

The Past and Future of Money

NEW TECHNOLOGIES AND ECONOMIC RISKS



GROUP OF THIRTY

Disclaimer

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NEW TECHNOLOGIES AND ECONOMIC RISKS

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Foreword

The Group of Thirty is pleased to release *The Past and Future of Money: New Technologies and Economic Risks*, a continuation of the Group's tradition in publishing timely reports to explore the most pressing challenges impacting the global financial community.

The study examines the rapidly evolving landscape of money and payments in light of the opportunities and risks posed by new technologies such as cryptocurrencies, stablecoins, and central bank digital currencies (CBDCs). As technology changes, the G30 report underscores the importance of maintaining stability in the monetary system.

Drawing on historical context and economic principles, the study calls for a balanced approach in fostering

innovation without jeopardizing the core strengths of the current two-tier system. It also highlights the need for robust regulatory frameworks, particularly for stablecoins, to ensure financial integrity.

On behalf of the Group of Thirty, I thank Project Chair, Kenneth Rogoff, for his dedicated leadership of the Working Group on The Future of Money, and Max Harris for his careful drafting of the text. Additionally, I thank the G30 members who served as participants in the Working Group for their time and their contributions to the project. The final report reflects the views of the Project Chair and members of the Working Group, but does not necessarily represent the views of the Group of Thirty as a whole.



Raghuram G. Rajan

Chair, Group of Thirty

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On behalf of the Group of Thirty, I would like to express great appreciation to those whose time, talent, and energy have driven this project to successful completion. I thank the members of the Working Group on the Future of Money, who supported the project and helped craft the report's findings. The intellect and experience of the group was a vital part of the discussions and subsequent recommendations within the report.

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The coordination of this project and many aspects of project management, Working Group logistics, and report production were centered at the G30 offices in Washington, D.C. This project could not have been completed without the efforts of our editor, Diane Stamm, and the work of the Group of Thirty team, including Desiree Maruca, Maria Cueto Velez, and former Executive Director, Stuart Mackintosh. We are grateful to them all.



Kenneth Rogoff

Chair

Working Group on the Future of Money



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Abbreviations

CBDCs	central bank digital currencies
DeFi	decentralized finance
drex	digital real (Brazil)
e-CNY	digital yuan (China)
FDIC	Federal Deposit Insurance Corporation
GENIUS Act	Guiding and Establishing National Innovation for U.S. Stablecoins Act
HQLA	high-quality liquid assets
MiCA	Markets in Crypto-Assets
OCC	Office of the Comptroller of the Currency
QR code	quick response code
rCBDCs	retail central bank digital currencies
SCRC	Stablecoin Certification Review Committee
SVB	Silicon Valley Bank
wCBDCs	wholesale central bank digital currencies

Executive Summary

The world of money and payments is changing rapidly. New technologies—from faster cross-border payments to programmable money and even new currencies—offer the potential to transform the monetary system. But new technologies, such as cryptocurrencies, could also introduce grave risks at the very heart of the monetary system. Navigating this moment of change successfully—balancing innovation with stability—will not be easy. The stakes, however, could not be higher, for the functioning of the monetary system is essential for the health of the economy.

To help policymakers make sense of the current moment, this report explores the past and future of money, providing economic and historical context key to understanding the opportunities and risks. Motivating this report is a sense that the conversation to date has too often focused on the technology at play—this new coin or that novel blockchain—with little consideration of the economic desirability of such coins or blockchains. The principles of finance, however, do not depend on the underlying technology: bad money is bad, whether analog or digital. As such, any discussion of the future of money must be grounded in economics and certainly not just rent-seeking advocacy from either legacy banks or new blockchain players.

The conversation has also too often been ahistorical, looking to the future without considering the past. Yet money has undergone massive changes through the centuries, episodes from which we can and should learn. This report thus aims to recenter the conversation by exploring what makes money good, how the current system improves on the past, and how we can improve today's system without putting at risk its many benefits.

While by no means perfect, today's monetary system is built on the solid foundation of the two-tier structure of money. Both the central bank and commercial banks issue

money; the former anchors the system, the latter extend credit to the private sector. Critically, central bank money and commercial bank money are interchangeable at par. This “singleness” of money, achieved through regulation, supervision, and the financial safety net, promotes trust and confidence. Singleness is so engrained that most consumers and businesses take it for granted, yet it is far from guaranteed.

Indeed, the two-tier structure is a relatively recent innovation; only in the past century or so have many, though by no means all, economies obtained order in the monetary system through the anchor of central bank money and the independence of the central bank. For much of history, monetary systems were a jumble of different currencies circulating at fluctuating rates, leading to confusion, friction, and distrust. While cryptocurrencies and blockchains are products of the digital age, these earlier experiences—and the evolution of monetary instruments from gold coins to paper currencies and bank deposits—shed light on the opportunities and risks the system faces in this time of rapid change. The problems with commodity money from the medieval era to the classical gold standard help explain why Bitcoin and other unbacked cryptocurrencies would not make good money. Likewise, the chaos of the U.S. free banking era in the 19th century highlights risks of increased stablecoin use.

To be sure, the current system has many shortcomings. Payments can be slow and expensive and are ripe for disruption. In this digital age, money could have new functionality too. The tokenization of money—that is, creating digital tokens on a blockchain—for example, could enable self-executing contracts that increase efficiency. Cryptocurrencies have arisen as one means to transform the system. Faster, cheaper, and smarter payments could be possible using the underlying blockchain technology. But cryptocurrencies pose many risks, from



financial instability to illicit finance, that cannot be waved away. Bitcoin, in particular, does not contain the characteristics necessary to be good money and should not be treated as such.

Stablecoins, a type of cryptocurrency designed to maintain a stable price by being pegged to a fiat currency (most often the U.S. dollar), present a more complex case. Given their purported stability, stablecoins have more money-like properties and offer the prospect of improved payments. However, just as banks in antebellum America faced few restrictions and issued notes that they often failed to redeem, stablecoin issuers are operating in a lightly regulated environment and may not be able to fulfill their promises either. Without appropriate safeguards, the proliferation of stablecoins could, notwithstanding their very name, threaten monetary stability by impairing singleness and disintermediating the banking sector.

Equally important, new technologies must not become a sanctioned vehicle for widespread regulatory evasion. Stablecoins not only compete with currency; they also potentially compete with debit cards and credit cards. Without parallel regulations that ensure low-cost traceability by authorities—not just to pseudonyms but to underlying identities, at least for large transactions—they threaten to undercut taxation and legal enforcement worldwide. This crucial point seems to have been given short shrift in the United States' recent GENIUS Act, which creates a regulatory framework for stablecoins.

Cryptocurrencies have so far been at the cutting edge of tokenization and programmability. For precisely the concerns discussed above, including fears of overly rapid disintermediation of the financial sector, central banks have naturally moved more slowly in rolling out new technology. The financial system and real economy depend on central bank operations every day, so any changes by necessity must be more deliberate. But there is extensive scope for innovation within the two-tier system as well, both by central banks and the legacy banking sector. Central bank digital currencies (CBDCs) and tokenized deposits represent possible paths toward a 21st-century monetary system that can strengthen, rather than undermine, the two-tier system.

This report makes three main recommendations. The first two involve encouraging innovation within the two-tier system. (1) Policymakers should accelerate work on CBDCs; in particular, they should explore wholesale CBDCs to ensure that central bank money continues to provide the functionality needed for large-scale payments at the heart of the system. (2) Policymakers should also support efforts to tokenize deposits, which offer the possibility of the benefits of tokenization within the bank regulatory perimeter. (3) Outside of the two-tier system, policymakers should craft a robust regulatory framework for stablecoins that creates space for competition in payments without putting the larger system at risk.

I. Introduction

The world of money and payments is changing rapidly. Every week, there seems to be a new company, cryptocurrency, or blockchain protocol seeking to revamp the monetary and financial system and promising to make it more modern, more democratic, more accessible, more affordable. Some in the fintech space aim to work within the existing system; others hope to overturn it and build anew. All, however, seem to be operating at warp speed. Indeed, the parade of innovations is moving so fast that it can be difficult for those in industry and policy to keep pace.

Officials must, of course, stay on top of technological developments that are transforming money. Yet, technology is only one aspect of the future of money. The crux of the matter—today as well as throughout history—is how to design a monetary system that is stable, trustworthy, and conducive to economic growth. Focusing on what technology can do, as much of the discussion in recent years has, too often distracts from the central issue of what money should do. Here, economic theory and historical experience have much to add. As they make plain, the characteristics of good money go far beyond technological convenience. For money to be good, it must not only be easy to use but trusted, underpinned by a strong legal framework. And when money is bad, the financial system and broader economy can suffer, no matter how advanced the underlying technology.

In formulating rules and regulations for the digital era, policymakers must bear this larger economic and historical context in mind. While the technology in payments might change, the fundamental principles of finance remain the same. These principles include the importance of trust in money, the difficulty in maintaining it, and the dangers of bank-like runs and financial instability. Private money, for instance, is inherently fragile. Short-term debt redeemable on demand at par is subject to run risk, whether the debt

is an uninsured bank deposit recorded in an old-fashioned ledger or a stablecoin on the latest blockchain. Technology does not alter this fragility.

The history of money offers insight too, for it is in many ways the story of confronting this fragility and searching for stability. In most places and times, stability has been elusive; only in the past century or so have many, though by no means all, economies obtained order in the monetary system through the anchor of central bank money and the independence of the central bank. Tracing this evolution in monetary systems and public policies can inform discussions about the future of money. While cryptocurrencies and blockchains are products of the digital age, these earlier monetary technologies—gold coins, paper currencies, and bank deposits—shed light on the opportunities and risks the system faces in this time

Technology is only one aspect of the future of money. The crux of the matter—today as well as throughout history—is how to design a monetary system that is stable, trustworthy, and conducive to economic growth.

of rapid change. For example, examining problems with commodity money from the medieval era to the classical gold standard helps explain why Bitcoin would not make good money. Likewise, studying the chaos of the U.S. free banking era in the 19th century highlights key risks of increased stablecoin use.

By taking a step back, this report aims to ground discussion of the future of money in a broader context, exploring monetary systems through history and the economic pillars of monetary stability. The report considers innovations in money through this lens, focusing on cryptocurrencies, central bank digital currencies (CBDCs), and tokenized deposits. To be sure, this is a moment of great potential, one when money could enter a new age. Many of the shortcomings of today's system could become artifacts of the past. Faster payments could reduce working capital needs, cheaper remittances could help the most vulnerable, and programmable money could create novel possibilities for contracting. But this is also a time for caution. Most cryptocurrencies, such as Bitcoin, are not money and are extremely volatile; giving them a greenlight to enmesh in the monetary system would entail substantial risks. Stablecoins, on the other hand, have more money-like properties and use cases, but they still have drawbacks that regulators need to address, from the run risk mentioned above to their role in illicit finance. Notably, recent U.S. legislation on stablecoins, known as the GENIUS Act,¹ has shortcomings in this regard.

At the core of this report is the concept of the two-tier monetary system. Today, money consists of liabilities from the central bank and commercial banks; the former anchors the system, the latter extend credit to the private sector. Crucially, the two types of money are convertible into each other at par, helping to ensure the “singleness” of money—a dollar is a dollar, whether a deposit at a bank or a physical note. This two-tier structure is a modern invention. In earlier eras, monetary systems were a jumble of different currencies circulating at fluctuating rates, leading to confusion, friction, and distrust. The spread of Bitcoin and other cryptocurrencies could reintroduce much of the monetary disorder of the past. Indeed, given the far larger degree of financialization, interconnection, and globalization today than in earlier centuries, the consequences of renewed monetary disorder could be even greater.

In looking to the future of money, policymakers must not only seek to avoid such a reversion but also provide an environment for safe innovation. This report makes three main recommendations to that end. The first two involve encouraging innovation within the two-tier system. (1) Policymakers should accelerate work on CBDCs;

in particular, they should explore wholesale CBDCs to ensure that central bank money continues to provide the functionality needed for large-scale payments at the heart of the system. (2) Policymakers should also support efforts to tokenize deposits, which offer the possibility of the benefits of tokenization within the bank regulatory perimeter. As with stablecoins, these tokens must have the characteristic that large transactions (say over a few thousand dollars) can easily and inexpensively be traced by authorities. This could involve embedding code in the tokens. (3) Outside of the two-tier system, policymakers should craft a robust regulatory framework for stablecoins that creates space for competition in payments without putting the larger system at risk.

The stakes during this moment in monetary history are high. Money is a public good, and the monetary system is the bedrock of the economy. Without a stable, well-functioning system, economic activity will suffer. The future of money is also inseparable from the future of the international order. Stablecoins and CBDCs are at the forefront of a deepening confrontation over currency dominance, and while the geopolitics of money is not the focus of this report, current economic tensions underscore the gravity of this moment.

The rest of this report proceeds as follows. Section II returns to fundamentals to discuss the principal attributes of today's monetary system, its strengths, and its shortcomings. The section emphasizes the importance of singleness and the two-tier structure of money as a foundation for the monetary system. Section III places these attributes in historical context, showing how their absence through much of history destabilized monetary systems and hobbled economies, notably during the free banking era in antebellum America. Only in the 19th and 20th centuries did the modern system come into being. We acknowledge that the historical parallels are sometimes imperfect: the pricing of cryptocurrencies today can be immediately observed on national markets, in sharp contrast to the discount rates on private banknotes of the 1800s. That said, the overall parallels are striking. Section IV turns to the advent of cryptocurrencies and the opportunities and risks they give rise to—including the risk they pose to the singleness of money. Section V discusses innovation within the two-tier structure, focusing on CBDCs

¹ GENIUS Act = Guiding and Establishing National Innovation for U.S. Stablecoins Act.



and tokenized deposits. Section VI outlines principles for the future of money. Policymakers should ramp up work on CBDCs, encourage innovation within the commercial

banking sector, and craft a prudent regulatory regime for stablecoins. Section VII concludes.

II. The Structure of the Monetary System

At first glance, money and payments seem quite simple. Write a check, tap a card, scan a QR code: dollars (or euros, yen, pesos, etc.) are debited from the payer's account and credited to the payee's. The story has a beginning and end, and few ever think much about the middle. Yet the ability to “move” money in this way is remarkable.² The sheer mechanics involved in processing billions of transactions per day is astounding in itself.³ But even more important is the foundation of trust underlying the system—trust that the means of payment will be accepted, that its value will be stable, that account balances will update correctly. As Borio (2019, 18) well notes, “The system hinges on trust. It cannot survive without it, just as we cannot survive without the oxygen we breathe.”

While the monetary system has many layers that contribute to this trust, the principle of singleness is the bedrock. A payer and payee may have accounts in different banks, located far away from each other, yet one dollar in the payer's account is the same as one dollar in the payee's, and both are worth one dollar in cash. This singleness of money—a dollar is a dollar, whether a physical one-dollar bill with George Washington's portrait or a digital entry in a bank database—undergirds the financial system, facilitates payments, and supports real economic activity.

Though singleness is a key feature of today's system, economic agents often take it for granted, at least in advanced economies. It gets little attention when present and operative, as if it were a fact of life, an automatic element of any system. Yet singleness does not exist by default and is by no means guaranteed. In fact, most monetary systems throughout history have lacked singleness

(see Section III). Convertibility of different forms of money at par depends on a strong regulatory apparatus and safety net, one that has developed over centuries. Exploring the pillars of today's monetary system reveals how modern regulatory structures, with central banks at the core, make this fungibility between different forms of money possible. In doing so, we can better understand how the current system improves on the past and how we might improve the system in the future.

This section begins with the essential attributes of money and then discusses the two-tier structure of public (central bank) money and private (commercial bank) money. In the United States, there are thousands of banks, each issuing liabilities that serve as money. Critically, consumers, businesses, and banks exchange these liabilities at par. The section explains how the system ensures singleness through regulation and supervision. Singleness promotes trust and confidence in the system, as does settlement finality through transactions in central bank reserves. At the same time, while the two-tier structure provides a sturdy foundation, today's system is far from perfect. The section concludes by discussing some of these weaknesses and the need for faster, cheaper, and smarter payments.

The Basics of Money

The subject of money is ever present in our lives—in the news, in our conversations, in our dreams (or nightmares)—yet the concept of money is difficult to pin down, perhaps explaining why debates about exactly what money is go back at least to Aristotle.⁴ Today, economists generally

² Of course, money today generally does not physically move to complete payments, as it did when the money supply consisted of gold and silver coins. As discussed below, the banking system processes payments by altering account balances.

³ McKinsey (2024) estimates that the global payments industry processed 3.4 trillion transactions in 2023.

