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Implications for the Dollar of Central Bank Digital Currencies

Ross P Buckley*

The launch of central bank digital currencies (CBDCs) and likely connection of domestic fast payment systems through hubs will dramatically reduce the current costs and delays of international payments. These developments will facilitate the direct exchange of many currencies and thus reduce demand for the US dollar as a vehicle currency through which other currencies are exchanged. This decline in demand for the dollar will reduce the proportion of dollars nations elect to hold in their foreign exchange reserves, thereby exacerbating the current long-term decline in the dollar as the world's principal global reserve currency. The current dollar-dominated international financial system is highly favorable to the US. By weaponizing the dollar to impose sanctions upon other countries, the US is incentivizing nations to move away from the current system, as Russia, China and other countries are already doing. In doing so, the US is squandering its exorbitant privilege as issuer of the preeminent global currency. The creation of a wholesale US dollar CBDC for offshore use will be absolutely critical for the US in the new, multi-polar international financial system.

I – Introduction

Central bank digital currencies (CBDCs) are coming. The problem lies not in building them. Central banks around the world are doing so in trials and pilots, both domestic and cross-border.[1] No, the problem right now lies in talking about them. For with CBDCs we are currently in Looking-Glass House. As Humpty Dumpty said, "When *I* use a word, it means just what I choose it to mean--neither more nor less."[2]

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[1] *Central Bank Digital Currency Tracker*, ATLANTIC COUNCIL, https://www.atlanticcouncil.org/cbdctracker/ (reporting that '130 countries, representing 98 percent of global GDP, are exploring a CBDC').

[2] LEWIS CARROLL, THROUGH THE LOOKING GLASS, AND WHAT ALICE FOUND THERE 124 (Macmillan and Co 1882) 124.

I have been in many discussions, at home and abroad, in which each participant is clear as to what a CBDC is – and each means something quite different by the term.

Some folk are emphatic, CBDCs are a solution in search of a problem. They are a neat idea for which there is no need. These people invariably live in a developed country with a sophisticated payment system (ie. not the US[3]) and are talking about a retail CBDC.

Other folk are equally emphatic, CBDCs are essential. These people typically live in a developing country with a payments system which excludes many citizens. For them, a CBDC is, rightly, a means to a level of financial inclusion which will allow most people to participate well in the economy and think and plan long-term. For if one cannot save easily and safely, it is difficult to plan and save for one's own education or that of one's children.[4] When saving is perilous so are long-term plans, and so are many roads to a better life. These people are also thinking about a retail CBDC.

Yet other folk think CBDCs may be a good idea, one well worth exploring. These typically live in a developed country with a well-functioning payment system (ie. most OECD countries outside the US), and are thinking of the expense and delays in cross-border payments and the exceptional ability of CBDCs to reduce these dramatically.[5] So for them a CBDC is not essential, but offers much.

Yet I have dived straight in here, so let's take a step back. A CBDC is typically and well defined as 'a digital payment instrument, denominated in the national unit of account, that is a direct liability of the central bank'.[6] A CBDC will typically have the same legal status as cash but only be available in digital form.[7] A payment in CBDC therefore consists of transferring a

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[3] Ignazio Angeloni, *Letter: Banking in US Would Make Anyone a CBDC Convert*, FINANCIAL TIMES, Sep. 18, 2023, https://www.ft.com/content/22bd78d9-c299-42b3-b9f4-c99ba63eed55.

[4] DIRK A ZETZSCHE *ET AL.*, ROADMAP FOR INCLUSIVE GREEN FINANCE IMPLEMENTATION – BUILDING INITIATIVES AND POLICIES 10 (Report, AFI, Nov 2022).

[5] BANK FOR INTERNATIONAL SETTLEMENTS, CENTRAL BANK DIGITAL CURRENCIES: FOUNDATIONAL PRINCIPLES AND CORE FEATURES 16 (Report, July 2021), https://www.bis.org/publ/othp38.pdf; BANK FOR INTERNATIONAL SETTLEMENTS, OPTIONS FOR ACCESS TO AND INTEROPERABILITY OF CBDCS FOR CROSS-BORDER PAYMENTS 2, 28 (Report, Jul. 2022) https://www.bis.org/publ/othp52.pdf [hereinafter OPTIONS FOR ACCESS].

[6] BANK FOR INTERNATIONAL SETTLEMENTS, CENTRAL BANK DIGITAL CURRENCIES: FOUNDATIONAL PRINCIPLES AND CORE FEATURES 3 (Report No 1, 2020), https://www.bis.org/publ/othp33.pdf. See also Wouter Bossu *et al.*, *Legal Aspects of Central Bank Digital Currency: Central Bank and Monetary Law Considerations* 6 (International Monetary Fund Working Paper 20/254, 2020), www.imf.org/en/Publications/WP/Issues/2020/11/20/Legal-Aspects-of-Central-Bank-Digital-Currency-Central-Bank-and-Monetary-Law-Considerations-49827.

[7] Bossu *et al.*, *supra* note 6, at 13.

direct claim on the central bank from one user to another: funds need not pass over the balance sheet of an intermediary and transactions can be settled by the central bank in real time.[8]

Today people most everywhere routinely receive their salary and meet most expenses by using digital payments from commercial bank accounts. These are not central bank money, merely the promises of a commercial bank. The only central bank money individuals typically use today is cash, and its usage is in decline most everywhere and in precipitate decline, especially among younger people, in many advanced economies, including Norway, Australia, New Zealand, Sweden and China, where cash usage at point of sale ranges from a mere 3% to only 8% of transactions.[9]

Building a CBDC involves a plethora of design choices.[10] As indicated, a CBDC may be for retail or wholesale use. It may be token-based or account-based. Its usage may be anonymous, like cash, or traceable, like bank payments. It may pay interest or not. Some CBDCs will be for use solely domestically, or within a currency union. Others will be useable across borders.[11]

Wholesale CBDCs will generally be used between financial institutions such as banks, while retail CBDCs will be for businesses and the public.[12] Retail CBDCs complement or substitute for cash, and given their novelty, will likely bring more profound changes than wholesale CBDCs.[13] Many states are researching retail CBDCs.[14]

Account-based CBDCs are ‘booked in the accounts of the third parties holding accounts with the issuing central bank and the process of its transfer (including … legal finality) … conducted

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[8] Martin Chorzempa, *Testimony before the US-China Economic and Security Review Commission: China's Pursuit of Leadership in Digital Currency* 5–6 (Statement, April 15, 2021), www.uscc.gov/sites/default/files/2021-04/Martin_Chorzempa_Testimony.pdf; BANK FOR INTERNATIONAL SETTLEMENTS, BIS ANNUAL ECONOMIC REPORT 2021 75 (Report, Jun. 2021).

[9] The Global Payments Report 2023 from FIS reported that Norway had the lowest cash usage (3% of the value of point-of-sale transactions), followed by Australia (6%), New Zealand (7%), China (8%), and Sweden (8%): FIDELITY NATIONAL INTERNATIONAL SERVICES, THE GLOBAL PAYMENTS REPORT 2023 40, 86 (2023), https://www.fisglobal.com/en/-/media/fisglobal/files/campaigns/global-payments-report/FIS_TheGlobalPaymentsReport2023_May_2023.pdf.

[10] This and the next five paragraphs are reworked from Heng Wang & Ross Buckley, The Coming Central Bank Digital Currency Revolution and the e-CNY, Singapore Journal of Legal Studies 145, 147–8 (2023).

[11] MARC LABONTE & REBECCA M. NELSON, CENTRAL BANK DIGITAL CURRENCIES: POLICY ISSUES 11–13 (Congressional Research Service, Feb. 7, 2022).

[12] Elijah Journey Fullerton & Peter J. Morgan, *The People's Republic of China's Digital Yuan: Its Environment, Design, and Implications* 9 (Asian Development Bank Institute, Discussion Paper No. 1306, 2022).

