
MONETARY HEGEMONY: TECHNOLOGICAL EVOLUTION AND THE INTERNATIONAL MONETARY SYSTEM

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ABSTRACT

In this article, we analyze the evolution of the international monetary system. Today's system is built around the US dollar as the core international monetary instrument, supported by a range of international institutions (in particular the International Monetary Fund and the Bank for International Settlements) and domestic and cross-border payment systems, some public, some private, some mixed. The foundation of this system are major central banks, in particular the US Federal Reserve, responsible for US dollar issuance, and with a twin mandate for both monetary stability and economic growth along with financial stability, all backed by a range of regulatory mandates focusing on payments infrastructure and finance. This system, established after World War II as the Bretton Woods international monetary system, has evolved from one based fundamentally on gold and physical

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payment and financial arrangements, to one—particularly following the end of the Bretton Woods system of currencies fixed to the US dollar and the evolution of a floating exchange rate system from the early 1970s—based on digital systems, with the approximately \$7.5 trillion of foreign exchange transactions each day almost entirely digital.

This system however has been subject to criticism almost since its inception, with continual calls to reduce the international monetary hegemony of the US dollar. Over the past fifteen years, since the 2008 Global Financial Crisis weakened confidence in the US-led international monetary and financial order, criticisms and calls for reform have become increasingly common globally.

In this Article, we highlight two aspects of international monetary evolution which have been under-addressed: the role of technology and the role of law. Following a discussion of the evolution of the international monetary system focusing in particular on the interaction of monetary hegemony, technological evolution and the role of legal arrangements (public, private, domestic, international), we turn to our central thesis: a technological revolution in monetary and payments systems is introducing alternatives and competitors to the existing international monetary regime based on the US dollar and offers the opportunity to build an improved international system, a system which, for the first time, may not be based on a single dominant monetary instrument.

We bring these various elements together to consider a range of scenarios for the future of the international monetary system, highlighting in particular new initiatives from the IMF and BIS which could serve as the basis of new international multicurrency payment arrangements. We analyze the new technologies which could underpin such a new system and the possible role of a Digital Dollar. We conclude that the geopolitics of a multipolar world coupled to the evolution of enabling technologies may well result in a small number of major economy central bank digital currencies and currency areas, eliminating the historical pattern of monetary hegemony. There is a clear need to redesign systems to support international monetary and payment arrangements as a public good, and we explore how this might be achieved.

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I. INTRODUCTION

Monetary and payment systems lie at the heart of global and domestic economic and financial systems. If anything, monetary and payment systems hold even greater significance for cross-border transactions than for domestic activities. Digital payments and financial infrastructures are at the center of economic and financial globalization.

In this article, we analyze the evolution of the international monetary system. Today’s system is built around the US dollar as the core international monetary instrument, supported by a range of international institutions (in particular the International Monetary Fund and the Bank for International Settlements) and domestic and cross-border payment systems, some public, some private, some mixed. The foundations of this system are major central banks, in particular the US Federal Reserve, which is responsible for US dollar issuance, with responsibility for monetary stability, economic growth and financial stability, all backed by a range of regulatory mandates focusing on payments infrastructure and finance. This system, established after World War II as the Bretton Woods international monetary system, has evolved from one based on gold and physical payment and financial arrangements, to one—particularly following the end of the Bretton Woods system of currencies fixed to the US dollar and the evolution of a floating exchange rate system from the early 1970s—based on digital systems, with the approximately \$ 7.5 trillion of foreign exchange transactions each day almost

entirely digital.

This system however has been subject to criticism almost since its inception, with continual calls to reduce the international monetary hegemony of the US dollar. Over the past fifteen years, since the 2008 Global Financial Crisis weakened confidence in the US-led international monetary and financial order, criticisms and calls for reform have become increasingly common globally.

We highlight two aspects of international monetary evolution which have been under-addressed: the role of technology and the role of law. Following a discussion of the evolution of the international monetary system focusing in particular on the interaction of monetary hegemony, technological evolution, and the role of legal arrangements (public, private, domestic, international), we turn to our central thesis: a technological revolution in monetary and payments systems is introducing alternatives and competitors to the existing international monetary regime based on the US dollar and offering an opportunity to build an improved international system, a system for the first time which may not be based on a single dominant monetary instrument.

Following the introduction, Part II analyzes the evolution of international monetary arrangements and systems, leading to today's international monetary order. We focus on the role of technology—a new addition to the literature—and its relationship to the core attributes of money at the international level, namely its function as a unit of account, medium of exchange and store of value, and its interaction with the technology and institutional structures supporting both monetary systems and their mobilization and use through payment systems. We highlight how technology combined with geopolitics, geo-economics, and legal and institutional design to establish the US dollar as the basis of the post-World War II international monetary system.

While there have been many calls for the end of dollar hegemony, the weaponization of the digital monetary and payments systems in the context of the international response to Russia's invasion of Ukraine in 2022 provides a strong motivation for economies to build systems that reduce their risk of dependence on the current dominant international monetary and digital payments framework.

In Part III, we consider the rise of new challengers to the international monetary and payment system arising from new non-state-led technologies, in particular cryptocurrencies such as Bitcoin, blockchain technology and global stablecoins, such as Libra. Technological developments, including distributed ledger technology (DLT) and blockchain, promise new ways to achieve these policy objectives and monetary attributes. Notwithstanding the hype around cryptocurrencies, they are yet to disrupt existing systems at the domestic or international level, except in a few developing countries characterized by unstable monetary arrangements, inefficient payment

systems and problematic cross-border systems.

Two broad policy objectives dominate money and payment system design: safety and efficiency.¹ Safety encompasses financial stability, integrity,² and customer and data protection. Efficiency encompasses cost, efficiency,³ competition, and innovation.⁴ These elements of technology, design, and institutional and legal structure, in turn, directly relate to success or failure in the context of the key monetary attributes.

Many inherent structural limitations of crypto obstruct its usage, including fragmentation artificially maintained to keep self-interested validators sufficiently motivated to record transactions honestly (rather than seek greater gains from cheating), exposed vulnerabilities of “cross-chain bridges” developed to facilitate transfers of crypto across blockchains, or the risks generated by the continuous centralization of the DeFi ecosystem.⁵

All of these weaken the effectiveness of cryptocurrencies in their functions as units of account, media of exchange, means of payment, and stores of value at the international level. Likewise, private forms of money have not been successful competitors since the 19th century.

However, Facebook’s announcement of its intention to launch its own cryptocurrency, Libra, in 2019 highlighted the potentially transformative impact of non-state monetary and payment arrangements, directly challenging domestic and international monetary sovereignty in economies at all stages of development. Libra offered the potential to be an effective medium of exchange, unit of account, and store of value for billions of people across the world enabled by digital payment systems, with the potential to upend the existing monetary paradigm domestically and internationally.

We conclude that—after fifteen years—none has yet emerged as a major competitor to the US dollar or other major currencies. But we suggest that

¹ Of the 104 countries that were reforming their national payment systems, according to a World Bank survey in 2018, ninety-one cited the need to increase overall efficiency as the factor that triggered reform. See WORLD BANK GRP., PAYMENT SYSTEMS WORLDWIDE A SNAPSHOT: SUMMARY OUTCOMES OF THE FIFTH GLOBAL PAYMENT SYSTEMS SURVEY 98 (2020), <https://www.worldbank.org/en/topic/financialinclusion/brief/gpss>.

² Being the domain of integrity-related regulation, such as the FATF’s AML/CTF standards, we do not consider integrity as a separate objective in this paper but understand integrity as inherent to the safety objective.

³ For a discussion on transaction costs and economic growth more generally, see David Bywaters & Pawel Mlodkowski, *The Role of Transaction Costs in Economic Growth*, 7 INT’L J. ECON. POL’Y STUD. 53, 54, 57 (2012).

⁴ BANK FOR INT’L SETTLEMENTS & INT’L ORG. OF SEC. COMM’N, PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES § 3.18.4 (2012), <https://www.bis.org/cpmi/publ/d101a.pdf>.

⁵ See BANK FOR INT’L SETTLEMENTS, BIS ANNUAL ECONOMIC REPORT 78-79, 84-85 (2022), <https://www.bis.org/publ/arpdf/ar2022e.pdf>; Dirk A. Zetsche et al., *Decentralized Finance*, 6 J. FIN. REGUL. 172 (2020).

the example of Libra highlights the potential of stablecoins issued by major financial institutions or technology firms to compete with state-led monetary systems, including US dollar international monetary hegemony.

In Part IV, we consider the emerging challenges of state-led digital monetary systems: central bank digital currencies (CBDCs). We focus in particular on China's eCNY (which itself was a reaction to Bitcoin and Libra) and the Digital Euro. While neither was initially designed as an alternative or competitor to the US dollar, they are being increasingly considered as such. These dozens of CBDC projects⁶ are a direct response to the emergence of new technology-driven challengers, in particular Facebook's Libra proposal. This trend has been dramatically reinforced by the digitization of payments as a result of COVID-19.⁷

These projects largely focus on domestic arrangements but—in the same way that Libra presented a credible risk of currency substitution—major currency CBDCs also have the same potential, increasing the incentive for countries to develop their own systems. We suggest that while many issues remain, the technology of CBDCs combined with the digitalization imperative of COVID-19 has the potential particularly at the international level to underlie an increasing plurality in international monetary instruments and arrangements.

In Part V, we highlight how the freezing of some \$300 billion of Russia's central bank reserves in response to the invasion of Ukraine in 2022 highlighted the power of the existing Western-led digital monetary and payments architecture and the potential risks of dependence on that system: the “weaponization” of the US dollar and the global digital monetary, payment and financial order. We suggest that the international response to Russia's invasion of Ukraine will likely provide the principal trigger for a new stage in the evolution of international monetary and payment arrangements. We bring these various elements together to consider a range of scenarios for the future of the international monetary system, highlighting in particular new initiatives from the IMF and BIS which could serve as the basis of new international multicurrency payment arrangements. We analyze the new technologies which could underpin a new international monetary system and the possible role of a Digital Dollar. We argue that the most likely outcome is increased multipolarity as a result of efforts—particularly of major economies—to build their own domestic CBDCs to enhance monetary, financial and economic sovereignty.

Competing major currency CBDCs usable via competing payments

⁶ See, e.g., *Today's Central Bank Digital Currencies Status*, CBDC TRACKER (Jan. 4, 2024), <https://cbdctracker.org/>.

⁷ Douglas W. Arner et al., *COVID-19, Digital Finance and Existential Sustainability Crises: Opportunities and Challenges for Law and Regulation in the 2020s*, 33 NAT'L L. SCH. INDIA REV. 385, 386-87, 389 (2021).

systems will present a major risk of currency substitution. Such a pattern would reduce the role of the US dollar, in line with the existing trend, while new networked frameworks for cross-currency payments between major monetary systems could see usage of a small number of currencies rather than the traditional single dominant currency that produces an international monetary hegemon.⁸

We argue that countries need to consider future arrangements carefully, and strongly advocate for the development of formal limitations to the future weaponization of finance. For example, in the context of a sort of Geneva Protocol for finance or—more optimally—to restructure international monetary and payments arrangements as multilateral public goods, centered on a new international payments organization or via activation of existing arrangements through the Bank for International Settlements (BIS) or the International Monetary Fund (IMF), ideally based on a new international monetary instrument.

Part VI concludes that the geopolitics of a multipolar world coupled to the evolution of enabling technologies may well result in a small number of major economy central bank digital currencies and currency areas, eliminating the historical pattern of monetary hegemony. There is a clear need to redesign systems to support international monetary and payment arrangements as a public good and we explore how this might be achieved.

II. EVOLUTION OF INTERNATIONAL MONETARY AND PAYMENT SYSTEMS

Trade, money, payment systems, finance, technology, institutional and legal structures, and human civilization are co-developmental. Money and payment systems—because of their utility—have evolved to support economic and social activities across human history.⁹

Forms of money and payment have evolved from cowrie shells and stone disks to metallic coins, bills, and notes and, more recently, from real-time gross settlement (RTGS) systems and mobile money to cryptocurrencies, stablecoins, fast payment systems, and central bank digital currencies.¹⁰ Money, payment, technology, and institutional and legal systems have continually developed over thousands of years of settled human history as part of the evolution of societies, economies and governance structures.¹¹

⁸ Ross P. Buckley et al., *Ukraine, Sanctions and Central Bank Digital Currencies: The Weaponization of Digital Finance and the End of Global Monetary Hegemony?*, OXFORD FAC. OF L. BLOGS (July 1, 2022), <https://blogs.law.ox.ac.uk/business-law-blog/blog/2022/07/ukraine-sanctions-and-central-bank-digital-currencies-weaponization>

⁹ See, e.g., JAME DiBIASIO, *COWRIES TO CRYPTO: THE HISTORY OF MONEY, CURRENCY AND WEALTH* (2020).

¹⁰ *Id.*

¹¹ *Id.*; see also NIALL FERGUSON, *THE ASCENT OF MONEY: A FINANCIAL HISTORY OF THE WORLD* 20-65 (2008) [hereinafter FERGUSON: *THE ASCENT OF MONEY*].

In considering the question of what defines money, traditional analysis focuses on three factors: medium of exchange, unit of account, and store of value.¹² The unit of account is probably fundamental to larger scale sovereign development, as a common basis for transacting and record-keeping. These features interrelate with governance systems, economic and financial frameworks, technology, and institutional and legal structures, particularly in the context of payment systems: the means by which money is mobilized.¹³ Monetary sovereignty has been a focus for states and governments throughout history, with much of the law relating to money emanating from state pronouncements about what is necessary or acceptable for payments in a given place.¹⁴ This is the idea of “legal tender.”

Niall Ferguson frames this wider picture well in the context of what he calls the “square of power”: a combination of a representative government, national debt, central bank and effective taxation system, which he argues was essential to the success of both the United Kingdom and the United States.¹⁵

Across history, there are clear relationships between monetary stability and appropriate supply, and the rise and fall of governments, states and empires.¹⁶ Inflation in particular has been a constant challenge over the past several thousand years, as sovereigns of whatever form have sought to maximize their ability to spend (on military adventures, domestic projects etc.) and maintain sufficient political and societal support to remain in power.¹⁷

Each combination of technology and institutional framework forming a given monetary, payment and financial system so far developed is vulnerable to devaluation, inflation, loss of confidence and collapse.¹⁸ This can be seen in the context of commodity moneys (such as cowrie shells, gold and silver) because their supply is fundamentally determined by external factors (such as limited availability and surprise discoveries)¹⁹ resulting in a combination

¹² See Anton N. Didenko & Ross P. Buckley, *The Evolution of Currency: Cash to Cryptos to Sovereign Digital Currencies*, 42 *FORDHAM INT’L L. J.* 1041, 1056 (2019); FERGUSON: THE ASCENT OF MONEY, *supra* note 11, at 24.

¹³ Didenko & Buckley, *supra* note 12, at 1056-58.

¹⁴ FERGUSON: THE ASCENT OF MONEY, *supra* note 11, at 26-27; DiBIASIO, *supra* note 9. See also *Report of the Euro Legal Tender Expert Group (ELTEG) on the Definition, Scope and Effects of Legal Tender of Euro Banknotes and Coin* (Dec. 16, 2010), https://ec.europa.eu/economy_finance/articles/euro/documents/elteg_en.pdf; Commission Recommendation of Mar. 22, 2010 on the Scope and Effects of Legal Tender of Euro Banknotes and Coins 2010/191/EU, 2010 O.J. (L 83) 70 (EC).

¹⁵ NIALL FERGUSON, *THE CASH NEXUS: MONEY AND POWER IN THE MODERN WORLD, 1700-2000*, at 14-16 (2002) [hereinafter FERGUSON: THE CASH NEXUS].

¹⁶ See, e.g., DiBIASIO, *supra* note 9.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ FERGUSON: THE CASH NEXUS, *supra* note 15, at 328-31. See also BARRY J.

of periodic shocks and inflation with growing economic activity and limited monetary supply, resulting in strong incentives for crime and forgery.²⁰

Sovereigns have sought to manage these challenges through control of supply and quality (e.g., state monopolies on transfers of gold across borders and on coinage).²¹ Even with coins, the temptation arises to cut corners (in some cases literally but often by reducing the content of base metal).²²

Similar histories developed as sovereigns experimented with paper money, beginning with China²³ during the Tang and Song dynasties (7th to 13th centuries AD) and, since the early 1970s, fiat currencies everywhere, leading to the institutional and legal structure of modern central banks, which are designed to maintain monetary and financial stability and maximize economic development by appropriate macroeconomic, institutional and prudential policies, tools and infrastructure.²⁴

While essential domestically, money also plays a fundamental role in facilitating international trade and finance.

