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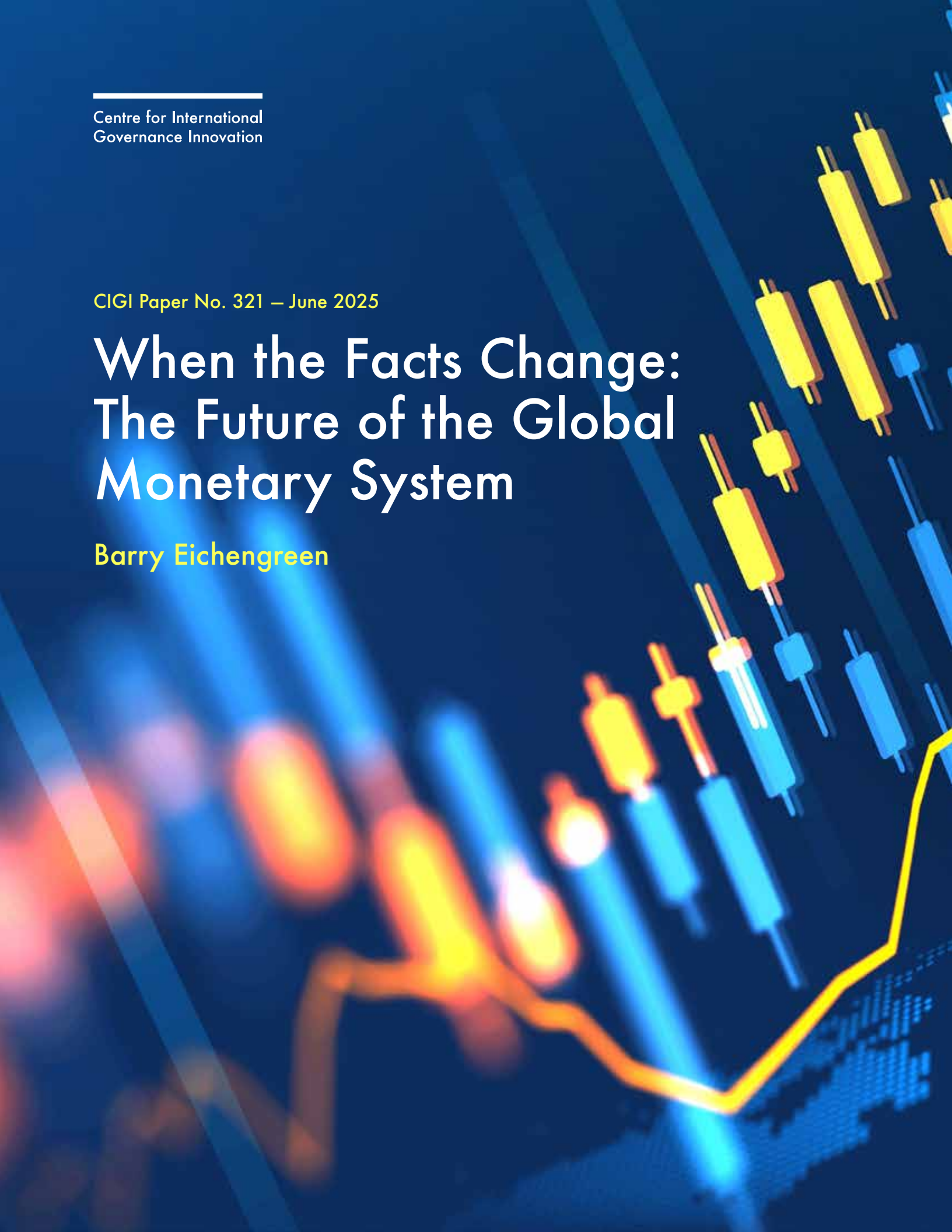

CIGI Paper No. 321 — June 2025

# When the Facts Change: The Future of the Global Monetary System

Barry Eichengreen

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## Acronyms and Abbreviations

| | |
|---|---|
| BIS | Bank for International Settlements |
| BRICS | Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran and the United Arab Emirates |
| CBDCs | central bank digital currencies |
| CBO | Congressional Budget Office |
| CIPS | Cross-Border Interbank Payment System |
| DLT | distributed ledger technology |
| gpi | global payment innovation |
| IMF | International Monetary Fund |
| QFII | Qualified Foreign Institutional Investor |
| RMB | renminbi |
| SWIFT | Society for Worldwide Interbank Financial Telecommunications |
| UAE | United Arab Emirates |

# Executive Summary

This paper considers possible futures for the international monetary system in light of recent economic and political events in the United States and globally. It contrasts scenarios pre- and post-inauguration of the second Trump administration. Earlier scenarios foresaw very gradual rebalancing of the international monetary system away from post-Bretton Woods dollar-centric international financial architecture. Recent developments have pointed toward the possibility of a more abrupt shift away from a system centred on the dollar and the US correspondent banking system. The paper considers economic, financial, geopolitical and technological considerations bearing on possible futures.