⁴ de Bruin et al. 2023.

define money by the roles it performs. Money should be a store of value, unit of account, and medium of exchange.⁵ As a store of value, money must maintain its value over time. For example, land is a store of value; bananas, which go from ripe to rotten in days, not so much. As a unit

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of account, money denominates the prices of goods and services throughout the economy. And as a medium of exchange, money is widely accepted for payment: Bank of Japan notes fulfill this role in Japan, while stock in a company does not. All three elements are essential and can be reinforcing. For instance, a good medium of exchange is a natural candidate for unit of account; a bad store of value would make a poor medium of exchange.

Different assets fulfill these criteria to varying degrees, and what serves as money in a given society at a certain time depends on a host of factors, including its technological development, political system, and culture. Over the grand sweep of history, money has evolved from commodities (such as cowrie shells, gold, and silver), to commodity-backed instruments (banknotes redeemable in gold or silver), to fiat instruments (money that is inconvertible into any commodity and relies on trust in the stability of its purchasing power).⁶ This movement away from commodity-based to fiat money resulted from long-term forces, including the growing recognition that precious metals were unsuitable as money in modern economies (see Section III), as well as rapid changes during wars and depressions.

Today, we live in a fiat world. And within the fiat system, there are multiple forms of money, each with different attributes but all interchangeable at par. As discussed below, money today is a particular kind of liability and can differ based on whether the issuer is a public or private institution. It can also vary based on accessibility. Some forms, such as cash, are widely accessible, whereas others, such as central bank reserves, are restricted to certain holders. In addition, money can be token-based or account-based. Token-based money, such as gold coins or paper currency, is an object (physical or digital), ownership of which depends entirely on possession.⁷ When a person pays with cash, the recipient will want to verify the authenticity of the bills but need not verify the identity of the payer (that is, cash is a bearer instrument). In contrast, accepting account-based money, such as bank deposits, requires verifying the identity of the payer. These alternative forms of money give choice to consumers, who might prefer holding and using one form of money today and another tomorrow. Moreover, as the variety of forms makes clear, the monetary system really is a system, a set of interlocking components that together enable individuals and businesses to engage and transact in the modern economy.

Two-Tier Structure

Money can be issued by public or private institutions. Public money refers to central bank liabilities (notes and deposits); private money refers to commercial bank liabilities (deposits). Public money is often characterized as outside money, which the central bank creates and is a net asset for the private sector, while private money is inside money, which banks create and is in zero net supply.⁸ To be sure, money need not be a liability: when precious metals were the only form of money, the coins used in transactions were not the liability of any institution. And some crypto advocates believe that Bitcoin, which is not the liability of any issuer, should replace the fiat system. Nevertheless, there are strong reasons for basing a monetary system on information-insensitive liabilities rather than commodities, whether physical or digital, as discussed below.

⁵ McLeay, Radia, and Thomas 2014.

⁶ Bordo and Roberds 2024. For a narrative of monetary and financial history, see Ferguson (2008).

⁷ Lee, Malone, and Wong 2020.

⁸ Lane 2025.

Public money provides the foundation for the system. Because it carries no credit or liquidity risk—the central bank can always honor liabilities denominated in its own currency—public money is the ultimate form of money. It consists of currency notes and reserve balances at the central bank. While any person or entity can hold notes, only banks (depending on jurisdiction, certain other institutions, as well) have accounts at the central bank.⁹ These reserve balances underpin the payment system by enabling interbank settlement in a common form of money. Reserves also play an important role in monetary policy: by influencing the amount of reserves and the interest rate at which they are remunerated, central banks affect interest rates in the economy broadly.

Private money consists of deposits at banks.¹⁰ When Amy has funds on deposit at Bank A, the deposits are a liability of Bank A. Amy can withdraw the funds for cash, write a check on her account for rent, use her debit card to buy a coffee, or pay her internet bill through a direct debit. Of course, banks do not provide deposit accounts merely to facilitate payments. Deposit accounts are also how banks create money through fractional reserve banking. When a bank makes a loan to Amy, it increases her deposit account, augmenting the money supply. In this way, banks do not merely transfer money but produce it, as well. And with some 4,000 banks in the United States, there are thousands of money issuers, from small community banks with assets in the millions of dollars to global systemically important banks with assets in the trillions.

The monetary system is thus a two-tier structure composed of public and private money. The central bank acts as a bank for banks, facilitating interbank settlement and influencing the ease or stringency of credit through monetary policy. Commercial banks engage in customer-facing activities, processing payments and extending credit. Though public money forms the system's core, private money comprises most of the money supply. For example, in the United States, the monetary base (currency in circulation and reserve balances) totaled around \$5.6 trillion at the end of 2024, while demand deposits at banks and other liquid deposits were nearly three times larger, at over

\$16 trillion.¹¹ Given their role in creating money, banks occupy a critical position in the monetary system, and in order to maintain confidence in the system, they are subject to extensive regulatory and supervisory regimes.

Singleness and Finality

With thousands of banks, the United States has thousands of money issuers. While other countries do not have quite that number of banks, many still have banking sectors with dozens of institutions.¹² There is no intrinsic reason for the deposit liabilities of these different institutions within a given country to be treated equally in payments. Each bank has a unique set of assets backing the liabilities on its balance sheet. Some banks hold riskier assets than others; some rely more on debt financing than others. Merchants could view money from one bank as worse than that of another and demand a premium for payment in the liabilities of the riskier bank. One could imagine a “Bank of America dollar” differing in value from a “Citibank dollar,” both of which differed from a “Federal Reserve dollar”; similarly, a “Barclays pound” could differ in value from a “NatWest pound,” both of which could differ from a “Bank of England pound.”

The implications of such a scenario, with multiple monies trading at varying prices, would be troubling and manifold. New frictions would increase transaction costs, as the cost of an item would depend on the current exchange rate for the type of money the buyer used. The banking system could become less stable, too. If depositors anticipated having to pay higher premiums when using their bank account money tomorrow, they might withdraw their funds today, sparking a run on the bank. More fundamentally, there could be uncertainty as to the economy's unit of account, the measuring rod on which economic activity relies. After all, what exactly is a dollar if there are thousands of dollars with different values?

In today's monetary system, however, depositors need not worry that their dollars are worth less than other dollars. The singleness of money—the interchangeability of money at par—makes all money equivalent

⁹ Bank for International Settlements 2020.

¹⁰ As discussed in Section III, private money previously included physical banknotes, but most countries no longer allow private production of banknotes.

¹¹ Board of Governors of the Federal Reserve System (n.d.).

¹² Sixteen countries have at least 100 banks, and another 16 countries have more than 50 banks (International Monetary Fund [n.d.]).

for payment.¹³ One “Bank of America dollar” is worth one “Citibank dollar,” and both are worth one “Federal Reserve dollar.” This equivalence depends on convertibility. Private money is convertible into public money at par, as depositors have a right to exchange their deposits for cash on demand. And private monies are convertible into one another at par through interbank settlement at the central bank. When Amy pays Bob, Amy’s bank (A) debits her account and transfers reserves at the central bank to Bob’s bank (B), which credits Bob’s account.¹⁴ The common currency of central bank reserves enables the transfer at par of Bank A money from Amy into Bank B money for Bob.

This convertibility of money at par does not happen by luck or magic. An intricate regulatory, supervisory, and legal architecture makes singleness possible. Regulation and supervision promote safety and soundness in the banking system, giving households and businesses confidence in their banks. The central bank stands ready as lender of last resort to provide liquidity to banks in need of temporary funding. Deposit insurance provides assurance to depositors that their bank accounts are safe if their bank fails, at least up to the prescribed limit. Insurance thus reduces the likelihood of runs in the first place and can help preserve the singleness of money in the event of failure. In addition, bank insolvencies generally operate outside of the standard corporate bankruptcy regime, either through modifications to the regime or separate resolution procedures entirely, enabling swift action when a bank fails. In particular, depositors generally have preferred creditor status, which again makes bank runs less likely and assists in depositor recovery in the event of failure. Preferred status for depositors is an essential component of what makes deposits accepted as money.

Critically, the mere presence of these policies does not ensure singleness. Rather, it results from the whole

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singleness possible.*

apparatus—policy and practice—developed and refined over decades. For instance, it is not sufficient for depositors to know that if their bank fails, they will have access to their deposits at some point. They need to know that there will effectively be no gap between when the bank fails and when they have access to their accounts.¹⁵ In the United States, the Federal Deposit Insurance Corporation aims to provide access to insured deposits within two business days, usually resolving banks over the course of a weekend.¹⁶ And when confidence wanes, policymakers generally step in. When Silicon Valley Bank and Signature Bank failed in March 2023, raising the prospect of losses for uninsured depositors and further bank runs that could put singleness at risk, the U.S. government guaranteed all deposits in the failed banks, stanching the panic.¹⁷ One can debate whether the present calibration of U.S. deposit insurance, with a \$250,000 limit on paper but a history of broader guarantees during crises, is optimal, but the importance of a robust insurance regime for instilling confidence is clear.¹⁸

Singleness, as Garratt and Shin (2023) summarize, “ensures that monetary exchange is not subject to fluctuating exchange rates between different forms of money, whether they be privately issued money (eg deposits) or publicly issued money (eg cash). With singleness of money,

13 As the Bank for International Settlements (2025, 81) notes, “The singleness of money is not a statement about the credit risk embedded in bank deposits but a statement about the payment. Any payment goes through at par because it can be settled with central bank reserves. In other words, singleness of money does not imply that all commercial bank liabilities are or should be equal in value. For example, negotiable certificates of deposits or bank bonds can and often do trade at varying spreads to government bonds. But payments always go through at par, because the central bank homogenises the credit risk of deposits from different banks, making them into a uniform payment instrument.”

14 In practice, banks do not settle all payments in real time at gross value; many payments go through deferred net settlement.

15 See, for example, Awrey (2024, ch. 2).

16 Federal Deposit Insurance Corporation 2022.

17 Bailey 2023. Similarly, during the Global Financial Crisis, the United Kingdom deposit insurance program had deductibles and potential delays between bank failure and payout of insured deposits, compelling retail depositors to run on their bank if it seemed in trouble. In September 2007, attempting to halt the run on Northern Rock, the U.K. government announced a guarantee of all deposits at the bank (Awrey 2024, 92–93).

18 See Group of Thirty (2024) for a description of potential reforms to the deposit insurance system.

there is an unambiguous unit of account that underpins all economic transactions in society” Garratt and Shin (2023, 1). Thus, money maintains its nominal value, and we can speak of a “dollar” because all dollars are of equal value; there is no need for any qualifying adjective. In such a world, money also satisfies the “no-questions-asked” principle: money must be accepted without question for the monetary system to be stable.¹⁹ As there is no incentive in today’s system to produce private information on the value of money by digging into whether a certain instrument is actually worth what it purports, economic agents accept all forms at par.²⁰

Another cornerstone of the monetary system, closely related to singleness, is the finality in payments provided by central bank settlement. When banks transfer reserve balances to settle transactions, the payment is final; the obligation has been discharged. Payment systems rely on this finality, particularly with large-value transactions, because in its absence, the system can break down. If a payer seeks to claw back payment, the payee might find itself in trouble and try to stop or rescind payments, causing a series of payments to unravel. While payment finality, as a legal matter, need not occur only in central bank money, there are many advantages to settling in central bank money. Central banks can smooth the settlement process by providing intraday liquidity. And, as mentioned, central bank money carries no credit or liquidity risk. Indeed, the transfer of reserves is often described as “ultimate settlement” because payment is final and the settlement asset—public money—carries the least risk of any such asset.²¹ This ultimate settlement reinforces singleness.

Singleness and finality, anchored by central bank money, rarely get much attention. They exist in the background, supporting confidence in the system so that consumers and firms can go about their business without having to think about these rather technical aspects of money and payments. But they are important attributes of the current system to keep in mind as we consider future developments.

Shortcomings

Today’s monetary system promotes confidence, facilitates credit, and supports real economic activity. It stands on the foundation of trust secured by singleness and central bank money. With the significant exception of the post-Covid price surge, independent central banks in advanced economies have generally maintained inflation near target in recent decades, preserving the purchasing power of money. The system is also flexible, as fractional reserve banking allows banks to supply money elastically, providing liquidity (for instance, through credit lines) during normal times and periods of stress.²² And it supports trillions of dollars’ worth of transactions every day.

While it is important to recognize the strengths of the monetary system, it is essential to consider its weaknesses, as well, of which there are many. Payments often take longer to settle than one would expect in the current age of instant communication (though fast payment systems are becoming more widespread).²³ This delay can complicate cash flow management for individuals and businesses. Payments can be expensive, cross-border payments especially so. The system also struggles with inclusivity. Some 4 percent of U.S. households are unbanked (they lack access to a transaction account), and 14 percent are underbanked (they have an account but still resort to nontraditional services, such as payday lenders).²⁴ Despite these issues, incumbent banks may hesitate to innovate and speed up payments given the rents they earn from the status quo. And banks are fragile by nature; in the absence of effective regulation and supervision, banking crises can threaten the financial system and real economy.

Many of these weaknesses are amplified in developing economies, where lack of financial inclusion is an even bigger problem than in advanced economies. Worldwide, 1.4 billion adults are unbanked; in some countries, a majority of adults do not have a bank account.²⁵ Moreover, central bank money is only an anchor if the central bank maintains stability in the domestic currency’s purchasing power. Many developing economies have experienced

¹⁹ Gorton and Zhang 2024b.

²⁰ Bidder et al. (2025) argue that small deviations from singleness exist in today’s economy so that singleness is approximate in practice rather than absolute.

²¹ Committee on Payment and Settlement Systems 2003.

²² Banerjee et al. 2025.

²³ Frost et al. 2024.

²⁴ Federal Deposit Insurance Corporation 2024.

²⁵ Demirgüç-Kunt et al. 2022.

prolonged periods of high inflation, even hyperinflation, often spurred by large government deficits monetized by subservient central banks. In these circumstances, consumers and businesses turn to other assets—historically, the dollar; more recently, cryptocurrencies as well—to conduct transactions and find refuge in a better store of value.

Cross-border payments are a particular pain point in the current system. They are often slow and expensive, traveling through an opaque maze of correspondent banks.²⁶ This delay and cost can harm the least well-off the most. Remittances can take days to complete. The average cost of sending a \$200 remittance is 6.5 percent (\$13), well above the G20 target of 3 percent by 2030. This average also hides vast disparities: the cost of sending a \$200 remittance from the United States is under 6 percent; the cost of sending \$200 from South Africa is more than 15 percent.²⁷ Not all of this delay and cost is due to inefficiencies and rents; it is critical for the integrity of the financial system to have checks on criminal activity, such as know your customer, anti-money laundering, and countering the financing of terrorism processes that take time and resources. But with cross-border payments, there is duplicative work on these matters in each step of the chain, and there is room to make such payments faster and cheaper.

There is also the question of whether today's system is open to technological innovation. Though the monetary system is largely digital, it operates in much the same way as in the analog era. Conceptually, little has changed since banks began keeping track of accounts on paper ledgers. But in this digital age, money could become more modern. For instance, money could become programmable, whereby transactions occur automatically upon satisfaction of preset criteria (such as transferring payment for goods only on receipt). Money could then be more than an entry in digital ledgers: it could have functionality embedded in it. The demand for such functionality remains uncertain, but the system risks moving too slowly if incumbents seek to forestall changes to maintain rents.

Lastly, many countries believe that access to the payments system has become political, that the dollar has

While it is important to recognize the strengths of the monetary system, it is essential to consider its weaknesses.... Payments often take longer to settle than one would expect ... [and] the system also struggles with inclusivity.

become weaponized. As such, they find the current international monetary system unsatisfactory and are seeking alternatives to the dollar.²⁸ Consumers and businesses that have lost access to the dollar payment system or are wary of losing access have turned to cryptocurrencies, for example, to conduct transactions. While the geopolitics of payments is beyond the scope of this report, it is an important element in debates about the nature of the monetary system.

In looking to the future, policymakers should recognize these strengths and weaknesses. The weaknesses are naturally more salient: somebody awaiting a remittance might desperately need the money; every day lost in transit and every percentage point paid in fees might have serious consequences. The strengths, however, are more abstract. Indeed, it is difficult to quantify the importance of singleness and the anchor of central bank money. But as Section III shows, for much of history, monetary systems had neither, and the consequences were severe. Exploring this history sheds light on the forces that led to today's system and shows how, for all the technological wizardry in recent financial developments, some innovations in money and payments might be more of a return to the past than a leap into the future.

²⁶ Bank of England 2024.

²⁷ World Bank 2025.

²⁸ Bradsher 2025.

III. Money through History

The two-tier monetary system described above is a relatively new phenomenon. After all, central banks did not enter the scene until the 17th century, and those early central banks bore little resemblance to their modern descendants. Most countries did not establish central banks until the 19th or 20th centuries.²⁹ The main forms of money during this earlier era were gold and silver coin (specie) rather than central bank notes and bank deposits, as today. When specie became too constraining a medium of exchange as economies expanded, physical notes issued by private banks emerged as a new form of money. Though the coins and banknotes had stamped or printed on them a set value in terms of the territorial unit of account, they often circulated at fluctuating rates against one another. Multiple currencies of varying values were thus the norm for most of history.