[13] ESWAR S. PRASAD, THE FUTURE OF MONEY: HOW THE DIGITAL REVOLUTION IS TRANSFORMING CURRENCIES AND FINANCE 12 (Belknap Press 2021).

[14] LABONTE & NELSON, *supra* note 11, at 10.

on the books of the issuing central bank'. [15] A token-based CBDC comprises digital tokens stored in digital wallets. They may be transferred in various ways such as by decentralized or peer-to-peer networks, and may offer user anonymity.[16] Recordkeeping of an account-based CBDC is managed through transferor and transferee deposit accounts held with a central bank or its agents (eg, commercial banks), while recordkeeping for a token-based CBDC is managed by other means devised by the central bank, such as digital signatures.[17]

CBDCs may be structured in direct or hybrid forms. In a direct, one-tier system, a central bank will directly issue the CBDC and administer it through sophisticated technologies. In a hybrid, two-tier system, the customer interface will be typically provided by commercial banks, with the CBDC recorded on the ledger of, and a direct claim upon, the central bank.[18] Few central banks have the appetite or resources to operate a direct CBDC. Most are now considering a hybrid form,[19] as we predicted in 2019.[20]

CBDCs are creatures of technology.[21] They may or may not be built upon distributed ledger technology (DLT) but will always depend upon highly sophisticated cryptography and software.[22]

Different CBDC design choices carry profound implications.[23] Token-based and account-based CBDC are legally different, and engage different bodies of law (the laws of things or obligations respectively). Any CBDC is legally very different from a balance in a current

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[15] Hossein Nabilou & André Prüm, Central Banks and Regulation of Cryptocurrencies, Rev Banking & Financial L, 39–40 (forthcoming); Christian Barontini & Henry Holden, *Proceeding with Caution: A Survey on Central Bank Digital Currency* 2 (BIS Papers No 101, 2019).
[16] Nabilou & Prüm, *supra* note 15, at 39–40; Barontini & Holden, *supra* note 15, at 2.
[17] Steven L. Schwarcz, Regulating Digital Currencies: Towards an Analytical Framework, 102 BU L Rev 1037, 1047 (2022).
[18] Bossu *et al*, *supra* note 6, at 10. See also Ross P Buckley *et al*, Sovereign Digital Currencies: Reshaping the Design of Money and Payments Systems, 15 Journal of Payments Strategy and Systems 7, 14–15 (2021).
[19] Raphael Auer *et al*, *Rise of the Central Bank Digital Currencies: Drivers, Approaches and Technologies* 1, 28 (BIS Working Paper No 880, 2020). On why blockchain technology will likely require intermediaries, see Karen Yeung & David Galindo Chacon, Why Do Public Blockchains Need Formal and Effective Internal Governance Mechanisms, 10 European J Risk Regulation 359 (2019).
[20] A Didenko & RP Buckley, The Evolution of Currency: From Cash to Cryptos to Sovereign Digital Currencies, 42 Fordham International Law Journal 1041, 1087–8 (2019).
[21] See, e.g., WORLD ECONOMIC FORUM, CENTRAL BANKS AND DISTRIBUTED LEDGER TECHNOLOGY: HOW ARE CENTRAL BANKS EXPLORING BLOCKCHAIN TODAY? 5–7 (White Paper, Mar. 2019), www3.weforum.org/docs/WEF_Central_Bank_Activity_in_Blockchain_DLT.pdf.
[22] SWIFT & Accenture, *Exploring Central Bank Digital Currencies: How They Could Work for International Payments* 7– 8 (2021), www.swift.com/news-events/news/exploring-central-bank-digital-currencies-swift-and-accenture-publish-joint-paper. Many central banks are considering using DLT for token-based CBDCs: Bossu *et al*, *supra* note 6, at 12.
[23] ASHTON DE SILVA *ET AL*, CENTRAL BANK DIGITAL CURRENCIES (CBDCS): A COMPARATIVE REVIEW 26 (Report prepared for CPA Australia by RMIT University, 2021).

account, which in no sense is a claim on the central bank.[24] CBDCs also bring monetary policy implications.[25]

So in Looking-Glass House I often find myself in conversations with Americans, fixated on a retail CBDC and the threats to privacy and anonymity of users from a federal government many don't trust;[26] and Europeans, who consider both retail and wholesale applications, and may be a tad unclear as to precisely which they are discussing;[27] and people in Australia and Singapore, who tend to see the greatest potential of CBDCs as lying in the wholesale realm.[28]

Such discussions are difficult, and unlikely to be fruitful, as one should expect when people are using the same word to describe different things.

So the first step in any analysis of CBDCs is to be clear about the characteristics of the CBDC being discussed. Will it be for use in wholesale or retail transactions? Will it be for use in domestic or international payments? Will it be account-based or token-based? Once the discussants are clear on those issues, and only then, will they be able to step out of Wonderland and into the real world, where progress can be made. This is particularly important in international discussions about CBDCs as it is here I find the tendency to use the term to mean different things the most pronounced.

Here endeth my general advice. For the balance of this article I wish to apply this advice to the international dimensions of CBDCs. In particular, I want to analyse the potential of CBDCs in international trade and payments and their likely impact upon the current US

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24 Bossu *et al*, *supra* note 6, at 12, 41.

25 UK, HL, "Central Bank Digital Currencies: A Solution in Search of a Problem?", 3rd Report of Session 2021–22 in *Sessional Papers*, (2021–22) at 25–26.

26 See, eg, Peter N Goettler, *CBDCs Threaten Privacy*, INTERNATIONAL BANKER, June 26, 2023, https://internationalbanker.com/banking/cbdcs-threaten-privacy/; Statement, US Department of the Treasury, *Remarks by Assistant Secretary for Financial Institutions Graham Steele on the Digitization of Financial Services at the Transform Payments USA 2023 Conference* (June 13, 2023), https://home.treasury.gov/news/press-releases/jy1530.

27 See EUROPEAN CENTRAL BANK, REPORT ON A DIGITAL EURO (Oct. 2020).

28 The Reserve Bank of Australia has researched the potential of a wholesale CBDC and concluded an initial pilot of a retail CBDC: RESERVE BANK OF AUSTRALIA, PROJECT ATOM: EXPLORING A WHOLESALE CBDC FOR SYNDICATED LENDING (Report, Dec. 2021); Reserve Bank of Australia, AUSTRALIAN CBDC PILOT FOR DIGITAL FINANCE INCLUSION 11 (Project Report, August 2023). See also MONETARY AUTHORITY SINGAPORE, PROJECT ORCHID: PROGRAMMABLE DIGITAL SGD 7 (Report, Oct. 31, 2022) (Singapore); HONG KONG MONETARY AUTHORITY, E-HKD: A POLICY AND DESIGN PERSPECTIVE 37 (Report, Apr. 2022) (Hong Kong). Australia, Malaysia, Singapore and South Africa have also collaborated to research the potential of a shared DLT platform to issue multiple wholesale CBDC tokens: BIS INNOVATION HUB, PROJECT DUNBAR: INTERNATIONAL SETTLEMENTS USING MULTI-CBDCS (Report, Mar. 2022).

dollar based international payments and financial system, and thus the status of the US dollar as the principal global reserve currency.

Accordingly, Part II will analyse the potentially massive efficiencies and savings in international trade and payments from usage of CBDCs.

Part III will consider how international payments for transactions to which a US entity is not a party will likely in future be conducted directly between the two national parties and not through the US dollar as a vehicle currency. The technical means of doing so will either be through the use of CBDCs or the direct connection of national fast payment systems through payments hub, or some combination of the two. Whichever means is used, this will reduce demand for the US dollar.

Part IV will then consider the impact on the US dollar based international payments system of the weaponization of that system by the US to impose sanctions, successively, on Venezuela, Iran, Afghanistan, North Korea and, most recently, Russia.

Part V concludes with an analysis of how the US is squandering the exorbitant privilege the current system gifts it, to its own long-term disadvantage.

