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International Finance and Geopolitics

Barry Eichengreen
(UC Berkeley)

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International Finance and Geopolitics[1]

Barry Eichengreen

April 2023

1. Introduction

Where economists view international monetary and financial arrangements as enabling mutually-advantageous transactions in merchandise and commodities and facilitating the search for remunerative investment opportunities at home and abroad, political scientists see them as political constructs whose design reflects the interests of countries positioned to influence their operation. Thus, the pre-1914 gold standard enabled Great Britain, the leading commercial, financial and military power of the day, to tailor domestic and international financial conditions to local needs while supplying the majority of trade credit and investing extensively worldwide (Polanyi 1944, Eichengreen 1985). The design of the Bretton Woods System incorporated the priority attached by the United States to stable exchange rates, open current accounts and a global role for the dollar, priorities it could effectively impose on much of world owing to the singular financial and geopolitical leverage the country possessed in the aftermath of World War II (Gavin 2007). Early attempts to reform that system by making the adjustment mechanism more symmetrical and creating Special Drawing Rights to supplement dollar liquidity came asunder as much over politics as economics (Strange 1971). More recent efforts to create an alternative to the dollar-centric international monetary and financial system, be this the creation of the euro in the late 20th century or the internationalization of the renminbi in early 21st, have been undertaken as much on political as economic grounds – that is to say, in substantial part to advance the political agendas of governments (Frieden 2000). This geopolitical perspective is quite different from economists' typical approach of asking whether exchange rate changes and other aspects of the international monetary system are helpful for the adjustment of trade balances and related variables (Obstfeld, Ostry and Qureshi 2017), whether there is a global shortage of safe assets (Caballero, Farhi and Gourinchas 2017), or whether the Euro Area is an optimal currency area (Eichengreen 1992).

Recent events, notably financial sanctions imposed on Russian entities by the United States and its geopolitical allies, together with mounting economic and political tensions between the U.S. and China, have brought these issues to the fore. The Bank of Russia has shifted what remains of its reserve portfolio away from dollars in favor of renminbi.[2] Russia has increased its use of the renminbi and China's Cross-Border Interbank Payments System (CIPS) as an alternative to CHIPS, CHAPS and European clearinghouses.[3] More generally, sanctions on the Bank of Russia are thought to herald more widespread use of financial means to advance geopolitical ends. It follows that governments contemplating even the remote possibility that they too may, at some point, end up in the United States' geopolitical cross hairs are concerned by this so-called weaponization of the dollar and the U.S. banking system. They are consequently searching for alternatives or at least supplements to dollar reserves and payments.

[1] Draft prepared for the meeting of the Asian Economic Policy Review panel, 13 April 2023.

[2] Indeed, it had begun shifting the composition of its reserves away from dollars as early as 2014, coincident with its annexation of Crimea.

[3] For more on CIPS, see below.

Thus, a series of countries not obviously aligned with either Russia or the West have signed memoranda of understanding with the People's Bank of China for the establishment of overseas renminbi clearing banks, currency swaps, and local currency payments. China concluded new clearing arrangements with Pakistan and Argentina in November 2022. President Xi visited Saudi Arabia late last year to discuss the possibility of shifting payments of the country's oil export to China to renminbi. In late 2022 China held a summit with the Gulf Cooperation Council, in which it committed to increase imports of oil and LNG from GCC countries, and carry out renminbi settlement of this oil and gas trade (Yee 2022). In February of this year, the PBoC and Central Bank of Brazil announced an agreement on opening an offshore renminbi clearing bank to facilitate renminbi clearing in Brazil (Moriera 2023). Also in February, Iraq's central bank announced a plan to allow, for the first time, direct RMB settlement of trade with China, where previously imports from China had been financed entirely in US dollars (Jing 2023).

These concerns are not entirely new, to be sure. Policy makers from Valery Giscard d'Estaing in 1965 to Xiaaochuan Zhou in 2009 have expressed discomfort with the dominance of the dollar in international finance and the leverage this confers on the United States. Scholars have long been aware that political alliances affect the pattern and direction of international trade (Haim 2015; Eichengreen, Mehl and Chitu 2021; Carnegie and Galkwad 2022)) and the currency composition of central banks' foreign exchange reserves (Eichengreen, Mehl and Chitu 2019).[4] Still, recent events have underscored these connections. They have highlighted China's efforts to create an alternative to the dollar-based international monetary and financial system, along with the evident willingness of at least certain other countries to cast in their lot with this parallel Chinese system.

What do these developments imply for the future? The answer will depend on how U.S.-Russia and, still more importantly, U.S.-China tensions play out. In what follows I consider two scenarios. First is the status-quo scenario. In this scenario, tensions between the U.S. and China over Taiwan, semiconductors and human rights continue to simmer. The Biden Administration and its successors maintain the tariffs on imports from China imposed in the Trump years, while China likewise maintains its retaliatory tariffs. The United States continues to control the export of high-end artificial-intelligence chips and advanced computing and semiconductor manufacturing items to China, while limiting the ability of American companies to invest in the production of high-end dual-technology items there, while China retaliates with restrictions on the sale to the U.S. of high-tech products, rare earths and other items. The two countries will challenge one another's measures in venues such as the World Trade Organization, as the Chinese government has already done. Despite this, however, trade between the two countries will continue, and they will remain one another's number one or two leading trading partners. Sanctions imposed by the U.S. government will remain limited to specific institutions and members of the Chinese government, the People's Liberation Army and their affiliates, as opposed to the more sweeping sanctions imposed by the United States on the Russian government and other Russian entities.

[4] DiGuiseppe and Kleinberg (2018) show, using a survey administered to more than 2,500 U.S. respondents, that introducing national security concerns into the discussion of trade agreements influence how heavily individuals weigh their costs and benefits.