The quintessential example of this multiple currency world was the “free banking era” in antebellum America. In 1860, on the eve of the Civil War, nearly 1,600 banks operated in the United States, many subject to little regulation or supervision.³⁰ These banks issued notes that were ostensibly convertible into precious metal at par (the dollar being defined as a specific amount of gold or silver). The notes circulated as money in a nation starved for media of exchange, but they did so at fluctuating rates. When receiving a banknote, a merchant might have little sense of how reliable the issuing bank’s convertibility pledge was, especially if that bank was not nearby. The merchant would investigate the note and then impose a discount. A \$10 note from a bank down the street with a good reputation might be accepted at par; a \$10 note from a bank in another state might be discounted to \$9; a \$10 note from

an unknown bank located across the country might be refused outright. With thousands of different notes in circulation, determining an appropriate discount was not easy.³¹ This chronic uncertainty surrounding the medium of exchange was exacerbated by the existence of so-called wildcat banks that put notes into circulation with no intention of redeeming them, as well as the proliferation of notes that were outright counterfeits.

While the spread of banking services helped the fledgling U.S. economy grow, the everyday chaos of this fragmented monetary system imposed many costs, from transaction frictions to general distrust in the system. It took decades to mold a structure that brought an end to this confusion. Landmarks in this process were the establishment of the National Banking System during the Civil War, the foundation of the Federal Reserve in 1913, the creation of the Federal Deposit Insurance Corporation during the Great Depression, and the strengthening of the Federal Reserve’s independence in the second half of the 20th century. With these developments, the U.S. monetary system evolved into the two-tier structure of today, where multiple forms of money circulate but all are accepted at par.

Reviewing this history informs debates about money today. While many fintech companies frame discussion about the future of money as one about new technologies, the core issues have little to do with technology per se: they revolve around designing sound money, mitigating banking risks, and minimizing regulatory evasion. These issues are not new and recur throughout history. The many flaws with commodity money over the centuries show that it is ill-suited for modern economies. Multiple currency

29 Capie, Goodhart, and Schnadt 1994.

30 Bodenhorn 2008.

31 Greenberg 2020, 6.

systems, moreover, impose frictions, impair trust, degrade the unit of account, and hobble commerce. Were Bitcoin, a digital commodity, to permeate the monetary system, these age-old problems could return. Insufficiently backed stablecoins, for their part, resemble the banknotes of antebellum America and pose similar risks of deviations from par and runs on issuers. This is, of course, a potentially solvable problem by making liquidity and backing requirements strict enough, but especially as the system evolves, there will be constant tension between authorities aiming to stabilize the system and private issuers attempting to game it.

This section can survey only a small fraction of the rich history of monetary systems, a history that is at once economic, financial, political, legal, and cultural. While much of the text below focuses on the U.S. experience, it is important to remember that every country has a unique monetary history, one that continues to shape its system to this day. Nevertheless, the transition in the 19th and 20th centuries toward a modern two-tier system was common, and studying the U.S. experience illuminates this broader trend. Even today, however, some countries do not have monetary systems anchored by domestic central bank money, and the section concludes with a brief look at these multiple currency systems.

The Long History of Multiplicity

A monetary system based entirely on a precious metal like gold might seem simple. After all, commodity money is intrinsically valuable, and gold has many useful traits: it is durable, malleable, and divisible. Define the currency in terms of a certain quantity of gold, coin gold, stamp the value on the coin, and the monetary system seems complete. Yet, this apparent simplicity is misleading, for there were countless difficulties in practice with metallic systems, from the medieval and early modern eras to the final days of the gold standard in the 20th century, that show why commodity-based money gave way to fiat money.

A long-standing issue was the disconnect between small- and large-value transactions.³² If gold was good for the latter, so that not too much of the metal needed to move to settle a large transaction, it was bad for the former, because gold coins in small denominations were too tiny for practical

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use and were hard to mint. Metallic systems thus tended to depend on multiple metals, such as gold, silver, and copper, to make transactions both large in value and small in value possible. Introducing a second metal, however, immediately added complexity, since the relative value of the metals when coined might differ from the relative market value, leading to arbitrage flows and the operation of Gresham's Law, with bad money driving out good.

In addition, coins wore down—sometimes through everyday use, sometimes through intentional clipping—leading to a jumble of coins of varying quality. Frequent debasements by the sovereign further complicated assessment of a coin's quality. So too did circulation of foreign coins. Expanding trade meant that coins from many areas often circulated within the same region. These foreign coins could be made of gold or silver, just as domestic coins were. But the foreign coins were often unfamiliar and likely of different fineness and in different units than domestic coins, making transactions more confusing.³³ Foreign coins also accentuated information asymmetries, as some economic agents were better informed about the quality of foreign coins than others and could thus try to pawn off lower-quality coins for higher-quality ones.

Paying with coin was not just mentally taxing; it could be physically exhausting too. In 17th century Sweden, some copper coins weighed over fifty pounds.³⁴ Even for more valuable gold and silver, lugging coins could be

³² Sargent and Velde 2001.

³³ Helleiner 2002, 21–23.

³⁴ Edvinsson 2012.

inconvenient, expensive, and risky, especially when transporting them over long distances. Since coins were bearer instruments, when highway bandits pulled off a heist, the money was theirs. And when ships carrying gold sank, the money was gone.

These problems assumed that the community had coins to use. A bigger issue occurred when there was not enough gold or silver in a region to satisfy the demand for money. Because the money supply depended on how much metal miners dug out of the ground, it was highly inelastic. For example, the 15th century witnessed a “bullion famine,” when, according to Spufford (1988, 362), the shortage of coin meant the “economy of Europe ground to a halt.” All these problems with metallic money affected the ability to transact in coin, the ease of transacting in coin, and trust in the monetary system. They often affected the political situation as well. Lower-income workers generally found themselves with the lowest-quality coin, to their great discontent; at times, anger at “evil coin” even contributed to uprisings, such as the German Peasants’ War of 1524–25.³⁵

To be sure, the system evolved in response to these issues. Workers and merchants tried to economize on the use of coins in day-to-day transactions, extending credit or paying in kind. Bills of exchange arose to finance long-distance trade and reduce the need to transport coin and bars.³⁶ By using bills of exchange, importers could pay for goods with funds drawn in the foreign center, instead of shipping gold for every transaction. With time, bills of exchange started to circulate as money.³⁷ Trading centers devised mechanisms to mitigate the problem of foreign coin as well. For example, the Bank of Amsterdam was founded in 1609 precisely to deal with what its mandate termed the “confusion of coin.”³⁸ The bank took deposits of coin and conducted payment transfers over a central ledger, so that merchants could pay in bank money rather than coin, making payments among merchants easier. New technologies also enabled better coinage. And as a final strategy to protect the coinage from counterfeiters and clippers, there was always the threat of the scaffold.³⁹ These innovations and policy responses smoothed some of

the system’s edges, but the problems of coin confusion and scarce specie recurred throughout the centuries.

The next step in the evolution of money was the introduction of banknotes in the 17th century.⁴⁰ Issued by banks and convertible into coin on demand, these notes moved the system away from a one-for-one reliance on precious metal, helping to alleviate the scarce coin problem. They also fundamentally changed the monetary system. Once notes were issued beyond the amount of coin on hand, so that the reserve covered only a fraction of claims, banks were in the business of creating money. A set amount of gold could now support a larger circulating currency. Though the system still revolved around the amount of precious metal, there was a new degree of flexibility. Economic activity also benefited from the injection of credit that banks provided when making loans through money creation. However, by issuing notes in excess of specie holdings, banks took on risk: if noteholders sought to redeem their notes for specie en masse, the issuing bank would collapse. The noteholders faced a corresponding risk: if the issuing bank collapsed, they might receive little or nothing on their claims. Designing a system that harnessed the power of private money creation but did so in a safe and prudential manner would take centuries.

Banks with higher reserves, more capital, and safer asset portfolios were more likely to uphold their commitment

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³⁵ Volckart 2024, 13; Rössner 2025.

³⁶ These instruments were orders from one party (the drawer) to another party (the drawee) to pay a specified sum to a third party (the payee) at a set date or on demand. The payee could then endorse the bill and transfer the rights to collect the sum.

³⁷ Bordo and Roberds 2024.

³⁸ Frost, Shin, and Wierds 2020, 7.

³⁹ Helleiner 2002, 67–68.

⁴⁰ Bordo and Roberds 2024.

to convertibility relative to banks with lower reserves, less capital, and riskier portfolios. Knowing whether a bank was in the former or latter category was not easy, however, as information was scarce and regulation was minimal, if present at all. Banknotes also made the circulating media more confusing by adding to the profusion of monies. Even with the advent of central banks, the situation remained muddled. While some central banks had monopoly note issuance privileges from their founding, others did not. The Bank of England was founded in 1694 but did not obtain an effective monopoly on note issuance until the Bank Charter Act of 1844.⁴¹ With multiple banks issuing notes, the system consisted not only of coins of every type but different banknotes in various sizes and appearances as well.

The result, then, was a chaotic monetary system far different from today's. As Helleiner (2002, 19) writes, prior to the 19th century, monetary disorder was the norm: "foreign currencies often circulated alongside domestic currencies, low denomination forms of money were not well integrated into the official monetary system, and official domestically issued currency itself was far from homogenous." Rectifying the situation was a common goal of monetary experts. They sought "uniformity" in the system, whereby all physical forms of money were equivalent (this report uses "singleness" for the broader concept of equivalence in all forms of money, whether token- or account-based). As British economist David Ricardo wrote in 1816, "All writers on the subject of money have agreed that uniformity in the value of the circulating medium is an object greatly to be desired."⁴² While Britain would take a large step in this direction with the 1844 Act, other countries would trek through a longer path.

Free Banking in the United States

Multiplicity reached its peak in antebellum America during the free banking era. Lasting from roughly 1837

to 1863, the free banking era was a time of monetary volatility, when the country had no central bank or even a proto-central bank. In 1816, the federal government had chartered the Second Bank of the United States for 20 years; when the Bank failed to secure a renewal of its charter, it lost its privileges in 1836.⁴³ The federal government then absented itself from banking policy, leaving state governments to fill the void.⁴⁴ Since the early years of the republic, state governments had issued charters permitting the formation of banks through individual acts of legislation. This process was not only cumbersome: it invited corruption and left large parts of the country without banking services. With the retrenchment of the Second Bank, many state governments, believing more banks were necessary, passed free banking laws to open entry into the banking sector. Rather than obtain a charter through legislative action, prospective bankers could start a bank so long as they met certain prespecified (and rather lax) criteria, such as minimum capital requirements.

The free banking era has a poor historical reputation, colored no doubt by countless stories of fraud, such as when state bank commissioners investigated a bank's reserves and found that boxes supposedly full of gold and silver had a thin sliver of specie at the top hiding lead, nails, and glass below.⁴⁵ Though the standard narrative of swindlers and crooks can be overdone—there were many reputable banks too, and the economy needed credit that banks provided—the problems were nevertheless serious: the period was one of inadequate regulation and supervision, repeated crises, and monetary fragmentation.⁴⁶ Many banks faced few restrictions and engaged in risky activities. States also generally prohibited branching, so each bank was highly exposed to its local economy. With no central bank, there was no lender of last resort.⁴⁷

The case of Michigan illustrates the potential for instability spectacularly. Michigan was the first state to pass a free banking law, in 1837. By early 1838, there were over

41 Gorton and Zhang (2024b, Table A1).

42 Ricardo (1816).

43 The Second Bank of the United States received a state charter from Pennsylvania just before its federal charter expired; the bank liquidated in 1841 (Hammond 1947).

44 Indeed, the federal government not only absented itself from banking policy but tried to disconnect from banks. The federal government implemented the so-called Independent Treasury System in the 1840s, insisting on payment of dues in specie and depositing funds in subtreasuries instead of banks (Kinley 1910).

45 Dwyer 1996.

46 Some scholars also consider free banking in other countries, notably Scotland, to have been more successful. For more on the history of free banking, see Briones and Rockoff (2005).

47 Some states had deposit and note insurance schemes, but bank failures were common, and the programs often became insolvent (Calomiris 1989).

40 banks; by September 1839, there were just nine left.⁴⁸ Michigan's early experience was extreme, but these decades saw much turmoil throughout the U.S. banking system, or more accurately, banking systems, since there was little connective tissue joining the banks around the country.

A large part of the business of banking during this period was issuing banknotes; indeed, notes, not deposits, were generally the predominant liability on bank balance sheets.⁴⁹ A bank put its notes into circulation by making loans, simultaneously providing credit and supplying a medium of exchange. States required banks to redeem their notes on demand in specie—when a \$10 note was presented to the issuing bank, the bank needed to provide \$10 in gold or silver. But banks, holding only a fraction of outstanding notes in specie, were not always able to do so. If noteholders questioned a bank's ability to redeem, they had an incentive to present the notes at the bank for specie before it ran out. To provide some protection to noteholders, state governments set out collateral requirements for the notes, whereby banks deposited state or federal government bonds that would be sold for the benefit of noteholders in the event of failure. But the collateral requirements were often weak, and noteholders faced potentially large losses in the event of failure.⁵⁰

Given the risk of loss and the cost of redeeming notes from distant banks, notes generally did not circulate at par but at time- and space-varying discounts. For instance, the average discount on Indiana banknotes in Philadelphia was about 1.6 percent in 1853, 6.6 percent in 1854, and 19.2 percent in 1855.⁵¹ Various methods arose to deal with the multiplicity of currencies. Note brokers made a market for different notes, buying them at a discount and presenting them at the issuing bank for redemption. For everyday business, merchants consulted large books, known as banknote reporters and counterfeit detectors, that listed discounts and known counterfeits.

Nevertheless, it was not clear that the discount applied at any time was correct; one could easily feel taken advantage of when receiving, say, \$9 in value in exchange for a \$10 note. Holding banknotes was risky too: when they

depreciated, Cagan (1963, 20–21) writes, “the loss of value fell, as in the game of ‘musical chairs,’ on the unlucky persons holding them.”⁵² Yet the public had little choice but to make the best of the situation. The federal government, however, had more options. It had the power to determine permissible means of payment for taxes, and it refused to accept banknotes, insisting on payment in specie.

Operating under this system was not easy. Just a few decades after the era ended, scholars already found it bewildering. As Sumner (1896, 455) writes:

It is difficult for the modern student to realize that there were hundreds of banks whose notes circulated in any given community. ... The person to whom one of them [banknotes] was offered, if unskilled in trade and banking, had little choice but to take it. A merchant turned to his “Detector.” He scrutinized the worn and dirty scrap for two or three minutes, regarding it as more probably “good” if it was worn and dirty than if it was clean, because those features were proof of long and successful circulation. ... All the delay and trouble of these operations were so much deduction from the character of the notes as current cash. A community forced to do its business in that way had no money. It was deprived of the advantages of money.

Sumner exaggerates when he says that the community had no money. It had money, but the money was of uncertain and varying quality. Transactions took longer as merchants tried to assess the value of money offered; faith in the system eroded as workers got stuck with questionable notes; business was hindered as disagreements about money affected economic activity.

Today, this congeries of banknotes seems chaotic and archaic. Many people at the time—the ones transacting and borrowing and saving—felt similarly. Newspapers lambasted the system. Politicians fulminated against it. Novelists mocked it.⁵³ As the *Chicago Tribune* wrote, the banking system was “a source of heavy loss, of infinite

48 Dwyer 1996.

49 Jaremski and Rousseau 2018.

50 Rolnick and Weber (1983) estimate that in Minnesota, which had an especially poor system, noteholders of failed banks lost 70 cents on the dollar.

51 Gorton 1999, Table 3.

52 Greenberg 2020, 154. Contemporaries also compared dealing with banknotes to a children's game, in this case Robin's Alive, which involved tossing a fiery stick around a circle until the fire went out.

53 See Greenberg (2020) for a cultural history of America's antebellum currency system.

vexation, and of perplexing uncertainty.”⁵⁴ The system was likewise derided from abroad. The *Times* of London declared, “by the want of a paper currency that would be taken in every State of the Union, at its nominal value, the Americans have suffered severely. The different States were, as to their bank-notes, so many foreign nations, each refusing the paper of the others, except at continually varying rates of discount.”⁵⁵ While it is difficult to estimate the empirical magnitude of the frictions induced by the system, contemporary concerns suggest the cost was significant.

The monetary system was thus fragmented. In the absence of something better, people made do with the notes. Despite widespread discontent with the system, figuring out a path forward was nearly impossible, as the United States was distracted by threats to the nation’s very existence during this period. The country was about to split in half. However, the ensuing conflagration would, as one of many byproducts, jump-start the process of monetary reform.

