPS		LLC	
	At -Level	At 1st Difference	At -Level	At 1st Difference
LREER	−1.8526 **	−7.4067 ***	−2.1527 **	−7.5430 ***
LvolREER	−6.7832 ***	−12.4694 ***	−6.6276 ***	−11.5410 ***
LGOV	1.9355	−7.1686 ***	−0.3437 ***	−5.1387 ***
LINF	−5.0595 ***	−11.7821 ***	−4.5786 ***	−11.3073 ***
LEO	−0.8408	−11.5581 ***	−2.6478 ***	−10.6673 ***
LGE	6.0432	−7.0256 ***	4.2388	−7.6865 ***
LNFA	−2.3080 **	−10.5560 ***	−2.5106 ***	−9.3712 ***
LTOT	−3.1409 ***	−11.1417 ***	−4.0842 ***	−10.9031 ***
LGPR	−2.6980 ***	−19.3475 ***	−2.3896 ***	−16.7706 ***
LFSI	−5.0591 ***	−5.7356 ***	−7.2731 ***	7.2731 ***

Note: *** and ** represent statistical significance at 1% and 5%, respectively. Source: Stata 17 estimates.

- Panel ARDL Specification

To examine the role of monetary governance in supporting the REER during an economic crisis, we apply the ARDL of panel data (Pesaran et al., 2001). The ARDL model is a combination of autoregressive models and stepped lag models, suitable for panel data to analyze relationships between variables that may be stationary at either the level or first difference. The ARDL panel models can be written as follows:

First model:

$$\begin{aligned}\Delta LREER_{it} = \alpha \quad & +\beta_1 LREER_{it-1} + \beta_2 LGOV_{it-1} + \beta_3 INF_{it-1} + \beta_4 LOE_{it-1} + \beta_5 LGE_{it-1} + \beta_6 LNFA_{it-1} \\ & +\beta_7 LTOT_{it-1} + \beta_8 LGPR_{it-1} + \beta_9 LFSI_{it-1} + \sum_{j=1}^{p} \delta_{1,\,i,j} \Delta LREER_{i,t-j} + \sum_{j=1}^{q_1} \delta_{2,\,i,j} \Delta LGOV_{i,t} \\ & + \sum_{j=1}^{q_2} Y\delta_{3,\,i,j} \Delta LINF_{i,t} + \sum_{j=1}^{q_3} Y\delta_{4,\,i,j} \Delta LOE_{i,t} + \sum_{j=1}^{q_4} Y\delta_{5,\,i,j} \Delta LGE_{i,t} + \sum_{j=1}^{q_5} Y\delta_{6,\,i,j} \Delta LNFA_{i,t} \\ & + \sum_{j=1}^{q_6} Y\delta_{7,\,i,j} \Delta LTOT_{i,t} + \sum_{j=1}^{q_7} Y\delta_{8,\,i,j} \Delta LGPR_{i,t} + \sum_{j=1}^{q_8} Y\delta_{9,\,i,j} \Delta LFSI_{i,t} + \varepsilon_{it}\end{aligned}$$

$$\begin{aligned}\Delta LREER_{it} = \alpha_i \quad & \sum_{j=1}^{p} \delta_{1,\,i,j} \Delta LREER_{i,t-j} + \sum_{j=1}^{q_1} \delta_{2,\,i,j} \Delta LGOV_{i,t} + \sum_{j=1}^{q_2} \delta_{3,\,i,j} \Delta LINF_{i,t} + \sum_{j=1}^{q_3} \delta_{4,\,i,j} \Delta LOE_{i,t} \\ & + \sum_{j=1}^{q_4} \delta_{5,\,i,j} \Delta LGE_{i,t} + \sum_{j=1}^{q_5} \delta_{6,\,i,j} \Delta LNFA_{i,t} + \sum_{j=1}^{q_6} \delta_{7,\,i,j} \Delta LTOT_{i,t} + \sum_{j=1}^{q_7} \delta_{8,\,i,j} \Delta LGPR_{i,t} \\ & + \sum_{j=1}^{q_8} \delta_{9,\,i,j} \Delta LFSI_{i,t} + \gamma 2008\ crisis_t + \gamma 2020\ crisis_t + \gamma 2022\ crisis_t + \theta_i ECM_{i,t} + \varepsilon_{it}\end{aligned}$$