The second scenario is a complete economic and financial rupture between China and the United States. The U.S. government might conclude that China is providing Moscow with military hardware and other forms of aid, enabling Russia to further prosecute its war on Ukraine. The U.S. would then respond with secondary sanctions, freezing the Chinese government's access to its U.S. Treasury bond holdings and other dollar assets. (More precisely, it would instruct the custodians of those other assets to do no business with their Chinese counterparts). The Chinese government would retaliate, suspending the access of U.S. banks and firms to their Chinese financial assets. In a more extreme variant of this second scenario, there would be a Chinese invasion of Taiwan, together with Chinese action to disable U.S. military capacity in the region. Financial transactions between American and Chinese entities would stop. Trade between the two countries would be halted. The implications of the global economy, and for the cross-border monetary and financial flows that are the focus of this paper, would be dire.

Scenarios are no more than that: scenarios. Nonetheless, the remainder of this paper seeks to draw out their international monetary and financial implications in more detail.

2. Basics

Because the basic contours of the international monetary and financial landscape, and specifically the roles of the United States and China, are well known, they can be reviewed very briefly here. Figure 1 shows quantitative measures the international role of the dollar and renminbi (together with the euro and yen) along a number of salient dimensions.[5] The dollar accounts for more than 40 percent of cross-border payments messaged through SWIFT, while the euro, the currency of some of America's principal geopolitical allies, accounts for another 40 percent. The renminbi may be the fifth most important payments currency used in conjunction with SWIFT, but its share of global payments initiated by individual customers and individuals is still just 2 percent. Obviously, the renminbi is most important as a vehicle for cross-border payments mainly for China itself. According to the PBOC, 48 percent of China's cross-border receipts and payments in 2021 were in renminbi (including those captured by SWIFT and also others effected through other platforms discussed further below).[6]

The dollar is similarly the invoicing currency for fully 40 percent of global exports, while the euro accounts for another 40 percent of the world total (Boz et al. 2020). By comparison, the renminbi's share of global invoicing is very low. Although data are fragmentary, Georgiadis, Le Mezo, Mehl and Tille (2021) put the median for all countries for which the relevant information is available in the neighborhood of one percent of trade. While Russia has been ramping up its use of the renminbi in export settlements as quickly as possible, the currency is still used to settle just 15 percent of total Russian exports (Dulaney, Gershkovich and Simanovskaya 2023; Stognei 2023).[7] The renminbi accounts for roughly 5 percent of turnover in foreign exchange markets, where currencies used in trade are accessed and currency exposures are hedged, whereas the

[5] The European Central Bank, in its "International Role of the Euro" Reports, nets out intra-Euro Area issuance and positions. Whether this is appropriate for present purposes is a matter of opinion. In any case, the focus here is on the dollar and the renminbi.
[6] Cited in Seuqing (2022).
[7] Ironically, efforts to de-dollarize Russia foreign trade benefited mainly the euro rather than China's currency. Shagina (2022) reports that in 2020 some 83 percent of Russia's exports to China were settled in euros. Russia meanwhile reduced the share of dollar payment for its exports from 80 percent in 2013 to 55 percent in 2020.

dollar's share is on the order of 50 percent. All this suggests that China has a ways to go in promoting the renminbi as a meaningful alternative to the dollar as a payments and invoicing currency.

The renminbi is similarly leagues behind the dollar as a store of value. This is true for central banks: the dollar remains far and away the dominant reserve currency, with a share of global identified reserves of nearly 60 per cent; the renminbi's share at the time of writing remains less than 3 per cent. It is further the case that a large fraction of renminbi reserves are held by one country, Russia, which faces special geopolitical and financial circumstances (on this see Figure 2).[8] Remove Russia's portion, and the renminbi share of international reserves looks even less consequential.[9]

What is true for central banks is true for investors generally: China's external assets and liabilities, while growing rapidly, remain very low relative to its GDP by the standards of the United States and other advanced economies. China accounts for only 4 percent of global overseas assets and liabilities, compared to its 13 and 18 percent shares of global trade and global GDP (Zhang 2023). China's external assets came to a little over 50 percent its GDP circa 2021, compared to 150 percent of GDP for the United States, 220 percent for Japan, 300 percent for Germany, and some 500 percent for the UK.[10] China comes in behind even Mexico, Brazil, and South Africa on this metric.

In part, China's low external asset and liability ratios reflect its maintenance over a long period of a panoply of capital controls that limit the acquisition by residents and foreigners alike of external assets and liabilities. Although some of those controls are in the process of being relaxed, significant restrictions remain in place. China continues to limit the access of so-called footloose investors (hedge funds and the like) to its securities markets, privileging relatively stable investors such as pension funds and central banks. These measures limit the ability of non-Chinese entities, aside from those pension funds and central banks, to use the renminbi and the Chinese banking and financial system as a vehicle for cross-border transactions.

That said, other factors, such as lower levels of per capita GDP than the advanced countries, also plausibly contribute to China's relatively low external asset and liability ratios. Zhang (2023) considers a future where China deepens its financial markets and liberalizes its capital account. She finds, on the basis of the experience of countries at comparable levels of economic development, that even this would only boost China's external assets to some 80 percent of GDP, compared to 150 to 300 percent for the major advanced economies.

China's efforts to encourage renminbi internationalization are well known. For the better part of 15 years, the country has gradually relaxed its controls on inward and outward financial investment, as noted, although those efforts experienced a setback in 2015, when capital account

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[8] The Bank of Russia held 17 percent of its foreign exchange reserves in renminbi in January 2022, the last occasion on which it reported the composition of its reserve portfolio. Since it has been unable to sell its dollars and euros since that time, and since there are no reports of it selling gold, it is plausible that the composition of its reserve portfolio has not changed since (Stognei 2023). The author reports estimates that Russia's National Wealth Fund holds 30 percent of its investment portfolio in renminbi assets.

[9] The question, of course, is whether other countries might eventually find themselves in the same special circumstances and display the same distinctive behavior (more on this below).

