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Erosion of the dollar anchor in international trade through the prism of new payment architectures

Abstract. The purpose of this study was to assess changes in the currency structure of cross-border payments in 2022-2026 under the influence of the spread of alternative payment mechanisms in China, Europe and countries of the Global South. Comparative, statistical and documentary analyses were used to assess the dynamics of currency payments, the development of payment infrastructure and mechanisms for the use of national currencies. In China, the volume of cross-border payments in yuan increased from CNY 42.1 trillion in 2022 to CNY 52.3 trillion in 2023, and their share in payments for trade in goods from 18.0% to 24.8%; in the first half of 2024, the volume of such transactions reached CNY 30.6 trillion. In 2024, the Chinese cross-border interbank payment system processed payments worth CNY 175 trillion, and the accumulated volume of digital yuan transactions reached CNY 7 trillion. In Europe, the share of the euro in export invoicing was 59.7% in 2022 and 60.0% in 2025, while in imports it increased from 51.7% to 53.1%; the share of the euro in bond issuance in a currency foreign to the issuer reached 31.1%. In developing countries, public debt in 2024 amounted to USD 31 trillion, and net interest payments were USD 921 billion. It was found that alternative mechanisms expanded the possibilities of conducting individual cross-border transactions without dollar mediation, but did not change the leading position of the US dollar. The practical significance of the study lies in the possibility of using its results to assess the directions of diversification of international payments and the development of payment autonomy

Keywords: currency diversification; cross-border settlements; digital currencies; export invoicing; intermediation

Introduction

The growth of geo-economic fragmentation, changes in the structure of foreign trade relations and the spread of digital financial technologies are gradually transforming the established mechanisms for cross-border payments. Along with traditional channels, payments in national currencies, digital currencies of central banks, regional payment systems and multilateral platforms are becoming more widespread, which can reduce the dependence of participants in foreign economic operations on individual currencies and financial intermediaries. One unresolved issue in the transformation of the international monetary system remained the declining dependence of cross-border payments on dollar infrastructure despite the US dollar's persistent network advantages. H. Khawaja (2025) examined this process through functional fragmentation, whereby currencies can specialise in different international functions without displacing the dominant currency. The examples of the Multiple Central Bank Digital Currency Bridge (mBridge), Jura and Dunbar showed that new infrastructure could reduce dollar intermediation and promote a functional distribution of international currency

roles. The uneven distribution of financial and monetary power was examined by I. Alami *et al.* (2026), who found that dollar dominance increased the dependence of countries in subordinate positions, limiting their monetary and fiscal autonomy and requiring substantial foreign exchange reserves. At the same time, dissatisfaction with the dollar-centric system encouraged alternative currencies in trade invoicing, reserves, financial clearing and debt financing, although these initiatives remained limited.

One of the debatable issues in the transformation of the international monetary system remained whether the initiatives of Brazil, Russia, India, China and South Africa (BRICS) could reduce dependence on the US dollar and promote a more diversified currency structure. W. Akram *et al.* (2026) found that efforts to reduce dollar dependence involved national currencies in trade, alternative payment systems and mechanisms protecting against external monetary shocks and sanctions. However, economic heterogeneity, leadership asymmetry, weak institutional coordination and limited trust constrained a common BRICS currency, making national-currency

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settlements, bilateral swaps and alternative payment mechanisms more realistic paths toward financial multipolarity. The possibilities of reducing the dependence of cross-border payments on the US dollar through central bank digital currencies were explored by S. Kuehnlenz *et al.* (2023). The authors found that interoperable mechanisms based on central bank digital currencies could facilitate the use of national currencies in cross-border transactions, reduce the need for currency triangulation through the US dollar, and partially bypass traditional financial infrastructure.

The dependence of cross-border payments on the US dollar and dollar-based infrastructure limited the financial autonomy of Asian countries and increased their exposure to external monetary and geopolitical influences. L. Zeng & W.-Y. Lau (2025) found that using the digital yuan (e-CNY) with the Cross-Border Interbank Payment System (CIPS) and multilateral Central Bank Digital Currency (CBDC) platforms, particularly mBridge, could enable direct cross-border payments, reduce reliance on the Society for Worldwide Interbank Financial Telecommunication (SWIFT) and dollar intermediaries, and lower transaction costs and currency risks. Greater e-CNY adoption, CBDC interoperability and Renminbi (RMB) pricing could gradually reduce dollar dependence, while limited implementation and weak interoperability hindered this shift. The potential of e-CNY and currency swaps to expand RMB use in cross-border transactions was examined by S. Yu (2023). Median RMB use in settlements with China across 125 economies increased from 0% in 2014 to 20% in 2021, supported by bilateral swap lines, offshore clearing institutions and CIPS. A survey of over 120 respondents also indicated favourable perceptions of e-CNY for China's trade with Islamic countries, with 50% strongly and 25% partially agreeing that it could positively affect trade relations.

One controversial issue in the international monetary system remained the stability of the US dollar as the main reserve currency amid declining demand for dollar-denominated safe assets. Z. Jiang *et al.* (2026) found that in April 2025, rising global uncertainty was accompanied by dollar depreciation, higher US government bond yields and a declining convenience yield, which had begun about two years before the 2025 tariff shock. Their calibrated model showed that eliminating foreign demand for dollar safe assets could depreciate the dollar by 7.6%, reduce the convenience yield by 0.9 p.p. and raise US long-term interest rates by 0.9 p.p. The formation of the European Financial Stability Facility (EFSF) during the 2010 eurozone crisis was examined by E. Karchimakis (2023), who found that institutional changes depended on crisis conditions, institutional entrepreneurship and the existing institutional trajectory. The Greek initiative gained support as the crisis threatened other countries, while the EFSF's final functions and structure reflected EU legal constraints, the distribution of powers and previous crisis-management experience.

At the same time, the impact of new payment architectures on the currency structure of international trade and the reduction of the dependence of cross-border payments on the US dollar remained insufficiently studied. The purpose of this study was to determine how the

development of alternative payment mechanisms in China, Europe and countries of the Global South affected the currency composition of cross-border payments during 2022-2026. To achieve the goal, the following tasks were defined: to analyse the development of alternative currency and payment mechanisms in China and Europe, including national-currency settlements, digital and cross-border payment infrastructure; to assess the use of local-currency settlement mechanisms and alternative currency liquidity in countries of the Global South under conditions of high debt burden; to determine the extent to which the development of these mechanisms expanded the possibilities for diversifying cross-border payments and conducting transactions without mandatory US dollar intermediation.

Materials and Methods

The study was of a comparative-analytical nature with elements of descriptive analysis and covered the years 2022-2026. This period was chosen to trace changes from the activation of alternative currency and payment mechanisms against the background of geo-economic and financial shocks in 2022 to their further institutional and technological development in 2026. In this study, erosion of the dollar anchor was defined as a reduction in the functional necessity of using the US dollar as an intermediary currency in cross-border transactions. The criterion for identifying such erosion was the documented expansion and actual use of national or alternative currencies and payment mechanisms enabling transactions without mandatory dollar intermediation. The existence of such mechanisms alone was not considered evidence of erosion without documented operational use. China and its payment interaction with Saudi Arabia, Brazil, Indonesia, Thailand and Hong Kong, the eurozone countries, as well as individual countries in Latin America and Africa were selected for the study. This selection covered three areas of transformation of international settlements in 2022-2026: the development of RMB infrastructure and bilateral currency mechanisms in China, the expansion of payment autonomy in Europe, and the use of local currencies and alternative liquidity by countries with high debt burdens. Saudi Arabia, Brazil, Indonesia and Thailand were selected because of their currency or payment mechanisms with China, Argentina, Paraguay and Uruguay because of their use of the Local Currency Payment System (SML), while African countries were considered within the Pan-African Payment and Settlement System (PAPSS).

