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Unbundling Banking, Money, and Payments

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Dan Awrey
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I would like to thank Stephen Lubben, Joshua Macey, James McAndrews, and Lev Menand, for their constructive comments, advice, and support. All errors remain my own.

Abstract

For centuries, our systems of banking, money, and payments have been legally and institutionally intertwined. The fact that these three—theoretically distinct—systems have been bundled together so tightly and for so long reflects a combination of historical accident, powerful economic and political forces, path dependence, and technological capacity. Importantly, it also reflects the unique and often underappreciated privileges and protections that the law bestows on conventional deposit-taking banks. These privileges and protections have served to entrench banks as the dominant suppliers of both money and payments: erecting significant barriers to entry, undermining financial innovation and inclusion, spurring destabilizing regulatory arbitrage, and exacerbating the "too-big-to-fail" problem. Against this backdrop, the recent emergence of a variety of new financial technologies, platforms, and policy tools hold out the tantalizing prospect of breaking this centuries-old stranglehold over our basic financial infrastructure. The essential policy problem, at least as conventionally understood, is that creating a level legal playing field would pose a serious threat to both monetary and financial stability. This Article demonstrates that this need not be the case and advances a blueprint for how we can safely unbundle banking, money, and payments, thereby enhancing competition, promoting greater financial innovation and inclusion, and ameliorating the too-big-to-fail problem.

Keywords: banking, money, payments, payment systems, financial safety net, financial infrastructure, financial innovation, platforms, cryptocurrency, central bank digital currency, CBDC

JEL Classifications: G1, K2, K22, L1, N2

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Unbundling Banking, Money, and Payments

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For centuries, our systems of banking, money, and payments have been legally and institutionally intertwined. The fact that these three—theoretically distinct—systems have been bundled together so tightly and for so long reflects a combination of historical accident, powerful economic and political forces, path dependence, and technological capacity. Importantly, it also reflects the unique and often underappreciated privileges and protections that the law bestows on conventional deposit-taking banks. These privileges and protections have served to entrench banks as the dominant suppliers of both money and payments: erecting significant barriers to entry, undermining financial innovation and inclusion, spurring destabilizing regulatory arbitrage, and exacerbating the "too-big-to-fail" problem. Against this backdrop, the recent emergence of a variety of new financial technologies, platforms, and policy tools hold out the tantalizing prospect of breaking this centuries-old stranglehold over our basic financial infrastructure. The essential policy problem, at least as conventionally understood, is that creating a level legal playing field would pose a serious threat to both monetary and financial stability. This Article demonstrates that this need not be the case and advances a blueprint for how we can safely unbundle banking, money, and payments, thereby enhancing competition, promoting greater financial innovation and inclusion, and ameliorating the too-big-to-fail problem.

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INTRODUCTION

Banks.[1] You have probably been aware of their existence for most of your life. As a child, you saw them on television, learned about them in school, and perhaps even heard your parents talk about them at the kitchen table. As a young adult, you probably opened your first bank account: an important rite of passage alongside your first job, your first kiss, your first heartbreak. Today, your salary probably goes into a bank account, and your rent, your electricity bill, and your taxes probably come out of one. There is also a good chance that you or someone you know has borrowed money from a bank: whether to go to college, buy a house, or start a new business. Banks are part of the fabric of our world—*institutions* in every sense of the word. And yet, like so many of our core institutions, few of us have ever taken the time to consider the various functions that banks perform, how they are able to perform them, or how exactly that they became such an important part of everyday life.

Banks perform three essential functions in a modern economy. Most of the time, we understandably focus on the function for which banks are named: making *loans* and extending other forms of credit to individuals, households, businesses, and governments.[2] Yet it is the other two functions that arguably best explain the importance of banks in our daily lives. The first is *money* creation: with bank deposits representing by far and away the largest source of money in the United States and most other countries.[3] The second is *payments*: moving that money across time and space in satisfaction of our financial obligations.[4] Ultimately, it is the

[1] For the purposes of this article, unless otherwise indicated, any reference to a "bank" or "banks" should be construed as encompassing conventional deposit-taking banks, savings associations, thrifts, and other "insured depository institutions" as defined under federal banking law.

[2] The word "bank" is derived from the Old Italian (*banca*), Middle French (*banque*), and Old High German (*bank*) words for the tables at which Medieval moneylenders lent and collected money; see OXFORD ENGLISH DICTIONARY, definition and etymology of the word "bank" (noun), https://www.oed.com/view/Entry/15237#eid28163689.

[3] *See* Part I.A for a more detailed description of the role of banks in money creation.

[4] The conventional definition of a "payment system" is captured by Hal Scott: "A payment system is a network of interconnecting entities that facilitates the exchange of data required to initiate, authorize, clear, and settle cash or credit claims between payors and payees."; see Hal Scott, "The Importance of the Retail Payment System", MASTERCARD WORKING PAPER (December 2014),

bundling of these three functions—banking, money, and payments—that has made banks such a successful and enduring institutional innovation. It is also what periodically makes them such an existential threat to the very economies that they helped build.