A. International Monetary Arrangements

When trade moves beyond a small area, arrangements for money and payment quickly become a central question. For transactions to move beyond barter (with all of its challenges and inefficiencies, particularly as distance increases), there must be common agreement on what is acceptable as payment and how payment can be made. This is the idea of a “medium of exchange” and a “means of payment.”²⁵

A “medium of exchange” is thus something mutually acceptable to both parties in a transaction. Domestically, a sovereign can legally determine what constitutes “legal tender” thus setting what, legally, parties must use and accept as a medium of exchange—a monetary instrument.²⁶

A variety of factors determine whether in any domestic context that law is universally obeyed, with much depending on the monetary instrument provider. This is the idea that monetary stability is a public good based upon trust and confidence supported by institutional, legal, political and

EICHENGREEN, *GLOBALIZING CAPITAL: A HISTORY OF THE INTERNATIONAL MONETARY SYSTEM* 8-12 (2nd ed. 2008).

²⁰ DiBIASIO, *supra* note 9, at 128.

²¹ See THOMAS J. SARGENT AND FRANÇOIS R. VELDE, *THE BIG PROBLEM OF SMALL CHANGE* (2002).

²² For example, “Nero in the year 64 CE, thinking no one would notice, cut back on the silver content of the denarius [the standard Roman silver coin at the time]. He set a pattern that would continue for the next 200 years[.]” DiBIASIO, *supra* note 9, at 49-50.

²³ *Id.* at 77-78; FERGUSON: *THE ASCENT OF MONEY*, *supra* note 11, at 28.

²⁴ DiBIASIO, *supra* note 9, at 177.

²⁵ FERGUSON: *THE ASCENT OF MONEY*, *supra* note 11, at 24-25.

²⁶ F.A. MANN, *THE LEGAL ASPECT OF MONEY 460-78* (5th ed. 1992).

technological factors: while a given monetary instrument may be legal tender (and may in fact be the only legal tender), alternatives will be used if it is unavailable or subject to continual losses in value (inflation).²⁷

At the international level, there was often no sovereign power to establish a mandatory medium of exchange—parties had to choose.²⁸ Over time, commodities such as beads,²⁹ cattle, rice, cacao seeds and shells³⁰ were frequently used, as have cigarettes more recently.³¹

However, commodity money is often not particularly convenient nor efficient in transactions. For millennia, metals—in particular gold and silver—were the dominant media of exchange across borders.³² They have also been the dominant domestic monetary instrument, either directly or by underpinning paper money (in the context of the gold and silver standards prevailing until the end of World War II).³³

With the Gold Standard dominant up to World War II, gold provided a simple medium of exchange, as it underpinned domestic monetary instruments as a matter of domestic law and international practice.³⁴ However, as a matter of convenience, transactions would often take place not in gold but in the currencies of the major powers, often addressing the need for an agreed and convenient unit of account.³⁵ This was particularly the case in imperial systems more broadly, with the British pound sterling as the dominant monetary instrument—albeit always with gold underpinning.³⁶

Gold remained dominant as the underpinning of the gold exchange standard (in which the US dollar was fixed in value to gold and other currencies were fixed in value to the US dollar) established in international law via the Articles of Agreement of the International Monetary Fund (IMF).³⁷ Since 1973 and the end of the Bretton Woods international monetary system and of the link between the US dollar and gold, fiat currencies now

²⁷ David Fox, François R. Velde & Wolfgang Ernst, *Monetary History Between Law and Economics*, in MONEY IN THE WESTERN LEGAL TRADITION: MIDDLE AGES TO BRETTON WOODS 3, 14-16 (Oxford Univ. Press 2016).

²⁸ See François Gianviti, *Current Legal Aspects of Monetary Sovereignty*, in CURRENT DEVELOPMENTS IN MONETARY AND FINANCIAL LAW, VOL. 4, at 4 (IMF ed. 2005), <https://www.imf.org/external/pubs/nft/2006/cdmf/ch1law.pdf>.

²⁹ DiBIASIO, *supra* note 9, at 238.

³⁰ *Id.* at 8.

³¹ See, e.g., Stephen E. Lankenau, *Smoke' Em If You Got 'Em: Cigarette Black Markets in U.S. Prisons and Jails*, 81 PRISON J. 142 (2001).

³² FERGUSON THE CASH NEXUS, *supra* note 15, at 145-46; see also EICHENGREEN, *supra* note 19, at 7-8.

³³ EICHENGREEN, *supra* note 19, at 91.

³⁴ *Id.* at 43-44.

³⁵ *Id.* at 59-62.

³⁶ *Id.* at 19-23.

³⁷ *Id.* at 95.

provide the dominant medium of exchange.³⁸

While the US dollar is the most frequently used medium of exchange, other currencies (in particular the euro, pound sterling, yen and yuan) are also frequently used.³⁹

Acceptability is key to use as a medium of exchange; the more widely accepted an instrument, the more useful to potential users due to network effects.⁴⁰ Acceptability is thus a matter of usefulness and convenience for immediate transactions⁴¹ and of trust and confidence as time elements are added.⁴² These are influenced by a range of factors, including technology (used both to facilitate payments and to protect against forgery), legal and institutional arrangements (to provide trust and confidence), historical experience and path dependence, and political concerns.⁴³

Historically, the money of the major regional or international power was often used for international transactions (e.g., Roman coins, pounds sterling, US dollars),⁴⁴ with trustworthiness of coinage (e.g., the Spanish silver dollar dominant in China and much of East Asia until the 20th century) combined with the convenience of a common unit of account as keys to its acceptance.⁴⁵

In addition to their role as medium of exchange, monetary instruments also form a useful unit of account for the valuation of transactions. This is particularly important in the context of supporting the role of medium of exchange in the international context. Gold provides a useful example: it is frequently a medium of exchange and store of value and often also the means of payment.⁴⁶ However, it is not frequently used as a unit of account, with a variety of coins and other currencies usually playing this role.⁴⁷ The unit of account function is central to the role of money in governmental and societal organization, particularly from the standpoint of use of time in the context of taxation, lending and financing.⁴⁸

³⁸ *Id.*

³⁹ ESWAR S. PRASAD, *THE FUTURE OF MONEY: HOW THE DIGITAL REVOLUTION IS TRANSFORMING CURRENCIES AND FINANCE* 29 (2021).

⁴⁰ See Nobuhiro Kiyotaki & Randall Wright, *Acceptability, Means of Payment, and Media of Exchange*, 16 FED. RESRV. BANK OF MINN. Q. REV. 18, 19 (1992).

⁴¹ DiBIASIO, *supra* note 9, at 9.

⁴² FERGUSON: *THE ASCENT OF MONEY*, *supra* note 11, at 30-31.

⁴³ See Christine Desan, *Money as a Legal Institution*, in *MONEY IN THE WESTERN LEGAL TRADITION: MIDDLE AGES TO BRETTON WOODS* 18, 18-35 (David Fox & Wolfgang Ernst eds., 2016).

⁴⁴ See, e.g., EICHENGREEN, *supra* note 19, at 6-133.

⁴⁵ See AUSTIN DEAN, *CHINA AND THE END OF GLOBAL SILVER, 1873-1937*, at 1 (2020).

⁴⁶ MURRAY N. ROTHBARD, *MAN, ECONOMY, AND STATE: A TREATISE ON ECONOMIC PRINCIPLES* 192 (2nd ed. 2009).

⁴⁷ Young Sik Kim & Manjong Lee, *Money, Unit of Account, and Nominal Rigidity*, 160 *ECON. LETTERS* 59, 59 (2017).

⁴⁸ DEP'T OF THE TREASURY, EXEC. ORDER 14067, DEPARTMENT OF THE TREASURY: THE

Directly related to the role of medium of exchange and unit of account are payment systems: payment systems are central to usefulness and convenience, as the means of payment is the mechanism through which the medium of exchange is delivered.⁴⁹ In Asia, this meant a preference for the physical delivery of silver for cross-border transactions until the 20th century.⁵⁰ In the West, a variety of technologies and legal and institutional systems evolved to address the risks and challenges of physical delivery of the medium of exchange.⁵¹

Payment systems evolved from Rome (with often parallel evolution in China and India) through the Mediterranean and Middle East and included bills of exchange, notes, dual entry accounting systems, correspondent banks and cheques.⁵² All evolved over centuries as existing technology interacted with legal and institutional frameworks to reduce the costs and challenges of transactions across distance.⁵³ Generally, these have all been matters of private law and contract, often supported by institutionalized trust frameworks (such as banks with operations in multiple trade centers)⁵⁴ and, from the 19th century, legal frameworks such as the Bills of Exchange Act 1882 (UK).⁵⁵

Under these structures, gold or paper currencies representing gold served often as the medium of exchange.⁵⁶ They could function as a means of payment via parallel accounts, with gold or sterling debited from one account and credited to another, facilitating transactions.⁵⁷ Hawala is similar. In cases such as correspondent banking structures and dual entry accounting, these continue as the basis of contemporary international payment systems.⁵⁸ Today, electronic payment systems dominate cross-border payments, but the

FUTURE OF MONEY AND PAYMENTS 1 (2022).

⁴⁹ See BENJAMIN GEVA, *THE PAYMENT ORDER OF ANTIQUITY AND THE MIDDLE AGES: A LEGAL HISTORY* 2-3 (2011).

⁵⁰ See DiBIASIO, *supra* note 9.

⁵¹ See *id.*

⁵² See *id.*

⁵³ GEVA, *supra* note 49, at 3.

⁵⁴ Fox, Velde & Ernst, *supra* note 27, at 7-9.

⁵⁵ Bills of Exchange Act, 1882, c. 61 (UK), <https://www.legislation.gov.uk/ukpga/Vict/45-46/61>.

⁵⁶ CRAIG K. ELWELL, CONG. RSCH. SERV., R41887, *BRIEF HISTORY OF THE GOLD STANDARD IN THE U.S.* 1-3 (2011).

⁵⁷ See, e.g., EICHENGREEN, *supra* note 19, at 19-24.

⁵⁸ See, e.g., COMM. ON PAYMENTS & MKT. INFRASTRUCTURES, BANK FOR INT'L SETTLEMENTS, *CORRESPONDENT BANKING* (2007), <https://www.bis.org/cpmi/publ/d147.pdf>; Edoardo Beretta & Alvaro Cencini, *Double-Entry Bookkeeping and the Balance of Payments: The Need for a Substantial, Conceptual Reform*, BANK FOR INT'L SETTLEMENTS 6 (Feb. 17-18, 2020), https://www.bis.org/ifc/publ/ifcb52_07.pdf.

underlying structures continue.⁵⁹

While the means of payment is separate from money, it is fundamental to its mobilization.

In addition to acceptability (medium of exchange) and usability (unit of account and means of payment), money (as highlighted above) should be a store of value. This entails both stability (to avoid toxic levels of inflation or debasement)⁶⁰ and the ability to use it for finance and investment.⁶¹ Finance, investment, and value involve time rather than distance and thus have different risks and engage the financial system.⁶²

Thus, a monetary instrument should be widely usable for transactions (the more widely, the better), supported by effective payment systems, and should have a variety of available financing and investment options. This is often a rationale for the continued dominance of the US dollar: the depth and sophistication of its financial system. Its wide availability and liquidity, attractive return profile, and acceptable level of inflation/debasement all underpin its role as the most widely used currency for international transactions.⁶³

This role was supported after World War II by the development of the off-shore Euromarkets and international legal arrangements such as the Bretton Woods international monetary system established under the IMF Articles of Agreement.⁶⁴

B. The International Monetary and Payments System

Because of the central role of money, payments, and finance in trade and geopolitical competition over thousands of years, monetary and payments systems have long been a focus of attention, sometimes with active encouragement by a sovereign of its monetary instrument (e.g. Rome, Spain, UK, and the US and China in the 21st century)⁶⁵ but often largely at the

⁵⁹ Ulrich Bindseil & George Pantelopoulos, *Towards the Holy Grail of Cross-Border Payments* 1-3, 7-8 (Eur. Cent. Bank, Working Paper No. 2693, 2022).

⁶⁰ James Tobin, *Money, Capital, and Other Stores of Value*, 51 AM. ECON. ASS'N 26, 27 (1961).

⁶¹ ANDREAS F. LOWENFELD, INTERNATIONAL ECONOMIC LAW 18 (2nd ed. 2002).

⁶² See Tobin, *supra* note 60.

⁶³ See, e.g., IMF, *Dominant Currencies and External Adjustment*, Discussion Note 11 (July 2020). *But see* Serkan Arslanalp, Barry Eichengreen & Chima Simpson-Bell, *The Stealth Erosion of Dollar Dominance: Active Diversifiers and the Rise of Nontraditional Reserve Currencies* (IMF, Working Paper No. 22/58, 2022).

⁶⁴ Michael Bordo & Angela Redish, *Putting the 'System' in the International Monetary System*, in MONEY IN THE WESTERN LEGAL TRADITION: MIDDLE AGES TO BRETTON WOODS 595, 608 (David Fox & Wolfgang Ernst eds., 2016).

⁶⁵ See DiBIASIO, *supra* note 9.

choice of market participants.⁶⁶

In the 19th century, the Gold Standard developed as a matter of both domestic public and private law and also customary international law. It was neither treaty-based nor supported by international institutions.⁶⁷ Rather, it was supported by a range of private firms (banks in particular) and central banks (which evolved to be sovereign domestic mechanisms to maintain monetary and financial stability, facilitate cross-border payments via gold, and support sovereign and other debt markets by the beginning of the 20th century).⁶⁸

The Gold Standard was a highly effective medium of exchange; it was supported by a range of paper-based systems (correspondent banking, bills of exchange)⁶⁹ with electronic communications from the late 19th century.⁷⁰ This system underpinned globalization up to World War I.⁷¹ While it certainly constrained domestic macroeconomic policy (as in the classic trilemma: the impossibility of having more than two of the free movement of capital, independent monetary policy, and fixed exchange rates), this was acceptable (with the choice generally being free movement of capital and fixed exchange rates).⁷²

Gold was useful as a store of value—although subject to volatility as a result of major discoveries during the 19th century⁷³—but was not very effective from the standpoint of finance and investment. The key to the Gold Standard was the tie of the value of paper currencies to gold, with paper currencies—reflecting convenient units of account—far more easily usable for payments, finance and investment globally.⁷⁴ The highly developed financial markets of the UK and France offered liquidity and returns, while other markets (such as the US, Argentina, China etc.) offered options for those seeking more risk.⁷⁵

⁶⁶ See Fox, Velde & Ernst, *supra* note 27, at 14.

⁶⁷ See EICHENGREEN, *supra* note 19, at 15-19.

⁶⁸ *Id.* at 32-34.

⁶⁹ See Maria Cristina Marcuzzo & Annalisa Roselli, *Profitability in the International Gold Market in the Early History of the Gold Standard*, 54 *ECONOMICA* 367, 377-78 (1987).

⁷⁰ Alexandre Ottoni Teatini Salles, *Institutional Framework of the Classical Gold Standard: Examining the First Historical Wave of Financial Globalization*, 16 *HISTÓRIA ECONÔMICA & HISTÓRIA DE EMPRESAS* 101, 121 (2013).

⁷¹ *Id.* at 110.

⁷² See Maurice Obstfeld, Jay C. Shambaugh & Alan M. Taylor, *The Trilemma in History: Tradeoffs Among Exchange Rates, Monetary Policies and Capital Mobility* 1 (Nat'l Bureau of Econ. Rsch., Working Paper No. 10396, 2004).

⁷³ See BENJAMIN MOUNTFORD & STEPHEN TUFFNELL, *A GLOBAL HISTORY OF GOLD RUSHES* 5 (2018).

⁷⁴ Bordo & Redish, *supra* note 64, at 599-600; EICHENGREEN, *supra* note 19, at 19-29, 59.

⁷⁵ See, e.g., CHARLES P. KINDLEBERGER, *A FINANCIAL HISTORY OF WESTERN EUROPE*

The competition and conflict of the first half of the 20th century doomed this system, as domestic priorities and geopolitical competition displaced the attractions of globalization.⁷⁶ During the 20th century a new system, based on international organizations and treaties, arose.

1. Bank for International Settlements

The Bank for International Settlements (BIS) was established in the aftermath of World War I to facilitate payments from defeated powers (in particular Germany) to the Allied powers.⁷⁷ It was an international institution created among governments, albeit not treaty-based, and more akin to an international central bank of the time, which were often private companies with government and non-government shareholders.⁷⁸

The BIS—based in Basel, Switzerland⁷⁹—was to serve as a payment conduit between the central banks of its members. It also became a forum for central bank discussions in the early 1930s⁸⁰ before becoming mostly dormant later in the 1930s.⁸¹ At the height of World War II, the 1944 Bretton Woods Conference recommended that the BIS be wound up,⁸² reflecting Keynes' views on the highly negative impact of war reparations and the free movement of capital,⁸³ and replaced by the IMF.⁸⁴

However, the BIS was not closed and reemerged after the war as a forum for central bank discussion and cooperation and the settlement of transactions, in addition to the central roles played by the Federal Reserve Bank of New York and the Bank of England in this respect.⁸⁵ Its primary roles have been as a central bank for central banks and as an important

265-66 (1984).