Descriptive statistical analysis was used to examine quantitative changes in three areas by comparing absolute and relative indicators; where the available data allowed, changes in percentage points and the shares of individual components in total values were additionally calculated. The use of RMB was assessed by the volume of cross-border payments, their annual rate of change, current account and merchandise trade transactions, the share of RMB in merchandise payments and the volume of payments through Cross-Border Interbank Payment System (Monetary Policy Analysis..., 2024; The People's Bank of China, n.d.; Research Institute of the People's Bank of China, n.d.). The international use of the euro was analysed by its total international share, share in invoicing of exports and imports of goods outside the euro

area, bond issuance in a currency foreign to the issuer, a composite indicator of the international role, and change in international issuance of debt instruments in the euro (The international role of the euro, June 2024, 2024; The international role of the euro, June 2026, 2026). The debt burden of developing countries was characterised using selected indicators available for 2022-2024, including public and publicly guaranteed external debt service, total external debt service, interest payments on external debt, external debt of low- and middle-income countries, public debt of developing countries, net interest payments, the number of countries allocating at least 10% of government revenues to interest payments, and net resource transfers to external creditors (Developing countries paid record \$443.5..., 2023; Developing countries paid record \$1.4..., 2024; United Nations Conference on Trade and Development, 2025). The regional distribution of public debt and differences in the cost of external financing were additionally taken into account to characterise the broader financial context in which alternative settlement mechanisms were used (Global public debt hit..., 2025).

Comparative analysis was used to compare currency, trade and payment mechanisms according to their quantitative and functional characteristics. Chinese mechanisms were compared by year, partner country, type of instrument, volume, institutional characteristics and purpose; the digital component was compared by volume of e-CNY in circulation, accumulated value of transactions, integration with Faster Payment System (FPS), number and value of mBridge transactions, transition to a Minimum Viable Product (MVP) and expansion of the participant network and accession of new full participants, and mechanisms with Indonesia and Thailand were compared by validity periods, limits in Chinese yuan (CNY), United States dollar (USD), Thai baht (THB) and areas of use (Bank Indonesia and the People's..., 2025; Signing of the renewal..., 2025; Thailand and China..., 2025). For the European direction, the shares of the euro in export and import invoicing, bond issuance and international issuance of debt instruments, as well as the year, stage of development and functional purpose of Instrument in Support of Trade Exchanges (INSTEX), Blocking statute, TARGET Instant Payment Settlement (TIPS), the digital euro, the comprehensive payment strategy, Project Agorá, Pontes and Appia were compared to trace the differences between the trade, financial and infrastructure directions of payment autonomy (The Eurosystem's comprehensive..., 2026; European Central Bank, n.d.) For Latin America, SML transactions were compared by partner country, volume of exports, imports and their total value in Brazilian real (BRL) (Payment in local currency, n.d.), and Argentina's use of swap liquidity was compared by volume and share of import financing, payments to bondholders and the International Monetary Fund (n.d.), total identified use and total volume of tranche used, which allowed distinguishing between the trade and debt purposes of the mechanism (International Monetary Fund. Western Hemisphere Dept, 2023).

Documentary analysis was used to determine the principles of functioning and institutional development of the payment mechanisms under study. The Chinese direction covered the terms of use of e-CNY and its integration with the Hong Kong infrastructure, the development

of mBridge, the parameters of currency swaps, RMB clearing, Offshore Clearing Bank and Payment Connect, which was necessary to establish ways to organise direct cross-border settlements and access to foreign exchange liquidity (Digital yuan in circulation..., 2023; China's digital yuan..., 2024; Hong Kong Monetary Authority, 2024). The operating model of mBridge and bilateral mechanisms with Saudi Arabia and Brazil were separately examined (BIS and four central..., 2022; The Saudi Central Bank..., 2023; Our strength and..., n.d.). European mechanisms were examined in terms of the functioning of INSTEX and the Blocking statute, the dependence of card payments on international schemes, the development of the digital euro and TIPS, and the formation of tokenised multi-currency settlements to characterise the transition from separate instruments to a comprehensive payment infrastructure (The 10 INSTEX..., 2023; Cipollone, 2025; Tokenisation can improve..., 2026). In Latin America, SML was examined in terms of the procedure for making payments in national currencies, the absence of an intermediate reserve currency, currency conversion conditions, and regulatory changes (CMN improves Local..., 2023; Payment in local currency, n.d.), and Pan-African Payment and Settlement System (n.d.) was examined in terms of the currencies of the payer and the recipient, the procedure and duration of the payment, and the composition of financial participants to determine the organisational capabilities of making intra-African settlements without the intermediate use of hard international currency.

The combined application of statistical, comparative, and documentary analysis made it possible to assess the scale and direction of changes in international settlements in 2022-2026, compare the development of alternative currency and payment mechanisms in China, Europe, Latin America, and Africa, and determine the extent to which their spread created opportunities for cross-border transactions without the mandatory use of the US dollar as an intermediate currency.

Results

Digital yuan and the formation of an alternative payment circuit. In 2022-2024, the international use of the Chinese yuan expanded simultaneously in several directions: cross-border payments in RMB increased, CIPS developed, testing of the digital yuan (e-CNY) continued, infrastructure for cross-border transactions with the Central Bank Digital Currency was formed, and China's bilateral currency swap network covered an increasingly wider range of trading partners. The combination of these processes created conditions under which the use of the US dollar as an intermediate currency ceased to be technically necessary for some transactions. At the same time, these changes did not mean a direct replacement of the dollar with the yuan, since it was primarily about expanding alternative payment channels. The growth in cross-border use of the RMB was noticeable already at the beginning of the period under study. According to the People's Bank of China (PBOC), in 2022, the volume of cross-border payments in RMB increased by 15% to CNY 42.1 trillion, or 49% of China's total cross-border payments in RMB and foreign currencies (Research Institute of the People's Bank of China, n.d.). At the same time, current account

transactions accounted for CNY 10.5 trillion, of which CNY 7.9 trillion were payments for trade in goods. The share of RMB in cross-border payments for trade in goods reached 18%. In 2023, the volume of cross-border RMB payments made by Chinese banks on behalf of customers increased

to CNY 52.3 trillion, which was 23.8% higher than the previous year, while the share of RMB in cross-border receipts and payments for trade in goods increased to 24.8%. To summarise these dynamics, the main indicators of cross-border use of RMB are presented in Table 1.

