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Clearing the Way to Renminbi Domination: CIPS, Antitrust, and Currency Competition

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China watchers have decried the emergence of the Cross-Border Interbank Payment System ("CIPS") as a turning point in the move to dethrone the U.S. dollar. This Article situates CIPS, which clears and settles Chinese renminbi transactions, with other financial market infrastructures, drawing lessons from how those entities have thrived or failed.

In recent conversations, CIPS has been conflated with other infrastructures (e.g., the SWIFT payment messaging system) and currency trends (e.g., de-dollarization and sanctions evasion). However, a currency clearinghouse is very different than most financial institutions. For CIPS, the market-maker in the adjacent trading market is the Chinese government, a sovereign state that wields a monopoly over the renminbi. Although the global currency trading market exhibits competition, monetary sovereignty complicates the analysis of monopolization.

This Article's primary contribution is to present a coherent theoretical framework for CIPS by synthesizing the treatment of currency clearinghouses across law, finance, and economics. The Article concludes that CIPS cannot, by itself, guarantee widespread acceptance of the renminbi.

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INTRODUCTION

With the imposition of U.S. sanctions on Russia for its recent invasion of Ukraine, speculations about the emergence of an "anti-dollar axis" have intensified.[1] U.S. sanctions cut off Russian access to the U.S. dollar as well as to financial market infrastructures such as the SWIFT payment messaging system. Against this backdrop, China's Cross-Border Interbank Payment System ("CIPS") has raised alarms for its propensity to circumvent both the dollar and SWIFT.[2] CIPS clears and settles transactions in China's currency, the renminbi ("RMB")—also known as the *yuan* and, more colloquially, the *redback*. Since its launch in 2015, it has grown to 1,307 members around the world.[3] With an expanding membership of financial institutions, CIPS may offer Russia a financial lifeline.[4]

However, fears of CIPS ushering in a RMB ascent and dollar demise are premature. CIPS is a financial market infrastructure ("FMI"), and FMIs are not all the same: well-functioning FMIs harness positive network effects to serve a large user base, but botched FMIs can fail for any number of reasons.[5] CIPS is not the first FMI built to avoid dollar-based sanctions. INSTEX (the Instrument for Supporting Trade Exchanges), for instance, was devised by France, Germany, and the U.K. to enable trade with

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[1] See, e.g., Zongyuan Zoe Liu & Mihaela Papa, *The Anti-Dollar Axis: Russia and China's Plans to Evade U.S. Economic Power*, FOREIGN AFFAIRS (Mar. 7, 2022).

[2] *See* Emily Jin, *Why China's CIPS Matters (and Not for the Reasons You Think)*, LAWFARE (Apr. 5, 2022), https://www.lawfareblog.com/why-chinas-cips-matters-and-not-reasons-you-think.

[3] *77 Direct Participants*, CIPS, https://www.cips.com.cn/cips/gywm/cipsxt/zjcyzmd/index.html (last accessed Jan. 26, 2023).

[4] Nathan Handwerker, *Can China's SWIFT Alternative Give Russia a Lifeline?*, THE DIPLOMAT (Mar. 10, 2022), https://thediplomat.com/2022/03/can-chinas-swift-alternative-give-russia-a-lifeline/.

[5] To paraphrase the oft-quoted beginning of Leo Tolstoy's *Anna Karenina* ("All happy families are alike; each unhappy family is unhappy in its own way."). LEO TOLSTOY, ANNA KARENINA 3 (Gary Saul Morson ed., Marian Schwartz trans., Yale Univ. Press 2014) (1878).

Iran amid U.S. sanctions,[6] but to date it has seen very little activity.[7] More fundamentally, an FMI thrives on the robustness of its membership, which confers network effects.[8] Presently, however, the 1,304 members of CIPS are comprised mostly of Chinese banks. In the downstream currency trading markets, the RMB has yet to break 3% of global payments; as a share of foreign exchange reserves, the RMB hovers below 2%.[9] Evidently, a clearinghouse does not a currency market make.

This Article advances a coherent theory on CIPS by integrating three strands of academic literature that tend not to intersect: antitrust, which is incisive on market power, network effects, and leveraging and foreclosure; FMIs, which is usually consigned to financial regulation scholars; and currency competition, which today is tinged by politically charged debates over the U.S.–China trade war. More fundamentally, the Article clarifies the functionalities of CIPS—by making comparisons with analogs such as SWIFT and the Clearing House Interbank Payments System ("CHIPS"), which clears and settles large-value dollar-denominated trades. CIPS is often analogized to SWIFT,[10] but it is in fact modeled on CHIPS.[11]

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[6] *Founding Statement from E3*, INSTEX (Jan 31, 2019), https://instex-europe.com/about-us/founding-statement/.

[7] Barry Eichengreen, *How Europe Can Trade with Iran and Avoid US Sanctions*, PROJECT SYNDICATE (Mar. 12, 2019), https://www.project-syndicate.org/commentary/europe-instex-trade-with-iran-avoid-trump-sanctions-by-barry-eichengreen-2019-03?barrier=accesspaylog.

[8] Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985).

[9] *Will China's Push to Internationalize the Renminbi Succeed?*, CHINA POWER, https://chinapower.csis.org/china-renminbi-rmb-internationalization/ (last accessed Jan. 10, 2023).

[10] *See, e.g.*, *China's Fledgling Cross-Border Payments System Grows Its Reach*, BLOOMBERG (Sept. 22, 2021), https://www.bloomberg.com/news/articles/2021-09-22/china-s-fledgling-cross-border-payments-system-grows-its-reach; Cameron Rotblat, *Weaponizing the Plumbing: Dollar Diplomacy, Yuan Internationalization, and the Future of Financial Sanctions*, 21 UCLA J. INT'L L. & FOREIGN AFF. 311, 343–46 (2017). *See also* Jin, *supra* note 2.

[11] Jin, *supra* note 2.

CIPS is tied inextricably to the downstream market it facilitates: the market for RMB-denominated international transactions, where the dominant—if not sole—market-maker is the Chinese state. The presence of a sovereign actor complicates analysis of the adjacent market. China's designs to internationalize the RMB might well couch an ambition to replace the dollar, but it may also bespeak more modest, regional ambitions[12] or a sort of international institutional bypass that circumvents but does not dethrone the dollar.[13]

The close association between CIPS and the RMB means that a thorough analysis of the currency clearinghouse must incorporate the discourse on China's relationship with the yuan.[14] Much of that discourse takes one unequivocal stance or another over whether the redback will gain widespread acceptance.[15] Mindful of the scholarly literature on FMIs and RMB internationalization, this Article concludes that CIPS alone cannot guarantee widespread RMB acceptance. Its membership roster is still too uniform to fully harness network effects.[16] Further, the redback is too far from comprising a meaningful proportion of international currency transactions.[17] Most fundamentally, the Chinese state itself is not ready to deliver the political or fiscal stability that currency internationalization requires.

The Article's main theoretical contribution is to introduce antitrust perspectives into the dialogue on CIPS and renminbi internationalization. Unsurprisingly, the tomes on currency

[12] *See* CHRIS BRUMMER, MINILATERALISM: HOW TRADE ALLIANCES, SOFT LAW AND FINANCIAL ENGINEERING ARE REDEFINING ECONOMIC STATECRAFT (2014).

[13] *See* Mariana Mota Prado & Steven J. Hoffman, *The Concept of an International Institutional Bypass*, 111 AJIL UNBOUND 231 (2018).

[14] *See, e.g.*, Chris Brummer, *The Renminbi and Systemic Risk*, 20 J. INT'L ECON. L. 447 (2017); Barry Eichengreen & Masahiro Kawai (eds.), RENMINBI INTERNATIONALIZATION: ACHIEVEMENTS, PROSPECTS, AND CHALLENGES (2015).

[15] *Compare* Jeffrey Frankel, *Internationalization of the RMB and historical precedents*, 27 J. ECON. INTEGRATION 329 (2012), *with* Eichengreen & Masahiro Kawai (eds.), RENMINBI INTERNATIONALIZATION, *supra* note 14.

[16] *See infra* Section III.

[17] *See infra* Section IV.

competition rarely invoke antitrust. After all, the act of state doctrine[18] and theories around monetary sovereignty[19] insulate an issuer of currency (e.g., China) from antitrust liability for actions undertaken to corner the global market where currencies compete. Yet antitrust economics can shed new light on the mechanics of competition within that market. These insights do not merely dance on the peripheries of writings about FMIs; rather, they could answer key questions such as what makes a currency clearinghouse successful, what precise market does a currency clearinghouse serve, and how such an infrastructure could forestall competition in the input markets.

The remainder of the Article proceeds as follows. Section I summarizes the literature on RMB internationalization, a body of work that is diverse, uneven, and contentious. Section II then introduces how CIPS performs the "back office" functions that support the redback's globalization. Along the way, it looks to the more established FMIs as points of contradistinction, including the more efficiently operated clearing and settlement system for the U.S. dollar.

With the foundation set, Sections III and IV incorporate antitrust economics into the analysis of currency clearinghouses. Because FMIs are natural monopolies (i.e., utilities exhibiting high sunk costs and low marginal costs), Section III focuses on the positive network effects that clearinghouses must harness to succeed. As of now, the membership roster of CIPS is small and lacks diversity—especially in comparison with CHIPS, which

[18] *See W.S. Kirkpatrick & Co., Inc. v. Environmental Tectonics Corp., International*, 493 U.S. 400 (1990). *Compare Celestin v. Caribbean Air Mail, Inc*., 30 F.4th 133 (2d Cir. 2022), *with Sea Breeze Salt, Inc. v. Mitsubishi Corp*., 899 F.3d 1064 (9th Cir. 2018), *and Spectrum Stores, Inc. v. Citgo Petroleum Corp*., 632 F.3d 938 (5th Cir. 2011).

[19] *See* David Glasner, *An Evolutionary Theory of the State Monopoly over Money*, *in* MONEY AND THE NATION STATE: THE FINANCIAL REVOLUTION, GOVERNMENT AND THE WORLD MONETARY SYSTEM 21-45 (Kevin Dowd & Richard H. Timberlake, Jr. eds., 1998); L. RANDALL WRAY, MODERN MONEY THEORY: A PRIMER ON MACROECONOMICS FOR SOVEREIGN MONETARY SYSTEMS 41 (2012). *See also* U.S. Const. art. I, § 8, cl. 1.

facilitates currency trade volumes that are orders of magnitude higher and among a larger and more variegated pool of counterparties.

Section IV addresses the question that most policymakers and China watchers seek to answer: whether CIPS heralds the RMB's eventual displacement of the dollar. This Section unfolds by examining the interplay of the upstream RMB clearing market with the downstream currency trading market. It employs market definition to delineate the metes and bounds of the adjacent markets. Since CIPS serves an upstream clearing market that aligns only with a portion of the downstream trading market, the FMI is unlikely to help the RMB leverage or foreclose its way to dominance.

I. A PRIMER ON RENMINBI INTERNATIONALIZATION

RMB internationalization is one of the most contentious topics for currency watchers. The topic is intertwined with ancillary issues such as China's rise and, relatedly, American demise.[20] Some scholars and commentators believe that wider acceptance of the RMB in international trade and finance is inevitable, given the size of China's economy.[21] Another camp is more skeptical, arguing that, far from being ordained, RMB internationalization is hampered by Beijing's reluctance to truly

[20] *See, e.g.*, BARRY EICHENGREEN, EXORBITANT PRIVILEGE: THE RISE AND FALL OF THE DOLLAR AND THE FUTURE OF THE INTERNATIONAL MONETARY SYSTEM 7 (2011) (suggesting that "the Chinese renminbi might come to rival the dollar . . . . sooner rather than later"); *id.* at 8 (suggesting also that the world may yet be headed to a multipolar currency system with the dollar, euro, and RMB dominating geographic regions).

[21] *See, e.g.*, Menzie Chinn & Jeffrey Frankel, *Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?*, *in* G7 CURRENT ACCOUNT IMBALANCES: SUSTAINABILITY AND ADJUSTMENT (Richard Clarida ed., 2007).

open its domestic market—as well as the lack of political stability within China.[22]

Debates over the yuan's future assumed heightened urgency in recent months as a result of the latest Russian invasion of Ukraine, which prompted a U.S.-led global effort to cut off Russia from the international financial system, portions of which are denominated in U.S. dollars.[23] Concomitantly, between March and December 2022, the U.S. Federal Reserve raised its benchmark interest rate by 400 basis points, a nearly unprecedented clip, to curb domestic inflation—without regard international fallout.[24] These trends have raised the specter of a global move away from the dollar—or at least the talk of such movement.[25]

Against this backdrop, the launch of CIPS has prompted feverish speculation over whether it would user in a new international order, with China pulling autocracies and smaller regional economies into its orbit.[26] To determine whether these

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[22] *See, e.g.*, EDWIN L.-C. LAI, ONE CURRENCY, TWO MARKETS: CHINA'S ATTEMPT TO INTERNATIONALIZE THE RENMINBI ch. 9 (2021); Barry Eichengreen & Masahiro Kawai, *Introduction and Overview*, *supra* note 14, at 18–19.

[23] For catalogs, see *Ukraine-/Russia-Related Sanctions*, U.S. TREAS'Y DEPT., https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information/ukraine-russia-related-sanctions (last accessed Jan. 11, 2023); *Ukraine and Russia Sanctions*, U.S. STATE DEPT., https://www.state.gov/ukraine-and-russia-sanctions/ (last accessed Jan. 11, 2023).

[24] *See* Michael Steinberger, *The Fed May Finally Be Winning the War on Inflation. But at What Cost?*, N.Y. TIMES MAG. (Jan. 10, 2023).

[25] *Russia Sanctions Threaten to Erode Dominance of US Dollar, Says IMF*, FIN. T. (Mar. 30, 2022), https://www.ft.com/content/3e0760d4-8127-41db-9546-e62b6f8f5773.

[26] *See* Chi Lo, *The Renminbi's Creeping Internationlisation*, BNP PARIBAS ASSET MGMT. VIEWPOINT (Apr. 13, 2022), https://viewpoint.bnpparibas-am.com/the-renminbis-creeping-internationalisation/ ("If Saudi Arabia and Russia were to work with China [on settling oil trades in RMB], the amount of renminbi-denominated oil trades could rise sharply and transactions could go through China's payments system, the Cross-border Interbank Payments System (CIPS), at the expense of the dollar and the SWIFT system."); Handwerker, *supra* note 4.

fears are merited, however, the groundwork for approaching CIPS must be laid. Accordingly, this Section provides a background on RMB internationalization. It begins with currency internationalization and then discusses Beijing's ambitions of RMB internationalization.

A. Currency Internationalization

Legally (and narrowly), a currency is "coin and paper money" of any country "that is designated as legal tender and that circulates and is customarily used and accepted as a medium of exchange in the country of issuance."[27] Two concepts closely associated with currencies—money and legal tender—have generated intense debates that lie outside the scope of this Article but cannot be ignored. Regarding money, scholars have seized upon network effects to frame money as an infrastructure.[28] Network effects denote the growth in the value of a provider of goods or services as the provider gains more users.[29] Some of these scholars then extend the infrastructure analogy to argue that services ancillary to money, such as the extension of credit, should be provided on an open and nondiscriminatory basis—for instance, in the form of universal banking.[30] As for legal tender, which denotes a mechanism recognized by law of settling a debt or meeting a financial obligation,[31] decentralized finance has

[27] 31 C.F.R. § 1010.100(m) (2016).
[28] *See, e.g.*, Morgan Ricks, *Money as Infrastructure*, 2018 COLUM. BUS. L. REV. 757.
[29] *See* Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985).
[30] MEHRSA BARADARAN, HOW THE OTHER HALF BANKS: EXCLUSION, EXPLOITATION, AND THE THREAT TO DEMOCRACY (2018); MORGAN RICKS ET AL., NETWORKS, PLATFORMS, AND UTILITIES: LAW AND POLICY (2022); John Crawford, Lev Menand & Morgan Ricks, *FedAccounts: Digital Dollars*, 74 GEO. WASH. L. REV. 951 (2021).
[31] *See* 31 U.S.C. § 5103;

challenged the necessity of an imprimatur of state authority to validate currencies.[32]

A currency internationalizes when it circulates outside its issuing country.[33] More precisely, a country internationalizes its currency by making it "widely used as a unit of account, medium of exchange, and store of value outside of the issuing country."[34] The process of internationalization can be understood by separating the functions that currencies perform.

First, a currency can serve as the medium of payment in a bilateral transaction between two counterparties in different countries. For instance, a Chinese manufacturer of electronics might demand that its foreign buyers remit payment in RMB. Similarly, the Chinese government might pay for imports of Russian oil in RMB. Where one counterparty to such a transaction is located in the issuing country for that currency (here, China), this would be a "direct" use of the currency.[35]

Second, a currency can constitute a vehicle for pricing of goods traded across borders. The above examples show an exporter opting to price electronics in the exporter's currency and an importer opting to price oil in the importer's currency.[36] Yet an importer and an exporter can agree to reference a third country's currency for the value of goods exchanged—in this case, a currency takes on a "vehicle" function. Today, many commodities are priced in dollars, which serves as the vehicle currency even for international transactions where U.S. entities are not

[32] *See* Hilary J. Allen, *$=€=BITCOIN?*, 76 MD. L. REV. 877 (2017). Recently, the collapse of the FXB cryptocurrency exchange has only intensified debates over the extent to which decentralized finance might replace fiat currency and how it should be regulated.

[33] Tao Liu et al., *The Road to Currency Internationalization: Global Perspectives and Chinese Experience*, 38 EMERGING MKTS. Rev. 73, 74 (2019).