# Introduction

"When the facts change, I change my mind. What do you do, sir?" So John Maynard Keynes is said to have asked in 1923, reproaching an interlocutor claiming to have detected an inconsistency in the economist's views.[1] Much has changed since this author last wrote about the future of the international monetary and financial system in Barry Eichengreen, Arnaud Mehl and Livia Chitu (2018). Do these economic, political and technological changes similarly warrant a changing of the mind?

The list of consequential changes includes the following:

- There have been growing signs of a serious economic, financial and geopolitical rift between the United States and other countries since the inauguration of the second Trump administration, with the United States threatening tariffs on other countries and questioning its traditional geopolitical alliances.
- Following President Donald Trump's announcement of "reciprocal tariffs" in April 2025, new questions arose about the US dollar's safe-haven status and whether this would be maintained going forward.
- There has been further fraying of bilateral relations between the United States and China, pointing to a possible scenario where the global economy, and its monetary and financial system, bifurcate into rival US- and China-centric blocs.
- The BRICS countries (Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran, Saudi Arabia and the United Arab Emirates [UAE]) have become more assertive about the need to reform the international monetary and financial system in a manner that better serves their needs.[2]
- US financial sanctions against Russia have raised concerns about "weaponization" of the dollar and encouraged other countries to contemplate alternatives to it and the US banking system for holding international reserves and completing cross-border transactions.
- Both the United States and China have seen public debt ratios rise substantially post-COVID-19, raising questions about whether the government securities they issue will hold their value.
- The market in US Treasuries has been experiencing recurrent liquidity problems, notably in 2020 and 2023.
- China's economic growth has slowed, auguring a slowdown in the growth rate of the country's cross-border transactions. The United States, meanwhile, has outperformed other advanced economies in terms of GDP and productivity growth.
- Although Meta abandoned its Libra project, cryptocurrencies, including stablecoins, have not gone away.
- In 2024, the United States saw the election of a "pro-crypto" administration apt to promote wider use of dollar-based stablecoins.
- Monetary authorities in more than 100 countries continue to explore and, in some cases, pilot central bank digital currencies (CBDCs).

1 Versions of this quotation have also been attributed to American economist Paul Samuelson and British politician Sir Winston Churchill. See https://quoteinvestigator.com/2011/07/22/keynes-change-mind/.

2 See, for example, the speech by Brazilian President Luiz Inácio Lula da Silva to the United Nations General Assembly in September 2024 (Presidência da República 2024).

→ In mid-2024, the Bank for International Settlements (BIS) announced that its Project mBridge, a platform linking multiple CBDCs including for cross-border transactions, had reached minimum viable product stage, with sufficient features and reliability to attract early adopters.[3]

The question that remains is how to interpret what these myriad changes imply.

## Looking Back

In order to answer this question, it is useful to start by recalling that earlier viewpoint. In 2018, this author, alongside Mehl and Chitu, argued that the global process of convergence — or the tendency for late-developing economies to close the per capita income gap vis-à-vis the technological leaders — implied that the weight of the United States in the world economy would gradually decline. Convergence holds that as the global economy becomes more multipolar, its monetary and financial system would similarly become more multipolar. In the past, when a country was overtaken economically and financially, its currency nonetheless continued to dominate cross-border transactions for a considerable period, with its persistence being supported by network effects.[4] At some stage, however, a tipping point was reached where agents shifted en masse to the currency of a different economy.

Increasingly, however, innovations in modern financial technology (fintech), such as electronic currency trading platforms, automated market-making algorithms and so on, have made it easier to trade and do business in different currencies. This trend suggests that the dominance of the dollar might erode more rapidly than that of dominant currencies in earlier historical periods, hinting that there might be room on the global stage for more than one consequential international currency.

To benchmark these forecasts against what has actually happened, the decline of dollar dominance has been both faster and slower than expected. The decline in the dollar's share of identified ("allocated") foreign exchange reserves of central banks and governments has been relatively rapid. As of the fourth quarter of 2024, the dollar's share was 58 percent of the global total, down from 71 percent at the turn of the century.[5] At the same time, there has been little decline in the dominance of the dollar in other dimensions: as an invoicing and settlement currency for merchandise transactions, as a currency in which foreign bank loans and deposits are denominated, and as a vehicle currency for foreign exchange transactions.