Toward Singleness

The first step in bringing order to the monetary system occurred during the Civil War (1861–1865). Spurred by the need to finance the war and link the Union economically, the federal government fundamentally redesigned the banking system, creating a structure that in many ways remains to this day. While the exigencies of war forced action on the financial front, ending the disorder in the currency system was a key factor in shaping the plan. As Secretary of the Treasury Salmon P. Chase declared in outlining his proposals, “The people demand uniformity in currency.”⁵⁶ Rather than have a jumble of banknotes with fluctuating values, Chase and other reformers wanted banknotes that looked the same, were worth the same, and were treated the same.

The National Banking Acts of 1863 and 1864 provided a means to this end.⁵⁷ Under the Acts, the federal government would charter banks, known as national banks, through a new regulator, the Office of the Comptroller of the Currency (OCC). These banks could issue notes subject to strict collateral requirements. Banks needed

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to post U.S. government bonds as collateral—with the Treasury straining to finance the war, it saw this requirement as a nice way to boost demand for its debt—and could issue notes up to only 90 percent of the market value of the bonds.⁵⁸ Subsequent legislation also established a redemption fund at the Treasury as further safety for noteholders. When a bank failed, noteholders were to be made whole immediately through redemption at the Treasury, using the bond collateral, redemption fund, and, if need be, assets of the failed bank. Legislation also required national banks to accept national banknotes at par, made those notes eligible in payment of taxes, and limited bank activities to prevent excessive risk taking. As a result, while national banknotes were liabilities of individual banks, there was no longer any bank-specific risk. The public treated the notes as identical, and they circulated at par.

There was a physical component to uniformity as well. The government printed the notes, creating standardized money that differed only by the name of the bank on the note, signatures, and a few other minor features. The founders of this new system hoped that all state banks would apply to become national banks; in this way, banknotes would look the same and be worth the same and banks would face the same regulatory and supervisory regime no matter where they were located. When state

⁵⁴ *Chicago Tribune* 1861.

⁵⁵ *Times* (of London) 1863.

⁵⁶ U.S. Treasury 1862, 19.

⁵⁷ For a description of the national banking system, see Davis (1911).

⁵⁸ During the Civil War, the government also issued legal tender Treasury notes (“greenbacks”) that circulated as currency.

banks did not convert to federal charters at once, Congress imposed a prohibitive tax on state banknotes to ensure that only national banknotes circulated, thereby achieving uniformity.⁵⁹ Nevertheless, many banks decided to keep their state charters, foregoing the opportunity to issue banknotes, and new banks frequently chose to operate under state charters, resulting in the dual banking system that the United States has to this day.

Notwithstanding the continued role of state banks, the currency chaos of earlier decades was gone. As Friedman and Schwartz (1963, 22–23) conclude, “There was no recurrence of the pre-Civil War phenomena of notes of different banks circulating at discounts or premiums with respect to one another, and at different discounts or premiums depending on the distance from the issuing bank, or of bank-note detectors to enable merchants and others to determine the value of particular notes.” By creating a uniform currency, the national banking legislation put an end to the chronic confusion and suspicion involved in dealing with paper currency, lowering transaction costs and fostering trust. Indeed, uniformity appears to have had quantifiable economic effects: Xu and Yang (2024) find that the reduction in transaction frictions from the introduction of national banknotes led to more trade, employment, and innovation.

But the system was still unstable, and banking panics occurred at regular intervals throughout the second half of the 19th century. While design flaws in the national banking system, such as an inelastic currency, contributed to this instability, the crux of the issue was that all forms of money were not treated equivalently.⁶⁰ Banknotes now circulated at par, but banknotes were not the only form of money; in fact, they were becoming less important as a share of the money supply. As the economy grew in the post-Civil War decades, deposits increased dramatically, with the deposit-to-note ratio rising from under 1.3 shortly after the war to more than 7.0 in 1913.⁶¹ Banks were required to convert deposits into currency at par on demand; however, fractional reserve banking meant

banks could face a liquidity crunch if too many depositors demanded cash at once. Without a lender of last resort or deposit insurance, depositors who worried about their bank’s ability to convert into currency might run on the bank to cash in while they could still get full payment. This dynamic made the system vulnerable to devastating runs.

After repeated panics, the United States eventually put aside its long-standing aversion to central banking and established the Federal Reserve System in 1913. Congress gave the Federal Reserve the power to act as lender of last resort, using the discount window to lend funds to banks facing liquidity shortages. Now, a fundamentally sound bank facing temporary liquidity issues need not fail due to want of liquidity. With the Federal Reserve standing by, depositors might feel more confident in the health of their bank, reducing the urge to run at the first whisper of trouble.⁶² In addition to acting as lender of last resort, the Federal Reserve united the country’s banking system in several ways. It regulated and supervised banks, strengthening trust in the system. Starting in 1915, it facilitated interbank payments by enabling immediate settlement through transfers of reserve balances.⁶³ And, in pursuance of its mandate “to furnish an elastic currency,” it issued a new paper currency, Federal Reserve notes, that circulated alongside national banknotes and could respond flexibly to the needs of the economy.⁶⁴

Yet the banking system was still prone to crisis. Even if the Federal Reserve intervened to rescue solvent banks, with some 30,000 banks in the early 1920s, there were bound to be banks that, whether through bad luck or poor business plans, became insolvent, leaving depositors with hefty losses.⁶⁵ Bank failures, moreover, could have a contagion effect on otherwise healthy banks, spreading panic around the community and country. As a result, the bank run dynamic continued to plague the system and reached catastrophic proportions during the Great Depression. Some 9,000 banks suspended operations in 1930–1933, imposing massive losses on depositors.⁶⁶ Trust in the system evaporated, the public sought safety in cash and gold, and

59 Friedman and Schwartz 1963, 18–19.

60 Bordo and Wheelock (2013) explain the main defects of the national banking system.

61 Friedman and Schwartz 1963, Table B-3.

62 See Carlson (2025) for a discussion of the Federal Reserve’s early experience as lender of last resort.

63 Federal Reserve System 2025.

64 Bordo and Wheelock 2013.

65 Friedman and Schwartz 1963, 249.

66 Friedman and Schwartz 1963, 351.

the economy nearly ground to a halt. Upon assuming office in March 1933, President Franklin Roosevelt ordered a national banking holiday to provide breathing space as the new administration plotted a path forward.

Roosevelt's New Deal banking reforms radically altered the nation's financial system, many in ways that go beyond the scope of this report. Most important, however, was the creation of the Federal Deposit Insurance Corporation (FDIC). The FDIC was established in 1933 and became a permanent institution in 1935.⁶⁷ Of course, the concept of deposit insurance was not new. Several states had experimented with insurance programs, and calls for a national regime had a long history.⁶⁸ But only with the disaster of the Great Depression was there sufficient political will to move forward.

The significance of the FDIC, and deposit insurance generally, cannot be overstated. Deposit insurance has drastically reduced the prevalence of bank runs.⁶⁹ Depositors are now much less likely to convert their deposits into currency in a panic, making liquidity crises less frequent. In addition, the FDIC, as receiver of failed banks, has improved the handling of bank failures when they do occur, limiting disruption to depositors and the risk of contagion. With this final pillar, insured depositors can treat a dollar in their bank accounts as being as good as a dollar bill.

A few additional changes to the monetary system during the Great Depression and subsequent decades bear mention. In 1935, the Federal Reserve obtained a banknote monopoly when the government ended the issuance of national banknotes to ensure that the central bank had control of the money supply.⁷⁰ Today, central banks generally have a monopoly on banknote issuance, with private production of banknotes permitted in only a few jurisdictions, such as Scotland, Northern Ireland, and Hong Kong.⁷¹

The relationship between money and gold also irrevocably changed in the 1930s. The gold standard had worsened the Depression as central banks hiked interest rates to defend the connection to gold, plunging the world into a devastating deflation. Determined to

break the deflationary spiral, Roosevelt ended the gold standard by terminating domestic convertibility of the dollar into gold in 1933.⁷² Other countries also left the gold standard during the Depression. From that moment, gold was no longer the anchor of the domestic monetary system: central bank money was now the ultimate form of money. The dollar remained convertible into gold for foreign monetary authorities for a few more decades until President Richard Nixon closed the gold window in 1971. Thus, for half a century, the dollar has been untied to any precious metal for domestic or international purposes, its value determined by trust, usefulness, legal tender status, and social convention.

Lastly, trust in central bank money hinges on price stability and central bank independence. Countries with independent central banks tend to have lower inflation than those without. In the United States, the Federal Reserve has gone through periods of political capture and periods of independence. The Treasury-Fed Accord of 1951 was a landmark for the Fed's independence, as it brought an end to its wartime pegging of interest rates at the Treasury's command.⁷³ This independence was tested during the Great Inflation of the 1970s, but Paul Volcker's

*...[T]rust in central bank money
hinges on price stability and central
bank independence.*

attack on inflation helped reestablish it. By the end of the 20th century, central bank independence was widespread around the world. Yet independence is never guaranteed, and in recent years, it has faced renewed challenges, raising questions about central banks' ability to maintain price stability and trust in the currency.

The U.S. path to singleness was unique, just as is every country's monetary history. But it is indicative of a broader

67 Federal Deposit Insurance Corporation 1998.

68 Calomiris and White 1994.

69 Correia, Luck, and Verner 2025.

70 Friedman and Schwartz 1963, 442.

71 Cunliffe 2021.

72 Harris 2021.

73 Kugler 2024.



trend in the 19th and 20th centuries away from multiple currency systems. Getting to today's two-tier system, with central bank money as the anchor, was a prolonged process, one that required massive disruptions to the financial system and real economy to spur action.

This historical survey suggests several lessons for policymakers. First, multiple currency systems are messy, taxing, and inefficient. Multiple currencies lead to information asymmetries, as some agents know more about circulating currencies than others, reducing trust. In today's far more interconnected and financialized world, the costs of such a multiple currency system would be even greater than in the past. Second, commodity money and commodity-backed money are not suitable for modern economies, not least because they gravely hamstring the efficacy of monetary policy. Third, information-insensitive liabilities, such as central bank notes and commercial bank deposits, can provide a much sturdier foundation for the monetary system. Finally, this two-tier structure requires an independent central bank and a strong regulatory, supervisory, and legal regime, a system that, while difficult to construct, can easily be lost. Indeed, in the long sweep of history, central bank money as the foundation of the monetary system is a blip. In considering the future of money, it is important to remember this historical contingency; if the central bank anchor is cut, it might not easily be reestablished.

Multiple Currency Systems Today

While most countries now have single currency systems, not all do. Foreign currencies circulate widely in countries with poor monetary management. Central bank money is not much of an anchor when it does not hold its value. As the currency depreciates, prices increase rapidly and the currency loses its ability to serve as a unit of account. Moreover, the medium of exchange role evaporates, as few

want to accept as payment a currency that will be worth noticeably less tomorrow.

The destruction of the domestic currency as money is apparent in Zimbabwe, which has experienced wrenching inflation for years (in 2024, prices rose over 700 percent).⁷⁴ Repudiating the domestic currency, consumers and businesses use foreign currencies every day: some 80 percent of transactions in Zimbabwe involve U.S. dollars.⁷⁵ Zimbabwe's case is, of course, extreme. But a country need not experience triple-digit inflation to make foreign currency attractive: elevated inflation, portfolio diversification, political uncertainty, and fears of confiscation can all incentivize foreign currency use and holdings.

While currency substitution (often termed "dollarization") might have advantages in certain circumstances, not least providing a stable store of value, there are many disadvantages. Such monetary systems suffer from increased transaction costs, decreased trust, and the erosion of the unit of account. Mismanagement of the domestic currency contributes to the use of other currencies, but it is also clear that multiple currency systems, by their very nature, add frictions to the economy and undermine the system. Moreover, central banks lose monetary autonomy and have reduced firepower as lenders of last resort since local banks might face foreign currency drains.⁷⁶

Central bank money as the anchor of the monetary system, while common, is therefore not universal. Monetary mismanagement—often subservient central banks monetizing government debt—is generally the cause, but one could imagine new types of money, such as foreign currency stablecoins or central bank digital currencies, becoming more attractive than local currency, reducing monetary autonomy. As we enter a world where anybody can use a smartphone to transfer money instantly, the prospect for more currency substitution around the world is high.

⁷⁴ International Monetary Fund 2025.

⁷⁵ Marawanyika 2024.

⁷⁶ For an overview of dollarization, see Baliño, Bennett, and Borensztein (1999).

IV. The Advent of Digital Currencies

It may seem odd to discuss the free banking era, not to mention medieval monetary history, in a report concerned with the future of money. But the past provides a critical perspective when looking to the future. The rise of cryptocurrencies has unleashed a wide-ranging debate on what money is and what functionality it should have. Indeed, the monetary system seems poised for a significant transformation in coming years. The fundamental principles of finance, however, do not change. Just as monetary systems in the past, fettered to commodities or consisting of different monies of uncertain quality, experienced high transactions costs, low trust, and frequent crises, so too unsound money can pose serious risks today. As policymakers consider what role crypto should play in the financial system, the possibilities of new technologies must be seen within the greater arc of monetary history, from the disorder of earlier eras to the relative stability of the two-tier system anchored by central bank money and an independent central bank.

The cryptocurrency age began nearly two decades ago with the launch of Bitcoin. Invented during the Global Financial Crisis, when many were questioning the financial system's design, Bitcoin offers the possibility of peer-to-peer transactions through a decentralized blockchain. Rather than rely on intermediaries to process payments and update account balances—that is, the banking layer of today's two-tier system—Bitcoin operates through a blockchain that records all transactions using a validation process based on distributed ledger technology. Bitcoin's price has since skyrocketed, but despite its founding rationale, it has not played a large role as money. Given its high volatility and poor performance as a medium of

exchange, Bitcoin has thus far been more of a speculative asset than a new type of money.

In the years since Bitcoin's launch, there has been a boom in new blockchains and coins. Some of these new coins offer a variety of use cases, such as smart contracts. Others merely capitalize on memes (Dogecoin, created as a joke, has a market capitalization of \$31 billion).⁷⁷ There are two broad types of coins. Unbacked crypto, including Bitcoin and Dogecoin, has no commodity or currency supporting its value. So-called stablecoins, in contrast, are cryptocurrencies that promise to maintain their price in terms of another currency, usually the dollar, and generally have assets as reserves to support this commitment.⁷⁸ Originally intended as a store of value and medium of exchange for transactions within the crypto ecosystem, stablecoins have attracted increased attention in the traditional financial system as a new means of payment. In fact, stablecoins now seem on the verge of becoming a widespread instrument in finance, with interest not only from the crypto industry but also traditional payment firms and banks.

As with any innovation, cryptocurrencies present both opportunities and risks. For instance, many cryptocurrencies are programmable, enabling a new world of contracts. Blockchains also run 24/7, offering the possibility of faster, round-the-clock transactions. And crypto can potentially serve as a refuge for citizens in countries with broken monetary systems. But there are substantial risks. Most relevant to this report, adoption of cryptocurrencies could threaten the two-tier structure of money, fragmenting the system, reducing the efficacy of monetary policy, and making crises more likely. Beyond issues of financial

⁷⁷ All data on cryptocurrency prices and market capitalization as of July 31, 2025, and from Coinmarketcap unless otherwise stated.

⁷⁸ Some stablecoins aim to maintain their value not through reserve backing but through algorithms. Algorithmic stablecoins are especially fragile, as demonstrated by the death spiral of Luna/Terra in 2022 (see Liu, Makarov, and Schoar 2023). These stablecoins are not money and are not considered further in this report.

The rise of cryptocurrencies has unleashed a wide-ranging debate on what money is and what functionality it should have. Indeed, the monetary system seems poised for a significant transformation in coming years. The fundamental principles of finance, however, do not change.

stability, there are also worrisome connections between crypto and illicit finance.

This section does not attempt to explain how cryptocurrencies work in detail nor to provide an exhaustive catalogue of the opportunities and risks, which interested readers can find elsewhere.⁷⁹ The aim of this section is to highlight the key issues surrounding cryptocurrencies as money. Unbacked crypto, including Bitcoin, is not money and should not be treated as such. Stablecoins present a more complex case. Given their purported stability, stablecoins have more money-like properties. However, just as banks in antebellum America faced few restrictions and issued notes that they often failed to redeem, stablecoin issuers are operating in a lightly regulated environment and may not be able to fulfill their promises either. Without appropriate safeguards, the proliferation of stablecoins could, notwithstanding their very name, threaten monetary stability and even governance if authorities cannot easily trace transactions, especially medium to large ones.