[34] LAI, *supra* note 22.

[35] *See* Liu et al., *supra* note 34, at 74.

[36] *See* Linda S. Goldberg & Cedric Tille, *Vehicle Currency Use in International Trade*, NBER Working Paper 11127 (2005), https://www.nber.org/system/files/working_papers/w11127/w11127.pdf.

counterparties.[37] For this reason, the increase in valuation of the dollar, driven by the Federal Reserve's raising of U.S. interest rates, leaves countries (especially in the global South) with weaker currencies having to pay more to purchase oil, food, minerals, and other key commodities.[38]

Third, when discussing RMB internationalization, analysts often point to the yuan's reserve function.[39] This refers to the reserves of a currency stockpiled by foreign central banks (i.e., central banks outside the currency's country of issuance). Central banks maintain reserves to cover international obligations, influence exchange rates, shore up global confidence, and stave off balance of payments crises.[40] For example, countries around the world keep vast reserves of U.S. dollars to cover energy and food imports,[41] or they might do so to hedge against the risk of fluctuations in their own currency values.[42]

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[37] Oil is the most prominent example, but there are a range of other commodities. *See, e.g.*, Saban Nazlioglu & Ugur Soytas, *Oil Price, Agricultural Commodity Prices, and the Dollar: A Panel Cointegration and Causality Analysis*, 34 ENERGY ECON. 1098 (2011).

[38] Stephan Danninge et al., *Emerging Economies Must Prepare for Fed Policy Tightening*, IMF BLOG (Jan. 10, 2022), https://www.imf.org/en/Blogs/Articles/2022/01/10/blog-emerging-economies-must-prepare-for-fed-policy-tightening.

[39] *See* Wing Thye Woo & Stephen Grenville, *The Future of the Renminbi*, Lowy Institute (July 15, 2014), *recording available at* https://soundcloud.com/lowyinstitute/the-future-of-the-renminbi-wing-thye-woo-stephen-grenville. *See also* Daniel McDowell & David A. Steinbeg, *Systemic Strengths, Domestic Deficiencies: The Renminbi's Future as a Reserve Currency*, 26 J. CONTEMP. CHINA 801 (2017).

[40] Alina Iancu et al., *Reserve Currencies in an Evolving International Monetary System*, IFM Departmental Paper 3 (2020); Anshu Siripurapu, *The Dollar: The World's Currency*, COUNCIL ON FOREIGN RELATIONS (Sept. 29, 2020), https://www.cfr.org/backgrounder/dollar-worlds-currency.

[41] DAVID E. SPIRO, THE HIDDEN HAND OF AMERICAN HEGEMONY: PETRODOLLAR RECYCLING AND INTERNATIONAL MARKETS 1–3 (1999).

[42] ESWAR S. PRASAD, GAINING CURRENCY: THE RISE OF THE RENMINBI 35 (2017); Jonathan Grosvenor, *Understanding How Central Banks Manage Foreign Exchange Reserves*, ASIAN DEVELOPMENT BANK BLOG (Feb. 8, 2019), https://blogs.adb.org/blog/understanding-how-central-banks-manage-

These functionalities of currencies are interrelated: they complement one another while amplifying both the benefits and drawbacks of internationalization.[43] If a currency is widely held (e.g., the dollar), for instance in central bank reserves, exporters in the currency's country of issuance worry less about exchange rate risk—they can set a price in their currency and expect payment in that currency (e.g., U.S. sellers of liquified natural gas getting paid in U.S. dollars rather than euros). Conversely, if a currency is widely held around the world, its central bank may worry that other countries could dump the currency, spurring its depreciation (e.g., China or Saudi Arabia dumping their dollar reserves, flooding the market and depressing the currency's price).

In essence, currencies denominate a debt from the issuer to the holder.[44] Thus, reserve currencies create a nearly insatiable demand for assets denominated in that currency (e.g., U.S. treasures) and turn the issuing country into a debtor to foreign creditors.[45] In the past, plenty of advanced economies eschewed reserve status for their currencies, including West Germany and Japan in the last century.[46] Simultaneously, because of broad demand, reserve currencies are comparatively expensive, which puts exporters in the issuing country at a comparative disadvantage because their products (priced in the reserve currency) become costly to import.[47] Attaining reserve status is therefore said to confer an "exorbitant privilege": it juices demand

foreign-exchange-reserves ("Much of the growth in Asian foreign exchange reserves has occurred since the Asian financial crisis in 1997-1998, when the region suffered severe economic dislocation and currency value fluctuations.").

[43] They are also all related to exchange rates, which determine the price of a currency relative to other currencies. *See* PRASAD, *supra* note 42, at 24.

[44] *Id.* at 125.

[45] *Id.*

[46] Benjamin J. Cohen, *Will History Repeat Itself? Lessons for the Yuan*, *in* RENMINBI INTERNATIONALIZATION, *supra* note 14, at 31–37.

[47] *See* MATTHEW C. KLEIN & MICHAEL PETTIS, TRADE WARS ARE CLASS WARS 200 (2020).

for assets denominated in the currency but complicates the management of monetary policy.[48]

B. Beijing's Renminbi Aspirations

China's status as a trade and economic powerhouse belies shortcomings in the global use of its currency.[49] The People's Republic is the largest exporter of goods in the world,[50] and it surpassed the U.S. as the world's largest economy in 2014.[51] Believers of a currency's internationalization often invoke history as evidence of destiny.[52] Historically, a country with China's command of global GDP would have seen their currency play a global role by now.[53] However, the global use of the RMB lags behind the scale and scope of these economic metrics. As a reserve currency, the yuan hovers at the fifth most widely accepted currency, only breaking into the fourth position once.[54] As a share of global payments, the yuan has held steady at fifth—behind the dollar, euro, British pound, and Japanese yen—for years.[55]

Keenly aware of this incongruence, Beijing started in the mid-2000s to push for broader acceptance of the RMB in cross-border transactions. Prior to that point, the People's Republic had abided

[48] PRASAD, *supra* note 42, at 124.
[49] Brummer, *supra* note 14, at 464.
[50] *China*, CIA World Factbook (Nov. 14, 2022), https://www.cia.gov/the-world-factbook/countries/china/.
[51] *Id.*; Andrea Willige, *The World's Top Economy: The US vs China in Five Charts*, WORLD ECONOMIC FORUM (Dec. 5, 2016), https://www.weforum.org/agenda/2016/12/the-world-s-top-economy-the-us-vs-china-in-five-charts/.
[52] *See* Cohen, *supra* note 46.
[53] *See* Chinn & Frankel, *supra* note 21.
[54] For statistics, see Swift's RMB Tracker at https://www.swift.com/our-solutions/compliance-and-shared-services/business-intelligence/renminbi/rmb-tracker. For a deeper analysis of the unlikelihood for the RMB to become a major reserve currency, see McDowell & Steinberg, *supra* note 39.
[55] *See, e.g.*, SWIFT, *RMB Tracker: Monthly Reporting and Statistics on Renminbi (RMB) Progress Towards Becoming an International Currency* (Sept. 2022).

by a tacit policy of currency manipulation; to bolster exports, it depressed yuan's value.[56] However, as the last was sweeping through the world but left China unscathed, the PBOC issued a series of pronouncements about the inevitability that the RMB would take on a greater global role. In 2009, PBOC Governor Zhou Xiaochuan argued for an international reserve currency that was "disconnected from the economic conditions and sovereign interests of any single country."[57] At a time when turmoil in the U.S. financial markets was infecting the rest of the world, this was taken as a dig at dollar supremacy.[58] Governor Zhou was advocating that the basket of currencies in the International Monetary's Fund's Special Drawing Rights ("SDR") play a greater role.[59] The SDR is a supplementary international reserve asset that can be exchanged for the currencies of IMF members—in short, it is a potential claim on those currencies and a supply of liquidity.[60] Although the IMF was reluctant to include the RMB in the SDR basket, it did a pirouette in 2015 and added the RMB.[61]

In truth, Beijing had been laying the groundwork for RMB internationalization even prior to the financial crisis. In 2004, Hong Kong bank accounts (i.e., outside the Chinese mainland)

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[56] *See* C. Fred Bergsten, *China is No Longer Manipulating its Currency*, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS (Nov. 18, 2016), https://piie.com/blogs/trade-investment-policy-watch/china-no-longer-manipulating-its-currency. *See also* LAI, *supra* note 22, at 1.

[57] Zhou Xiaochuan, *Reform the International Monetary System* (Mar. 23, 2009), *available at* https://www.bis.org/review/r090402c.pdf.

[58] Gordon Chang, *China's Assault on the Dollar*, ECONOMIST (Mar. 26, 2009).

[59] *See* Zhou, *supra* note 57.

[60] *See Special Drawing Rights (SDR)*, INTERNATIONAL MONETARY FUND (July 29, 2022), https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/14/51/Special-Drawing-Right-SDR.

[61] *IMF Adds Chinese Renminbi to Special Drawing Rights Basket*, INTERNATIONAL MONETARY FUND, https://www.imf.org/en/News/Articles/2016/09/29/AM16-NA093016IMF-Adds-Chinese-Renminbi-to-Special-Drawing-Rights-Basket; PRASAD, *supra* note 42, at 142–47. This took effect October 1, 2016, on the 65th anniversary of the founding of the People's Republic. *See id.* at 147.

were permitted to hold RMB deposits for the first time.[62] Starting in 2008, a small but growing number of Chinese companies were allowed to settle trades in RMB with clients in Hong Kong and Macau.[63] Over the next two decades, Beijing would pursue RMB internationalization in a distinct pattern, characterized by gradualism and leveraging Hong Kong's status as a financial center.

With its primacy in international trade, China urged trade counterparties to accept payment in RMB, which increased the flow of RMB to foreign exporters.[64] As the primary facilitator of these transactions, Hong Kong banks settled about 95% of RMB trades, creating a sizeable "offshore" RMB liquidity pool.[65] Simultaneously, an offshore RMB-denominated bond market sprang up in Hong Kong. Known as "dim sum" bonds, these instruments represented debts of Chinese firms and governments issued outside China but denominated in RMB.[66] Issuers included multinational companies seeking to raise RMB fund and foreign governments open up another avenue for investing in the Chinese market.[67] Altogether they whetted the appetite of foreign investors for Chinese assets and financial instruments.

More than any other country, China pushed for internationalization by executing a raft of bilateral currency swaps with central banks around the world.[68] Currency swaps

[62] Brummer, *supra* note 14, at 466.
[63] *Id*.
[64] *See* PRASAD, *supra* note 42, at 103–05.
[65] *Id.* at 105. In March 2016, RMB deposits and certificates of deposit issued by Hong Kong banks totaled $115 billion USD. *Id. See also* Brummer, *supra* note 14, at 479–81 (identifying liquidity pools as one of the RMB's systemic risks).
[66] *See* Brummer, *supra* note 14, at 472; Eichengreen & Kawai, *Introduction and Overview*, *supra* note 14, at, at 7–8; PRASAD, *supra* note 42, at 105.
[67] PRASAD, *supra* note 42, at 106–07.
[68] *See* Eichengreen & Kawai, *Introduction and Overview*, *supra* note 14, at 4; China Power, *supra* note 9 ("Between January 2009 and March 2020, China signed currency swap agreements with a total of 33 other governments – more than any other country by a wide margin."); Rohinton P. Medhora, *Monetary Unions, Reginal Financial Arrangements, and Central Bank Swap Lines: Bypasses to the*

provide foreign nations the ability to draw RMB, which is particularly useful if a nation is beset by a liquidity shock that limits its access to other currencies.[69] It also represents the deepening of bilateral state cooperation that lowers barriers to cross-border trade and direct investment.[70] Accordingly, those nations within the footprint of China's Belt and Road Initiative ("BRI"), the massive international trade and development project, have also executed currency swaps with the PBOC.[71]

Today, Renminbi internationalization even features in the country's Fourteenth Five-Year Plan—despite Xi Jinping's prioritization of the "real economy" over financialization.[72] One can draw a line to this point from the PBOC's polemic after the financial crisis for the dollar to be replaced by a new international currency.[73] Along the way, and less confrontationally, Chinese

International Monetary Fund?, 111 AJIL UNBOUND 241, 245 (2017) ("The U.S. Federal Reserve (Fed) remains the leader in the magnitude (dollar value) of swap lines, but China has recently emerged to manage the largest number of such arrangements."). On currency swaps generally, see CHRIS BRUMMER, MINILATERALISM: HOW TRADE ALLIANCES, SOFT LAW AND FINANCIAL ENGINEERING ARE REDEFINING ECONOMIC STATECRAFT 146 (2014).

[69] *See* Steven Liao and Daniel McDowell, *Redback Rising: China's Bilateral Swap Agreements and Renminbi Internationalization*, 59 Int'l Stud. Q. 401 (2015).

[70] *Id.*

[71] Fan Zhang et al., *The Effect of RMB Internationalization on Belt and Road Initiative: Evidence from Bilateral Swap Agreements*, 53 EMERGING MKTS. FIN. & TR. 2845 (2017).

[72] *See* 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and Outline of the Vision for 2035, art. 40 § 1, *available at* Caixin (Mar. 13, 2021), http://www.xinhuanet.com/2021-03/13/c_1127205564_13.htm, *transl. available at* https://cset.georgetown.edu/publication/china-14th-five-year-plan ("We will steadily and carefully promote the internationalization of the RMB, insist on being market-driven and respecting the choices of enterprises, and create new types of mutually beneficial cooperative relationships based on the free use of RMB").

[73] Weitseng Chen, *Lost In Internationalization: Rise of the Renminbi, Macroprudential Policy, and Global Impacts*, 21 J. INT'L ECON. L. 31, 32 (2018).

gradually lifted some restrictions on RMB usage to promote its internationalization.[74]

For all Beijing's aggressive pronouncements and systematic groundwork to promote the RMB, China never fully embraced the reforms needed to liberalize its market—a prerequisite to true currency internationalization. China has long maintained two RMB systems: a freely floating offshore RMB, whose value fluctuates according to market conditions; and an onshore RMB with a managed float, whose value for decades had been pegged to the dollar.[75] Strict capital controls limited the convertibility of onshore RMB. Onshore and offshore RMB could only be converted into one another through a handful of RMB clearing centers around the world, run primarily by overseas affiliates of Chinese banks.[76] This bifurcation is replicated in other segments of Chinese markets, such as securities (where China-based and foreign-based investors must buy into different classes of shares).[77] Other examples include China's reluctance to open up its property sector and state-owned enterprises completely to market forces and, most fundamentally, to undertake the political and institutional reforms that signal stability and predictability for the currency.[78] Altogether, these examples show that Beijing has never really become comfortable with opening up its economy to market forces.

In circulation, currency represents a claim by the holder against the issuer.[79] By extension, then, RMB internationalization creates foreign demand for Chinese assets, subjecting it to the

[74] *Zhou Xiaochuan: The Timing and Pace of Renminbi Internationalization Is Not Set*, Caixin (Mar. 11, 2014), https://finance.caixin.com/2014-03-11/100649710.html ("Zhou Xiaochuan said that in recent years, the central bank has mainly focused on lifting unnecessary restrictions on the use of renminbi, including some laws, regulations, and business regulations").
[75] LAI, *supra* note 22, at § 4.1.
[76] *Id.* at Section 4.1.1.
[77] *See* Brummer, *supra* note 14, at 468–69, 473–74.
[78] Eichengreen & Kawai, *Introduction and Overview*, *supra* note 14, at 18–19.
[79] *See* LAI, *supra* note 22, at § 3.3.

whipsaws of the market.[80] When a currency attains reserve status, it complicates the task of the issuer's central bank to manage monetary policy while simultaneously rending the currency more attractive to foreign investors.[81] This is the Triffin dilemma, which holds that as a currency grows more attractive, it garners more foreign purchasers (i.e., foreign debtholders), which lifts the currency's exchange rate at the expense of running a trade and account deficit.[82] This dilemma explains Beijing's discomfort with RMB internationalization, a predicament that central authorities have sought to manage by letting only parts of the economy liberalize.

One thread from the prior Subsection is that currency internationalization whips up demand for the issuing country's assets. Yet even as it coveted international acceptance of the RMB, Beijing has not fully acquiesced to opening up its economy for foreign investors. This lack of genuine reform casts a shadow over Beijing's aspirations for the redback. It also adds another conundrum to the topic of RMB internationalization: whether China can defy these financial—and perhaps political—prerequisites in the push for broader acceptance of its currency. In other words, whether there is something sui generis about RMB internationalization.

II. THE PLUMBING FOR CURRENCY TRANSACTIONS

This Article takes the position that these fears of worldwide RMB domination via CIPS are overblown. The infrastructure suffers from too many deficiencies in scale, scope, and policy to propel the RMB to supremacy. First, however, CIPS must be introduced and explicated in a manner that draws the right comparisons to, and points of contradistinction from, other FMIs.

[80] *Id.* at § 3.4.

[81] *Id.* at § 3.3.

[82] *See id.* The Triffin dilemma was central to Zhou's attack on the dollar reserve status in 2009, which cleared the way for the RMB to eventually join the IFM SDR basket.

Just as with RMB internationalization, the discourse around CIPS is infused with polemic, half-truths, and false analogies. To paint a more accurate and comprehensive picture, this Section situates CIPS within the literature on FMIs, comparing CIPS to CHIPS (the U.S. dollar settlement system), SWIFT (the payment messaging system), and central counterparties in the securities and derivatives markets (which clear, settle, and guarantee trades).