[10] The inflated level for this last country presumably reflects its status as a financial entrepot center – a status that is not irrelevant to what follows.

liberalization got out ahead of domestic financial reform, allowing a stock market crash to precipitate capital flight and leading the authorities to tighten up (Eichengreen and Xia 2019). China saw another large capital outflow in the spring and autumn of 2022, as investors responded to the negative impact of COVID lockdowns on the economy, U.S.-China tensions, and an appreciating U.S. dollar (reflecting restrictive Federal Reserve policies). One wonders whether this capital outflow might again cause Chinese officials to pause their movement in the direction of capital account liberalization. Be that as it may, the overall direction of travel, toward a more open capital account, is clear.

RMBI "absolutists" argue that the currency cannot acquire a consequential international role until China removes its remaining capital controls.[11] This absolute position is too strong. Nonresidents can acquire renminbi deposits by exporting to China; they can obtain them when Chinese entities make renminbi-denominated loans, including through the government's Belt & Road (B&R) Initiative.[12] They can then use those renminbi balances to buy merchandise from Chinese suppliers, for whom the renminbi is the currency of choice, and to purchase Chinese financial assets through authorized channels. That there exist offshore markets in renminbi (more on which below) means that an exporter who is not a qualified foreign institutional investor (QFII) authorized to transact in Chinese security markets can sell those balances to a QFII with an appetite and use for renminbi funds. Central banks (many of whom are QFIIs) can similarly purchase renminbi offshore from local exporters and the recipients of Chinese foreign investment, and use these to obtain onshore deposits and securities to be held as international reserves. Russia's significant accumulation of renminbi reserves is indicative of this fact.

In practice, of course, nonresidents have preferred to take payment in dollars. The vast majority of B&R loans similarly appear to have been denominated in dollars (Dreher et al. 2022). But if certain internationally active banks and firms wish to reduce their dependence on the dollar when making payment for merchandise and when investing in China, they can do so, within limits, even in the absence of capital account convertibility (Eichengreen, Maccaire, Mehl, Monnet and Naef 2022).

Another questionable argument is that the renminbi can be a consequential international and reserve currency only if China runs current account deficits, as does the United States. Only by importing more than it exports to the rest of the world, the argument goes, will foreigners be able to acquire renminbi balances to hold as reserves and make payments. As noted by Prasad and Yi (2012) and others, however, this argument overgeneralizes from U.S. experience. While the U.S. and UK chronically run current account deficits, the same is not true of the Eurozone, Japan or Switzerland, whose currencies are also used internationally. This "must-run-current-account-deficits" argument conflates net and gross flows. On the current-account side, a gross-flows perspective suggests that only some nonresidents must accept payment in renminbi, while others make payment to China in dollars, in order for the currency to accumulate in foreign

[11] Lawder (2022) quotes IMF first deputy managing director Gita Gopinath to this effect.

[12] Wang, Tsai and Chen (2020) analyze panel data for 19 countries spanning the period 2014 to 2018. They find that RMB adoption is greater for countries participating in the Belt & Road. In addition, they find effects of more bilateral trade with China, a larger share of China's exports that are high tech products, and the present of bilateral currency swap arrangements.

hands. Similarly, on the capital account, even if China is buying foreign assets on net, there can be a gross flow of foreign investment into renminbi-denominated securities and bank deposits.

In terms of payments, China has taken two routes: offshore and onshore. Offshore, it has designated one of its four big banks as official clearing bank for each major global financial center. A domestic bank seeking to make a renminbi payment to a Chinese vendor can maintain a correspondent account with the official clearing bank, which can then transfer the payment to or from the Chinese vendor in a manner compliant with China's banking regulations and capital controls. The People's Bank of China, for its part, has negotiated dozens of bilateral currency swaps with foreign central banks. The foreign central banks in question should thus be more relaxed about domestic banks and firms committing to making payments in renminbi, since the central bank will be able to act as renminbi lender of last resort in times of currency scarcity.

Zucker-Marques and Perfeito da Silva (2022) find that having an official renminbi clearing bank in the host market encourages transactions in renminbi. McDowell (2019) questions the effectiveness of the bilateral swaps on the grounds that they have rarely been activated. But Song and Xia (2020) and Bahaj and Reis (2020) find that RMB swap lines encourage use of the RMB in cross-border payments even when they only act as a precaution. Zhang et al. (2017) find that a swap agreement increases bilateral trade by 30 percent. It would appear that potential activation – the insurance function – is enough. There is now also a multilateral renminbi liquidity pool at the Bank for International Settlements, to which the central banks of Chile, Hong Kong, Indonesia, Malaysia and Singapore each contribute $2 2 billion and on which they can draw in an emergency (BIS 2022).

Onshore, China has worked to develop local infrastructure for making cross-border payments in renminbi: the Cross-Border Interbank Payments System established in 2015. CIPS is a real-time gross settlement system. Financial institutions can participate directly, in which case they maintain an account with the system, or indirectly, in which case they deal with it via the direct participants. At last count there were some 75 direct participants (PBOC 2022). These are mainly Chinese banks but purportedly include also a number of prominent global banks, such as HSBC, Standard Chartered, the Bank of East Asia, DBS Bank, Citi, ANZ and BNP Paribas (Eichengreen 2022). Direct participants can use their renminbi accounts to make and receive payments for their customers and on behalf of indirect participants for whom they act as correspondents. While transactions using CIPS are low by the standards of Fedwire and the New York Clearing House (CHIPS), they growing rapidly. For the moment, CIPS clears only 2 percent the daily transactions by value that flow through the New York Clearing House. At the same time, Jin (2022) reports that in 2021 transactions rose by 50 percent in number and 75 percent by value.

