

MARSHALL PAPERS

Sanctions, SWIFT, and China's Cross-Border Interbank Payments System

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THE ISSUE

The Marshall Papers are a new bimonthly essay series that will probe and challenge the assessments underpinning U.S. approach to great power rivalry. The Papers will be rigorous yet provocative, continually pushing the boundaries of intellectual and policy debates. In the inaugural Marshall Paper, Barry Eichengreen explores how China's efforts to build alternatives to SWIFT will be impacted by the war in Ukraine. In the wake of unpredicted sanctions levied against Russia, will China be able to advance its own efforts to challenge US dollar dominance and promote alternatives to SWIFT? While its progress has been limited to date, how might dynamics evolve in the coming months and years as the global financial system responds to recent geopolitical shocks?

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INTRODUCTION

In response to Russia's attack on Ukraine, the United States and a coalition of cooperating countries imposed harsh financial sanctions on the Russian government, corporations, and individuals.¹ These sanctions bar Russian banks from using SWIFT (the Society for Worldwide Interbank Financial Telecommunications) to facilitate cross-border payments, prohibit banks from doing most forms of business with Russian entities, and freeze assets held abroad by the Central Bank of Russia in the form of treasury securities and bank deposits.

These developments have led Russia, as well as other countries contemplating whether they might find themselves in the same position, to explore alternatives. Such options could include building a substitute for SWIFT to send instructions regarding cross-border interbank transactions; identifying financial counterparties other than Western banks with which to do international business and platforms other than Western clearinghouses through

which to make payment; and finding a vehicle other than the dollar for denominating and executing transactions. Specifically, countries are looking to China, which has large internationally active banks, has created its own clearinghouse for cross-border transactions and is embarked on a campaign to encourage broader international use of its currency, the renminbi.²

This note investigates how far China has gone in creating alternatives to SWIFT, Western banks, and the dollar. It explores whether Russia and other countries might be drawn toward this parallel international financial universe and what economic and political implications this has—for the United States, for its geopolitical rivals, and for global economics and politics.

China is making strides in fostering cross-border use of the renminbi and building a renminbi-based interbank payments system that can serve as an alternative to SWIFT and Western clearinghouses. However, these remain somewhat limited alternatives—for the moment. The

situation could change faster if lent additional impetus by Western sanctions. Thus, countries such as the United States that employ financial sanctions should prepare for the development of alternative financial arrangements in China and possibly elsewhere. This may mean relying more heavily on nonfinancial measures insofar as financial sanctions eventually become less effective.

THE RACE GOES TO THE SWIFT

Start with SWIFT, which is currently enjoying its 15 minutes of fame. SWIFT does not actually move money; it is simply a messaging system banks use to send instructions, using standard codes and formats, to banks in other countries.³ Standardization minimizes costs of translation and the need to confirm the identity of counterparties and customers. Banks receiving these messages debit and credit customer accounts, again following standardized instructions. SWIFT's components are its messaging platform, computers to validate and route messages, and a set of messaging standards.

SWIFT, founded as a cooperative in 1973 by 239 banks from 15 countries, is headquartered outside Brussels and incorporated under Belgian law. Messages sent via the system instruct participating banks to debit and credit customer accounts not just in dollars but also in other currencies. As of March 2022, the dollar accounted (by value) for 41.1 percent of payment instructions transmitted by SWIFT, the euro for 35.4 percent, the British pound for 6.5 percent, the Japanese yen for 2.8 percent, and the Chinese renminbi for 2.2 percent.

SWIFT is also a vehicle through which the U.S. government can monitor third-party compliance with sanctions. SWIFT initially resisted sharing its proprietary data with U.S. authorities but came around after 9/11, when Congress threatened to sanction the society itself—and it didn't hurt that SWIFT operates a pair of data centers in Virginia, further exposing it to the reach of U.S. authorities. The U.S. Department of the Treasury has stated that financial data gleaned from SWIFT messages are useful for tracing financial flows and combating illicit finance (Wong and Nelson 2021).