A. Introduction to CIPS

In 2021, the mundane topic of financial plumbing made a surprise appearance in the Party's Fourteenth Five-Year Plan, which promised to "strengthen the construction of the RMB cross-border payment system."[83] CIPS is central to Beijing's aspirations for its national currency. Touting the slogan "Wherever There Is RMB, There Is CIPS Service," CIPS launched in 2015 with 19 direct participants and 176 indirect participants to clear and settle RMB transactions.[84] Today, it has grown to 1,307 participants—77 direct and 1,231 indirect.

CIPS is a funds transfer system that settles payment orders.[85] Like many clearinghouses, it matches orders for RMB between

[83] *See* 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and Outline of the Vision for 2035, art. 53 § 3 ("We will strengthen the construction of the RMB cross-border payment system, promote the security and control of the core technology of financial industry informatization, and maintain the security of our financial infrastructure."), *supra* note 72. Notably, this section is situated in Article 53, titled "Strengthen[ing] national economic security assurance," which ties the renminbi-supporting infrastructures to national security, while the section addressing renminbi internationalization is found in Article 40, titled "Construct[ing] a higher-level new open economy system."

[84] *About Us* (关于我们), CIPS, https://www.cips.com.cn/cips/gywm/cipsxt/xtjj/index.html.

[85] Perhaps the most precise description of CIPS functionalities comes from The Clearing House, which operates CHIPS. *See* The Clearing House, *Public Disclosure of Legal, Governance, Risk Management, and Operating Framework* 2 (2022), *available at* https://mc-e3a82812-8e7a-44d9-956f-8910-cdn-endpoint.azureedge.net/-/media/New/TCH/Documents/Payment-

participants (the clearing function) and effectuates payment and delivery (the settlement function).[86] These functionalities echo The Clearing House Interbank Payment System ("CHIPS"), the large-value U.S. dollar clearinghouse on which CIPS is based.[87] However, the moniker *clearinghouse* is imprecise—as the next Subsection shows, it encompasses infrastructures that may or may not guarantee the transactions of their members. Hence, for precision, this Article uses *settlement system* in describing CIPS and CHIPS.[88]

For both the dollar and the yuan, the emergence of efficient settlement systems in CHIPS and CIPS has greatly reduced temporal and geographic risks in currency transactions. Traditionally, foreign exchange transactions have been settled in the country of the currency's issuance.[89] Given time zone differences, however, one counterparty might pay in one currency and have to wait hours—until the other counterparty's business hours commence—for delivery of the converted currency.[90] This cross-country settlement risk, known as Herstatt risk,[91] inheres because foreign exchange clients can be spread across the world, far from the currency's country of issuance. With transactions

Systems/CHIPS_Public_Disclosure_June_2022_v2.pdf?rev=b254e7fb55614372934b4eef76dca8fd.

[86] *See* DERMOT TURING, CLEARING AND SETTLEMENT IN EUROPE §§ 1.2–1.14 (2012); John McPartland, *Clearing and Settlement Demystified*, CHICAGO FED LET. (Fed. Reserve Bank of Chicago, Chicago, IL), no. 210, 2005, at 1.

[87] Herbert Poenisch, *Is the RMB Ready to Become a Global Currency? The CIPS and Further Prospects*, 3 INT'L MON. REV. 27, 31–33 (2016).

[88] *See* CPMI, *A Glossary of Key Terms Used in Payment and Settlement Systems* (2016), https://www.bis.org/cpmi/publ/d00b.htm (search for "settlement system").

[89] Brummer, *supra* note 14, at 481–83.

[90] *See id.*

[91] Named after the failure of the German Herstatt bank in 1974, which left foreign exchange counterparties stranded and unpaid. Indeed, this crisis prompted the founding of the Basel Committee on Banking Supervision. *See* BIS, *History of the Basel Committee*, https://www.bis.org/bcbs/history.htm (last accessed Dec. 5, 2022).

centralized in an FMI, however, dollars and RMIB can be freely traded regardless of the traders' locations.[92]

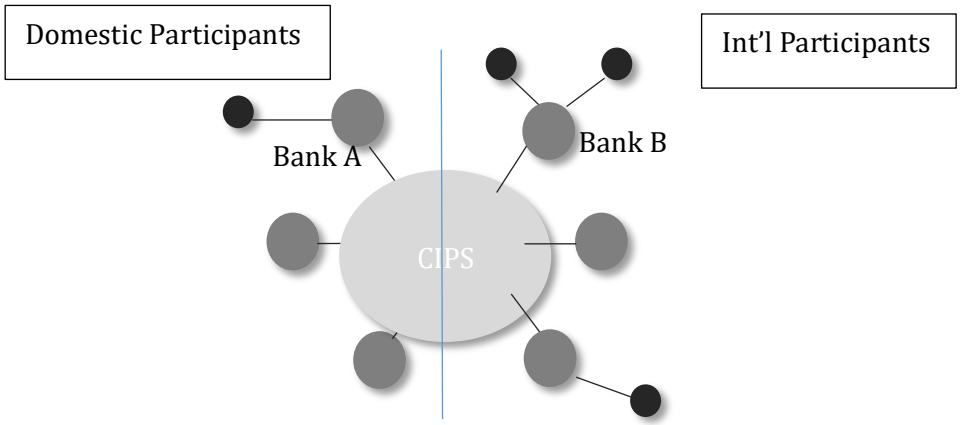
Only direct members can clear and settle transactions through CIPS (see Figure 1). For example, a Chinese manufacturer might export its product to a foreign buyer (based, say, in the U.S.) and require payment in RMB.[93] The Chinese seller might bank with a Chinese financial institution that has a correspondent banking relationship with a CIPS direct participant ("Direct Participant A"). At the other end of the transaction, the U.S. buyer likely banks with a U.S.-based financial institution, which would transmit funds standing in deposit (most likely in dollars) to a CIPS direct participant ("Direct Participant B"). Both sets of direct participants would have prefunded accounts at CIPS. To facilitate payment, Direct Participant B sends a credit transfer message on the CIPS system, which CIPS then checks for syntax compliance; once confirmed, CIPS credits the account of Direct Participant A and debits the account of Direct Participant B. In turn, Direct Participant A passes along those funds to the Chinese domestic correspondent bank, which then remits payment to the manufacturer.[94]

[92] *See* Brummer, *supra* note 14, at 482 (CIPS aims to reduce Herstatt risk).

[93] This example is compiled from CIPS, *CIPS Message Definition Report, Part 1: Clearing and Settlement – Payment* 5 (2021), *available at* https://www.cips.com.cn/en/standards/cips_message_definition_report/49553/index.html (on file with author); *Cross-Border e-Commerce System: Introduction to Cross-Border Payment*, woshipm.com, (Sept. 6, 2021), https://www.woshipm.com/it/2831368.html.

[94] Other variations exist. For example, one or both of the Chinese manufacturer and U.S. importer might bank with CIPS direct participants, thereby cutting out the correspondent banks. Additionally, a central counterparty might have taken on the transaction through novation, which means the buyer and seller assigned the transaction to the CCP. In such instance, the CCP would transmit messages/orders directly to CIPS.

Figure 1: Centralized Settlement through CIPS*



** CIPS is the light grey circle in the center. Dark grey circles represent direct participants. Black circles represent either indirect participants or end users. The line in the center represents the bifurcation of domestic and offshore RMB markets.*

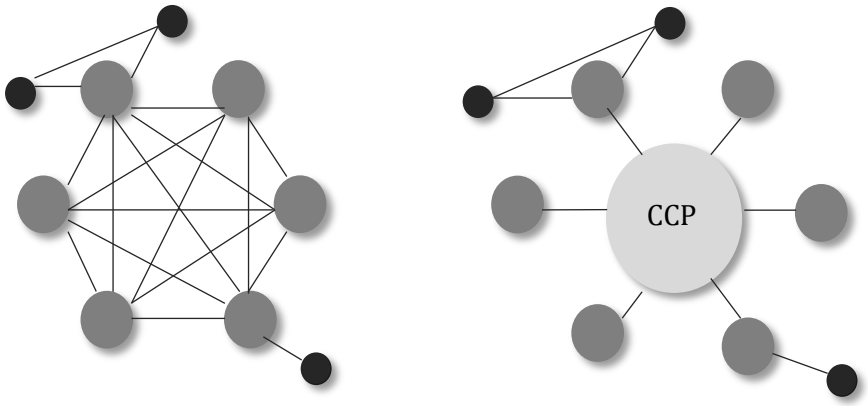
For the redback, clearing and settlement of cross-border transactions has always been stymied by the "one currency, two markets" system, comprised of a free-floating offshore market and a managed floating onshore market.[95] In this bifurcated schema, yuan circulating outside China is denoted "offshore" RMB, while yuan circulating within China is "onshore."[96] Only offshore RMB is allowed to fluctuate in value consistent with market forces.[97] By contrast, onshore RMB is carefully managed, which can cause a discrepancy in valuation between onshore and offshore RMB.[98]

Prior to the establishment of CIPS, offshore RMB had to be converted into onshore RMB to enter the country (and vice versa, to exit the country) through cross-border settlement at a handful

[95] Yousha Liang et al., *Fluctuation and Reform: A Tale of Two RMB Markets*, 53 CHINA ECON. REV. 30, 30–31 (2019).
[96] LAI, *supra* note 22, at § 4.1.
[97] *Id.*
[98] Poenisch, *supra* note 87, at 29.

of RMB clearing centers around the world, run primarily by overseas affiliates of Chinese banks.[99] Once onshore, RMB transactions could be coded in Chinese characters and cleared and settled through the country's domestic settlement infrastructure, the China National Advanced Payment System ("CNAPS"). With the advent of CIPS, offshore market participants can now settle transactions in Shanghai, rather than going through more cumbersome alternatives such as an offshore clearing center or an onshore foreign exchange transaction.[100] Structurally, this improvement mirrors the transition to centralized clearing in the derivatives markets, when derivatives clearing organizations were inserted into a web of bilateral clearing networks (see Figures 2 and 3). In both derivatives and currency markets, the interposition of clearinghouses reined in the exposure of counterparties, enhancing efficiency by reducing collateral and netting out payments.

Figure 2: Bilateral (left) versus Centralized Clearing (right) in the Derivatives Markets*

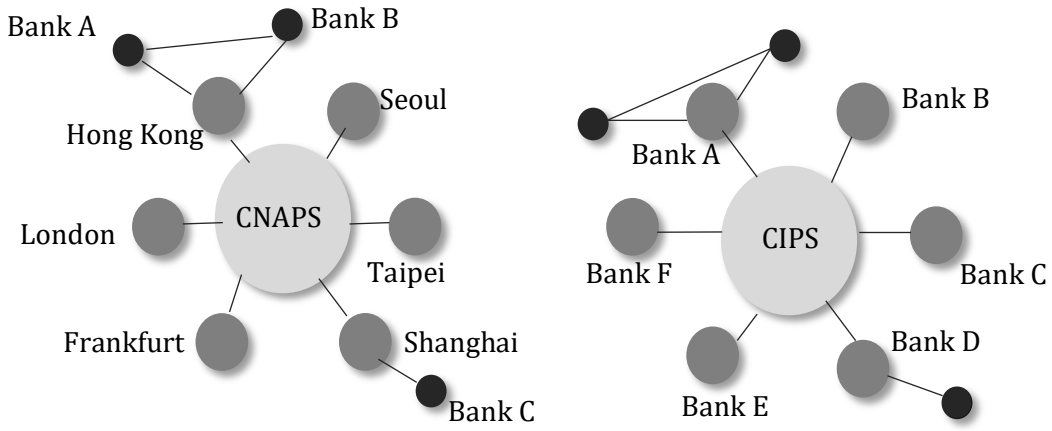


**Dark grey circles represent large banks, whose trades went from bilateral (left) to centralized (right) clearing after Dodd-Frank. Black circles represent small financial institutions or end users which did not become clearinghouse members. The light grey circle is the clearinghouse.*

[99] Poenisch, *supra* note 87.

[100] Brummer, *supra* note 14, at 482; Poenisch, *supra* note 87, at 27–28.

Figure 3: Renminbi Settlement through Clearing Centers (left) versus CIPS (right)*



**In the left panel, dark gray circles represent clearing centers, while black circles represent banks which utilize clearing centers. In the right panel, dark gray circles have become CIPS direct participants, and black circles are now indirect participants. Therefore, CIPS completely eliminates clearing centers from the scheme.*

Theoretically, CIPS cuts through the artificial separation of between onshore and offshore RMB, allowing foreign counterparties the ability to move money more easily into and out of China.[101] In practice, however, onshore/offshore delineation endures.[102] Direct participation is still limited mainly to Chinese financial institutions, which means the CIPS network remains narrow in geographic scope and susceptible to capital controls imposed by Chinese regulators.[103] On the other hand, as CIPS adds foreign financial institutions to its roster of direct participants, the need for free convertibility of onshore RMB

[101] Brummer, *supra* note 14, at 482 ("[CIPS] offers a means whereby offshore market participants can directly clear RMB-denominated transactions in China, unlike the prior system where cross-border renminbi clearing could only be conducted through one of the clearing banks in the offshore hubs or through a correspondent bank in Mainland China.").

[102] *See id.*

[103] *See infra* Section III.

would become more pressing, but Beijing has yet to clarify the extent to which it might lift capital controls to facilitate this.

At the entity level, CIPS Co., Ltd. is organized as a private company but overseen by the People's Bank of China ("PBOC"), the country's central bank.[104] CIPS is structured as a for-profit company, with major shareholders spanning large Chinese financial institutions (many of them state-owned) and a few overseas banks.[105] For other FMIs, private ownership of a utility that provides a public function has generated concerns about conflicts of interest.[106] CIPS may well be consistent with the trend of public finance being outsourced to private actors—as the Conclusion suggests, this would be one reason to pare back the act of state doctrine that insulates sovereign actors and their agents from antitrust litigation.[107] For infrastructures in the People's Republic, however, the greater concern is that a privately

[104] *See* CIPS, *About Us*, https://www.cips.com.cn/en/about_us/company_profile/index.html (last accessed Dec. 5, 2022).

[105] *See* Finance Dictionary, *CIPS*, https://www.financedictionary.com/content/cips/ (last accessed Dec. 5, 2022) (listing China National Clearing Centre, an affiliate of People's Bank of China, National Association of Financial Market Institutional Investors, Shanghai Gold Exchange, China Banknote Printing and Minting Corporation, China Union Pay, HSBC Holdings, and Standard Chartered as among its largest shareholders); Reuters, FACTBOX-China's onshore yuan clearing and settlement system CIPS (July 30, 2020), https://www.reuters.com/article/china-banks-clearing-idUSL3N2F115E ("CIPS counts several foreign banks as shareholders including HSBC, Standard Chartered Bank, the Bank of East Asia, DBS Bank, Citi Bank, Australia and New Zealand Banking Group and BNP Paribas, according to data on Qichacha"). *See also* LAI, *supra* note 22, at § 7.6.

[106] *See, e.g.*, Andreas M. Fleckner, *Stock Exchanges at the Crossroads*, 74 FORDHAM L. REV. 2541 (2006); Paolo Saguato, *The Ownership of Clearinghouses: When 'Skin in the Game' Is Not Enough, the Remutualization of Clearinghouses*, 34 YALE J. REG. (2016).

[107] *See infra* Conclusion. On government outsourcing to private providers generally, see Jon D. Michaels, *We the Shareholders: Government Market Participation in the Postliberal U.S. Political Economy*, 120 COLUM. L. REV. 465, 474–75 (2020).

run utility is never truly independent of the state—especially since the state maintains ownership in the utility's shareholders.

Finally, CIPS has adopted ISO20022,[108] the universal financial industry message coding scheme devised by the International Organization for Standards.[109] ISO20022 is the common language for cross-border payments and reporting worldwide—indeed, the same standards that SWIFT abides by—and its adoption means that CIPS can communicate with financial institutions as easily as SWIFT does.[110] Significantly, another set of international standards which CIPS purports to follow is the Principles for Financial Market Infrastructures devised by the Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions.[111] The Principles for FMIs outline key risks faced by FMIs as well as best practices for mitigating those risks.[112] With its adoption, CIPS has signaled to the world that it is a safe, dependable utility—even though in implementation, the bulk of those global principles have not made their way into rules for the RMB settlement system.

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[108] *See About ISO 2022*, ISO, https://www.iso20022.org/about-iso-20022 (last accessed Dec. 13, 2022).

[109] *See About Us*, ISO, https://www.iso.org/about-us.html (last accessed Dec. 13, 2022).

[110] *See What is ISO 20022?*, SWIFT https://www.swift.com/standards/iso-20022 (last accessed Dec. 13, 2022).

[111] *About Us*, *supra* note 22. I use "purports" because CIPS regulations are not always clear or transparent, despite the requirements of the Principles for Financial Market Infrastructures for clarity and transparency. The Committee on Payment and Settlement Systems ("CPSS") was comprised of central banks from the G10 countries; today, it has been renamed the Committee on Payments and Market Infrastructures. *See History of the CPMI*, Bank for Int'l Settlements, https://www.bis.org/cpmi/history.htm (last accessed Dec. 13, 2022). The International Organization of Securities Commissions is an international body of securities regulators. *See About IOSCO*, IOSCO, https://www.iosco.org/about/?subsection=about_iosco (last accessed Dec. 13, 2022). *See* CPSS & IOSCO, *Principles for Financial Market Infrastructures* (2012).

[112] *See* CPSS & IOSCO, *supra* note 111.

B. FMI Comparators

To round out the introduction to CIPS, this Subsection canvasses FMIs that exhibit similar characteristics. In this way, the Article imparts a more precise understanding of the infrastructure—of how it is similar to and different than other FMIs which the popular press has taken as analogous.

