RUDN Journal of Economics
Вестник Российского университета дружбы народов. Серия: Экономика
ISSN 2313-2329 (Print); ISSN 2408-8986 (Online)
2026 Vol. 34 No. 1 81–95
http://journals.rudn.ru/economics

DOI: 10.22363/2313-2329-2026-34-1-81-95
EDN UCVJSU
UDC 339.977

Research article / Научная статья

Development of a new currency settlement mechanism among BRICS countries

Evgeny A. Vasyukov

Diplomatic academy of Ministry of Foreign Affairs of Russia, Moscow, Russian Federation
✉ eavasyukov@yandex.ru

Abstract. This study investigates the feasibility of introducing a supranational settlement instrument — the BRICS Currency Unit (BCU) — designed to reduce exchange-rate volatility, enhance financial sovereignty, and strengthen trade and investment flows among BRICS and BRICS+ members. The research models the real effective exchange rates (REERs) of BRICS countries using data from the Bank for International Settlements. Macroeconomic drivers-including GDP growth, inflation, current-account balances, foreign direct investment inflows, reserves, and the share of intra-BRICS trade-were incorporated into the modeling. Five alternative weighting schemes for the BCU were tested to identify the most stable and diversified composition. The analysis confirmed that REER dynamics across BRICS are shaped by both shared and country-specific macroeconomic factors, complicating the creation of a unified framework. Among tested approaches, GDP-growth-based weighting minimized correlation with domestic shocks and produced the most stable basket. This variant of the BCU demonstrated the strongest diversification properties, effectively mitigating currency risks and enhancing predictability for long-term trade and investment contracts. The findings support the potential of the BCU as a hedging tool and settlement mechanism that can reduce transaction costs, stabilize pricing in energy, agriculture, and manufacturing, and increase competitiveness of BRICS economies. Extending its application to BRICS+ partners would further diversify settlement options, reduce dependency on the US dollar, and reinforce the role of BRICS in the global economy.

Keywords: real exchange rates, BRICS currency policy, cross-border capital investments, international trade

Conflicts of interest. Author declares no conflicts of interests.

Article history: received 1 September 2025; revised 20 October 2025; accepted 25 November 2025.

For citation: Vasyukov, E.A. (2026). Development of a new currency settlement mechanism among BRICS countries. *RUDN Journal of Economics*, *34*(1), 81–95. https://doi.org/10.22363/2313-2329-2026-34-1-81-95 EDN: UCVJSU

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Разработка нового механизма валютных расчетов между странами БРИКС

Е.А. Васюков

Дипломатическая академия МИД России, Москва, Российская Федерация

✉ eavasyukov@yandex.ru

Аннотация. Рассмотрена возможность введения наднационального расчетного инструмента — валютной единицы БРИКС (BCU), призванной снизить волатильность обменных курсов, укрепить финансовый суверенитет и стимулировать рост торгово-инвестиционных потоков между странами БРИКС и БРИКС+. Проведено моделирование реальных эффективных валютных курсов (REER) стран БРИКС с использованием данных Банка международных расчетов за период 1999–2025 гг. В анализ включены макроэкономические факторы: рост ВВП, инфляция, сальдо текущего счета, приток прямых иностранных инвестиций, объем международных резервов, а также доля внутригрупповой торговли БРИКС. Были протестированы пять альтернативных схем взвешивания BCU с целью выявления наиболее устойчивой и диверсифицированной конфигурации. Анализ подтвердил, что динамика REER стран БРИКС определяется как общими, так и специфическими для отдельных стран факторами, что усложняет создание единой системы. Среди протестированных подходов наилучшие результаты показала модель взвешивания по темпам роста ВВП, которая минимизировала корреляцию с внутренними шоками и обеспечила наибольшую устойчивость корзины. Данный вариант BCU продемонстрировал высокие диверсификационные свойства, эффективно снижая валютные риски и повышая предсказуемость долгосрочных торговых и инвестиционных контрактов. Полученные результаты подтверждают потенциал BCU в качестве инструмента хеджирования и расчетного механизма, способного сократить транзакционные издержки, стабилизировать цены в энергетике, сельском хозяйстве и промышленности, а также повысить конкурентоспособность экономик БРИКС. Применение с партнерами БРИКС+ позволит дополнительно диверсифицировать расчетные механизмы, снизить зависимость от доллара США и укрепить роль БРИКС в мировой экономике.