The story of how banks became so deeply embedded at the heart of our financial and economic system is long, complicated and, in many ways, still being written. It is story about war, politics, economics, entrepreneurship, technology, and path dependence.[5] Importantly, it is also a story about the *law*. In the United States, the law grants banks a number of unique privileges and protections. Perhaps most famously, the law provides banks with a comprehensive public backstop: a financial safety net that includes access to the Federal Reserve's emergency lending facilities, federal deposit insurance, and a special bankruptcy regime for struggling banks.[6] This safety net gives banks a comparative advantage in the creation of monetary liabilities: transforming otherwise risky deposits into "good money".[7] Almost equally important, although far less appreciated, the law grants banks exclusive access to the Federal Reserve master accounts and, as a consequence, the major clearing networks that collectively make up the financial plumbing through which the vast majority of payments currently flow. This gives banks—and *only* banks—direct access to our basic financial infrastructure. Last but not least, through low profile and highly technocratic regulations such as brokered deposit rules, the law makes it less costly for banks to embed their products and services within the business models of potential competitors.

The policy rationales for these unique privileges and protections are grounded in two important and longstanding objectives.[8] The first is to promote the safety and soundness of individual banks. The second is to prevent idiosyncratic bank failures from metastasizing into wider and more destructive financial crises. Yet these privileges and protections also create a number of significant and often overlooked distortions.[9] First and foremost, the absence of a level legal playing field serves to entrench banks as the dominant suppliers of both money and payments. The resulting lack of competition undercuts financial innovation and slows progress towards greater financial inclusion. Second, the high costs of bank regulation—i.e. the price of securing these privileges and protections—drive a process of relentless and destabilizing regulatory arbitrage as new competitors seek to replicate the bundle of products and services offered by conventional deposit-taking banks. Lastly, by installing banks at the apex of our systems of money and payments, the law reinforces their virtually indispensable role within the modern economy: thereby exacerbating the "too-big-to-fail" problem. Together, these distortions help explain why banking, money, and payments have been bundled together so

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https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2539150. As we shall see, several aspects of the unbundling process described in this Article serve to challenge this conventional definition.

[5] For a small sample of the enormous literature on the history and politics of banking in the United States, see KATHRYN LAVELLE, MONEY AND BANKS IN THE AMERICAN POLITICAL SYSTEM (2013); MURRAY ROTHBARD, A HISTORY OF MONEY AND BANKING IN THE UNITED STATES (2002); BRAY HAMMOND, BANKS AND POLITICS IN AMERICA FROM THE REVOLUTION TO THE CIVIL WAR (1991).

[6] *See* Part II.A for a more detailed description of this financial safety net.

[7] *See* Dan Awrey, *Bad Money*, 106 CORNELL L. REV. [forthcoming] (describing the distinction between "good" and "bad" money).

[8] *See* Parts II and IV for a more detailed description of these policy objectives.

[9] *See* Part III for a more detailed description of these distortions.

tightly and for so long. They also help explain why banks, despite their declining importance as sources of credit[10], continue to occupy such a central position within our existing financial and economic system.

Yet there is change on the horizon. Recent decades have witnessed a flurry of promising and potentially transformative developments. These developments stem from important and ongoing technological advances: everything from a dramatic leap forward in computer storage capacity and processing power, to the emergence and proliferation of the internet, to artificial intelligence, cloud computing, and distributed ledger technology.[11] These technological advances have made possible a host of new financial markets, institutions, and platforms. In the world of money and payments, this includes popular non-bank payment platforms such as PayPal, Venmo, and TransferWise, China's AliPay and WeChat Pay, and Kenya's M-Pesa.[12] It also includes embryonic ventures such as Facebook's Libra—recently rechristened Diem—project and other so-called "stablecoins".[13]

The emergence of these new markets, institutions, and platforms has in turn forced policymakers to rethink the legal, technological, and institutional architecture of our existing systems of money and payments. This has triggered a range of thoughtful and creative policy proposals, including the creation of "FedAccounts"[14], "inclusive value ledgers"[15], a "People's Ledger"[16], and central bank digital currencies (CBDCs).[17] It has also inspired draft legislation such as the recently announced Stablecoin Tethering and Bank Licensing Enforcement

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[10] *See* e.g. Greg Buchak et al., *Fintech, Regulatory Arbitrage and the Rise of Shadow Banks*, 130:2 J. FIN. ECON. 453 (2018) (describing a significant increase in the proportion of U.S. residential mortgages originated by non-bank "fintech" lenders).

[11] For a small sample of the literature exploring the impact of these and other technologies on finance, see Saule Omarova, *New Tech v. New Deal: Fintech As A Systemic Phenomenon*, 36 YALE J. REG. 735 (2019); Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEORGETOWN L. J. 235 (2019); Michael Casey et al., *The Impact of Blockchain Technology on Finance: A Catalyst for Change*, Center for Economic Policy Research, GENEVA REPORTS ON THE WORLD ECONOMY 21 (2018); MORTEN BALLING (ED.), FINANCE AND TECHNOLOGY: CHALLENGES FOR FINANCIAL MARKETS, BUSINESS STRATEGY, AND POLICY MAKERS (2002).