There have also been steps to encourage trading of the renminbi against other currencies. Zucker-Marques and Perfeito da Silva (2022) find that the presence of an offshore renminbi clearing bank is important in providing liquidity to the foreign exchange market and encouraging trading in a particular center. They find further that the existence of direct forex market quotations encourages transactions in renminbi, and that direct markets tend to develop where there is a demand for renminbi to facilitate trade. Not surprisingly, BIS Triennial Survey data and data from Electronic Broking Services (EBS) indicate that renminbi trading is most active in Asia (Nabar and Tovar 2017).[13]

Onshore, the PBOC regulates and participates heavily in the foreign exchange market in order to prevent quotations from straying too far from the reference rate posted by the central bank each day at the start of business. As of 2021, there were some 750 licensed foreign exchange spot traders, 282 licensed forward exchange trading members, and 25 foreign exchange market makers. The Chinese authorities limit the daily amount that can be traded by individuals and companies to $50,000. To be able to remit trade funds in excess of this amount, a company or individual must apply to the State Administration of Foreign Exchange (SAFE). In late 2022 the central bank extended trading hours to 3 am local time to encourage activity on the onshore market.

Much attention has been devoted to the possibility that commodities such as oil might be invoiced, traded and settled in renminbi. To this end, China has established onshore renminbi futures markets for crude oil, low sulfer fuel oil, palm oil, iron ore, terephthalic acid for use in making polyester and plastic bottles, technically-specified rubber, and copper (PBOC 2022). Entities buying and selling these commodities often want to hedge against future price changes. The existence of renminbi futures contracts enables them to do so without having to purchase an overlay of currency swaps.

In sum, the prospects for substituting renminbi payments effected through the Chinese banking system for dollar payments executed through the U.S. (and other Western) banking systems, now and in the future, are decidedly mixed. The dollar remains the dominant international means of payment, unit of account and store of value. Its dominance is supported by its large installed base of users, which creates costs and coordination problems for firms, banks and governments seeking to move to alternatives (Krugman 1984; Matsuyama, Kiyotaki and Matsui 1993). Its dominance is further sustained by complementarities between the different functions of an international currency – that firms wish to borrow in the same currency in which they invoice their exports and receive payment, and that central banks wish to hold as reserves the same currency that domestic banks and firms utilize when borrowing and making payments abroad (Gopinath and Stein 2021).

Currently, the renminbi does not share equally in these network increasing returns and complementarities. It lags far behind the dollar as a form of foreign reserves, an invoicing currency for trade, a vehicle for settling cross-border interbank payments, a unit for use in hedging currency exposures, and a store of value for nonresident investors. At the same time, use of the renminbi and the Chinese banking and financial system for carrying out these functions is rising rapidly. One might ask whether this trend could now accelerate owing to fear of U.S. sanctions, prompting a search for alternatives. Equally, however, one might ask whether renminbi internationalization might instead stagnate, as China's trend rate of growth continues to slow, to a projected 3.8 percent in 2027 according to the IMF's most recent Article IV report (IMF 2023).

[13] In addition, there is an active direct market in Moscow, where ICBC is the official renminbi clearing bank. Dulaney, Gershkovich and Simanovskaya (2023) note that ruble/renminbi was regularly the most frequently traded currency pair, in terms of daily volume, in Moscow in early 2023.

3. The Status Quo Scenario

The theories and evidence reviewed here – along with the historical record – suggest that international monetary and financial relations tend to evolve gradually absent major economic and political shocks like those to be analyzed in Section 4. China will likely continue to invest in the infrastructure for renminbi payments, establishing additional official renminbi clearing banks in foreign financial centers and negotiating informal clearing agreements with countries where official clearing banks are absent. The PBoC will extend additional bilateral renminbi swaps to encourage foreign central banks to authorize renminbi borrowing and payments by local banks and firms.

Meanwhile, the PBoC will continue to build out CIPS, notably working to enhance its native messaging system as an alternative to SWIFT.[14] Although CIPS and the renminbi are likely to retain a cost and convenience disadvantage relative to CHIPS and the dollar, given the latter's considerably greater scale and scope, countries contemplating even the remote possibility that they may lose access to the dollar and the U.S. banking system over a geopolitical or other dispute will have an incentive to buy insurance against this possibility by doing additional business through CIPS and the Chinese banking system.

In this scenario, CIPS and the renminbi will gain incremental market share, but the payments landscape will remain fundamentally unchanged. Recall how President Xi visited Saudi Arabia late last year and discussed the possibility of shifting payments of the country's oil exports to China to the renminbi. Much excited commentary followed the visit. But shifting Saudi oil exports to renminbi would mean that just an additional $600 billion annually would be settled in the currency. It would only raise the renminbi share of global payments from 2 to 3 percent (Lo 2023).

Neither is additional use of CIPS likely to transform the global payments landscape in this scenario. Assume that transactions cleared by CIPS continue to grow by 50 percent a year, as was the case in 2021, and that the value of transactions through CHIPS and Fedwire grows by a more modest 3-5 percent a year, in line with nominal U.S. GDP. Then it will take on the order of 15 years for CIPS to catch up with the U.S. clearing houses in terms of value of transactions. Moreover, the assumption that transactions via CIPS will more than double every two years indefinitely into future is highly optimistic given the likely impending slowdown in Chinese economic growth.

Alternatively, governments seeking to move away from reliance on the dollar and the U.S. banking system could make payments in offshore renminbi centers.[15] Offshore centers have had an important function in sustaining the international role of global currencies in the past. Most notably, the Eurodollar market established starting in the 1950s in London and then other offshore centers was important for encouraging agents to continue to hold dollar deposits and use them for payments at a time when interest rates in the United States were tightly controlled. One can think of those historic U.S. controls as having effects analogous to Chinese

[14] For the moment, CIPS continues to rely for the vast majority of cross-border financial instructions.
[15] Thus, in July 2022, Russia accounted for 4 percent of all offshore RMB payments through SWIFT, the third largest market for offshore payments after Hong Kong and the United Kingdom (Kapron 2022).

controls that make it difficult to obtain onshore renminbi deposits and that implicitly limit returns.