This divergence is something of a paradox for those who believe that trends in these different dimensions should go hand in hand, since these different functions are complementary (see, for example, Gopinath and Stein 2021). It suggests a disparity in the motives and behaviour of official entities on the one hand and private entities on the other — one that is sufficient to override the aforementioned complementarities. Governments have continued to move away from the dollar, perhaps in response to perceived sanctions risk or for other geopolitically related reasons, while banks and firms continue to be attracted by the convenience, stability and liquidity afforded by the greenback. It may be that it is easier to hold currencies other than the dollar as investments (as part of the "investment tranche" of central bank reserves portfolios, for example) than it is to use them in commercial payments and financial transactions.

In addition, much of the movement away from the dollar has not been movement toward the other two large economic currencies, the euro and the renminbi (RMB), but instead toward what have been labelled as "nontraditional reserve currencies" (Arslanalp, Eichengreen and Simpson-Bell 2022) from smaller countries such as Australia, Canada, Denmark, New Zealand, Norway, Singapore, South Korea and Sweden. These are the currencies of well-managed, mostly inflation-targeting countries whose financial markets are open to the rest of the world, and adding their currencies to reserve portfolios provides diversification benefits. Their growing weight in reserve portfolios is also consistent with the idea that trading, paying

3 See www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm.

4 Network effects exist when "the utility that a given user derives from a good depends upon the number of other users who are in the same network" (Katz and Shapiro 1985).

5 And down from 65 percent at its intermediate peak in 2015. This is according to the International Monetary Fund's (IMF's) Currency Composition of Official Foreign Exchange Reserves database: see https://data.imf.org/?sk=e6a5f467-c14b-4aa8-9f6d-5a09ec4e62a4.

and intervening using these currencies has become easier with the advent of modern digital technologies, loosening the grip of network effects.

What is true of reserve currency status is true of other dimensions of international currency status. There has been some increase in RMB use in cross-border payments, for example, but this remains very modest by the standard of dollar payments. There has been essentially no increase in the euro's share of trade invoicing and merchandise settlements outside the European Union or as a vehicle currency in foreign exchange markets.

# Looking Ahead

It is tempting to extrapolate these trends into the future. The recent past suggests that there will be no dollar crisis or collapse, only a gradual erosion of the dollar's dominance as a reserve currency, as central bank reserve managers confront a growing range of alternatives. The currencies benefiting are likely to be not just the euro and the RMB but also the currencies of smaller economies, and access to these is enabled by digital platforms. Private banks and firms motivated more by efficiency and liquidity considerations and less by geopolitical events will be slower to move away from the dollar, holding the greenback's international financial centrality in place.

But other recent developments, listed in the introduction of this paper, could alter this trend. These developments can be usefully grouped under four headings: economic, financial, geopolitical and technological. Although these categories overlap, this taxonomy provides a useful starting point.

## Economic

The presumption of ongoing gradual decline in the US share in global GDP and the associated erosion of the dollar's reserve and international currency role is premised on the logic of convergence — namely, that income levels in late-developing economies will tend to converge toward those of the technological leader (see, for example, Barro and Sala-i-Martin 1992). Low stocks of physical and human capital can be raised, and, in a globalized world, technology is readily transferred across borders. We have seen evidence of this movement in the highly successful growth performance of late-developing economies such as China and India.

At the same time, there are many exceptions to the rule, so that as a result, "there is no [general] tendency for poor countries to grow faster than rich ones, over any reasonably long time horizon for which we have data" (Rodrik 2011, 1).

The United States is an outlier in that it has outperformed other advanced economies in terms of GDP growth since the 2008 global financial crisis and in terms of productivity growth in more recent years (de Soyres et al. 2024). The US government provided more fiscal support for aggregate demand, especially since the onset of COVID-19, and the United States enjoys flexible labour markets and a high level of business dynamism, reflected in a high rate of new firm formation. It also has a high rate of productivity growth by advanced country standards, reflecting extensive university-business collaboration, a culture of entrepreneurship and a well-developed venture capital industry. However, whether these sources of "economic exceptionalism" will survive the current US administration's cuts to public-sector and university-based research and development is yet to be seen.

China and the RMB are widely seen as the leading competitors of the United States and its dollar. But the growth of the Chinese economy has slowed dramatically as the country is beset by financial problems (though it is not unique in this regard). The IMF's latest World Economic Outlook projects Chinese growth slowing to 4.0 percent in 2025, down from double digits as recently as 2010. The causes of this slowdown are multiple and complex. There is a tendency for fast-growing, catch-up economies to slow down once the low-hanging economic fruit has been picked (Eichengreen, Park and Shin 2012). Export-led growth becomes harder once an economy becomes large relative to foreign markets. In addition, high levels of investment eventually encounter diminishing returns and overcapacity, and weak consumption makes for incipient deflation. China has experienced an unusually rapid demographic transition, slowing and even halting growth of its labour force, and its government has clamped down on private-sector activity.