⁷⁶ See Bordo & Redish, *supra* note 64, at 606-07; EICHENGREEN, *supra* note 19, at 75-78; CHARLES P. KINDLEBERGER, *POWER AND MONEY: THE ECONOMICS OF INTERNATIONAL POLITICS AND THE POLITICS OF INTERNATIONAL ECONOMICS* 75-78 (2nd ed. 1970).

⁷⁷ *BIS History: Overview*, BANK INT'L SETTLEMENTS, <https://www.bis.org/about/history.htm?m=13> (last visited Aug. 7, 2024).

⁷⁸ *Id.*; see also JAMES CALVIN BAKER, *THE BANK FOR INTERNATIONAL SETTLEMENTS: EVOLUTION AND EVALUATION* 9 (2002).

⁷⁹ *About BIS: Overview*, THE BANK FOR INT'L SETTLEMENTS, <https://www.bis.org/about/index.htm> (last visited Feb. 17, 2024).

⁸⁰ For a summary of the early operations of BIS, see ROGER AUBOIN, *THE BANK FOR INTERNATIONAL SETTLEMENTS, 1930-1955*, at 7-14 (1955), <https://ies.princeton.edu/pdf/E22.pdf>.

⁸¹ *Id.* at 15.

⁸² *Id.* at 17.

⁸³ See generally JOHN MAYNARD KEYNES, *THE ECONOMIC CONSEQUENCES OF THE PEACE* (1920).

⁸⁴ AUBOIN, *supra* note 80, at 17.

⁸⁵ See generally GIANNI TONILO, *CENTRAL BANK COOPERATION AT THE BANK FOR INTERNATIONAL SETTLEMENTS, 1930-1973* (2005).

discussion forum, particularly as finance re-internationalized from the late 1960s.⁸⁶

While the BIS has played a limited role in monetary arrangements and payment arrangements, like a central bank, it has often performed important research functions and supported technological, legal and institutional cooperation, and even more so since the establishment of its Innovation Hubs in 2019.⁸⁷

2. International Monetary Fund

The IMF was established via treaty in 1944 to be the main international institution for international monetary arrangements following World War II.⁸⁸ Its mandates are to provide support for cross-border payments, to facilitate trade (current account, not capital account), and support the resolution of current account crises.⁸⁹ It is not a central bank; it does not issue a monetary instrument.⁹⁰ It does have a payment systems mandate but, so far, has not used the mandate in practice.⁹¹

From 1944 to 1973,⁹² the IMF was at the heart of postwar international monetary arrangements, based on the US dollar's link to gold and the linking of all other currencies to the US dollar or gold.⁹³ This was done from necessity (most of the world's gold had ended up in the United States), a desire for a fixed and stable monetary system to support the re-internationalization of trade, and to support the role of the US and its dollar at the heart of the international system.⁹⁴ From today's vantage point, it is amazing that such a system could be agreed to and work as well as it did for more than two decades.

Today, the IMF has a limited direct role in international monetary arrangements (other than as a monitor). It focuses on macroeconomic

⁸⁶ See *BIS History - Overview*, *supra* note 77.

⁸⁷ See Lawrence Wintermeyer, *BIS Innovation Hub Sets the Pace for Central Banking Digital Innovation*, *FORBES* (Mar. 25, 2021), <https://www.forbes.com/sites/lawrencewintermeyer/2021/03/25/bis-innovation-hub-sets-the-pace-for-central-banking-digital-innovation/?sh=5ed5f868382e>.

⁸⁸ Articles of Agreement of the IMF, Art. 6, § 3, 60 Stat. 1401, 2 U.N.T.S. 39; see also *Articles of Agreement of the International Monetary Fund*, IMF, <https://www.imf.org/external/pubs/ft/aa/index.htm> (last visited Aug. 7, 2024).

⁸⁹ See Michael D. Bordo & Harold James, *The International Monetary Fund: Its Present Role in Historical Perspective* 13-15 (Nat'l Bureau of Econ. Rsch., Working Paper No. 772, 2000).

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² IMF, *Annual Report of the Executive Directors for the Fiscal Year Ended April 30, 1977*, at 45 (1977).

⁹³ Bordo & James, *supra* note 89, at 14-16.

⁹⁴ *Id.* at 14.

cooperation and monitoring, and financial crisis resolution.⁹⁵ Historically—despite a treaty mandate to do so—it has had very limited direct involvement in international payment arrangements outside of research and advice.⁹⁶ It does—with the Special Drawing Right (SDR)—have an internal unit of account, which is like a currency created by a central bank and is created by its members via agreement.⁹⁷

The SDR—while it can be used to denominate transactions beyond the fund’s sovereign members—cannot be used directly except between accounts of IMF members with the fund.⁹⁸ It is thus a simple system of central bank accounts and a sort of proto-monetary instrument among governments that is not a claim on the IMF but rather “a potential claim on the freely usable currencies of IMF members”⁹⁹ and does not qualify as currency or money. It is a unit of account but not widely used and therefore it lacks network effects and convenience. The fund also offers a limited number of debt instruments that can be invested by member governments.¹⁰⁰

Since 1973, monetary arrangements have been largely under the control of domestic governments and central banks—with the main regional exception being the EU with the European Central Bank (ECB) and the euro.¹⁰¹

Payment systems have mostly been domestic, with the US dollar payment systems having the most significance, especially Clearing House Interbank Payments System (CHIPS) and Fedwire. Other significant payment systems involve the other major currencies, in particular Trans-European Automated Real-time Gross Settlement Express Transfer system (TARGET) in the EU, Clearing House Automated Payment System (CHAPS) in the UK, and Cross-Border Interbank Payment System (CIPS) in China. International payments have mostly been by public-private arrangements, with Society for Worldwide Interbank Financial Telecommunications (SWIFT) being the most significant.¹⁰²

3. Major Currency Electronic Payment Systems

Fedwire was established in 1918 as a payment system among the US

⁹⁵ *What is the International Monetary Fund?*, IMF, <https://www.imf.org/en/About/Factsheets/IMF-at-a-Glance> (last visited Aug. 7, 2024).

⁹⁶ Bordo & James, *supra* note 89, at 7.

⁹⁷ PRASAD, *supra* note 39, at 304-05.

⁹⁸ *Id.*

⁹⁹ *Special Drawing Rights: Overview*, IMF, <https://www.imf.org/en/Topics/special-drawing-right> (last visited Aug. 7, 2024).

¹⁰⁰ *See* Bordo & James, *supra* note 89, at 11-12.

¹⁰¹ *See generally* EICHENGREEN, *supra* note 19, at 185-227.

¹⁰² For an overview of the operation of some of the key payment systems, *see* BENJAMIN GEVA, *BANK COLLECTIONS AND PAYMENT TRANSACTIONS: A COMPARATIVE STUDY OF LEGAL ASPECTS* 125-339 (2001).

Federal Reserve Banks.¹⁰³ It is still run by the Federal Reserve, now with over 9,000 member banks.¹⁰⁴ Established in 1970,¹⁰⁵ CHIPS is owned and operated by around fifty bank members, under the supervision of the Federal Reserve, and covers over ninety-five percent of US dollar payments.¹⁰⁶ They are systems for both the transfer and settlement in US dollars between members.¹⁰⁷

Established in 1973, SWIFT is an international electronic payments messaging system, and accounts for most cross-border payments.¹⁰⁸ As it is only a messaging system, the actual payment must then be made by a separate system such as CHIPS, TARGET or CIPS.¹⁰⁹ SWIFT is a Belgian cooperative, supervised by an international supervisory college of major regulators as systemically important financial market infrastructure (FMI).¹¹⁰

TARGET is the large-value payment system established in 1999 by the ECB and the Eurosystem of central banks for euro payments as a core aspect of the euro regional economic and monetary union project.¹¹¹ It is a treaty-based international wholesale payment system.¹¹²

CIPS began operations in 2015 as part of China's RMB (renminbi) internationalization strategy.¹¹³

Thus, while monetary arrangements under Bretton Woods were a matter of international law, payments were largely a matter of domestic private law embedded in private, public and public-private wholesale payment systems for the major economies' currencies, in particular the US dollar.

¹⁰³ See THE FEDWIRE FUNDS SERVS., ASSESSMENT OF COMPLIANCE WITH THE CORE PRINCIPLES FOR SYSTEMICALLY IMPORTANT PAYMENT SYSTEMS 7 (2014), https://www.federalreserve.gov/paymentsystems/files/fedfunds_coreprinciples.pdf.

¹⁰⁴ See ASHUTOSH DESHMUKH, DIGITAL ACCOUNTING: THE EFFECTS OF THE INTERNET AND ERP ON ACCOUNTING 104 (2006).

¹⁰⁵ See John F. Lee, *Clearing House Interbank Payments System*, 7 ACM SIGCAS COMPUTERS & SOC'Y 6, 6 (1976).

¹⁰⁶ See PRASAD, *supra* note 39, at 47; DESHMUKH, *supra* note 104, at 105.

¹⁰⁷ See DESHMUKH, *supra* note 104, 104-05.

¹⁰⁸ See PRASAD, *supra* note 39, at 48.

¹⁰⁹ *Id.* at 48, 281.

¹¹⁰ See SUSAN V. SCOTT & MARKOS ZACHARIADIS, THE SOCIETY FOR WORLDWIDE INTERBANK FINANCIAL TELECOMMUNICATION (SWIFT): COOPERATIVE GOVERNANCE FOR NETWORK INNOVATION, STANDARDS, AND COMMUNITY 16, 43 (Thomas G. Weiss ed., 2014).

¹¹¹ *What is TARGET2?*, EUR. CENT. BANK, <https://www.ecb.europa.eu/paym/target2/target2/html/index.en.html> (last visited February 22, 2024).

¹¹² *Id.*

¹¹³ See Hyo-Sung Park, *China's RMB Internationalization Strategy: Its Rationales, State of Play, Prospects and Implications* 4, 25 (Mossavar-Rahmani Ctr. for Bus. & Gov't, Working Paper No. 63, 2016).

C. Hegemony and Politicization of the US Dollar

The Bretton Woods system, established in 1944, designated the US dollar as the main reserve currency (the currency in which countries hold their foreign reserves, because of lack of gold). This gave the US the central role in the international economic and financial system, a position continually criticized and challenged as a tremendous privilege and also a tool of US policy and monetary hegemony.¹¹⁴

As highlighted earlier, the US dollar is not the first monetary hegemon, essentially the dominant monetary instrument of a given period or region.¹¹⁵ The Bretton Woods system addressed a pragmatic challenge (the fact that gold reserves were largely held in the United States and therefore were unable to back the relaunch of domestic currencies around the world) and strengthened the role of the US financially and economically.¹¹⁶

As countries gradually built up gold reserves, they sought to diversify their foreign exchange reserves but the US dollar remained dominant—particularly as a convenient unit of account but also from the standpoint of financing—both before and after the end of the Bretton Woods system and the move to fiat currencies (with values determined only by markets, although managed by institutional and legal frameworks, in particular independent central banks).¹¹⁷ This was certainly one of the drivers of the European single currency project, which eventually resulted in the Economic and Monetary Union, the euro, and TARGET.¹¹⁸

The role of the US dollar in the international monetary, payment, and financial system has been a concern almost from the very beginning, as the Union of Soviet Socialist Republics (USSR), Soviet Bloc, non-aligned economies, and even some Western and allied economies all feared the possible “weaponization” of the US dollar against them via sanctions or even seizures.¹¹⁹ Thus the Soviet Bloc developed a ruble-based system¹²⁰ while others sought to base their US dollar holdings outside the United States when

¹¹⁴ See, e.g., David M. Fields, *Dollar Hegemony*, in *ENCYCLOPEDIA OF CENTRAL BANKING* 145-47 (Louis-Philippe Rochon & Sergio Rossi eds., 2015).

¹¹⁵ See Buckley et. al., *supra* note 8.

¹¹⁶ See generally EICHENGREEN, *supra* note 19, at 91-133.

¹¹⁷ *Id.* at ch. 5.

¹¹⁸ See Maurice Obstfeld, *Europe's Gamble*, 2 *BROOKINGS PAPERS ON ECON. ACTIVITY* 241, 241 n.41 (1997).

¹¹⁹ See, e.g., JULIUS SEN, *THE WEAPONISATION OF THE DOLLAR: POLICY OPTIONS FOR SMALL COUNTRIES* (2019), <https://www.lse.ac.uk/ideas/Assets/Documents/updates/LSE-IDEAS-Weaponisation-Dollar.pdf>.

¹²⁰ See Thomas Costigan, Drew Cottle & Angela Keys, *The US Dollar as the Global Reserve Currency: Implications for US Hegemony*, 8 *WORLD REV. OF POL. ECON.* 104, 118 (2017).

possible (for instance in London).¹²¹

These concerns increased from the 1970s, first with sanctions against Iran and reserve seizures,¹²² and then with the freezing of Libya's assets in the 1980s,¹²³ which led to the landmark case of *Libyan Arab Foreign Bank vs Bankers Trust Co.*¹²⁴ Further, the United States used the US dollar system to enforce US anti-money-laundering, anti-corruption, and taxation policies globally.¹²⁵

In some cases—such as AML/CFT (anti-money-laundering/combating the financing of terrorism), anti-corruption, and taxation transparency—these policies were eventually multilateralized through the Financial Action Task Force (FATF) and the Organization for Economic Cooperation and Development (OECD), respectively.¹²⁶ After the 2008 crisis, use of such tools increased again, particularly in relation to Iran, North Korea and Russia. This encouraged efforts in the EU, China and Russia to develop arrangements to reduce their vulnerabilities to economic, financial, and political risks of US monetary hegemony, and to gain some of the benefits of reserve currency status—particularly the ability to engage in trade and finance across borders with lower costs and without currency risks.¹²⁷

Before 2020, however, none of these projects except the euro had significantly reduced US dollar dominance.¹²⁸ After 2008, however, a number of new challengers arose that were driven by private technology rather than sovereign policy.

III. NEW TECHNOLOGIES AND THE CHALLENGE TO THE INTERNATIONAL MONETARY SYSTEM

The Bitcoin white paper was released in October 2008 at the height of the 2008 Global Financial Crisis; and Bitcoin itself was launched in January 2009 as the first decentralized digital currency and the first significant non-permissioned blockchain application.¹²⁹ Bitcoin was designed explicitly as a

¹²¹ See Gary Burn, *The State, the City and the Euromarkets*, 6 REV. OF INT'L POL. ECON. 225, 229-31 (1999).

¹²² Exec. Order No. 12,170, 3 C.F.R. 457 (1979) (blocking Iranian government property).

¹²³ Exec. Order No. 12,544, 3 C.F.R. 183 (1986) (blocking Libyan government property in the United States or held by U.S. persons).

¹²⁴ *Libyan Arab Foreign Bank v. Bankers Tr. Co.* [1989] Q.B. 728 (U.K.).

¹²⁵ RENA S. MILLER & LIANA W. ROSEN, CONG. RSCH. SERV., R44776, ANTI-MONEY LAUNDERING: AN OVERVIEW FOR CONGRESS 5 (2017).

¹²⁶ *Id.* at 19-24.

¹²⁷ See Sen, *supra* note 119, at 5.

¹²⁸ See CAROL BERTAUT, BASTIAN VON BESCHWITZ & STEPHANIE CURCURI, THE INTERNATIONAL ROLE OF THE U.S. DOLLAR, BD. OF GOVERNORS FED. RESERVE SYS. (Oct. 6, 2021), <https://doi.org/10.17016/2380-7172.2998>.