How can a country's banks be excluded from SWIFT? A vote by its shareholders can compel the board to take such action. Although U.S. banks are only minority shareholders in the organization, other banks, fearing secondary sanctions, may side with the United States. In addition, Washington could pressure the government of Belgium, where SWIFT is incorporated, to enforce U.S. sanctions. The

U.S. government could also make SWIFT's compliance with its sanctions a condition for its continued dealings with U.S. banks or even sanction SWIFT directly—though a threat to isolate the organization might not be credible given the very considerable financial disruptions that would ensue. In 2012, Congress proposed sanctions against SWIFT if it failed to remove Iranian financial institutions from its system; in that instance, direct sanctions were not imposed because the organization took the requested action.

What is the impact of banning banks from SWIFT?

Most obviously, they will have to find another way of communicating with their foreign customers and counterparties. Prior to SWIFT coming into operation in 1977, payment instructions were sent primarily by telegraph and telex (For those below a certain age, it may be useful to explain that telex is a network of teleprinters connected to one another by telegraph-grade circuits). More generally, the instructions conveyed via SWIFT can be communicated by a variety of means, including by telephone, fax machine, and the internet. Going forward, banks may be able to transfer cryptocurrency (e.g., Bitcoin, global stablecoins, or central bank digital currencies) via blockchain, eliminating the need for messaging by other means.⁴ All told, countries in Russia's position, if barred from using SWIFT, have alternatives.

To be sure, those alternatives cost more. They are less secure, they tend to be slower, and financial institutions processing "bespoke" transactions require more time and effort to verify payment information and complete a transfer. But Iran was still able to engage in cross-border transactions, including with banks abroad, when its banks were disconnected from SWIFT at U.S. insistence in 2012 and again in 2018. Russian banks have reportedly invested in secure phone lines "costing monthly in the tens of thousands of yuan" for sending payment instructions to Chinese banks (Qinqin, Jia, and Cheng 2022). Other reports refer to encrypted telegrams (Wu and Isjwara 2022).

This is not to minimize the advantages and, equally, the challenges of building an efficient, secure, and accessible financial messaging system. China, despite having concern about its reliance on Western financial infrastructure, continues to use SWIFT when messaging payment instructions across borders, even to its own foreign bank branches and subsidiaries. Though China has been at work since 2015 building a parallel cross-border settlement system (more on which below), it does not yet possess a viable alternative to SWIFT.

If anything, China and SWIFT continue to grow closer. Historically, SWIFT messaging supported only Latin characters; it now supports Chinese characters, ensuring compatibility with messaging on China's domestic payments system. To this end, SWIFT established a unit in Beijing in 2019 in order to provide local language services and meet local regulatory requirements.

There is no technological obstacle to building an alternative messaging system and connecting banks around the world, as Chinese authorities hope to do—though there may be a “field of dreams” problem in that building it is no guarantee other banks will play. Yet even under favorable circumstances, construction takes time and requires effort and expense, and SWIFT has a half-century head start. The question is whether recent events, which highlight the risk that countries on the outs with the United States might find themselves disconnected from SWIFT, together with the fact that SWIFT can be used for harvesting geopolitically sensitive intelligence, will accelerate its completion.

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WHEN THE CHIPS ARE DOWN

Compared to its progress on messaging, China is further along in developing an actual clearing or payments mechanism capable of transferring renminbi across borders. Even here, however, a comparison with the U.S. Clearing House Interbank Payments System (CHIPS) and its counterparts in other advanced countries shows that China remains leagues behind.⁵

CHIPS was created in 1970 by eight members of the New York Clearing House Association (i.e., New York City-based banks doing extensive business with one another) for the purpose of clearing large-value payments. Today, around 50 financial institutions participate directly. These number both U.S. banks and U.S. branches of foreign banks, including the U.S. branches of four Chinese banks. (No Russian bank participates directly.) Participating banks clear payments among themselves and on behalf of

other financial institutions, who thus participate indirectly in the system. CHIPS, like SWIFT, is privately owned: Direct participants hold shares in the parent company, the Clearing House Payments Company LLC.⁶