## Financial

Those who worry about US financial weaknesses point to two specific concerns. Most obvious is the unsustainable growth of US Treasury debt. This debt burden is unsustainable in that it is projected to grow explosively under current law

— which is the basis on which the Congressional Budget Office (CBO) forecasts its evolution. As of 2024, the CBO's long-term budget outlook shows federal government debt in the hands of the public rising from its current 98 percent of GDP to 118 percent in 2035, 135 percent in 2045 and 154 percent in 2055. As these ratios rise, pressure will intensify for the country's central bank, the Federal Reserve (the Fed), to keep interest rates down so as to limit debt service while purchasing Treasury securities to monetize further deficits. Foreign central banks and other investors may adjust their portfolios pre-emptively to avoid losses from the associated inflation and currency depreciation.

A second financial aspect of concern is the liquidity of the market in US Treasuries. Liquidity is a valued attribute of an international currency that foreigners will hold and use only if it is easily bought and sold at low cost and predictable prices. Unfortunately, the US Treasury market has experienced several episodes of illiquidity in recent years: for example, in March 2020 when COVID-19 hit, and in March 2023, when Silicon Valley Bank failed.[6] In both instances, there was a dash for cash, leading investors to sell Treasury securities. Primary dealers, mainly large banks and investment firms that hold inventories of these bonds and are in the business of fulfilling the orders of buyers and sellers, saw their cash positions depleted when sellers showed up on their doorsteps all at once. Bid-ask spreads exploded, and price volatility surged. There was fear that the price of treasuries would collapse and sell orders would go unfulfilled, given an absence of willing buyers and the depletion of dealer liquidity.

The explanation for these problems is large amounts of additional Treasury issuance, together with tightened bank capital regulation following the 2008 global financial crisis. This regulation constrains the ability of bank dealers to hold inventories of Treasury bonds and meet fluctuating demands. Reforms to enhance the liquidity and operation of the Treasury market could include "*ex ante*" interventions, such as improved liquidity regulation and fees to incentivize financial firms to better internalize the social costs of sudden liquidity shortages, and "*ex post*" interventions, such as last-resort lending by the Fed to a broader class of participants in Treasury markets than is current practice (Clouse 2022).

China's debt problems are equally troubling. Ceytan Ahya et al. (2024) estimate that consolidated public debt — that of provincial as well as central governments — had exceeded 100 percent of GDP by the second quarter of 2024, which is almost the exact same ratio as that of the US federal government. This was up from 73 percent in 2019, the largest percentage point increase of any major economy.

Standard analysis (Blanchard 2019) points to the primary budget balance and the real interest rate-real growth rate differential as key determinants of how that debt burden will evolve. China still enjoys a favourable growth rate-interest rate differential, with GDP growth at around four percent (as noted) and a real interest rate on 10-year government bonds of approximately one percent.[7] This means that China can run a primary budget deficit of three percent of GDP (the difference between four percent and one percent, given a debt ratio of 100 percent) without its debt ratio rising further. But the actual primary budget deficit, circa mid-2024, was on the order of nine percent of GDP, while general government tax revenues and net land sale proceeds were forecast to decline further, owing to weak corporate revenue growth, slow household income growth and the drag on municipal land sale revenues from a weak property market (Ahya et al. 2024, Exhibits 4, 6).[8] Moreover, both deflation, which would raise real interest rates were China to hit the zero lower bound, and significant fiscal stimulus designed to avert such deflation, could worsen these fiscal projections. Politically, China has the "advantage" that the Politburo can simply implement the necessary fiscal adjustment by decree. But what exactly policy makers will decree is uncertain, which is likely to trouble prospective international investors. The unprecedented concentration of power around President Xi Jinping is likely to reinforce those concerns.

China's bond market is increasingly open to foreign investors via the Qualified Foreign Institutional

6 US Treasury et al. (2021) points to several additional such episodes, such as the 2014 "flash rally" and 2019 repo market disruptions, which were smaller in scale but raised similar worries.

7 Reflecting nominal yields of two percent and an inflation rate for 2024, as projected by the IMF, of one percent.

8 This figure for the fiscal balance includes the off-budget balance (mainly local government financial vehicle and social security trust fund deficits). It assumes that two percent of GDP is spent on debt-servicing costs (reflecting a 100 percent of GDP debt ratio and a two percent nominal interest rate).

Investor programs (QFII 1 and 2) and Bond Connect.[9] But investors are not permitted to freely transfer holdings acquired through one of these channels to another. Bid-ask spreads are high, indicative of limited market liquidity; the dealer/market-maker ecosystem remains underdeveloped. Government bonds tend to be bought and held by Chinese banks rather than traded, making it hard to find a counterparty. Moreover, China's capital controls continue to limit remittances by foreign investors. These institutional features detract from the appeal of Chinese government bonds as a reserve asset for central banks and other international investors.