II – The Potential of CBDCs in International Trade and Payments

The G20 has made improving cross-border payments a global priority and has identified CBDCs as a potential way to achieve this goal.[29]

Cross-border payments today are effected by commercial banks through a system of correspondent banks.[30] In the words of a BIS Innovation Hub report, "due to duplicated processes and steps in the correspondent banking chain, cross-border payments exhibit high costs, low speed, operational complexities, limited access and low transparency. These inefficiencies also introduce settlement risk into the system, to the detriment of both financial intermediaries and end users."[31] The delays are so substantial that rather colourfully, and only partly in jest, Roberto Campos Neto, President of the Central Bank of Brazil, posited that it "it

[29] Financial Stability Board, *Enhancing Cross-Border Payments: Stage 3 Roadmap* 13, 32 (13 October 2020), https://www.fsb.org/wp-content/uploads/P131020-1.pdf.
[30] Dirk A Zetzsche *et al.*, From 'Best Friends' to 'Best Execution': Rethinking Cross-Border Payments, 8 Journal of Business Law 682, 683–6 (2022).
[31] BIS INNOVATION HUB, PROJECT MBRIDGE: CONNECTING ECONOMIES THROUGH CBDC 10 (Report, Oct. 2022) https://www.bis.org/publ/othp59.pdf [hereinafter PROJECT MBRIDGE].

is quicker to move funds from São Paulo to London by boarding a plane with bags of cash than using official channels”.[32]

For 2020, Oliver Wyman and JP Morgan[33] estimated the transaction charges associated with our current model at around $120 billion for the nearly $23.5 trillion of cross-border transactions flows. In other words, the current infrastructure serves as a tax of about 0.5% levied by the banks on international payments. To this figure one needs to add the settlement delays and risks, which in the view of the BIS are likely to amount to an even greater impost than the monetary cost.[34]

Today’s cross-border payments system is expensive and slow, and the payments typically involve a remarkable number of intermediaries and participants. The banks which operate in this system have no incentive to improve it, as it provides lucrative fee income. To make matters worse, payments are not even typically routed the most efficient way, with relationships between banks and their potential profits taking priority over the best interests of customers.[35] The market mechanism which, through competition, should drive fees down and welcome innovative new, superior ways of making international payments is not working. CBDCs will totally change this. To be clear, there are other ways of achieving this end, principally through connecting domestic fast payments systems through hubs which facilitate these systems interacting with each other.[36] However, what is indisputable, given the monetary costs and delays of the current international payments system, is that its fundamental reform will come about one way or the other, and whether these reforms are through CBDCs or connecting domestic fast payment systems should not matter in terms of their impact in greatly diminishing the usage of the US dollar as a vehicle currency.

It is interesting and somewhat bemusing that correspondent banking has persisted for so long as the architecture through which cross-border payments are effected when it is so inefficient.

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[32] IMF, *Money at a Crossroad*, YOUTUBE 39:30–39:51 (Apr. 19, 2022), https://www.youtube.com/watch?v=Prbx36natyU&t=234s; Gillian Tett, *CBDCs Now Hold Wholesale Appeal for Central Bankers*, FINANCIAL TIMES, June 3, 2022, https://www.ft.com/content/3810bc35-b9da-47b2-93ad-2ec2899c869b.
[33] OLIVER WYMAN & JP MORGAN, UNLOCKING $120 BILLION VALUE IN CROSS-BORDER PAYMENTS: HOW BANKS CAN LEVERAGE CENTRAL BANK DIGITAL CURRENCIES FOR CORPORATES 3 (Report, 2021), https://www.jpmorgan.com/onyx/documents/mCBDCs-Unlocking-120-billion-value-in-cross-border-payments.pdf.
[34] *Id*.
[35] Zetzsche *et al.*, *supra* note 30.
[36] See, e.g., BANK FOR INTERNATIONAL SETTLEMENTS, PROJECT NEXUS: ENABLING INSTANT CROSS-BORDER PAYMENTS (Overview Report, Mar. 2023), https://www.bis.org/publ/othp62.pdf [hereinafter ENABLING INSTANT CROSS-BORDER PAYMENTS].

Part of the answer must be that these same inefficiencies are sources of significant profit for commercial banks. Another part is the challenges of interoperability when moving between different national payments systems, challenges which the BIS-led Projects mBridge and Mariana discussed in the next Part are designed to solve.

CBDCs are one of the two most likely vehicles for reform of this system and when implemented they should be able to reduce transaction costs substantially, and perhaps more importantly reduce the time delays from 3 to 5 days to a matter of minutes, and reduce the risks in the transaction equally dramatically with the settlement finality that central bank money brings.[37] CBDCs will achieve all this as there will be no need for the various correspondent banks, each of which introduce costs and delays, and yet upon which the operation of the current system depends.[38]

Furthermore, in my view, while the e-CNY is today a domestic digital currency within China, it also has a clear role to play in China's long-term project to move the global financial system away from a US-dollar dominated system to one in which there are five or so reserve currencies of which the CNY is one.[39] In pursuance of this end, when China eventually releases the e-CNY for offshore use, I expect to see its use be free and quite possibly its use in purchasing Chinese outputs made mandatory.[40] This is because China is pursuing a long-term geopolitical goal, not a short-term profit-oriented one.[41] With digital currency, as with many other endeavours, the Chinese government is 'crossing the river by feeling the stones', in Deng Xiaoping's words, and for decades China has been proving this to be a sound way to cross rivers and get to one's intended destination.

III – Ways Forward with International Payments

An extraordinary number and variety of projects, including some coordinated by the BIS Innovation Hubs, are seeking to explore how to build the networks and systems needed for a truly efficient international payments system. Currently there are two broad ways in which this

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[37] BANK OF INTERNATIONAL SETTLEMENTS, ITHANON-LIONROCK TO MBRIDGE: BUILDING A MULTI CBDC PLATFORM FOR INTERNATIONAL PLATFORMS 29 (Report, Sep. 2021) https://www.bis.org/publ/othp40.pdf.
[38] Ross Buckley *et al.*, Regional Solutions to Global Payments Challenges: Towards a Single Rulebook, 38 Banking and Finance Law Review 81, 88–9 (2022).
[39] See, eg, PROJECT MBRIDGE, *supra* note 31.
[40] Wang & Buckley, *supra* note 10, at 172.
[41] DARRELL DUFFIE & ELIZABETH ECONOMY (EDS), DIGITAL CURRENCIES: THE US, CHINA, AND THE WORLD AT A CROSSROADS 37–43 (Hoover Institution Press 2022).

is being done – the first, which is getting more attention, involves CBDCs, the second involves connecting domestic fast payment systems.

An example of the former, a successful cross-border CBDC experiment, is Project Jura undertaken by the Banque de France and the Swiss National Bank.[42] Project Jura resulted in the safe and efficient settlement of foreign exchange transactions in euro and Swiss franc wholesale CBDCs, as well as the issuance, transfer and redemption of tokenized euro-denominated French commercial paper between French and Swiss institutions. As the Deputy Governor of the Banque de France commented, "[Project] Jura demonstrates how wholesale CBDCs can optimize cross-currency and cross-border settlements, which are a key facet of international transactions."[43]

Another example of using CBDCs to transform international payments is Project mBridge.[44] This was a joint project between the BIS Innovation Hub Hong Kong, the Hong Kong Monetary Authority, the Bank of Thailand, the Central Bank of the United Arab Emirates and the People's Bank of China.[45] mBridge involved a single-platform, direct-access CBDC platform -- a common technical infrastructure to host multiple CBDCs. On this platform, CBDCs were issued by the participating central banks, and foreign financial institutions were able to directly hold and transact in CBDCs through a designated account or wallet.[46] Private sector participants identified 15 potential use cases for the mBridge platform, including international trade settlement, remittances, tokenised bond issuance, and e-commerce. International trade, for reasons of its importance, was chosen for the pilot.