CHIPS is a “netting engine” that settles payments between banks over the course of the trading day, netting offsetting payments against one another when possible. These practices finalize transactions while also limiting the need for actual transfers of funds. CHIPS uses a prefunded model in which banks use Fedwire (the Federal Reserve's real-time gross settlement system) to send balances from their account at the Fed to CHIPS's account at the Fed. The latter serves as backing for CHIPS's book-entry system, over which direct participants settle payments. When CHIPS closes at the end of its trading day, the outstanding balances of participants are paid out with an actual transfer of funds over Fedwire (which closes 90 minutes later). Payments settled through CHIPS are denominated in dollars, since dollars were the currency of settlement of the members of the New York Clearing House Association.⁷

Despite payments being denominated entirely in dollars, CHIPS can be used for international payments since both U.S. banks and the U.S. branches of foreign banks participate directly. For example, a U.S. bank seeking to remit a payment to an account holder in another country will first transfer funds to a U.S. bank participating directly in CHIPS, which will transfer the payment to the U.S. branch of the appropriate foreign bank. If the foreign account holder is a customer of that same directly participating foreign bank, then it credits the customer's account in their home country.⁸ If not, that foreign bank will have a correspondent or agency relationship with the foreign account holder's bank. In this case, both the small U.S. bank initiating the payment and the foreign bank of the ultimate recipient are indirect participants in the clearinghouse.

One can see why relying on CHIPS for settling international payments could be a source of discomfort for countries having a troubled relationship with the United States. Washington could prohibit U.S. banks from using CHIPS to transfer funds to banks of the foreign country in question. CHIPS could be required by U.S. law to enforce the ban. Because CHIPS and its foreign counterparts, such as the Clearing House Automated Payment System (CHAPS) in the United Kingdom and its equivalents in the euro area, actually move money between accounts of entities headquartered in different countries, finding a

way around these clearinghouses is more difficult than finding a way around SWIFT.

More subtly, the fact that payments executed through CHIPS are denominated in dollars may help sustain the dollar's role as a dominant vehicle for cross-border transactions and hinder efforts by other governments to internationalize their currencies. Through its convenience and scope, CHIPS encourages use of the dollar, while ubiquity of the dollar in cross-border transactions encourages reliance on CHIPS, thereby bolstering the lock-in effects emphasized by scholars of "dollar dominance" (Gopinath and Stein 2021).

CHINA'S CLEARINGHOUSE

Banks and governments of other countries troubled by this state of affairs may seek to launch a national clearinghouse that settles payments in the domestic currency with counterparties abroad. This assumes, of course, that those foreign counterparties are willing to accept payment in that currency. The recipient must be confident that the currency will hold its value. In addition, the recipient should have a use for foreign currency receipts. Saudi Arabia, in considering whether to accept renminbi in payment for its oil exports to China, is reportedly contemplating whether it is desirable to invest in Chinese government bonds as a way to diversify its portfolio of reserves.⁹ But the fact that only about 2 percent of all cross-border interbank payments are denominated in renminbi suggests that many potential recipients currently see little use for receipts denominated in the unit.¹⁰ Contributing to this problem, China maintains capital controls that limit certain forms of inward and outward foreign investment. In this sense, the project of launching a clearinghouse that pays foreigners in domestic currency is tied up with the broader project of currency internationalization, which in China's case involves convincing a global audience that the renminbi has a role to play as an international and reserve currency.¹¹

It also must be possible to trade the currency at reasonable cost. The People's Bank of China (PBOC) has sought to achieve this by providing liquidity for direct trades of the renminbi for the Japanese yen, British pound, New Zealand dollar, Swiss franc, Malaysian ringgit, South African rand, UAE dirham, Hungarian forint, Danish krone, Norwegian krone, and Mexican peso on the China Foreign Exchange Trade System, obviating the need to first purchase dollars in order to exchange renminbi for these currencies.