Ключевые слова: реальный валютный курс, валютная политика БРИКС, трансграничные потоки капитала, международная торговля

Заявление о конфликте интересов. Автор заявляет об отсутствии конфликта интересов.

История статьи: поступила в редакцию 1 сентября 2025 г., доработана после рецензирования 20 октября 2025 г., принята к печати 25 ноября 2025 г.

Для цитирования: *Vasyukov E.A.* Development of a new currency settlement mechanism among BRICS countries // Вестник Российского университета дружбы народов. Серия: Экономика. 2026. Т. 34. № 1. С. 81–95. https://doi.org/10.22363/2313-2329-2026-34-1-81-95 EDN: UCVJSU

Introduction

In the current state of the global economy, currency stability is one of key challenges, directly affecting international trade volumes and national economic growth. The high volatility of currencies creates significant risks for businesses, forcing them to expend considerable resources on hedging and risk management

(Brooks, Persand, 2003). Recent crises have underscored that diversifying currency assets is a crucial defensive strategy, particularly for companies in developing nations (Gupta, Chaudhary, 2023).

The vulnerability of BRICS economies to exchange-rate shocks and their continued exposure to the US dollar remain a central policy concern (Haddad, 2025). These vulnerabilities amplify transaction costs, constrain strategic planning for exporters and importers, and increase exposure to external political and financial pressures. In this context, there is a demonstrable demand for a resilient, multilateral settlement mechanism that attenuates external transmission channels and reduces the practical effectiveness of extraterritorial sanctions on cross-border commerce.

Our central hypothesis is that a supranational settlement unit — the BRICS Currency Unit (BCU) — constructed on the basis of REER-informed weighting rules can materially reduce idiosyncratic currency risk and improve the predictability of cross-border pricing. The study therefore develops and evaluates alternative BCU weighting schemes, assesses their volatility and correlation properties, and proposes an implementation framework for BCU-based settlements as a mechanism to deepen economic cooperation and enhance financial resilience across BRICS.

The BCU's design integrates theoretical approaches to risk reduction and hedging, offering a practical mechanism to mitigate currency uncertainty and stimulate economic integration within BRICS. The findings of this study can complement exchange rate policy of Russia and guide the development of joint projects with BRICS partners in trade, investment, and financial integration.

The objective of this study is to develop a mechanism that strengthens trade and investment flows by enhancing cooperation within BRICS. To achieve this goal, the following tasks were set:

1. To analyze the dependence of the BRICS countries' real exchange rates on macroeconomic parameters from a strategic development perspective.
2. To propose the creation of a currency settlement mechanism (BRICS Currency Unit — BCU) based on findings in #1.
3. To test the hypothesis that the proposed mechanism will reduce currency risks.

Literature review

Research on exchange-rate dynamics and policy responses converges on several interrelated themes: the determinants and transmission of currency volatility in emerging markets; the macroeconomic consequences of exchange-rate movements for prices, trade and investment; and institutional or instrument-level remedies, including regional settlement units (Hussain, Bashir, Rehman, 2024), (Kozlyuk, Chirak, 2013). Empirical studies document that exchange-rate volatility responds to both domestic fundamentals — inflation, GDP growth, reserves, current-account positions-and external shocks, with pronounced heterogeneity across countries (Zerihun, Breitenbach, Njindan Iyke, 2020; Sbeiti et al., 2025; Bosupeng, Naranpanawa, Su, 2024; Liu, Lee, 2022; Goryunov, 2020).

Several works emphasize the pass-through from exchange-rate movements to goods and services prices and the broader macroeconomic impact (Warnes, 2022; Chaudhari, Trivedi, 2022). A related literature quantifies effects on the corporate and financial sectors: exchange-rate uncertainty alters firms' risk profiles, raises hedging and transaction costs, depresses trade and investment, and triggers portfolio rebalancing by institutional investors-thereby creating feedback on currency markets (Kuchin, Elkina, Dranev, 2019; Al Mansoori et al., 2024; Camanho, Hau, Rey, 2022). Policy studies underline the role of coordinated public-sector measures and integrated payment infrastructures to mitigate these risks (Saji, 2019; Zhu, Sardana, 2020).