As of late 2021, renminbi deposit balances in Hong Kong were approximately RMB 850 billion (roughly $130 billion), while deposits in other offshore markets came to another RMB 650 billion (roughly $100 billion). In 2021, overseas clearing banks cleared RMB 468 trillion (roughly $73 trillion) of payments (PBOC 2022). By comparison, payments cleared through CHIPS were on the order of $360 trillion, through Fedwire $1,060 trillion. Offshore renminbi clearing grew by 10 percent in 2019 (prior to the onset of the pandemic) and by 27 percent in 2021 (when there was rapid recovery from 2020 lockdowns, during which offshore clearing had risen by only 6 percent). Thus, while offshore clearing is a useful supplement to onshore renminbi clearing, even at a 10 percent secular growth rate it would take many decades before offshore renminbi payments began to rival payments denominated in dollars.

Three quarters of offshore payments in 2021 were cleared in Hong Kong.[16] Recent governance changes affecting Hong Kong raise the question of whether the city will retain its status as a leading offshore renminbi center and, if not, what other centers, if any, might assume its role. Mossa, Li and Jiang (2016) analyze the determinants of financial-center status using the Z/Yen ranking of global centers. They find an important role for strength of property rights, something that has been significantly weakened by recent governance changes.[17] Some such as Jian (2023) continue to champion Hong Kong for the size of its renminbi liquidity pool, its volume of foreign-exchange-market turnover, and its preferential access to onshore securities markets via the Stock and Bond Connects.

Others are more skeptical on property rights and governance grounds. Such skeptics note the exodus of financial institutions and experts from Hong Kong, many of whom have moved to Singapore, where property rights and governance are non-issues. Between mid-2021 and early 2023, Singapore's foreign currency deposits increased by more than $100 billion, significantly faster than Hong Kong's. Assets under management in Singapore grew by 15 percent in 2021, in Hong Kong by only 2 percent. This is not all COVID: Riordan et al. (2023) note that some banks had been expanding in Singapore even before the pandemic, responding to concerns over the new security law imposed in Hong Kong in 2020.[18] In recent years, China has used Hong Kong as a petri dish in which to safely experiment with new financial products and processes, before moving successful ones onshore. One wonders whether China will continue to countenance a leading role for offshore renminbi transactions if a larger share of those transactions occur in an offshore center other than Hong Kong that it does not control.

Thus, under this status-quo scenario, we are likely to see the renminbi, the Chinese banking system and CIPS play gradually increasing roles in global payments and settlements. At the same time, ongoing U.S.-China tensions, insofar as they slow the growth of bilateral trade and cause U.S. banks and firms to think twice about reliance on their Chinese counterparts, may slow the growth of transactions in renminbi. Those tensions also highlight the possibility that the U.S. will resort with increasing frequency to sanctions, as seems to be the country's inclination

[16] And some 60 percent of offshore RMB deposits were held there, as noted.
[17] Eichengreen and Shah (2020) find roles in addition for monetary and financial stability, financial openness, financial scale and development, technology, and size of government.
[18] They note that Wells Fargo shifted its Asian hub from Hong Kong to Singapore in 2021, while Blackrock doubled the size of its Singapore office in 2022.

(Figure 3). If so, this may encourage other countries to insure against sanctions risk by making more payments through alternatives to the dollar, the U.S. banking system and CHIPS. Other things equal, this will cause renminbi-based transactions to grow faster. Modern financial technology, which makes it easier to move between markets in the two currencies, weakens network effects and opens space for two global currencies to coexist (Eichengreen, Mehl and Chitu 2018). In the status quo scenario, the dollar and the renminbi could therefore coexist as rivals if not necessarily as equals.

This reference to modern financial technology lowering switching costs and thereby weakening network lock-in effects points to yet another possibility, namely that banks, firms and governments, responding to rising Sino-U.S. tensions, may seek to reduce their dependence on *both* the dollar and the renminbi. Authors such as Han (2023) suggest that China's motives for building out its payments infrastructure include not just avoiding sanctions risk itself, but also enhancing the country's capacity to impose financial sanctions on others. If countries are concerned by sanctions risk from both the U.S. and China, we may see yet additional currencies acquiring roles as vehicles for payments and forms of reserves. Arslanalp, Eichengreen and Simpson-Bell (2022) show that there is already some movement in this direction, insofar as nontraditional reserve currencies have been acquiring progressively larger reserve-currency roles. These authors attribute the trend to greater ease of acquiring and trading these currencies owing to the rise of electronic trading platforms featuring automated market-making algorithms and automated liquidity-provision systems.[19] Analyzing historical data, they do not find a role for sanctions as a factor in this diversification toward nontraditional reserve currencies – though this could change going forward.

The same trend appears to be evident in payments. In the spring of 2021, Singapore and Thailand connected their real-time fast payment systems, PayNow and PromptPay, enabling customers of participating banks in the two countries to transfer up to S$1,000 a day using just a mobile number, in the first such linkage anywhere in the world. In late 2021 Bank Negara Malaysia and the Bank of Thailand further expanded their ringgit-baht direct settlement framework to all Malaysians and Thais residing in both countries to make payments through qualified commercial banks, in this case by simply scanning QR codes. In 2022 five Southeast Asian central banks signed an agreement to link their fast payment systems to one another, bypassing the need to use both the dollar and renminbi as vehicles (Business Times 2022). Indonesia, in the context of its G20 presidency, established a Local Currency Settlement Taskforce to identify regulatory reforms and build awareness so as to foster additional local-currency settlement among these countries. Other examples of local currency settlements could be cited.[20] Some of these direct settlement agreements are with China. But others do not involve the PBoC, raising the possibility that payments, like reserves, may move away from the currencies and banking systems of both big economies.

4. The Rupture Scenario

[19] They also find a role for low yields (more precisely, low Sharpe ratios) on traditional reserve currencies.

[20] In addition, in 2022 India launched a rupee trade settlement scheme, in which Luxembourg, Tajikistan, Cuba, Sudan and the United Arab Emirates have expressed intereest. Turkey has discussed bilateral local currency settlement with South Korea, Russia, Qatar and the United Arab Emirates, and countries in South America have also reached local currency settlement agreements. See Jian (2023).