[12] For a more detailed description of these and other platforms, see Dan Awrey & Kristin van Zwieten, *The Shadow Payment System*, 43 J. CORP. L. 775; Dan Awrey & Kristin van Zwieten, *Mapping the Shadow Payment System*, SWIFT INSTITUTE WORKING PAPER NO. 2019–001, 12–22 (2019).

[13] For an overview, see Douglas Arner, Raphael Auer & Jon Frost, *Stablecoins: Risks, Potential and Regulation*, BANK FOR INT'L SETTLEMENTS WORKING PAPER NO. 905 (November 2020), https://www.bis.org/publ/work905.pdf.

[14] *See* Morgan Ricks, John Crawford & Lev Menand, *FedAccounts: Digital Dollars*, GEO. WASH. L. REV. [forthcoming].

[15] *See* Robert Hockett, "The New York Inclusive Value Ledger: A Peer-to-Peer Savings and Payment Platform for an All-Embracing and Dynamic State Economy", CORNELL LEGAL STUDIES RESEARCH PAPER NO. 19-39 (November 12, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3470923.

[16] Omarova, "The People's Ledger: How to Democratize Money and Finance the Economy", CORNELL LEGAL STUDIES RESEARCH PAPER NO. 20-45 (October 21, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3715735.

[17] *See* Joint Report by The Bank of Canada, European Central Bank, Bank of Japan, Sveriges Riksbank, Swiss National Bank, Bank of England, Board of Governors of the Federal Reserve, and Bank for International Settlements, *Central Bank Digital Currencies: Foundational Principles and Core Features* (October 9, 2020), https://www.bis.org/publ/othp33.htm.

(STABLE) Act.[18] Collectively, these technological, market, and policy developments represent an emergent process of *unbundling* that holds out the prospect of a faster, better, more reliable, and more inclusive financial system—one that breaks the centuries-old stranglehold enjoyed by banks over our basic financial infrastructure. Where this prospect is truly genuine, the laws that support and entrench the current bundled system of banking, money, and payments will therefore represent potentially significant obstacles to further progress.

In the vast majority of industries, the most straightforward policy response would simply be to remove these obstacles and create a level legal playing field on which competition can drive financial innovation, inclusion, and growth. But banking is not just any industry. The essential policy problem, at least as conventionally understood, is that leveling this playing field would pose a serious threat to both monetary and financial stability.[19] Roll back the financial safety net for banks and policymakers risk undermining confidence in the money supply and, with it, the stability of the conventional banking system. Expand the public safety net, along with access to basic financial infrastructure, to institutions other than banks and they risk fomenting moral hazard and, once again, financial instability.

Further compounding matters, designing regulatory frameworks that are both functionally equivalent to conventional bank regulation and yet specifically tailored to the unique business models of these new markets, institutions, and platforms poses a host of significant technocratic challenges.[20] These challenges help explain why policymakers have often been reluctant to fundamentally rethink the legal frameworks that support and entrench our current bundled system of banking, money, and payments. If policymakers get it wrong, they risk not only squandering the inherent promise of these new technologies but also—and far worse—undermining public confidence in the money supply, the stability of the financial system, and perhaps even the longer term strength of the broader economy.

So how can policymakers thread this difficult needle? According to the largest federal banking regulator—the Office of the Comptroller of the Currency (OCC)—the answer is the creation of so-called "fintech" charters: a single, flexible licensing regime for new financial institutions and platforms.[21] Ultimately, however, these charters represent a legally and

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[18] *See* Rashida Tlaib, "Tliab, Garcia and Lynch Introduce Legislation Protecting Consumers from Cryptocurrency-Related Financial Threats", Press Release (December 2, 2020), https://tlaib.house.gov/media/press-releases/tlaib-garcia-and-lynch-stableact.

[19] This is not to suggest that banks cannot survive without the financial safety net, merely that the *transition* from a world in which banks enjoy a financial safety net to one where they do not may be highly disruptive. For examples of banking systems that have survived without a public backstop, see LAWRENCE WHITE, FREE BANKING IN BRITAIN (1996); LAWRENCE WHITE, FREE BANKING (1993); KEVIN DOWD, THE EXPERIENCE OF FREE BANKING (1992). While beyond the scope of this Article, this shift would also necessitate significant changes to federal and state bank regulation.

[20] These challenges are described in more detail in Part IV.A. *See* also JOHN ARMOUR ET AL., PRINCIPLES OF FINANCIAL REGULATION (2016), chapter 4.

[21] *See* OCC, Policy Statement on Financial Technology Companies' Eligibility to Apply for National Bank Charters (July 31, 2018), https://www.occ.gov/news-issuances/news-releases/2018/pub-other-occ-policy-statement-fintech.pdf.

conceptually dubious fudge that is unlikely to promote financial innovation or reduce emerging threats to financial stability.[22]

This Article argues that a far better answer can be found in the logic of unbundling itself. In many respects, this logic mirrors the distortions generated by the current bundled system: including, most notably, the desire to create a faster, better, and more inclusive system of money and payments, while simultaneously avoiding the extremely costly and often ill-fitting regulatory frameworks governing conventional deposit-taking banks. Importantly, it also reflects the overarching imperative that any new system must—at the very least—not pose any additional threats to our monetary, financial, or economic stability. Put bluntly: if promoting greater financial innovation and inclusion risks fomenting potential systemic risks, then the juice is simply not worth the squeeze.