Finally, there must be a convenient and reliable mechanism for transferring payments between domestic and foreign account holders. This is where a national clearinghouse comes in. To this end, in 2015 the PBOC launched the Cross-Border Interbank Payments System (CIPS), which is incorporated as an independent entity and supervised by the central bank (just as CHIPS is supervised by the Fed). It is organized along similar lines as CHIPS, although it is a real-time gross settlement system as opposed to a netting engine. Financial institutions are divided into direct participants, which maintain an account with the system, and indirect participants, who deal with it via the direct participants. Direct participants must be incorporated in China so that the PBOC has oversight of their operations. At last count, there were 76 direct participants, mainly overseas branches of Chinese banks, located on every major continent except Latin America. This number is comparable to that of direct participants in CHIPS. The identity of the direct participants is not disclosed, although [Wikipedia](#) lists HSBC, Standard Chartered, the Bank of East Asia, DBS Bank, Citi, ANZ, and BNP Paribas.¹² CIPS's [website](#) claims 1,304 indirect participants, about two-fifths in China and three-fifths abroad. Payments and direct participants' accounts are denominated in renminbi.¹³

Direct participants can message one another through SWIFT or through CIPS's own messaging system. Indirect participants send and receive instructions through SWIFT, as noted earlier; Yeung and Goh (2022) estimate that 80 percent of payments through CIPS use SWIFT messaging. The constraint does not appear to be the capacity of CIPS's messaging system, but that many non-Chinese institutions have not installed translators for CIPS messaging.

Participating banks are required to ensure that payments comply with China's capital controls. This may obligate them, for example, to obtain prior approval for payments from the Chinese authorities. These requirements can be thought of as analogous to the anti-money-laundering and know-your-customer rules to which Western banks using SWIFT and CHIPS are subject.¹⁴

For the moment, it is hard to argue that CIPS constitutes a serious challenge to Western clearinghouses. CHIPS has nearly 10 times as many participants: Whereas CHIPS is used by around 11,000 financial firms worldwide, CIPS is used by just over 1,300. CHIPS also processes 40 times as many transactions: In March 2022, daily volume on CIPS

was 385 billion yuan (\$45.6 billion), compared to \$1.8 trillion on CHIPS (Yeung and Goh 2022).

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However, transactions using CIPS are growing. Jin (2022) reports that transaction value increased by 75 percent in 2021 and transaction volume by 50 percent (although the author cautions that these numbers are sourced from the state-backed newspaper *Jiefang Daily* and should be taken with a grain of salt). More banks around the world could plausibly join CIPS as a contingency plan. Even if they have little use for it for the moment, participation would provide a limited alternative in the event that CHIPS and SWIFT restrict access.

Rosen (2022) reports (without citing sources) that starting in April 2020, Russia accepted renminbi in payment for oil and coal exports to China, presumably through CIPS. It can use those renminbi receipts to purchase merchandise directly from Chinese suppliers. Renminbi surrendered to the Russian central bank could also be used to stabilize the ruble exchange rate—though because the ruble is not one of the currencies for which the PBOC has a direct foreign exchange market, renminbi balances would first have to be exchanged for another currency such as the Japanese yen or British pound. But it is revealing that when Russia first moved away from asking for dollars in payment for its exports to China, it moved toward accepting euros, which have wider utility and are not limited by Chinese capital controls (Yeung and Goh 2022).

Some observers (Aggarwal 2018) imagine the creation of a joint Russian-Chinese clearinghouse or platform—or even the integration of China’s renminbi-based and Russia’s ruble-based systems. Indeed, in April 2022 Russian Minister of Finance Anton Siluanov suggested linking the Russian and Chinese payments systems (and adding those of Brazil, India, and South Africa). However, it is not obvious that China has an interest in this. A system based on Chinese characters would have to add the capability of translating Cyrillic script (and vice versa).¹⁵ Governance challenges would be formidable. Western banks would have additional grounds for hesitating to participate. China, for its part, has no reason to do oil transactions with Russia in rubles, which this hybrid system would permit, given the currency’s limited convertibility and utility.