mBridge was a private, permissioned distributed system operating on a bespoke distributed ledger.[47] It was a small pilot, limited to six weeks in duration, in which only USD12 million of CBDCs were issued onto the platform. It was very limited in scope as cross-border transactions in a currency foreign to both counterparties, while common in international trade, were excluded (due to reasons of monetary sovereignty). [48] Nevertheless, mBridge did establish the

[42] BANQUE DE FRANCE *ET AL.*, PROJECT JURA: CROSS-BORDER SETTLEMENT USING WHOLESALE CBDC (Dec. 2021).
[43] *Id*. at 2, 4. See also Douglas Arner *et al.* 'Monetary Hegemony, Technological Evolution and the International Monetary System', 36 (UNSW Law Research Paper No 23-61) (forthcoming Boston Journal of International Law).
[44] PROJECT MBRIDGE, *supra* note 31.
[45] *Id.*
[46] *Id.* at 7–8, 29.
[47] *Id.* at 26–7.
[48] *Id.* at 32–3.

technological feasibility of a multi-party CBDC platform and generated many learnings especially around the legal and governance issues that will need to be addressed rigorously to underpin the successful functioning of any such platform.[49]

Project Mariana is a recent cross-border CBDC project developed by the BIS Innovation Hub, Bank of France, Monetary Authority of Singapore, and the Swiss National Bank.[50] It is a proof of concept for a global interbank market facilitating the foreign exchange of hypothetical Swiss franc, euro and Singapore dollar wholesale CBDCs.[51] Mariana sought to test three unique components in the experiment, based on decentralised ledger technology. First, the CBDCs were traded using the ERC-20, a widely used token standard, enabling interoperability. Second, bridges were used to easily transfer CBDCs between domestic platforms.[52] Third, the CBDCs were traded and settled immediately by automated market-makers (AMMs) and a common liquidity pool.[53] AMMs allow settlements to be made immediately and therefore should see the end of the ex post funding of today's foreign exchange markets.[54] Subject to further experimentation, Mariana has initiated the possibility of using DeFi technology to facilitate foreign exchange and improve interoperability between CBDCs.

Another example of central bank led innovation, distinct from CBDC, is Project Nexus. In collaboration with the Monetary Authority of Singapore, the Bank of Italy and the Central Bank of Malaysia, the BIS Innovation Hub explored standardized processes to allow domestic payment systems to interact, thereby enabling interoperability between payment systems across borders.[55] A prototype of Project Nexus in 2022 connected the instant payment systems of the Eurosystem (operated by the Bank of Italy), Malaysia and Singapore and demonstrated the

[49] In terms of the technological feasibility of a retail digital dollar, Project Hamilton – a joint venture between the Federal Reserve Bank of Boston and the Massachusetts Institute of Technology's Digital Currency Initiative – tested a design for a digital dollar which handled 1.7 million transactions per second, with 99 percent completing in less than a second: FEDERAL RESERVE BANK OF BOSTON AND MASSACHUSETTS INSTITUTE OF TECHNOLOGY DIGITAL CURRENCY INITIATIVE, PROJECT HAMILTON PHASE 1 (Feb. 2022). Visa can handle up to 65,000 transactions per second: Daren Fonda, *Solana Could Be the Visa of Crypto Networks. Not So Fast, Says Visa*, BARRON'S, Jan. 13, 2022, www.barrons.com/articles/solana-could-be-the-visa-of-crypto-networks-not-so-fast-says-visa-51642091862. Nonetheless, Project Hamilton, as a mere pilot, strongly suggests a retail digital dollar is achievable technologically.

[50] BIS INNOVATION HUB, PROJECT MARIANA: CROSS-BORDER EXCHANGE OF WHOLESALE CBDCS USING AUTOMATED MARKET-MAKERS (Final Report, Sep. 2023).

[51] *Id* at 3.

[52] See Dirk A Zetzsche *et al.*, *Remaining Regulatory Challenges in Digital Finance and Crypto-Assets after MiCA* 34 n.83 (Study, ECON Committee, European Parliament, May 2023).

[53] *Id*.

[54] *Id* at 26–7.

[55] BANK FOR INTERNATIONAL SETTLEMENTS, NEXUS: A BLUEPRINT FOR INSTANT CROSS-BORDER PAYMENTS (Report, July 2021).

potential to enable payment system operators to connect to a single entity — the Nexus platform — instead of building custom connections for each new country, thereby greatly facilitating the process of linking fast payment systems.[56] In July 2023, payment services companies Iberpay and SWIFT coordinated multiple international banks to successfully complete a pilot to process instant cross-border payments. Payments originating in Australia, Brazil, and the UK were sent through SWIFT, and then processed, settled, and credited to Spanish payees within seconds.[57] This was in anticipation of the European Payments Council's One-Leg Out Instant Credit Transfer scheme, to be launched in November 2023. This scheme aims to enable payment service providers in the Single Euro Payments Area (SEPA) to instantly process credit transfers in transactions where only the payer or payee is in the SEPA.[58]

These and other projects have laid some of the necessary groundwork for fundamental reform of the international payments system, and proven such reform is feasible. Whichever route is taken, the role of the US Dollar in international trade will most likely diminish. Today some 90% of international transactions involve the US dollar and estimates are that about 40% of those transactions involve the dollar even when the US is not a party to the transaction.[59] For instance, much trade between ASEAN member nations is effected through the dollar.[60] So one country's currency (say the Thai Baht) is exchanged into dollars which are then exchanged into another ASEAN member's currency (say Indonesian Rupiah). Whether by way of CBDCs on a shared platform (as with mBridge) or by connection of domestic fast payment systems, the future will see the direct exchange of currencies, so in this case the direct exchange of Baht for

[56] ENABLING INSTANT CROSS-BORDER PAYMENTS, *supra* note 36, at 6–7; and see also Arner *et al.*, *supra* note 43 at 36.
[57] 'BBVA Collaborates in the First International Instant Payment Pilot, Led by Iberpay and Swift', BBVA (July 12, 2023), https://www.bbva.com/en/innovation/bbva-collaborates-in-the-first-international-instant-payment-pilot-led-by-iberpay-and-swift/; 'BBVA Completes First International Instant Payment Pilot Led by Iberpay, Swift', NS BANKING (July 13, 2023), https://www.nsbanking.com/news/bbva-international-instant-payment-pilot/.
[58] 'One-Leg Out Instant Credit Transfer Scheme – Enabling Faster Payments between SEPA and the Rest of the Globe', EUROPEAN PAYMENTS COUNCIL (May 25, 2023), https://www.europeanpaymentscouncil.eu/news-insights/insight/one-leg-out-instant-credit-transfer-scheme-enabling-faster-payments-between.
[59] Fabricius Somogyi, *Dollar Dominance in FX Trading* 1, 14–15 (University of St Gallen, School of Finance Research Paper No 2021/15, updated 8 September 2023); Bafundi Maranoti, *Revisiting the International Role of the US Dollar* (BIS Quarterly Review, Dec. 5, 2022), https://www.bis.org/publ/qtrpdf/r_qt2212x.htm.
[60] At the 42nd ASEAN Summit in May 2023, ASEAN members agreed to move away from trading with the US dollar and encourage local currency transactions: Nyshka Chandran, *Southeast Asia Moves Closer to Economic Unity with New Regional Payments System*, CNBC NEWS, Jul. 30, 2023, https://www.cnbc.com/2023/07/30/asean-moves-closer-to-economic-unity-with-new-regional-payments-system.html.

Rupiah. The resultant fall in usage of, and demand for, the US dollar as a vehicle currency will most likely diminish its role as the principal global reserve currency.[61]

On the other hand, it is also possible that a technological revolution, like CBDCs, could strengthen the role of the US dollar. An easily usable digital dollar could result in widespread currency substitution in many countries domestic financial systems, and possibly higher levels of dollar usage in international trade. These two risks are drivers for some other countries to research and develop their own CBDCs. CBDCs are such a fundamentally different architecture for cross-border payments, that their impact on usage of the dollar currently defies accurate prediction, however, in my view, the more likely impact is a much-reduced role for the dollar in international trade and payments generally as its usage as a vehicle currency declines.