Table 1. Dynamics of selected indicators of cross-border RMB use in 2022-2024

Indicator	2022	2023	H1 2024
Cross-border RMB settlements, CNY trillion	42.1	52.3	30.6
Annual change, %	+15.1	+23.8	+25.0
Current account settlements, CNY trillion	10.5	-	7.7
Goods trade settlements, CNY trillion	7.9	-	5.9
Share of RMB in cross-border goods trade settlements, %	18.0	24.8	-

Source: compiled by the author based on Monetary Policy Analysis Group of the People's Bank of China (2024), The People's Bank of China (n.d.), Research Institute of the People's Bank of China (n.d.)

The data shows that the use of RMB in cross-border transactions has been expanding consistently in 2022-2024. Of particular importance is the increase in the share of RMB in merchandise trade settlements from 18.0% in 2022 to 24.8% in 2023, as it indicates the gradual shift of the yuan from an auxiliary settlement currency to a more prominent instrument of foreign trade payments. The trend has continued in 2024. In the first half of the year alone, cross-border RMB settlements amounted to CNY 30.6 trillion, an increase of 25% compared to the same period of the previous year. Receipts amounted to CNY 14.8 trillion, and payments amounted to CNY 15.8 trillion. The volume of current account transactions increased by 22% to CNY 7.7 trillion, with CNY 5.9 trillion directly attributable to merchandise trade. Thus, the expansion of RMB use occurred not only through capital movements, but also directly through trade transactions, which is fundamental for assessing the change in the currency structure of international trade.

One of the infrastructure elements of this process was CIPS. In 2024, the system processed cross-border RMB payments worth CNY 175 trillion, which was 43% higher than in 2023. From the moment of CIPS's launch in 2015 to the end of 2024, the total volume of payment transactions carried out through it approached CNY 600 trillion. The role of CIPS in this context was not to create a new currency, but to expand the infrastructure for conducting international transactions without the need to organise each payment through traditional dollar-centric correspondent chains (The People's Bank of China, 2025). In parallel, the digital component of this infrastructure was formed. By the end of 2022, the volume of e-CNY in circulation was CNY 13.61 billion, after which the digital yuan was included in the M0 money supply indicator by the PBOC (Digital yuan in circulation..., 2023). By the end of June 2024, the accumulated

volume of e-CNY transactions had already reached 7 trillion CNY. At the same time, the digital currency was used in 17 administrative units of China in retail and wholesale trade, tourism, education, medicine and other fields (China's digital yuan..., 2024). However, these figures cannot be directly interpreted as the volume of international trade settlements in digital yuan, as they primarily covered the domestic e-CNY ecosystem. The transition from domestic use to cross-border scenarios became more noticeable in 2024. Hong Kong Monetary Authority (2024) together with the Digital Currency Institute of the People's Bank of China expanded the e-CNY pilot in Hong Kong. Hong Kong residents were able to open personal e-CNY wallets with local phone numbers without opening a bank account in mainland China and top them up through the FPS. By the end of 2024, 17 banks in Hong Kong supported the top-up service. This became a practical example of integrating the digital form of RMB with the payment infrastructure of another jurisdiction.

The Multiple Central Bank Digital Currency Bridge created a much broader potential for international settlements. In 2022, within the framework of a six-week pilot project, 20 banks from mainland China, Hong Kong, Thailand and the United Arab Emirates conducted 164 real payment and currency transactions worth over USD 22 million through the platform. The settlement was carried out directly on the platform using CBDC (BIS and four central..., 2022). In June 2024, mBridge moved to the MVP stage, which allowed participants to carry out real transactions provided that the relevant jurisdiction was ready. At the same time, the Saudi Central Bank joined the project as a full participant, and the number of observers exceeded 26 (Project mBridge reaches..., 2024). The main stages of the development of e-CNY and mBridge within the period under study are systematised in Table 2.

Table 2. Development of the digital component of alternative settlements in 2022-2024

Year	Instrument	Main result
2022	Digital yuan (e-CNY)	CNY 13.61 billion in circulation at year-end
	Multiple Central Bank Digital Currency Bridge (mBridge)	164 real transactions worth more than USD 22 million
2024	Digital yuan (e-CNY)	Cumulative transaction value of CNY 7 trillion as of June 30, 2024
	e-CNY/Hong Kong	Expansion of the cross-border pilot and integration with the Faster Payment System (FPS)
	Multiple Central Bank Digital Currency Bridge (mBridge)	Transition to the Minimum Viable Product (MVP) stage
	Multiple Central Bank Digital Currency Bridge (mBridge)	Saudi Central Bank became a full participant

Source: compiled by the author based on BIS and four central banks... (2022), Digital yuan in circulation hits... (2023), China's digital yuan transactions... (2024), Hong Kong Monetary Authority (2024), Project mBridge reaches... (2024)

The data in Table 2 show that in 2022-2024, the digital direction moved from experimental use to the formation of an infrastructure more suitable for cross-border transactions. While mBridge performed a mainly pilot function in 2022, in 2024 the transition to a Minimum Viable Product and the accession of the Saudi Central Bank expanded the possibilities for real cross-jurisdictional transactions in the Central Bank Digital Currency. At the same time, a significant part of the e-CNY turnover continued to be formed in the domestic payment system of China, so it should not be directly identified with international trade settlements. A component of the formation of such a circuit was the bilateral currency mechanisms. In November 2023, the Saudi Central Bank and the PBOC concluded a three-year bilateral currency swap agreement with a maximum volume of 50 billion Chinese CNY. The agreement was related to the deepening of financial cooperation between the two central banks (The Saudi Central Bank..., 2023). The subsequent joining of the Saudi Central Bank to mBridge in 2024 meant that the cooperation covered both foreign exchange liquidity and digital payment infrastructure (Project mBridge reaches..., 2024).

The Brazilian direction developed somewhat differently. In 2023, the Banco Central do Brasil (BCB) and the PBOC signed a memorandum on the development of financial services related to the use of RMB, which provided for the possibility of creating an Offshore Clearing Bank in Brazil. According to the BCB, such a mechanism could increase local RMB liquidity, reduce the number of intermediaries in international payments, bring the Brazilian

and Chinese payment systems closer together, and reduce transaction costs and time (Our strength and..., n.d.). In 2025, the interaction was complemented by a five-year central bank currency swap agreement with a maximum open interest of BRL 157 billion. The BCB explicitly identified its main objective as providing liquidity to support the functioning of financial markets in case of need (The Central Bank of Brazil and..., 2025). In BCB materials, this mechanism was also linked to facilitating transactions between BRL and CNY (Central Bank of Brazil, 2025).

A similar model has been expanding in Southeast Asia. The Indonesian direction was particularly indicative. In January 2025, Bank Indonesia (BI) and the PBOC renewed the Bilateral Currency Swap Arrangement for a period of five years. The maximum swap volume was CNY 400 billion, or about USD 55 billion, with the corresponding amount in Indonesian rupiah (IDR). The agreement supplemented the settlement mechanism in national currencies that China and Indonesia have been using since 2021 to support bilateral trade and direct investment (Bank Indonesia and the People's..., 2025). In relations with Thailand, the Bank of Thailand and the PBOC agreed in 2025 to another five-year extension of the Chinese Yuan – Thai Baht Bilateral Currency Swap Arrangement from 22 December 2025 (Signing of the renewal..., 2025); the limit of the mechanism was CNY 70 billion or THB 370 billion (Thailand and China..., 2025). The main examples of such mechanisms with Saudi Arabia, Brazil and individual countries of the Association of Southeast Asian Nations (ASEAN) are given in Table 3.