A growing strand examines synthetic or anchor currencies for regional blocs. Authors propose basket-based or reference units to smooth national shocks, lower transaction costs, and build confidence for multilateral settlement (Nach, Ncwadi, 2024; Bastanifar, Khan, Koch, 2025; Chiappini, Lahet, 2020).

Empirical and theoretical evidence indicates that active use of a stable settlement unit increases trust and promotes trade and investment (Kazakova, 2015), while regional lessons (e.g., eurozone analyses) illuminate institutional prerequisites and risks (Bai Gao, 2024). Collectively, these contributions motivate the present proposal of a BRICS Currency Unit (BCU) as a practical instrument for reducing volatility and fostering deeper economic integration.

Previous studies demonstrated that real exchange-rate dynamics are determined by a constellation of macroeconomic variables — GDP growth, inflation dynamics, current-account positions, net FDI inflows, net reserves — which jointly reflect countries' structural characteristics and external interdependence. Accordingly, this study supplements standard fundamentals with a specialized trade indicator — the share of intra-BRICS trade in total trade — to capture the intensity of commercial links within the group.

Methodology

In the proposed valuation of the BRICS Currency Unit (BCU), macro-weights such as GDP growth and nominal GDP serve to embed economic size and stability into the unit; inflation and reserves reflect domestic price stability and external shock-absorption capacity; trade-related parameters ensure the unit mirrors the fiscal and external positions of member economies). This design aims to improve balance in currency fluctuations across heterogeneous members (Meher, Mishra, 2024; Goryunov, 2020).

REER series are sourced from the Bank for International Settlements (BIS) using data from January 1999 to July 2025[1]. The realized-volatility approach follows T.G. Andersen et al., who demonstrate its effectiveness for quantifying market risk (Andersen et al., 2005). To assess BCU's stabilizing properties, we compute correlation coefficients between BCU variants and key macrovariables identified

[1] 2024 data is based on actual data BIS, IMF, Worldbank. REER 2025 is based on actual BIS data. 6M 2025 is based on official preliminary estimates from IMF and Worldbank.

during BRICS REERs modelling. This combined volatility-correlation framework tests the hypothesis that a weighted BCU can attenuate transmission of local shocks and function as an effective hedging instrument within BRICS.

We model the dynamics of the real effective exchange rates (REER) using a linear specification:

$$Y = Bo + B1 \cdot X1 + B2 \cdot X2 + \ldots Bn \cdot Xn.$$

Each model will be tested for usefulness for further analysis based on variance explanatory power using F-tests and specification correctness (using Ramsey test), tested for autocorrelation (using Darbin — Watson test), heteroscedasticity (using Breusch — Pagan test). Detailed test results are presented in Appendix 1. Empirically, we analyse realized volatility measures and compute correlation coefficients between BCU variants and these indicators to assess the BCU's capacity to dampen transmission of idiosyncratic shocks and to serve as an effective hedging instrument within BRICS.

Results

BRICS's REER modelling

To model the REER of BRICS countries most informative factors (statistically and economically significant), mutually uncorrelated will be used. Detailed model characteristics are provided in Appendix 1. The REER models are adequate according to most statistical criteria and can be confidently used for analysis and for further application in the estimation of the BRICS currency exchange rate mechanism. Model coefficients for interpretation are below (Table 1).

Table 1

BRICS REERs modeling results

Parameter	Russia		India		SA		China		Brazil	
	Coeff	P-value	Coeff	P-value	Coeff	P-value	Coeff	P-value	Coeff	P-value
Intercept	4.96	0.0	4.51	0.0	–0.07	0.2	3.93	0.0	0.62	0.4
Share of trade with BRICS countries in total trade	0.16	0.1	0.07	0.3	–0.05	0.0	–0.12	0.6	–0.64	0.0
Inflation	–0.09	0.1	–0.04	0.0	0.03	0.3	–0.04	0.1	–0.05	0.5
GDP growth rate	–0.06	0.1	0.00	0.8	–0.05	0.0	–0.01	0.7	–0.01	0.4
Current account balance	0.07	0.4	0.00	0.9	0.01	0.6	–0.06	0.0	0.08	0.0
FDI net inflow	0.13	0.0	0.02	0.2	–0.00	1.0	0.04	0.1	0.10	0.3
Reserves	—	—	—	—	—	—	0.07	0.0	0.49	0.0

Source: compiled by E.A. Vasyukov.