There are also limits on the utility of the RMB as a vehicle for cross-border payments. The Chinese government has long since encouraged Chinese enterprises to invoice and settle their international transactions using the RMB; a majority of their cross-border transactions are now denominated in the currency. Reports are that Russia now settles more than 20 percent of its cross-border transactions in RMB, having moved in that direction in response to sanctions. Globally, however, fewer than four percent of interbank transfers recorded by the Society for Worldwide Interbank Financial Telecommunications (SWIFT) are denominated in RMB (compared to nearly 48 percent for the US dollar).[10] China has built a Cross-Border Interbank Payment System (CIPS) to compete with the US dollar-based Clearing House in New York. While the volume of transactions has been growing rapidly, CIPS still clears barely two percent of the transactions cleared daily by the New York Clearing House. Evidently, CIPS and the RMB have a long way to go before they rival the dollar and the US banking system as vehicles for cross-border payments.

## Geopolitical

The international monetary system would be radically reconfigured were the global economy to bifurcate into nonoverlapping US- and China-centred blocs. Were other economies forced to choose between trading with, investing in and borrowing from one of these countries but not the other, they would almost certainly utilize the currency of that same country to the exclusion of the other. A large sample of literature (see, for example, Eichengreen and Mathieson 2000; Arslanalp, Eichengreen and Simpson-Bell 2022) shows that bilateral trade and financial links with reserve currency countries are powerful determinants of the composition of foreign reserve portfolios. Other literature (Eichengreen, Mehl and Chitu 2019; Iancu et al. 2020; Koosakul, Zhang and Zia 2024) shows that countries disproportionately hold and use the currencies of their geopolitical allies and partners. Thus, there is every reason to think that if the world economy split into nonoverlapping US- and Chinese-centric blocs, its monetary and financial system would similarly split into nonoverlapping dollar and RMB blocs. The election of a US administration prepared to engage in trade wars with other countries and dismissive of geopolitical alliances could accelerate this transition. This would be even more the case in the event of open conflict between the United States and China or between the United States and a China-Russia grouping (in military action, cyberattacks and so on).

Increasing recourse to financial sanctions by the United States might similarly encourage other countries to reduce their dependence on the dollar. Countries targeted by US sanctions, such as Russia, have no choice, since they lose access to dollar reserves and the US banking system.[11] It is conceivable that other countries, not currently subject to US financial sanctions but concerned about the possibility of being targeted in the future, might similarly reduce their dependence on the dollar. But, here again, there is no sign of this yet. Serkan Arslanalp, Barry Eichengreen and Chima Simpson-Bell (2022) have studied the impact on dollar holdings of past US sanctions, examining a broad cross-section of countries and finding no evidence of an effect. As noted above, there has been no overall decline in use of the dollar as an invoicing and settlement currency of the sort one would expect were behaviour strongly affected by sanctions concerns.

Other initiatives to encourage local currency settlement — such as negotiations between India and Russia to settle their bilateral transactions

9 QFII programs allow individual investors to participate in China's onshore bond market by buying shares in vehicles such as mutual funds provided by licensed institutional investors. Bond Connect allows overseas investors to trade China's onshore bonds using Hong Kong's existing trading infrastructure.

10 This according to SWIFT's RMB tracker for December 2024: see www.swift.com/sites/default/files/files/rmb-tracker_december-2024.pdf. Note that the currency's global share may be understated insofar as transactions undertaken by Russia, and conceivably others, are not messaged via SWIFT, although this does not alter the basic point above.

11 They also lose access to SWIFT, given the loud voice of US banks in the cooperative. Russia, as noted above, now settles nearly a quarter of its cross-border transactions in RMB. It is also the single largest known holder of RMB reserves.

in their respective currencies — have come to naught, neither country having much appetite for the currency of the other. This raises the possibility that countries aspiring to reduce their dependence on the dollar may seek to create a more attractive alternative to, *inter alia*, the rupee and ruble. Thus, there has been discussion of the possibility of a BRICS currency, possibly linked to a basket comprised of the national currencies of BRICS members and possibly backed by or linked to gold. Motives would include both reducing dependence on the dollar and enhancing the visibility of the BRICS countries on the global stage. Russian President Vladimir Putin raised the issue at a BRICS summit in mid-2022, and Brazilian President Lula da Silva echoed him in 2023.