IV – The Impact of the Weaponisation of Finance on the US Dollar's Role and Status as Principle Global Reserve Currency

The US dollar has been the dominant global currency since World War II. It retained its prominence after the collapse of the Bretton Woods system in the early 1970s.[62] A range of factors help to explain the continued dominance of the US dollar: it is viewed as 'a safe storehouse of a politically stable sovereign' with fully open capital markets and strong democratic institutions, and is globally accepted in international trade and financial transactions.[63] However, the US dollar's dominance as a reserve currency has been in decline, in line with the decline in the proportions of global GDP and exports the US produces. The

[61] There will likely remain some role for the US dollar as a vehicle currency, as a means of avoiding some countries holding more of an infrequently traded currency than is optimal, and the hub and spoke model developed in Project Icebreaker, which linked domestic CBDCs, retained a role for vehicle currencies, for this reason. See BIS INNOVATION HUB, PROJECT ICEBREAKER: BREAKING NEW PATHS IN CROSS-BORDER RETAIL CBDC PAYMENTS (Report, Mar. 2023) https://www.bis.org/publ/othp61.pdf [hereinafter PROJECT ICEBREAKER].
[62] Carol C. Bertaut *et al.*, *'The International Role of the U.S. Dollar' Post-COVID Edition* (FEDS Notes, June 23, 2023) https://www.federalreserve.gov/econres/notes/feds-notes/the-international-role-of-the-us-dollar-post-covid-edition-20230623.html.
[63] Joel Slawotsky, US Financial Hegemony: The Digital Yuan and Risks of Dollar De-weaponization, 44 Fordham International Law Journal 39, 41 (2020).

United States' share of global GDP decreased from 40% to 24% between 1960 and 2019,[64] and its share of global goods trade declined from 15% to 9% between 1970 and 2019.[65]

The International Monetary Fund ('IMF') reports the share of reserves held in dollars by central banks decreased from 71 percent in 1999 to 59 percent in 2021.[66] According to the IMF, this is not 'a byproduct of changes in exchange rates and interest rates' but rather the result of 'active portfolio diversification by central bank reserve managers'.[67] The resulting gap has not been filled by a single currency but by a range, including the euro (18 percent), Japanese yen (5 percent), British pound (5 percent), and the yuan (2 percent).[68] So while the US dollar remains the global reserve currency, its dominance has been in slow sustained decline for decades.

Accordingly, any shift in the means by which international payments are effected which removes the need for the US dollar as a vehicle currency in transactions otherwise not connected to the US will trend to reinforce a well-established, albeit gradual, existing trend. As Barry Eichengreen has explained, 'the logical sequencing of steps in internationalizing a currency is: first, encouraging its use in invoicing and settling *trade*; second, encouraging its use in *private financial transactions*; third, encouraging its use by central banks and governments as a form in which to hold private *reserves*'.[69] The converse holds equally, so that that any decline in use of a currency in invoicing and settling trade, and in private international transactions, should flow through to a decline in its use for holding foreign exchange reserves.

While the Federal Reserve now labels the digital dollar a 'high priority' project,[70] it remains unclear whether it will only be a retail digital dollar or also wholesale. However, to date the

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[64] Govind Bhutada, *The US Share of the Global Economy over Time*, VISUAL CAPITALIST (Jan. 14, 2021) https://www.visualcapitalist.com/u-s-share-of-global-economy-over-time/#:~:text=Until%202005%2C%20the%20U.S.%20still,remained%20relatively%20stable%20at%2024%25., citing *GDP (Current US$)*, THE WORLD BANK, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2019&start=1960&view=chart.
[65] *US Trade Trends*, WASHINGTON INTERNATIONAL TRADE ASSOCIATION, https://www.wita.org/ustrade/us-trade-trends/.
[66] Serkan Arslanalp *et al.*, *The Stealth Erosion of Dollar Dominance: Active Diversifiers and the Rise of Nontraditional Reserve Currencies* 5 (International Monetary Fund, Working Paper 22/58).
[67] *Id.* at 1.
[68] *Currency Composition of Official Foreign Exchange Reserves (COFER)*, INTERNATIONAL MONETARY FUND (Sep. 29, 2023) https://data.imf.org/?sk=e6a5f467-c14b-4aa8-9f6d-5a09ec4e62a4. See also Bertaut *et al.*, *supra* note 62. It is also worth noting the clear upward trend in the Australian dollar being held as a reserve currency: see Arslanalp *et al.*, *supra* note 66, at 26.
[69] Barry Eichengreen, The Renminbi as an International Currency, 33 Journal of Policy Modeling 723, 725 (2011) (emphasis added).
[70] Jeff Cox, *Wall Street Banks Brace for Digital Dollars as the Next Big Disruptive Force*, CNBC, Apr. 19, 2021, www.cnbc.com/2021/04/19/central-bank-digital-currency-is-the-next-major-financial-disruptor.html.

focus has been on retail, and the global geopolitical game will play out in wholesale, not retail, CBDCs. The political challenges a retail CBDC is encountering in the US – including strong resistance from the banking sector and concerns about individual privacy [71] – should be much reduced for a wholesale CBDC. If the US could develop a wholesale digital dollar within a similar period to other major economies – meaning within the next few years – this could help to maintain dollar primacy. The failure to do so, especially once the e-CNY is available for use in international trade, could be severely damaging to the dollar's primacy as the global reserve currency.

The centrality of the US dollar in the international financial system gives the US the power to influence the political and economic governance of other countries by deploying sanctions against them.[72] The US has repeatedly used this power to sanction other states, with its use increasing ten-fold between 2000 and 2021, on the US Treasury's own analysis.[73] Sanctions have become the preferred tool of US policymakers to demonstrate extraterritorial reach without military action.[74] However, using sanctions is far from cost-free for the US – and the full costs of using sanctions are rarely appreciated.

The Treasury 2021 Sanctions Review is in this respect highly instructive. The US Treasury analysed the impact of the rise of digital currencies and other alternative payment systems upon the effectiveness of US sanctions, but not upon the prosperity of the US economy, in these terms -

> "American adversaries—and some allies—are already reducing their use of the U.S. dollar and their exposure to the U.S. financial system more broadly … we must be mindful of the risk that these trends could erode the effectiveness of our sanctions … technological innovations such as digital currencies … potentially reduce the efficacy of American sanctions. … They also empower our adversaries seeking to build new financial and payments systems intended to diminish the dollar's global role. We are

[71] Allyson Versprille, *Wall Street Bank Lobby Lines up against a US Digital Dollar*, BLOOMBERG (May 24, 2022), www.bloomberg.com/news/articles/2022-05-23/wall-street-bank-lobby-lines-up-against-us-digital-dollar-plans; Craig Torres, *Powell Says Digital Dollar Must Ensure Privacy, Identification*, BLOOMBERG (Mar. 23, 2022), www.bloomberg.com/news/articles/2022-03-23/powell-says-digital-dollar-must-ensure-privacy-identification.

[72] Daniel McDowell, Financial Sanctions and Political Risk in the International Currency System, 28 Review of International Political Economy 635, 641–2 (2021); Douglas W Arner *et al.*, *Ukraine, Sanctions and Central Bank Digital Currencies: The Weaponization of Digital Finance and the End of Global Monetary Hegemony?* 17–18 (Asia Global Paper No 7, Jan. 2023).

[73] US Department of Treasury, *The Treasury 2021 Sanctions Review* 2 (Report, 2021), https://home.treasury.gov/system/files/136/Treasury-2021-sanctions-review.pdf (noting that the number of sanctions increased from 913 in 2000 to 9421 as of October 2021).