WOULD CBDCS MAKE A DIFFERENCE?

Would a Chinese central bank digital currency (CBDC) make a difference? The PBOC has gone further than any other large-country central bank in piloting a CBDC. It rolled out the digital renminbi (eCNY) in 10 Chinese regions in 2021 and introduced it in Olympic Games venues in Beijing and Zhangjiakou in early 2022. In October 2021, the PBOC reported that 132 million digital and corporate wallets had been downloaded, with balances totaling 56 billion yuan (\$8.8 billion). Kumar (2022) quotes unnamed central bank sources that, as of early 2022, there were 261 million wallets with transaction balances worth 87 billion yuan (\$13.75 billion).¹⁶

A CBDC is a direct liability of the central bank, as opposed to a liability of a private financial institution. Using a retail CBDC thus eliminates the need for an importer seeking to make a purchase from another country to send instructions to his bank and for that bank to settle the transaction through a clearinghouse. The importer simply transfers the requisite amount of digital currency from his smartcard, digital wallet, or account at the central bank to that of the other party.¹⁷ The central bank executes the transaction using its own secure system and centralized ledger.¹⁸ There is no need for the services of CHIPS, CIPS, SWIFT or any analogous entity.¹⁹ This is the digital equivalent of a cash transaction.

Cash transactions are convenient for governments under sanction in that they are hard to track. But this also makes them convenient for illicit transactions such as money laundering, tax evasion, and terrorist financing. However, when the cash in question is digital, the central bank regains the ability to follow it. It has the capacity to observe additions to and subtractions from individual CBDC accounts or balances and deduce from or to whom a purchase or sale was made.²⁰

As issuer of eCNY and administrator of the centralized ledger, the PBOC will thus be able to track use of the digital unit in cross-border transactions. For example, if a Russian exporter of oil or importer of aircraft parts accepts or makes payment in eCNY, the PBOC will know it. Foreign government agencies, in contrast, will not be privy to that information.

The PBOC in its role as supervisor also has access to that same information if settlement instead takes place through CIPS. Once again, foreign government agencies would not be privy to that information.²¹ In this respect,

eCNY adds and subtracts nothing from information already available to the authorities through CIPS.

If sanctioned or other illicit transactions became known to foreign governments through other channels, would their recourse be any different? If eCNY was used, they would have the option of imposing secondary sanctions on the Chinese government and specifically on the central bank. The PBOC having executed the payment, governments could contemplate freezing its foreign reserves. If, on the other hand, the renminbi transaction was executed by financial institutions participating directly in CIPS, foreign governments could penalize them for violating sanctions, fining them, or prohibiting them from engaging in certain forms of business. If the bank in question were Chinese-owned, this would not be materially different from a case where eCNY was used, although it might make possible more limited sanctions (i.e., against a Chinese bank as opposed to the Chinese government).²² Otherwise, whether the transaction was completed using CIPS or eCNY would make little difference.²³

IMPLICATIONS

The United States and other countries that levied sanctions against Russia for its war on Ukraine have deployed an impressive array of financial weapons. These include disconnecting Russian banks from SWIFT; barring banks from engaging in most transactions with Russian counterparties, whether through CHIPS or another Western clearinghouse; and freezing the foreign reserves of Russia's central bank. These steps are possible because SWIFT, in which Western banks are important shareholders, is incorporated in Belgium and because CHIPS is supervised by the U.S. government, just as clearinghouses in other countries are supervised by their national authorities. They are possible since the dollar is the dominant international currency: because it is used by CHIPS; because it is used disproportionately to invoice and settle cross-border transactions globally; and because it accounts for the majority of global foreign-exchange reserves.