Of course, because the BRICS are heterogeneous countries, there is a real question of whether these countries can agree on a common plan for a new currency unit. Specifically, there is the question of whether China, which has invested heavily in promoting international use of its own currency, would welcome a BRICS alternative. On the eve of the October 2024 BRICS summit, Russia's Ministry of Finance and Central Bank released a document (BRICS Chairmanship Research 2024) detailing one vision of how the international monetary and financial system might be reformed. Revealingly, this did not propose the creation of a new BRICS currency unit, Indian officials, among others, having bluntly rejected the idea (*The Economist* 2024). Rather, it focused on the BRICS' existing national currencies becoming more attractive alternatives to the dollar. For cross-border payments, the document proposed deepening correspondent relationships among the members' own commercial banks as a way of reducing dependence on the US correspondent banking system. Alternatively, it imagined creating a platform for the exchange of national CBDCs.[12] Both envisaged alternatives would be supported by a dedicated messaging system as with SWIFT but controlled by the banks of the BRICS countries. For cross-border investments, the report proposed creating a BRICS Clear platform — a central securities depository analogous to Euroclear.[13]

These steps closely resemble measures taken by China since it embarked on its RMB internationalization drive some 15 years ago. CIPS is an effort to enhance the correspondent banking role of China's commercial banks and features a dedicated messaging system. But, as we have seen, these efforts, together with measures designed to enhance the liquidity of China's government bond market, have not made much of a dent in dollar dominance. Were China and other BRICS countries to find themselves in Russia's position — barred from the US correspondent banking system and SWIFT and unable to access their dollar reserves — they would undoubtedly redouble their efforts to promote cross-border use of their currencies. But China's experience suggests that progress in this direction is likely to remain slow. And, in any case, this would still fall short of the new BRICS currency unit that some observers imagine.

## Technological

Finally, there is the possibility that digital innovations will reconfigure the international monetary and financial landscape. We have already seen considerable digital innovation in the last 35 years, since the first electronic broking systems introduced by Reuters in 1992. As noted, these changes facilitated some movement out of dollar reserves into the currencies of small, open, well-managed economies. But the dollar remains as dominant as ever as the vehicle against which these other currencies are traded. A possible explanation is that digital innovation has not transformed payments as radically as the foreign exchange trading. This could now change, however. Some observers point to the transformative potential of distributed ledger technology (DLT) and CBDCs. DLT such as blockchain allows digital assets to be transferred securely and payments to be executed at low cost, including across borders, without the need for a central authority. The question is which digital assets exactly are involved in this technology, given that the volatility of plain-vanilla cryptocurrencies such as bitcoin limits their appeal for payments. El Salvador's adoption of bitcoin as legal tender, alongside the US dollar, was motivated, in part, by the economy's dependence on and high cost of remittances. Despite widespread publicity and steps by the Salvadorian government and commercial banks to ease the conversion of bitcoin into dollars, however, a scant 1.1 percent of Salvadorian

12 For more on this, see below.

13 Euroclear is a Belgium-based financial services company that provides settlement, custodial and interest- and dividend-payment services for securities transactions and holdings, including but not limited to bonds and equities. Prior to the imposition of sanctions in 2022, it held the majority of the foreign securities of the Bank of Russia.

remittances were in cryptocurrency through the first eight months of 2024 (Crespín 2024).[14]

Another option is stablecoins, which are digital tokens designed to trade one-to-one against US dollars or other currencies. These coins can be transferred, including across borders, using DLT, and promise the stability of legal tender currencies. Because they obviate the need to rely on correspondent banks and their regulators, they have the potential to reduce the cost of payments globally, thereby enhancing the attraction of making payments in units other than US dollars. In practice, however, virtually all stablecoins are pegged to the US dollar. America's current "crypto-friendly" administration may take steps to encourage their more widespread international use, whether by adopting stablecoin-friendly regulation or threatening other governments seeking to limit their use.

But the appeal of stablecoins is limited by run risk if they are partially or algorithmically collateralized, and prohibitive cost if they are over-collateralized.[15] Regulators may be reluctant to permit their widespread use if they are utilized for illicit finance and if their private issuers are unwilling or unable to enforce anti-money-laundering and know-your-customer rules (Waller 2024).

Given the limitations of plain-vanilla cryptos and stablecoins, much attention has focused on the potential for CBDCs to transform the international payments landscape. According to the Atlantic Council's CBDC tracker,[16] 134 countries and currency unions representing 98 percent of global GDP are exploring CBDCs. Scholars distinguish between retail and wholesale CBDCs. A retail CBDC is used by members of the general public, who are able to download a digital wallet or app from a commercial bank, payments provider or the central bank itself, into which CBDC can be loaded. If it is stored in a digital wallet, the CBDC might reside on the individual's smartphone, just as physical currency resides in the wallet in their pocket or purse; if it is stored in an app, the CBDC might reside in an account with the intermediating financial institution, in the manner of a deposit. The CBDC can then be used for peer-to-peer and business-to-business payments.