¹²⁹ Julie Pinkerton, *The History of Bitcoin, the First Cryptocurrency*, U.S. NEWS (Nov.

direct challenge to the central bank fiat currency model which was seen to be central to the 2008 crisis.¹³⁰

While Bitcoin has spawned seemingly endless cryptocurrencies, none have so far emerged as a major challenge to the principal fiat currencies or dollar hegemony. Generally speaking, Bitcoin has been less effective than the major fiat currencies as a medium of exchange, unit of account, means of payment, or store of value.¹³¹ It has, however, become widely used in a range of contexts, particularly by developing economies with weak monetary and financial systems, where Bitcoin provides a credible alternative monetary instrument and payment system.¹³²

However, in 2019 a new potential—and very credible—challenger emerged. In June 2019 Facebook revealed plans to roll out its own cryptocurrency in 2020—a global stablecoin called Libra.¹³³ In design terms, Libra as originally announced was a mobile money scheme of the kind made famous by M-Pesa in Kenya—parties would buy Libra “coins” for fiat which would be in turn deposited in the “Libra Reserve.”¹³⁴

Each Libra coin would be backed by deposited major fiat currency or short-term government securities denominated in such currencies, loosely based on the composition of the SDR.¹³⁵ Libra, in turn, would provide monetary instruments across a range of payment systems (in particular those of Facebook: Facebook Pay, WhatsApp Pay and Instagram Pay) linked via digital identification systems of Facebook and others.¹³⁶

In terms of monetary history and the role of technology, the announcement of Libra is a seminal event, notwithstanding that it will almost certainly never come into existence. Libra was a potent catalyst, not due to some profound design innovation, but because of its potential global reach with one-third of humanity regularly using their Facebook account at the time in 2019.¹³⁷ Libra

14, 2023), <https://money.usnews.com/investing/articles/the-history-of-bitcoin>; *What is Blockchain Security?*, IBM, <https://www.ibm.com/topics/blockchain-security> (last visited Feb. 18, 2024).

¹³⁰ See Dong He, *Monetary Policy in the Digital Age*, 55 FIN. & DEV. 13, 14 (2018).

¹³¹ See Dirk G. Baur, KiHoon Hong & Adrian D. Lee, *Bitcoin: Medium of Exchange or Speculative Assets?*, 54 J. INT’L. FIN. MKTS. INST. & MONEY 177 (2018).

¹³² See Andres F. Cifuentes, *Bitcoin in Troubled Economies: The Potential of Cryptocurrencies in Argentina and Venezuela*, 3 LATIN AM. L. REV. 99 (2019).

¹³³ See Dirk A. Zetsche, Ross P. Buckley & Douglas W. Arner, *Regulating Libra*, 41 OXFORD J. LEGAL STUD. 80 (2021).

¹³⁴ See Christian Catalini et al., *The Libra Reserve*, MIT SLOAN 1, 1-2 (2019), <https://mitsloan.mit.edu/shared/ods/documents?PublicationDocumentID=5860>.

¹³⁵ See *Economics and the Reserve*, DIEM ASS’N, <https://www.diem.com/en-us/economics-and-the-reserve/#overview> (last visited Feb. 18, 2024).

¹³⁶ See Deborah Liu, *Simplifying Payments with Facebook Pay*, META (Nov. 12, 2019), <https://about.fb.com/news/2019/11/simplifying-payments-with-facebook-pay/>.

¹³⁷ See Joe Myers, *Nearly a Third of the Globe is Now on Facebook: Chart of the Day*,

thus had the potential in very short order to be the first digital currency able to compete with major currencies—a characteristic Bitcoin and its progeny have so far lacked.

Unlike Bitcoin, Facebook’s scale and reach, combined with the evolution of efficient systems for digital payments, meant that Libra was—both domestically and internationally—a viable means of payment with major attractions. Libra demonstrated that the technology exists to build a better system of international payments, now the focus of a G20 initiative launched in 2020.¹³⁸ It also offered an attractive medium of exchange and store of value (as a basket of major currencies similar in composition to the SDR).¹³⁹ This raised issues of monetary sovereignty as well as a range of legal and regulatory concerns about financial stability, market integrity and consumer/investor protection, all of which led to a coordinated global regulatory response to Libra.¹⁴⁰

At the same time, the potential challenge to both the international and domestic monetary systems led central banks to rethink their approach to sovereign digital currencies (SDCs), mostly in the form of central bank digital currencies (CBDCs).¹⁴¹

A. Libra’s Impact on the Future Of Monetary and Payment Systems

A number of features gave Libra the potential to be disruptive for domestic and cross-border monetary and payment systems.

First, Libra’s role as an alternative payment system operated by private entities with massive resources and scale meant a “wait and see” regulatory strategy was highly unlikely, since Libra had the potential to become systemic virtually upon launch. Libra could have moved from being too-small-to-care to too-large-to-ignore to too-big-to-fail within months.¹⁴²

Second, in its original design, offering a composite monetary instrument—effectively a new private cryptocurrency backed by a basket of major currencies—Libra would have provided a potential alternative monetary instrument to all national fiat currencies, not dissimilar to a privately issued SDR, potentially leading to currency substitution.

WORLD ECON. F. (Aug. 5, 2019), <https://www.weforum.org/agenda/2019/08/facebook-users-social-media-internet/>.

¹³⁸ See Zetsche, Buckley, & Arner, *supra* note 133, at 81.

¹³⁹ *Id.* at 82.

¹⁴⁰ See Oliver Read & Stefan Schäfer, *Libra Project: Regulators Act on Global Stablecoins*, 55 *INTERECONOMICS* 392, 394-95 (2020).

¹⁴¹ See generally Christian Barontini & Henry Holden, *Proceeding with Caution: A Survey on Central Bank Digital Currency* (Bank for Int’l Settlements, Working Paper No. 101, 2019).

¹⁴² See Douglas W. Arner, János Barberis & Ross P. Buckley, *The Evolution of FinTech: A New Post-Crisis Paradigm?*, 47 *GEO. J. INT’L L.* 1271, 1310 (2016).

Third, Libra could have generated a broad spectrum of risks for consumers and payment systems that would need a regulatory response, including undermining competition in the payment services market (if the platform is non-interoperable); weakening the effect of monetary policy measures; increasing global demand for assets within the Libra Reserve; and jeopardizing global or regional financial stability (as disruption of Libra could have affected many economies at once).¹⁴³

Fourth, Libra raised other risks, including¹⁴⁴ legal uncertainty, due to its unclear legal status under national laws; lack of sound governance, as its value was to be based on the value of underlying assets (in the Libra Reserve) and dependent on the efficiency of the stability mechanism; and risks around the operational resilience of a large-scale currency platform.

Most significantly, Libra forced central banks to reconsider their own monetary offerings to better meet the needs of the economy and financial system and better resist potential competitors, be they private, public-private or state-sponsored.¹⁴⁵

B. Libra: The First Global Stablecoin?

Libra would have quickly become the first global stablecoin (GSC) because of its potential for near-instantaneous scale, reach and impact. Like most forms of systemically important financial market infrastructure or institutions, precise definition of a GSC can be difficult.¹⁴⁶ The elements of a GSC, however, include size, scale, interconnectedness, economies of scope and scale and network effects.¹⁴⁷ The combination of these elements tends to suggest systemic significance in financial systems.

GSCs are a challenge to the existing international monetary and financial system but one to which the system is well-placed to respond.

The first stage in dealing with GSCs is to identify them. This can be difficult because offerings by the Big Techs have the potential to scale very quickly. The second stage is to develop appropriate regulatory and supervisory tools in advance—tools that can be activated when a GSC is identified.

An activity, institutional or infrastructure-based approach can then be taken, depending on the nature of the GSC. These approaches will vary based

¹⁴³ See G7 WORKING GRP. ON STABLECOINS, BANK FOR INT'L SETTLEMENTS, INVESTIGATING THE IMPACT OF GLOBAL STABLECOINS 14-20 (Oct. 2019), <https://www.bis.org/cpmi/publ/d187.pdf>.

¹⁴⁴ *Id.* at 5-11; Dirk A. Zetsche, Buckley & Arner, *supra* note 133, at 103-04.

¹⁴⁵ Dirk A. Zetsche et al., *Sovereign Digital Currencies: The Future of Money and Payments?* (Univ. of New S. Wales L. & Rsch. Series, Working Paper No. 23-30, 2020).

¹⁴⁶ Douglas Arner, Raphael Auer & Jon Frost, *Stablecoins: Risks, Potential and Regulation* 16 (Bank for Int'l Settlements, Working Paper No. 905, 2020).

¹⁴⁷ See Zetsche et al., *supra* note 145, at 4.

on the type of service or product, and whether the GSC will be used for monetary, payments or securities settlement services. Cooperation and coordination on licensing, market access, supervision and resolution will be required.

The Libra experience served as a catalyst to develop global systems through the G20, Financial Stability Board (FSB) and others to identify GSCs, put in place appropriate supervisory arrangements and monitor their activities and impact.¹⁴⁸ The response has reinforced international regulatory approaches rather than undermined or challenged them.¹⁴⁹

C. Global Stablecoins Constrained

In response to the remarkably strong pushback from regulators,¹⁵⁰ the parameters of Libra 2.0 were announced in a new white paper in April 2020,¹⁵¹ at which time Libra also formally applied for supervision by the Swiss Financial Market Supervisory Authority (FINMA).¹⁵² These two events coincided with the launch of FSB's consultation on regulatory and supervisory approaches to global stablecoins,¹⁵³ which produced a final report and high-level recommendations in October 2020.¹⁵⁴

The high-level recommendations were intended to engender a coordinated approach to the regulation, supervision and oversight of privately issued global stablecoin arrangements in an effort to address risks to financial stability, while promoting responsible innovation.¹⁵⁵ The high-level

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at 1.

¹⁵⁰ Rebecca Bellan, *G7 Bankers Oppose Launch of Facebook's Libra Until Properly Regulated*, FORBES (Oct. 12, 2020), <https://www.forbes.com/sites/rebeccabellan/2020/10/12/g7-bankers-oppose-launch-of-facebooks-libra-until-properly-regulated/?sh=77bce2612ad5>.

¹⁵¹ *Cover Letter*, LIBRA ASS'N (2020), <https://web.archive.org/web/20201230045534/https://www.diem.com/en-us/white-paper/>.

¹⁵² *Libra Association: FINMA Licensing Process Initiated*, FINMA (Apr. 16, 2020), <https://finma.ch/en/news/2020/04/20200416-mm-libra/>.

¹⁵³ Press Release, Financial Stability Board, FSB Consults on Regulatory, Supervisory and Oversight Recommendations for "Global Stablecoin" Arrangements (Apr. 14, 2020) (on file with author).

¹⁵⁴ FIN. STABILITY BD., REGULATION, SUPERVISION AND OVERSIGHT OF "GLOBAL STABLECOIN" ARRANGEMENTS (2020), <https://www.fsb.org/wp-content/uploads/P131020-3.pdf>.

¹⁵⁵ In 2022, the FSB reviewed these high-level recommendations, with the final report of the revised high-level recommendations published in July 2023. The recommendations are broad in their application to GSCs and intended to be flexible so that "they can be incorporated into the wide variety of regulatory frameworks potentially applicable to GSCs around the world." See FIN. STABILITY BD., HIGH-LEVEL RECOMMENDATIONS FOR THE REGULATION, SUPERVISION AND OVERSIGHT OF GLOBAL STABLECOIN ARRANGEMENTS 1 (2023) [hereinafter FIN. STABILITY BD. RECOMMENDATIONS], <https://www.fsb.org/wp-content/uploads/P170723->

recommendations to governmental authorities include using necessary powers and resources to regulate, supervise and oversee global stablecoin arrangements; applying regulatory, supervisory and oversight requirements on a functional basis proportionate to potential risks; coordinating with authorities domestically and abroad; and applying a governance framework setting out accountability for functions and activities.¹⁵⁶

Libra 2.0 dramatically scaled back the original ambition of Libra 1.0 to create a global digital currency. Instead, it opted for a series of domestic currency stablecoins, linked in a global basket, not dissimilar to another project focused on linking fiat currencies and DLT, FNLITY's Utility Settlement Coin.¹⁵⁷ While such new stablecoins had the potential to challenge domestic currencies of developing countries, they were highly unlikely to challenge the major currencies or the international monetary system. They could well however challenge international payments systems—mostly because these are deeply in need of challenge and reform. Alas, it appears none of this potential will ever be realized: in 2022 the Libra/Diem project was shut down and its assets were sold to Silvergate Capital Corporation without launching any stablecoins.

From the standpoint of the international monetary system, Libra highlighted how the technology, capital and scale now align to potentially challenge the dominant paradigm that central banks issue and control currencies, even major central banks and currencies. Libra forced central banks to consider how they might use technology to build better monetary and payment systems as the foundation of economic and financial activities, and for political objectives, both domestic and international.

This, in turn, has facilitated the emergence of proposals for wholesale legal reform of digital assets, such as the draft Lummis-Gillibrand Responsible Financial Innovation Act introduced in June 2022, which seeks to establish

3.pdf. In light of recent turbulence in crypto currency prices, the revisions strengthen the high-level recommendations in three areas by: i) safeguarding client assets; ii) addressing risks associated with conflicts of interests; and iii) strengthening cross-border cooperation. *See* Press Release, Financial Stability Board, FSB Finalises Global Regulatory Framework for Crypto-Asset Activities (July 17, 2023), <https://www.fsb.org/wp-content/uploads/R170723.pdf>. Notably, the recommendations have been reviewed to extend to “stablecoins with the potential to become GSCs.” The suggestion is also made that regulators should choose to apply some high-level recommendations in a “proportionate manner to stablecoin arrangements more widely, taking into account the size, complexity and risk of those stablecoins.” *See* FIN. STABILITY BD., REVIEW OF THE FSB HIGH-LEVEL RECOMMENDATIONS OF THE REGULATION, SUPERVISION AND OVERSIGHT OF “GLOBAL STABLECOIN” ARRANGEMENTS 8 (2022), <https://www.fsb.org/wp-content/uploads/P111022-4.pdf>.

¹⁵⁶ FIN. STABILITY BD. RECOMMENDATIONS, *supra* note 155, at 3-5.

¹⁵⁷ Fnlity Press Office, *Utility Settlement Coin (USC) Continues to Evolve*, FNLITY (June 3, 2019), <https://www.fnality.org/news-views/usc-continues-to-evolve>.

“a complete regulatory framework for digital assets” in the US,¹⁵⁸ including a comprehensive set of obligations for all issuers of “payment stablecoins” and Office of Foreign Assets Control guidance on sanctions compliance responsibilities of such issuers.¹⁵⁹

Likewise, the European Parliament recently adopted a proposal that imposes liquidity coverage requirements on stablecoin market participants.¹⁶⁰ Regulations may also be seen in the UK,¹⁶¹ Hong Kong,¹⁶² and Singapore.¹⁶³

The announcement of Libra was followed by a dramatic scaling up of work on sovereign digital currencies (SDCs), mainly in the form of CBDCs—both ongoing and new. The highest profile announcement came from China’s central bank, the People’s Bank of China (PBoC), in late 2019, which took the lead by announcing its intention to launch its own CBDC.¹⁶⁴

IV. THE DIGITAL YUAN AND THE EMERGENCE OF CBDCS

In October 2019, China announced it would launch its “digital currency/electronic payment” (DC/EP), now relabeled the eCNY. This project to create a “digital yuan” is likely to make China the first major economy to launch a major currency CBDC.¹⁶⁵ The proposed creation of a

¹⁵⁸ Press Release, Kirsten Gillibrand, U.S. Senator for N.Y., Lummis, Gillibrand Introduce Landmark Legislation to Create Regulatory Framework for Digital Assets (June 7, 2022), <https://www.gillibrand.senate.gov/news/press/release/-lummis-gillibrand-introduce-landmark-legislation-to-create-regulatory-framework-for-digital-assets>.

¹⁵⁹ *Lummis-Gillibrand Responsible Financial Innovation Act Section-by-Section Overview 4* (June 7, 2022), <https://www.gillibrand.senate.gov/wp-content/uploads/imo/media/doc/Lummis-Gillibrand%20Section-by-Section%20%5bFinal%5d.pdf>.

¹⁶⁰ See Commission Regulation 2023/1114, of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-assets and amending Regulations (EU) No. 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (Text with EEA relevance), 2023 O.J. (L 150/40) 37-75 (Titles III and IV). For a detailed discussion, see Dirk A. Zetsche & Julia Sinnig, *The EU Approach to Regulating Digital Currencies*, 87 L. & CONTEMP. PROBS. 1 (2024).

¹⁶¹ Financial Services and Markets Act 2023, c. 29 (UK), <https://www.legislation.gov.uk/ukpga/2023/29/contents/enacted>.

¹⁶² Anti-Money Laundering and Counter-Terrorist Financing Ordinance, (2023) Cap. 615 (H.K.), <https://www.elegislation.gov.hk/hk/cap615?m=1&pm=0&pmc=1>.

¹⁶³ Media Release, Monetary Authority of Singapore, MAS Proposes Measures to Reduce Risks to Consumers from Cryptocurrency Trading and Enhance Standards of Stablecoin-Related Activities (Oct. 26, 2022), <https://www.mas.gov.sg/news/media-releases/2022/mas-proposes-measures-to-reduce-risks-to-consumers-from-cryptocurrency-trading-and-enhance-standards-of-stablecoin-related-activities>.