The second scenario of a breakdown of geopolitical and economic relations between the U.S. and China is necessarily more speculative and cannot therefore be treated with the same level of detail.

One can think of a number of issues and events over which U.S.-Chinese bilateral relations could break down. The extreme case is Chinese military action to seize Taiwan and "reunify" it with the Mainland while attempting to disable U.S. military capacity in the region. China could decide to provide dual-use technology, military hardware, and logistic and financial support to Russia for use in its war on Ukraine.[21] Or China could provoke the U.S. by conducting espionage and surveillance, whether by high-altitude balloons, satellites, or 5G-related telecom equipment. Rachman (2023) suggests that China may risk such steps if it believes that intensified rivalry with the United States is unavoidable. He suggests that both Chinese and Russian leaders see the U.S. as a central threat to their national ambitions and political regimes, implying that rivalry will intensify. Any of these actions could precipitate the imposition of sanctions, and worse, by the United States, and Chinese retaliation in kind.

One can also imagine circumstances under which this kind of rupture is precipitated by actions initiated by the U.S., given Congressional hostility toward China. The U.S. might provide Taiwan with provocative military hardware. It might increase the frequency with which it sails through and flies over contested territory claimed by the People's Republic in the South China Sea and elsewhere. It could redouble its efforts to stymie the growth and technological progress of the Chinese economy by prohibiting the export of advanced technologies of all types and encourage its European, Japanese and South Korean allies to do likewise. China might then respond with sanctions, and worse, leading the U.S. to retaliate.

Any such confrontation would have disastrous implications for international trade, for the operations of multinational corporations, and for scholarly and scientific exchanges, in addition to its implications for international finance. While not dismissing the importance of these other aspects, I focus here on the financial implications.

As a first step, the U.S. Treasury Department would likely issue an order instructing U.S. banks to suspend all business with their Chinese counterparts. The Bank of China, the Bank of Communications, China Merchants Bank, and the Industrial and Commercial Bank of China, all of which are direct participants in CHIPS, would be barred from transferring funds and clearing payments through that system. Chinese entities seeking to make and receive payment for exports and investments would have to turn to CIPS. Likewise, U.S. banks such as Citi that are direct participants in CIPS would be barred from making payments through that system, and likewise would have to turn elsewhere.

What would happen to banks such as ANZ and BNP Paribas that participate directly in CIPS and are headquartered in and majority owned by residents of countries closely allied with the United States? These banks would presumably be barred by their governments from doing business with Chinese counterparts, whether through CHIPS, CIPS or another platform, just as close U.S. allies have barred their banks from doing business with Russian counterparties. Thus, all direct connections between the U.S. and Chinese banking systems would be severed.

[21] If transferring military supplies directly is seen as too provocative, China could attempt to transfer them via sales to third countries such as Iran, though risking U.S. detection and retaliation.

Finally, what would happen to the financial institutions of countries that seek to remain nonaligned in this bilateral conflict? Compare the case of Turkey, which has sought to remain nonaligned in the current conflict between Russia and the West. In September 2022, in response to pressure from the U.S. Treasury, five Turkish banks suspended their use of Russia's Mir clearing and payment system. In February 2023 Brian Nelson, a U.S. Treasury official, warned the Turkish government and Turkish companies over an increase in exports to Russia of chemicals, microchips and other products (Spicer 2023). Yet these developments have not caused Turkish banks to barred as indirect participants in CHIPS or U.S. banks from doing business with their Turkish counterparts (at the time of writing). This example suggests that nonaligned countries conceivably could continue doing business with both U.S. counterparties through CHIPS and Chinese counterparties through CIPS. In this case, the banks of nonaligned countries would serve as intermediaries between banks and countries doing business exclusively with either the U.S. or Chinese system.

That said, the stakes would be higher in a direct confrontation between the U.S. and China.[22] In the event of a direct confrontation with China, the U.S. government would almost certainly threaten secondary sanctions against banks in nonaligned countries that continued to make payments and finalize transactions through CIPS. Nonaligned countries could not have it both ways. They would have to choose to participate in one financial system or the other. In this case, direct as well as indirect connections between the U.S. and Chinese financial systems would be completely severed.

This assumes that financial transactions in this rupture scenario take place via the interbank market, as is predominantly the case today. Some will point to digital currencies (plain-vanilla cryptocurrencies, stablecoins, and central bank digital currencies) as an alternative and suggest that geopolitical disruptions to the interbank market will accelerate the migration of transactions in their direction. Cryptocurrencies such as Bitcoin and Tether have reportedly been used to spirit money out of Russia despite the imposition of sanctions (Lanz 2022).

But such evasion is costly, since transactions are publicly viewable on blockchains, making it possible for governments to trace them (Congressional Research Service 2022).[23] In any case, the $2 trillion crypto market is too small to meet China's financial needs. The Bitcoin blockchain can support only a limited number of transactions, seven per second, whereas companies such as Visa, which issue credit cards via banks, process up to 24,000 transactions per second. Most transactions therefore occur off chain through exchanges such as Binance and the now-notorious FTX, where payments can be aggregated and netted. Regulators have demonstrated an ability to clamp down on the operation of such exchanges, including even the likes of Binance that claim to have no physical headquarters or country of incorporation.[24] It is

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[22] Compared to the present indirect confrontation between the U.S. and Russia.

[23] Some actors such as North Korea have attempted to avoid detection by "chain-hopping" (converting one cryptocurrency into another), which is obviously costly. Others have used mixing and tumbling services that pool, slice and dice crypto transaction, such as Tornado Cash. Again, however, it is not clear whether such services are beyond the reach of the U.S. government. Thus, the U.S. Treasury's Office of Foreign Assets Control (OFAC) added Tornado Cash to its list of sanctioned entities in August 2022, and the platform's developer was arrested in the Netherlands.

[24] Thus, U.S. regulators barred Binance from doing business in the country in 2019, in response to which the company opened Binance.US, which is subject to oversight by the U.S. Securities and Exchange Commission. In addition, Binance is now planning on opening physical offices.

thus plausible, were a company such as Binance seen as allowing Chinese entities to move funds between countries, that the American authorities would bar it from doing business in the U.S., and press the country's allies to take similar action.