Second model:

$$\begin{aligned}\Delta LvolREER_{it} = \quad & \alpha + \beta_1 LvolREER_{it-1} + \beta_2 LGOV_{it-1} + \beta_3 INF_{it-1} + \beta_4 LOE_{it-1} + \beta_5 LGE_{it-1} + \beta_6 LNFA_{it-1} \\ & +\beta_7 LTOT_{it-1} \beta_8 LGPR_{it-1} + \beta_9 LFSI_{it-1} + \sum_{j=1}^{p} \delta_{1,\,i,j} \Delta LvolREER_{i,t-j} + \sum_{j=1}^{q_1} \delta_{2,\,i,j} \Delta LGOV_{i,t} \\ & + \sum_{j=1}^{q_2} \delta_{3,\,i,j} \Delta LINF_{i,t} + \sum_{j=1}^{q_3} \delta_{4,\,i,j} \Delta LOE_{i,t} + \sum_{j=1}^{q_4} \delta_{5,\,i,j} \Delta LGE_{i,t} + \sum_{j=1}^{q_5} \delta_{6,\,i,j} \Delta LNFA_{i,t} \\ & + \sum_{j=1}^{q_6} \delta_{7,\,i,j} \Delta LTOT_{i,t} + \sum_{j=1}^{q_7} \delta_{8,\,i,j} \Delta LGPR_{i,t} + \sum_{j=1}^{q_8} \delta_{9,\,i,j} \Delta LFSI_{i,t} + \varepsilon_{it}\end{aligned}$$

$$\Delta LvolREER_{it} = \alpha_i \sum_{j=1}^{p} \delta_{1,\,i,j}\Delta LvolREER_{i,t-j} + \sum_{j=1}^{q_1} \delta_{2,\,i,j}\Delta LGOV_{i,t} + \sum_{j=1}^{q_2} \delta_{3,\,i,j}\Delta LINF_{i,t} + \sum_{j=1}^{q_3} \delta_{4,\,i,j}\Delta LOE_{i,t} + \sum_{j=1}^{q_4} \delta_{5,\,i,j}\Delta LGE_{i,t} + \sum_{j=1}^{q_5} \delta_{6,\,i,j}\Delta LNFA_{i,t} + \sum_{j=1}^{q_6} \delta_{7,\,i,j}\Delta LTOT_{i,t} \sum_{j=1}^{q_7} \delta_{8,\,i,j}\Delta LGPR_{i,t} + \sum_{j=1}^{q_8} \delta_{9,\,i,j}\Delta LFSI_{i,t} + \gamma 2008\ crisis_t + \gamma 2020\ crisis_t + \gamma 2022\ crisis_t + \theta_i ECM_{i,t} + \varepsilon_{it}$$

where α is the constant,δ_1 to δ_9 are the short-term coefficients, β_1 to β_9 are the long-term coefficients, and θ_i is the error correction coefficient, which measures the speed of adjustment from the short-term dynamics to the long-term equilibrium.

- Cointegration Test:

Before estimating the panel error correction model, it is essential verify the presence of a long-term cointegration between the LvolREER and the independent variables by performing Kao et al.'s (1999) cointegration test. Kao's panel cointegration test utilizes the Dickey–Fuller (DF) and augmented Dickey–Fuller (ADF) tests to assess the null hypothesis of no cointegration, which is formulated as H0: ρ = 1, against the alternative hypothesis H1: ρ < 1.

The results in Table 7 show that the null hypothesis of no cointegration is rejected, as indicated by the modified Dickey–Fuller, Dickey–Fuller, augmented Dickey–Fuller, unadjusted modified Dickey–Fuller, and unadjusted Dickey–Fuller t at a 1% significance level. This suggests the presence of cointegration.

Table 7. Kao cointegration test results.

Statistical Tests	First Model T-Statistic	Second Model T-Statistic
Modified Dickey–Fuller t	−6.4418 ***	−11.2848 ***
Dickey–Fuller t	−5.2023 ***	−8.6455 ***
Augmented Dickey–Fuller t	−3.8188 ***	−4.8143 ***
Unadjusted modified Dickey–Fuller t	−7.0321 ***	−14.0775 ***
Unadjusted Dickey–Fuller t	−5.3502 ***	−9.1036 ***

Note: *** represent statistical significance at 1%. Source: Stata 17 estimates.