¹⁶⁴ See Hannah Murphy & Yuan Yang, *Patents Reveal Extent of China’s Digital Currency Plans*, FIN. TIMES (Feb. 12, 2020), <https://www.ft.com/content/f10e94cc-4d74-11ea-95a0-43d18ec715f5>.

¹⁶⁵ We have used the best sources available to us for this section, but our analysis may

private global stablecoin such as Libra by a foreign company was always likely to trigger the precise response seen from China.¹⁶⁶ China had been researching and experimenting with DLT and blockchain technologies since 2014. The PBoC was thus well placed to move swiftly to live trials of DC/EP.¹⁶⁷

We suggest that China's digital yuan, if—or, far more likely, when—available offshore and on a wholesale (and not just retail) basis, is *the* powerful disruption that triggers a move from the extensive CBDC-related research and piloting we have seen in Australia, Canada, Sweden, the UK and elsewhere, to multiple instances of CBDC *issuance*, particularly by major economies. Of these, the most significant by far will be major currency CBDCs: in addition to the digital yuan, a digital euro and a digital dollar, although others (such as the pound, yen and Swiss franc) may also be significant.

Work on CBDCs globally has been progressing steadily, with the 2022 BIS survey on CBDCs and crypto indicating that the share of central banks engaged in some form of CBDC work rose to ninety-three percent, with over half at the stage of experimenting or pilots.¹⁶⁸ By the end of the decade, it is predicted that there could be fifteen retail and nine wholesale CBDCs circulating among the public.¹⁶⁹

The key is that the launch by one major economy will have global implications, for all of those trading and investing with that economy, and from the standpoint of potential currency substitution and fragmentation of the international monetary and payment system. System design will thus relate to objectives and purposes as well as to impact, both domestic and international. We can see the clearest example of this with the ongoing evolution of the EU's Digital Euro project.

A. *The eCNY*

The digital yuan is shaped by China's monetary, financial, economic and political context and aims to provide a true CBDC as well as a payment

be influenced by their reliability or the quality of their translation into English.

¹⁶⁶ This response was predicted in an article posted online on July 11, 2019. See Zetzsche, Buckley, & Arner, *supra* note 133, at 97.

¹⁶⁷ Karen Yeung, *From Travel Subsidies to Party Fees, China's Digital Currency Takes Shape as Trials Begin*, S. CHINA MORNING POST (Apr. 19, 2020), <https://www.scmp.com/economy/china-economy/article/3080594/travel-subsidies-party-fees-chinas-digital-currency-takes>.

¹⁶⁸ Anneke Kosse & Ilaria Mattei, *Making Headway: Results of the 2022 BIS Survey on Central Bank Digital Currencies and Crypto*, in BIS PAPERS 6 (Bank for the Int'l Settlements No. 136, 2023).

¹⁶⁹ *Id.* at 1.

system. It operates in a three-tiered system.¹⁷⁰ The top level is the PBOC, which issues the eCNY.¹⁷¹ Below it is a network of top-tier intermediaries (TTIs) including major banks, large technology firms such as Alibaba/Ant and Tencent, and some large telecom companies, all connected to the central bank's RTGS.¹⁷² These TTIs in turn make the digital yuan available to individuals through digital wallets.¹⁷³

This far-reaching reform has been aptly described as “a credit-based currency from a value perspective, a crypto-currency from a technical perspective, an algorithm-based currency in terms of its implementation and a smart currency when it comes to application scenario.”¹⁷⁴

The digital yuan is a hybrid system: the tokens issued by the PBOC to TTIs can be transferred to retail or wholesale accounts.¹⁷⁵ It runs on a centralized system.¹⁷⁶ It is a monetary system designed to underpin the existing electronic payment systems, including traditional bank-intermediated systems and the ecosystems of Alipay and WeChatPay. These were both non-interoperable closed-loop private systems prior to the launch of the eCNY and a range of regulatory reforms in the aftermath of the decision to halt the initial public offering (IPO) of Ant in October 2020.¹⁷⁷

The digital yuan is a long way from completely replacing cash, but its usage is growing, albeit to date it has not emerged as a major competitor to Alipay and WeChatPay.¹⁷⁸ Rather, it exists as an alternative and as a backup,

¹⁷⁰ WORKING GRP. ON ECNY RSCH. & DEV. OF THE PEOPLE'S BANK OF CHINA, PROGRESS OF RESEARCH & DEVELOPMENT OF ECNY IN CHINA 3 (JULY 2021), <http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf>.

¹⁷¹ *Id.*

¹⁷² Heng Wang, *China's Approach to Central Bank Digital Currency: Selectively Reshaping Financial Order?*, 18 UNIV. PA. ASIAN L. REV. 77, 85-86 (2022).

¹⁷³ WORKING GRP. ON ECNY RSCH. & DEV. OF THE PEOPLE'S BANK OF CHINA, *supra* note 170, at 8-9.

¹⁷⁴ Qian Yao (姚前), *Li Jie Yang Xing Shu Zi Huo Bi: Yi Ge Xi Tong Xing Kuang Jia (理解央行数字货币: 一个系统性框架)* [Understanding Central Bank Digital Currency: A Systemic Framework], 47 Zhong Guo Ke Xue (中国科学) [SCIENTIA SINICA] 1592 (2017). See also Qian Yao, *A Systematic Framework to Understand Central Bank Digital Currency*, 61 SCI. CHINA INFO. SCIS. 1, 2 (2018).

¹⁷⁵ WORKING GRP. ON ECNY RSCH. & DEV. OF THE PEOPLE'S BANK OF CHINA, PROGRESS OF RESEARCH & DEVELOPMENT OF ECNY IN CHINA, *supra* note 170, at 10-11.

¹⁷⁶ Aditi Kumar & Eric Rosenbach, *Could China's Digital Currency Unseat the Dollar?*, FOREIGN AFFS., (May 20, 2020), <https://www.foreignaffairs.com/articles/china/2020-05-20/could-chinas-digital-currency-unseat-dollar>; Elijah Journey Fullerton & Peter J. Morgan, *The People's Republic of China's Digital Yuan: Its Environment, Design and Implications*, in ABDI Discussion Paper Series, at 1, 12 (Asian Dev. Bank Inst. No. 1306, 2022).

¹⁷⁷ Zetzsche et al., *supra* note 145, at 6.

¹⁷⁸ Kai Feng, *China's Digital Currency Raises Concern as Wages of Thousands of Public Servants Moves to eCNY*, ABC NEWS (May 14, 2023), <https://www.abc.net.au/news/2023-05-14/why-china-digital-currency-eCNY-concerning-yuan-rmb/102328578>.

as it was designed to do. The digital yuan is interoperable with existing domestic payment systems but not foreign systems, although foreign participants in China are able to use it. Competition from private entities is prohibited,¹⁷⁹ so it will prevent the emergence of alternatives such as Libra and Bitcoin in China. It will also provide much-improved sources of data to the government for monitoring the economy and market integrity (especially if it eventually replaces cash) and will centralize control of the underlying monetary instrument across all payment systems.

From a domestic standpoint, as a CBDC, the eCNY is legal tender¹⁸⁰ and provides a useful digital medium of exchange, means of payment and store of value. It is by definition the sovereign unit of account, the state currency. It can serve as the monetary instrument underlying a range of other public and private payment systems, both domestic and cross-border.

The digital yuan should provide a means of controlling the flow of currency into the RMB area, initially Mainland China. In time, its geographic reach could be expanded, especially on the back of the Belt and Road Initiative, the Regional Comprehensive Economic Partnership and a variety of bilateral trade areas. In doing so, it will serve as a potential dollar alternative outside the reach of the US and fully under the control of China. It is supported by a range of liquidity facilities to enhance its attractiveness as a medium of exchange, means of payment and store of value at the international level.

Such a fundamental reconfiguration of the global monetary system, if it happens, would have far-reaching consequences—denying the US some of the many benefits it receives from minting the world’s principal global reserve currency and denying the US the capacity to impose financial sanctions on many foreign countries.¹⁸¹

B. The Digital Euro

The Digital Euro may be best understood as a response to both Libra and the digital yuan. Although the Digital Euro is by now for the most part a legislative rather than technical project, it is, to our knowledge, the first CBDC project that seeks to fully embed a CBDC into the international financial system; which justifies analysis.

Following ongoing consultations since 2020,¹⁸² the European Commission

¹⁷⁹ Laney Zhang, *China*, in REGULATION OF CRYPTOCURRENCY IN SELECTED JURISDICTIONS 32 (L. Libr. of Cong. 2018) <https://www.loc.gov/law/help/cryptocurrency/china.php>; Fullerton & Morgan, *supra* note 176, at 12.

¹⁸⁰ WORKING GRP. ON ECNY RSCH. & DEV. OF THE PEOPLE’S BANK OF CHINA, PROGRESS OF RESEARCH & DEVELOPMENT OF ECNY IN CHINA, *supra* note 170, at 3.

¹⁸¹ Kumar & Rosenbach, *supra* note 176.

¹⁸² EUR. CENT. BANK [ECB], REPORT ON A DIGITAL EURO 6 (2020) [hereinafter ECB REPORT ON A DIGITAL EURO].

has published in June 2023 its “single currency package” with two proposals for the establishment of a legal framework for a digital euro. The first comprises a legislative proposal¹⁸³ to “safeguard the role of cash.”¹⁸⁴ The second¹⁸⁵ is a “legislative proposal establishing the legal framework for a possible digital euro as a complement to euro banknotes and coins.”¹⁸⁶ The Digital Euro will offer an online and offline alternative to cash, but not replace cash, at least in the short-term. To our knowledge, this “single currency package” is the first comprehensive legal text directed at adding a CBDC into a legal and financial system. Before the proposed legislation enters into force, it must be first adopted by both the European Parliament and the Council, while the final decision to issue the currency will lie with the European Central Bank. If all institutions consent, the first Digital Euro may be issued in late 2026.¹⁸⁷

The Digital Euro project is based on three premises. First, it will secure the role of the Euro in a digital currency system. Second, as digital central bank money it will offer an additional choice to customers facing the risks of cash or financial intermediation (i.e. insolvency). Third, the Digital Euro is expected to “trigger new opportunities in terms of faster, safer and more innovative payments, all while ensuring the highest level of privacy for its users.”¹⁸⁸ The latter is ensured, in particular, through (a) a link of the Digital Euro project to the EU’s Digital Identity legislation, allowing for a personalized “Euro Wallet,” and (b) a digital offline payments option with privacy characteristics similar to cash.¹⁸⁹ The Digital Euro will interact with the full range of existing and evolving analog (i.e. cash) and digital payment systems, both wholesale (such as TARGET) and retail (in the context of the Single European Payments Area, SEPA).

Under the proposed regulations, the ECB would retain the exclusive right to authorize the issue of the digital euro, with the ECB and national central banks able to issue the digital euro.¹⁹⁰ Banks and other authorized payment

¹⁸³ *Proposal for a Regulation of the European Parliament and the Council on the Provision of Digital Euro Services by Payment Services Providers Incorporated in Member States Whose Currency is Not the Euro*, at 2, COM (2023) 368 final (June 28, 2023) [hereinafter *Proposal for a Regulation*].

¹⁸⁴ European Commission Press Release IP/23/3501, Single Currency Package: New Proposals to Support the Use of Cash and to Propose a Framework for a Digital Euro (June 28, 2023).

¹⁸⁵ *Proposal for a Regulation*, *supra* note 183, at 1.

¹⁸⁶ European Commission Press Release IP/23/3501, *supra* note 184.

¹⁸⁷ EUR. CENT. BANK, AGE PLATFORM EUROPE FEEDBACK ON THE FOUR ELEMENTS PRESENTED AT THE TECHNICAL SESSION 32 (2022).

¹⁸⁸ European Commission Press Release IP/23/3501, *supra* note 184.

¹⁸⁹ European Central Bank [ECB], *Update on the Work of the Digital Euro Scheme’s Rulebook Development Group*, at 5 (Jan. 3, 2024).

¹⁹⁰ *Proposal for a Regulation of the European Parliament and of the Council on the*

service providers (“PSPs”) would have the ability to distribute digital euros to customers, with those institutions entering into contractual relationship with digital euro users.¹⁹¹ These users would be provided with basic digital euro services for free.¹⁹² This decision to use a retail CBDC architecture that involves the private sector is common amongst other global central banks designing CBDC frameworks.¹⁹³

The digital euro would have legal tender status for offline payments of monetary debts denominated in euros within the euro area; and online payments of monetary debts denominated in euro to a payee residing or established in the euro area.¹⁹⁴ There are only a limited number of exceptions to those who would be compulsorily required to accept the digital euro, most notably small firms and private individuals who may lack the payments infrastructure for Digital Euro payments.¹⁹⁵ Notably, the digital euro will be non-programmable, meaning it will not be able to be programmed for specific purposes, and public authorities cannot set limits on its use.¹⁹⁶

It has been noted that the wide availability and use of the proposed digital euro will serve to solidify the EU’s monetary sovereignty, especially in the context of developments in global CBDCs and cryptocurrency more broadly.¹⁹⁷ Nonetheless, the exact mechanisms by which the digital euro will operate remain to be decided, as well as the legal implications of different design features.¹⁹⁸

C. The Geopolitics of CBDCs

The first three systemic catalysts for international monetary reform examined here—Bitcoin, Libra and the digital yuan—challenged money and payment systems, policy makers and regulators around the globe, and gave rise to different levels of disruption. However, the immediate impetus for governments and central banks to review electronic payment systems was provided by the COVID-19 crisis starting of 2020-2022.¹⁹⁹

The 2020-2022 pandemic highlighted the central role of monetary and

Establishment of the Digital Euro, at art. 4(1), COM (2023) 369 final (June 28, 2023) [hereinafter *Proposal for Digital Euro*].

¹⁹¹ *Id.* at arts. 13-14.

¹⁹² European Commission Press Release IP/23/3501, *supra* note 184.

¹⁹³ Kosse & Mattei, *supra* note 168.

¹⁹⁴ *Proposal for Digital Euro*, *supra* note 190, at arts. 7-8.

¹⁹⁵ *Id.* at art. 9.

¹⁹⁶ *Proposal for Digital Euro*, *supra* note 190.

¹⁹⁷ European Commission Press Release IP/23/3501, *supra* note 184.

¹⁹⁸ ECB REPORT ON A DIGITAL EURO, *supra* note 182, at 2-3.

¹⁹⁹ COMM. ON PAYMENTS & MKT. INFRASTRUCTURES, BANK FOR INT’L SETTLEMENTS, COVID-19 ACCELERATED THE DIGITALISATION OF PAYMENTS 1 (2021), https://www.bis.org/statistics/payment_stats/commentary2112.pdf.

payments systems in crisis resilience and response, due to the need to be able to efficiently and swiftly channel financial support to individuals, firms and healthcare systems, and to ensure that national payment systems were capable of dealing with the far higher levels of online and electronic payments.²⁰⁰

While the full launch of the digital yuan is accelerating major country CBDC efforts, it is the rise in presence-less payments as a result of COVID-19 digitalization that is forcing central banks and governments to consider urgently whether they can and should develop and implement their own CBDCs.²⁰¹

As a result, CBDC projects have mostly to date had a domestic focus. However, technology and geopolitical demands are driving the possibility of a restructuring of the international monetary system away from the dominance of a single currency.

If and when the eCNY fully launches, it will most likely be the first major-currency CBDC. China's actions have already triggered the acceleration or activation of similar projects around the world.²⁰² The current intention is for it to be gradually opened to foreign participation within China, but probably not outside of China's internet environment in the foreseeable future. The Digital Euro is a clear reaction to this, as are the increasing range of other CBDC projects around the world. These include discussions in the United States of the possibility of a digital dollar.²⁰³

²⁰⁰ Tanai Khiaonarong et al., *Operational Resilience in Digital Payments: Experiences and Issues* 3-4, 21 (IMF, Working Paper No. 2021/288, Dec. 10, 2021), <https://ssrn.com/abstract=4026520>.

²⁰¹ Nassim Khadem, *Coronavirus Crisis Sparks Large Bank Withdrawals, Despite Looming Cash Transaction Ban*, ABC NEWS (May 25, 2020), <https://www.abc.net.au/news/2020-05-26/digital-world-without-cash-post-the-coronavirus-pandemic/12282856>. A coalition of central banks have committed to work together to assess CBDC use cases and design choices. They comprise the Bank of Canada, Bank of England, Bank of Japan, European Central Bank, Sveriges Riksbank and Swiss National Bank. The Peoples Bank of China is not a member, although its work is more progressed than any other central bank. Other central banks that have announced they are researching or testing use cases for CBDC include Australia, Bahamas, Brazil, Cambodia, Denmark, Eastern Caribbean Currency Union, Ecuador, France, Iceland, Israel, Marshall Islands, Norway, Saudi Arabia, South Africa, South Korea, Thailand, Turkey, United Arab Emirates, Ukraine and Uruguay. See Memorandum from Davis Polk & Wardwell LLP to Clients, The Federal Reserve and Central Bank Digital Currencies (Aug. 20, 2020) (on file with author), <https://alerts.davispolk.com/10/5131/uploads/the-federal-reserve-and-central-bank-digital-currencies.pdf?sid=281566df-9de6-477a-9d7e-834d74e82e20>.