Building on this logic, this Article advances a blueprint for how we can safely unbundle our systems of banking, money, and payments. This blueprint envisions three relatively straightforward changes to federal law.[23] The first change is an amendment to the Federal Reserve Act that would enable financial institutions *other than banks* to open and maintain master accounts within the Federal Reserve System. These master accounts enable banks to settle payments to each other on the accounts of the Federal Reserve. More importantly, they are a legal and operational requirement for direct membership in the major clearing networks that connect the sprawling U.S. payment system. By expanding access to these accounts, this change would reduce the reliance of firms like PayPal, Venmo, and Transferwise on conventional deposit-taking banks for indirect access to these networks—thus enabling these platforms to compete on a more level footing. By promoting more vigorous competition, this change would also create a more supportive legal environment for financial innovation and inclusion and help ameliorate the too-big-to-fail problem.

The second change is designed to reflect the potentially significant risks stemming from this proposed expansion of access to Federal Reserve master accounts. Specifically, in order to open and maintain a master account, these platforms should be required to hold 100 percent of customer deposits in these accounts. Thus, for every dollar that these platforms accept on behalf of their customers, a dollar must be immediately deposited into their Federal Reserve master account. This change would effectively insulate customers from the risks associated with the bankruptcy or default of these platforms: thereby eliminating the prospect of destabilizing customer runs.[24] The elimination of this run risk would then remove the principal rationale for extending a public financial safety net and, with it, the need for costly and complex regulation designed to mitigate the resulting moral hazard problems. The net effect of this change—what we might call a *no intermediation rule*—would therefore be to free these new platforms from the straitjacket of conventional bank regulation.

Perhaps more than any other element of this blueprint, the no intermediation rule reflects the unique logic of unbundling. If new financial institutions and platforms want to

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[22] The legality of these fintech charters is currently the subject of litigation before the 2nd Circuit Court of Appeals; see *Lacewell* v. *OCC*, No. 19 Civ. 4271 (2d Cir. July 29, 2020) [hereinafter *Lacewell*].

[23] *See* Part IV.B for a more detailed rendering of this blueprint.

[24] *See* Part II.A for a discussion of the problem of bank runs and Part III.B for a description of how this problem can also plague non-bank payment platforms.

bundle lending with money and payments, then functionally speaking there is no reason why they should not be regulated as banks. Conversely, if these new institutions and platforms simply seek to provide money and payments, then the no intermediation rule is little more than a peppercorn in exchange for direct access to the U.S. payment system and the ability to compete with banks on more level terms. Furthermore, this rule would not apply to financial institutions and platforms that only seek to provide *either* lending (like Quicken Loans) *or* payments (like ApplePay) without also creating new monetary liabilities. Delivering on this logic requires a third and long overdue change to federal banking law: the definition of a bank itself.[25] Under current law, this definition is based on a tautology: a bank is a firm that issues deposits, and deposits are financial instruments that are issued by a bank.[26] This circular definition has created a glaring loophole that many new financial institutions and platforms have readily exploited. The third and final change would be to close this loophole by adopting a functional definition of a bank as any financial institution that combines lending with the creation of monetary liabilities.

This blueprint is both radical and incremental. It is radical because it envisions a world in which banks may one day—perhaps not that far off—no longer play such an important role in everyday economic life. Yet it is incremental because it does not call on policymakers to dismantle the legal privileges and protections that banks currently enjoy: merely that they be forced to compete on a more level playing field. Indeed, relative to the OCC's proposal for fintech charters, the no intermediation rule would actually strengthen the position of banks as the only financial institutions legally permitted to combine the business of lending with the creation of monetary liabilities. Nor importantly does this blueprint call for the development of a new and untested regulatory framework or significant additional government bureaucracy. Lastly, regardless of whether or not this blueprint ultimately succeeded in achieving its desired objectives, it would pose few, if any, new risks to monetary or financial stability.[27]

This Article proceeds as follows. Part I briefly traces the historical evolution of our systems of money and payments and illuminates the essential role that banks play at the heart of these systems today. Part II identifies and describes the core legal frameworks that support and entrench banks in this role—thereby reinforcing the tight institutional bundling of banking, money, and payments. Part III then explores the distortions created by this legally privileged bundling: looking specially at how the law erects barriers to entry, undermines financial innovation and inclusion, spurs destabilizing regulatory arbitrage, and exacerbates the too-big-to-fail problem. Part IV concludes by chronicling the emerging process of unbundling, comparing the different models that have been proposed, and laying out a

[25] The most vocal and convincing advocate for this change in recent years has been Professor Morgan Ricks, whose research illuminates both the nature of the problems created by this circular definition and proposes specific statutory language designed to address these problems; MORGAN RICKS, THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION (2016).

[26] *See* Part IV.B for a more detailed explanation of this tautology.