The study revealed a heterogeneous impact of macroeconomic factors on the REERs of BRICS countries. Each factor affects the exchange rate differently, reflecting the unique characteristics of national economies. Using the standard criterion for the reliability of statistical results (significance level 5%), modelling of the real exchange rates (REER) revealed the following:

The factor "share of trade with BRICS countries in total trade" is significant only for South Africa and Brazil.

1. The "inflation" factor is significant for India.
2. The "GDP growth rate" factor is significant only for South Africa.
3. The "current account balance" factor is significant for China and Brazil.
4. The "FDI (net inflows)" factor is significant only for Russia.
5. The "reserves" factor is significant for Brazil and China.
6. The analysis of macroeconomic parameters is critical for designing a BRICS settlement mechanism, as it enables accounting for the heterogeneous impact of key factors on each country's REER. Understanding the dynamics of trade flows, inflation, GDP growth, the current account balance, FDI inflows, and reserve management is necessary to build a resilient and stable financial system. Neglecting these parameters may lead to unpredictable exchange-rate volatility, rendering the settlement mechanism ineffective and risky for its participants. Thus, incorporating country-specific macroeconomic characteristics is a fundamental prerequisite for ensuring the long-term robustness and success of any BRICS integration project in the financial domain.

Development of an approach to the creation of a new settlement mechanism among BRICS countries (BCU)

To reduce exchange rate risk and increase the volumes of trade and investment, it is proposed to develop a BRICS settlement mechanism — the BRICS Currency Unit (BCU) — based on the following equations:

Equation 1: Equal Weighting

$$BCU = 20\% * REER\ Br + 20\% * REER\ Rus + 20\% * REER\ Ind + \\ + 20\% * REER\ Ch + 20\% * REER\ SA.$$

Equation 2: Trade-Weighted

$$BCU = X1 * REER\ Br + X2 * REER\ Rus + X3 * REER\ Ind + \\ + X4 * REER\ Ch + X5 * REER\ SA,$$

where *Xi* is the share of trade with BRICS countries in total trade.

Equation 3: BRICS-GDP Share-Weighted

$$BCU = X1 * REER\ Br + X2 * REER\ Rus + X3 * REER\ Ind + \\ + X4 * REER\ Ch + X5 * REER\ SA,$$

where *Xi* is each country's share of the total BRICS GDP, in percent.

Equation 4: GDP-Weighted

$$BCU = X1 * REER\ Br + X2 * REER\ Rus + X3 * REER\ Ind + \\ + X4 * REER\ Ch + X5 * REER\ SA,$$

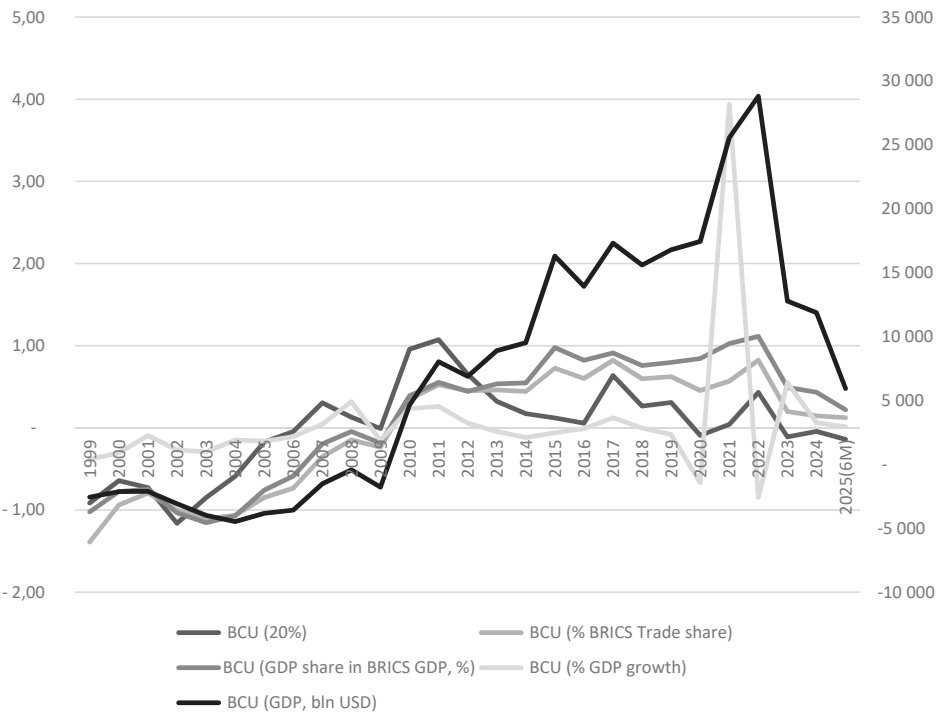
where *Xi* is the country's GDP size.