²⁰² Ross P. Buckley et al., *After Libra, the e-CNY and COVID-19: The New World of Money and Payments*, LSE (Feb. 22, 2022), <https://blogs.lse.ac.uk/businessreview/2022/02/28/after-libra-the-e-cny-and-covid-19-the-new-world-of-money-and-payments/>.

²⁰³ Alondra Nelson et al., *Technical Possibilities for a U.S. Central Bank Digital Currency*, WHITE HOUSE (Sept. 16, 2022), <https://www.whitehouse.gov/ostp/news->

Importantly, the possibility of implementation of CBDCs for *cross-border* payments (except within the EU for the digital euro) is not a prominent feature of existing projects. Many are structured as strictly domestic schemes. As stated, eCNY is currently being extensively trialed with a primary focus on domestic payments.²⁰⁴

Similarly, the sand dollar of the Bahamas “will not pay interest and cannot be held non-domestically” and, consequently, payees domiciled outside the jurisdiction cannot be paid using the new currency. Other projects may not expressly reject cross-border functionality—however, the latter is typically not a priority and often tends to remain an issue for later consideration.

For example, the Bank of Canada and the Monetary Authority of Singapore joined forces to work on a cross-border cross-currency DLT-based system combining the two domestic CBDC platforms only as the fourth stage of their respective research projects (Project Jasper²⁰⁵ in Canada and Project Ubin²⁰⁶ in Singapore), following years of experimentation in a purely domestic setting. The initial stages involved investigating the use of DLT for high-value interbank settlement (phases 1 and 2 of Project Jasper and Project Ubin) and implementing CBDC for delivery versus payment (DvP) settlement of tokenized assets (phase 3 of both projects).²⁰⁷

A similar pattern was followed by the Bank of Thailand, which started investigating cross-border use cases of CBDC²⁰⁸ only after successful

updates/2022/09/16/technical-possibilities-for-a-u-s-central-bank-digital-currency/.

²⁰⁴ Jake Laband, *Existential Threat or Digital Yawn: Evaluating China's Central Bank Digital Currency*, 63 HARV. INT'L L.J. 515, 528-33 (2022); Andrew Fei et al., *The Future of Money: Around the World in Central Bank Digital Currencies*, KING & WOOD MALLESONS (May 19, 2023), <https://www.kwm.com/global/en/insights/latest-thinking/the-future-of-money-around-the-world-in-central-bank-digital-currencies.html#cn>. In February 2021, the Digital Currency Institute of the People's Bank of China (PBoC) and the Central Bank of the United Arab Emirates (UAE) joined the Multiple CBDC (m-CBDC) Bridge, a cross-border payments project in partnership with the BIS Innovation Hub, the Hong Kong Monetary Authority and the Bank of Thailand. The project developed a proof-of-concept prototype to facilitate real-time cross-border foreign exchange payments on distributed ledger technology. See Press Release, BIS, Central Banks of China and United Arab Emirates Join Digital Currency Project for Cross-border Payments (Feb. 23, 2021), <https://www.bis.org/press/p210223.htm>. The m-CBDC Bridge was tested in a six-week pilot during August and September 2022, in twenty commercial banks in Hong Kong, China, the UAE and Thailand. See BIS, PROJECT MBRIDGE: CONNECTING ECONOMIES THROUGH CBDC 4 (2022) [hereinafter PROJECT MBRIDGE], <https://www.bis.org/publ/othp59.pdf>.

²⁰⁵ *Digital Currencies and Fintech: Projects*, BANK OF CAN., <https://www.bankofcanada.ca/research/digital-currencies-and-fintech/projects/#project-jasper> (last visited Feb. 25, 2024).

²⁰⁶ *Project Ubin: Central Bank Digital Money Using Distributed Ledger Technology*, MONETARY AUTH. OF SING., <https://www.mas.gov.sg/schemes-and-initiatives/project-ubin> (last visited Feb. 25, 2024).

²⁰⁷ *Id.*; *Digital Currencies and Fintech: Projects*, *supra* note 205.

²⁰⁸ BANK OF THAI. & H.K. MONETARY AUTH., INTHANON-LIONROCK: LEVERAGING

completion of two domestic phases of its Project Inthanon: phase I focusing on wholesale fund transfer²⁰⁹ and phase II targeting DvP settlement.²¹⁰

In a sense, development of CBDCs in Canada, Singapore and Thailand resembles the Libra/Diem project, but in reverse. While the latter started as an ambitious cross-border project that had to reduce its scope to a series of domestic stablecoins, projects Jasper, Ubin and Inthanon began as domestic experiments that later explored cross-border functionality.

Having said this, we do not wish to dismiss or diminish the opportunities presented by CBDCs for cross-border payments. In cross-border contexts, CBDCs can be implemented in different ways. On the one hand, they could be used to make payments to and from another currency area. On the other, different jurisdictions may facilitate interoperability of their domestic CBDC platforms to simplify cross-currency payments.²¹¹ On balance we believe it is the cross-border applications of CBDCs that offer the largest potential benefits, by far.

These benefits could include far faster and cheaper transaction processing on a 24/7 basis; improved transparency; and enhanced settlement mechanisms (such as “atomic” settlement, which guarantees, in a bilateral settlement, that transfer of a currency in one direction occurs if and only if a corresponding transfer is made in the opposite direction).²¹²

In our view, the potential game changer in this regard is the eCNY. In keeping with its incrementalistic approach to major changes, it makes sense that China will initially establish the digital yuan as a domestic monetary instrument and one of the main rails of domestic payments, and ensure it is working extremely well domestically.

However, once that is achieved, allowing the eCNY to be used offshore²¹³ fits perfectly with China’s long-held ambition to internationalize the yuan and reduce China’s dependence on the US dollar, partially displacing the US dollar from its dominant role as the global reserve currency. Minting the world’s major reserve currency confers upon the US, in Barry Eichengreen’s words, an “exorbitant privilege.”²¹⁴ China wants some of these benefits for

DISTRIBUTED LEDGER TECHNOLOGY TO INCREASE EFFICIENCY IN CROSS-BORDER PAYMENTS 10 (2020), https://www.hkma.gov.hk/media/eng/doc/key-functions/financial-infrastructure/Report_on_Project_Inthanon-LionRock.pdf.

²⁰⁹ Press Release, Bank of Thai., The Outcome and Findings of Project Inthanon Phase I and the Project’s Next Steps (Jan. 29, 2019), <https://www.bot.or.th/English/PressandSpeeches/Press/2019/Pages/n0562.aspx>.

²¹⁰ *Id.*

²¹¹ See PROJECT MBRIDGE, *supra* note 204, at 8.

²¹² *Id.*

²¹³ See *id.* at 31.

²¹⁴ BARRY EICHENGREEN, EXORBITANT PRIVILEGE: THE RISE AND FALL OF THE DOLLAR AND THE FUTURE OF THE INTERNATIONAL MONETARY SYSTEM 4 (2012).

itself and to minimize its geopolitical and financial risks. In particular, it wants to put its international transactions beyond the reach of US sanctions (all of which, practically, are implemented through the transactions having to settle in US dollars).

Promoting the eCNY for use in international trade transactions—and potentially as the domestic currency of some poor countries that struggle with their own currency—fits with China’s long-held ambition to build a parallel international financial architecture to that established by the dominant Western powers at Bretton Woods towards the end of World War II (the architecture involving the IMF and World Bank in which the West has yet to allow China a role commensurate with that of its economy and financial system).²¹⁵ This has been a stated major goal of China since the 2008 global financial crisis.²¹⁶

For these reasons, we are confident that, when well established domestically, China will launch eCNY for offshore use. Given that China’s motives are primarily strategic, not commercial, one can be confident the eCNY will undercut payments options in terms of price (domestic eCNY is currently free). As a digital currency, eCNY should also interact highly efficiently with the digitalization of the trade process, and paperless trade. It should thus be attractive as a means of payment and medium of exchange, given the volumes of bilateral trade involving China.

At this point, China’s major trading partners are looking to respond with CBDCs of their own. We therefore see the offshore launch of eCNY as the signal event that will trigger the utter reshaping of the global monetary and payments system. However, it will not be the launch of the eCNY offshore but its usage that will force other nations to respond, and usage by merchants will depend upon their level of trust in China and its central bank.

While eCNY usage is likely to grow rapidly for current transactions, questions remain about its role as a store of value, both as a result of continuing Chinese capital controls (despite having the world’s second-largest debt markets) and due to concerns about the potential ability to use the eCNY to gather information or as a political instrument (which is ironic

²¹⁵ Ross P. Buckley, *The Economic Policies of China, India and the Washington Consensus: An Enlightening Comparison*, 27 *Wis. INT’L L.J.* 707, 707 (2009); Ross P. Buckley, *From Fragmentation to Coherence: A Way Forward for East Asia*, in *INTERNATIONAL ECONOMIC LAW AFTER THE CRISIS: A TALE OF FRAGMENTED DISCIPLINES* 107, 120 (Bryan Mercurio & C. L. Lim eds. 2015).

²¹⁶ DOUGLAS W. ARNER & ANDRE SOARES, *A GLOBALIZED RENMINBI: WILL IT RESHAPE LATIN AMERICA?* 2 (2016), <https://www.atlanticcouncil.org/in-depth-research-reports/report/a-globalized-renminbi/>; CHRIS BRUMMER & JON M. HUNTSMAN, *RENMINBI ASCENDING: HOW CHINA’S CURRENCY IMPACTS GLOBAL MARKETS, FOREIGN POLICY, AND TRANSATLANTIC FINANCIAL REGULATION* 10 (2015), <https://www.atlanticcouncil.org/in-depth-research-reports/report/renminbi-ascending-how-china-s-currency-impacts-global-markets-foreign-policy-and-transatlantic-financial-regulation/>.

given this is one reason others seek alternatives to the US dollar-based system).

Whether China and the PBoC earn this trust, and whether the yuan will be sufficiently usable from the standpoint of finance outside of China (as has been the case with the US dollar in the Euromarkets) are factors that defy accurate prediction. We are confident the eCNY will be attractive as an international means of payment and medium of exchange but expect it to face substantial concerns about its role as a store of value. Ultimately, the future of the global monetary and payments system may likely come down to the level of trust China can engender in others.

The four catalysts of technology, Libra, the eCNY and COVID-19 were already causing major changes in money and payments systems before Russia invaded Ukraine. The question is whether the combination of these factors and the weaponization of digital finance in response to the invasion will combine to end the existing paradigm. The technological evolution of CBDCs may allow us to build a far better international monetary and payment system or the combination of technology, geopolitics and geoeconomics may instead result in the fragmentation of the existing architecture into two or more currency blocs.

V. TECHNOLOGY, GEOPOLITICS AND THE FUTURE INTERNATIONAL MONETARY SYSTEM

Russia's invasion of Ukraine in 2022 brought into focus the potential role of money and payments in conflicts.²¹⁷ It has also highlighted the role of technology, as it has been through the technological infrastructure that the powerful European and US financial response to Russia's invasion has been implemented. Money and finance have always been central to warfare. It was the digitization of the global monetary and payment system coupled to the US dollar as the dominant global reserve, investment and payments currency that facilitated the weaponization of finance as the central feature of international responses in 2022.

A. The Weaponization of Global Digital Finance

In response to the invasion of Ukraine, the US and EU—and many of their allies—imposed wide-reaching sanctions on Russia.²¹⁸ These ranged from cutting Russian banks off from SWIFT to restricting exports to and from Russia, and banning Russia from making debt repayments owed to US

²¹⁷ See Somesh Jha, *Will Russia Sanctions Dethrone 'King Dollar'?*, ALJAZEERA (Mar. 7, 2023), <https://www.aljazeera.com/features/2023/3/7/will-russia-sanctions-dethrone-king-dollar>.

²¹⁸ See Minami Funakoshi et al., *Tracking Sanctions Against Russia*, REUTERS (May 31, 2022), <https://www.reuters.com/graphics/ukraine-crisis/sanctions/byvtjenzmve/>.

bondholders.²¹⁹ In June 2022, Russia defaulted on two foreign bonds due to these sanctions,²²⁰ despite having the financial capacity and willingness to pay those debts.²²¹

The decision to freeze some \$300 billion of currency reserves held by the Central Bank of Russia was utterly extraordinary.²²² Although freezing a central bank's foreign currency reserves is not new, Russia was the first large, globally integrated economy to suffer this fate.²²³ While Russia had taken steps to insulate its economy from sanctions since its annexation of Crimea in 2014—for example, by steadily divesting from its reserves most US dollar assets and nearly doubling its holdings of other foreign currencies and gold—the freezing of its reserves was particularly audacious, and has undermined its ability to stabilize the ruble and recapitalize its sanctioned banks.²²⁴

As the costs of Ukraine's defense and reconstruction grow, calls are increasing to move from freezing Russia's currency reserves to seizing them to finance these efforts.²²⁵ In Europe, the Polish government, along with the governments of Estonia, Latvia, Lithuania and Slovakia, have advocated for

²¹⁹ *Id.*

²²⁰ Ben King & Dearbail Jordan, *Russia in Debt Default as Payment Deadline Passes*, BBC NEWS (June 27, 2022), <https://www.bbc.com/news/business-61929926>.

²²¹ *Id.*

²²² Elena Fabrichnaya & Guy Faulconbridge, *What and Where Are Russia's \$300 Billion in Reserves Frozen in the West?*, REUTERS (Dec. 28, 2023), <https://www.reuters.com/world/europe/what-where-are-russias-300-billion-reserves-frozen-west-2023-12-28/>.

²²³ See Laurence H. Tribe & Jeremy Lewin, *\$100 Billion. Russia's Treasure in the U.S. Should be Turned Against Putin*, N. Y. TIMES (Apr. 15, 2022), <https://www.nytimes.com/2022/04/15/opinion/russia-war-currency-reserves.html>.

²²⁴ Robin Harding, *Toppling the Dollar as Reserve Currency Risks Harmful Fragmentation*, FIN. TIMES (Mar. 11, 2022), <https://www.ft.com/content/601786bd-6d11-47ca-8c8b-02072c15d955?sharetype=blocked>; Nicholas Gordon, *Banks Are Stopping Putin from Tapping a \$630 Billion War Chest Russia Stockpiled before Invading Ukraine*, FORTUNE (Mar. 3, 2022), <https://fortune.com/2022/03/03/russia-sanctions-central-bank-ruble-us-eu-foreign-reserves/> (noting that its reserves ballooned “to \$630 billion today from \$368 billion seven years ago”); Mike Dolan, *Russia Central Bank Freeze May Hasten “Peak” World FX Reserves*, REUTERS (Mar. 2, 2022), <https://www.reuters.com/markets/europe/russia-central-bank-freeze-may-hasten-peak-world-fx-reserves-mike-dolan-2022-03-02/>; Alan Rappeport & David E. Sanger, *Seizing Russian Assets to Help Ukraine Sets Off White House Debate*, N.Y. TIMES (May 31, 2022), <https://www.nytimes.com/2022/05/31/us/politics/russia-sanctions-central-bank-assets.html> (noting that “[b]y all accounts, Russian officials were stunned at the speed at which they were frozen—a very different reaction from the one it faced after annexing Crimea in 2014, when it took a year for weak sanctions to be imposed.”).