1. The Clearing House Interbank Payment System ("CHIPS")

CHIPS is the closest analog to CIPS. A large-value payment system,[113] CHIPS works in concert with Fedwire, the Federal Reserve's real-time gross settlement system, to transmit and settle payments in U.S. dollars.[114] Fedwire settles payments without netting offsets and tends to cater to smaller domestic transactions within the U.S.; CHIPS, by contrast, can net out payments and defer ultimate payment to the end of each business day. CHIPS also handles cross-border dollar payments—in fact, some 74% of payments settled through CHIPS originate outside the U.S.,[115] and over 95% of all cross-border dollar payments flow through CHIPS.[116] Participants utilize the CHIPS system to send payment messages, which CHIPS then checks for syntax compliance and releases.[117] Settlement is effectuated by debiting accounts which participants prefund prior to the start of each business day.[118]

[113] According to the taxonomy of the Bank for International Settlements, CHIPS is a large-value payments system ("LVPS"). *See* Bank for International Settlements, Committee on Payments and Settlement Systems, *New Developments in Large-Value Payment Systems* (2000) (characterizing these as "large-value payment systems").

[114] James McAndrews & Dean Vartin, *The Use of Liquidity in CHIPS* 3 (2022). The relationship between FedWire and CHIPS is very similar to the domestic and cross-border allocation of settlement responsibilities between CNAPS and CIPS. *See* LAI, *supra* note 22, at § 7.6.

[115] The Clearing House, *supra* note 85, at 4.

[116] Sheila O'Heney, *Keeping CHIPS Safe . . . and Private*, ABA BANKING J. (May 1991).

[117] *Id.* at 7. *See also* CHIPS Rules 2(C), 13(a).

[118] *Id.* at 7. *See also* CHIPS Rule 12(b)(1)(B).

Throughout the day, CHIPS algorithms net out and set off the positions of all participants and release final net payments at the end-of-day close.[119]

Both CIPS and CHIPS are settlement infrastructures that clear and settle transactions in currencies. Both are organized as private entities but maintain close association with central banks.[120] Yet a closer comparison reveals that the two FMIs are vastly different in size and scope. This discrepancy can be attributed primarily to disparities in the underlying currencies, with the dollar dominating much larger shares of the payments, reserves, and vehicle pricing markets than the RMB.

When CIPS was launched in 2015, several nations ebulliently predicted stronger trade and commercial ties with the People's Republic, as well as broader adoption of its currency.[121] However, except for a brief and minor bump in 2015, international acceptance of the yuan has remained low.[122] SWIFT, which maintains a RMB tracker updated monthly, revealed a remarkable growth of the redback in global payments between 2014 and 2015, jumping over 100% in payments value.[123] That year, the RMB

[119] *Id.* at 8–9. *See also* CHIPS Rule 13(c).

[120] CHIPS is an association.

[121] *See, e.g.*, Carl-Ludwig Thiele, *RMB Initiative – One Year After Start of Clearing*, Speech by Mr Carl-Ludwig Thiele, Member of the Executive Board of the Deutsche Bundesbank, at the European-Chinese Banking Day during the 18th Euro Finance Week, Frankfurt am Main, Nov. 16, 2015, *available at* https://www.bis.org/review/r151123b.pdf; Burkhard Balz, *The Role of the Renminbi in International Payments*, Keynote speech by Mr Burkhard Balz, Member of the Executive Board of the Deutsche Bundesbank, at the 5th European-Chinese Banking Day as part of the Euro Finance Week, Frankfurt am Main, Nov. 14, 2018, *available at* https://www.bis.org/review/r181127b.pdf.

[122] China Power, *supra* note 9. Notably, this was before the trade war with the U.S. and an economic slowdown in China—though it came after the launch of CIPS.

[123] *See* RMB breaks into the top five as a world payments currency, SWIFT, https://www.swift.com/news-events/press-releases/rmb-breaks-top-five-world-payments-currency (Jan. 28, 2015).

broke into the top five payments currencies, behind the dollar, euro, pound, and yen—up from the 13th position in 2013.

SWIFT statistics are measured from payments messaging on the SWIFT system. For detailed numbers, both the PBOC and Renmin University publishes RMB internationalization reports, updated annually.[124] The latest report shows that at the end of 2020, CIPS cleared and settled 2.2049 million cross-border transactions worth a total of 45.27 trillion yuan, or approximately $7.545 U.S. dollars (see Figure 4). On a daily basis over the year, CIPS was clearing and settling 8,855 average daily transactions worth 181.815 billion yuan, or approximately $30 billion U.S. dollars (see Figure 4).

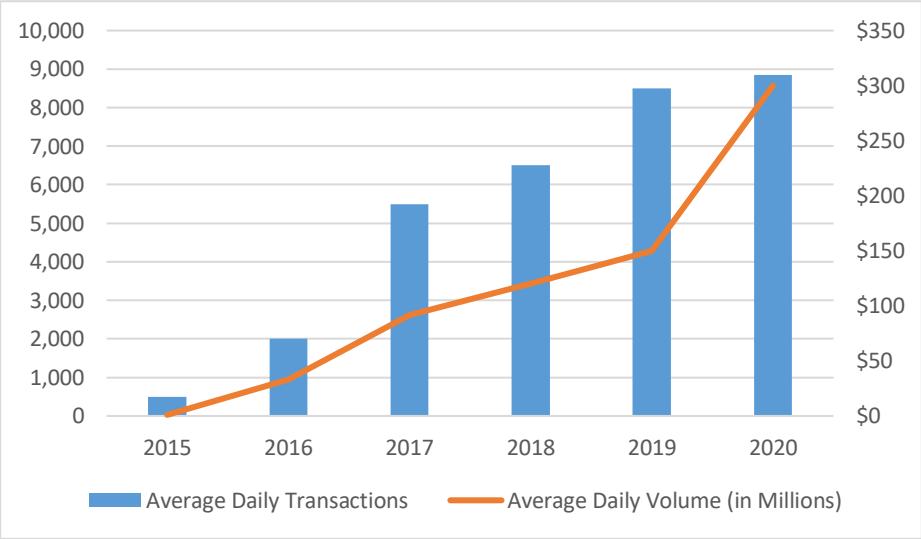

Figure 4: Growth of CIPS Settlement Volume[125]

[124] *See, e.g.*, People's Bank of China, *2021 Renminbi Internationalization Report* (2021) [hereinafter PBOC, *2021 RMBI Report*]; Renmin U., *Renminbi Internationalization Report 2020* [人民币国际化报告2020] (2020); Renmin U., *Renminbi Internationalization Report 2021* (2021), available at http://www.imi.ruc.edu.cn/docs//2021-09/b5c9171110ed4d2ea06d8cb1e2ff1621.pdf.

[125] PBOC, *2021 RMBI Report*, *supra* note 124, at 22.

Although CIPS has experienced remarkable growth in the five years since its inception, the figures for dollars are staggering. Over the same period in the U.S., CHIPS settled 117 million transactions worth an aggregate of $419 trillion. On a daily basis over the year, these averaged 462,798 transactions worth an aggregate of $1.656 trillion every day—volumes that are 53–56 times larger![126]

For all their operational similarities, the historical backdrops of CHIPS and CIPS might spell a different path for the RMB utility. CHIPS came to the fore during the paperwork reduction efforts of 1970s in the U.S., when a paperwork crisis had forced financial markets to shore up the digital processing capabilities of back office utilities because hardcopy processing of financial trades led to unworkable delays.[127] By contrast, CIPS is coming up in an era where electronic settlement is taken as a given—instead, the priorities of the RMB market, which is woven closely with the ambitions of the Chinese state, is to aggressively push for the expansion of the national currency. This priority may translate into operational decisions, such as sacrificing profits to draw users and maximize network effects, a priority that hearkens to contemporary digital platforms in vastly different markets.[128]

2. Central Counterparties ("CCPs")

Beyond CHIPS, analogies for CIPS to other FMIs become less precise. Thus, it can be helpful to define CIPS by describing what it is not.

CIPS is not a central counterparty. Central counterparties ("CCPs") are interposed into bilateral transactions to assume the

[126] *See* CHIPS, *Annual Statistics from 1970 to 2022*, *available at* https://www.theclearinghouse.org/payment-systems/chips (last accessed Jan. 27, 2023).
[127] O'Heney, *supra* note 116.
[128] *See* Seth Benzell & Felix B. Chang, *Evaluating Antitrust Remedies for Platform Monopolies: The Case of Facebook*, 76 VAND. L. REV. __ (forthcoming 2023).

credit risks of both parties.[129] In a trade between a buyer and seller, both sides novate—or assign—their positions to the CCP, so that the entity becomes the seller to the buyer and the buyer to the seller. Hence, CCPs are guarantors that backstop losses in the event of a party's default. Their presence in a market allows for multilateral netting of positions among all CCP members.[130]

After the financial crisis, when liquidity was strained and the collapse of large financial institutions threatened the stability of the entire financial system, clearinghouses were touted as a bulwark against systemic risk.[131] Lawmakers on both sides of the Atlantic mandated the interposition of clearinghouses in the derivatives markets, where clearing and settlement had been performed bilaterally, between private counterparties (see Figure 1).[132] The web of connectivity in bilaterally cleared transactions had too much systemic risk coursing through the financial system, which erupted the default and bankruptcy of Lehman Brothers pulled its thicket of derivatives counterparties into default on their own positions.[133] Today in the derivatives markets, clearinghouses of the Intercontinental Exchange (such as ICE Clear Credit and ICE Clear Europe for credit default swaps) and

[129] *See* CPSS & IOSCO, *supra* note 111, at 143 ("A central counterparty (CCP) interposes itself between trade counterparties, becoming the buyer to every seller and the seller to every buyer. Thus, from the point of view of market participants the credit risk of the CCP is substituted for the credit risk of the other participants.").

[130] On netting efficiency, see Darrell Duffie & Haoxiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?*, 1 REV. ASSET PRICING STUD. 74 (2011).

[131] See Felix B. Chang, *The Systemic Risk Paradox: Banks and Clearinghouses under Regulation*, 2014 COLUM. BUS. L. REV. 747.

[132] *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 111, 124 Stat. 1376, 1392–93 (2010) tit. VII (codified at 12 U.S.C. § 5321 (2012)); Council Regulation 648/2012, of the European Parliament and of the Council of 4 July 2012 on OTC Derivatives, Central Counterparties and Trade Repositories, art. 46, 2012 O.J. (L 201) 38.

[133] Fed. Deposit Insurance Corp., *The Orderly Liquidation of Lehman Brothers Holdings Inc. under the Dodd-Frank Act*, 5 FDIC Q., no. 2 (2011).

LCH SwapClear (for interest rate swaps) have taken on CCP functions.

The evolution of derivatives clearing organizations follows the path of the securities markets, where the National Securities Clearing Center ("NSCC") stands as the primary CCP.[134] After the paperwork crisis of the 1970s, Congress directed the Securities and Exchange Commission (the "SEC") to facilitate the establishment of a national clearing and settlement system for securities trades.[135] At the time, the nation's securities clearing network was geographically fragmented, but the SEC imposed technical and operational requirements such as automation that drove some of the smaller players out of business.[136] By the mid-1990s, NSCC had become the largest securities clearinghouse, with economies of scale and scope that pre-empted competition from smaller rivals.[137] To head off anticompetitive practices, the SEC required NSCC to establish interoperable connections to other infrastructures, such as market-makers and trading platforms.[138]

Organizationally, ICE Clear,[139] LCH SwapClear,[140] and NSCC[141] are all owned by private, for-profit shareholders. Their operations are typically controlled by members that clear and settle trades through them, which has raised the specter of

[134] *See* Dan Awrey & Joshua Macey, *Open Access, Interoperability, and the DTCC's Unexpected Path to Monopoly*, 132 YALE L.J. 96 (2022).
[135] *See id.* at 127; 15 U.S.C. 78q-1(a)(2)(A).
[136] Awrey & Macey, *supra* note 133, at 132, 138–54.
[137] *Id.* at 137.
[138] *Id.* at 135.
[139] *See* Intercontinental Exchange, *2021 Annual Report*, 7, 16 (2021), *available at Annual Reports & Proxy*, ICE, https://ir.theice.com/financials/annual-reports-and-proxy/default.aspx (last accessed Jan. 15, 2023).
[140] *See Our Clearing Houses*, LCH, https://www.lch.com/about-us/our-clearing-houses (last accessed Jan. 15, 2023).
[141] *See National Securities Clearing Corporation (NSCC)*, DTCC https://www.dtcc.com/about/businesses-and-subsidiaries/nscc (last accessed Jan. 15, 2023).

competition suppression and prompted regulations mandating open, nondiscriminatory access.[142]

Currency settlement systems are not CCPs. CHIPS and CIPS do not take on member positions through novation; nor do they guarantee member payments. In fact, CHIPS expressly states that it is not a CCP.[143] Similarly, CIPS has published rules of operation clarifying that CCPs are separate and distinct from CIPS.[144] This distinction is significant: CCPs abide by strict requirements on margins (i.e., collateral to be posted by members) and account segregation under international standards and domestic regulations—frameworks which settlement systems need not submit to.[145] In addition to strict regulatory oversight, given their insurance function, CCPs also require deeper capital outlays—put differently, they incur higher sunk costs.

For decades, clearinghouses inspired little scholarly attention as "back infrastructures" performing rote financial plumbing functions.[146] After 2008, however, scholars began amassing a body of work on clearinghouses from a variety of perspectives.[147] We are therefore entering a golden age of clearinghouse scholarship.

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[142] *See* Felix B. Chang, *Financial Market Bottlenecks and the "Openness" Mandate*, 23 GEO. MASON L. REV. 69 (2015); Michael Greenberger, *Diversifying Clearinghouse Ownership in Order to Safeguard Free and Open Access to the Derivatives Clearing Market*, 18 FORDHAM J. CORP. & FIN. L. 245 (2013). *See also* 17 C.F.R. 39.12(a).

[143] The Clearing House, *supra* note 85, at 26 ("CHIPS is not a central counterparty and has no credit exposures."), 34 ("CHIPS does not operate as a central counterparty."), 47 ("CHIPS does not operate as a central counterparty, securities settlement system, or central securities depository.").

[144] *See* CIPS, *CIPS Message Definition Report, Part 2: Clearing and Settlement – Central Counterparty Funds Settlement* (2019). For instance, Section 1.1, List of MessageDefinitions, indicates that CIPS communicates with CCPs to effectuate settlement.

[145] CPSS & IOSCO, *supra* note 111, at 1–2.

[146] Exceptions include Ben S. Bernanke, *Clearing and Settlement During the Crash*, 3 REV. FIN. STUD. 133, 133 (1990).

[147] *See, e.g.*, Mark J. Roe, *Clearinghouse Overconfidence*, 101 CAL. L. REV. 1641, 1672 (2013); Yesha Yadav, *The Problematic Case of Clearinghouses in Complex Markets*, 101 GEO. L.J. 387, 434 (2013); Duffie & Zhu, *supra* note 130, at 76; Chang, *supra* note 131; Chang, *supra* note 141.

Notably, however, it was a subset of clearinghouses—CCPs—that attracted the limelight, while most other clearinghouses continued to labor in obscurity. Today, as the literature on FMIs fills out, it is important to delineate the different clearinghouses. Settlement systems play different roles than CCPs in the financial markets and may demand slightly different regulations—even if they flourish under similar economic conditions (i.e., conditions that drive economies of scale and scope).[148]

3. SWIFT

Unlike SWIFT, CIPS is also not a payment messaging system—more precisely, it is not *just* a payment messaging system. As the world's leading provider of secure financial messaging services, SWIFT serves over 10,8000 corporations and financial institutions spread across more than 200 jurisdictions.[149] According to the BIS taxonomy of FMIs, it would be a third-party service provider or other infrastructure that furnishes internationally accepted communication procedures for FMIs.[150] Hence, SWIFT is not even a clearinghouse. And unlike clearinghouses, SWIFT does not hold funds on behalf of its users.[151]

CIPS, in contrast, features functionalities that span more than payment messaging. CIPS reconciles and settles transactions and nets out payments among its participants.[152] For communication,

[148] For a distinction between economies of scale and scope, see Craig Pirrong, *Clearing Up Misconceptions on Clearing*, REG., Fall 25 (2008).

[149] *Helping You Do More*, SWIFT, https://www.swift.com/your-needs/banking/payments (last accessed Dec. 14, 2022); SWIFT, *Information about SWIFT for Procurement and Compliance Departments* 3 (2022) [hereinafter SWIFT, *Information about SWIFT*].

[150] *See* CPSS & IOSCO, *supra* note 111, at 10, 119

[151] SWIFT, *Information about SWIFT*, *supra* note 149, at 4, 16.

[152] CIPS, *About Us*, *supra* note 104; LAI, *supra* note 22, at § 7.6.

CIPS relies on SWIFT's codes and architecture, though CIPS has been developing its own messaging system.[153]

Among nonspecialists, depictions of the relationship between CIPS and SWIFT are riddled with inaccuracies. Commentators have speculated that China has designs to use CIPS to displace SWIFT.[154] They point to Western threats to cut off Russia from SWIFT (a threat that Russia has called the "nuclear option"), invoking the growth of CIPS as evidence.[155]

These commentators are wrong on both counts. In its disclosures, SWIFT has taken pains to emphasize that it treats all customers equally and abides by competition law principles.[156] SWIFT is a cooperative society under Belgian law owned by a multitude of shareholders.[157] The infrastructure is dispersedly held, which makes it more difficult to be harnessed to stifle

[153] LAI, *supra* note 22, at § 7.6 ("[CIPS] will use SWIFT for interbank messaging and SWIFT BIC code as its routing code. But in the future, it is believed that it will operate independently and have its own direct communication line between financial organizations. Thus, in the long run, the CIPS can potentially make Chinese international payments free from the legal reach and sanctions of foreign countries.").