Bitcoin and Unbacked Crypto

The crypto revolution began in 2008, with the release of Bitcoin's foundational white paper by Satoshi Nakamoto (2008); the following year, the first Bitcoins were created. Traditionally, payments made in money other than cash

rely on intermediaries: when Amy pays Bob, Amy's bank (A) debits her account, Bob's bank (B) credits his account, and the central bank debits Bank A's reserve account and credits Bank B's. The system hinges on these institutions maintaining and updating ledgers, and Amy and Bob must trust their banks and the central bank to process these transactions correctly and securely. But Nakamoto (2008) offers an alternative system, a means to make electronic payments that, in theory, does not rely on centralized intermediaries. As the white paper states, "A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution" (p. 1).

Briefly, Bitcoin uses cryptographic methods to enable decentralized peer-to-peer transactions.⁸⁰ The Bitcoin blockchain is publicly available and contains a history of all transactions. A block of new transactions, once validated, is appended to the chain of previous transactions. But whereas a bank can update account balances directly since it controls the database, decentralized ledgers require an intricate system to ensure consensus and avoid double spending. When transferring Bitcoin, a message is broadcast to the nodes comprising the network. So-called miners compete to validate transactions by solving a cryptographic puzzle through a consensus mechanism known as "proof-of-work." The miner that solves the puzzle adds the block to the blockchain and receives new Bitcoin, which serves as compensation for validating transactions. In this way, there is no centralized party updating the ledger, no intermediary that users must trust.

After humble beginnings, Bitcoin has exploded over the past decade. As of July 31, 2025, the price of Bitcoin is well above \$100,000, and its market capitalization exceeds \$2 trillion. Given this remarkable growth, there has been much talk of Bitcoin serving as the future of the monetary system, a neutral currency supposedly superior to sovereign currencies. Proponents argue that Bitcoin has many advantages, including its decentralized nature, capped supply (19.9 million out of a maximum supply of 21 million bitcoins have already been minted), potential to increase financial inclusion, and privacy safeguards (the blockchain is pseudonymous, as it lists the public keys

⁷⁹ For an introduction, see Prasad (2021).

⁸⁰ See Prasad (2021, ch. 4).

associated with each transaction, but public keys do not reveal the identities of the parties).⁸¹ The blockchain also operates nonstop, and sending Bitcoin around the world is no more difficult than sending it next door. According to this view, Bitcoin could thus offer faster and cheaper payments, with a currency that could not be debased by the sovereign and a system that does not depend on trusting any intermediary.

Bitcoin has no doubt had an extraordinary journey thus far, starting in a small corner of the internet and catapulting to a daily topic of conversation around the world. But it simply does not satisfy the conditions, discussed above, for serving as good money, and has additional drawbacks that make it unsuitable as a pillar of the financial system. While Bitcoin's price might be high today, it has experienced immense volatility, with periods of exuberance followed by times of depression. During the 2022 crypto winter, the price of Bitcoin fell by roughly 80 percent, and there have been other wild swings in Bitcoin's price.⁸² These gyrations make it an uncertain store of value. Nor has Bitcoin had much success as a unit of account. In addition, Bitcoin has serious shortcomings as a medium of exchange. Because Bitcoin's price can change dramatically over a day, or even an hour, its value as a means of payment is limited. Transacting in Bitcoin can be slow and expensive too. The consensus protocols do not operate instantaneously; they take time. The system can process about a handful of transactions per second, compared to the tens of thousands that Visa can, posing a scalability problem for Bitcoin.⁸³ In fact, given the cost and time involved in transacting on the blockchain ("on-chain"), many transactions now happen off-chain through centralized crypto exchanges.⁸⁴

There are additional issues with Bitcoin. It poses environmental risks, with miners estimated to use as much electricity to validate transactions as the total electricity consumption in Australia.⁸⁵ Bitcoin payments do not have a clear moment of finality; rather, the blockchain relies on

probabilistic finality, meaning that transactions become more secure as more blocks are appended but never reach 100 percent certainty.⁸⁶ Increased Bitcoin uptake could erode the efficacy of monetary policy, just as dollarization does today, and fragment the monetary system. Security is also a concern: crypto exchanges have experienced innumerable hacks, and the durability of Bitcoin's technology is uncertain, as the rise of quantum computing could make the cryptographic technology Bitcoin relies on obsolete.⁸⁷ Proponents often compare Bitcoin to digital gold, but gold, or any commodity for that matter, makes for poor money in modern economies, as explained above. The capped supply of Bitcoin, for instance, is reminiscent of the scarce coin problem that bedeviled monetary systems for centuries. And as a bearer instrument with no central authority, Bitcoin has no customer protections. Forget your debit PIN code and you can call your bank. Forget your private key used to access your wallet, and your Bitcoin is lost, just like gold sunken to the ocean depths.

In an area changing as rapidly as crypto, one hesitates to make declarative statements. But at least for the present and foreseeable future, Bitcoin is not money. That does not mean, however, that it has no market, is of no use, and is of no value. Bitcoin might compare favorably to the domestic currency in countries with broken systems. Even if Bitcoin is volatile, it can seem more attractive than currencies in high-inflation economies losing purchasing power at a rapid rate, especially if exchange controls close off other outlets. Cryptocurrencies are also popular in the underground economy due to their privacy features. As Rogoff (2025a) explains, with the underground economy accounting for perhaps 20 percent of global economic activity, the market for Bitcoin is evident. This connection to illicit finance underscores an essential public policy problem, but the point remains that there is clearly a market for Bitcoin.

Bitcoin is thus a speculative asset with limited uses in the formal economy, and governments should treat it as

81 Each wallet has a public key and a private key. In brief, the private key is essentially a password that is required for sending Bitcoin. The public key is derived from the private key and is like an email address that is shared for receiving Bitcoin.

82 Gorton and Zhang 2024a.

83 Carney 2018.

84 Makarov and Schoar 2022. The authors also find that mining activity is concentrated: "The top 10% of miners control 90% and just 0.1% (about 50 miners) control close to 50% of mining capacity."

85 U.S. Energy Information Administration 2024.

86 Bank for International Settlements 2018.

87 Osipovich 2024; Rey 2025.

Bitcoin sparked a conversation on money that has pushed policymakers and financial institutions to consider what qualities money needs in the 21st century and has set off a wave of innovation that could revolutionize the monetary system, even if Bitcoin does not end up as central to that new world.

such rather than incorporate it into the monetary system. However, none of the foregoing is to discount the ingenuity underlying the Bitcoin blockchain. Bitcoin sparked a conversation on money that has pushed policymakers and financial institutions to consider what qualities money needs in the 21st century and has set off a wave of innovation that could revolutionize the monetary system, even if Bitcoin does not end up as central to that new world.

Indeed, in the years since Bitcoin's launch, there has been an avalanche of new coins, with thousands now in circulation. While Bitcoin remains dominant, accounting for roughly 60 percent of crypto market capitalization, some of these coins offer enhanced functionality relative to Bitcoin. Ether, for instance, is the native coin for the Ethereum blockchain, which allows for programmability, decentralized applications, and the issuance of new tokens. Smart contracts, built on transparent code, can execute transactions when prespecified conditions are met, automating activity and making intermediaries unnecessary. Smart contracts could allow new types of payments, simplifying, as an example, the process of escrow when buying a house. Programmability could allow for atomic settlement, whereby all components of a transaction are

settled simultaneously or nothing is settled (avoiding the problem of one party settling and the other not). And instead of relying on proof-of-work, Ethereum uses proof-of-stake, a method for validating transactions that is less energy intensive, mitigating some of the environmental downsides to Bitcoin.⁸⁸

From a monetary perspective, the most promising idea highlighted by the crypto revolution is the notion of tokenizing money, and other assets, to create digital representations that allow for programmability. Tokenization could mark a new age in monetary history.⁸⁹ But this functionality is not restricted to unbacked crypto or even crypto generally. Tokenization has the most potential to modernize the monetary system through stablecoins, tokenized deposits, and central bank digital currencies. Because Bitcoin and unbacked crypto are not money and are not necessary to achieve this functionality, the rest of this section focuses on how stablecoins fit into the monetary landscape (Section V discusses central bank digital currencies and tokenized deposits).

Stablecoins

Precisely because Bitcoin and other unbacked cryptocurrencies are so volatile, stablecoins emerged to provide on-chain coins that also have stable values. Converting frequently between crypto and fiat currencies has inefficiencies and costs; with stablecoins, investors can stay in the crypto ecosystem without holding coins that might fluctuate wildly in price. From that modest origin in 2014, stablecoins have since grown dramatically and now offer a variety of potential use cases.⁹⁰ Within the crypto ecosystem, they play a large role in decentralized finance (DeFi) applications, denominating most DeFi loans.⁹¹ Beyond crypto, they have also seen increased use in cross-border payments, and some analysts believe stablecoins will develop more broadly into a medium of exchange in everyday payments.

The vast majority of stablecoins are pegged to the dollar, with dollar stablecoins accounting for roughly 99 percent of stablecoin capitalization.⁹² Whereas many

⁸⁸ Coinbase (n.d.).

⁸⁹ Note that the tokenization of money should not be confused with the difference between token-based and account-based money (Bank for International Settlements 2023).

⁹⁰ Kosse et al. 2023.

⁹¹ International Monetary Fund 2022.

⁹² Waller 2025.

unbacked cryptocurrencies, such as Bitcoin and Ether, do not have centralized issuers, stablecoins generally are minted (created) and burned (destroyed) by centralized parties. Two issuers dominate the \$250 billion market today: El Salvador-based Tether (coin: USDT; market capitalization: \$163 billion) and U.S.-based Circle (coin: USDC; market capitalization: \$64 billion). While stablecoin growth in recent years has been astounding, it has also been rocky. The market capitalization of USDC, for example, has increased some sixty-fold since 2020, even after falling in half during 2022–2023. Despite this meteoric growth, stablecoins still constitute a relatively small share (less than 10 percent) of the more than \$3.5 trillion crypto market. However, they do account for a high proportion of transactions, as stablecoins are the medium of exchange within the crypto ecosystem, with most of the trading volume on centralized exchanges involving a stablecoin on one side.⁹³

The underlying premise of a stablecoin is that its value is stable, that a dollar stablecoin will be worth one dollar always and forever (it is rather remarkable, given crypto's origins, that stablecoins rely on fiat currency for their credibility). To fulfill this promise, stablecoin issuers hold reserves and promise to redeem coins at par. Issuers receive interest on the reserves, earning revenue, and generally do not pay interest to coin holders. Issuers can also earn revenue by charging fees for redemption or for transacting. Given this business model—issuing demand liabilities redeemable at par—stablecoins are frequently compared to existing financial instruments, such as bank deposits, money market mutual funds, and Eurodollars (see Annex 1 for a discussion of Eurodollars). Stablecoins share similarities with each instrument, even if they do not fit perfectly into any bucket: what is common to all is the imperative to maintain parity.

Indeed, the purported equivalence between stablecoins and the pegged fiat currency is the whole game, and reserves are essential to backing this foundational promise. The riskier the assets in the reserve—the more illiquid, the longer the maturity, the higher the credit risk—the less secure the issuer's commitment. If coin holders question the credibility of the peg, they might sell the coin, putting

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pressure on the reserves. If enough holders sell, there could be a run on the issuer, causing it to collapse. Just as with antebellum banknotes and uninsured bank deposits, coin holders have an incentive to front-run one another and sell first so that they are not left holding the bag. And just as with bank runs, there could be many triggers sparking flight to safety: the value of the reserve could fall, trust in the issuer could plummet, sentiment about crypto could sour, speculators could be on the hunt, holders could set off a self-fulfilling crisis. This inherent fragility poses significant risks should stablecoins continue to grow and become more entangled in the financial system.

The two main stablecoin issuers have followed different strategies regarding their reserve holdings. Tether does not provide audited statements, and the information it does provide raises questions about the riskiness of the reserves, since they are not composed entirely of high-quality liquid assets. Tether claims that about 80 percent of its reserves are in cash and cash equivalents. The remainder consists of roughly 6 percent in secured loans, 5 percent in Bitcoin, 5 percent in precious metals, and 3 percent in “other investments.”⁹⁴ While these noncash assets might goose revenues, having volatile and illiquid assets in the reserve threatens Tether's ability to maintain par in stressed conditions. Circle, in contrast, provides audited statements, and its reserves consist entirely of high-quality liquid assets, such as deposits in banks and U.S. Treasury bills.⁹⁵ Some jurisdictions have imposed regulations on

⁹³ Waller 2025.

⁹⁴ Tether (n.d.a). For years, Tether published no information on its reserves. In 2021, Tether settled with the New York attorney general's office for misrepresenting USDT's backing and was required to submit quarterly reports (Kharif 2021).

⁹⁵ Circle (n.d.a).

permissible reserve holdings for stablecoins. But unless reserves are held entirely in central bank reserves, which have no credit or liquidity risk, the possibility of a run and collapse will remain present (Section VI considers different models for stablecoin reserve arrangements).

Stablecoin issuers also have different policies on redemption. Tether limits redemption to amounts of \$100,000 or more, charges fees (the greater of \$1,000 or 0.1 percent of the amount redeemed), and may delay redemption during periods of illiquidity.⁹⁶ Circle's basic redemption does not involve fees, but redemption rights are limited to institutional investors and can take several days to settle unless a fee is paid.⁹⁷ Retail traders, therefore, generally cannot redeem their stablecoins directly with the issuer. Rather, they buy and sell stablecoins on the secondary market. Just as brokers made a secondary market for banknotes in antebellum America, so too crypto exchanges make a secondary market for stablecoins. The primary market for issuing/redeeming and the secondary market for buying/selling are connected through arbitrage. If the price on the secondary market falls sufficiently, arbitrageurs have an incentive to purchase the stablecoin for less than one dollar and redeem it with the issuer for one dollar, making a profit and in the process supporting the stablecoin's price.

Though these arbitrage forces can help keep stablecoins trading close to par, they are not foolproof. Stablecoins have depegged and traded at large discounts on several occasions in their short history, with USDC notably falling below \$0.87 during the regional banking crisis in March 2023 (see Annex 2). Large deviations from par are not the only concern, however. Even small deviations can be problematic because they introduce uncertainty and increase information sensitivity, putting the no-questions-asked principle at the core of monetary stability at risk.

Moreover, deviations from par are to be expected for stablecoins, because the equalizing mechanism of central bank settlement is not present with crypto payments.⁹⁸ Stablecoins are bearer instruments: when Alice sends Bob a stablecoin, the issuer's balance sheet does not change—the liability simply switches hands and does so at a market-determined price. With bank payments, in contrast, the

balance sheets of Alice's bank and Bob's bank change, and interbank settlement through central bank reserves ensures the payments happen at par. Stablecoins are thus not only runnable—that is, they can be rapidly withdrawn by investors or creditors—as are other forms of private money, but their bearer nature also makes deviations from par likely, as with banknotes in antebellum America. These factors, and the additional risks detailed below, all underscore the need for appropriate and stringent regulation and supervision of stablecoins. But before considering these risks in detail, it is important to understand how stablecoins could improve the monetary system, for any regulatory approach must look at both sides of the coin, as it were.

Stablecoin Opportunities

Stablecoins are entirely digital and do not rely on legacy infrastructure. They are tokens that reside on the blockchain, giving them immense functionality that could enhance the monetary system.⁹⁹ Tokenization of money could mark a big leap into the future, and stablecoins are at the forefront of this movement. By tokenizing money, money becomes programmable. Smart contracts could allow for executing conditional payments automatically according to prespecified terms, from paying for goods on receipt to transferring public benefits upon completion of preset conditions. While it is still early days for smart contracts, making it hard to assess their value and effect thus far, they seem likely to grow in importance.

Stablecoins could also speed up cross-border payments and lower their cost, for example by avoiding duplication of identity checking at different nodes of a transaction.¹⁰⁰ For businesses, faster cross-border payments could reduce

Tokenization of money could mark a big leap into the future, and stablecoins are at the forefront of this movement.

⁹⁶ Tether (n.d.b).

⁹⁷ Circle (n.d.b).

⁹⁸ Garratt and Shin 2023.

⁹⁹ See Then, Hill, and Anderson (2025) for a description of stablecoin use cases.

¹⁰⁰ Auer, Lewrick, and Paulick 2025.

working capital needs. For households, more efficient cross-border payments could help the most vulnerable. Remittances using traditional rails can take days, with fees eating a significant fraction of the transfer. Stablecoins are already showing promise in modernizing remittances: Chainalysis (2024) reports that remittances from Sub-Saharan Africa can be significantly less expensive when using stablecoins compared to traditional methods. Given the large fraction of households in the developing world that are unbanked, as well as the difficulty of accessing banking infrastructure during emergencies, stablecoins could also help expedite disbursement of humanitarian aid. For example, the United Nations High Commissioner for Refugees ran a pilot that sent stablecoins to people displaced by the Russian invasion of Ukraine.¹⁰¹ Moreover, for households in countries experiencing high inflation, stablecoins could serve as an easily accessible store of value.