²²⁵ In March 2023, a joint assessment by the Ukrainian government, World Bank Group, the European Commission and United Nations estimated that the cost of the reconstruction and recovery from the invasion will cost reach US \$411 billion. See Press Release, World Bank, Updated Ukraine Recovery and Reconstruction Needs Assessment (Mar. 23, 2023), <https://www.worldbank.org/en/news/press-release/2023/03/23/updated-ukraine-recovery-and-reconstruction-needs-assessment>.

this extra measure, which has received support from the EU High Representative for Foreign Affairs and Security, Josep Borrell and Hermitage Capital Management CEO, Bill Browder.²²⁶ The European Commission is currently investigating legal options to invest Russia's frozen funds to fund Ukraine's recovery.²²⁷ While US Treasury Secretary Janet Yellen has stated the US does not have legal authority to seize and sell frozen Russian reserves, the Biden administration has been urged to develop new processes to enable this action,²²⁸ with Republican Senator James Risch introducing a bill to seize Russian government funds in June 2023.²²⁹

In the past, such steps would have been unthinkable. During the Crimean War of 1854-1856, which was brutally fought on the territory of modern-day Ukraine, the British Treasury continued paying its debts to the Tsarist government, and Russia continued paying interest to British owners of sovereign debt.²³⁰ Indeed, as one British minister put it, it was a given for "civilized nations that public debts should be paid to an enemy during war."²³¹ It is clear that customs have changed over time and the distance between public war and economic life that characterized the 19th century has

²²⁶ Sam Fleming, James Shotter & Amy Kazmin, *EU Debates Tapping Sanctions-Hit Russian Assets to Pay for Rebuilding Ukraine*, FIN. TIMES (Apr. 27, 2022), <https://www.ft.com/content/91ffdd88-fa02-4ae2-931d-f47f042e9ed4>; Sam Fleming, *EU Should Seize Russian Reserves to Rebuild Ukraine, Top Diplomat Says*, FIN. TIMES (May 9, 2022), <https://www.ft.com/content/82b0444f-889a-4f3d-8dbc-1d04162807f3>; Bill Browder, *We Must Keep Fighting Russia with Banks as Well as Tanks*, FIN. TIMES (Feb. 24, 2023), <https://www.ft.com/content/bc54545f-cf69-4cd6-aaca-4e3042b910c4>.

²²⁷ Press Release, Eur. Comm'n, Ukraine: Commission Presents Options to Make Sure that Russia Pays for Its Crimes (Nov. 30, 2023), https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7311; Paolo Tamma, *EU Looks at Investing Frozen Russian State Assets to Raise Cash for Ukraine*, POLITICO (Mar. 24, 2023), <https://www.politico.eu/article/eu-looks-at-investing-vladimir-putin-russia-state-assets-to-raise-cash-for-ukraine/>.

²²⁸ David Lawder, *Yellen: Not Legal for U.S. to Seize Russian Official Assets*, REUTERS (May 19, 2022), <https://www.reuters.com/world/yellen-not-legal-us-government-seize-russian-central-bank-assets-2022-05-18/>; Tribe & Lewin, *supra* note 223; Robert E. Litan, Commentary, *Russia Can Be Made to Pay for Ukraine Damage Now*, BROOKINGS INST. (Mar. 17, 2022), <https://www.brookings.edu/opinions/russia-can-be-made-to-pay-for-ukraine-damage-now/>; Rappoport & Sanger, *supra* note 224 (statement of Laurence H. Tribe) ("If Secretary Yellen believes this is illegal, I think she's flatly wrong . . . It may be that they are blending legal questions with their policy concerns.").

²²⁹ Press Release, Foreign Rels. Comm., Risch, Whitehouse, McCaul, Kaptur Introduce Legislation to Repurpose Sovereign Russian Assets for Ukraine (June 15, 2023), <https://www.foreign.senate.gov/press/rep/release/risch-whitehouse-mccaul-kaptur-introduce-legislation-to-repurpose-sovereign-russian-assets-for-ukraine>.

²³⁰ NICHOLAS MULDER, *THE ECONOMIC WEAPON: THE RISE OF SANCTIONS AS A TOOL OF MODERN WAR* 16 (2022).

²³¹ *Id.*

eroded.²³² Global trade and finance now serve as key battlegrounds of modern warfare.

However, weaponizing the international monetary system will have lasting repercussions for the world economy and the international monetary and payments systems. Freezing—and potentially seizing—Russia’s reserves trampled on fundamental notions of private property and national sovereignty. We expect this to have two main consequences.

First, by freezing Russia’s foreign currency reserves, the West has undermined the credibility of the existing international monetary and payments systems, while emphasizing the power of digital finance. The foundation of the current system is that states can safely store their savings with foreign banks and central banks, and these will not be frozen or expropriated in circumstances such as these. The West was thus seen by many to have violated the international rules-based order.²³³

The freeze has undoubtedly been effective: Russia could not access the hundreds of billions of foreign dollars, euros and other currencies and investments it has accumulated to stabilize the ruble or fund its armed invasion of Ukraine.²³⁴ However, refusing to honor debt obligations and politicizing Western financial institutions has, without doubt, undermined their trustworthiness.²³⁵ Russia’s pre-2014 reserves were made up of earnings from legitimate transactions and were not illegally obtained.²³⁶

Although freezing (and in some cases seizing) currency reserves has been done previously to less powerful states like Iran, Venezuela and Afghanistan, this is the first time it has been done to a member of the G20 and a permanent member of the United Nations Security Council.²³⁷

As one Russian official said, “[a]nyone who keeps money in dollars [or euros, pounds, yen etc.] today can no longer be sure that the US [or the EU, UK, Japan etc.] will not steal their money.”²³⁸ This may prove to be a gravely

²³² *Id.* at 17.

²³³ Joshua Kirschenbaum & Nicolas Véron, *Now is Not the Time to Confiscate Russia’s Central Bank Reserves*, BRUEGEL (May 16, 2022), <https://www.bruegel.org/2022/05/now-is-not-the-time-to-confiscate-russias-central-bank-reserves/>.

²³⁴ Huileng Tan, *Russia’s Finance Minister Has Admitted the Country Can’t Use Nearly Half its \$640 Billion Foreign Currency War Chest because of Western Sanctions*, YAHOO! FIN. (Mar. 13, 2022), <https://finance.yahoo.com/news/russias-finance-minister-admitted-country-035159374.html>.

²³⁵ Kirschenbaum & Véron, *supra* note 233.

²³⁶ Wolfgang Münchau, *A BRIC, Impenetrable to Sanctions*, EURO INTEL. (Mar. 13, 2022), <https://www.eurointelligence.com/column/a-bric-impenetrable-to-sanctions>.

²³⁷ Peter Martin, *Putin’s Biggest Mistake of the Ukraine War? Trusting the Western Financial System*, THE CONVERSATION (Mar. 8, 2022), <https://theconversation.com/putins-biggest-mistake-of-the-ukraine-war-trusting-the-western-financial-system-178635>.

²³⁸ Robin Wigglesworth et al., *Financial Warfare: Will There be a Backlash Against the Dollar?*, FIN. TIMES (Apr. 7, 2022), <https://www.ft.com/content/220db8f2-2980-410f-aab8->

underestimated cost of imposing these sanctions on Russia. As Kirschenbaum and Véron note, it may be that “credibly standing for a rules-based order is worth more” than the short-term tactical advantages of freezing or appropriating Russia’s reserves.²³⁹

Second, and relatedly, these sanctions have undermined trust in the US dollar as the global reserve currency and potentially limited the appeal of the euro, yen, pound and others as reserve currencies, which could lead to a fundamental reorientation of the global financial system.²⁴⁰ While the unmatched depth and liquidity of US markets—particularly the market for US Treasuries—has underpinned the dollar’s role as the global reserve currency, the sanctions against Russia prompts other states to question how they can safeguard their foreign assets in the future.²⁴¹ This could prove highly significant for global markets. Central bank reserves totaled a record \$12.04 trillion in 2023;²⁴² the US dollar accounted for fifty-nine percent of these reserves, and the euro around twenty percent.²⁴³

China is particularly concerned about the precedent set by these measures, given that it holds \$3.2 trillion in foreign currency reserves.²⁴⁴ Yet, China has found it very difficult to diversify away from US Treasury securities since the US is the only market deep and liquid enough to absorb its surplus balances without much disruption.²⁴⁵ We may therefore see China instead increasing its stockpile of commodities (in particular gold) and taking further

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²³⁹ Kirschenbaum & Véron, *supra* note 233.

²⁴⁰ Münchau, *supra* note 236.

²⁴¹ MATTIAS VERMEIREN, FREEZING RUSSIA’S CENTRAL BANK RESERVES: MUCH ADO ABOUT NOTHING? 4-5 (Ghent Inst. for Int’l & Eur. Stud. 2022), https://www.ugent.be/ps/politiekewetenschappen/gies/en/research/publications/gies_papers/2022-ukraine/freezing-russias-central-bank-reserves-much-ado-about-nothing.

²⁴² IMF, *Currency Composition of Official Foreign Exchange Reserves (COFER)*, IMF DATA (June 30, 2023), <https://data.imf.org/?sk=e6a5f467-c14b-4aa8-9f6d-5a09ec4e62a4>.

²⁴³ *Id.*

²⁴⁴ *China Foreign Exchange Reserves*, CEIC DATA (July 20, 2023), <https://www.ceicdata.com/en/indicator/china/foreign-exchange-reserves>; see also VERMEIREN, *supra* note 241; Yu Yongding, *America Has Stopped Playing by the Monetary Rules*, PROJECT SYNDICATE (Apr. 27, 2022), https://www.project-syndicate.org/commentary/us-freeze-russian-reserves-what-it-means-for-china-by-yu-yongding-2022-04?barrier=access_paylog; Hung Tran, *Wargaming a Western Freeze of China’s Foreign Reserves*, ATL. COUNCIL (Apr. 29, 2022), <https://www.atlanticcouncil.org/blogs/econographics/wargaming-a-western-freeze-of-chinas-foreign-reserves/> (noting that the sanctions against Russia “have also prompted discussions about the possibility of similar sanctions being imposed on China in the event of its military invasion of Taiwan.”).

²⁴⁵ Kent Troutman, *A World of Known Unknowns: A Closer Look at the Allocation of China’s Foreign Exchange Reserves*, PETERSON INST. FOR INT’L ECON. (Dec. 24, 2013), <https://www.piie.com/blogs/china-economic-watch/world-known-unknowns-closer-look-allocation-chinas-foreign-exchange>.

steps to reduce its trade surplus by reorienting its economy toward domestic consumption, although this has so far proven difficult.²⁴⁶

Conversely, China could appear to be an option for other states looking to move their reserves from the US or EU, although the yuan accounts for just 2.3% of global reserves²⁴⁷ and China's tight capital controls and concerns about China's governance may make this a generally unattractive option.²⁴⁸

In the absence of a safe alternative to US and euro markets, we may well witness falling levels of foreign currency reserves. As Barry Eichengreen notes, the stockpiling of reserves in recent decades has been driven by two concerns: the need to intervene to stabilize domestic markets, and for use as a war chest in times of conflict, disaster or balance-of-payments crises.²⁴⁹

If foreign currency reserves can be reduced to worthless computer entries when states need them most, many will question the point of having them in the first place. It is possible that we will see a shift away from reserves entirely, which could be accompanied by countries taking steps to harden their economies against currency risk, such as by discouraging corporates from borrowing in foreign currency²⁵⁰ or by holding increasing volumes of gold, silver, commodities or even (though far less likely) cryptocurrencies.

All of this could have a significant impact on the global monetary, payments and financial systems in coming years. We do indeed live in the most interesting of times.

B. The End of Dollar Hegemony?

One fascinating development is tied to whether, and when, China will allow the digital yuan to be used internationally. The potential of eCNY expanding overseas has been recognized by US legislators: the proposed Lummis-Gillibrand Responsible Financial Innovation Act seeks to develop standards and guidelines to boost the security of US government devices that use China's CBDC.²⁵¹

²⁴⁶ Jon Sindreu, *If Russian Currency Reserves Aren't Really Money, the World is in for a Shock*, WALL ST. J. (Mar. 3, 2022), https://www.wsj.com/articles/if-currency-reserves-arent-really-money-the-world-is-in-for-a-shock-11646311306?mod=trending_now_news_1.

²⁴⁷ Tuugi Chuluum, *The Chinese Yuan Could Finally Become a Fierce Competitor for the US Dollar*, FORTUNE (June 1, 2023), <https://fortune.com/2023/06/01/china-yuan-ukraine-war-us-dollar/>.

²⁴⁸ Barry Eichengreen, *The Monetary Consequences of Vladimir Putin*, PROJECT SYNDICATE (Mar. 10, 2022), <https://www.project-syndicate.org/commentary/russia-financial-sanctions-will-change-currency-reserves-by-barry-eichengreen-2022-03>.

²⁴⁹ *Id.*

²⁵⁰ *Id.*

²⁵¹ Lummis-Gillibrand Responsible Financial Innovation Act, S. 4356, 117th Cong. § 603 (2022).

The challenge—as highlighted earlier—is that use of the digital yuan internationally and/or outside China’s “Great Firewall” means the loss of control of capital flows to an extent that, so far, has been unacceptable to China.²⁵² However, for the digital yuan to reward China with the benefits of minting a global reserve currency, it will need to be usable outside of China.

The digital yuan offers the basis for the most credible effort since the Cold War to develop a fully functioning monetary and payment system outside of the US dollar system. If the reach of the digital yuan were to expand outside China over time, it could effectively underpin a digital divide between two largely separate and competing monetary and financial worlds.

At the same time, the way in which a digital dollar and/or digital euro evolve will be central to the future contours of the world’s monetary and financial systems.

The eCNY has tremendous potential to transform international payments from the correspondent banking model to one based on direct electronic movement of digital monetary instruments. However, at the same time, of course, a payment system (such as CIPS) operated by China would suffer from the same risks of politicization as Fedwire, CHIPS and TARGET.²⁵³

China is now the largest bilateral trading partner for a plurality of countries.²⁵⁴ As a result, the eCNY is potentially useful for goods and commodities transactions, in the same way that other currencies from dominant economies have been throughout history—the pound sterling after the Industrial Revolution, for instance.²⁵⁵ This is reflected in the increasing use of the RMB for cross-border payments and its inclusion as part of the SDR basket. Its role as a unit of account is thus growing.

From the standpoint of a store of value, in the 21st century, China has sought to maintain the stability of its currency and develop its financial markets. The Chinese debt markets are now the world’s second largest, with increasing foreign participation.²⁵⁶ As a result, venues for finance and

²⁵² See generally Thai-Binh Elston, *China is Doubling Down on its Digital Currency*, FOREIGN POL’Y RSCH. INST. (June 2, 2023), <https://www.fpri.org/article/2023/06/china-is-doubling-down-on-its-digital-currency/>, (explaining the extent of China’s use of the digital yuan internationally).

²⁵³ Randal Quarles, Vice Chair for Supervision of the Bd. of Governors of the Fed. Rsrv. System, Speech at the 113th Annual Utah Bankers Association Convention: Parachute Pants and Central Bank Money (June 28, 2021).

²⁵⁴ Chinese Consulate Gen., *What Can Chinese Modernization Bring to the Global Development and China-Malaysian Cooperation?*, MINISTRY OF FOREIGN AFFS. OF CHINA (June 30, 2023), https://www.mfa.gov.cn/mfa_eng.

²⁵⁵ Arjun Kharpal, *China is Pushing for Broader Use of Its Digital Currency*, CNBC (Jan. 10, 2022), <https://www.cnbc.com/2022/01/11/china-digital-yuan-pboc-to-expand-e-cny-use-but-challenges-remain.html>.

²⁵⁶ State Council, *RMB Assets Show Growing Appeal for Global Investors*, CHINA GOV’T (June 7, 2022), https://english.www.gov.cn/news/topnews/202206/07/content_WS629f46

investment in RMB now exist and the eCNY will likely facilitate them.

At the same time, China continues to maintain capital controls, which certainly lessens the attractiveness of its financial system internationally. For some governments and businesses, finance and investment in RMB via the eCNY presents greater risks than the US financial system and US dollar investments, domestically and internationally. Nonetheless, the combination of China's economic and financial significance, the value of diversification highlighted by the Russian sanctions, and the potential of the new eCNY monetary and payment infrastructure for cross-border transactions suggest that the offshore use of eCNY will grow, when it is allowed, particularly if the legal and institutional frameworks for the international use of eCNY reduce concerns about political and legal risks.

The role of the euro as a reserve currency could well also increase. It is already the world's second most widely used currency for cross-border payments and finance/investment.²⁵⁷ It has proven its effectiveness as a medium of exchange, means of payment and store of value, although with periodic and continuing concerns about its long-term viability in light of the Eurozone debt crisis of 2010.²⁵⁸

While the EU has—if anything—been even more active than the US in imposing sanctions in the context of Russia's invasion of Ukraine, the combination of COVID-19 and the armed conflict is driving the EU to address two central weaknesses of the euro as a major reserve currency: lack of common debt, constraining liquidity, depth and scale, particularly in comparison to the US; and lack of an effective defense system. Both of these weaknesses are seemingly now being addressed.²⁵⁹

The EU's focus on monetary stability, development of highly efficient payment systems, and the increasing size, scale and liquidity of its debt markets all means the euro may well continue to increase its role as a reserve currency. This could be reinforced by an appropriately designed digital euro as well as by a decision (so far lacking) to actively promote the international use of the euro, something that seems much more likely if Donald Trump is re-elected in the United States.

Similar arguments could apply to other currencies. While each of these arguments would reduce the dominance of the US dollar, none seems to present a strong case for a new monetary hegemon. This would also appear to be the case with Bitcoin and other cryptocurrencies.