[74] Slawotsky, *supra* note 63, at 42. See also Daniel W Drezner, *The United States of Sanctions*, FOREIGN AFFAIRS, Aug. 24, 2021, www.foreignaffairs.com/articles/united-states/2021-08-24/united-states-sanctions (asserting that '[s]anctions … have become the go-to solution for nearly every foreign policy problem').

> mindful of the risk that, if left unchecked, these digital assets and payments systems could harm the efficacy of our sanctions."

In this regard, the US is putting the cart before the horse. Economic power is a major source of national security.[75] National wealth funds defence spending and gives a nation many other avenues of influence. To diminish national prosperity, to improve one's capacity to sanction other nations, is to have national priorities reversed. It is a classic instance of damagingly short-term thinking.

Already, the imposition of sanctions has accelerated the development of a multipolar monetary system. While the sanctions imposed by the US and European countries since February 2022 directly targeted Russia, their costs have also fallen upon other countries, which are therefore looking for alternatives to the existing financial system to circumvent sanctions in the future.[76]

For instance, Pakistan entered a trade deal with Russia for discounted crude oil in April 2023.[77] At around the same time, India — a major importer of oil and fertilizers from Russia — tried to negotiate new rupee-ruble trade arrangements to maintain trade with Russia, bypassing the international payment mechanisms from which Russia has been removed.[78] While these negotiations stalled because Russia prefers payments in Chinese yuan given the far stronger Russia-China bilateral trade,[79] India's imports of Russian crude oil in August 2023 nonetheless grew by 63% from the year before.[80] China is also looking to promote trade and financial ties with Russia — which is unsurprising given the two agreed in 2019 to reduce dependence on

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[75] DONALD M SNOW, NATIONAL SECURITY 12–16 (7d ed. 2020); DIANE J CLARKE, ECONOMICS AND NATIONAL SECURITY (Nova 2011); BARRY BUZAN, PEOPLE, STATES & FEAR: AN AGENDA FOR INTERNATIONAL SECURITY STUDIES IN THE POST-COLD WAR ERA 189–216 (2d ed. 2007).

[76] Arner *et al.*, *supra* note 43 at 36; and Arner *et al.*, *supra* note 72 at 50.

[77] Asif Shahzad, *Exclusive: Pakistan Makes Its First Purchase of Discounted Russian Oil*, REUTERS, Apr. 20, 2023, https://www.reuters.com/world/asia-pacific/pakistan-places-first-order-discounted-russian-crude-says-minister-2023-04-20/; *Why So Much of the World Won't Stand up to Russia*, THE ECONOMIST, Apr. 16, 2022, https://www.economist.com/international/why-so-much-of-the-world-wont-stand-up-to-russia/21808737; Abid Hussain, *Pakistan Gets First Shipment of Russian Crude under Discount Deal*, AL JAZEERA, June 12, 2023, https://www.aljazeera.com/news/2023/6/12/pakistan-gets-first-shipment-of-russian-crude-under-discount-deal.

[78] Chloe Cornish, *India Explores 'Rupee-Rouble' Exchange Scheme to Beat Russia Sanctions*, FINANCIAL TIMES, Mar. 17, 2022, https://www.ft.com/content/a5ee2d6b-693f-475d-80c6-0036c2657ef1.

[79] Mimansa Verma, *Russia Wants to Settle Its Trade in Yuan – and India Is Running out of Options*, QUARTZ, May 11, 2023, https://qz.com/india-is-using-yuan-to-settle-part-of-its-russian-trade-1850407938; Nidhi Verma & Aftab Ahmed, *Exclusive: As India Frowns on Paying for Russian Oil with Yuan, Some Payments Held up*, REUTERS, Oct. 16, 2021, https://www.reuters.com/markets/commodities/india-frowns-paying-russian-oil-with-yuan-some-payments-held-up-sources-say-2023-10-16/; *India Pushes Back against Russia Demands to Pay for Oil in Yuan*, BLOOMBERG, Oct. 20, 2023, https://www.bloomberg.com/news/articles/2023-10-20/india-pushes-back-against-russia-demands-to-pay-for-oil-in-yuan#xj4y7vzkg.

[80] Megha Bahree, *G20 Summit: Is India Breaking up with Russia?*, AL JAZEERA, Sep. 8, 2023 https://www.aljazeera.com/features/2023/9/8/g20-summit-is-india-breaking-up-with-russia.

the dollar in international settlements between them.[81] Russian energy commodity exports to China in October 2023 had grown by 17% compared with the same period in 2022.[82]

If the US and European countries continue to impose sanctions, affected countries will likely look to develop or engage with alternatives to the existing international financial system to protect their national interests.[83] This will encourage the emergence of parallel, disjointed payment systems to mitigate the risk of Western sanctions, resulting in the fragmentation of the international monetary system.[84] CBDCs are currently the most likely technological infrastructure for such a competing parallel system. For example, the Bank of Russia, for example, has stated that its digital rouble 'solves the issue of disconnecting from SWIFT, because with such integration [with other national currency platforms], SWIFT will no longer be needed'.[85]

In time, I predict the US and China will both aim to lead CBDC networks that are interoperable with other countries' systems, with the US looking to ensure the absolute centrality of a digital dollar in the existing infrastructure[86] and China seeking to develop a wholly new parallel payments architecture centred upon the eCNY.

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[81] Yew Lun Tian, *China Says Not Deliberately Circumventing Sanctions on Russia*, REUTERS, Apr. 2, 2022, https://www.reuters.com/world/china/china-says-not-deliberately-circumventing-sanctions-russia-2022-04-02/; Mrugank Bhusari & Maia Nikoladze, *Russia and China: Partners in Dedollarization*, ATLANTIC COUNCIL, Feb. 18, 2022, https://www.atlanticcouncil.org/blogs/econographics/russia-and-china-partners-in-dedollarization/. See also *Kazakhstan to Use Ruble when Doing Business with Russia, Belarus*, RADIO FREE EUROPE, Mar. 18, 2022, https://www.rferl.org/a/31760079.html; Arshaluis Mgdesyan, *Armenia and Russia Working to Dedollarize Bilateral Trade*, EURASIANET, Apr. 21, 2022, https://eurasianet.org/armenia-and-russia-working-to-dedollarize-bilateral-trade.

[82] Mandy Zuo, *China and Russia Supercharge Trade with Record Grain Order, Bolstering Food and Energy Security as Western Pressure Persists*, SOUTH CHINA MORNING POST, Oct. 20, 2023, https://www.scmp.com/economy/china-economy/article/3238699/china-and-russia-supercharge-trade-record-grain-order-bolstering-food-and-energy-security-western?campaign=3238699&module=perpetual_scroll_0&pgtype=article.

[83] Mihir Sharma, *Why India Is Losing Faith in the West*, BLOOMBERG, Mar. 17, 2022, https://www.bloomberg.com/opinion/articles/2022-03-17/ukraine-invasion-why-india-is-angry-about-russia-sanctions. See also *Why So Much of the World Won't Stand up to Russia*, THE ECONOMIST, Apr. 16, 2022, https://www.economist.com/international/why-so-much-of-the-world-wont-stand-up-to-russia/21808737 (noting that, in addition to India, South Africa is the other major democracy to abstain from UN votes to condemn Russia and that the broader 'pattern of abstentions speaks in part to concerns that sanctions on Russia are driving up food and energy prices.' As one European diplomat put it, '[t]wo elephants are fighting, and the little guys get hurt.')

[84] Kristalina Georgieva, *Leveraging Digital Money to Facilitate Remittances: Opening Remarks at iLab Spring Meetings Virtual Workshop*, INTERNATIONAL MONETARY FUND (Speech, Apr. 14, 2021), https://www.imf.org/en/News/Articles/2021/04/14/sp041421-leveraging-digital-money-to-facilitate-remittances. See also Arner *et al.*, *supra* note 43 at 37; Arner *et al.*, *supra* note 72 at 51.