Table 3. Selected Chinese currency and payment mechanisms with trading partners in 2022-2025

Partner	Year	Mechanism	Volume/characteristics	Functional purpose
Saudi Arabia	2023	Bilateral currency swap	CNY 50 billion	Access to currency liquidity
	2024	Multiple Central Bank Digital Currency Bridge (mBridge)	Full participant	Direct cross-border CBDC transactions
Brazil	2023	RMB clearing arrangement	Offshore Clearing Bank framework	RMB liquidity and fewer payment intermediaries
	2025	Bilateral currency swap	Up to BRL 157 billion	Liquidity and support for BRL/CNY transactions
Indonesia	2025	Bilateral Currency Swap Arrangement	CNY 400 billion/=USD 55 billion	Trade and investment in national currencies
Thailand	2025-2030	Bilateral currency swap	CNY 70 billion/THB 370 billion	Support for trade and investment in national currencies

Source: compiled by the author based on China and Saudi Arabia set up... (2023), M. Jones (2024), Thailand and China... (2025), The Central Bank of Brazil and the People's... (2025), Bank Indonesia and the People's Bank... (2025)

A comparison of the above mechanisms shows that China used not one universal tool, but a combination of different ways to support cross-border settlements. Currency swaps provided access to liquidity, clearing mechanisms simplified settlements in RMB, while mBridge created a technological basis for direct digital settlements between central banks and financial institutions of different jurisdictions. Taken together, these mechanisms reduced the need for the mandatory use of the US dollar as an intermediate currency, although their scale does not yet give grounds to speak of a full-fledged replacement of the dollar system. The above mechanisms performed different but complementary functions. Bilateral currency swaps provided central banks with access to liquidity in national currencies; clearing mechanisms created the infrastructure for conducting and completing RMB

transactions; CIPS provided a large-scale banking channel for cross-border RMB payments; e-CNY formed a digital form of central bank money, while mBridge tested the possibility of direct multi-currency settlement between different jurisdictions. Therefore, it is advisable to consider their development not in isolation, but as interconnected components of the payment architecture.

At the same time, data for 2022-2026 do not provide sufficient grounds to assert that a full-fledged replacement for the dollar system has been formed. First, a significant part of the e-CNY statistics characterises domestic, not international, transactions. Second, the currency swap itself only creates the possibility of obtaining liquidity and does not indicate the actual volume of its use in trade payments. Third, mBridge in 2024 only moved to the MVP stage, although it already allowed for real transactions

(Project mBridge reaches..., 2024). Finally, the growth of CIPS reflects the expansion of the RMB payment infrastructure, but does not mean an automatic reduction in dollar payments by the same amount. At the same time, the overall dynamics indicated the gradual elimination of some technical reasons for the mandatory use of the dollar in cross-border transactions. While in 2022 the main emphasis was on increasing RMB settlements and experimental CBDC operations, during 2023-2025 they were joined by new clearing mechanisms, large bilateral swaps, the expansion of CIPS and the transition of mBridge to a more operationally suitable stage. In 2025, Payment Connect between mainland China and Hong Kong also appeared, which ensured the interaction of fast payment systems and allowed cross-border transfers with settlement in RMB or local currency; by the end of June 2025, transactions worth CNY 990 million were carried out through it for approximately 230 thousand users (The People's Bank of China, 2025)

Thus, during 2022-2026, the Chinese direction was characterised by a transition from separate instruments of RMB internationalisation to a more extensive system in which currency liquidity, clearing, bank payments and digital settlements began to complement each other. It is most reasonable to interpret these changes as the formation of a parallel route of international settlements, which did not eliminate the US dollar from international trade, but expanded the possibilities of carrying out individual transactions in RMB and national currencies without mandatory dollar mediation. It was the combination of the growth of actual RMB settlements with the development of CIPS, e-CNY, mBridge, clearing centres and bilateral currency swaps that created the institutional and technological basis for the gradual diversification of the currency structure of cross-border payments.

Strengthening of the euro in international settlements. Against the background of the energy and

geopolitical shocks of 2022, greater attention was paid in the European Union to the stability of its own financial and payment infrastructure. In 2022-2025, the changes were gradual and covered several interrelated areas: maintaining a significant share of the euro in the invoicing of foreign trade in the euro area, developing its own payment infrastructure, finding ways to reduce dependence on non-European payment providers, and creating a technological basis for cross-border and tokenised settlements. In 2025, the international role of the euro moderately strengthened, and its share in the totality of the main indicators of international use approached 20%, which retained its position as the second most important international currency (The international role of the euro..., 2026).

For international trade, the function of the euro as an invoicing currency was more important than its reserve status. In 2022, 59.7% of euro area exports of goods to countries outside the monetary union and 51.7% of corresponding imports were denominated in euros. In 2023, these figures were 60.2% and 51.9%, respectively, and in 2025, 60.0% and 53.1% (The international role of the euro, June 2024, 2024; The international role of the euro, June 2026, 2026). Thus, the position of the euro in export invoicing remained relatively stable, while its share in import transactions gradually increased. This is important in the context of the change in the geography of energy and raw material imports of the European Union after 2022, but the available data from the European Central Bank (ECB) (n.d.) do not provide grounds to identify the increase in the share of the euro in total import invoicing with a large-scale transition of oil or gas contracts with the Persian Gulf countries to the euro. Changes in the international functions of the euro during the period under study occurred unevenly, therefore, to assess them, it is advisable to compare trade invoicing with other areas of currency use. The main indicators characterising these changes are systematised in Table 4.

Table 4. Selected indicators of the international use of the euro in 2022-2025

Indicator	2022	2023	2024	2025
Euro share in extra-euro area goods export invoicing, %	59.7	60.2	59.6	60.0
Euro share in extra-euro area goods import invoicing, %	51.7	51.9	52.8	53.1
Foreign currency-denominated bond issuance in euro, %	24.7	22.6	25.6	31.1
Composite international role of the euro	-	-	-	≈20%
Change in international euro-denominated debt issuance	-	-	-	≈+30% y/y

Source: compiled by the author based on The international role of the euro, June 2024 (2024), The international role of the euro, June 2026 (2026)

The data in Table 4 indicate the differences between the individual functions of the euro. The share of the currency in export invoicing remained virtually unchanged, while in import invoicing it increased by 1.4 percentage points between 2022 and 2025. A much more pronounced change occurred in the financial sector: the share of the euro in the issuance of bonds denominated in a currency foreign to the issuer increased from 25.6% in 2024 to 31.1% in 2025, and the international issuance of debt instruments in euro increased by about 30% and reached its highest level since the introduction of the single currency. In 2025, the euro also became the leading currency in the international market for green and sustainable bonds. Thus, the strengthening of the euro's international

position during this period was more noticeable in financial instruments than in the currency structure of foreign trade invoicing. Global data also did not confirm the rapid displacement of the US dollar from trade settlements. A study by the ECB and the International Monetary Fund (n.d.), which covered more than 120 countries, showed that the US dollar and the euro together provided more than 80% of world trade invoicing. At the same time, the dollar performed the function of a global intermediate currency much more widely, while the use of the euro as such currency was concentrated mainly in Europe and part of Africa (Brüggen *et al.*, 2025). Thus, the growth of autonomy of European settlements in 2022-2025 occurred in the context of the already established regional role of the

euro, but was not accompanied by a similar expansion of its functions on a global scale.