Wholesale CBDCs are used by banks and other licensed financial institutions for interbank payments and securities transactions. Wholesale CBDC balances thus resemble the reserve accounts that commercial banks currently hold with central banks. However, unlike current arrangements, where the central bank intermediates a transaction between banks by transferring funds between their respective reserve accounts, banks would now be able to transfer funds directly, with finality, without the intermediation services of the central bank.

Some 50 of the 134 central banks exploring CBDCs have expressed an interest in applying them to cross-border payments, by the Atlantic Council's estimate.[17] Retail CBDCs would be useful mainly for remittances and other relatively low-value transactions. Wholesale CBDCs, on the other hand, could facilitate large-value payments across borders without the need to go through the dollar, the US correspondent banking system and SWIFT. Revealingly, the number of wholesale CBDC pilots and projects has more than doubled since Russia's invasion of Ukraine and the sanctions imposed in response.

There is no technical obstacle to the further development of these models. The simplest approach would be one in which several countries share a single CBDC, much in the same manner that members of a monetary union share a common currency. Saudi Arabia and the UAE are exploring this model under the name Project Aber. But for the same reasons countries are reluctant to sacrifice their conventional monetary sovereign, they are likely to remain reluctant to compromise their digital monetary sovereignty by joining such a project.

Alternatively, Project Icebreaker has demonstrated the technical feasibility of connecting the separate retail CBDC systems of its trial participants Israel, Norway and Sweden. Each participant maintains a separate CBDC platform operating a different technology. There is no shared ledger; each central

14 At the end of 2024, El Salvador made acceptance of bitcoin by banks and firms voluntary rather than obligatory, as part of its agreement on a financial program with the IMF.

15 Barry Eichengreen, My T. Nguyen and Ganesh Viswanath-Natraj (2023) document the existence of significant bank-run or devaluation risk in the case of the leading stablecoin Tether. The reason why overcollateralized stablecoins are likely to be uneconomical is that more than one actual US dollar must be exchanged in order to receive a stablecoin token worth a dollar.

16 See www.atlanticcouncil.org/cbdctracker/.

17 Ibid.

bank has full autonomy in system design. The cross-border transfer is completed by a foreign exchange provider who maintains CBDC accounts in the countries of both the sender and the recipient.

Project mBridge, a collaboration of the central banks of China, Hong Kong, Saudi Arabia, Thailand and the UAE, is the leading experiment in linking wholesale CBDCs using a single permissioned blockchain. Central banks and commercial banks of the participating countries may transact with one another using the system. Central banks participate in the blockchain's consensus process through their validator nodes, validating transactions as the term suggests,[18] while commercial banks simply update their separate ledgers. Extensive testing has been conducted using this technology. In mid-2024, the BIS announced that Project mBridge had reached "minimum viable product stage," where it had enough features and reliability to attract early adopters (BIS 2024). Officials of the People's Bank of China say that a limited number of payments are already being executed daily on the platform.[19]

The remaining technical question is how to determine the exchange rates between the respective CBDCs. The obvious option is for participating central banks to obtain a foreign exchange quotation and foreign currency off-platform, as at present, and to simply use mBridge as an alternative set of payment rails for executing cross-border transactions. The problem here is that direct markets between the currencies of countries other than the United States are often small and illiquid, if they exist at all — which, of course, is why the dollar occupies its central financial role at present. Recall, by way of contrast, the failed attempt to create a market for direct trades of Indian rupees and Russian rubles. Or observe the absence of a direct market in the currencies of Project mBridge participants Thailand and the UAE, where thin markets make for price volatility. The option of going through the dollar, where direct markets between other currencies are illiquid or do not exist, forces the counterparties to incur two bid-ask spreads, one when they buy dollars and one when they sell the latter for the other currency. The existence of CBDCs and an alternative set of payment rails would do little, if anything, to reduce this cost. Moreover, the principal foreign exchange dealers are Western banks, such as JP Morgan, Deutsche Bank and UBS, which means that the existence of an mBridge does little to insulate the participating countries from sanctions risk.

Fundamentally, the constraint on scaling up Project mBridge or a similar multiple-CBDC platform is not the availability of proven digital technology but rather the politics of governance. The five founding members would have to agree on who regulates the operation of the platform, who to admit as additional members and when to go about doing so. They would have to decide between one country, one vote (as in the United Nations General Assembly) or weighted voting by country size (in the manner of the IMF). Reaching decisions by consensus, yet another option, would become harder with growth in participation. For geopolitical reasons, Western countries might be reluctant to join a system in which China was a founding member and in which it played a disproportionate role. Conversely, countries under sanction, such as Russia, might be especially anxious to join insofar as the technology offers an end-run around the dollar, the US banking system and SWIFT.