Equation 5: GDP Growth-Weighted

$$BCU = X1 * REER\ Br + X2 * REER\ Rus + X3 * REER\ Ind + \\ + X4 * REER\ Ch + X5 * REER\ SA,$$

where *Xi* is the country's GDP growth rate.

Figure below presents the currency charts depicting the historical dynamics of the BCU.



Historical dynamics of the BCU[2]

Source: compiled by E.A. Vasyukov.

Let's examine the correlation coefficients between the BCU equations and the REERs of the BRICS countries (Table 2).

[2] Bank for International Settlements. (2025). Effective exchange rates [Data set]. BIS WS_EER 1.0. Retrieved 26 August 2025, from https://data.bis.org/topics/EER/BIS%2CWS_EER%2C1.0/D.N.B.BR

Table 2

Correlation matrix of the BCU equations and the REERs of the BRICS countries

Parameter	1. BCU (20%)	2. BCU (share of trade with BRICS countries in total trade)	3. BCU (share of the total BRICS GDP)	4. BCU (GDP size)	5. BCU (GDP growth rate)
REER. Russia	0.84	0.61	0.52	0.26	0.03
REER. India	0.55	0.67	0.71	0.70	0.26
REER. SA	0.10	–0.47	–0.51	–0.58	–0.10
REER. China	0.42	0.88	0.91	0.94	0.25
REER. Brazil	0.80	0.46	0.37	0.04	–0.05

Source: compiled by E.A. Vasyukov.

Based on the correlation matrix between the BRICS countries' REERs and the BCU equations, it can be concluded that the BCU currency (Equations 1, 2, and 3) demonstrates significant correlation with the REERs of the BRICS countries. In contrast, Equation 4 shows lower level of correlation with ruble and real. Equation 5 exhibits the weakest correlation with the BRICS REERs.

Table 3

Correlation matrix of the BCU equations and key macroparameters of BRICS countries

Parameter	1. BCU (20%)	2. BCU (share of trade with BRICS countries in total trade)	3. BCU (share of the total BRICS GDP)	4. BCU (GDP size)	5. BCU (GDP gro wth rate)
Brazil. Share of trade with BRICS countries in total trade	0.67	0.88	0.88	0.77	0.28
Brazil. Current account balance	–0.18	–0.33	–0.33	–0.26	–0.04
Brazil. Reserves	0.79	0.95	0.93	0.75	0.25
Russia. FDI net inflow	0.45	0.13	0.07	–0.18	0.29
India. Inflation	0.55	0.28	0.25	0.05	0.02
China. Current account balance	0.07	–0.32	–0.33	–0.47	–0.03
China. Reserves	0.80	0.91	0.89	0.69	0.24
SA. GDP growth rate	–0.11	–0.44	–0.46	–0.41	0.29
SA. Share of trade with BRICS countries in total trade	0.66	0.92	0.90	0.77	0.22

Source: compiled by E.A. Vasyukov.

Based on the table above, it can be noted that Equation 5, on average, exhibits the lowest correlation with most parameters: moderate with reserves, GDP growth rates, FDI inflows, and intra-BRICS trade share, and low with the current account balance and inflation (see Table 3). Thus, Equation 5 demonstrates the most favorable diversification properties and is therefore proposed as the basis for the creation of the BCU currency.