Stablecoins could make payments more efficient domestically too. Mastercard and Visa are both incorporating stablecoins into their offerings for consumers and merchants.¹⁰² Large merchants are considering issuing their own stablecoins: there could soon be Amazoncoin, Walmartcoin, Expediacoin, and many more.¹⁰³ It should be noted, however, that whether stablecoins will result in cheaper, faster, and better payments than traditional payments at scale remains unclear. Part of the cost of card payments today covers consumer protection, including against fraud; stablecoin transactions do not offer such protection. Blockchains also face limits in their transaction processing. An increase in transaction volume leads to congestion and higher transaction costs, known as gas fees on the Ethereum blockchain. When gas fees are high, users might pay more to expedite their transactions; delay their transactions; seek other blockchains, raising concerns about fragmentation; or transfer off-chain, raising questions about the very benefit of transacting in crypto. Faster and cheaper payments are thus a potential, not a guarantee. Indeed, blockchains face a fundamental trilemma among scalability, security, and decentralization that has yet to be resolved.¹⁰⁴

There are other potential use cases for stablecoins, from improving foreign exchange settlement to serving

as the building block of DeFi. What is clear is that, while stablecoins emerged to fix the rather narrow problem of reducing risk when trading cryptocurrencies, they now seem poised to have far greater influence.

Stablecoin Risks

Stablecoins have the potential to make the global financial system more inclusive, to speed transactions, and to enable new contracts, but they also pose significant risks to the monetary and financial systems if not properly regulated. Stablecoins could fracture the singleness of money. If stablecoins become a widespread medium of exchange, then much of the money businesses and households use could circulate at fluctuating rates. Today, there are only a handful of key stablecoins, but as stablecoins grow in popularity, more companies will issue them. An Amazoncoin could differ in value from a Walmartcoin, which could differ in value from USDC, all of which could vary from a dollar in the regulated banking system. Such a world would in many respects return the financial system to the free banking era of private banknotes circulating at fluctuating rates.¹⁰⁵ Transactions could become more complex, trust in the system could diminish, and fragmentation could once again become the order of the day.

Of course, stablecoin use would not have all the inefficiencies of the free banking era. One does not anticipate

Stablecoins have the potential to make the global financial system more inclusive, to speed transactions, and to enable new contracts, but they also pose significant risks to the monetary and financial systems if not properly regulated.

¹⁰¹ Then, Hill, and Anderson 2025.

¹⁰² Mason and Kharif 2025.

¹⁰³ Heeb, Andriotis, and Dawsey 2025.

¹⁰⁴ Buterin 2021.

¹⁰⁵ Eichengreen 2025; Gorton and Zhang 2023.

a return of the massive books listing thousands of notes and their discounts that merchants thumbed through with each transaction: digitalization should reduce some of the frictions from earlier periods of multiple currencies. Stablecoins would presumably trade much closer to par than antebellum banknotes. Secondary stablecoin markets are far more liquid than were the banknote markets of yore, and submitting redemption requests through the internet is much faster than shipping physical banknotes by horse or rail. Stablecoins could, in fact, trade at a premium to par at times, especially if they develop increased functionality vis-à-vis dollars in the banking system.¹⁰⁶ So long as government currency remained the reference point and parties to a transaction understood that stablecoins would transact at market rather than face value, very small deviations from par might not have substantial effects on day-to-day transactions.

But even with smartphones and apps simplifying the process, the fundamental issue remains: there would be different currencies trading at fluctuating rates. Individuals and businesses would need to invest time assessing the quality of payment media—not as much as in centuries past but more than today. Trust in the stability of the monetary system could fall as the value of money changed every day. Most important, the very knowledge that the stablecoin's price can deviate from par could contribute to run dynamics. It is this possibility of runs, fire sales, and contagion that poses the greatest risks.

These concerns about deviations from par assume that the stablecoin issuer is still operating. There is also the question of what happens when an issuer becomes insolvent. If the reserve is not sufficient or adequately segregated, if holders do not have clear redemption rights or their claims are not prioritized, they might lose access to their funds for long periods as the bankruptcy process drags on and end up receiving less than dollar-for-dollar payment on their coins. Such an outcome would affect not only the holders of the defunct stablecoin but also those of other stablecoins, who might become more likely to run on their issuer at the first sign of trouble.¹⁰⁷ The eventual pruning of myriad stablecoins down to just a few large, well-regulated

platforms might eventually solve this problem, but that raises questions: why the heavily regulated private monopolies instead of a central bank digital currency in the first place, and what difference would it ultimately make if both converge to similar rules and backing?

Stablecoins could also threaten monetary sovereignty and weaken the efficacy of monetary policy. Should dollar stablecoins continue to spread internationally, substitution from local currency to dollar-denominated assets could impair the ability of central banks around the world to manage their monetary systems. The dollar could infringe on the local unit of account. These concerns are not exclusive to developing economies; European policymakers have expressed alarm at the potential spread of dollar stablecoins.¹⁰⁸ Some scholars have even described the U.S. administration's push to expand dollar stablecoins, which it has explicitly justified in terms of reinforcing dollar dominance, as "cryptomercantilism," a new front in the geoeconomic struggle.¹⁰⁹

Even within the home country, increased stablecoin uptake could affect monetary policy. Stablecoins might disintermediate banks if households and businesses shift some of their funds from deposits to stablecoins. The ability of the financial system to provide credit to the real economy could suffer: whereas banks create money, subject to regulatory constraints, stablecoins are pre-funded and cannot respond elastically to the needs of the system.¹¹⁰ If stablecoin issuers hold reserves in the form of bank deposits, the banking system could still become less stable as more flighty wholesale deposits replace sticky retail deposits.¹¹¹ And, monetary policy implementation, which works through the banking system, could become more difficult if movements in and out of stablecoins lead to increased deposit flow volatility.

Given the decentralization and pseudonymity at the heart of crypto, there are significant concerns about stablecoin use in illicit finance as well. Stablecoins are digital bearer instruments and pose problems for know-your-customer compliance. Chainalysis (2025) finds that stablecoins account for 63 percent of all on-chain illicit transaction volume. USDT seems to be the cryptocurrency

106 Stablecoins have at times traded at a premium; see Annex 2 for one example with USDT.

107 Awrey, Jackson, and Massad 2025.

108 Lane 2025.

109 Hunt 2025; Klooster, Martino, and Monnet 2025.

110 Bank for International Settlements 2025.

111 Coste 2024.

of choice for many such transactions, with drug cartels, terrorist groups, and weapons dealers using it to move funds and buy properties.¹¹² In fact, some of the perceived advantages of using stablecoins in cross-border transactions, such as speed and cost, might reflect the absence of many of the compliance checks that banks undertake to prevent money laundering and other financial crimes.

There are additional risks beyond the monetary and financial systems. For instance, stablecoins could lead to excessive concentration of economic power if Big Tech companies issue their own coins.¹¹³ The network effects already present for social media companies and large retailers could give these firms an advantage when issuing stablecoins. These firms could also seek to lock in consumers through “walled gardens” that are not interoperable, fragmenting the monetary system.¹¹⁴

All of these risks matter as policymakers craft regulatory regimes. They are not necessarily insurmountable, but they underline the host of issues regulators must contend with. Section VI discusses some of the key design considerations for stablecoin regulation. At the same time, stablecoins are not the only possible future for money. As Section V explains, central bank digital currencies and tokenized deposits could provide much of the same functionality while buttressing, rather than threatening, the two-tier system.

112 Berwick and Foldy 2024.

113 Awrey, Jackson, and Massad 2025.

114 Cunliffe 2021.

V. Central Bank Digital Currencies and Tokenized Deposits

Stablecoins are not the only option for bringing the monetary system into the digital age. Innovation can, and should, happen within the two-tier structure as well. Except for cash, money is, of course, already digital: bank deposits are digital entries in bank databases, and bank reserves are digital entries in the central bank's database. But these digital entries do not necessarily have the functionality that the public demands, and the databases are often siloed, adding frictions when transacting. New technologies could reduce these frictions and enhance functionality. The cash caveat is important too: households and businesses have access to cash, not reserves. As cash use declines, digital central bank money for households and businesses could become important to maintain the anchor of central bank money. And as discussed above, the rise of cryptocurrencies has raised concerns about monetary policy autonomy. Modernizing central bank and commercial bank money might be necessary to preserve the efficacy of monetary policy. For these reasons, central banks have studied, piloted, and in a few cases, launched central bank digital currencies (CBDCs).

CBDCs, while conceptually straightforward, present a host of difficult design choices: should they be for wholesale use or retail, rely on distributed ledger technology or other technologies? If retail, should they be direct or intermediated, impose holding caps or not? They also are not without risk. Just as with stablecoins, retail CBDCs could disintermediate the banking system if depositors flock to the safety of central bank money. In addition, rolling out a system at such scale involves significant cyber and operational risks, and there are privacy concerns surrounding the central bank or government having access to retail payment data. These issues are complex and help explain the caution central banks have taken in rolling out CBDCs.

The commercial banking industry has a long history of innovation and can improve its payment offerings as well. Tokenizing deposits could bring about many of the potential benefits of stablecoins, such as faster payments and programmability, while doing so within the two-tier structure. To date, there has been little movement in tokenizing deposits, but the competition from stablecoins may spur greater interest within the banking sector.

This section reviews the state of play for CBDCs and tokenized deposits. Cryptocurrencies, operating in a lightly regulated environment, have so far been at the cutting edge of tokenization and programmability. For precisely the concerns discussed above, including fears of overly rapid disintermediation of the financial sector, central banks have naturally moved more slowly in rolling out new technology. The financial system and real economy depend on central bank operations every day, so any changes by necessity must be more deliberate. But there is extensive scope for innovation within the two-tier system as well, both by central banks and the legacy banking sector. CBDCs and tokenized deposits represent possible paths toward a 21st century monetary system that can strengthen, rather than undermine, the two-tier system.

CBDCs

Though CBDCs have been under consideration for over a decade, work on CBDCs did not kick into high gear until 2019, when Facebook's proposed Libra stablecoin sparked intense debate about the future of money and the possibility of private money displacing sovereign currencies.¹¹⁵ Thus far, only three countries have launched CBDCs (the Bahamas, Jamaica, and Nigeria), but there is significant

115 Rogoff 2025a, 199–200.

***CBDCs and tokenized deposits
represent possible paths toward
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momentum throughout the central banking community to press forward. More than 90 percent of surveyed central banks are exploring CBDCs. Dozens of central banks are engaged in pilot projects. For example, the People's Bank of China has been testing the digital yuan (e-CNY) for several years, and the Banco Central do Brasil is running a pilot for the digital real (drex).¹¹⁶ The European Central Bank is considering a digital euro, motivated in part by concerns of dollar stablecoin uptake in the eurozone.¹¹⁷ The Bank for International Settlements' Innovation Hub is also spearheading several projects on CBDCs and their cross-border use.¹¹⁸ A key exception is the Federal Reserve. While it has explored a CBDC in the past, further work appears to be on hold given President Donald Trump's executive order prohibiting such efforts.¹¹⁹

There are two types of CBDCs: wholesale (for banks) and retail (for households and businesses). Wholesale CBDCs (wCBDCs) would enable settlement of interbank payments involving tokenized assets through central bank money. Interbank settlement already occurs through digital central bank money (reserves), but wCBDC would bring central bank money into a new age by providing a means to settle tokenized transactions in central bank money.¹²⁰ There are many potential benefits to doing so. wCBDCs could make settlement faster, speed up cross-border payments, and enable programmability. Moreover, wholesale payments are the backbone of the financial system, and it is important that they are settled in central bank money. If the financial sector embraces

tokenization but central banks do not provide the functionality institutions require, settlement of large-value transactions could move to other assets, such as stablecoins, which bring considerable risk, particularly for such critical transactions. wCBDCs could thus help preserve the anchor of central bank money. To be sure, wCBDCs face a host of difficult design choices that policymakers will have to grapple with, notably developing the underlying technology and determining access to the platform. And as much of the potential benefit will hinge on interoperability, central banks will need to work with their partners and private institutions to design platforms that stitch together rather than fragment the system.

Retail CBDCs (rCBDCs) constitute a bigger leap than wCBDCs, as they involve providing digital central bank money to households and businesses. There are various models for rCBDCs. Households and businesses could have accounts at the central bank (direct), or they could hold accounts through banks (intermediated). Either way, rCBDCs would be a liability of the central bank. rCBDCs could also run on distributed ledger technology or centralized systems. These design choices are difficult and shed light on the deliberate approach many central banks have taken; poor decisions today could ramify through the years.¹²¹

Central bank interest in rCBDCs stems from many forces, some common to countries around the world and others specific to certain jurisdictions. For central bank money to anchor the monetary system, it is critical that private money is convertible into public money. Interbank settlement in central bank reserves is one component, but it is important for trust that households and businesses can convert into public money as well. With cash usage declining, a digital convertibility option might become necessary.¹²² rCBDCs could further reinforce the anchor of central bank money by improving its appeal, thereby reducing currency substitution, whether into foreign currencies or cryptocurrencies. Indeed, countries concerned about dollar hegemony might find launching rCBDCs a helpful bulwark against increased dollarization. Moreover,

116 Atlantic Council (n.d.).

117 Lane 2025.

118 Bank for International Settlements 2025.

119 Jones 2025.

120 Because digital central bank currency already exists, some central banks do not use the term wCBDC.

121 For a discussion of key design choices, see Dudley, Elson, and Thakur (2023).

122 Brunnermeier, James, and Landau 2021. Note that many central banks have stated that CBDCs, if issued, would complement cash, not replace it.

rCBDCs could make monetary policy more effective and promote financial inclusion, especially in countries where banking services are limited but smartphone ownership is widespread.

However, rCBDCs come with many more risks and complexities—economic and political—than wCBDCs. Some of the risks are similar to those of stablecoins. Because public money is completely safe, depositors could shift funds from the banking system to rCBDCs, posing financial stability risks and disrupting the provision of credit to the real economy. One way to limit this risk is to impose caps on the amount of rCBDC any individual or business can hold and to not remunerate holdings.¹²³ Privacy is another concern. rCBDCs must maintain the integrity of the financial system through know-your-customer and anti-money laundering processes, but consumer data must be protected and not accessible to the government except under strict conditions. Should central banks seek to move forward with rCBDCs, engaging with the public to allay concerns about privacy will be critical to garnering support.

In this light, it is important to note that those who argue that CBDCs will always lose out to stablecoins because the latter carry fewer regulations and restrictions miss the point that ultimately, the two will need to be governed fairly similarly and not only in parallel with paper currency, but in parallel with bank cards, including tracing identities. To date, stablecoins have been allowed to evolve with few restrictions on traceability, with policy-makers sometimes mistakenly thinking that it is sufficient to enforce the same restrictions on cash issuance. But as noted, after a stablecoin is in the wild, it is no more easily traced than Bitcoin and comes with the same problems that individuals can hold scores of wallets and use pseudonyms, and wallets can be issued by third parties outside the country of the initial issuer. Once these problems are resolved, for example through embedded code, the distinctions with rCBDCs will be much smaller, and it will be far less obvious that rCBDCs will lose out in the long run.

rCBDCs implicate many more stakeholders than wCBDCs, making the latter more likely in the near term. Both, however, remain largely a potential, not a reality. Pilots continue, with mixed results, especially for rCBDCs. The e-CNY, for instance, has had slow uptake.

... [T]hose who argue that CBDCs will always lose out to stablecoins because the latter carry fewer regulations and restrictions miss the point that ultimately, the two will need to be governed fairly similarly and not only in parallel with paper currency, but in parallel with bank cards, including tracing identities.

Brazil's drex is facing technological hurdles.¹²⁴ The United States seems unlikely to move forward at all for the time being. Nevertheless, CBDCs offer promise as the next generation of public money.

Tokenized Deposits

Central bank money is at the core of the monetary system, but most money in the economy is issued by commercial banks. Commercial bank money must adapt to changing monetary preferences as well for the two-tier system to be responsive to the needs of the economy. Tokenizing deposits offers one path forward that reinforces the singleness of money while achieving greater functionality for commercial bank money. Tokenized deposits are tokens, on distributed ledgers, that are backed by traditional deposit liabilities.¹²⁵ Many of the use cases of tokenization have been discussed already and would apply, including programmability. The key advantage of tokenized deposits is that they would exist within the bank regulatory perimeter. Transactions in tokenized deposits would be settled in central bank reserves and, as non-bearer liabilities, remain within the know-your-customer boundary.

Banks are only starting to pilot tokenized deposits, so much work remains on design, technology, functionality,

¹²³ Infante et al. 2024.

¹²⁴ Atlantic Council (n.d.).