[27] In theory, exposing banks to greater competition could lead to more bank failures. In practice, however, both the probability and impact of this risk on the wider financial system is often overstated and, in any event, can largely be addressed via the financial safety net. *See* Part IV.D for a more detailed discussion of possible challenges and objections.

blueprint for how we can harness this process to build a better, faster, and safer system of money and payments.

I. THE BUNDLING OF BANKING, MONEY, AND PAYMENTS

The very nature of institutions often makes it difficult for us to imagine what it would be like if they were different. This is certainly true of one of our most important, ubiquitous, and yet poorly understood economic institutions: *banks*. For well over a century, we have looked to banks as a source of financing, as a place to keep our money, and as providing the principal means by which we transfer this money to others in order to pay our taxes, bills, mortgage, or rent, buy our groceries and gasoline, and discharge our other debts.[28] Yet this unique institutional bundling of banking, money, and payments was not preordained: it reflects the confluence of history, economics, politics, technology, and other forces. This Part briefly describes the origins of this bundling, its historical development, and what it looks like today. Part II then illuminates the central role of the law in binding it all together.

A. The Goldsmiths' Legacy: Banks and Money

The nature and sources of money have varied across time, place, culture, and circumstance.[29] The first reliable written records documenting the use of money date back to ancient Mesopotamia (3500–800 BC), where the administrators of Sumerian temples used a basic accounting system to record debits and credits and calculate outstanding rents, loans, and various administrative fees.[30] Sumerian merchants and tradespeople would also record debits and credits on clay tablets that could be transferred from hand to hand.[31] While Economist John Maynard Keynes famously called this credit-based monetary system "Babylonian madness"[32], its basic architecture—built on a dual system of accounts and

[28] Admittedly, to say that we have been relying on banks as an important source of banking, money, and payments for well over a century is both vague and somewhat arbitrary. The first deposit-taking, note-issuing bank in the United States was in all likelihood the Bank of Pennsylvania, established in 1780. However, while banks would thereafter come to play an increasingly important role in the provision money and payments, it was not until the second half of the 19th century that they would assume their central role in financing private enterprise.

[29] For a broad overview of the variety of credit, commodity-based, and hybrid monetary systems that have existed over the course of human history, *see* DAVID GRAEBER. DEBT: THE FIRST 5,000 YEARS (2011), chapters 8-12.

[30] This system was denominated in units—known as "shekels"—that were based on quantities of barley and ultimately backed by ingots of silver. For a more detailed description, see Michael Hudson, "Reconstructing the Origins of Interest-Bearing Debt and the Logic of Clean Slates", in MICHAEL HUDSON AND MARC VAN DE MIEROOP (EDS.), DEBT & ECONOMIC RENEWAL IN THE ANCIENT NEAT EAST (2002). This system also foreshadowed the emergence of a number of credit-based monetary systems that were tied in various ways to the value of underlying commodities.

[31] *See* Mitchell Innes, *What is Money?*, BANKING L. J. (May 1913), https://www.community-exchange.org/docs/what%20is%20money.htm (describing the key features of these "shuhati" tablets and how they changed hands).

[32] *See* Matt Lyons, "'Babylonian Madness': On the Historical and Sociological Origins of Money", in John Smithin (ed.), WHAT IS MONEY? (2000), 17.

negotiable instruments—will be familiar to any student of modern banking. Indeed, if you open your wallet right now, you are likely to find both a bank card and a random collection of bills and coins.

Yet history rarely travels in a straight line. The Sumerian monetary system was dismantled by Alexander the Great, who replaced it with one based on plundered gold and silver that he then had minted into coins.[33] This *commodity*-based monetary system differed from the Sumerian *credit*-based system in that, rather than basing money on the promises that debtors owed to their creditors, it revolved around physical materials that were deemed to have intrinsic value beyond their use as a widely accepted token for purchasing goods and services.[34] Around the same period, commodity money systems based on gold, silver, bronze, and copper coins, disks, spades, or other objects emerged in northwest India[35], northern China[36], and the eastern Mediterranean—including the Roman Empire (625 BC–476 AD).[37] Over the next millennium, the decline and fall of these civilizations was then accompanied by a return to rudimentary credit-based monetary systems, often under the aegis of local religious institutions.[38]

Fueled by the discovery of the New World and its plentiful sources of gold and silver, the pendulum in Europe would swing back toward the widespread use of commodity money beginning in the 15th century.[39] Remarkably, this same period would also witness important and enduring innovations in credit-based monetary systems, including the emergence of the Lombard and Medici banking families in Northern Italy, the Fugger and other merchant banking groups in Germany, and early public banks such as the Bank of Amsterdam.[40] The historical record thus reveals a pattern of periodic oscillation between credit and commodity-based monetary systems: with many of these systems characterized by the contemporaneous use of both credit and commodity money.[41]

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[33] *See* PETER GREEN, ALEXANDER TO ACTIUM: THE HISTORICAL EVOLUTION OF THE HELLENISTIC AGE (1993), (describing how Alexander emptied the gold and silver reserves in conquered territories and then minted the bullion into coins for the purposes of paying his army and other creditors).

[34] *See* LAWRENCE WHITE, THE THEORY OF MONETARY INSTITUTIONS (1999), 26 (describing the features of commodity money).