[85] *Russia Accelerates Digital Ruble Work, Confirms It's a Way around SWIFT*, LEDGER INSIGHTS (Jun. 27, 2022), www.ledgerinsights.com/russia-digital-ruble-2023-cbdc-swift/.

[86] *Digital Assets: The Next Frontier of Finance*, SWIFT (Apr. 20, 2022), www.swift.com/news-events/news/digital-assets-next-frontier-finance.

For China, CBDCs provide a platform upon which to seek to advance the project to remake the global financial architecture into a form that better serves it. China, in particular, has long been determined to translate its remarkable economic growth into increased geopolitical influence. This project began over a decade ago with encouraging the denomination of international trade contracts involving China in either renminbi or the currency of the other partner in the trade transaction, and supporting this by establishing RMB swap centres in a number of major trading partner nations,[87] and has continued with a range of measures designed to promote usage of the RMB in trade, and as a global reserve currency.[88]

This project of China's is entirely understandable given the nation's marked under-representation in the decision-making processes of the current international financial architecture. The Bretton Woods system of the World Bank and International Monetary Fund was designed in the closing stages of WWII and gave prominent roles to the Allied nations, in particular the Europeans and the U.S. Despite innumerable calls for reform of its voting mechanisms over the decades to give rising powers like China greater input more in line with their strengthening economies, little was done. Eventually, China decided to begin to build a parallel international financial architecture by participating in the establishment of the New Development Bank[89] (formerly known as the BRICS Bank),[90] and the Asian Infrastructure Investment Bank,[91] headquartered respectively in Shanghai and Beijing, and through the Belt and Road Initiative,[92] one of the largest infrastructure development projects in history, designed to bring other nations, principally developing ones, into far closer economic relations with, and economic dependence upon, China.

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[87] EDWIN L. -C. LAI, ONE CURRENCY, TWO MARKETS: CHINA'S ATTEMPT TO INTERNATIONALIZE THE RENMINBI 58–94 (Cambridge University Press 2021); Hector Perez-Saiz & Longmei Zhang, *Renminbi Usage in Cross-Border Payments: Regional Patterns and the Role of Swaps Lines and Offshore Clearing Banks* (IMF Working Paper, Mar. 31, 2023).
[88] LAI, *supra* note 87, 88–90; Alain Naef *et al.*, *The Renminbi's Unconventional Route to Reserve Currency Status*, VOXEU, Oct. 31, 2022, https://cepr.org/voxeu/columns/renminbis-unconventional-route-reserve-currency-status.
[89] Rafael Ramos Codeço, The Asian Infrastructure Investment Bank, the New Development Bank and the Internationalisation of the Renminbi (RMB) – The New International Financial Institutions as Part of the Chinese Strategy to Build Up an International Reserve Currency, 4 *Contemporary Chinese Political Economy and Strategic Relations* 821 (2018); *China Parliament Ratifies BRICS Bank Agreement*, REUTERS, Jul. 22, 2015, https://www.reuters.com/article/us-china-brics-banking-idUSKCN0PB3H020150722 [hereinafter *China Parliament Ratifies*].
[90] *China Parliament Ratifies*, *supra* note 89.
[91] Zheng Chen & Yanchuan Liu, Strategic Reassurance in Institutional Contests: Explaining China's Creation of the Asian Infrastructure Investment Bank, 27 *Journal of Contemporary China* 795 (2018); Hong Yu, Motivation behind China's 'One Belt, One Road' Initiatives and Establishment of the Asian Infrastructure Investment Bank, 26 *Journal of Contemporary China* 353 (2017).
[92] Yu, *supra* note 91.

The global financial system with the US dollar at its centre has facilitated growth and development globally for many decades, but it has limitations which CBDCs could help overcome. A main criticism is that the global financial system is not sufficiently inclusive.[93] The BRICS have long been calling for a more inclusive system, reiterating that '[t]he global financial system should be used for the benefit of all countries'[94] and continuing their 'call for the strengthening and reforming of the multilateral system with a view to making global economic governance more inclusive, representative and participatory in order to facilitate greater and more meaningful participation of the EMDCs'.[95]

CBDCs can foster greater inclusivity in a range of ways. One way is by better facilitating intra-regional trade. Most payments for trade within the Caribbean and within ASEAN still pass through the US dollar as a vehicle currency. CBDCs will greatly reduce the need for this.[96] Another is that CBDCs could help to alleviate the US$1.7 trillion global trade financing gap by providing an alternative source of credit information for the underwriting of loans for SMEs that lack established credit histories.[97] CBDCs can also support countries at risk of exclusion from the global system due to the sharp decline in correspondent banking relationships, by connecting them to overseas currency markets via multi-CBDC platforms.[98] Finally, CBDCs can reduce the unfairly high costs of remittances that affect many in emerging and developing countries.[99]

V – Conclusion

[93] G20 EMINENT PERSONS GROUP ON GLOBAL FINANCIAL GOVERNANCE, MAKING THE GLOBAL FINANCIAL SYSTEM WORK FOR ALL (Report, Oct. 2018), https://us.boell.org/sites/default/files/10-3-18_report_of_the_g20_eminent_persons_group_on_global_financial_governance.pdf; Lorenzo Bini Smaghi, *The International Monetary System: Towards a New Era* (Speech, Asia-Europe Economic Forum, Jan. 10, 2011) www.ecb.europa.eu/press/key/date/2011/html/sp110110.en.html.

[94] Press Release, *BRICS Finance Ministers and Central Bank Governors' Joint Statement* (June 6, 2022), http://brics2022.mfa.gov.cn/eng/hywj/ODMM/202206/P020220607348199719292.pdf.

[95] *Id* at 5.

[96] In the words of the Central Bank of Trinidad and Tobago, a CBDC in the Caribbean could 'eliminat[e] the need to go through the US dollar as a vehicular currency': KEVIN FINCH *ET AL.*, CARIBBEAN CURRENCY CONVERTIBILITY IN AN ERA OF CENTRAL BANK DIGITAL CURRENCY 24 (Report, Sep. 2021), www.bis.org/events/cpmi_ptfop/proceedings/paper9.pdf.

[97] Yan Xiao & Ziyang Fan, *3 Ways Digital Currencies Could Change Global Trade*, WORLD ECONOMIC FORUM (Jan. 13, 2022) www.weforum.org/agenda/2022/01/digital-currencies-international-trade/ accessed 17 October 2022.

[98] While in the short term there is the risk that these countries will not be prioritised for integration into global interoperable systems, they are likely to be integrated in the long term given their work in this area: see OPTIONS FOR ACCESS, *supra* note 5.

[99] See, eg, Anton N Didenko and Ross P Buckley, Central Bank Digital Currencies as a Potential Response to Some Particularly Pacific Problems, 30 Asia Pacific Law Review 44, 68 (2022).

The US has enjoyed many benefits of issuing the preeminent global currency. The phrase '*privilège exorbitant'* was coined by Valery Giscard d'Estaing, when Finance Minister of France in the 1960's, to describe these many benefits,[100] which have more recently been explored in detail by Barry Eichengreen in his seminal text, *Exorbitant Privilege.*[101]

Eichengreen notes that the interest rate the US pays in respect of its foreign debt is two to three percentage points less than the rate of return on its overseas investments.[102] As a result, it is able to run an external deficit, which allows it to import more than it exports and consume more than it produces without becoming overly indebted to its foreign creditors. Second, while it only costs a few cents for the Bureau of Engraving and Printing to produce a one-hundred dollar bill, foreign countries have to pay one-hundred dollars in actual goods and services to obtain one.[103] This practice embodies what is referred to as 'seignorage'.[104]

Third, Eichengreen stipulates that foreign banks incur additional costs when granting foreign loans and when taking deposits in dollars to manage the risks associated with exchange rate fluctuations.[105] However, American banks are not required to hedge their foreign currency positions in this manner or incur such costs.[106] Finally, he notes that American companies incur no foreign exchange costs when receiving payments in dollars from foreign firms for goods and services provided.[107]

One might expect the US to guard this exorbitant privilege carefully, but this has not been the case. The repeated use of sanctions, culminating in the freezing of some $300 billion of Russia's foreign exchange reserves, has put at risk the centrality of the dollar in international finance, as such conduct strongly motivates many nations to put themselves beyond the reach of such sanctions. CBDCs are currently the leading means of achieving this end. Connection

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[100] Barry J Eichengreen, *Exorbitant Privilege: The Rise and Fall of the Dollar* (Oxford University Press 2011) Ch 1, 4.