¹²⁵ For more on tokenized deposits, see European Banking Authority (2024) and Sugimura and Bessho (2024).

and security.¹²⁶ Policymakers will have to grapple with many issues, though they will not need to build a regulatory regime from scratch as with cryptocurrencies. First, clarification of the legal status of tokenized deposits is necessary to ensure that the rights to the underlying asset are clear, including applicable deposit insurance.¹²⁷ Second, even though tokenized deposits are within the banking system, they still pose risks that regulators must consider. Programmability, for instance, could allow holders of tokenized deposits to remove their funds automatically in response to bad news about a bank, accelerating bank runs

that can already happen at warp speed in today's digital world.¹²⁸ Third, how various networks connect is important. A unified ledger, as described by Carstens (2023), could join networks for CBDCs, tokenized deposits, and other digital financial assets from around the world. In the absence of interoperability, the system could become fragmented and forfeit many of the possible efficiency gains.

Tokenized deposits are still more of a concept than reality. As banks continue to explore tokenization in the coming years, the possibilities for innovation within the two-tier structure will become clearer.

126 Pilots include the Regulated Liability Network and Project Agorá (PYMNTS 2024).

127 Sugimura and Bessho 2024.

128 Hill 2024.

VI. Policy Recommendations for the Future of Money

This section sets out recommendations for policymakers during this period of frenetic change in money and payments. Policymakers should push forward on modernizing money—public and private—within the two-tier structure. The first recommendation is to ramp up work on central bank digital currencies (CBDCs), especially wholesale CBDCs (wCBDCs). Likewise, the second recommendation is to encourage private sector efforts to experiment with tokenizing assets, in particular, deposits.

While CBDCs and tokenized deposits might check all the boxes for modern and safe money, stablecoins are likely not going away anytime soon. The genie seems to be out of the bottle, though it is by no means certain that they will grow into the trillions of dollars predicted by some forecasters.¹²⁹ As discussed, stablecoins could push the world of payments into a new, smarter, and more efficient age. The third recommendation is thus to craft regulatory frameworks for stablecoins that permit innovation without jeopardizing the very foundations of the monetary system.

When regulating stablecoins, the guiding maxim should be “same activity, same risk, same potential for facilitating tax evasion and illegal acts, same regulatory outcome.”¹³⁰ There are many variables involved in designing a regulatory framework that go beyond the scope of this report, but a few critical issues are considered below. Stablecoins should offer real innovation, not profit from regulatory evasion, so stablecoins must be subject to a robust anti-money laundering/countering the financing

of terrorism regime to reduce their use in illicit finance.¹³¹ Stablecoins should compete on payments, not as investment vehicles, so they should not pay interest. And if stablecoins ultimately become a significant component of the traditional financial system, they must be stable to maintain trust and not allow the failure of one issuer to wreak havoc on other stablecoins and the broader financial system. Such stability could require access to the central bank’s balance sheet in some form.

Ramp Up Work on CBDCs

In 1862, U.S. Secretary of the Treasury Salmon P. Chase laid out his proposal for modernizing the banking system and creating a uniform national currency. He understood that in matters of money, policymakers faced a delicate balance between the need for change and the importance of stability. “Rash innovation,” he cautioned, “is not less dangerous than stupefied inaction.”¹³² The government, that is, must move neither too fast nor too slow.

Central bankers have faced this tug of war throughout history, and they face it once again with CBDCs. Policymakers must be deliberate when designing and launching CBDCs. There are many economic, operational, and political issues involved, particularly for retail CBDCs (rCBDCs). Legal frameworks must be developed. Were central banks to issue rCBDCs, public buy-in would be essential to maintain central bank credibility. A rushed rollout, whether on wholesale or retail, could falter and gravely injure trust in the central bank. But inaction has

129 Ogunrinde 2025.

130 Given the unique features of stablecoins—such as the pseudonymous nature of blockchains—regulation will not be identical in form but should be identical in outcome.

131 Anti-money laundering/countering refers to regulatory and law enforcement efforts to prevent criminals from using the financial system to conceal illicit funds and to stop terrorists from funding their activities. It involves financial institutions implementing risk-based programs, such as know your customer, monitoring transactions for suspicious activity, and reporting to authorities, to uphold financial integrity and national security.

132 U.S. Treasury 1862, 19.

Money is a public good. Ceding the digital currency ground entirely to private actors, particularly nonbanks, poses serious risks to the stability of the two-tier system.

consequences as well. Money is a public good. Ceding the digital currency ground entirely to private actors, particularly nonbanks, poses serious risks to the stability of the two-tier system.

Central banks should thus redouble their efforts on CBDC development, with an emphasis on wCBDC, as wholesale payments form the core of the payment system. Four years ago, Benoît Cœuré, then head of the BIS Innovation Hub, called for more action: “We should roll up our sleeves and accelerate our work on the nitty-gritty of CBDC design. CBDCs will take years to be rolled out, while stablecoins and cryptoassets are already here. This makes it even more urgent to start.”¹³³ In the years since, crypto has seen ups and downs, but it is bigger and more interconnected than before, and stablecoins have tripled in size by market capitalization. Over the same period, the world has seen an increase in the number of countries with live CBDCs from one to just three. Cœuré’s words are thus even more true today.

While rCBDCs often get the most attention, wCBDCs could prove critical. The monetary system relies on large-value payments clearing in central bank money. If financial institutions embrace tokenization but central banks do not provide the necessary functionality to settle transactions in tokenized assets, institutions may seek alternative assets, such as stablecoins. As discussed in Section II, interbank payments through central bank reserves allow for ultimate settlement. Cryptocurrencies do not share this feature, so settlement of wholesale payments in these assets could introduce serious risks. For these reasons, wCBDCs will likely prove necessary for many central banks, whereas rCBDCs will see a slower rollout and will not be as widespread.

Encourage Innovations in Commercial Bank Money

CBDCs will not be the answer everywhere for tokenized money. In some countries, central banks will decide not to move forward; in others, central banks will not be permitted to move forward. Some countries might launch CBDCs only to see little uptake. But even where CBDCs flourish, they are not the only outlet for monetary innovation. The partnership between public and private money is at the core of the two-tier system, and innovation can and should occur on both levels. Commercial banks should continue exploring tokenization and other technological advancements. Central banks and regulators should work to address any legal gray areas on the status of tokenized deposits and continue to collaborate on pilot projects. In doing so, it will be important to guard against the proliferation of different systems that are not interoperable, as fragmentation could reduce many of the potential benefits from tokenization. Policymakers will also need to ensure that public infrastructure provides the necessary functionality, such as 24/7/365 settlement.

Craft Regulatory Regimes for Stablecoins

Stablecoins have experienced remarkable growth over the past five years. They have the potential to improve payments, but they come with risks—not only to stablecoin holders but to the financial system at large. Crafting regulatory regimes that enable stablecoin innovation while protecting the integrity and stability of the financial system is a key task for policymakers.

Some jurisdictions have set up basic regulatory regimes for stablecoins or are in the process of doing so. Among them, Japan, the European Union, Singapore, and Hong Kong have frameworks in place.¹³⁴ In mid-July 2025, the United States adopted a framework for stablecoins with the passage and signing of the Guiding and Establishing National Innovation for U.S. Stablecoins Act (GENIUS Act) (see Annex 3). In the coming months, U.S. regulators will issue regulations implementing the Act. The frameworks set useful guidelines, but they are only a start. Regulation will need to be iterative as stablecoins migrate

¹³³ Cœuré 2021.

¹³⁴ See S&P Global (2025) for a summary of regulatory regimes.

Crafting regulatory regimes that enable stablecoin innovation while protecting the integrity and stability of the financial system is a key task for policymakers.

from the crypto ecosystem to the traditional financial system and new risks are identified. International coordination will also be essential as stablecoins, by their very nature, are borderless.

Though the current regulatory regimes differ in detail, they share many similarities. Most jurisdictions, for instance, do not allow stablecoins to pay interest. This prohibition is important. Stablecoins purport to be a new payment technology and should thus compete on payments. If stablecoins were to pay interest, they might compete on yield instead, not only distracting from the effort to improve payments but pushing issuers to invest in riskier and more illiquid assets and making the system less stable. In addition, interest-paying stablecoins could worsen disintermediation from the banking sector as interest payments would incentivize movement from deposits to stablecoins.¹³⁵ Interest-paying stablecoins could complicate monetary policy implementation as well.¹³⁶

However, merely prohibiting issuers from paying interest directly, as the GENIUS Act does, may not be sufficient. While issuers are prohibited from paying interest or yield to holders under the Act, there is no restriction on affiliates, crypto exchanges, or other entities from doing so. Policymakers should consider wider restrictions to strengthen the prohibition. The Markets in Crypto-Assets (MiCA) framework in Europe, for instance, prohibits payment of interest by the issuer as well as crypto-asset service providers (such as exchanges and wallet providers).

The frameworks also specify permissible reserve assets. The GENIUS Act allows issuers to invest in cash, bank deposits (there do not appear to be size restrictions),

Treasury securities with remaining maturities under three months, short-term repurchase and reverse repurchase agreements, and money market funds invested in the aforementioned assets. European regulations similarly restrict reserves to high-quality liquid assets (HQLA), with the additional proviso that issuers of significant stablecoins must hold at least 60 percent of reserves in bank deposits.¹³⁷

Reserve composition is at the core of minimizing the risks of stablecoins and limiting threats to the singleness of money. Clearly, restricting reserves to HQLA would be an improvement over the current situation, where the largest stablecoin issuer holds gold, Bitcoin, and other volatile assets. But an HQLA regime is not risk free. Market risk, liquidity risk, and counterparty risk could leave the issuer unable to redeem coins on demand during times of stress. Nor is an HQLA regime the only option. Alternative models include requiring issuers to hold all reserves at the central bank or restricting stablecoin licenses to commercial banks, making them subject to bank regulations. Because nonbank stablecoin issuers seem to be an inevitability, the latter option is not considered here.¹³⁸

The central bank model has many desirable features. Central bank money is the safest asset; if all reserves were in an account at the central bank, the stablecoin issuer could satisfy redemption demands at any time (abstracting from possible operational issues). The issuer would not need access to a lender of last resort because it could not face a liquidity crisis. Restricting reserves to central bank money would also prevent the issuer from reaching for yield on assets. At the same time, if the interest rate on reserves was low—or if central banks chose not to remunerate issuers—the business model of stablecoins could be upended. Disintermediation of the banking sector could also be heightened in this scenario. And opening the central bank's balance sheet to nonbank financial institutions could have effects on monetary policy implementation.

The HQLA regime, in contrast, is more in line with current business models and would disintermediate the banking sector to a smaller degree. Indeed, most jurisdictions seem focused on the HQLA model (though Britain has explored the central bank model).¹³⁹ The run risk, however, remains. Capital and liquidity requirements

¹³⁵ Liang 2025.

¹³⁶ See Rogoff (2017, 245–247) for a discussion of Wallace Neutrality and the implications of interest-paying money for monetary policy.

¹³⁷ S&P Global 2025.

¹³⁸ For a discussion of different reserve models, see Bank of England (2021).

¹³⁹ Bank of England (2023). Though as Mills (2025) notes, the Bank of England now seems likely to permit a portion of reserves to be in interest-earning HQLA.

Reserve composition is at the core of minimizing the risks of stablecoins and limiting threats to the singleness of money.

would need to reflect this elevated risk, but they cannot eliminate it. At some point, it is likely that a large stablecoin issuer will face a liquidity crisis and, if the stablecoin has become widespread and interconnected with the broader financial system, the central bank will need to decide whether to step in.

The choice then seems to be between (1) requiring issuers to hold all reserves at the central bank, (2) allowing issuers to draw on central bank lending facilities at exigent times, or (3) prohibiting issuers from accessing the central bank balance sheet. Should stablecoins continue their rapid ascent, refusing to act as a lender of last resort in (3) could lead to negative spillovers throughout the financial system. It could also make such crises more frequent, since the knowledge that the central bank would not act as a backstop could make holders more liable to run. Options (1) and (2) have serious drawbacks—foremost, moral hazard in (2)—but they might eventually become necessary to maintain stability in the monetary system. On net, requiring stablecoin issuers to hold reserves exclusively in central bank deposits as in option (1) seems best for minimizing run risk and preserving the singleness of money.

With most regulatory regimes thus far favoring HQLA over central bank deposits, however, the central bank might have little choice but to consider acting as lender of last resort if stablecoins become systemic. Central banks do not need to declare such a policy today, as there is still time to see how stablecoin usage develops—they do not yet appear systemically important and may never become so. But central banks should work on planning and operationalizing such lending. If stablecoins really become the money of the future, the central bank will need to be prepared to lend to systemic issuers during periods of stress.

Of course, any access to the central bank balance sheet must involve commensurate regulation and supervision.

Illicit finance is another critical area. Stablecoins are currently the asset of choice for criminals around the globe. It is imperative that regulations subject issuers to comparable know-your-customer, anti-money laundering, and countering the financing of terrorism requirements as banks. Stablecoins should not have an advantage over other payment methods simply because they can skirt such regulations. Operationalizing these requirements in the age of blockchains might mean that the processes differ from those for banks, but they must achieve the same end.¹⁴⁰ The GENIUS Act requires issuers to comply with Bank Secrecy Act requirements, but once the stablecoin is on the blockchain, there is little insight into who is using it and for what purpose, providing plenty of opportunity for nefarious actors. Of course, making blockchain transactions less like anonymous cash and more like traceable debit cards will not be easy. And as Rogoff (2025b) notes, cryptocurrencies might lose much of their appeal if such oversight capabilities develop. But regulators cannot allow stablecoins to become a widespread means of money laundering and must prioritize devising methods to counter illicit finance on blockchains.¹⁴¹

There are many other angles to regulation, including redemption policy and resolution procedures, that are important in crafting a prudent regime. Here, it suffices to say that the GENIUS Act has shortcomings. There is no ceiling on redemption fees or maximum redemption time; the higher the fees and the longer the delay, the greater the possible deviation from par on the secondary market. The resolution policy for failed issuers also entails delays for stablecoin holders that could incentivize run-like behavior at the first sign of trouble. These aspects of the legislation, among others, should be revisited.¹⁴²

It is too early to tell whether stablecoins will continue growing apace, plateau, or fizzle. The regulatory frameworks put in place thus far are a good start. But in a world where stablecoins are widely used, further reforms will be imperative to make sure that stablecoins remain stable.

¹⁴⁰ As Aldasoro, Aquilina et al.(2025) note, stablecoins also pose unique risks given their borderless, pseudonymous nature, so policymakers will need to tailor regulations.

¹⁴¹ Aldasoro, Frost et al. (2025) suggest one method of combating illicit finance on blockchains.

¹⁴² See Awrey, Jackson, and Massad (2025) for a discussion of these issues.

VII. Conclusion

The monetary system is at an inflection point. Technological innovation offers the potential for new functionality but also the return of age-old risks. As policymakers consider this rapidly evolving landscape, they must not let the possibilities of technology obscure the principles of finance and the lessons of history. Centuries of financial history underscore the fragility in systems with multiple monies of differing values. Trust in money is imperative for the monetary system to function and serve as a foundation for economic activity. No system is perfect, but the two-tier system anchored by central bank money has proven resilient, whereas unregulated private money has threatened financial stability time and again.

The invention of Bitcoin in 2008 opened a new world of possibility, one where money moves faster and more cheaply, unburdened by legacy payment systems. In practice, Bitcoin is ill-suited as money. Stablecoins, however, offer more money-like properties and intriguing use cases. Yet without proper regulation, they could merely be the 21st century version of 19th century banknotes: unstable, runnable, and distrusted.

Given the speed at which crypto is evolving, policymakers should focus on the fundamental task of ensuring that the monetary system is safe, stable, and responsive to the needs of households and businesses, not to mention government finance and law enforcement. They should work on three tracks.

First, CBDCs offer the potential to bring public money into the digital age and strengthen the anchor of central bank money. Central banks should redouble their efforts on research and pilot programs, with a focus on wholesale CBDCs. Those central banks considering retail CBDCs will need to work with stakeholders to allay fears about privacy and other concerns.

The monetary system is at an inflection point. Technological innovation offers the potential for new functionality but also the return of age-old risks. As policymakers consider this rapidly evolving landscape, they must not let the possibilities of technology obscure the principles of finance and the lessons of history.

Second, since not every country will launch a CBDC in the near future, innovation should be encouraged in commercial bank money. Banks, working alongside regulators and supervisors, should continue to explore tokenized deposits. Policymakers should work on improvements to public sector infrastructure, such as 24/7/365 settlement, to create a conducive environment for such innovation.