Weighting a basket by GDP growth rates makes the BCU responsive to changing macroeconomic momentum. When a country experiences a negative domestic shock (currency collapse, recession), its growth rate typically falls; a growth-weighted basket therefore automatically reduces exposure to that country's currency at precisely the moment its idiosyncratic volatility rises. Conversely, economies with stable or accelerating growth acquire relatively greater weight, so the basket shifts toward more resilient performers and away from transient sources of shock. This mechanically lowers the basket's co-movement with the most volatile national currencies. If member economies are out of phase (anti-cyclical), a growth-weighted basket tends to smooth cycle-driven volatility: outward shifts in weights reflect relative cycle strength and thus dilute synchronous transmission of shocks from one country to the whole index. Conversely, if cycles are highly synchronous, growth weighting will not amplify group-level procyclicality because weights evolve with common trends, preserving the basket's role as a stabilising reference.

From a policy perspective, growth-weighting is easy to communicate (it links the unit to economic performance) and can be updated periodically (quarterly or annually) to reflect structural shifts. It also reduces the need for active reserve intervention because the basket itself shifts away from stressed economies-complementing reserve diversification strategies recommended by central-bank studies listed above.

However, weighting the BCU by GDP growth exposes the basket to the inherent volatility and revision-proneness of growth statistics: procyclical down-weights during recessions and up-weights during booms can amplify short-term instability if weights are updated too frequently. Rapid weight shifts may trigger portfolio rebalancing by market participants, generating capital-flow volatility that undermines the stabilising intent of the basket. To mitigate these effects, implement smoothing and delay rules (e.g., multi-year moving averages, lagged growth indicators), caps/floors on annual weight changes, and transition bands that phase weight adjustments over time. Combining growth with a stabilising anchor (hybrid weights incorporating nominal GDP or reserve buffers) reduces sensitivity to transient growth spikes while preserving the responsiveness advantages of growth weighting. Growth figures are subject to measurement error, late revisions and heterogenous statistical practices across countries; reliance on such data can produce biased or disputed weights. This risk is addressed by using standardized data sources, applying outlier-robust estimators, and defining an explicit governance protocol for data updates and dispute resolution.

Discussion

The results of the analysis indicate that the dynamics of real exchange rates in BRICS countries are highly sensitive to a wide range of macroeconomic factors, such as trade flows, inflation, GDP growth rates, and capital movements, with each factor exerting a heterogeneous impact.

The proposed settlement mechanism, based on a notional accounting unit (BCU), directly addresses this issue. Its primary objective is to reduce volatility and minimize risks arising from the aforementioned macroeconomic factors. The introduction of the BCU makes it possible to:

- Smooth price fluctuations, rendering them less pronounced than in traditional commodity markets, thereby mitigating the impact of inflationary shocks and instability.
- Lower transaction costs and currency risks, providing a stable foundation for long-term planning — a particularly important feature in contexts where GDP growth rates and investment flows can significantly influence exchange rates.
- Enhance predictability, which strengthens trust among participants and stimulates trade turnover, as economic agents gain access to a reliable instrument independent of the volatility of individual national economies.

Thus, the analysis of macroeconomic parameters substantiates the necessity of creating such a mechanism, while its structure offers practical tools for addressing the challenges identified in the study.

The expansion of BRICS into the BRICS+ format has opened new opportunities for financial and trade integration across a wider set of economies. With the accession of Saudi Arabia, the United Arab Emirates, Egypt, Iran and others, the group represents not only a significant share of global GDP but also a highly diversified structure of economic models. The creation of the BCU can serve as a unifying instrument to stabilize trade, facilitate investment, and enhance institutional cooperation across this heterogeneous landscape.

At the same time, bilateral agreements between members — such as Brazil-China cooperation in agriculture, Russia-India and Russia-China settlements in energy trade, and Egypt's promotion of local-currency trade — demonstrate a clear willingness to diversify away from dollar-denominated transactions. The BCU could operate as the natural extension of these efforts, serving as a synthetic unit that reduces volatility and transaction costs while increasing predictability.