For all these reasons, then, plain vanilla cryptocurrencies would not provide a workaround. Although stablecoins might be less volatile, they would share many of the same limitations in this context.

Central bank digital currencies (CBDCs) might be thought to be another matter. These typically run on private, permissioned blockchains (or equivalently encrypted platforms) viewable only by the issuing central bank, making it difficult for foreign authorities to view transactions utilizing them. In addition, there would be no problem of market size: the People's Bank of China, which has already piloted a CBDC, could simply issue as much as needed.

Whether this would provide a workaround for a country and residents barred from accessing foreign banking and payments systems is questionable. In the retail CBDC variant, the central bank would make digital wallets available to foreign as well as domestic individuals and firms, who would use the central bank's dedicated technology to transfer funds amongst them without involving the banking system.[25] But governments in other countries could legally bar and digitally block firms and individuals from downloading a foreign CBDC app, in the same was they now bar and block domestic banks and individuals from doing business with sanctioned parties. They could threaten secondary sanctions against other countries that failed to do likewise.

In the wholesale CBDC variant, the central bank would make its digital currency available to licensed commercial banks and perhaps also select other payments providers, which would in turn make it available for use by their customers. But, again, foreign governments could simply bar and block firms and residents from doing business with the foreign banks and payments providers in question and threaten secondary sanctions against countries that failed to do likewise.[26] CBDCs would not be a game changer in this context.

5. Conclusion

Recent events are a reminder that international monetary and financial arrangements are shaped by geopolitics as well as economics, finance and technology. Geopolitical tensions between the United States and China, the two largest economies, are an undeniable feature of our 21st-century world. Both countries will seek to shape the international financial system to their advantage, and that other countries respond to their initiatives. How exactly the U.S. and China attempt to alter the international monetary landscape and how other countries respond will depend on how those tensions play out. This paper has considered two scenarios. In the first, U.S.-China tensions over trade, intellectual property, human rights and international security

[25] Currently, of course, the PBoC allows only individuals resident in China to download e-CNY wallets and transact using its CBDC.

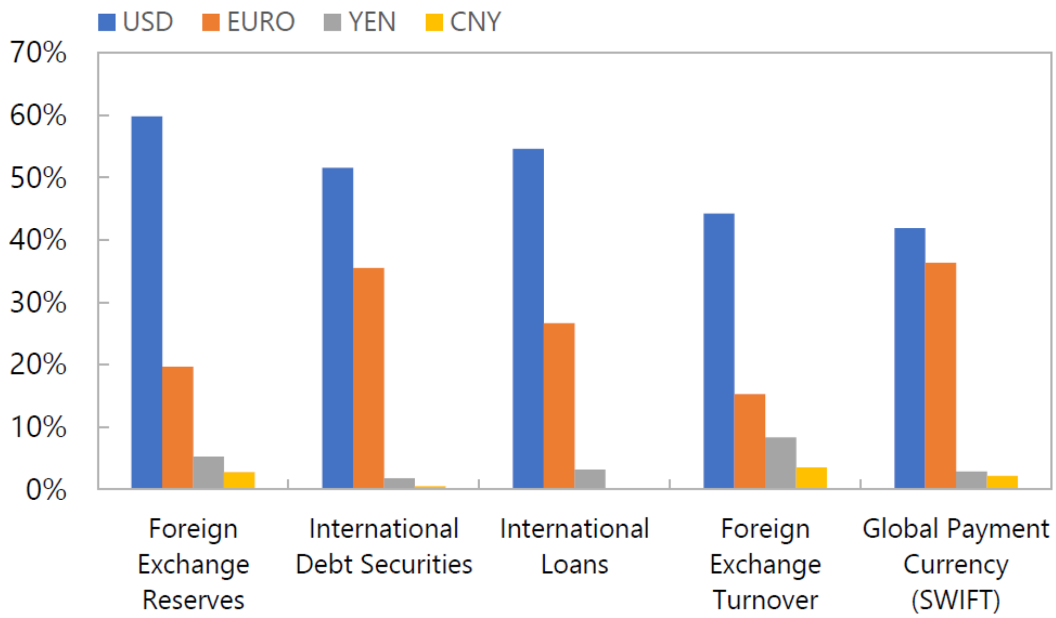
[26] Pozsar (2022) imagines that the BIS's mBridge project "recreates the correspondent banking system from scratch by interlinking central banks through CBDCs." But, in fact, multiple-CBDC bridges, or mBridges, are no solution in this context. The technology allows two CBDCs that respectively circulate only in their issuing countries to be exchanged for one another in a dedicated corridor, in which authorized dealers burn one CBDC and mint the other on demand. But operation of such an mBridge would require the regulatory consent of the governments concerned. Withdraw that consent and the mBridge collapses.

continue to simmer. The U.S. will seek to preserve the dominant role of the dollar in the global financial system, since this provides it with geopolitical leverage in the form of the ability to levy effective financial sanctions. To this end, the country would be wise to avoid steps that diminish the attractions of the dollar, such as a suspension of interest payments to holders of U.S. Treasury bonds due to Congressional refusal to raise the statutory debt ceiling.

China meanwhile will continue to build out its renminbi-based, Chinese-bank-led payments system and otherwise promote international use of its currency. Third countries will wish to deepen their participation in both systems as a way of hedging their exposure to unpredictable political and economic events. But the renminbi remains far behind the dollar as a key currency, just as China's payments system remains far behind the New York clearing house. Thus, countries seeking to hedge economic and geopolitical exposures may also take steps to increase own- and local-currency settlements, while holding their neighbors' and other smaller countries' currencies as reserves. Ongoing developments in financial technology will facilitate those efforts. Over time, these changes may become significant. But if history is any guide, they will occur gradually rather than discontinuously.