[154] *See, e.g.*, Huileng Tan, *China and Russia are working on homegrown alternatives to the SWIFT payment system. Here's what they would mean for the US dollar,* BUS. INSIDER (Apr. 28, 2022), https://www.businessinsider.com/china-russia-alternative-swift-payment-cips-spfs-yuan-ruble-dollar-2022-4?op=1 ("China's Cross-Border Interbank Payment System (CIPS) — which processes payments in Chinese yuan — also has potential to replace SWIFT."); *Moscow, Beijing working on SWIFT workaround -Russian lawmaker*, REUTERS (Mar. 16, 2022), https://www.reuters.com/article/ukraine-crisis-russia-china-idUKL5N2VJ39Z.

[155] Ian Thomsen, *SWIFT, the 'nuclear option,' is about to be used as a sanction on Russia*, NORTHEASTERN GLOBAL NEWS (Feb. 25, 2022), https://news.northeastern.edu/2022/02/25/russia-swift-ban/.

[156] *See* SWIFT, *Information about SWIFT*, *supra* note149, at 3 ("it is our policy to treat all customers equally"), 16.

[157] *Swift Governance*, SWIFT, https://www.swift.com/about-us/organisation-governance/swift-governance#topic-tabs-menu (last accessed Dec. 14, 2022); SWIFT, *Information about SWIFT*, *supra* note 149, at 5 ("there are more than 2000 shareholders, none of them individually holding more than 5% of the issued and outstanding shares and none of them being an individual.").

competition or single out any participant.[158] Additionally, CIPS does not reveal any designs to replace SWIFT. If anything, the two infrastructures are tightly intertwined, as a memorandum of understanding between them reflects,[159] with several avenues of collaboration.[160]

Notably, SWIFT plays a prominent role in cataloging the pace of RMB internationalization. Every month, SWIFT's RMBI tracker has provides an update on the volume of global transactions in yuan.[161] Given SWIFT's sheer scale in the financial messaging space (the entity accounts for vast majority of all global financial messages processed), its RMB figures often form the basis for analysis of RMB internationalization.[162] Of course, SWIFT's numbers do not *all* capture transactions—payments that do not

[158] The literature on cartels holds that the fewer the coordinating players, the easier it is to control a market. *See, e.g.*, Reinhard Selten, *A Simple Model of Imperfect Competition, Where 4 Are Few and 6 Are Many*, 2 INT'L J. GAME THEORY 141 (1973); Margaret C. Levenstein & Valerie Y. Suslow, *What Determines Cartel Success?*, 44 J. ECON. LITERATURE 43 (2006). As a matter of antirust doctrine, if an infrastructure is an essential facility controlled by a monopolist in an adjacent market, it may not be used by that monopolist to suppress competition in the adjacent market. *See, e.g.*, United States v. Terminal R.R Ass'n of St. Louis, 224 U.S. 383, 411-13 (1912); Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 611 (1985); Otter Tail Power Co. v. United States, 410 U.S. 366, 382 (1973). If, however, an infrastructure is dispersly controlled, exclusionary claims may be more difficult. *See* C. Scott Hemphill & Tim Wu, *Parallel Exclusion*, 122 YALE L.J. 1182, 1201 (2013); Felix B. Chang, *Second-Generation Monopolization: Parallel Exclusion in Derivatives Markets*, 2016 COLUM. BUS. L. REV. 657.

[159] *See* SWIFT, *Swift offers secure financial messaging services to CIPS* (Mar. 25, 2016), https://www.swift.com/news-events/press-releases/swift-offers-secure-financial-messaging-services-cips.

[160] *See, e.g.*, SWIFT, *CIPS membership information now published on SWIFTRef* (Sept. 27, 2017), https://www.swift.com/news-events/press-releases/cips-membership-information-now-published-swiftref; SWIFT, *RMB Tracker*, https://www.swift.com/our-solutions/compliance-and-shared-services/business-intelligence/renminbi/rmb-tracker (last accessed Jan. 27, 2023).

[161] *See* SWIFT, *RMB Tracker*, *supra* note 160.

[162] *See, e.g.*, PBOC, *2021 RMBI Report*, *supra* note 124, at 4 (relying on SWIFT statistics for the RMB's rank in global payments).

require third-party messaging or that use an alternate system (e.g., Chinese characters) would circumvent SWIFT. Thus, the Article often provides numbers from both SWIFT and the PBOC for comparison.

III. NETWORK EFFECTS OF CIPS

In recent months, CIPS has become one of the most widely covered, but least understood, developments in RMB internationalization. China watchers and financial pundits have proffered various conjectures on how CIPS might enable international trade and commerce to bypass the dollar, heralding a new era marked for the redback.[163] Yet because currency internationalization is fundamentally a political project, the RMB's global prospects depends on Beijing's political will.[164]

However, as more a technical matter, CIPS is not assured of singlehandedly propelling the RMB to worldwide domination—or, the framing of this Article's title, the RMB cannot necessarily *clear its way* to domination. This ambivalence is due to the nature of CIPS as a platform utility. Like FMIs canvassed in the prior Section, CIPS is a *platform* that brings together multiple sides of the currency market (i.e., the issuer and the traders).[165] It is also a *natural monopoly* operating in a market (i.e., that for clearing RMB) that is most efficiently served by one large provider.[166] Finally, it is a *utility* that performs functions for a variety of users who are best served if the utility operates at marginal cost.[167]

As the prior Section reveals, every FMI is unique, occupying a specific corner of the financial markets and providing a niche

[163] *See, e.g.*, Liu & Papa, *supra* note 1; Handwerker, *supra* note 4; Bloomberg, *supra* note 10.
[164] Eichengreen & Kawai, *supra* note 22, at 18.
[165] *See supra* Section II.B.
[166] *See* ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 123-24 (1971).
[167] *See* Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323 (1998).

service. However, all successful FMIs share a set of traits, chief among them the ability to harness positive network effects, whereby a platform increases in value as it draws more users.[168] This Section delves into the network effects of CIPS. In doing so, it concludes that the record on CIPS is mixed—while the entity's membership roster is too uniform to harness network effects, China's efforts through the Belt and Road Initiative to bring more countries into the RMB fold will help CIPS grow while expanding the RMB's share in the adjacent trading markets.

A. Network Effects in Platform Utilities

Network effects describe a provider's increase in value as it draws more users. Network effects are critical to the success of any platform utility.[169] This Article uses the term "platform utilities" in describing FMIs to emphasize three key aspects: (i) FMIs typically function at the interface of two financial markets (e.g., settlement and trading in the case of CIPS, or messaging and trading in the case of SWIFT), (ii) FMIs are typically natural monopolies operating close to marginal cost and subject to intense regulation, and (iii) FMIs have often monopolized their relevant product market.[170]

Natural monopolies arise because a market is more efficiently served by one dominant producer rather than several smaller competitors.[171] In exchange for market dominance, natural monopolies traditionally submitted to the regulatory paradigm of rate-setting, which imposed fee schedules to ensure that regulated

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[168] *See* Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985); Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 483 (1998).

[169] *See* Katz & Shapiro, *supra* note 168.

[170] For the last reason, Professor Hovenkamp refers to these entities as platform monopolies. *See* Herbert Hovenkamp, *Antitrust and Platform Monopoly*, 130 YALE L.J. 1952, 1952 (2021).

[171] BRETT M. FRISCHMANN, INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES 12-14 (2012); KAHN, *supra* note 166, at 123–24.

entities were keeping prices close to cost and serving as many customers as possible.[172] Under the fixed rate doctrine, rate-setting governed classic platform utilities in the energy,[173] telecommunications,[174] and transportation industries.[175]

In financial markets, platform utilities encompass FMIs such as CHIPS, ICE Clear Credit, and NSCC.[176] Since 2010, each of these entities has been designed a systemically important financial market utility under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act—a designation that entails regular examinations by, and compliance with risk management standards of, financial supervising agencies.[177] Given the crucial role that clearinghouses play in mitigating systemic risk, scholars have even proposed that this subset of FMIs be nationalized.[178]

A platform utility's network effects are closely intertwined with its characteristics as a natural monopoly. Due to their strong

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[172] *See* Kearney & Merrill, *supra* note 167, at 1330-34.

[173] *See, e.g.*, See Department of Energy Organization Act, Pub. L. No. 95-91, 91 Stat. 565 (1977) (codified in scattered sections of U.S.C., including 42 U.S.C. § 7172 (1994)).

[174] *See, e.g.*, Telecommunications Act of 1996, Pub. L. No. 104-104, 1996 U.S.C.C.A.N. (110 Stat.) 56 (codified in scattered sections of 47 U.S.C.).

[175] *See, e.g.*, Interstate Commerce Act of 1887, 24 Stat. 379 (1887); Railroad Revitalization and Regulatory Reform Act of 1976, Pub. L. No. 94-210, § 202(b), (c)(i), 90 Stat. 31, 35 (1976) (codified as amended at 49 U.S.C. § 10709(c) (1994)). In our time, the lack of a sectoral regulator for social media has spurred calls for the creation of one by statute. *See* STIGLER CTR. FOR THE STUDY OF THE ECON. & THE STATE, STIGLER COMMITTEE ON DIGITAL PLATFORMS FINAL REPORT (2019), https://publicknowledge.org/wp-content/uploads/2021/11/Stigler-Committee-on-Digital-Platforms-Final-Report.pdf [https://perma.cc/7UB5-ZUPD].

[176] *See Designations*, U.S. Treasury Dept., https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/designations (listing SIFMUs and designated nonbank companies under Dodd-Frank).

[177] For a synopsis, see Bd. of Governors of Fed. Reseve, *Title VIII of the Dodd-Frank Act* (Jan. 29, 2015), https://www.federalreserve.gov/paymentsystems/title-viii-dfa.htm.

[178] *See* Stephen J. Lubben, *Nationalize the Clearinghouses!* (2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2458506&rec=1&srcabs=2425187&alg=1&pos=7 [https://perma.cc/7C3P-LF2R].

network effects, natural monopolies are characterized by rapidly decreasing marginal cost as each new user is added.[179] This trait stems from another feature of natural monopolies: high up-front, or sunk, costs.[180] For instance, once an internet service provider has built the infrastructure for broadband access, the cost of adding one more user is low; however, the provider likely charges all users the same fees for internet access—fees that almost certainly do not accord with low marginal costs.[181] Concomitantly, the high sunk costs of providing internet service (e.g., installing a network of cables) can deter new entrants, thereby keeping the market locked up for the incumbent.[182]

Curiously, network effects may not be uniform across a platform's many sides.[183] With classic multisided platforms such as credit cards, the contributions to network effects from each side are uneven. The addition of new card users (the consumer side) may mean greater revenues for merchants (the merchant side), while adoption of a card by new merchants may expand the roster of places where users may be able to redeem reward points.[184] Yet while the growth of both sides feed into the card's network effects, demand for card likely varies between the two sides. Merchants might exhibit lower demand elasticity and convey the platform less positive network effects than consumers because merchants

[179] SANFORD V. BERG & JOHN TSCHIRHART, NATURAL MONOPOLY REGULATION: PRINCIPLES AND PRACTICE 21–24 (1988); Shubha Ghosh, *Decoding and Recoding Natural Monopoly, Deregulation, and Intellectual Property*, 2008 U. ILL. L. REV. 1125, 1138–39 (2008).

[180] LAWRENCE A. SULLIVAN & WARREN S. GRIMES, THE LAW OF ANTITRUST: AN INTEGRATED HANDBOOK 742 (West Academic Publ'g, 2d ed. 2006); DANIEL F. SPULBER, REGULATION AND MARKETS 3–5, 42–43 (1989).

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[182] *See supra* note 170.

[183] *See* Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS'N 990, 992 tbl.1 (2003); Marc Rysman, *The Economics of Two-Sided Markets*, 23 J. ECON. PERSPS. 125 (2009).

[184] The degree of separation between these two sides of a credit card network—consumers and merchants—led to confusion in *Ohio v. Am. Express Co.*, 138 S. Ct. 2274 (2018), where the majority defined the merchant market (where harm had been alleged) to include the consumer side.

do not multihome, or switch across, payment media as much as consumers.[185] The platform then wrestles with the urge to price-discriminate, or charge more to the side with inelastic demand and smaller network effects.[186] In this way, inelastic users, who bear the brunt of rents charged by a platform (e.g., through fees or advertising) subsidize elastic users.[187]

FMIs, too, must balance the desire to charge supracompetitive prices (i.e., high markups over marginal cost) with the desire to retain a large user base. Most FMIs that have posted their fee structures seem to strike this balance by charging tiered fees based on trading volume, with some large-volume discounts. CME Group, which operates a host of CCPs for derivatives trading, sets a standard rate per million notional to clear interest rate swaps (e.g., 0.25 per million for swaps that mature 0-3 months) and offers volume discounts (capped at $300,000 for a single beneficial account owner and $900,000 for a multiple accounts owner).[188] By contrast, NSCC imposes fixed fees for clearance activities (0.46 per

[185] This may be because some cards have antisteering provisions that legally forbid merchants from multihoming. *See id.* Multihoming is more a preference associated with consumers. *See* Vardit Landsman & Stefan Stremersch, *Multihoming in Two-Sided Markets: An Empirical Inquiry in the Video Game Console Industry*, 75 J. MARKETING 39 (2011).

[186] *See* Andrei Hagiu, *Strategic Decisions for Multisided Platforms*, MASS. INST. TECH. SLOAN MGMT. REV., Winter 2014 at 71, https://sloanreview.mit.edu/article/strategic-decisions-for-multisided-platforms/ [https://perma.cc/X8LY-V4TQ]; E. Glen Weyl, *A Price Theory of Multi-sided Platforms*, 100 AM. ECON. REV. 1642 (2010). Even within one side of a platform, some users may deliver greater network effects than others. For example, in social media, some users might stay on a platform regardless of the level of advertising, while other users would decamp after being shown one or two ads. Because most platforms value a large user base, they may forgo revenue maximization (through price discrimination). In social media, this might take the form of showing all users less advertising than would cause elastic users to abandon the platform.

[187] *See* Seth Benzell & Avinash Collis, *Multisided Platform Strategy, Taxation and Regulation: Model and Application to Facebook* (2020), https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3619535.

[188] CME Group, *Cleared OTC IRS Standard Fee Schedule*, https://www.cmegroup.com/trading/interest-rates/cleared-otc-irs-customer-fees.html (last accessed Jan. 23, 2023).

million dollars of gross positions prior to netting and 2.16 per million dollars of net positions after netting) without discounts based on clearing volume.[189] Meanwhile, Fedwire's funds transfer service assesses three tiers of fees, with discounts for each tier ($0.036 as the post-discount price for the highest tier, transfers over 90,000).[190] For all three entities, economies of scale should produce low marginal costs for additional amounts cleared. This then likely means that frequent and large-scale traders (who are paying the most for services, even factoring in volume discounts) are subsidizing infrequent and small-scale traders.

For clearinghouses, network effects confer the additional benefit of netting efficiency—the ability to lower the margin requirements that counterparties must satisfy in order to trade.[191] The more traders there who utilize the clearinghouse, the more positions the clearinghouse has to offset against one another. With multilateral netting, a clearinghouse can net out the payments among multiple members, thereby lowering the amount of collateral that must be posted.[192] For traders, lower collateral requirements reduce funding costs; for the financial system, a clearinghouse's birds-eye-view shores up systemic resilience and, in theory, anticipates systemic risk.[193]

[189] *See* DTCC, *Guide to the 2023 NSCC Fee Schedule* (Dec. 27, 2022), *available at* https://www.dtcc.com/~/media/Files/Downloads/legal/fee-guides/nsccfeeguide.pdf.

[190] *See* Federal Reserve Banks Services, Fedwire Funds Service 2023 Fee Schedules, https://www.frbservices.org/resources/fees/wires-2023 (last accessed Jan. 23, 2023).

[191] *See* Craig Pirrong, *The Industrial Organization of Execution*, Clearing and Settlement in Financial Markets, University of Houston (Jan. 23, 2007), available at www.cba.uh.edu/spirrong/Clearing_silos.pdf.

[192] *See* Duffie & Zhu, *supra* note 130.

[193] *See* Chang, *supra* note 131.

B. Two Perspectives on Network Effects in CIPS

1. Membership Homogeneity

One key insight from the literature on network effects is that a large and diverse user base generates stronger economies of scale and scope. Unlike many other FMIs, though, CIPS features a small and uniform set of direct participants—mostly Chinese financial institutions and a few Chinese subsidiaries of foreign banks.[194] Affiliates of the "big four" Chinese banks dominate the membership roster: there are 32 branches and affiliates of the Bank of China, 10 branches and affiliates of the Industrial and Commercial Bank of China, six branches and affiliates of the China Construction Bank, and four branches and affiliates of the Agricultural Bank of China.[195] Beyond that, the Bank of Communications counts four branches and affiliates as CIPS direct members.[196] Accounting for these duplicates brings the total of number of CIPS's unique direct members down to only 26.

CHIPS, on the other hand, has nearly twice the number of participants at 43.[197] More significantly, only 19 of these participants, or less than half, are domiciled in the U.S.[198] The remaining members hail from across Asia, Europe, and the Middle East.[199] CHIPS therefore exhibits both a greater number and a greater diversity of participants—differences that also entail stronger network effects for the U.S. settlement system.