- Causality Test:

To examine the presence of long-term causality between the dependent and independent variables, we use the recent Granger causality test proposed (Juodis et al., 2021), which tests the null hypothesis of no causality. This test offers improved size and performance by using a grouped estimator with a convergence rate of $NT^{(1/2)}$. It can also be applied to multivariate systems and remains valid against both homogeneous and heterogeneous alternatives.

As shown in Table 8, the null hypothesis that the selected variables do not cause LREER and LvolREER is rejected at a 1% significance level with an optimal lag of 1 (AIC). The regression results indicate that the test outcomes are influenced by certain explanatory variables. This implies that the past values of these three variables contain information that helps predict LREER and LvolREER beyond the information contained in their past values.

Table 8. Results of the non-causality test of Juodis et al. (2021).

JKS Non-Causality Test	First Model Coefficient	Second Model Coefficient
HPJ Wald test	4.2×10^3 ***	503.0808 ***
Results for the Half-Panel Jackknife estimator		
Variables	Coefficient	Coefficient
LGOV	0.0240338 ***	−0.0105531
LINF	0.0208784 **	−0.0377991
LEO	0.0347769	−0.0594093
LGE	−0.2769037 ***	0.6820226 ***
LNFA	−0.2126026 ***	−0.7896211 ***
LTOT	0.1038832 ***	0.2439186
LGPR	−0.0600962 ***	−0.1352261
LFSI	0.0052017	0.3226467 ***

Note: *** and ** represent statistical significance at 1% and 5%, respectively. Source: Stata 17 estimates.

- Hausman Test:

To determine whether there are significant differences between the pooled mean group (PMG), the mean group (MG), and the dynamic fixed-effect estimators (DFE), we apply the Hausman (1978) test. First, we test the null hypothesis that the difference between PMG and MG is not significant, as both PMG and MG are consistent. The test is then reapplied to determine which is more suitable between PMG/MG and DFE.

Table 9 show that, according to the Hausman test results, the null hypothesis of homogeneity cannot be rejected. Therefore, PMG is considered superior to MG and DFE, making PMG the most efficient estimator for interpretation.

Table 9. Hausman test.

Hausman	First Model (PMG-DFE)	Second Model (PMG-DFE)
$Chi^2(8)$	0.00	0.23
Prob > chi^2	1.000	1.000

Source: Stata estimates.

7. Results and Discussion

7.1. Regression Results

The results of the panel ARDL in Table 10 reveal distinct dynamics between the short- and long-term. In the first model, in the long-term, governance (LGOV), i.e., high politics, shows a significant positive impact (0.016 ***), suggesting that an improvement in governance strengthens the real effective exchange rate, confirming its protective effect on markets. Conversely, in the second model, LGOV has a negative effect (−0.01 *), indicating its stabilizing role on volatility. As for low politics, inflation (LINF) negatively affects both target variables, with more pronounced coefficients for volatility (−0.147 ***), revealing the risks associated with price instability. Economic openness (LEO) is associated with a depreciation of the real effective exchange rate (−0.499 ***), but with an increase in its volatility (0.322 **). This suggests that while integration into global trade increases external shocks, it may also expose the currency to more instability. Government expenditures (LGE) exert a depreciating effect on the real effective exchange rate (−0.218 ***) and exacerbate volatility (−0.537 ***), highlighting the risks of an unbalanced fiscal policy. Net foreign assets (LNFA) appear to be an important lever; they significantly strengthen the real effective exchange rate (2.148 ***), but their effect on volatility is weaker and not significant.

Terms of trade (LTOT) improve the real exchange rate (0.440 ***) and reduce its volatility to a lesser extent (0.221 *). The geopolitical risk index (LGPR) and the financial stress index (LFSI) show a significant impact on the real effective exchange rate (−0.247 *** and 0.034 ***) and intensify volatility (0.111 ** and 0.100 ***), highlighting the role of global uncertainties.

Table 10. Long- and short-run results of the panel ARDL.