A separate direction in the formation of European autonomy was associated with attempts to limit the impact of extraterritorial sanctions on European business. INSTEX, created by France, Germany and the UK in 2019 to ensure legitimate trade with Iran, was supposed to allow for certain transactions without the need for regular cross-border money transfers. However, this mechanism did not gain practical scale: in four years, the Iranian side approved only one transaction, carried out in early 2020, and on March 9, 2023, the ten shareholder states decided to liquidate INSTEX (The 10 INSTEX..., 2023). At the same time, the termination of INSTEX did not mean the European Union's refusal to protect its own economic autonomy. The Extraterritoriality (Blocking statute) (n.d.) continued to operate as a regulatory mechanism to protect EU individuals and companies from the extraterritorial application of third-country legislation. It provides for the non-recognition in the EU of certain foreign court decisions, the possibility of claiming damages and a ban on European operators from fulfilling certain extraterritorial requirements without appropriate authorisation. Thus, after the unsuccessful experience with INSTEX, the issue of autonomy gradually shifted from the creation of a narrow channel for a separate trade direction to the broader institutional and technological strengthening of the European payment system.

This transition became especially noticeable in 2025-2026. One of the factors was the continued significant dependence of retail payments on external infrastructure. According to the ECB, approximately two thirds of card transactions in the euro area were processed by international payment schemes, and 13 out of 20-euro area countries were completely dependent on non-European solutions

due to the lack of their own national card scheme (Cipollone, 2025). In October 2025, the Governing Council (n.d.) of the European Central Bank decided to move the digital euro project to the next phase, with one of the reasons for its development being the creation of a pan-European digital payment instrument capable of operating in all euro-zone countries (Eurosysteem moving to the next..., 2025).

At the level of cross-border transactions, the expansion of TIPS has become more important. In June 2025, TIPS introduced a basic cross-currency payment capability, built on the European Payments Council's One-Leg Out Instant Credit Transfer (OCT Inst) scheme. It created the technological basis for TIPS to interact with fast payment systems outside the euro area. The ECB directly links the development of such mechanisms to increasing the speed, accessibility and cost of cross-border payments, as well as supporting the international role of the euro (Cross-border payments, n.d.). By 2026, the individual initiatives had been merged into a much broader institutional model. On 31 March 2026, the Eurosysteem presented a comprehensive payments strategy, which for the first-time covered wholesale, business-to-business, retail and cross-border payments simultaneously. Its four strategic objectives included preserving central bank money as the basis of the payment system, increasing the autonomy and sustainability of European payments, creating an integrated competitive ecosystem and supporting the international role of the euro (The Eurosysteem sets out..., 2026). Unlike INSTEX, this approach was not tied to a specific country or sanctions regime, but covered the basic infrastructure of European settlements. The evolution of the European approach from a specialised INSTEX to a comprehensive payment strategy covered regulatory, retail, cross-border and wholesale mechanisms. The institutional changes and functional purpose of the euro are summarised in Table 5.

Table 5. Evolution of European payment autonomy mechanisms in 2022-2026

Year	Mechanism/initiative	Development	Function in the European payment architecture
2023	Instrument in Support of Trade Exchanges (INSTEX)	Liquidation approved by ten shareholder states	Demonstrated limitations of a specialised alternative trade channel
2022-2026	Extraterritoriality (Blocking statute)	Continued application	Protection of European Union operators against specified extraterritorial legislation
2025	TARGET Instant Payment Settlement (TIPS)	Cross-currency capability introduced	Interconnection with fast payment systems outside the euro area
2025	Digital euro	Transition to the next project phase	Pan-European retail payment autonomy
2026	Comprehensive payments strategy	Adopted by the Eurosysteem	Integration of retail, wholesale, B2B and cross-border payment policies
2026	Project Agorá	Prototype successfully tested	Tokenised multi-currency wholesale cross-border settlement
2026	Pontes	Go-live planned for September 2026	Connection of DLT platforms with TARGET Services
2026	Appia	Long-term development	European tokenised financial ecosystem

Source: compiled by the author based on The 10 INSTEX... (2023), Eurosysteem moving to the next... (2025), The Eurosysteem sets out... (2026), The Eurosysteem's comprehensive... (2026), Cross-border payments (n.d.), Extraterritoriality (Blocking statute) (n.d.), Project Agorá... (2026), Appia (n.d.), Pontes (n.d.)

Table 5 shows that the changes during 2022-2026 did not consist in the improvement of one alternative channel, but in the gradual expansion of the very concept of payment autonomy. The termination of INSTEX demonstrated the limitations of a mechanism focused

on a narrow range of trade transactions, while subsequent initiatives have expanded to cover retail, banking, cross-border and wholesale payments. As a result, autonomy began to take shape not through the isolation of the European system from the existing international

infrastructure, but through the creation of its own technological capabilities and their interaction with the systems of other jurisdictions.

The most technologically complex direction was related to the tokenisation of wholesale cross-border payments. In May 2026, Project Agorá demonstrated the possibility of atomic settlement of cross-border transactions between different currencies and jurisdictions using tokenised reserves of central banks and tokenised deposits of commercial banks (Tokenisation can improve..., 2026). Leading central banks and more than 40 financial institutions were involved in the project. The next stage should be the testing of real assets. The results of the project were simultaneously used by the Eurosystem for the development of Pontes and Appia. Pontes was to connect market platforms based on Distributed Ledger Technology (DLT) to TARGET Services with a planned launch in September 2026, while Appia was shaping the long-term model of the European tokenised financial ecosystem.

Thus, the European trajectory of 2022-2026 differed from the direct creation of an alternative currency system. The share of the euro in foreign trade invoicing remained high, but its changes were moderate, so the data do not confirm the rapid displacement of the US dollar from international trade. At the same time, there was a noticeable expansion of institutional and technological capabilities for making payments based on the European infrastructure. The unsuccessful experience of INSTEX gave way to the development of TIPS, the digital euro, Project Agorá, Pontes and Appia, and in 2026 these directions were combined into a single payment strategy, one of the clearly defined goals of which was to support the international role of the euro. Therefore, in the context of the erosion of the dollar anchor, it is appropriate to characterise the European direction not as a formed replacement for the dollar circuit, but as a gradual increase in payment autonomy, which reduces structural dependence on external intermediaries and creates infrastructural prerequisites for a wider use of the euro in international settlements.