In the second scenario, U.S.-China tensions will boil over. Sanctions and retaliation will disconnect the two countries' financial systems, just as Western sanctions against Russia have largely disconnected that country from European and U.S. finance. In this scenario of a serious rupture between the U.S. and China, the stakes will be high. Beijing and Washington, D.C. will pressure third countries to do international financial transactions through their system and not the other. They will threaten secondary sanctions against those failing to comply. The global monetary and financial system, and indeed the global economy, would split into two parts, along geopolitical if not necessarily also regional lines. It is hard to imagine that economies could adjust smoothly to this major disturbance. Indeed it is hard to imagine that they could avoid very, very serious costs. We have to hope that U.S. and Chinese policy makers understand this, and that they don't go there.

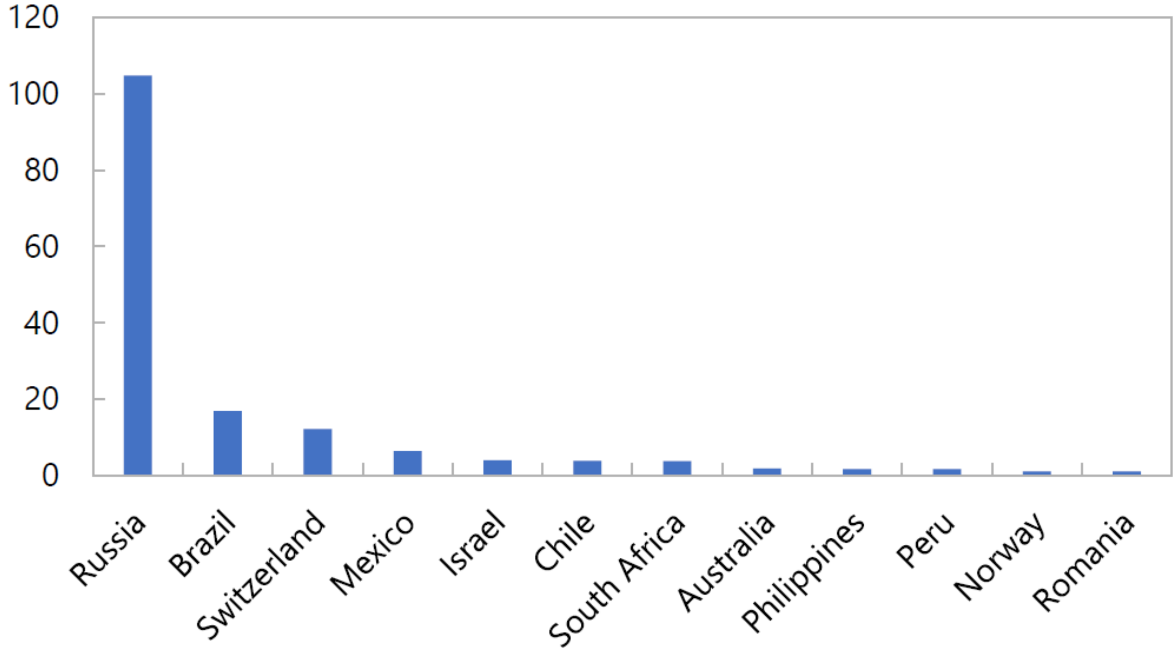
International Role of the US Dollar



Sources: BIS, IMF, Society for Worldwide Interbank Financial Telecommunication (SWIFT)
Note: The latest data for foreign exchange reserves, international debt and international loans are for the third quarter of 2022. Foreign exchange turnover data as of April 2022. SWIFT data as of December 2022

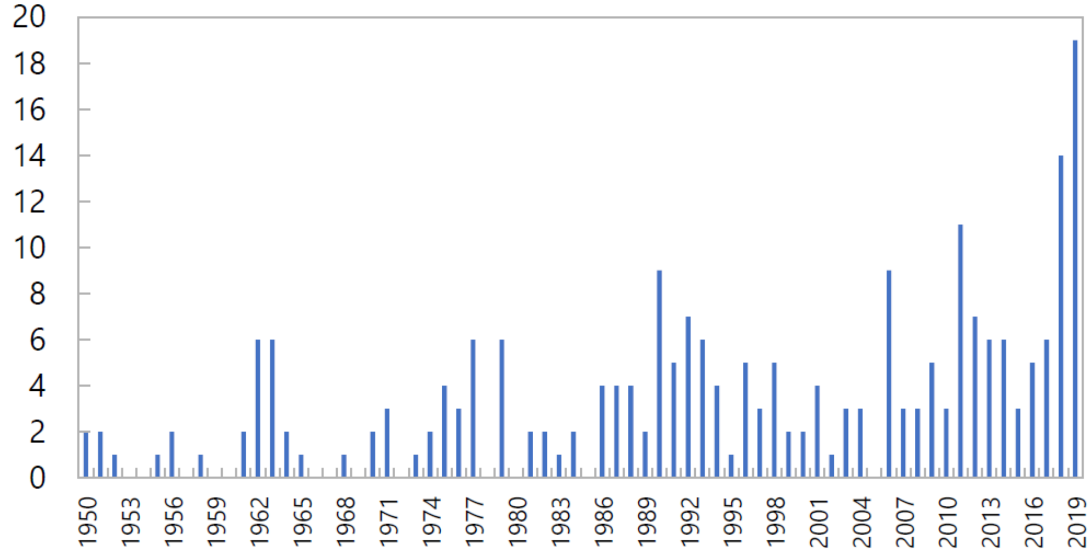
Figure 2. Countries Holdings Renminbi Reserve Assets

(in billion U.S. dollars, end-2021)



Sources: IMF COFER, IMF Reserve Data Teample, and central bank annual reports.
Note: The chart shows identified countries that hold more than US$ 1 billion of RMB in reserve assets. Data for Israel, Philippines, and South Africa are for Mar 2022, Dec 2020, and Mar 2021, respectively.

Figure 3. Frequency of Financial Sanctions Imposed by the United States 1950-2019



Sources: GSDB

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