Third, policymakers should create regimes for stablecoins that promote transparency, safety, and integrity. There are different models for doing so, but the current state of play, where the issuer of the largest stablecoin in the world does not provide audited statements and holds questionable backing assets, is not acceptable. The constant refrain should be “same activity, same risk, same potential for facilitating tax evasion and illegal acts, same regulatory



outcome.” Some access to the central bank’s balance sheet for systemic stablecoin issuers—whether through requirements to hold deposits at the central bank or access to emergency central bank support—could become necessary to ensure trust in the system if stablecoins continue to grow. Any access to the central bank balance sheet must involve commensurate regulation and supervision.

The present is an exciting time in the world of money. While policymakers must naturally focus on the risks, they should not lose sight of the opportunities. The future of money offers the potential for a more inclusive system, one where payments are faster, cheaper, and smarter. Monetary history is being made.

Annex 1: Eurodollars

Dollar-denominated stablecoins and Eurodollars have many similarities. At their core, they both represent dollars that are outside the regulated U.S. banking system. Eurodollars are dollar deposits held at banks outside of the United States and not subject to U.S. banking regulations. Regulatory evasion was instrumental to the growth of the Eurodollar market, just as it plays a role in the growth of stablecoins today. And as with stablecoins, the underlying premise of a Eurodollar is that it represents one dollar, that is, it is ultimately convertible into one dollar in the regulated banking system at par. Though the offshore market started in Europe—hence the term “Eurodollars”—it has spread to countries around the world and to currencies beyond the dollar.¹⁴³

Eurodollars arose shortly after the end of the Second World War in response to deepening Cold War tensions. Communist powers worried that the United States would seize their dollar balances held in New York. To protect themselves against this risk, they began depositing dollars in banks domiciled in Europe. The market soon took on a life of its own as offshore dollars proved useful for governments and businesses. By the 1960s, even U.S. officials found offshore dollars a convenient tool in their attempts to manage the dollar and uphold the Bretton Woods system. On the demand side, Eurodollars were attractive because they could pay higher interest rates than onshore dollars (Regulation Q limited interest rates on onshore deposits, and the cap became more constraining with the increase in inflation in the late 1960s and 1970s). In 1960, estimates put the Eurodollar market at \$1 billion; a decade later, it had grown fifty-fold.

By the late 1960s, policymakers became concerned about the vast market and the potential for rapid shifts in

funds to make the international monetary system more volatile. The French finance minister called Eurodollars a “hydra-headed monster.”¹⁴⁴ There were many proposals for regulating Eurodollars, but the industrial powers could not reach agreement. Policymaker views on Eurodollars then shifted with the oil shock of 1973–1974. The price of oil skyrocketed and the Eurodollar market facilitated petrodollar recycling, whereby oil-exporter surpluses were invested and oil importers could borrow. But concerns about the safety and risks of the market persisted.

By the mid-1970s, the Eurodollar market had become too big to fail. In 1974, the G10¹⁴⁵ central bank governors released a statement assuring the market that they stood behind it: “The Governors also had an exchange of views on the problem of the lender of last resort in the Euromarkets. They recognized that it would not be practical to lay down in advance detailed rules and procedures for the provision of temporary liquidity. But they were satisfied that means are available and will be used if and when necessary.”¹⁴⁶ The wording was vague, but it signaled the availability of a backstop. In the decades since, the market has grown into the trillions of dollars, and the Federal Reserve has de facto assumed the role of lender of last resort through its deployment of central bank swap lines.

The Eurodollar example underscores how quickly markets can grow and become systemically important. It also highlights the difficulty of regulating such international markets: governments opposed to regulating Eurodollars pointed out that the activity would simply move to even less regulated jurisdictions. The need to regulate stablecoins before they become too big to fail is urgent, and policymakers should coordinate internationally to minimize evasion.

¹⁴³ This annex draws on Massad (2024) and Aldasoro, Mehrling, and Neilson (2023).

¹⁴⁴ Massad 2024.

¹⁴⁵ The Group of Ten (in actuality, eleven) comprises the central bank governors of Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.

¹⁴⁶ Goodhart 2011, 40.

Annex 2: Stablecoin Pegs

While stablecoins promise to maintain their value against the pegged fiat currency, in their short history, this promise has been found wanting on many occasions. Moody's (2023) calculates that in 2022 the top 25 stablecoins experienced 2,347 depegs (defined as moving more than 3 percent in one day against the peg), and in the first nine months of 2023 stablecoins had over 1,900 depegs.

Among these episodes was the rapid fall in USDC in March 2023 during the U.S. regional banking crisis. Circle had over \$3 billion in uninsured deposits at Silicon Valley Bank (SVB), representing about 8 percent of Circle's reserves. When regulators shut SVB down on March 10, the status of those deposits—and the future of USDC—was suddenly thrown into doubt. USDC holders began selling the coin, which fell below \$0.87 on Saturday, March 11. Despite the substantial deviation from par, the arbitrage mechanism did not kick into action because Circle was unable to process redemptions over the weekend, in part because two of its other banking partners—Signature Bank and Silvergate—had also failed. Circle's crisis then spread to the decentralized stablecoin DAI, which held USDC as part of its reserves and likewise depegged. On Sunday, March 12, U.S. regulators invoked the systemic risk exception, guaranteeing all deposits in SVB and Signature Bank, thereby halting the panic. USDC's price soon moved back toward par, though its

market capitalization declined from about \$40 billion right before SVB's failure to \$24 billion in December as crypto investors shifted to other coins.¹⁴⁷

During the weekend of March 11–12, 2023, USDT traded at a slight premium to par as holders of USDC and DAI flocked to the coin after Tether announced it held no reserves in the affected banks.¹⁴⁸ But USDT has also fallen below par on numerous occasions. In May 2022, for instance, the algorithmic stablecoin TerraUSD imploded, and in the ensuing crypto crisis, USDT fell to around \$0.95 before returning to par.¹⁴⁹

Depegging events continue to occur. In April 2025, First Digital's FDUSD, which at the time was the world's third-largest stablecoin, fell as low as \$0.87 after a prominent crypto executive questioned First Digital's solvency.¹⁵⁰

One might look at these repeated episodes and conclude that they are not that concerning; the broader financial system did not seem to react much. However, the consequences were limited because stablecoins were largely a crypto phenomenon. Watching a stablecoin fall to \$0.87 might seem like part of the crypto game for an investor used to speculating in Bitcoin; watching the stablecoin fall to \$0.87 is much more problematic for a merchant receiving the coin in payment. As stablecoins become more interconnected with the traditional financial system, the spillovers could become much more concerning.¹⁵¹

¹⁴⁷ Watsky et al. 2024.

¹⁴⁸ Sigalos 2023.

¹⁴⁹ Nicolle and Shen 2022.

¹⁵⁰ Vardai 2025.

¹⁵¹ As Ahmed and Aldasoro (2025) show, stablecoin inflows and outflows already have notable effects on Treasury markets.

Annex 3: The GENIUS Act

On July 18, 2025, President Donald Trump signed the Guiding and Establishing National Innovation for U.S. Stablecoins Act (GENIUS Act) into law. Passed with bipartisan support, the GENIUS Act is the first major legislation on cryptocurrencies to become law in the United States and establishes a regulatory framework for “payment stablecoins.” Regulators have one year from enactment to issue implementing rules. As this annex discusses, while the Act sets some important guardrails in this fast-moving space, it leaves open many questions and raises concerns about the implications of stablecoin growth for monetary stability and financial integrity.¹⁵²

Payment stablecoins

The Act defines payment stablecoins as stablecoins that (1) are designed to be used for payments, (2) that the issuer redeems for a fixed monetary value, and (3) that the issuer represents will maintain a stable value relative to the fixed monetary value. Thus, the Act covers the types of stablecoins discussed in this report but does not cover algorithmic stablecoins (though the Treasury must report on such coins within the year).

Permitted issuers

There are three types of permitted stablecoin issuers:

- Subsidiary of an insured depository institution
- Federal qualified payment stablecoin issuer
- State qualified payment stablecoin issuer.

Permitted issuers are thus not restricted to insured depository institutions or even financial businesses. While the Act prohibits public companies that are not predominantly engaged in finance from issuing payment stablecoins, the restriction applies to public companies only, allowing private nonfinancial companies to issue payment stablecoins. Moreover, the Act allows the Stablecoin

Certification Review Committee (SCRC), chaired by the Secretary of the Treasury, to waive the restriction to allow a nonfinancial, publicly traded company to become an issuer. As such, the Act leaves the door open to Big Tech and large retailers issuing stablecoins, throwing into jeopardy the long-standing separation of commerce from banking.

Dual federal-state regulatory regime

The Act creates a dual federal-state regulatory regime, mirroring the dual banking system. Subsidiaries of insured depository institutions will be regulated by their primary federal regulator. Federal qualified payment stablecoin issuers will be regulated by the Office of the Comptroller of the Currency. State qualified payment stablecoin issuers will be regulated by state regulators.

States must create regulatory regimes “substantially similar” to the Federal regime in order to regulate stablecoin issuers. States must certify that their regime is substantially similar to the Federal regime, and the SCRC can deny such certification. It remains unclear how much leeway states will have to diverge from federal standards and whether states will engage in a regulatory race to the bottom to attract issuers.

Any state qualified stablecoin issuer that reaches over \$10 billion in outstanding issuance must transition to federal regulation, though there is a 360-day transition period.

Foreign issuers

The Act generally prohibits digital asset service providers from offering or selling stablecoins from foreign issuers. However, if the SCRC finds that the foreign issuer is subject to a “comparable” regulatory regime and the foreign issuer satisfies some additional requirements, the prohibition would not apply, opening the door to foreign stablecoin issuance.

¹⁵² Guiding and Establishing National Innovation for U.S. Stablecoins Act, Pub. L. No. 119-27 (2025). For further discussion of the legislation, see Sullivan and Cromwell (2025).

Reserves and capital

Issuers must back payment stablecoins 1:1 against reserves, and reserves must be in high-quality liquid assets of the following types:

- U.S. currency, including balances at Federal Reserve Banks
- Deposits at insured depository institutions
- Short-term Treasury securities with remaining maturities of three months or less
- Money received under repurchase agreements collateralized by short-term Treasuries
- Reverse repurchase agreements that are overcollateralized by Treasuries
- Shares in money market mutual funds that are invested solely in the above
- Tokenized forms of any of the above except repurchase and reverse repurchase agreements.

Note that, while balances held at Federal Reserve Banks are approved reserve assets, the Act does not grant stablecoin issuers access to Federal Reserve accounts. In fact, the Act specifically notes that it does not alter the criteria for access to Federal Reserve services in any way.

The Act mandates that regulators set capital requirements tailored to the “business model and risk profile of permitted payments stablecoin issuers” that “do not exceed requirements that are sufficient to ensure the ongoing operations of permitted payment stablecoin issuers.” This language may lead regulators to impose suboptimally low capital requirements. The Act also calls for liquidity and risk management requirements.

Disclosure

Issuers must disclose the composition of their reserves monthly, and those with more than \$50 billion in outstanding stablecoins must submit to annual auditing. The Act also calls for issuers to disclose their redemption policies but does not impose any requirements on how quickly issuers must redeem coins or cap how much they can charge.

Payment of interest

The Act prohibits any issuer from paying interest. However, it does not prohibit any affiliate from paying

interest or third parties from doing so. As a result, issuers and affiliates may be able to sidestep the prohibition.

Anti-money laundering

Under the Act, a stablecoin issuer is classified as a “financial institution” under the Bank Secrecy Act and must comply with anti-money laundering regulations, sanctions, and other related requirements. For example, issuers must verify customer identities and have the technical capability to freeze or block transactions that violate the law.

Despite these requirements, the Act has serious gaps. Issuers must verify customers when interacting directly with them, but once the coin is on the blockchain, it moves between accounts pseudonymously as in any blockchain transaction. The possibilities for illicit activity, from sanctions avoidance to tax evasion, are countless. The Act does little to address these fundamental concerns about crypto and the integrity of the financial system. While the Act does require the Treasury to study “innovative” methods for detecting money laundering and to report to Congress on the matter within six months, it is by no means certain that more stringent requirements will result.

Bankruptcy

Under the Act, stablecoin holders have priority in the event of bankruptcy. First, they have a priority claim on reserves, a claim strengthened by the segregation of reserves from the bankruptcy estate. Second, in the event reserves are insufficient, holders have a priority claim on the issuer for any deficiency. This priority status is important for reducing the risk of runs on stablecoin issuers.

Nevertheless, insolvency proceedings under the GENIUS Act could still result in prolonged delays for stablecoin holders receiving payments. Reserves are not part of the bankruptcy estate, but under the Act they are still subject to the automatic stay. While the Act permits a court to exempt reserves from the stay under certain circumstances, such a finding could take time, and even if the court exempts the stay, payments may still take two weeks to begin. Thus, precisely how the accelerated procedure for lifting the automatic stay will work in practice, as well as the speed with which holders will receive payment, remain open questions. Given the uncertainties about the regime’s suitability, regulators are required to study the matter and report to Congress within three years.

Glossary

Arbitrage	The strategy of simultaneously buying an asset in one market and selling it in another for a higher price, exploiting temporary price differences to make a profit with little to no risk.
Atomic settlement	A method of crypto settlement whereby all components of a transaction are settled simultaneously or nothing is settled.
Banknotes	A piece of paper money constituting a promissory note to pay a stated sum to the bearer on demand.
Bearer instrument	A financial document where ownership is determined by possession.
Bitcoin	A type of digital currency that uses cryptographic methods to enable decentralized peer-to-peer transactions.
Blockchain	A decentralized public digital ledger used to record transactions across many computers and that securely stores records in a way that is transparent, immutable, and resistant to tampering. Each “block” contains data, and blocks are linked in a chronological “chain.”
Bretton Woods System	A post-World War II international monetary system established in 1944 in which major currencies were fixed to the U.S. dollar to provide global economic stability and prevent competitive devaluations seen in the 1930s.
Cryptocurrency	A digital or virtual currency that relies on blockchain technology to record and verify transactions and that creates a decentralized, peer-to-peer system for transactions with no need for a traditional financial intermediary. Cryptocurrencies have no intrinsic value; they are worth what people are willing to pay for them in the market.
DAI	A decentralized, crypto-collateralized stablecoin pegged to the US dollar that is managed and regulated by the Maker Protocol and MakerDAO, a decentralized autonomous organization (DAO) on the Ethereum blockchain.
Disintermediation	The process where parties bypass traditional financial intermediaries, such as banks and brokers, to conduct transactions or investments directly.
Distributed ledger technology	A decentralized system that enables secure, transparent, and tamper-proof record-keeping across a network of computers. Instead of relying on a central authority, like a bank or government, DLT validates and records transactions through a shared, synchronized ledger distributed across multiple network participants.
Fiat currency	Currency that has value not because it is backed by a commodity like gold or silver, but because a government has declared it to be legal tender and is therefore trusted to have stable purchasing power.

Fintech	Financial technology. Refers to the use of technology to deliver financial services, making them more accessible, efficient, and convenient for consumers and businesses. It encompasses a wide range of applications, from mobile banking and digital payments to investment apps and blockchain-based solutions, transforming how people manage, store, borrow, and move money.
Fractional reserve banking	A system where banks hold only a fraction of customer deposits as reserves, lending out the rest to borrowers. This process creates new money in the economy, as loaned funds are deposited into other banks, which then reserve a fraction and lend out the remainder, repeating the cycle and expanding the overall money supply.
Free banking era	The period in the United States, lasting from roughly 1837 to 1863, of monetary volatility, when the country had no central bank or national banking system.
GENIUS Act	The Guiding and Establishing National Innovation for U.S. Stablecoins Act, which creates a regulatory framework for stablecoins.
Monetary base	Currency in circulation and reserve balances.
Private money	Deposits at commercial banks; comprises most of the money supply.
Pseudonymous address	A digital identifier, such as a cryptocurrency wallet address, that is used in place of a real-world identity but can be linked back to the user's actual identity with additional information.
Public money	Central bank money; it forms the system's core.
Runnable money	Short-term, private-sector financial obligations that can be rapidly withdrawn by investors or creditors.
Singleness of money	The concept that a dollar is a dollar, whether a deposit at a bank or a physical note; that is, the interchangeability of money at par.
Stablecoins	Cryptocurrencies that promise to maintain their price in terms of another currency, usually the dollar, and generally have assets as reserves to support this commitment.
Tokenization of money	Creating digital tokens on a blockchain.
Unbanked	To lack access to a transaction account.
Underbanked	To have a transaction account but still resort to nontraditional services, such as payday lenders.
USDC	A digital dollar/stablecoin issued by Circle, a financial technology company, designed to be stable and maintain a 1:1 peg with the U.S. dollar.
USDT	A digital dollar/stablecoin issued by Tether, the world's largest stablecoin issuer.
Wildcat banks	Unstable, state-chartered banks in the United States during the 19th century that issued paper currency without adequate specie backing.

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