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²⁵⁷ BANK FOR INT'L SETTLEMENTS & INT'L ORG. OF SEC. COMMS., *supra* note 4, at 1.

²⁵⁸ Livio Stracca, *The Global Effects of the Euro Debt Crisis* 4 (Eur. Cent. Bank, Working Paper No. 1573, 2013).

²⁵⁹ EUR. CENT. BANK, *THE INTERNATIONAL ROLE OF THE EURO* 8-10 (2022), <https://www.ecb.europa.eu/pub/pdf/ire/ecb.ire202206~6f3ddeab26.en.pdf>.

Rather, one is likely to see increasing competition between CBDCs as well as synthetic CBDCs (stablecoins backed by home central bank reserves) or regulated stablecoins. As international CBDCs and stablecoins come to offer attractive alternatives to non-major currencies, it may push the non-major economies to develop their own CBDCs, as otherwise they will want to restrict access to non-domestic digital monetary and payments instruments—something many central banks have tried to do with Bitcoin and other cryptocurrencies, albeit largely unsuccessfully.²⁶⁰

C. Developing a New International Monetary System

From the standpoint of efficiency, the best solution to these profound challenges would be to build a new international monetary and payments system. Throughout most of history, the major international monetary instrument has not been a fiat currency but some form of metal, with various legal, institutional and technological approaches to reduce the difficulties of physically moving and transferring actual metal or metal coins, combined with provision of a widely acceptable unit of account to provide convenience and trust, a combination of sovereign and social aspects of money.

While the pound sterling was the most widely used currency prior to World War II, this was facilitated by the Gold Standard.²⁶¹ The role of the dollar was underpinned by gold (as well as the international legal and institutional framework of the IMF) until 1971.²⁶² Thus, a dominant fiat currency has only been used as the major monetary instrument for just over fifty years.

The economic attractions of a new system are clear. The technology is available, as are the legal and institutional underpinnings: the IMF or the BIS could be tasked with issuing the monetary instrument, and there are mechanisms to build supervisory frameworks for international FMI. In particular, Article 4(2) of the IMF Articles of Agreement provides that members can establish general exchange arrangements, including par values, by eight-five percent vote.²⁶³ While the US has a blocking minority of votes, the framework for change of this magnitude nonetheless exists.²⁶⁴

The IMF appears to support this move, as its managing director recently called for a new public payment system to connect and regulate various

²⁶⁰ Raphael Auer et al., *Banking in the Shadow of Bitcoin? The Institutional Adoption of Cryptocurrencies* 3-4 (Bank for Int'l Settlements, Working Paper No. 1013, 2022).

²⁶¹ Jacob Goldstein, *What the History of Money Says About Its Future*, TIME (Oct. 15, 2021), <https://time.com/6106675/money-history-future/>.

²⁶² *How Did the U.S. Dollar Become a Fiat Currency?*, U.S. GOLD BUREAU (Sep. 27, 2022), <https://www.usgoldbureau.com/news/us-dollar-fiat-currency>.

²⁶³ Articles of Agreement of the IMF, Art. 4, § 2, 29 U.S.T. 2203.

²⁶⁴ Brock Blomberg & J. Lawrence Broz, *The Political Economy of IMF Voting Power and Quotas*, POL. ECON. OF INT'L ORG. (July 29, 2013), https://www.peio.me/wp-content/uploads/2014/04/Conf7_Blomberg-Broz-26.08.2013.pdf.

payment systems and counter the growing fragmentation of the international monetary system spurred by the global financial response to the Russian invasion of Ukraine.²⁶⁵

The challenge is geopolitical—and one that has become much more difficult following the Ukraine invasion. In this environment, it is also possible that technological evolution could, in fact, strengthen the role of the US dollar.

1. Evolution of the International Monetary System

When the US implements a digital dollar, an important aspect will be the extent to which it can be used internationally. In addition to international transactions, finance and investments that are underpinned by domestic US dollar payment systems—in particular, CHIPS—the US also exports dollars as hard currency since dollar bills are widely circulated outside the United States.

A digital dollar could accelerate this trend dramatically if the US is able to manage adroitly the potential for the technology to monitor and restrict transactions.²⁶⁶ In fact, an easily usable digital dollar could result in widespread currency substitution, a real risk for both developing and developed economies. This risk is one of the principal drivers for other countries to research and develop their own CBDCs.

The proliferation of the US dollar could be reinforced by establishing a legal and regulatory framework for US dollar stablecoins, appropriately supervised and with potential liquidity support from the central bank, as is the case with certain systemically important FMI. Clearly, international usage will be a principal consideration underlying US digital dollar design and development.

2. A New Multipolar Monetary System

We are increasingly moving towards multipolar international monetary arrangements. This is because new monetary and payments technologies make it easier to use a few major currencies with similar convenience to the past use of a single monetary hegemon. Yet, it remains to be seen whether this emerging multipolar system will be characterized by integration—as technology facilitates new and better global financial architecture—or geoeconomic fragmentation.

²⁶⁵ Kristalina Georgieva, *Confronting Fragmentation: How to Modernize the International Payment System*, IMF (May 10, 2022), https://www.imf.org/en/News/Articles/2022/05/10/sp051022-md-concluding-remarks-at-the-snb-high-level-conference?utm_medium=email&utm_source=govdelivery.

²⁶⁶ Getting the balance right between compliance with AML/CTF requirements, usability and privacy is a challenge that will confront all CBDCs, be they an eCNY, a digital euro or any other digital currency.

A variety of projects, particularly those coordinated by the BIS Innovation Hubs, are seeking to build the networks and systems needed to promote effective integration. For example, a successful cross-border CBDC experiment, Project Jura, was undertaken in collaboration with the Banque de France and the Swiss National Bank.²⁶⁷

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.²⁶⁸ 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.”²⁶⁹

Another example 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 for domestic payment systems to speak to each other, thereby enabling interoperability between payment systems across borders.²⁷⁰

A prototype of Project Nexus in 2022, connecting the instant payment systems of the Eurosystem, Malaysia and Singapore, demonstrates the 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.²⁷¹

These projects exemplify how countries can work together to investigate the use of new technologies to develop better financial infrastructure for cross-border payments and foreign exchange transactions. These developments have the potential to increase the multipolarity of the international monetary system.

The imposition of sanctions has accelerated the development of a multipolar monetary system, but through fragmentation rather than integration. While the sanctions imposed by the US and European countries directly target Russia, their costs have also been borne by other countries, which are looking for alternatives to the existing financial system to

²⁶⁷ BANQUE DE FRANCE, BANK FOR INT’L SETTLEMENTS & SWISS NAT’L BANK, CROSS-BORDER SETTLEMENT USING WHOLESALE CBDC 2 (Project Jura 2021), <https://www.bis.org/publ/othp44.pdf>.

²⁶⁸ Press Release, BIS, Bank of France & Swiss Nat’l Bank Conclude Successful Cross-border Wholesale CBDC Experiment (Dec. 8, 2021), <https://www.bis.org/press/p211208.htm>.

²⁶⁹ BANQUE DE FRANCE ET AL., *supra* note 267.

²⁷⁰ BANK FOR INT’L SETTLEMENTS, NEXUS: A BLUEPRINT FOR INSTANT CROSS-BORDER PAYMENTS 3 (2021).

²⁷¹ *Id.* at 5-6.

circumvent their effects.²⁷²

For instance, Pakistan entered a trade deal with Russia shortly after the United Nations voted to condemn the invasion and demand that Russia withdraw.²⁷³ India—a major importer of oil and fertilizers from Russia—is considering new rupee-ruble trade arrangements to maintain trade with Russia, bypassing the international payment mechanisms from which Russia has been removed.²⁷⁴ 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 the dollar in international settlements between them.²⁷⁵

If the US and European countries fail to consider how other countries will manage the fallout of sanctions—and support measures to assist them—indirectly affected countries may look to develop or engage with alternatives to the existing international financial system to protect their national interests.²⁷⁶ This will likely encourage the emergence of parallel, disjointed payment systems to mitigate the risk of Western sanctions, resulting in the fragmentation of the international monetary system.²⁷⁷

Similarly, the push for alternatives within sanctioned countries has

²⁷² REBECCA NELSON, CONG. RSCH. SERV. IF12092, *THE ECONOMIC IMPACT OF RUSSIA SANCTIONS 2* (2022).

²⁷³ *Why So Much of the World Won't Stand Up to Russia*, *ECONOMIST* (Apr. 16, 2022), <https://www.economist.com/international/why-so-much-of-the-world-wont-stand-up-to-russia/21808737>.

²⁷⁴ Chloe Cornish, *India Explores 'Rupee-Rouble' Exchange Scheme to Beat Russia Sanctions*, *FIN. TIMES* (Mar. 16, 2022), <https://www.ft.com/content/a5ee2d6b-693f-475d-80c6-0036c2657ef1>.

²⁷⁵ Yew Lun Tian, *China Says Not Deliberately Circumventing Sanctions on Russia*, *REUTERS* (Apr. 1, 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*, *ATL. 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 EUR.* (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>.

²⁷⁶ See, e.g., Mihir Sharma, Opinion, *Why India is Losing Faith in the West*, *BLOOMBERG* (March 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*, *supra* note 273 (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.”).

²⁷⁷ Kristalina Georgieva, *Confronting Fragmentation: How to Modernize the International Payment System*, *IMF* (May 10, 2022), <https://www.imf.org/en/News/Articles/2022/05/10/sp051022-md-concluding-remarks-at-the-snb-high-level-conference>.

increased the risk of fragmentation. As Russians sought to protect their assets and maintain liquidity as the value of the ruble declined in the early stages of the conflict, spending on Bitcoin and other cryptocurrencies skyrocketed.²⁷⁸ While Western sanctions extend to cryptocurrencies, this trend poses a range of risks, from financial instability and exchange-rate volatility to fragmentation of the international financial system.²⁷⁹

Since cryptocurrencies operate outside the traditional banking system, they are far less susceptible to Western sanctions, further reducing the policing power of the US and European states.²⁸⁰

The trend towards multipolarity in the international monetary system is being driven by efforts to integrate through joint technological development, which makes the use of a range of major currencies feasible, and geoeconomic fragmentation (through the application of sanctions and the development of alternative systems to circumvent their effects).

It is important that countries collaborate with each other and with international organizations—including the IMF, FSB and BIS—to develop new financial infrastructure that connects and regulates various payment systems, thereby countering the risks of fragmentation in the international monetary system.²⁸¹

The IMF has undertaken research into better infrastructure for cross-border settlement. Exchange and contracting (“XC”) platforms are one proposal of the IMF.²⁸² These offer a safer and more efficient system of cross-border payment settlement, and involve “a single ledger for settlement and a safe settlement asset, as well as programming standards and information management capabilities leveraging encryption.”²⁸³ As a result, XC platforms offer many benefits: they ensure safety by settling with central bank reserves; offer interoperability among national currencies; bring innovation and efficiency in contracting; help manage information flows to overcome economic frictions; and rest on transparent, rule-based governance.²⁸⁴

The BIS likewise envisages a new type of financial market infrastructure, which it terms a “unified ledger,” which would leverage the full benefits of

²⁷⁸ Andy Mukherjee, Opinion, *Putin’s War Could Make Central Banks a Crypto Battlefield*, BLOOMBERG (Mar. 17, 2022), <https://www.bloomberg.com/opinion/articles/2022-03-17/putin-s-war-will-put-central-bankers-on-the-cryptocurrency-frontlines>.

²⁷⁹ *Id.*

²⁸⁰ *Id.*

²⁸¹ BANK FOR INT’L SETTLEMENTS, *supra* note 271, at 5, 10-12.

²⁸² TOBIAS ADRIAN & TOMMASO MANCINI-GRIFFOLI, THE RISE OF PAYMENT AND CONTRACTING PLATFORMS, IMF 10 (June 2023), <https://www.imf.org/en/Publications/fintech-notes/Issues/2023/06/16/The-Rise-of-Payment-and-Contracting-Platforms-534794>.

²⁸³ *Id.* at 19.

²⁸⁴ *Id.* at 4.

tokenization due to the settlement finality which arises from having central bank money in the same venue as other claims.²⁸⁵ A unified ledger allows transaction bundling and simultaneous and instantaneous settlement, reducing settlement times and credit risk.²⁸⁶ Such a system would improve the existing monetary system by reducing complexity via atomic settlement and increase transparency through a partitioned data environment.²⁸⁷ It would also facilitate new use cases by combining “smart contracts, a secure and confidential environment for storing and sharing information and the execution of transactions enabled by tokenization.”²⁸⁸

We could thus see technology making possible an environment without a monetary hegemon, with transactions enabled digitally across currencies. This is the optimistic multipolar scenario. Potential examples include the mCBDC project of the BIS Hong Kong Innovation Hub, the Hong Kong Monetary Authority, the PBOC, the Bank of Thailand and the Central Bank of the UAE,²⁸⁹ and more recently Project Agora, announced in 2024 and bringing together seven major central banks (US Federal Reserve Bank of New York, Bank of England, Bank of France (representing the Eurosystem of Central Banks), Bank of Japan, Bank of Korea, Bank of Mexico, and Swiss National Bank, along with the Institute of International Finance as convenor for a group of private financial institutions.²⁹⁰

However, if countries do not cooperate continuously, it is likely the world will once again split into multiple economic blocs, as in the Cold War, hindering the cross-border flow of capital, goods, services, ideas and technologies to the detriment of productivity and living standards in all countries.²⁹¹

The costs of the rise of these parallel payment and monetary systems, and the deglobalization of the world’s economic order, are difficult to overstate. States and private market participants will be forced—by economic circumstances and the need to maintain sovereignty—to respond to the risk of weaponization of finance present in each system. The additional risk

²⁸⁵ BANK FOR INT’L SETTLEMENTS, BIS ANNUAL ECONOMIC REPORT 2023, at xvi-xvii (2023).

²⁸⁶ *Id.* at 87.

²⁸⁷ *Id.* at 98.

²⁸⁸ *Id.* at 100.

²⁸⁹ BANK FOR INT’L SETTLEMENTS, PROJECT mBRIDGE: EXPERIMENTING WITH A MULTI-CBDC PLATFORM FOR CROSS-BORDER PAYMENTS (2023), https://www.bis.org/innovation_hub/projects/mbridge_brochure_2311.pdf.

²⁹⁰ Bank for Int’l Settlements, Project Agora Moves to Next Phase and Opens Up Call for Private Sector Participation (May 14, 2024), <https://www.bis.org/about/bisih/topics/fmis/agora.htm>

²⁹¹ *Id.* at 30; Kristalina Georgieva et al., *Why We Must Resist Geoeconomic Fragmentation—And How*, IMF (May 22, 2022), <https://blogs.imf.org/2022/05/22/why-we-must-resist-geoeconomic-fragmentation-and-how/>.

management measures will lead to additional transaction costs. Another obvious consequence will be higher payment costs due to fragmentation and less liquidity, resulting in lower market efficiency. This will remove much of the welfare gains achieved in recent decades and take off the table the further gains which are still achievable from enhanced international coordination, technological harmonization and integration.

VI. TECHNOLOGY AND A NEW RULE-BASED MONETARY ORDER?

How might we remedy the challenges to the global financial system laid out in this article? When power rules absolutely, rules are useless. In a hot political climate like Russia's invasion of Ukraine, or the potential conflict across the Taiwan Straits, short-term interests are likely to prevail.

Yet, history has taught us that rules can reduce the atrocity of warfare: the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare of 1925 (known as the Geneva Protocol) followed the appalling consequences of poison gas use in World War I. The Geneva Protocol was a rules-based response to the rule-less state of war.²⁹²

Today, the long-term public and private interests of all societies will be harmed by the unprecedented weaponization of finance. In such a situation, we argue for a set of rules defining options and limiting the financial sanctions states can use in warfare, including limits on freezing or seizing central bank reserves.

We suggest the time has come for the redesign of international monetary and payment arrangements as a universal public good, based on existing arrangements such as under the IMF Articles of Agreement or the BIS, or on the development of a new international payments organization.

We expect countries to seek or actively build alternatives to maintain sovereignty in an environment where monetary and payments systems are weaponized. Regardless of who seeks to benefit from dominating global finance, the dominated will respond, facilitated by technology, and all of us will be the poorer. A rules-based order that focuses on preserving and enhancing the world's monetary and payment systems could reduce the detrimental effects of the weaponization of finance and serve the long-term interests of all the world's societies and peoples.

²⁹² Alex Spelling et al., *The Geneva Protocol at 90: An Anchor for Arms Control?*, THE GUARDIAN (June 17, 2015), <https://www.theguardian.com/science/the-h-word/2015/jun/17/the-geneva-protocol-at-90-an-anchor-for-arms-control>.