To be sure, the nature of clearinghouse membership varies across FMIs. Placed in a broader context, the difference between

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[194] *See About Us*, *supra* note 22. This includes the Chinese subsidiaries of HSBC, Citibank, Standard Chartered, Deutsche Bank, BNP Paribas, Australia and New Zeland Bank, Mitsuhibhi UFJ Bank, Hang Seng Bank, JP Morgan Chase.

[195] *See id.*

[196] *See id.*

[197] The Clearing House, *CHIPS Participants* (Jan. 25, 2021), available at https://www.theclearinghouse.org/payment-systems/chips (click on "CHIPS Participants").

[198] *See id.*

[199] *See id.*

CIPS's 26 participants and CHIPS's 43 is slight. ICE Clear Credit, the dominant CCP for credit default swaps, has 28 members,[200] while NSCC has 3,663—orders of magnitude greater than CIPS, CHIPS, or ICE Clear Credit.[201] Yet if FMIs are all unique, CIPS and CHIPS are proper comparators as currency settlement systems, so their disparities are important nonetheless.

2. Scale and Scope in Settlement Volume

Between the two currency settlement comparators, another set of statistics is more telling: the incongruence between CIPS and CHIPS in value and volume of transactions settled. As noted earlier, in 2000, CIPS settled an average of 8,855 transactions worth $30 billion U.S. dollars per day, while CHIPS settled 462,798 transactions worth an aggregate of $1.656 trillion per day.[202] The chasms separating CIPS and CHIPS suggest that in the adjacent trading market, the RMB has attained nowhere near the scale and scope of the U.S. dollar.

Measuring transactions in the underlying currencies yields another perspective on the scale and scope of CIPS—a perspective that can be obscured by examining only its direct members. Membership figures merely reveal that CHIPS's participants are twice as numerous and twice as diverse as those of CIPS. Yet settlement figures show that the sheer scale of transactions handled by CHIPS members dwarfs those handled by CIPS members. In other terms, despite the emergence of CIPS, the greenback continues to far outpace the redback in cross-border transactions.

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[200] *See* ICE Clear Credit, *Participants*, https://www.theice.com/clear-credit/participants (ICE Clear Credit).

[201] *See NSCC Member Directories*, NSCC, https://www.dtcc.com/client-center/nscc-directories (click on "NSCC Member Directory"). Notably, the membership rosters of both ICE Clear Credit and NSCC exhibit greater geographic diversity than CIPS's, which consists primarily of Chinese-domiciled institutions.

[202] PBOC, *2021 RMBI Report*, *supra* note 124, at 22; CHIPS, *Annual Statistics from 1970 to 2022*, *supra* note 126.

Even more starkly, a comparison of figures between the adjacent markets (trading versus settlement) suggests that CIPS does not even fully control the RMB settlement market. In 2000, CIPS settled volume that were some 53–56 lower than those of CHIPS.[203] However, as of December 2020, the RMB comprised 2.07% of the global payments market while the U.S. dollar comprised 41.57%;[204] hence, in the adjacent trading market, the share of U.S. dollar was only 20 times larger than that of the RMB. Although this is only a rough estimate,[205] it points to a relatively greater disparity between the RMB and the dollar in the settlement market than in the trading market. This relative disparity, in turn, suggests that alternative systems (i.e., the network of clearing centers paired with CNAPS) are still playing a significant role in settling cross-border RMB transactions. In other words, CIPS has not captured the cross-border RMB settlement market. Indeed, the PBOC's RMB internationalization report for 2020 states that RMB clearing banks averaged annual settlements of 344.76 trillion yuan (approximately $57.46) over the prior three years,[206] which was far larger than the 45.27 trillion yuan (approximately $7.545) settled by CIPS.[207] To be sure, some of the transactions settled by clearing banks may well have been handled by CIPS—the major RMB clearing banks are all CIPS direct members—but their figures are sufficiently exceed CIPS's volume that there must have been a significant proportion of transactions that bypassed CIPS altogether.

[203] *See supra* note 126 and accompanying discussion.
[204] SWIFT, *RMB Tracker: Monthly Reporting and Statistics on Renminbi (RMB) Progress Towards Becoming an International Currency* (Jan. 2021).
[205] Other caveats include the possibilities that (i) there are other transactions beyond cross-border payments that require clearing, so the cross-border payments figure is underinclusive in parts, (ii) not all transactions in the trading market require settlement, so the cross-border payments figure may be overinclusive in parts, and (iii) these are SWIFT statistics, so the figures do not capture the full scope of RMB transactions.
[206] PBOC, *2021 RMBI Report*, *supra* note 124, at 24.
[207] *Id.* at 22.

3. Consequences

This lack of scale and scope in both membership and settlement volumes carries severe consequences. The first is reduced netting efficiency, which hinges on network effects; with fewer and less diverse members as well as a smaller pool of trading activity, an FMI has less propensity to offset trading positions against one another.

Secondly, the membership roster may not be diverse enough for CIPS to diffuse risk. For example, default by a sizeable Chinese bank heightens the default risk of all other Chinese institutions, given their correlation.[208] Accordingly, the lopsidedness of CIPS membership, which is dominated by Chinese banks, transforms the settlement system into an FMI that merely concentrates risk rather than reducing it.[209] CIPS members are too similar to one another, a uniformity that propagates correlation risk.[210]

Finally, because an FMI's size and network effects go hand-in-hand, limitations in scale and scope also constrain the ability of CIPS to grow. A platform utility's value grows rapidly as the number of its users expands; more users bring more connections

[208] *See* Gang-Jin Wang et al., *Volatility Connectedness in the Chinese Banking System: Do State-Owned Commercial Banks Contribute More?*, 57 J. Int'l Fin. Mkts, Inst. & Money 205 (2018) (publicly traded Chinese commercial banks exhibit volatility interconnectedness, though state-owned banks slightly less so); Shan Wu et al., *Interconnectedness, Systemic Risk, and the Influencing Factors: Some Evidence from China's Financial Institutions*, 569 Phys. A: Stat. Mech. and Its Applic. 125765 (2021) (analyzing factors influencing the high degree of interconnectedness of financial institutions in China).

[209] Pirrong, *supra* note 148, at 24 ("These scale economies arise from the effects of diversification . . . . In essence, increasing the number of risks insured increases the diversification of the clearer's portfolio, and the well-known diversification effect means that the riskiness of this portfolio (properly scaled) declines with size.").

[210] Correlation risk is the antithesis of diversification. *See* C.N.V. Krishnan et al., *Correlation Risk*, 3 J. EMPIRICAL FIN. 353 (2009).

among users.[211] With fewer participants, though, there are fewer connections, which reduces a platform's attractiveness.

This combination of lower netting efficiency, greater correlation risk, and reduced inter-participant connection keeps CIPS from operating at its peak. Instead, as surmised in the prior Subsection, a sizeable proportion of RMB transactions will continue to be settled through the more cumbersome system of CNAPS and clearing centers. Ultimately, if the RMB settlement infrastructure remains fragmented, it will be unable to propel the yuan to a more prominent international role.

Admittedly, CIPS has steadily implemented technical improvements to reduce trading friction for its participants. CIPS was deployed over two phases: Phase 1 launched the system in 2015 with 19 direct and 176 indirect participants, and Phase 2 ushered in a slate of technical improvements in 2018.[212] With Phase 2, CIPS began to accommodate deferred net settlement in addition to real-time gross settlement, a change that allows members to close out their positions at the end of a trading period by posting and receiving net amounts due.[213] CIPS also started operating 24 hours a day (plus 4 hours to accommodate time differences), five days of the week, so that it could cover almost every financial market in every time zone.[214] These efforts to

[211] *See* CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 184 (1999). More concretely, if a platform has two users, there is one connection. With three users, there are three connections; four users, six connections; and five users, ten connections. Accordingly, N users generates $N*(N-1)/2$ connections.

[212] CIPS, *About Us*, *supra* note 104.

[213] *PBC Official Answered Press Questions on Phase 2 of RMB Cross-Border Interbank Payment System*, CIPS, https://www.cips.com.cn/en/about_us/about_cips/relevant_interpretations/48872/index.html. Notably, CHIPS (U.S.) utilized deferred net settlement until 2000, when it switched to continuous netting. James McAndrews & Dean Vartin, *The Use of Liquidity in CHIPS* (Apr. 2022), https://www.theclearinghouse.org/-/media/new/tch/documents/payment-systems/chips_liquidity_algorithm_april_2022.pdf.

[214] *Id.*

provide seamless RMB trading should draw more members to the clearinghouse and more international parties to the currency.

From a network effects perspective, these technical improvements are less meaningful than expanding the roster of direct participants. Direct participants open clearing accounts and interface directly with CIPS, while indirect participants must go through direct participants to clear and settle their RMB transactions.[215] In this way, the privileges of CIPS members resemble those of participants on other clearinghouses, where only members enjoy trading privileges and nonmembers must establish corresponding banking relationships with members to clear and settle trades.[216]

C. The Belt and Road Initiative as Market-Maker

In 2013, China unveiled the "Belt and Road" Initiative ("BRI"), an ambitious program of global investment and infrastructure development.[217] It was estimated to cost $575 billion in projects spread across 70 countries.[218] The BRI's two main components are the Silk Road Economic Belt, a series of overland logistical corridors across Eurasia, and the Maritime Silk Road, a sea route connecting China with Europe and Southeast Asia through the Indian Ocean.[219] Meanwhile, beyond the BRI, China has embarked on a flurry of similar projects in Africa,

[215] LAI, *supra* note 22, at 210.

[216] *See, e.g.*, ICE Clear Credit, *supra* note 200; Poenisch, *supra* note 87, at 33 (CHIPS).

[217] Previously, this framework was known as "One Belt One Road."

[218] The World Bank, *Belt and Road Initiative*, https://www.worldbank.org/en/topic/regional-integration/brief/belt-and-road-initiative (last accessed Jan. 30, 2023).

[219] Paola Subacchi & Matthew Oxenford, *The "Belt and Road" Initiative and the London Market – The Next Steps in Renminbi Internationalization*, Chatham House Research Paper, at 16 (2017).

Australia and the Pacific, Central Asia, Eastern Europe, and South America.[220]

The ensuing decade brought a breakneck pace of investments and infrastructure, though the enormous cashflows tended to be in dollars rather than RMB.[221] Despite projects being spearheaded by Chinese companies or financed by Chinese lenders whose balance sheets are denominated in yuan, financing has typically been undertaken in dollars.[222] Nonetheless, Beijing took on the BRI and related activities with the goal of expanding the RMB trading market, bringing more counterparties into the redback's orbit through initiatives such as the Silk Road Fund.[223] Altogether, these projects are intended to counterbalance the homogeneity of CIPS's current membership, by injecting diversity into the types of parties engaged in cross-border RMB trading.

BRI projects resemble the market-makers in finance that create demand for financial instruments, whose trades must be cleared and settled either bilaterally or centrally.[224] Typically, market-makers are financial institutions such as banks (for derivatives) and brokerages (for securities).[225] If enough demand is churned up the trading markets, new participants can be brought to the clearing and settlement markets, where cross-border trades must pass through. Because cross-border

[220] For a thorough catalog of such projects, see CHINA GLOBAL SOUTH PROJECT, https://chinaglobalsouth.com/.

[221] *See* Yan Liang, *RMB Internationalization and Financing Belt-Road Initiative: An MMT Perspective*, 53 CHINESE ECON. 317, 322 (2020).

[222] *See id. See also* Subacchi & Oxenford, *supra* note 219, at 15 ("while an increasing number of corporates may raise funds in renminbi, many then routinely convert the funds back into dollars, euros or sterling – as a result, the overall value of renminbi held abroad does not increase").

[223] *See* Subacchi & Oxenford, *supra* note 219, at 16 ("China has created several sovereign equity investment funds with mandates related to development in Belt and Road partner countries. The most prominent of these is the Silk Road Fund, which was created explicitly for the purpose of providing equity investment for Belt and Road projects.").

[224] *See supra* note 132 and accompanying discussion.

[225] *See, e.g.*, Order, In re Credit Default Swaps Antitrust Litig., No. 13md2476, 1–2, 2014 WL 4379112 (S.D.N.Y. 2014).

transactions implicate parties from different countries with different currencies, the back-office currency settlement system must be engaged to effectuate payment. China's investments around the world have the potential to substantially diversify the types of counterparties utilizing RMB.[226]

While RMB trading activity has steadily increased in the last two decades, the proportions and identities of "offshore" counterparties have held steady. For customer-initiated institutional payments, SWIFT has consistently found that 70-75% of "offshore" RMB payments originate from Hong Kong, with only 25-30% originating from elsewhere.[227] By contrast, the PBOC pegs Hong Kong's share much a lower, but still significant, 46%.[228] Either way, international payments in RMB do not exhibit much geographic variation, and it is debatable whether Hong Kong should even constitute an offshore jurisdiction. The remaining countries include the U.K. (5.75%), Russian Federation (4.27%), Singapore (3.68%), U.S. (2.86%), Taiwan (2.02%), and several others—none of whom exceed 6%.[229]

As China expands its investment and logistics footprint around the world, however, it is working with a plethora of countries, many located in the global South. These countries have no need—and, in today's inflationary environment, no desire—to opt for U.S. dollars as the vehicle currency for assets and obligations.[230] In fact, China is already the largest trading partner

[226] *See* Cai Xiao/ Li Xiang, *RMB Use to Grow in Belt, Road Economies*, China Daily (June 7, 2017), https://english.www.gov.cn/news/top_news/2017/06/07/content_281475679189540.htm; Zhang et al., *supra* note 71.

[227] See SWIFT, *RMB Tracker: Monthly Reporting and Statistics on Renminbi (RMB) Progress Towards Becoming an International Currency* (Sept. 2022).

[228] *See* PBOC, *2021 RMBI Report*, *supra* note 124, at 9. This could be because PBOC statistics fold in transactions initiated (i.e., demand) in China or because SWIFT statistics do not capture transactions utilizing the CIPS messaging system.

[229] *See* SWIFT, *RMB Tracker*, *supra* note 272.

[230] *See* Patricia Cohen, *The Dollar Is Strong. That Is Good for the U.S. but Bad for the World*, N.Y. TIMES (Sept. 26, 2022); Branko Marcetic, *The US Dollar May Be the*

for more than 120 nations.[231] The BRI alone encompasses 70 countries.[232] And CIPS indirect participants are beginning to reflect this diversity: as of 2000, CIPS's 1,050 indirect participants covered 99 countries and regions around the world,[233] and the Chinese central bank touted CIPS's ability to reach over 3,300 corporate banking institutions, of which over 1,000 were situated in the BRI footprint.[234]

It is a priority for the PBOC and Chinese government that CIPS be more widely used in RMB settlement. Thus, over time the seriousness of CNAPS as a competitor will dissipate.[235] As that happens alongside the introduction of newer countries with more varied credit and risk profiles to the RMB, the transactions for CIPS to clear and settle will become more diverse. Of course, for the clearinghouse to fully enjoy the benefits of this diversity, more overseas financial institutions must be admitted as direct participants, rather than forcing overseas counterparties to clear

Next Casualty of the Ukraine War, JACOBIN (Apr. 2020), https://jacobin.com/2022/04/us-dollar-ukraine-war-global-dominance-currency-sanctions-russia.

[231] Mark Green, *China Is the Top Trading Partner to More Than 120 Countries*, WILSON CENTER (Jan. 17, 2023), https://www.wilsoncenter.org/blog-post/china-top-trading-partner-more-120-countries. *See also* Eleanor Albert, *China in Africa*, COUNCIL ON FOREIGN RELATIONS (July 12, 2017), https://www.cfr.org/backgrounder/china-africa; *China overtakes US as EU's biggest trading partner*, BBC NEWS (Feb. 17, 2021), https://www.bbc.com/news/business-56093378; *Australia's trade in goods with China in 2020*, AUSTRALIAN BUREAU OF STATISTICS (Mar. 9, 2020), https://www.abs.gov.au/articles/australias-trade-goods-china-2020; Jonathan Gilbert et al., *How China Beat Out the U.S. to Dominate South America*, BLOOMBERG (Feb. 17, 2022), https://www.bloomberg.com/news/articles/2022-02-17/china-is-south-america-s-top-trading-partner-why-can-t-the-us-keep-up.

[232] World Bank, *supra* note 218.

[233] PBOC at 23.

[234] *See id.* Of course, whether and how they are admitted into CIPS is not specified.

[235] *See* LAI, *supra* note 22, at 211 ("Competition between the CNAPS and CIPS is expected to increase efficiency in the Chinese international payment system . . . . The [PBOC] highly recommends that banks use CIPS for all renminbi cross-border transactions.").

trades through correspondent banking relationships with Chinese banks.

IV. LEVERAGING AND FORECLOSURE THROUGH CIPS

The story of CIPS cannot be told without exploring the relationship between the RMB clearing market, which CIPS services, and the adjacent trading market, in which all currencies participate. This Section explores the interplay between these markets. From one vantage, because CIPS facilitates transactions in a downstream market (i.e., RMB trading) where the sole market-maker is the Chinese state (because the People's Republic is the issuer of RMB), the infrastructure will not help the incumbent solidify its position in the trading market. In markets dominated by private market-makers who compete intensely with one another, if an incumbent controls an essential facility, it may utilize that facility to foreclose competition by raising the costs of rivals' access.[236] By contrast, a sovereign actor has no equivalent competitor; no one else can issue RMB. Put differently, the PBOC does not require CIPS to secure its foothold in the RMB trading market, although a clearinghouse would certainly make transactions more efficient.