For energy exporters such as Saudi Arabia, the UAE, and Iran, the BCU could provide a stable settlement mechanism for oil and gas exports. Invoicing in BCU would shield revenues from fluctuations in external currencies and create a predictable benchmark for long-term supply contracts. This would be especially valuable in multi-party trade chains where exports are directed to Asia, and payments are reinvested across BRICS+ markets. For Russia, also a major energy supplier, the BCU offers an additional channel to strengthen energy trade integration with partners in Asia and the Middle East, further advancing the strategy of de-dollarization.

In the agricultural domain, Brazil's trade with Africa represents a key example of how the BCU could function in practice. The planned BRICS Grain Exchange would benefit from a common settlement unit, allowing exporters in Brazil to sell to import-dependent countries such as Egypt and Ethiopia without the need to hedge against bilateral currency risks. Payments in BCU through BRICS Pay would simplify transactions, lower costs, and foster food security in the region.

In industrial and technology trade, countries such as India, China, and South Africa could use the BCU to enhance predictability in the supply of machinery, electronics, and services. Egypt and Ethiopia, with currencies subject to significant inflationary pressures, would benefit from the use of a stable unit of account for essential imports. This would improve planning for both public budgets and private enterprises, while simultaneously supporting integration into regional blocs such as the African Continental Free Trade Area (AfCFTA).

In addition BCU can serve multiple practical roles: a denomination for NDB-issued bonds, loans and guarantees, and a benchmark for corporate and sovereign financial reporting and budgetary planning across BRICS members; as a clearing unit it can facilitate multilateral netting of payments and reduce the volume of cross-border FX transactions; as a reserve-management instrument it can be held in diversified reserve tranches or used to denominate central-bank swap lines, thereby complementing existing reserve assets; as a basis for new financial markets it can underlie tradable instruments (BCU bonds, forwards and options), enabling liquidity-building and price discovery; and when implemented on interoperable digital rails (CBDC / blockchain), it can support programmable payments, conditional transfers, and automated settlement in complex value chains-thereby lowering transaction costs, enhancing transparency, and strengthening the operational backbone for deeper economic integration.

Limitations of the BCU approach overall. A BCU-even well designed-cannot eliminate all exchange-rate or macroeconomic risk: it redistributes rather than removes exposure and may underperform as a nominal anchor if underlying macro imbalances persist. Liquidity and depth are critical; without sufficiently liquid markets for BCU-denominated instruments and credible issuers (e.g., NDB-backed facilities), the unit may remain a notional accounting device with limited practical hedging value. Political constraints and asymmetric interests among members may also limit the BCU's representativeness and long-term credibility. Operationalising BCU requires robust payment, clearing and settlement infrastructure, legal harmonization (contract law, bankruptcy, taxation), KYC/AML alignment and coordination of central-bank reserve and liquidity operations. Interoperability with national payment systems and CBDCs, and decisions about issuer/manager (centralised vs. distributed) and collateralisation, pose complex technical and regulatory challenges. These tasks demand sustained multilateral governance, interoperable APIs, and investment in market-making capacity to ensure tradability and viability. Adoption carries transition costs and risk of fragmentation-parallel systems (BCU vs. USD) could bifurcate markets, raise

hedging complexity, and invite speculative attacks if confidence is incomplete. BCU may also create moral-hazard incentives for weaker members if markets expect basket-support or intervention, and could transmit contagion if a major member experiences a prolonged crisis.

Conclusion

Modeling of real exchange rates in BRICS countries confirmed and identified both unique and common factors that determine their values. A conducted study allowed for the identification of the significance of various macroeconomic factors in shaping the dynamics of real exchange rates in BRICS countries, highlighting their heterogeneity and individual characteristics of influence on each national currency. The analysis showed that factors such as the share of trade volume within BRICS, inflation, GDP growth rates, current account balance, foreign direct investment, and foreign exchange reserves have a non-uniform impact depending on the specific economy of a particular country. These findings create a basis for developing effective currency regulation measures and demonstrate the potential for creating a new BRICS currency — the BCU.