It is here where the distinction between technological and geopolitical drivers breaks down. Chinese state media suggest that the possible multiple-CBDC platform envisaged by the Russian report to the 2024 BRICS summit "is likely to draw on the lessons learned" from Project mBridge.[20] Russia referred to its alternative as a "BRICS Bridge," raising in the minds of officials the possibility that Project mBridge might be deployed as a sanction-busting device. In response to this concern (it is argued, *inter alia*, by Long [2024]), the BIS in late 2024 abandoned its participation in the initiative. However, this does not prevent Project mBridge from being used by the five current participants as an alternative set of payment rails, should one or more of them become subject to secondary sanctions barring them from SWIFT and the US banking system. And it does not prevent the

18 Validators are nodes on the blockchain that verify transactions and allow them to be executed. On public blockchains, validators are commonly compensated in proportion to the amount of work or computation they do ("proof of work" mechanisms) or the amount of their holdings of the associated digital currency ("proof of stake" mechanisms). Project mBridge, in contrast, is a private blockchain where only central banks have permission to act as validators. Eventually, it is anticipated that Project mBridge will deploy zero-knowledge proofs (Goldwasser, Micali and Rackoff 1989), which are the cryptographic means of validating information without showing it.

19 Given the limited visibility of such transactions, this claim is difficult to verify.

20 This quotation is from *The Economist* (2024), from which other information and speculations in this paragraph are also drawn.

People's Bank of China, whose Digital Currency Institute wrote the code for Project mBridge, from sharing this code with the Bank of Russia, creating an additional, more efficient channel for bilateral China-Russia payments.[21] However, China might be restrained from doing this by the disapproval of the central banks of Saudi Arabia, Thailand and the UAE, and the danger that they might abandon the project. A new set of digital payment rails useful only for clearing bilateral payments with Russia — in the event of the withdrawal of these other countries — would be of limited utility to China, especially if this further aid to Russia exposed it to the risk of US sanctions.

Finally, the appeal of new technological alternatives such as stablecoins, CBDCs and mBridge will depend on the pace of improvements in existing cross-border payments systems. Incumbent networks such as SWIFT are not standing still. SWIFT has adopted a fintech tracking technology, SWIFT global payments innovation (gpi), which allows it to credit payments to end beneficiaries within 30 minutes (and many within five minutes). It has formed a partnership with Fiserv, a US-based payments and fintech provider, whose services promise to enhance data sharing and automation on its gpi platform. It has partnered with Wise, a UK-based fintech, allowing participating banks to make payments over the Wise internet platform. Technology-driven increases in efficiency and reductions in costs of transacting through SWIFT could preserve the dominance of the incumbent, heavily dollar-centric global payments system.

# Conclusion

The dollar's dominance of global monetary and financial affairs has remained robust in the face of sharp changes in economic activity, financial conditions, geopolitics and technology, notwithstanding the efforts of central banks to diversify their reserve portfolios. The threat of US sanctions and the possibility of a rupture between the United States and China — occurring against the backdrop of a new US administration prepared to engage in trade warfare and dismissive of geopolitical alliances — provides additional impetus for reserve diversification and for investing in digital payment rails that provide an alternative to the dollar. But the danger of becoming subject to secondary US sanctions in the event of overt moves in this direction is also likely to discourage countries from abandoning the dollar in favour of the RMB, a BRICS currency or interoperable CBDCs. Thus, when thinking about whether the world will move toward a more or less dollar-centric global monetary and financial system, geopolitics cut both ways.

Similarly, developments in technology do not definitively point in one direction or another. Stablecoins, predominantly dollar linked and now actively promoted by the US government, could reinforce the global monetary role of the greenback if they show themselves to be stable over time, which is a big if. In contrast, CBDCs running on a permissioned blockchain or shared mBridge platform could provide an alternative to reliance on the dollar for cross-border use — if, that is, participating countries can agree on governance of that blockchain or platform. Improvements in CBDC interoperability would open up alternatives to the dollar, but adoption of new fintech technologies by dollar-heavy incumbents such as SWIFT could push in the other direction.

A rupture between the United States and China would, of course, alter this outlook. The wider application of sanctions would become a reality rather than a risk, and countries would have to choose between participation in the dollar- or RMB-centred payments system. Western-based dollar-denominated stablecoins would be banned from China's bloc, and Project mBridge would become a platform run by China and its allies. This splintering of the global monetary and financial system into nonoverlapping blocs in the face of a US-China rupture would have high costs and represents just one of many concerns, should this breakdown take place.

21 Another possibility would be to connect mBridge to other DLT platforms, which would be feasible once the zero-knowledge proofs referred to above were deployed.

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