[35] *See* Madhukar Dhavalikar, *The Beginning of Coinage in India*, 6:3 WORLD ARCHEOLOGY 330 (1975) and Satya Prakash & Rajendra Singh, COINAGE IN ANCIENT INDIA (1968).

[36] *See* David Schaps, *The Invention of Coin in Lydia, in India, and in China*, XIV International Economic History Congress (2006), http://www.helsinki.fi/iehc2006/papers1/Schaps.pdf.

[37] *See* Walter Scheidel, "The Monetary Systems of the Han and Roman Empires", Princeton-Stanford Working Papers on Classics (February 2008), https://www.princeton.edu/~pswpc/pdfs/scheidel/020803.pdf.

[38] *See* GRAEBER, *supra* note __, chapter 10.

[39] With much of this gold and silver ultimately finding its way east, reflecting the burgeoning European trade with India and China; *see* KENNETH POMERANZ, THE GREAT DIVERGENCE: CHINA, EUROPE AND THE MAKING OF THE MODERN WORLD ECONOMY (2000).

[40] *See* generally CHARLES KINDLEBERGER, A FINANCIAL HISTORY OF WESTERN EUROPE (1984), chapter 3 (describing the Italian banking families, German merchant banks, and early public banks).

[41] *See* GRAEBER, *supra* note __, 420 ("What we see is a broad alternation between periods dominated by credit money and periods in which gold and silver come to dominate.").

So how did we end up with our current monetary system? The answer is war—and the opportunity it presented for a group of enterprising London goldsmiths. Historically, the business of goldsmiths consisted mainly of the manufacture of gold and silver plates and jewelry, the purchase and sale of diamonds and other precious jewels and, importantly, assessing the purity of gold and silver coins.[42] Following the outbreak of the English Civil War (1642–51), these goldsmiths saw an opportunity to expand this business by permitting wealthy customers to store their gold and silver coins in the goldsmiths' vaults: thus protecting them from theft, seizure, or destruction amidst the chaos of the escalating conflict.[43] By the late 17th century, this safekeeping role had evolved into one in which the goldsmiths enjoyed full legal authority to use these coins for the purposes of making loans to businesses, households, and governments.[44] These goldsmiths had thus stumbled upon the model that would eventually become synonymous with the business of banking: combining deposit-taking with the extension of credit to the public.

Strictly speaking, the goldsmiths did not invent modern banking.[45] Yet the goldsmiths' model did combine three elements that continue to define our intertwined systems of money and banking to this day. First, as described above, the goldsmiths accepted *deposits* of gold and silver coins. These deposits would then be credited to accounts held in the name of the goldsmiths' customers. Second, goldsmiths would issue receipts—or *notes*—as documentary evidence of these deposits.[46] These notes represented the goldsmiths' undertaking to repay deposited funds on demand when presented with the receipt.[47] Over time, these notes came to possess a relatively high degree of transferability, thus enabling the holder to "settle a great variety of tradesman's bills, to pay fees and taxes, to provide ready cash, and to purchase

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[42] *See* BENJAMIN GEVA, THE PAYMENT ORDER OF ANTIQUITY AND THE MIDDLE AGES: A LEGAL HISTORY 473 (2011); J. MILNES HOLDEN, THE HISTORY OF NEGOTIABLE INSTRUMENTS IN ENGLISH LAW 71 (1955).

[43] *See* JAMES ROGERS, THE EARLY HISTORY OF THE LAW OF BILLS AND NOTES: A STUDY OF THE ORIGINS OF ANGLO-AMERICAN COMMERCIAL LAW 119 (1995); GEVA, *supra* note __, 474.

[44] *See* RICHARD RICHARDS, THE EARLY HISTORY OF BANKING IN ENGLAND 37 (1965); GEVA, *supra* note __, 475. Curiously, many economists have questioned the legality of the goldsmiths' model, and specifically their legal authority to lend out deposited coins; see George Selgin, *Those Dishonest Goldsmiths*, 19:3 FIN. HIST. REV. 269 (2012) (describing and correcting this pervasive misunderstanding).

[45] In Europe, the Genoese, Venetian, and Lombard banking systems can all arguably lay prior claim to this distinction; see Robert Lopez, "The Dawn Of Medieval Banking", in ROBERT LOPEZ (ED.), THE DAWN OF MEDIEVAL BANKING (1979); Jean-François Bergier, "From the Fifteenth Century in Italy to the Sixteenth Century in Germany: A New Banking Concept?", in ROBERT LOPEZ (ED.), THE DAWN OF MEDIEVAL BANKING (1979); Robert Reynolds, "A Business Affair in Genoa in the Year 1200: Banking, Bookkeeping, a Broker and a Lawsuit", in Studi di Storia e Diritto in Onore di Enrico Besta (1938); GEVA, *supra* note __, 354. By the same token, there is a strong case to be made that these practices may have been imported from the ancient Middle East and Asia.

[46] These notes were payable either to the payee or to the bearer of the receipt; GEVA, *supra* note __, 476.