The Global South in diversifying currency settlements. The rising cost of external financing in 2022-2024 has exacerbated developing countries' currency constraints and increased the importance of access to liquidity in international currencies. In 2022, developing countries paid a record USD 443.5 billion in servicing their public and publicly guaranteed external debt, a 5% increase from the previous year (Developing countries paid record \$443.5..., 2023). In 2023, total external debt payments had already reached USD 1.4 trillion, and interest payments had increased by almost a third to USD 406 billion. For countries eligible for International Development Association (2026) financing, debt service amounted to USD 96.2 billion, of which USD 34.6 billion was interest payments. At the same time, the average cost of loans from official creditors exceeded 4%, and private ones reached 6%, the highest level in 15 years (Developing countries paid record \$1.4..., 2024).

The further increase in the debt burden occurred under conditions of limited opportunities to attract cheaper external financing. In 2024, the public debt of developing countries amounted to USD 31 trillion out of USD 102 trillion of global public debt. Their net interest payments reached USD 921 billion, increasing by 10% per year, and 61 countries directed at least 10% of government revenues to pay interest on debt (United Nations Conference on Trade and Development, 2025). At the same time, the debt was distributed unevenly between regions: Latin America and the Caribbean accounted for about 5% of global public debt, and Africa – about 2%. The lower absolute debt did not mean a lower financial burden, as since 2020 developing countries have been raising financing at average rates that were two to four times higher than in the United States (Global public debt hit..., 2025). To compare the scale of the debt burden with the resources that were withdrawn from economies to meet external obligations, the main indicators for 2022-2024 are summarised in Table 6. They characterise not the currency structure of the debt itself, but the broader financial environment in which mechanisms capable of reducing the use of reserve currencies in current trade transactions operated.

Table 6. Selected indicators characterising the debt burden of developing countries in 2022-2024

Period	Indicator	Value
2022	External public and publicly guaranteed debt service	USD 443.5 billion
2023	Total external debt service	USD 1.4 trillion
	Interest payments on external debt	USD 406 billion
	External debt of low- and middle-income countries	USD 8.8 trillion
2024	Public debt of developing countries	USD 31 trillion
	Net interest payments on public debt	USD 921 billion
	Developing countries allocating ≥10% of government revenue to interest	61 countries
	Net resource transfer to external creditors	USD -25 billion

Source: compiled by the author based on Developing countries paid record \$443.5... (2023), Developing countries paid record \$1.4... (2024), Global public debt hit... (2025), United Nations Conference on Trade and Development (2025)

These figures demonstrate not only an increase in debt obligations, but also an increase in the current burden on liquidity. The combination of USD 921 billion in net interest payments with a negative net transfer of resources of USD 25 billion in 2024 reflected a significant debt burden on developing countries. Conducting part of trade transactions without intermediate conversion into dollars does not reduce the nominal value of

existing dollar-denominated debt but may reduce the need for hard currency in individual import transactions. Independently of the debt burden, a practical example of local-currency trade settlement in Latin America was the SML, which unites the BCB with the central banks of Argentina, Paraguay and Uruguay. The mechanism allows for bilateral payments without the use of an intermediate reserve currency, in particular the US dollar: the

importer makes a payment in its national currency, while the exporter receives funds in the currency of its country. There is no need to conclude a separate currency contract, and the BCB directly links the use of the SML to reducing the financial and administrative costs of international transactions (Payment in local currency, n.d.). In 2023, the regulatory framework of the system was further simplified, and the range of financial institutions that

could carry out relevant transactions was expanded; at that time, approximately BRL 50 billion of transactions had already been carried out through the SML (CMN improves Local..., 2023). The effectiveness of this mechanism is more appropriate to assess by the actual trade transactions carried out, and not only by its institutional design. The volumes of Brazil's foreign trade carried out through the SML in 2024 are given in Table 7.

Table 7. Brazil's foreign trade settled through the Local Currency Payment System in 2024

Partner country	Brazilian exports through SML, BRL billion	Brazilian imports through SML, BRL billion	Total, BRL billion
Argentina	3.380	0.00175	3.382
Paraguay	0.83004	0.16167	0.992
Uruguay	0.37644	0.05431	0.431
Total	4.587	0.218	4.804

Source: compiled by the author based on Payment in local currency (n.d.)

The structure of transactions shows that the SML was actually used for international trade without the dollar as an intermediate currency, but the scale of its use varied significantly between countries and directions of movement of goods. In 2024, the largest volume was accounted for by Brazilian exports to Argentina – 3.38 billion reais, while Brazil's imports from Argentina through this system amounted to only 1.75 million reais. Therefore, the SML did not indicate a complete change in the currency model of regional trade, but demonstrated the practical possibility of conducting some cross-border transactions without using the US dollar. At the same time, Argentina became an illustrative example of the use of alternative currency liquidity in conditions of limited international reserves.

The bilateral swap line between the Central Bank of Argentina and the People's Bank of China, increased in 2018 from CNY 70 to CNY 130 billion Chinese RMB, or about USD 20 billion. The USD tranche, at the International Monetary Fund (IMF) programme exchange rate, was extended in 2023 for another three years, until August 2026. In January 2023, the equivalent of about USD 5 billion was activated, and as of mid-August, approximately USD 3.8 billion of this tranche had already been used to finance imports and meet external debt obligations (International Monetary Fund. Western Hemisphere Dept, 2023). The distribution of these funds between trade and debt needs is given in Table 8, which allows to assess the simultaneous performance of several functions by the swap line.

Table 8. Use of the activated PBOC swap liquidity by Argentina in 2023

Use of funds	Amount, USD billion	Share of used first tranche, %*
Import financing	1.8	47.4
Debt service to bondholders	0.9	23.7
Repurchases from the International Monetary Fund	1.0	26.3
Total identified use	3.7	97.4
Total amount used by mid-August	≈3.8	100.0

Note: *calculated from the approximately USD 3.8 billion used by mid-August 2023; differences are due to rounding and the approximate values reported by the IMF

Source: compiled by the author based on International Monetary Fund. Western Hemisphere Dept (2023)

About 47.4% of the first tranche used was used to finance imports, while at least USD 1.9 billion was used to service external debt obligations to bondholders and the IMF. This case most directly links alternative currency liquidity to debt burdens, but does not indicate a reduction in the cost of the debt itself. The economic significance of the mechanism was different: RMB liquidity allowed for the financing of part of imports and at the same time became an additional resource for external payments under conditions of limited dollar reserves.

Another direction of local payments development has emerged in Africa. Pan-African Payment and Settlement System (n.d.) creates an infrastructure through which the payer can carry out a cross-border transaction in his national currency, and the recipient can receive funds in the currency of his country. The traditional scheme involved converting the local currency into a hard international currency and then converting it into the recipient's currency, which increased the duration and foreign exchange

costs of the payment. PAPSS eliminates this intermediate stage, and the verification and transfer of the payment can be carried out within approximately 120 seconds. The system is aimed at banks, payment service providers and other financial intermediaries and provides instant or near-instant payments between African countries in local currencies. The PAPSS's connection to the debt burden is indirect. The system is not intended to repay external public debt and does not itself change the currency of existing obligations. Its significance lies in reducing the need to use hard currency for a portion of intra-African trade payments. Given the high cost of external financing and significant interest payments, such a model potentially delimits foreign exchange needs: local currencies can be used more widely for regional trade, while limited international reserves remain available for transactions that still require the dollar or other reserve currencies. This is an economic interpretation of the mechanism's operation, not the public debt reduction effect established by the PAPSS.