This has left Russia scrambling for other ways to execute cross-border transactions, both when receiving payment for its oil exports and when making payment for merchandise imports. It is looking for forms other than dollars, euros, pounds, and yen in which to hold its foreign reserves and for places other than the United States, euro area, the United Kingdom, and Japan to hold them. Given the costs incurred by Russia as a result of these sanctions,

other governments contemplating possible conflict with the United States and its allies are presumably asking whether they can build institutions and identify arrangements that liberate them from SWIFT, CHIPS, and the dollar.

China is an obvious candidate for moving in this direction. Given its goal of reunification with Taiwan, it has reason to contemplate the possibility of geopolitical conflict with the United States, which is committed to defending the island's autonomy. It has the economic and financial size required to build alternative financial arrangements. It is the world's largest exporter by value and second only to the United States in the value of its imports; the renminbi is a natural habitat for its exporting and importing firms. China is the number-one source of foreign direct investment (FDI) and just a hair behind the United States as an FDI destination (UNCTAD 2021).²⁴ Chinese authorities are encouraging foreign importers to make payment in renminbi and recipients of Belt and Road loans to borrow in the currency. It has built CIPS to facilitate transactions.

These alternatives will appeal to countries worried about being targeted by U.S. sanctions. They are aware that the United States and China could be on opposite sides of a future geopolitical conflict or, if the conflict does not involve China directly, that its government may prefer to stay neutral. Doing business through Chinese financial institutions would thus be a way to circumvent U.S. sanctions. This would be convenient since China already constitutes a major market: China was already the leading destination for Russian exports, for example, even before the Ukrainian invasion. Doing business through Chinese financial institutions and accumulating earnings in the form of renminbi is attractive insofar as the currency can be used for purchases of merchandise and materiel from China, to pay Chinese construction companies, and to invest in Chinese government bonds.

In the extreme scenario where relations between the United States and China break down, two self-contained monetary and financial systems might emerge: a Western system centered on the United States and utilizing the dollar and an Eastern system centered on China and utilizing the renminbi. In a less extreme scenario where there are no U.S. sanctions on China (or vice versa) and no outright military conflict between the two countries, there will be overlap. Western financial institutions will use the renminbi and CIPS for some transactions with their Chinese counterparts, and Chinese financial institutions

will use CHIPS. Their respective national authorities have not opposed this in the past. The four big public Chinese banks are direct participants in CHIPS, while Citi is reportedly a direct participant in CIPS.

To be sure, if the United States saw China as facilitating Russia's evasion of sanctions, this permissive stance could change. Having Washington bar U.S. banks from participating in CIPS would be a further blow to U.S.-Chinese relations and accelerate the countries' economic and financial decoupling. This would have far-reaching implications not just for the financial system but also for the fundamental organization of the respective economies.

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Short of that, however, the two cross-border financial systems will continue to overlap. Most observers, when referring to U.S.-China decoupling, foresee slower growth or stagnation of bilateral trade and investment flows, not that such flows will cease entirely (Segal 2021; U.S. Chamber of Commerce 2021). They anticipate limits on imports and exports of strategic goods and technologies, as well as policy measures designed to heighten the two countries' self-sufficiency in strategic areas. It is conceivable, of course, that they are underestimating the extent of prospective decoupling. If something halted bilateral trade and investment flows entirely, however, the reorganization of cross-border clearing would be the least of anyone's problems.

More immediately, China's financial arrangements, such as CIPS, could weaken the effect of Western sanctions by offering targeted countries a hard-to-detect workaround. But CHIPS processes 40 times as many transactions for 10 times as many banks. China's financial messaging system is used by only a handful of direct participants, and CIPS continues to rely on SWIFT for most of its transactions. The renminbi, in which additional cross-

border transactions will be denominated if and when payments migrate to CIPS, accounts for just 2.2 percent of transactions currently supported by SWIFT. CIPS would provide some solace for a country barred from CHIPS, but it would not allow that country and its banks to replicate the entire previous network of transactions.