[47] The oldest surviving description of the goldsmiths' model, along with the notes they issued, is a remarkable letter from 1676 entitled "Mystery of the New Fashioned Goldsmiths or Bankers: Their Rise, Growth, State and Decay"; see *The New-Fashioned Goldsmiths*, 2:2 Q. J. ECON. 251 (1888). Two of the oldest surviving notes, both issued by Field Whorwood in 1654, make it clear that the goldsmith undertook to "repay" deposits "on demand"; see Frank Melton, *Goldsmiths' Notes, 1654-1655*, 6:1 J. SOC. OF ARCHIVISTS 30 (1978).

shares, lottery tickets, and tallies."[48] That is: these receipts could themselves be used as *money*.[49] Third, depositors could request *drafts* in any amount up to the full value of their deposit made payable to either the bearer of the draft or a specified third party. These drafts were the predecessors of modern *checks*.[50]

The goldsmiths' model would eventually take root across Western Europe. It was also exported to the New World. Elements of the goldsmiths' model appeared in the American colonies as early as 1690.[51] These first proto-banks issued promissory notes to their depositors, typically secured against real property or precious metals.[52] As in the United Kingdom, these notes would eventually come to possess a degree of transferability and thus circulate, often widely, as a form of paper money. The first conventional deposit-taking bank was likely the Bank of Pennsylvania, established in 1780 to raise capital to finance the American Revolutionary War (1775–83).[53] This was followed by the creation of the Bank of North America, which received the first federal bank charter in 1781.[54] Robert Morris, then United States Superintendent of Finance, supported the creation of the Bank of North America on the grounds that it would stimulate private investment and, thereby, enhance government tax revenues.[55] Future Treasury Secretary Alexander Hamilton, meanwhile, saw the new bank as an opportunity to create what he described as "a sufficient medium" of exchange.[56] Put differently, Hamilton sought to develop a banking system in order to support the development of a more reliable system of money and payments.

Hamilton's plan worked—eventually.[57] The United States experimented with a variety of different banking models over the course of the 19th century. Between 1791 and 1836, Congress would establish and subsequently dismantle not one but two quasi-public

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[48] The transferability of notes was initially contentious as a matter of law. For a description of how the law evolved to support the transferability of bank notes over the course of the 17th and especially 18th centuries, see CHRISTINE DESAN, MAKING MONEY: COIN, CURRENCY, AND THE COMING OF CAPITALISM (2014), chapters 8-10.

[49] Final settlement would then occur when the seller of the goods and services, or a subsequent transferee, returned the note to the goldsmith—in effect demanding that it honor its promise to repay the deposited funds. Over time, these privately issued notes would be largely replaced by bank notes issued by the Bank of England; see DESAN, *supra* note __.

[50] GEVA, *supra* note __, 476–477; HOLDEN, *supra* note __, 206–210.

[51] William Sumner, *A History of Banking in Leading Nations*, 1 J. COM. & COM. BULL. 4 (1896) (citing TRUMBULL PROC. AM. ANTIQ. SOC. 1884).

[52] *Id.*

[53] Although, unlike modern banks, the Bank of Pennsylvania was incorporated with a limited life; Sumner, *supra* note __, 14.

[54] *Id.*, 17. Sumner refers to the Bank of North America as the first "specie paying, convertible bank note bank" in the United States.

[55] *Id.*, 15.

[56] *See* Letter from Alexander Hamilton to Robert Morris 12 (April 30, 1781), https://founders.archives.gov/documents/Hamilton/01-02-02-1167.

[57] And only partially: he would have likely disapproved of both the dual chartering system described below and the highly fragmented banking system in the United States today.

banks: the ill-fated First and Second Banks of the United States.[58] The First and Second Banks existed alongside various regional, state, and local banking systems, each issuing their own paper bank notes.[59] Following the expiration of the Second Bank's federal charter in 1836, responsibility for chartering and regulating banks then fell exclusively to the states. This was followed by a period of experimentation in bank business models and regulation often and inaccurately described as the "free banking" era.[60] This experimentation would effectively come to an end with the enactment of the National Banking Acts of 1863-1865, which created a "dual system" of federal and state bank chartering that survives to this day.[61] This National Banking System was explicitly designed to replace privately-issued bank notes with a single national currency "licensed, manufactured, and guaranteed by the federal government."[62] With the creation of the Federal Reserve in 1913, all the essential institutional pieces of our current banking and monetary systems were finally in place.

The National Banking System bifurcated the U.S. money supply into two distinct and familiar components.[63] The first component consists of the one, five, ten, twenty, fifty, and one hundred dollar bills—originally printed by national banks, but today printed by the U.S. Treasury Department—together with the quarters, dimes, nickels, and pennies minted by the U.S. Mint. The second component consists of the demand, savings, time, checking, and other deposit liabilities issued by federal and state banks. While the specific features of these deposit liabilities vary from product to product, they all reflect the same core bundle of contractual commitments. First, these contracts permit customers to *deposit* cash or other funds with the bank for safekeeping. These deposits are then credited to accounts held in each customer's name on the bank's books. Second, they permit customers to *withdraw* these funds either or demand or upon the expiration of a specific term. Third, customers can instruct the bank to *transfer* funds held within their accounts to specified third parties in satisfaction of their financial obligations.