The comparison of the three models showed that the reduction in mandatory US dollar intermediation followed different paths in China, Europe and the Global South. The Chinese model was characterised by the broadest combination of mutually complementary instruments: the growth of RMB settlements was supported by CIPS, clearing mechanisms, bilateral currency swaps, e-CNY and mBridge. This created a parallel payment circuit in which access to RMB liquidity, banking infrastructure and digital settlement technologies developed simultaneously, although their expansion did not imply a proportional decline in the use of the US dollar. The European model followed a different trajectory. Rather than creating a separate alternative currency circuit, it focused on strengthening payment autonomy through TIPS, the digital euro, tokenised settlement initiatives and the comprehensive payments strategy, while the share of the euro in trade invoicing changed only moderately. In the Global South, diversification was more fragmented and transaction-oriented. SML and PAPSS enabled selected trade payments in national currencies without an intermediate reserve currency, while RMB swap liquidity provided an additional resource for imports and external payments under conditions of limited international liquidity. Thus, the three models differed in their main drivers: China combined currency internationalisation with the expansion of payment infrastructure, Europe concentrated on institutional and technological autonomy, whereas the Global South relied mainly on regional settlement mechanisms and alternative liquidity. Despite these differences, the common result was the expansion of opportunities to conduct individual cross-border transactions without mandatory dollar intermediation rather than the formation of a full-scale substitute for the dollar-based system.

Thus, the high debt burden of the Global South in 2022–2026 formed part of the broader financial context in which reducing the use of the US dollar as an intermediary currency could acquire greater practical importance. In Latin America, this was manifested through the Local Currency Payment System, which provided settlements between Brazil, Argentina, Paraguay and Uruguay in national currencies, and the Argentine case demonstrated the use of the RMB swap simultaneously for imports and debt payments. In Africa, the Pan-African Payment and Settlement System created an infrastructure opportunity to make regional payments without prior conversion into hard currency. Against the background of USD 31 trillion in public debt of developing countries and USD 921 billion in net interest payments in 2024, such mechanisms can be considered instruments for using international liquidity more economically rather than means of directly reducing the debt burden. In the context of the change in the dollar anchor, this indicates a functional separation of currency roles: the dollar continues to play a significant role in external financing and debt payments, while regional systems and bilateral mechanisms gradually create the possibility of conducting individual trade transactions without its mandatory mediation.

Discussion

Changes in the structure of international payments are increasingly related not only to the ratio of leading

reserve currencies, but also to the development of payment infrastructure, which determines the methods of conducting cross-border transactions. In comparison with W. Liu (2025), both studies indicated the gradual expansion of the international use of the RMB alongside the development of CIPS, the digital yuan and cross-border digital payments. W. Liu viewed these changes mainly as part of RMB internationalisation and currency diversification. This study adopted a broader perspective, treating CIPS, e-CNY, mBridge, currency swaps and clearing mechanisms as complementary channels that reduced reliance on dollar intermediation without creating a full alternative to the dollar system. The analysis also extended beyond China to Europe and the Global South. A different aspect was addressed by T. Berg *et al.* (2026), who focused on European payment sovereignty and viewed the digital euro as critical infrastructure capable of reducing dependence on foreign payment systems. Their assessment of Jura and mBridge was similar: these platforms reduced intermediaries and diversified cross-border payments without eliminating the existing currency hierarchy. However, their analysis centred on the digital euro and European autonomy, whereas this study covered a wider geographical context. P. Viktor & A. Molnar (2023), in turn, emphasised the resilience of the dollar despite growing de-dollarisation trends. This corresponded with the finding that CIPS, e-CNY, mBridge, currency swaps and clearing mechanisms had not displaced the dollar from its leading position. Their analysis focused more on dollar exchange-rate fluctuations, US trade policy and risks for China, whereas this study examined changes in payment infrastructure during 2022–2026.

At the regional level, S.R. Syifa (2024) showed that Local Currency Settlement between Indonesia, Malaysia and Thailand encouraged the use of national currencies and reduced the need for conversion through the dollar. Here, LCS was considered alongside currency swaps, clearing and digital platforms as part of broader payment diversification. S.R. Syifa also linked LCS to regional trade, investment and lower transaction costs, while this study focused on reducing dollar intermediation. The technological dimension was addressed by J. Huang (2026), who associated e-CNY and mBridge with lower transaction costs and wider RMB use, while identifying constraints related to yuan convertibility, capital controls and financial market openness. Both studies therefore indicated that bypassing individual dollar-based channels did not necessarily change the currency hierarchy. Unlike J. Huang, however, this study treated e-CNY as only one component of broader payment architecture. Z. Ren (2024) went further by suggesting that digital currencies could fundamentally restructure the international monetary system through alternatives to SWIFT and greater use of other currencies. The findings here were more restrained: e-CNY, CIPS and mBridge expanded non-dollar payment options, but mainly contributed to gradual diversification rather than systemic replacement.

This gradual pattern was also reflected in E. Sekine (2024), who linked RMB internationalisation to the long-term development of currency swaps, clearing mechanisms and CIPS, later complemented by e-CNY. A similar interaction between instruments emerged in this study.

E. Sekine nevertheless stressed the continuing links of CIPS and the digital yuan with SWIFT and the restrictions created by capital controls. Thus, the expansion of alternative channels in both studies did not imply the displacement of the dollar system. The main difference concerned scope: E. Sekine concentrated on the long-term RMB strategy, whereas this study also incorporated European and other regional payment mechanisms.

More pronounced expectations regarding the digital yuan appeared in R. Bansal & S. Singh (2021). The authors linked lower transaction costs, fewer intermediaries and the possibility of bypassing traditional correspondent channels with stronger international use of the RMB. The subsequent development of e-CNY, CIPS and mBridge confirmed the emergence of such alternative routes, although their scale in 2022-2026 did not support interpreting the digital yuan as a breakthrough in the currency hierarchy. Instead, the findings indicated the development of parallel payment infrastructure in China, Europe and the Global South. H.-K. Chey (2026) approached the issue through CBDC interoperability and interstate coordination, which were necessary for faster and cheaper cross-border transactions. The transition of mBridge to the MVP stage reflected progress in direct cross-jurisdictional settlements but not the formation of an alternative to the dollar system. Unlike H.-K. Chey, who also examined monetary sovereignty and domestic financial systems, this study focused on international payments and combined CBDCs with CIPS, swaps, clearing and national-currency settlements. B. Hu (2025), in turn, examined CBDCs through their economic effects, including transaction costs, financial inclusion, consumption and growth. This study had a narrower focus on how digital and non-digital mechanisms changed international payment routes and reduced dollar intermediation.