Of course, this characterization is incomplete.[237] From another vantage, the upstream market might be defined more capaciously as the market for cross-border payments and currency trading. If so, rivals do compete with the RMB and China. The U.S. dollar occupies the lion's share of foreign exchange trading, foreign exchange reserves, and global

[236] *See* Patrick Rey & Jean Tirole, *A Primer on Foreclosure* 11, *in* HANDBOOK OF INDUSTRIAL ORGANIZATION III (Mark Armstrong & Rob Porter eds., 2006); Stephen M. Maurer & Suzanne Scotchmer, *The Essential Facilities Doctrine: The Lost Message of Terminal Railroad*, (UC Berkeley Public Law Research Paper No. 2407071 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2407071.

[237] Nor is CIPS unique as a currency clearinghouse. CHIPS, Fedwire, and the Federal Reserve's real-time gross settlement system all facilitate transactions in U.S. dollars. *See* Bank for International Settlements, *supra* note 113. For a comprehensive list by country, *see id*. at tbl. 1.

payments.[238] The euro comes in at a distant second, while in Asia, the Japanese yen outstrips the RMB.[239] Even the British pound, long replaced by the dollar, surpasses the RMB.[240]

This Section examines whether Beijing and Chinese financial institutions might leverage the dominance of CIPS in RMB settlement to help the RMB consolidate its share of the currency trading market. There is a growing body of scholarship alleging that this has happened with other FMIs.[241] However, currencies perform multiple functions, and only a few of these functions serve as inputs into the clearing and settlement market. Accordingly, those inputs should be clearly delineated, by going through the steps of market definition, an exercise that has eluded currency scholarship.

A. Theoretical Background

1. Market Definition

Traditionally, the market definition/market share paradigm has served as the prevailing gauge of market power—the ability of a provider to set price above a marginal cost.[242] Market power is notoriously difficult to establish, so courts and regulators usually default to circumstantial evidence by calculating a provider's market share.

To arrive at market share, a court or regulator begins by defining the relevant product market around the smallest grouping of sales where a monopolist could reduce output and increase price substantially above marginal cost.[243] Then actor

[238] China Power, *supra* note 9.
[239] *Id*.
[240] *Id*.
[241] See, e.g., Chang, supra note 158; Awrey & Macey, *supra* note 133.
[242] William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 939 (1981).
[243] HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE 92 & 93 n.2 (4th ed. 2011). This is commonly

defines the relevant geographical market using the same test. Once product and geographic markets have been defined, the producer's market share will be calculated.

Market definition has drawn longstanding criticism for its incoherence.[244] In fact, reproach stretches back to one of the earliest market power cases, *U.S. v. du Pont*,[245] where the Supreme Court committed such a fundamental error that the product in question became the namesake for an entire class of mistakes: the cellophane fallacy. In *du Pont*, the Court accepted an excessively broad definition of the product market that included substitutes for cellophane at its then-*current* price, without accounting for the possibility that the du Pont had already raised the price of cellophane above its *competitive* price.[246] Essentially, the court had conflated the elasticity of demand for cellophane with the cross-elasticity, or reasonable interchangeability, of cellophane and its substitutes.

The entrenchment of market definition/market share raises the stakes for defining the relevant product market correctly. Yet the paradigm's convolutions, along with its myriad tests,[247] invite error, such as improperly blending both merchant and consumer interfaces into a two-sided platform.[248] Still, many courts and practitioners have eschewed other proxies for market power, and market power is the first step for monopolization claims such as exclusion, leveraging, and foreclosure.[249] Market definition

known as the "SSNIP" test: a "small but significant and non-transitory increase in price."

[244] *See, e.g.*, Louis Kaplow, *Why (Ever) Define Markets?*, 124 HARV. L. REV. 437, 440 (2010); Herbert Hovenkamp, *Markets in Merger Analysis*, 57 ANTITRUST BULL. 887, 891, 894–95 (2012); Landes & Posner, *supra* note 242.

[245] *See U.S. v. du Pont*, 351 U.S. 377 (1956).

[246] *See* George W. Stocking & Willard F. Mueller, *The Cellophane Case and the New Competition*, 45 Am. Econ. Rev. 29 (1955); RICHARD POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE (1976).

[247] Sean P. Sullivan, *Modular Market Definition*, 55 UC DAVIS L. REV. 1091 (2021).

[248] *See* Ohio v. American Express Co., 585 U.S. For criticisms, see John M. Newman, *Antitrust in Digital Markets*, 72 VAND. L. REV. 1497 (2019).

[249] This is the "power plus conduct" framework of *Grinnell*, 384 U.S. 563 (1966), and *U.S. v. Aluminum Co. of America*, 148 F.2d 416 (2d Cir. 1945).

therefore remains indispensable. For our purposes, it will prove a useful exercise by forcing us to contend with the relevant functions of currencies.

2. Leveraging and Foreclosure

Platform utilities are often essential to the functioning of a downstream market. For instance, internet service providers (in an upstream market for broadband access) are the means by which websites (in a downstream market for content) reach consumers.[250] Similarly, a utility company's power lines (in an upstream market for power distribution) may be the infrastructure that dispenses electricity to local consumers (in a downstream market for power generation).[251] In finance, clearinghouses operate in an upstream clearing and settlement market but facilitate buy–sell transactions in a downstream trading market.[252]

A platform utility that is essential to a downstream market can become an instrument to suppress competition in that downstream market. If the platform's owner or controller happens to participate in the downstream market, the owner or controller could restrict the access of its competitors to the platform.[253] By this scheme, the platform becomes a bottleneck—or, more appropriately, a chokepoint—to stifle entry into the downstream market. The ability to parlay the dominance of a bottleneck facility into dominance over an adjacent market is known a *leveraging*.[254] Relatedly, denial of access to a bottleneck

[250] *See* Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141 (2005).
[251] *See* Otter Tail Power Co., 410 U.S.
[252] *See* Chang, *supra* note 142.
[253] *See* LEE, *supra* note 2, at 21.
[254] This harm is particularly acute where industries are vertically integrated. *See* Rey & Tirole, *supra* note 236.

facility, in a manner that cuts off entry into the downstream market, is known as *foreclosure*.[255]

As a matter of doctrine, leveraging and foreclosure are classic Section 2 claims under the Sherman Act's prohibition against monopolization. Vertical actions fall under Section 2, as do claims of exclusion.[256] Through leveraging and foreclosure, two distinct monopolies (in the upstream and downstream markets) charging two sets of monopoly rents are created out of a single monopoly (in the upstream market).[257] For decades, Chicago school adherents attacked the possibility of leveraging and foreclosure with their own theory—that a monopolist need not forge two monopolies because it can already extract supracompetitive rents out of one monopoly.[258] Yet this conjecture, known as the single monopoly profit theory,[259] has itself been undercut by evidence that leveraging and foreclosure can help a monopolist or oligopoly maintain its dominance.[260]

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[255] *See, e.g.*, Verizon Commc'ns Inc. v. Law Offs. of Curtis V. Trinko, 540 U.S. 398 (2004).

[256] *See* Jonathan B. Baker, *Exclusion as a Core Competition Concern*, 78 ANTITRUST L.J. 527 (2013). Couching exclusion into Section 2, however, can be imprecise. *See id.* at 533 ("Although exclusionary claims are most commonly framed as challenges to vertical agreements or monopolization, antitrust's traditional doctrinal categories do not perfectly track the distinction between exclusion and collusion.").

[257] *See* Law Offices of Curtis V. Trinko, L.L.P. v. Bell Atlantic Corp., 305 F.3d 89, 108 (2d Cir. 2002) (listing the elements of a leveraging claim as (i) possession of monopoly power in one market, (ii) using that power to gain a competitive advantage in another distinct market, and (iii) thereby causing injury) (citing *Virgin Atl. Airways v. British Airways*, 257 F.3d 256, 272 (2d Cir. 2001).

[258] *See, e.g.*, Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19 (1957); Richard S. Markovits, *Tie-ins, Reciprocity, and the Leverage Theory*, 76 YALE L.J. 1397 (1967); Richard S. Markovits, *Tie-ins, Leverage, and the American Antitrust Laws*, 80 YALE L.J. 195 (1970); Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925 (1979).

[259] HERBERT HOEVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE § 7.9 (4th ed. 2010).

[260] *See* Robert Bork, *High-Stakes Antitrust: The Last Hurrah?*, in HIGH-STAKES ANTITRUST: THE LAST HURRAH? 45, 50 (Robert W. Hahn ed., 2003); Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit*

Denial of access to a platform utility raises the costs of participating in the downstream market.[261] If smaller market-makers cannot clear derivatives trades through ICE Clear Credit or LCH SwapClear, they would have to build their own clearinghouse—an insurmountable barrier, given the high sunk costs.[262] The premise from both the theoretical literature and analogs in other markets is that control of an FMI in an upstream market may help the monopolist in a downstream market maintain its dominance. However, as we shall see, the currency markets may be different.

B. Application to the Currency Markets

1. The Currency Trading Markets

Currency markets are unique for multitude reasons. Every issuer of fiat currency wields market power in the market for that currency.[263] By virtue of being the issuer, the government holds a monopoly over its currency.[264] This is a political reality that carries legal consequences: because governments enjoy sovereign immunity, their participation within a market leaves non-sovereigns with no recourse for anticompetitive behavior.[265] By contrast, in most markets with only private actors, antitrust law sets the rules for fair play and patrols against their violation.[266]

Theory, 123 HARV. L. REV. 397 (2009). *See also* Lawrence Kryzanowski et al., *Financial Oligopolies and Parallel Exclusion in the Credit Default Swap Markets*, 56 J. FIN. MKTS. 100606 (2021).

[261] *See* Rey & Tirole, *supra* note 236; Adam Candeub, *Trinko and Re-Grounding the Refusal to Deal Doctrine*, 66 U. PITT. L. REV. 821, 852-53 (2005).

[262] *See* Chang, *supra* note 142; Chang, *supra* note 158.

[263] *See* Gary B. Gorton & Jeffery Y. Zhang, *Protecting the Sovereign's Money Monopoly* (2022), https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=4162884.

[264] *Id.*

[265] *See* Parker v. Brown, 317 U.S. 341 (1943). For thorough treatment, see Greg Day, *State Power and Anticompetitive Conduct* (manuscript on file with author).

[266] *See* THOMAS K. CHENG, COMPETITION LAW IN DEVELOPING COUNTRIES 1 (2020).

Yet the international currency markets cannot be circumscribed around any single currency; in a global setting, all currencies compete against one another.[267] Therefore, currency markets abide by economic principles despite their political and legal distinctiveness.[268] As a matter of antitrust economics, then, international currency markets must be drawn to encompass multiple currencies. Consistent with this insight, SWIFT ranks the yuan against other currencies in its monthly RMB tracker,[269] and the SWIFT figures can serve as a loose approximation of market share.[270]

Unfortunately, the international currency markets are not so straightforward. Here, product market definition requires an understanding that currency markets fragment along their functionalities. Payment, vehicle, and reserve functions are all different from one another,[271] entailing different cross-elasticities.

Internationally, currencies can and do stand as substitutes for one another. But their substitutability varies by market and by currency. For instance, in global payments, the RMB comprises 2.15% of the market, while the dollar comprises 41.89%; they are separated by the Euro (36.34%), British pound (6.08%), and Japanese yen (2.88%).[272] Meanwhile, in trade finance, the RMB comprises 3.91% but the dollar about 84.84%; in the cavernous distance between them, there sits only the euro at 6.31%.[273] The

[267] *See* Barry Eichengreen & Marc Flandreau, *The Rise and Fall of the Dollar (Or When Did the Dollar Replace Sterling as the Leading Reserve Currency)*, 13 EUR. REV. ECON. HIS. 377 (2009).

[268] Indeed, many scholars who also cross over into the popular press are economists (e.g., Barry Eichengreen, Eswar Prasad, and Wing Thye Woo).

[269] *See* SWIFT, *supra* note 54.

[270] With the infirmities of SWIFT's statistics in mind (*see supra* notes 124 and 162 and accompanying discussion), the remainder of this Section will reference SWIFT figures. For better or worse, SWIFT stats are just frequently cited by most international sources to paint a picture of currency market shares. For context, however, references will be made to PBOC figures for RMB in the footnotes.

[271] *See supra* Section I.A.

[272] SWIFT, *RMB Tracker*, *supra* note 160, at 3.

[273] *See id.* at 8.

RMB might stand in for the dollar more easily in cross-border payments than in trade finance. This could be due to structural factors; for example, the dollar's smaller market share in payments than in trade finance means it could be more easily overtaken. Or variation in substitutability could be due to trade factors; for example, China enjoys greater strength in manufacturing than in finance, so its producers have greater capacity than its banks to switch from payment in dollars to payment in RMB.[274] By disaggregating the RMB into cross-border payments and finance, SWIFT suggests that the functions are not interchangeable.[275]

Relatedly, even within a market, the substitutability of currencies will vary. In payments, counterparties may be nearly as willing to accept the euro as the dollar; beyond these two currencies, the attractiveness of alternatives drops precipitously, as suggested by their much smaller market shares.[276] The costs of switching from euros to the RMB, the yen, or even the pound could be insurmountable for most market participants.[277] These costs might be driven by momentary political or economic developments,[278] or they might be determined by more durable

[274] These differences, of course, are dynamic. As quickly as the BRI is rolling out both trade *and* trade financing, the dollar–RMB gap should close over time in both categories.

[275] Similarly, the PBOC disaggregates RMB volumes across different usages such as settlement for payment on bulk commodities, domestic foreign exchange, cross-border cash transfers, and international reserves, though the central bank does not rank its currency against others. *See* PBOC, *2021 RMBI Report*, *supra* note 124, at 18–21.

[276] *See* SWIFT, *RMB Tracker*, *supra* note 160, at 3 & 8.

[277] On switching costs in finance, see CENTRE FOR EUROPEAN POLICY STUDIES, TYING AND OTHER POTENTIALLY UNFAIR COMMERCIAL PRACTICES IN THE RETAIL FINANCIAL SERVICE SECTOR, submitted to the European Commission 21 (2009), http://ec.europa.eu/internal_market/consultations/2010/tying_en.htm; DERMOT TURING, CLEARING AND SETTLEMENT IN EUROPE § 5.6(8) (2012).

[278] Recent examples include the spectacular fall in the value of the pound and a debacle with the British pension system. *See The Pound: Why Is It Falling?*, BBC NEWS (Sept. 26, 2022), https://www.bbc.com/news/business-49179234; Letter from Jon Cunliffe, Deputy Governor, Financial Stability, Bank of England, to

supply inelasticities on the part of alternative currencies.[279] After all, currencies themselves are infrastructures bearing unique network effects: the more widely accepted a currency is, the greater its value will be to users.[280] SWIFT's statistics even break out payments within the Eurozone, on the notion that European counterparties may be accustomed to currency switching.[281]

Crucially, not all functionalities of a currency require clearing and settlement. The payments function certainly entails cross-border settlement, but the vehicle function may not. Whether counterparties need to run a trade through CIPS is determined simply by whether at least one side needs to credit or debit in RMB. By contrast, the reserve function rarely implicates clearing and settlement, if ever. Currency reserves are held for the long term, so they tend not to be unloaded.[282] For trade finance, central bank swap lines are more important.[283] These distinctions will be important as we move to market definition in the upstream settlement market.

In market definition, the geographic market is often overlooked,[284] but for currency competition, geography is vital. Today, the erosion in importance of geographic market definition may be attributed to the outsized role of digital platforms, whose

Mel Stride, MP, Chair of the Treasury Committee, U.K. House of Commons (Oct. 5, 2022), *available at* https://committees.parliament.uk/publications/30136/documents/174584/default/.

[279] On how demand inelasticity figures into market power, see HOVENKAMP, *supra* note 243, at 93.

[280] *See* Eichengreen & Marc Flandreau, *supra* note 267.

[281] SWIFT's statistics even separate payments within the Eurozone, on the notion that European counterparties may be more comfortable substituting among certain currencies.

[282] *See* Barry Eichengreen et al., *Is Capital Account Convertibility Required for the Renminbi to Acquire Reserve Currency Status?*, Banque de France Working Paper 892 (2022).

[283] *See id.*

[284] Some economists hold that the difference between product and geographic markets is exaggerated in antitrust case law. *See* HOVENKAMP, *supra* note 243, at 123 n.1.

reach is global.[285] Hence, we sidestep the geographic market—unless the claim touches on transshipment,[286] market division,[287] or geographically specific markets.[288] In currency trading, technical improvements (through the seamless operation of settlement infrastructures) have diminished Herstatt risk, so geographic distance now matters less as well. Yet enduring regional fragmentation means that geographic market definition remains critical for currency trading markets. Consequently, this is an area where insights from currency trading can enrich antitrust paradigms.

In currency competition, geography is entangled with geopolitics. The RMB does not necessarily compete head-to-head with the dollar around the world; their rivalry splinters by region, where the footing of each currency depends on more localized political and economic dynamics. The degree of China's economic penetration (and the local reception to it) diverges across Africa, Asia, Australia and Oceana, Europe, North and Central America, South America, and the Middle East. In some regions, China has built more extensive economic partnerships through investment, trade, and central bank swap lines.[289] Other regions are heterogenous enough that their currency competition markets should be broken up into subregions.

Moreover, product and geographic markets are entwined. Thus, we must be aware of multiple overlapping, conflicting market definitions at any time. Examples include: (i) the cross-border payments market spanning Southeast Asia, where the

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[285] *See* Maximilian Stallkampp & Andreas P.J. Schotter, *Platforms without Borders? The International Strategies of Digital Platform Firms*, 11 GLOBAL STRATEGY J. 58 (2019).