ARDL	First Model	Second Model
Variables	Long-run Coefficient	Coefficient
LGOV	0.016645 ***	−0.0101429 *
LINF	−0.0313548 **	−0.147768 ***
LEO	−0.4994962 ***	0.3226624 **
LGE	−0.2185323 ***	−0.5370293 ***
LNFA	20.14888 ***	0.1909442
LTOT	0.4403974 ***	0.221024 *
LGPR	−0.2473494 ***	0.1117538 **
LFSI	0.0341662 ***	0.1006153 ***
Variables	Short-run Coefficient	Coefficient
ecm (−1)	−0.3860637 ***	−0.8011185 ***
ΔLGOV (−1)	−0.0028859 *	−0.2261304
ΔLINF (−2)	−0.0037685	0.2599307 ***
ΔLEO (−1)	−0.3268897 ***	−0.0919094
ΔLGE (−1)	0.1029746 *	−0.0774257
ΔLNFA (−1)	−130.92474 *	760.10511
ΔLTOT (−1)	−0.25039	−0.1370355
ΔLGPR (−1)	0.0339424	−0.0417815
ΔLFSI (−1)	0.0119542	−0.0469236
2008 crisis	−0.020583 ***	0.2215251 ***
2020 crisis	−0.0306016 **	0.1102393 **
2022 crisis	0.1269055 ***	0.4936015 **
Cons	−40.165036 ***	30.387903 ***

Note: ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Source: Stata estimates.

In the short-term, the error correction term (ecm) is negative and highly significant in both models (−0.386 *** and −0.801 ***), confirming a rapid convergence towards long-term equilibrium, especially for volatility. Recent crises have asymmetric effects, as follows: the 2008 crisis reduces the real effective exchange rate (−0.020 ***) but intensifies volatility (0.221 ***), while the 2020 and 2022 crises exacerbate volatility (0.110 ** and 0.493 **). Thus, the 2020 and 2022 crises, respectively, negatively (−0.030 **) and positively (0.126 ***) impact the real effective exchange rate.

Contrary to its stabilizing effect in the long-term, the short-term impact of governance on the real exchange rate (LREER) and its volatility (LvolREER) appears more limited, or even non-significant, in certain cases. This divergence is explained by the fact that institutional reforms or good governance measures require time to produce measurable effects on exchange markets. In the short-term, economic actors react more to immediate shocks (inflation, variation in foreign assets, trade openness, etc.) than to institutional signals, often perceived as structural in nature. In this sense, short-term adjustments are also influenced by variables such as economic openness (ΔLEO), which reduces the exchange rate (−0.326 ***), and net foreign assets (ΔLNFA), whose impact is erratic (−13.924 * to 76.105), perhaps reflecting speculative reactions to shocks.

7.2. Discussion of the Results

The results of our study are rooted in the theoretical and empirical foundations of monetary governance as presented by Cohen (2007), who distinguishes between high politics (institutional) and low politics (economic). Although the empirical model focuses specifically on the role of governance in moderating the effects of exogenous shocks on exchange rate dynamics, the broader discussion that follows aims to contextualize these findings within the evolving landscape of international monetary relations. Insights related to the US dollar's global role, dollarization, or the institutional challenges faced by emerging economies are therefore not to be read as empirical conclusions of the model, but rather as interpretative elements that illustrate the policy relevance and real-world implications of the econometric results.

The positive effect of governance, i.e., high politics, on the exchange rate and its stability confirms the importance of institutions in monetary conduct, as emphasized by Kaufmann et al. (2005). Strong governance promotes the credibility of economic policies, reduces uncertainty, and attracts stabilizing capital flows.

As for low politics, the results reveal a negative effect of inflation and government expenditure on the REER, in accordance with the classical predictions of Dornbusch (1976) and Edwards (1989), for whom high inflation and fiscal imbalances weaken the currency by reducing its attractiveness. The strongly positive effect of net foreign assets, meanwhile, highlights the importance of the external position in valuing a currency, as supported by Lane and Milesi-Ferretti (2004).

Economic openness, although having positive effects on growth, appears here as a factor of monetary vulnerability. This ambivalent effect is documented in the work of Rodrik (1998), who points out that integration into global markets can expose economies to external shocks, especially in the absence of risk absorption mechanisms.