The international expansion of the RMB in W.O. Alwago (2022) was associated with the digital yuan and bilateral currency swaps, which enabled transactions without the dollar as an intermediate currency. However, e-CNY alone was not considered sufficient to overcome dollar dominance, as RMB convertibility, capital flows, financial market development and confidence remained significant constraints. A similar pattern emerged in this study: RMB settlements, CIPS, e-CNY, mBridge, clearing and swaps expanded alternative routes without replacing the dollar system. The difference concerned scope, as W.O. Alwago focused on the RMB, whereas this study also covered Europe and the Global South. Quantitative evidence was provided by C. Shen (2022), who used data for 2012-2020 and Smooth Transition Autoregressive and Time-Varying Parameter Structural Vector Autoregression models to identify a positive but conditional relationship between Digital Currency/Electronic Payment and RMB internationalisation. This complemented the growth of cross-border RMB payments and e-CNY identified here. However, the 2022-2026 analysis covered the interaction of e-CNY with CIPS, mBridge, currency swaps and clearing rather than the effect of the digital yuan alone. Their combination expanded parallel payment channels but did not constitute a full replacement for the dollar.

The infrastructural dimension was examined by H. Deng (2024), who viewed CIPS as a channel operating

alongside SWIFT and e-CNY as an additional instrument for RMB internationalisation. This corresponded with the treatment of CIPS, e-CNY and mBridge as interconnected elements of alternative payment infrastructure. H. Deng emphasised interoperability, central bank coordination, trust and data regulation as major constraints, while this study focused more on their practical scale: international e-CNY use remained limited, mBridge was still developing, and CIPS expansion did not produce a proportional decline in dollar payments. M. Taylor (2025) placed these developments within a broader geopolitical strategy involving BRICS+, BRI and the petroyuan. Her finding that de-dollarisation was more visible in trade settlements and payment systems than in financial markets corresponded with the formation of parallel channels identified here. However, this study concentrated more directly on payment infrastructure across China, Europe and the Global South.

H. Wang (2022) interpreted cross-border e-CNY as a possible instrument for selectively reshaping the international financial order and creating parallel payment infrastructure. The idea of coexistence rather than complete displacement of the existing system was consistent with this study. However, H. Wang focused more on legal regulation, international standards and central bank coordination, whereas the present analysis also incorporated CIPS, swaps, clearing and national-currency settlements. A similar infrastructural perspective appeared in J. Mayer (2024), who argued that multi-currency wCBDC platforms based on DLT could make non-dollar cross-border payments cheaper and faster and weaken some network advantages of the dollar. While his analysis centred mainly on the future potential of wCBDC and DLT, this study examined a broader set of payment mechanisms and their actual development across different regions in 2022-2026.

D. Krause (2025) considered the technological transformation of payments within a broader geopolitical context. CBDCs, e-CNY and mBridge were linked to direct settlements in national currencies, while the dollar retained strong network advantages. This corresponded with the formation of parallel payment routes identified in this study. However, D. Krause also examined sanctions, geopolitical rivalry and stablecoins and anticipated a gradual shift toward a multipolar financial system, whereas this study focused on changes in payment infrastructure and did not examine stablecoins separately. A different perspective was offered by D. Collins (2025), who examined de-dollarisation primarily through international law. Digital currencies, alternative settlement currencies and new development banks were associated with a gradual transition toward a multipolar monetary system rather than the replacement of the dollar by a single currency. While this tendency was also observed here, D. Collins focused on IMF and WTO rules and trade and investment agreements. This study instead examined payment channels in China, Europe and the Global South. B. de Conti & J.-F. Ponsot (2025) distinguished payment digitalisation from de-dollarisation, showing that e-CNY and mBridge expanded national-currency settlements but remained insufficient to overcome dollar dominance. This study reached a similar conclusion while also considering CIPS, currency swaps and clearing

mechanisms. Unlike their analysis of both domestic and global de-dollarisation, the present study focused on international payments in 2022-2026.

The distinction between payment diversification and changes in the currency hierarchy was also present in Y. Cai (2025). National currencies, regional mechanisms and digital payment systems expanded currency choice and reduced dollar-related risks without necessarily weakening the dollar as a reserve and pricing currency. Similarly, this study found that payment diversification developed faster than changes in the dollar's international role. However, Y. Cai also considered US policy, sanctions and reserve diversification, whereas the focus here remained on payment infrastructure. M.M. Falarti & S.F.H. Naqvi (2024) examined national-currency settlements, CIPS, CBDCs and bilateral mechanisms within BRICS and the Shanghai Cooperation Organisation, linking them to sanctions and financial autonomy. Their conclusion that alternative mechanisms expanded without displacing the dollar was consistent with this study, although the present analysis covered payment infrastructure in China, Europe and the Global South during 2022-2026.

The analysis showed that in 2022-2026, the international payment architecture gradually diversified. The development of CIPS, e-CNY, mBridge, currency swaps, clearing mechanisms, and settlements in national currencies expanded the possibilities for conducting cross-border transactions without mandatory dollar mediation. At the same time, changes in the payment infrastructure occurred faster than changes in the currency hierarchy, and the US dollar retained its leading position. Therefore, the identified trends indicated not the replacement of the dollar system, but the gradual formation of parallel channels of international settlements and a decrease in dependence on the dollar in individual transactions.

Conclusions

The study found that in 2022-2026, changes in the international payment architecture occurred mainly through the expansion of alternative cross-border payment channels rather than the displacement of the US dollar. In China, this involved the development of RMB payments, CIPS, e-CNY, mBridge, clearing mechanisms and currency swaps. Cross-border RMB payments increased from CNY 42.1 trillion in 2022 to CNY 52.3 trillion in 2023, while the share of RMB in goods trade settlements rose from 18.0% to 24.8%. In the first half of 2024, such transactions reached CNY 30.6 trillion, up 25% year-on-year, while CIPS processed CNY 175 trillion in 2024, 43% more

than in 2023. Accumulated e-CNY transactions reached CNY 7 trillion by mid-2024, while mBridge advanced to the Minimum Viable Product stage. Currency swaps with Saudi Arabia, Indonesia and Brazil further expanded access to national-currency liquidity and the infrastructure supporting bilateral settlements.

The European direction was characterised by a relatively stable currency structure and stronger payment infrastructure. The euro accounted for 59.7% of extra-euro area goods export invoicing in 2022 and 60.0% in 2025, while its import share increased from 51.7% to 53.1%. Its share in foreign currency-denominated bond issuance rose from 25.6% in 2024 to 31.1% in 2025. Following the liquidation of INSTEX in 2023, attention shifted to TIPS, the digital euro and tokenised cross-border payments. These developments expanded the infrastructure for euro-based transactions without producing a comparable shift in the global currency structure. In the Global South, currency diversification developed amid a debt burden that reached USD 31 trillion in 2024, with net interest payments of USD 921 billion. SML enabled Brazilian foreign trade transactions worth BRL 4.804 billion in 2024, while Argentina used about USD 3.8 billion of activated RMB liquidity for imports and external payments. PAPSS provided a similar alternative for local-currency payments in Africa. Overall, alternative mechanisms reduced dollar intermediation in individual transactions, but payment infrastructure diversified faster than the currency hierarchy changed, leaving the US dollar in the leading position.

The study is limited by the availability of comparable statistical data for 2022-2026, as some of the new payment mechanisms are in the pilot or early stages of use, and the published indicators do not always allow separating international trade transactions from other cross-border payments. Further research should be directed at quantifying the relationship between the scale of use of CIPS, e-CNY, mBridge, TIPS, SML, PAPSS and bilateral currency mechanisms and the actual changes in the share of the US dollar, euro, RMB and national currencies in international trade settlements.

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