[101] Ibid.

[102] Ibid.

[103] Ibid, Ch 1, 3. According to the Federal Reserve it cost 8.3 cents to print an individual one-hundred dollar bill in 2023. See <https://www.federalreserve.gov/faqs/currency_12771.htm> accessed 12 January 2024.

[104] Ibid.

[105] Ibid. This usually takes the form of purchasing forward contracts which convert the receipts on the dollar loans into local currency when loans mature.

[106] Ibid.

[107] Ibid. See also REBECCA M NELSON & MARTIN A WEISS, THE US DOLLAR AS THE WORLD'S DOMINANT RESERVE CURRENCY (Congressional Research Service IF 11707, updated 15 Sep., 2020) https://crsreports.congress.gov/product/pdf/IF/IF11707.

of nations' fast payments systems through payments hubs is the other. Either development will enable the direct exchange of two nations' currencies through a platform,[108] without going through the US dollar, thereby reducing usage of the dollar in much international trade.

There are, of course, voices of alarm within the US over the squandering of its privilege.[109] Diversity of views has long been an American strength. But the voices of complacency appear currently to be louder.[110] There are strong reasons having to do with the depth of US capital markets, the current configuration of the global payments infrastructure, US dollar borrowing by non-US banks and corporates, and the accumulation of foreign exchange reserves by other nations in US dollars, that all tend to put the dollar on its current pedestal. But an examination of these factors shows them to be highly interrelated, in the sense that if new international payments architectures lead to the dollar being used far less in international trade, this will affect the proportion of foreign exchange reserves other nations need to hold in dollars, which in turn will affect the depth of markets in US Treasuries, etc. The US dollar is today predominant, but its position has been declining slowly for many years and the combination of the excessive use of sanctions providing a strong motivation to transact in other than dollars, and a new, efficient non-dollar means of transacting either by using CBDCs or by the direct linking of domestic fast payment systems, could see an accelerated decline in the primacy of the US dollar in the international financial system.

Of course some in the US will see in this prediction yet another reason (i) to prohibit the development of a domestic digital Dollar and (ii) to attempt to dissuade or prevent other nations from issuing CBDCs. Neither response will serve US interests. Firstly, a domestic digital

[108] For CBDCs, a platform such as the one developed for the mBridge pilot, see *supra* note 31.
[109] Keith Rockwell, *An Exorbitant Privilege Now at Risk? The Once (and Future?) Almighty Dollar*, WILSON CENTER, May 1, 2023, https://www.wilsoncenter.org/article/exorbitant-privilege-now-risk-once-and-future-almighty-dollar; Upamanyu Lahiri, *The Future of Dollar Hegemony*, COUNCIL ON FOREIGN RELATIONS (Blog Post, 22 August 2023) https://www.cfr.org/blog/future-dollar-hegemony; DANIEL MCDOWELL, BUCKING THE BUCK: US FINANCIAL SANCTIONS & THE INTERNATIONAL BACKLASH AGAINST THE DOLLAR (Oxford University Press 2023); Cameron Rotblat, Weaponizing the Plumbing: Dollar Diplomacy, Yuan Internationalization, and the Future of Financial Sanctions, 21 *UCLA Journal of International Law and Foreign Affairs* 311 (2017); Slawotsky, *supra* note 63; Daleep Singh, It's Not Just the Economics: Why U.S. Leadership on CBDC Is a National Security Imperative, 14 *Harv. Nat'l Sec. J.* 49 (2022).
[110] Michael Ivanovitch, *The Dollar Should Be Better Managed, but It Is Still the King of the Hill*, MSI GLOBAL (Blog Post) https://msiglobal.com/recent-essays/the-dollar-should-be-better-managed-but-it-is-still-the-king-of-the-hill/; Otaviano Canuto, *The US Dollar's "Exorbitant Privilege" Remains* (Policy Center for the New South, Policy Brief, Apr. 27, 2023); Neil Shearing, *Letter: Worries over Loss of Dollar Dominance Are Overdone*, FINANCIAL TIMES, Jan. 25, 2023, https://www.ft.com/content/e7024f2b-1e25-4bf2-9467-f842a772de0c; Ken Isaacson *et al.*, *An Examination of First-Mover Advantage for a CBDC*, FEDERAL RESERVE (Nov. 25, 2022), https://www.federalreserve.gov/econres/notes/feds-notes/an-examination-of-first-mover-advantage-for-a-cbdc-20221125.html.

Dollar is irrelevant to the issues analysed in this article. Secondly, attempts to stop other nations from issuing CBDCs will almost certainly fail, and in the unlikely event the US hegemon has some success, linked domestic fast payment systems will likewise diminish use of the US dollar as a vehicle currency.

It is here the distinction between a retail and wholesale CBDC for offshore use becomes critical. Retail and wholesale CBDCs may well be much the same instrument, with the differences lying not in their construction, but in their functionality and geographical applicability.[111] Yet a domestic digital Dollar will not affect the international financial system appreciably, while a wholesale digital Dollar for offshore use most certainly will. Nothing in this article should impact the domestic debate in the US about the desirability of a domestic digital dollar.

Ultimately, for its own geopolitical reasons, China will issue its e-CNY for use in international trade, probably make it available for free, and quite possibly mandate its use in acquiring Chinese exports. The only way the US will be able to compete against a fast, reliable and highly affordable or free e-CNY will be with a wholesale digital US dollar for offshore use. To the extent there is choice, merchants will opt for the more trustworthy US digital currency if it exists. But a digital US dollar will, in time, have to exist or demand for the dollar in international transactions may well fall precipitately. The lack of trust in China and its governance which today mitigate strongly against a nation holding substantial portions of its foreign exchange reserves in yuan, won't matter much when considering the e-CNY for use in payments which will be next to instantaneous.

The current correspondent banking model for international payments using the US dollar as a vehicle currency introduces substantial costs and delays which technology, embodied either in CBDCs or linked fast payment systems, will render totally unnecessary. Even if the US could dissuade or prevent most major trading nations from issuing CBDCs, which frankly is extremely unlikely, linked fast payment systems will, in time, sharply reduce the need for the dollar as a vehicle currency.

[111] In Project Icebreaker the Bank for International Settlements and the central banks of Israel, Norway and Sweden explored the linking of domestic CBDC systems through a hub and spoke system to facilitate international payments, so there is a possible linkage between domestic and offshore CBDCs, but the linkage is a deliberate step for which infrastructure must be built. The US can have a domestic retail digital Dollar without it being available to be used in international payments, and it can equally have a wholesale digital Dollar for offshore use without its being used domestically: PROJECT ICEBREAKER, *supra* note 61.

As noted above, the Chinese yuan represents a small proportion of foreign exchange reserves globally today because of a lack of trust in the government that issues it. The US has rendered itself less trustworthy by weaponizing its currency to project geopolitical power. In doing so, it has accelerated a pre-existing trend, the decline of the dollar as the pre-eminent global reserve currency. Payments and money are the pipes and plumbing of financial systems, both domestic and international. If one encounters an intruder in one’s home, and one is strong enough, I suppose one could punch a hole in the sheetrock, and rip a pipe from the wall with which to knock them over the head. But there are better ways to respond to intruders. Pipes and plumbing are best left for the uses for which they were designed. Using them for other purposes is not in the US’s long-term interests as it is moving the world towards a new financial system which the US will find far less favourable.