How soon could China's alternative arrangements constitute an actual threat to the effectiveness of Western sanctions? If we take at face value Chinese press reports that the volume of transactions through CIPS is growing by 50 percent per year, then CIPS could perhaps match the volume of transactions conducted through CHIPS and have a comparable number of participating banks within a decade. However, the expansion of a new payment platform is apt to slow as it grows. Moreover, it took three full years, from February 2019 to February 2022, for the share of messages on SWIFT pertaining to transactions in renminbi (as weighted by the value of transactions) to rise from 1.9 to just 2.2 percent of the total. If we extrapolate this rate of growth—one-tenth of 1 percent per annum— indefinitely into the future, then it will be many, many years before China and the renminbi begin to rival the United States and the dollar in the payments sphere. The eventual outcome—the time required before the renminbi matches the dollar as a payments currency—will likely lie somewhere between these lower and upper bounds.

Thus, countries like the United States that rely on financial sanctions should ponder and prepare for the development of alternative financial arrangements in China and elsewhere. This may mean broadening the coalition of countries acting together to apply and enforce sanctions while encouraging domestic financial institutions to continue to work through Western clearinghouses. It may mean relying more on nonfinancial sanctions and devising new nonfinancial instruments, insofar as financial sanctions become less successful. But the time when these alternative financial arrangements render Western financial sanctions ineffective is still a considerable distance away. There exist other, more immediate threats to the efficacy of deterrence and to geopolitical stability more generally. ■