[286] *See* HOVENKAMP, *supra* note 243, at § 3.6c.

[287] *See, e.g.*, Palmer v. BRG of Georgia, Inc., 498 U.S. 46 (1990). *See also* Kenneth M. Davidson, *The Competitive Significance of Segmented Markets*, 71 CALIF. L. REV. 445, 454 (1983).

[288] *See* Felix B. Chang, *Ethnically Segmented Markets*, 97 IND. L.J. 479 (2022).

[289] *See* Medhora, *supra* note 68, at 243 (discussing programs such as the Chang Mai Initiative in Southeast Asia).

dollar, euro, yen, and yuan may all hold similar market shares but compete intensely against one another, with the possibility that the market may soon tip for the yuan; versus (ii) the cross-border payments market spanning Australia and New Zealand, plus Indonesia, Malaysia, and Singapore (because of geographic proximity to Australia) and the Middle East (because of cultural proximity to Indonesia, Malaysia, and Singapore), where the Australian dollar, U.S. dollar, Singapore dollar, and yuan, are dominant; or (iii) Europe, where the euro and dollar comprise a duopoly that collaborates more than competes internally, followed more distantly by the yuan and the pound; versus (iv) continental Europe, which would exclude the U.K. because of Brexit. Ultimately, these variations are what multipolarity teaches—that the world fragments along geography and alliances. If international currency markets are indeed headed for multipolarity,[290] market definition can clarify our understanding of the degree of regional fragmentation.

2. The RMB Cross-Border Settlement Market

Whereas the international currency trading markets can span multiple regions as well as multiple currencies managed by monetary authorities, the currency settlement markets should be defined around specific currencies. In doing so, we begin with the premise that standard settlement system is a natural monopoly serving one currency.[291] By definition, natural monopolies command market power,[292] which market definition should then reflect. With nationally centralized currency settlement, an upstream market might sensibly be defined as, say, the cross-border settlement of U.S. dollars (where CHIPS reigns) or the

[290] *See supra* note 20.
[291] *See supra* Section III.B.
[292] *See supra* notes 170–72 and accompanying discussion.

cross-border settlement of RMB (where CIPS reigns).[293] This product market demarcation would, by extension, rule out the possibility that a settlement system for one currency (e.g., CIPS) might substitute for a settlement system for another currency (e.g., CHIPS).

At this point, it appears the upstream market should be defined as the cross-border settlement of RMB transactions (the relevant product), which spans the world (the relevant geographic scope). It is unclear whether CIPS is the primary provider—CIPS does compete with consortium of clearing centers plus CNAPS,[294] but Beijing has demonstrated a clear preference that cross-border settlement of RMB migrate toward CIPS.[295] Given the power of the state within the People's Republic, Beijing's pronouncements render CIPS's dominance inevitable.

One immediate consequence of a tightly defined, RMB-specific cross-border settlement market is a mismatch with the downstream markets. Downstream, the currency trading markets are broader, spanning multiple currencies all competing with one another. As a result of this asymmetry, CIPS (an RMB clearinghouse) simply cannot provide the foothold for Beijing to foreclose competition in the adjacent trading market (which is multicurrency). However much CIPS might develop, it will not be sufficient to ensure that the RMB can corner cross-border payments.

Under the antitrust rubric for monopolization, the RMB lacks market power in cross-border payments.[296] Here Beijing is hardly a significant player, let alone a monopolist that controls an

[293] As a market, RMB settlement is arguably more complicated than settlement for other currencies. The bifurcation of onshore and offshore RMB splinters the market into domestic and international spheres. Or, more appropriately, it creates two markets: one for onshore RMB settlement (dominated by CNAPS) and one for offshore RMB settlement (ostensibly dominated by CIPS).

[294] *See supra* note 235.

[295] *See supra* notes 83 and 235 and accompanying discussion.

[296] As of December 2022, the RMB comprised only 2.15% of global payments. SWIFT, *RMB Tracker*, *supra* note 160, at 3.

essential facility.[297] Even though CIPS might be a natural monopoly in RMB settlement, it cannot be leveraged into RMB's dominance in cross-border trading. At most, CIPS can only increase the efficiency of RMB transactions.

We began with the premise that each upstream settlement market revolves around one currency. However, recent developments suggest that even settlement systems may be fungible. Had INSTEX, the settlement infrastructure created to facilitate European purchases of Iranian oil, succeeded,[298] it would have circumvented—and substituted—established euro settlement systems. For its part, speculation over CIPS replacing SWIFT, though misplaced, may be more realistic when CIPS rolls out its messaging system based on Chinese characters.[299] For now, cross-border payment alternatives seem to be consigned to dealings among sanctioned states, such as an interbank communication system linking Russian and Iranian institutions designed to bypass FMI incumbents.[300]

Among the more prominent currency watchers, some have surmised that the world is hurtling toward multipolarity, one where no single currency dominates.[301] If true, this would be one of the most fascinating currency developments of our era. Multipolar systems are not always zero-sum.[302] For currencies, this may mean that the dollar and the RMB are not always locked in competition. Instead, the RMB might step in, perhaps on a regional scale, step in when dollar liquidity is strained; cross-border payments would then clear through CIPS. Alternatively,

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[297] A monopolist controlling a facility is one of the elements of an essential facilities claim; without it, the claim fails. *See supra* note 158.

[298] *See supra* notes 6 and 7 and accompanying discussion.

[299] *See* LAI, *supra* note 22, at § 7.6

[300] *See Russia and Iran Launch Payment System as an Alternative to Swift*, MIDDLE EAST EYE (Jan. 30, 2023), https://www.middleeasteye.net/news/russia-and-iran-launch-payment-system-alternative-swift.

[301] E.g., EICHENGREEN, *supra* note 20, at 7.

[302] *See* R.N. Rosecrance, *Bipoliarty, Multipolarity, and the Future*, 10 CONFLICT RESOLUTION 314 (1996).

CIPS and the RMB might constitute a fallback for nations in times of financial sanctions.

Whether as a supplement to the dollar or a systems bypass around it, an ascendant RMB does not necessarily threaten dollar supremacy, though it may render the market's decades-old equilibrium more fragile to maintain. These are the lessons that multipolarity teaches. But in competitive environments, no incumbent cedes its market power easily. This is the lesson that antitrust teaches.

CONCLUSION

Contrary to writings in the popular press, CIPS will not end our era of dollar supremacy. The cross-border RMB settlement system lacks the scale and scope of its analog for the U.S. dollar. Direct participants in CIPS are too few and too homogenous for the infrastructure to be meaningfully leveraged in the downstream currency trading market.

This Article harnesses antitrust economics to inject a modicum of precision into debates over CIPS and, more broadly, RMB internationalization, which often veers into polemic. In doing so, the Article reveals deficiencies in the settlement system's network effects. Laboring through market definition also highlights the connections between the two adjacent markets for RMB internationalization: cross-border trading and cross-border settlement of the yuan. Because currencies perform multiple functions, it is imperative to specify which functions rely on an upstream infrastructure—before we can conclude that the infrastructure could secure a currency's position in the trading market. It turns out that only a RMB's payment and vehicle functions, but not necessarily its reserve function, require clearing and settlement. Hence, the utility of CIPS as an instrument of leverage and foreclosure will be limited.

One fundamental takeaway from this Article is that FMIs differ from one another. They differ because the key players and market structures vary. Accordingly, CIPS bears only superficial

resemblance to SWIFT and clearinghouses in the securities and derivatives markets. And contrary to current speculation,[303] CIPS will not replace SWIFT. In fact, even as direct comparators, CIPS in China and CHIPS in the U.S. are quite different.

In our time of resurgent antitrust and ascendant regulation, attention to the nuances among platform utilities is more critical than ever.[304] The fallout from decades of Chicago school orthodoxy that monolithic approaches to market regulation can have severe consequences for society.[305] Now that the pendulum has swung toward intervention, the antitrust community should maintain its skepticism of bold prescriptions.[306] For FMIs, there is the additional overlay of financial regulation, whose balance with antitrust must be tailored to the specifics of each market.[307]

Looking ahead to that balance between antitrust and regulation for CIPS, we can identify four pressing areas for future research. The first is the interplay between international principles for FMIs and domestic regulation of CIPS. In the U.S., regulators have adopted many of the principles for FMIs laid out by international standard-setting organizations such as IOSCO.[308] Principles like transparency and systemic risk mitigation are enshrined in in Title VIII of the Dodd-Frank.[309] By contrast, regulations and even general guidelines have not been forthcoming for CIPS from its principal regulator, the PBOC. For

[303] *See supra* notes 1, 4, and 10 and accompanying discussion.

[304] *See* Hovenkamp, *supra* note 170, at 2003 ("Just as the digital platform is not a unicorn, it is also no monolith: platforms differ substantially from one another.").

[305] *See* JONATHAN B. BAKER, THE ANTITRUST PARADIGM: RESTORING A COMPETITIVE ECONOMY 1–2.

[306] *See* Benzell & Chang, *supra* note 128 (scrutinizing the net effects on social welfare from interventions such as divestitures); Hovenkamp, *supra* note 170, at 2003 ("As a result, antitrust litigation against platforms requires individualized fact finding, an assessment of competitive harms, and relief appropriately tailored for the circumstances.").

[307] *See* Arup Bose, Debashis Pal & David M. Sappington, *On the Merits of Antitrust Liability in Regulated Industries*, 59 J.L. & ECON. 359, 361 (2016)

[308] *See* CPSS & IOSCO, *supra* note 111.

[309] *See supra* note 177.

scholars, this opacity means that research on CIPS—like research on Chinese financial markets more generally—is laborious and prone to grand assumptions. For lay audiences, this means that much of the writing in the popular press will often misconstrue basic facts.

The second major question raised by CIPS is the earnestness with which China will pursue capital liberalization. Very quickly, the ease with which CIPS settles cross-border currency transactions will erode the distinction between onshore and offshore RMB, which currently abide by different market principles. The value of offshore RMB varies with market forces, but the value of onshore RMB is tightly managed. Yet as CIPS gains in efficiency and market share,[310] the domestic and international flavors of the yuan will inhabit one another's orbit more closely—until their separation can no longer be sustained. Soon, then, Beijing will have to choose between true RMB internationalization and the moat around its domestic financial markets.

Third, CIPS calls into question antitrust's act of state doctrine, which shelters sovereign actors from private antitrust suits.[311] The issuance and usage of currency falls, of course, within a nation's monetary sovereignty.[312] But CIPS is operated by a private entity and counts private-sector financial institutions as its most powerful members. In the securities and derivatives markets, FMIs have been manipulated to strengthen the hand of their members in the downstream trading markets.[313] Currency

[310] In other words, as CIPS grabs more of the market for RMB settlement from the network of clearing banks and CNAPS.

[311] *See, e.g.*, *W.S. Kirkpatrick & Co., Inc.*, 493 U.S. 400 (1990); *Celestin*, 30 F.4th 133; *Sea Breeze Salt, Inc.*, 899 F.3d 1064; *Spectrum Stores, Inc.*, 632 F.3d 938.

[312] *See* David Glasner, *An Evolutionary Theory of the State Monopoly over Money*, *in* MONEY AND THE NATION STATE: THE FINANCIAL REVOLUTION, GOVERNMENT AND THE WORLD MONETARY SYSTEM 21-45 (Kevin Dowd & Richard H. Timberlake, Jr. eds., 1998); L. RANDALL WRAY, MODERN MONEY THEORY: A PRIMER ON MACROECONOMICS FOR SOVEREIGN MONETARY SYSTEMS 41 (2012). *See also* U.S. Const. art. I, § 8, cl. 1.

[313] *See* Chang, supra note 158; Awrey & Macey, *supra* note 133.

competition presents more complicated issues, though, because the issuers are sovereigns, while the traders and infrastructure controllers are not. As private actors provide more public goods in international payments and finance, those actors should not be able to hide behind the act of state doctrine for antitrust violations—perhaps not even in currency markets, which implicate core sovereignty and international relations concerns. For Chinese financial institutions, which tend to share a closer nexus with the state than institutions elsewhere,[314] it may be difficult to cut through the Gordian knot of antitrust liability for actions undertaken to corner the global market where currencies compete.

Finally, perhaps the most consequential question implicated by CIPS is whether the RMB internationalization portends a new world currency order. Does the redback's market share creep mean that the RMB will merely supplement the dollar (e.g., in a regional context, as a liquidity backup in times when the dollar is in short supply or too expensive) or completely displace the dollar? Or will the RMB constitute a sort of systems bypass around the dollar (e.g., for sanctions evasion)? For now, CIPS is still too hampered by its network effects deficit to foment RMB domination. But China may well have the scale to churn global demand for its currency. It is a behemoth of a market-maker. Soon, those two trends—RMB internationalization and CIPS's development—will collide. At that point, CIPS will play an undeniable role in the redback's global dominance.

[314] *See* Wang et al., *supra* note 208.a

APPENDIX

CIPS Direct Participants[315]

1	INDUSTRIAL AND COMMERCIAL BANK OF CHINA
2	Agricultural Bank of China Limited
3	Bank of China Ltd.
4	CHINA CONSTRUCTION BANK CORPORATION
5	Bank Of Communications
6	CHINA MERCHANTS BANK
7	SHANGHAI PUDONG DEVELOPMENT BANK
8	CHINA MINSHENG BANKING CORPORATION, LIMITED, (HEAD OFFICE)
9	INDUSTRIAL BANK CO., LTD.
10	Ping And Bank Co., Ltd.
11	HUAXIA BANK
12	HSBC BANK (CHINA) COMPANY LIMITED
13	CITIBANK (CHINA) CO., LTD.
14	Standard Chartered Bank (China) Limited
15	DBS Bank (China) Limited
16	Deutsche Bank (China) Co., Ltd
17	BNP PARIBAS (CHINA) LIMITED
18	ANZ CHINA SHANGHAI BRANCH
19	THE BANK OF EAST ASIA (CHINA) LIMITED
20	CHINA CITIC BANK CORPORATION LIMITED
21	China Guangfa Bank Co., Ltd
22	BANK OF SHANGHAI

315 CIPS, *Direct Participants List*, https://www.cips.com.cn/en/about_us/about_cips/direct_participants_list/index.html (last accessed Jan. 25, 2023).

23	BANK OF JIANGSU CO., LTD
24	MUFG Bank (China), Ltd.
25	Mizuho Bank (China), Ltd.
26	Hang Seng Bank (China) Limited
27	Bank Of China (Hong Kong) Limited (Hong Kong Renminbi Clearing Bank)
28	CHINA EVERBRIGHT BANK
29	Shanghai Clearing House
30	China Central Depository and Clearing Co., Ltd
31	JPMorgan Chase Bank (China) Company Limited
32	NetsUnion Clearing Corporation
33	CITY COMMERCIAL BANKS CLEARING
34	Sumitomo Mitsui Banking Corporation (China) Limited.
35	RURAL CREDIT BANKS FUNDS CLEARING CENTER
36	CHINA DEVELOPMENT BANK
37	Industrial and Commercial Bank of China Limited Singapore Branch
38	INDUSTRIAL AND COMMERCIAL BANK OF CHINA(ASIA)LIMITED
39	BANK OF CHINA MACAU BRANCH RMB CLEARING BANK
40	China Construction Bank Corporation London Branch
41	Bank of Communications Seoul RMB Clearing Bank
42	POSTAL SAVINGS BANK OF CHINA CO., Ltd.
43	China UnionPay
44	China Construction Bank Corporation Labuan Branch
45	CHINA CONSTRUCTION BANK (ASIA) CORPORATION LIMITED
46	Bank of China Limited, Singapore Branch
47	Bank of China Frankfurt Branch (RMB Clearing Bank)

48	Agricultural Bank of China Limited, Hong Kong Branch
49	AGRICULTURAL BANK OF CHINA (DUBAI BRANCH)
50	HARBIN BANK CO., LTD.
51	HONG KONG MONETARY AUTHORITY CMU
52	BANK OF COMMUNICATIONS CO., LTD. HONG KONG BRANCH
53	Bank of Communications (Hong Kong) Limited
54	Industrial and Commercial Bank of China Ltd., Karachi Branch
55	Industrial and Commercial Bank of China (Macau) Limited
56	Industrial and Commercial Bank of China (Thai) Public Company Limited
57	Industrial And Commercial Bank of China (Doha) QFC Branch
58	Industrial and Commercial Bank of China (Canada)
59	China Construction Bank Corporation Tokyo Branch
60	China Construction Bank Corporation, Beijing, Swiss Branch Zurich
61	Bank of China Limited Johannesburg Branch
62	Bank of China Seoul Branch
63	Bank of China (Hong Kong) Limited - Manila Branch RMB Clearing Center
64	Bank of China (Malaysia) Berhad
65	BANK OF CHINA LIMITED SYDNEY BRANCH
66	Bank of China Limited Hungarian Branch
67	Bank of China Zambia Ltd
68	BANK OF CHINA, TAIPEI BRANCH
69	BANK OF CHINA MACAU BRANCH RMB CLEARING BANK
70	BANK OF CHINA PARIS BRANCH
71	BANK OF CHINA LIMITED LONDON BRANCH

72	Industrial and Commercial Bank of China Limited Vientiane Branch
73	Industrial and Commercial Bank of China Limited Luxembourg Branch
74	Bank ICBC (joint stock company) RMB Settlement Center in Russia
75	The Export-Import Bank of China
76	Agricultural Development Bank of China
77	China Foreign Exchange Trade System (National Interbank Funding Centers)