This study has demonstrated that the dynamics of real exchange rates in BRICS countries are shaped by a wide set of macroeconomic factors, including intra-BRICS trade, inflation, GDP growth, current account balances, foreign direct investment, and international reserves. The analysis highlights both common patterns and country-specific sensitivities, which complicates the development of a unified monetary framework. These findings provide the basis for designing effective regulatory mechanisms and underscore the potential of a new settlement instrument — the BRICS Currency Unit (BCU).

The BCU's value could be pegged to a basket of BRICS currencies, with the weighting based on different principles, such as each country's economy gdp growth. Special attention was given to minimizing correlation with the volatility of individual national economies. Weighting currencies by gdp growth proved to be the most efficient approach, producing a more stable unit that is less exposed to domestic shocks. Out of the five modeled equations, this method demonstrated the best diversification properties, confirming the suitability of the BCU as a practical hedging tool. By reducing currency risks, BCU-based settlements can encourage higher trade and investment flows, fostering deeper economic integration across BRICS.

BCU has significant strategic implications. It can stabilize long-term contracts in energy, agriculture, and manufacturing by reducing price volatility and transaction costs. For Russia and other members, this provides a means to strengthen financial sovereignty, mitigate exposure to external shocks, and increase competitiveness in global markets. Furthermore, extending the BCU to BRICS+ partners such as Saudi Arabia, the UAE, Argentina, and Egypt would diversify settlement mechanisms, reduce dependency on the US dollar, and reinforce the group's role in shaping a multipolar global financial system.

In sum, the BCU is not only a technical solution to exchange rate volatility but also a strategic instrument for building long-term stability, trust, and resilience in the BRICS economic space.

Future research should quantify these trade-offs through counterfactual simulations and stress tests, back-testing alternative re-weighting rules on historical crises, and modelling market-microstructure effects of phased re-weighting. Empirical studies comparing hedging costs for BCU vs. existing instruments, pilot implementations with limited instruments (trade invoices, NDB bonds), and legal-institutional research on governance architectures and reserve-management protocols would provide practical guidance for policy pilots and gradual rollout.

Appendix 1

BRICS countries REERs models data

Parameter	Russia	India	SA	China	Brazil
R Square	0.62	0.64	0.63	0.82	0.76
Adjusted R Square	0.53	0.56	0.52	0.77	0.69
F	6.75	7.55	5.71	15.29	10.82
Significance F	0.00	0.00	0.00	0.00	0.00
DW	1.42	1.52	0.85	0.88	1.57
Dl	1.01	1.01	1.01	1.01	1.01
Du	1.86	1.86	1.86	1.86	1.86
Chi-squared test	8.46	10.15	3.59	8.76	4.56
Chi-squared stat	11.07	11.07	11.07	12.59	9.49
Ramsey test (F)	5.76	0.73	1.34	6.37	2.49
Significance F	0.00	0.65	0.29	0.00	0.05

Source: compiled by E.A. Vasyukov.

Model adequacy analysis:

1. F-test: The F-test indicates that the independent variables explain a significant portion of the variance in the dependent variable (>50%).

2. Durbin — Watson test: The test statistic is between dL and dU values for Russia, India and Brazil, it is not possible to conclusively accept or reject the null hypothesis of no autocorrelation.

DW statistic for China and South Africa is below dL and close to 1, which implies positive autocorrelation.

3. Breusch — Pagan test: The calculated Chi-squared statistics do not exceed the critical valueы. Therefore, the null hypothesis of homoscedasticity is accepted.

4. Ramsey RESET test: The calculated F-statistics exceed the critical values, indicating correct model specification.

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Bio note / Сведения об авторе

Evgeny A. Vasyukov, Researcher in International economics Department, Diplomatic Academy of Russian Federation, 53 Ostozhenka st., bldg. 2, Moscow, 119034, Russian Federation. ORCID: 0000-0002-1131-7447. SPIN-code: 7971-0480. E-mail: eavasyukov@yandex.ru

Васюков Евгений Александрович, научный сотрудник, кафедра мировой экономики, Дипломатическая академия МИД России, Российская Федерация, 119034, Москва, ул. Остоженка, д. 53/2. ORCID: 0000-0002-1131-7447. SPIN-код: 7971-0480. E-mail: eavasyukov@yandex.ru