Furthermore, variables related to financial stress (LFSI) and geopolitical risk (LGPR) significantly influence volatility, which corroborates the work of Bleaney and Fielding (2002), who show that political or financial instability degrades monetary fundamentals. This finding is reinforced by the effects of the following international crises: the three studied shocks—2008, 2020, and 2022—all had a destabilizing impact, illustrating the increasing interdependence of economies and monetary systems in the era of globalization.

The differences in impact between the long-term and the short-term for certain variables underscore the need for differentiated policies depending on the time horizon. For example, government expenditure may have an expansionary effect in the short-term, but a destabilizing effect in the long-term if not supported by rigorous fiscal governance.

Exogenous crises, such as the global financial crisis of 2008, the COVID-19 pandemic, and the Russo–Ukrainian conflict, had significant impacts on exchange rate volatility. Our results indicate that these events amplified REER volatility. These observations are consistent with the existing literature, which points out that exogenous shocks can disrupt foreign exchange markets, even in economies with strong monetary governance frameworks. This exogenous health shock was transformed into a global economic crisis by endogenous factors embedded in the structure of the global economy, such as the globalization of value chains, the intensity of trade flows, and international mobility.

During the 2020 health crisis, many observers identified the US dollar as the main beneficiary of the COVID-19 pandemic, outperforming competing currencies such as the euro, the Chinese yuan, the British pound, and the Russian ruble (Miller, 2020). Historically, the US dollar has always demonstrated remarkable resilience to exogenous shocks and economic uncertainty, making the US a preferred safe-haven for investors seeking stability and security.

The privileged status of the US dollar stems from its central role as the world's reserve currency established by the Bretton Woods agreements. Currently, the dollar accounts for 60% of central bank foreign exchange reserves, 90% of global foreign exchange transactions, and 40% of international trade (Maronoti, 2022). The Federal Reserve Bank of Chicago reports that about 80% of $100 bills and over 60% of all US banknotes are held abroad, compared to about 30% in 1980.

Several economic and geopolitical factors contribute to the global preference for the US dollar. Economically, the majority of globally traded raw materials and energy products are denominated in US dollars. Even robust economies, such as the eurozone, heavily rely on the US dollar for a significant share of their energy imports. The petrodollar system, in particular, supports the enduring strength of the US dollar. Additionally, 11 countries, including Ecuador and El Salvador, officially use the US dollar, while many others peg their currencies to it, such as the Bahraini dinar and the Saudi riyal (World Bank).

Geopolitically, Eichengreen et al. (2018) point out that the US dollar accounts for 30% more of the foreign exchange reserves of US military allies than of non-allied countries. Similarly, countries like Thailand, South Korea, and Australia hold a significant portion of their reserves in dollars, even though the US is not their main trading partner. On the other hand, the US is their main military ally.

Historically, the US dollar has benefited from its status as the world's reserve currency, granting the United States an "exorbitant privilege" (Eichengreen, 2011). However, recent events have eroded this position. Protectionist policies and attacks on the Federal Reserve have undermined international confidence in the dollar's stability, prompting some countries to consider alternatives to the US currency.

This erosion of confidence has repercussions for exchange rate volatility. Financial markets have reacted nervously to uncertainties surrounding US trade and monetary policies, leading to increased fluctuations in the dollar. These observations corroborate our results, which indicate that exogenous shocks, such as financial crises or geopolitical tensions, can amplify REER volatility even in economies with strong monetary governance.

Nevertheless, various currencies are striving to challenge the dominance of the greenback by positioning themselves as international currencies. The dollar's share in central bank foreign exchange reserves has dropped from 71% in 1999 to 59% (IMF)[7]. According to Arslanalp et al. (2022), this decline has been offset by the rise of non-traditional reserve currencies, such as the Chinese yuan, the Canadian dollar, the Danish krone, the Norwegian krone, the Swedish krona, the South Korean won, and the Australian dollar.