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ENDNOTES

- 1 For convenience, these are referred to as “Western sanctions,” though strictly speaking this is not quite accurate, given the involvement of Japan, Australia, and New Zealand, among others who share institutions and values if not also hemispheric location.
- 2 Russia has also sought to create its own financial messaging system, the System for Transfer of Financial Messages, and a ruble-based cross-border clearing system, but only a handful of non-Russian banks in Armenia, Belarus, Kazakhstan, and Kyrgyzstan appear to be connected to it.
- 3 As noted, the “T” in SWIFT stands for “telecommunications,” not “transactions.” SWIFT, on its own [website](#), advertises itself as “the global provider of secure financial messaging services.”
- 4 For example, following the Russian invasion, cryptocurrencies such as Bitcoin were used to make emergency payments and donations to wallets and accounts held by Ukrainians, bypassing the banking system entirely. However, such units are too volatile to have much appeal for normal payments.
- 5 The U.S. Federal Reserve System, or more precisely the 12 Federal Reserve banks, also operate Fedwire, which competes with CHIPS. The Fed maintains accounts for U.S. financial institutions as well as U.S. branches of foreign banks maintaining an account with a Federal Reserve bank. Fedwire clears transactions in real time as soon as payment instructions arrive. Thus, transactions in opposite directions between a pair of financial institutions are not netted (there is no delay or window of time in which to accumulate offsetting transactions). This gross settlement system is faster and more expensive because more actual funds transfers take place—totaling roughly \$3.4 trillion worth of transactions a day. Fedwire is not discussed in the main text because the Cross-Border Interbank Payments System that China is building more closely resembles CHIPS, for example, in distinguishing between direct and indirect participants.
- 6 CHIPS is a designated financial market utility, which means that the Federal Reserve is one of its supervisors. As provided for by the Dodd-Frank Act, the Fed can lend to it in extremis (provided that it is solvent). This is a reminder that any clearinghouse can experience liquidity problems—if, for example, one of its participants defaults on its obligations. How the People’s Bank of China plays a similar role in China’s nascent cross-border clearinghouse will be discussed below.
- 7 CHIPS could begin supporting payments in other currencies, although this would make for additional complications. For example, direct participants would have to hold multiple accounts with CHIPS whose balances were denominated in different currencies.
- 8 The receipt will presumably be in dollars, though the account holder could instruct their bank to exchange those dollars for local currency at the prevailing exchange rate.
- 9 See the discussion in Yeung and Goh (2022). This perspective suggests that Saudi Arabia and other countries in its position are more likely to accept payment in renminbi than Russian rubles, something that Russia has allegedly proposed. China is not obviously different: In 2020, two-thirds of Russian exports to China were estimated to have been denominated in euros, while the majority of the rest were denominated in dollars
- 10 The 2 percent figure refers to payments through SWIFT. There are also renminbi-denominated payments through China’s own clearing system, though these are small
- 11 It also likely entails further opening China’s capital account (relaxing its controls). The literature on China’s renminbi internationalization drive is vast. See, for example, Eichengreen and Kawai (2015), Prasad (2016), and Subacci (2016).
- 12 Some foreign banks, such as [Standard Chartered](#), have issued press releases announcing their direct participation.
- 13 In addition, a few transactions appear to take place in Hong Kong dollars, as Chinese investors use the Bond Connect program to make authorized purchases of government bonds in Hong Kong.
- 14 The PBOC and China Banking and Insurance Regulatory Commission similarly apply know-your-customer rules to Chinese banks.
- 15 Unless Russian banks sent and received messages in English, in which case CIPS would still have to develop the messaging capabilities for which it currently relies on SWIFT
- 16 The low level of average balances suggests that many wallets are empty. In other words, it is easy to download a wallet but not use it. Again, see Kumar (2022).
- 17 Thus, China’s digital currency can be accessed using either a preloaded smartcard or a networked software wallet.
- 18 Another possibility is for the CBDC to run on a decentralized ledger, such as Blockchain, or on a permissioned ledger where other parties are authorized to validate transactions.
- 19 In addition to this retail CBDC model, wherein the central bank provides its digital currency directly to individuals via digital wallets, smartcards, and retail accounts, there is the alternative of a wholesale CBDC, where the central bank distributes CBDC to financial institutions, which in turn distribute them to their customers. (The financial institutions in question act as agents for the central bank.) In this case, the central bank receives and communicates payment instructions to those financial institutions instead of individuals, but otherwise the workings of the system are the same. (If both the payer and recipient are customers of the same financial institution, the financial institution simply credits one customer’s CBDC account and debits the other without the need for a message to the central bank.) China operates both types of systems. Users can either download a standalone eCNY wallet designed by the central bank or use apps provided by AliPay, TenPay, and eight Chinese banks.
- 20 This fact creates challenges for CBDC adoption since individuals engaged in legitimate transactions value their privacy and may fear they are being watched by a central bank that shares their information with other arms of government. Central banks square this circle by promising anonymity for small transactions while demanding additional identifying information for large ones. Thus, to obtain a wallet with a balance limit of 10,000 eCNY, an individual transaction limit of 2,000 eCNY, and a daily transaction limit of 5,000 eCNY, users are required to provide only a registered phone number. (Whether users would regard provision of a phone number as adequate assurance of anonymity is an open question. China recently adopted a Personal Information Protection Law, but it is not clear whether its provisions apply to the Chinese government itself.) Higher limits require customers to provide additional personal details and banking information.
- 21 They might be able to demand it of their own banks participating in CIPS but not of Chinese banks
- 22 There is precedent: In 2017, the U.S. Treasury imposed sanctions on the Bank of Dandong, a Chinese bank accused of conducting transactions on behalf of companies involved in North Korea’s weapons program.

- 23 Could private-label stablecoins and cryptocurrencies serve as potential sanction busters? Ordinary cryptocurrencies are too volatile to constitute an attractive means of settling transactions over any length of time. Stablecoins have more appeal, but there is still the question of *what* they are tied to, whether the dollar, a renminbi-rouble basket, or some other currency. In any case, were there evidence of a global stablecoin being used to evade sanctions, the authorities would quickly take legal and cyber steps to shut down the exchanges on which is traded.
- 24 Outflow data on FDI are for China and Hong Kong combined, Hong Kong being an important conduit for onward Chinese FDI (UNCTAD 2021).