This decline in the dominance of the US dollar can be attributed to several factors. First, countries like China and Russia are seeking to promote their currencies in trade and financial transactions with their partners. Second, the use of the dollar as an economic weapon by the United States—for example, freezing Russia's foreign exchange reserves and excluding it from the SWIFT system in 2022—has further encouraged diversification. In March 2022, Gita Gopinath, First Deputy Managing Director of the IMF, emphasized that the sanctions against the Russian central bank could challenge the supremacy of the dollar in the international monetary system, potentially paving the way for a multipolar monetary framework[8].

Furthermore, while the Russo–Ukrainian conflict is primarily a geopolitical event, it is also linked to endogenous factors such as global imbalances fueled by US dollar dominance, financialization, and the vulnerabilities of global value chains. The dependence of many countries on Russian and Ukrainian energy and food supplies has amplified the conflict's economic impact, exposing structural weaknesses in the globalized economy.

The Russo–Ukrainian conflict illustrates this dynamic. After the war broke out, the Russian ruble lost about 50% of its value before returning to its pre-war level. In May 2022,

the ruble was recognized as the strongest currency against the dollar (Bloomberg, May 2022)[9]. This recovery was facilitated by a strategic interest rate policy implemented by the Russian central bank. On 28 February 2022, the Bank of Russia raised the interest rate from 9.5% to 20%. Subsequently, the rate was reduced in the following stages: to 17% on 8 April, 14% on 29 April, and 11% on 27 May, before returning to 9.5%.

Similarly, the US Federal Reserve's interest rate policy has played a key role in maintaining the dollar's strength amid exogenous shocks. Starting on 17 March 2022, the Fed raised the key interest rate from approximately 0% to 0.25%, followed by increases to 0.75% on 5 May, 1.5% on 16 June, and 2.25% on 28 July. Meanwhile, the ECB only raised its rate from 0% to 0.5% on 27 July 2022. This disparity has made the dollar more attractive relative to the euro, despite higher inflation in the US (9%) compared to Europe (8%) (International Monetary Fund). The negative impact of inflation on REERs, as shown in Table 10, may also explain this trend.

The results of our study have important implications for emerging economies. Monetary governance, both at the high and low political levels, is crucial to maintaining exchange rate stability and limiting its volatility. Emerging economies must strengthen their monetary institutions, improve policy transparency, and develop regional coordination mechanisms to cope with exogenous shocks.

Another crucial determinant of the ability of a currency to maintain its real effective exchange rate (REER) level and to dampen its volatility in the face of external shocks is the independence of central banks. An independent central bank can pursue a credible monetary policy, free from short-term political pressures, thereby enhancing inflation expectations stability and investor confidence. In parallel, coordination between fiscal and monetary policies becomes vital, especially during crisis periods. Effective synergy between these two policy instruments ensures coherent macroeconomic responses to external shocks, avoiding policy contradictions that could undermine economic and monetary stability. The quality of this coordination ultimately reflects the robustness of a country's monetary governance framework.

In addition, diversifying foreign exchange reserves and reducing dependence on foreign currencies can enhance resilience to global market fluctuations. Finally, international cooperation and the coordination of monetary policies are essential to mitigate the effects of exogenous shocks and promote global financial stability.

8. Conclusions

This study highlights the importance of monetary governance in protecting a currency's exchange rate and reducing its volatility during periods of global crisis, combining a panel ARDL econometric approach with a theoretical framework that distinguishes between "high politics" and "low politics". The findings demonstrate that strong monetary governance significantly strengthens the REER and dampens its volatility in the long-term. Indeed, high politics—captured through governance indicators—and low politics—captured through economic indicators—strengthens the REER in the long-term while playing a stabilizing role in its volatility.

Exogenous shocks—such as financial crises, pandemics, and geopolitical conflicts—significantly amplify REER volatility, confirming the vulnerability of economies, particularly emerging ones, to global instability. The asymmetric effects between the short- and long-term also reveal the need for differentiated strategies over time. While institutions take time to produce measurable effects, they remain an essential bulwark against global turbulence.

In light of these findings, the policy implications are clear. Economies, especially emerging markets, must strengthen their monetary governance, improve policy trans-

parency, and diversify their foreign exchange reserves to better absorb external shocks. Furthermore, the relative decline in the dominance of the US dollar underscores the growing importance of a multipolar international monetary system, based on increased cooperation between central banks and robust regional coordination mechanisms.

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Notes

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