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[58] *See generally* HAMMOND, *supra* note __ (describing the origins, role, and downfall of the First and Second Banks).

[59] Notable examples include the Suffolk banking system in New England and the New York safety fund system; see GEORGE TRIVOLI, THE SUFFOLK BANK: STUDY OF A FREE-ENTERPRISE CLEARING SYSTEM (1979) and Charles Calomiris & Charles Kahn, *The Efficiency of Self-Regulated Payments Systems: Learning from the Suffolk System*, 28 J. MONEY CREDIT & BANKING (1996) (both describing the Suffolk banking system); ROBERT CHADDOCK, THE SAFETY FUND BANKING SYSTEM IN NEW YORK, 1829–1866 (1910) (describing the New York safety fund system).

[60] For a detailed comparative assessment of the successes and failures of various free banking regimes in the United States and elsewhere, see generally DOWD, *supra* note __ (describing experiments in free banking in Australia, Canada, Columbia, France, Ireland, Scotland, Switzerland and the United States). *See also* WHITE, *supra* note __.

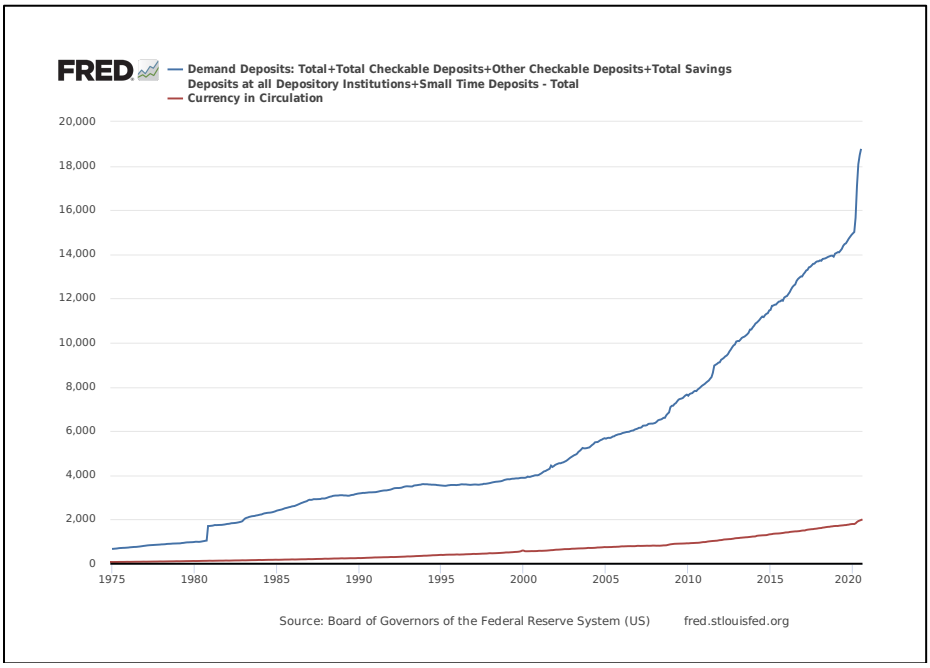
[61] *See* National Bank Act of 1864, ch. 106, §§ 5, 8, 22, 13 Stat. 99, 100–01, 105–06 (superseding the National Currency Act of 1863, ch. 58, 12 Stat. 665). *See also* Act of March 3, 1865, ch. 78, § 6, 13 Stat. 469, 484 (as am.). For a more detailed description of the dual banking system as it exists today, see MICHAEL BARR, HOWELL JACKSON & MARGARET TAHYAR, FINANCIAL REGULATION: LAW & POLICY 171–182 (2nd ed. 2018).

[62] Calomiris & Kahn, *supra* note __, 780.

[63] A third component—central bank reserves—would be introduced with the creation of the Federal Reserve System in 1913.

Figure 1

Monetary Liabilities of Depository Institutions Versus Currency in Circulation
(1975-2020; $USD billions)



In their seminal treatise, *A Monetary History of the United States*, Milton Friedman and Anna Schwartz trace the growth and composition of the U.S. money supply between 1867 and 1960.[64] One of the most striking elements of their findings is that the composition of the money supply has slowly shifted over time. In 1900, Friedman and Schwartz report that the total stock of currency—i.e. bills and coins—in public circulation was approximately $1.2 billion dollars.[65] When compared against total bank deposits of approximately $7.3 billion, this translates into a deposit-to-currency ratio of just over 6:1.[66] By 1960, however, with the aggregate money supply having increased by more than 3,500% to around $248 billion, the deposit-to-currency ratio had increased to approximately 7.6:1.[67] Even more remarkably, this shift has continued essentially unabated through to the present day. Figure 1 compares the total stock of outstanding currency versus demand, savings, time, and checking deposits from 1975 to present.[68] This figure makes two things abundantly clear. First, banks are far and

[64] MILTON FRIEDMAN & ANNA SCHWARTZ, A MONETARY HISTORY OF THE UNITED STATES 1867–1960 (rev. ed. 1971).

[65] *Id.*, 705.

[66] *Id.*

[67] *Id.*, 722.

[68] Figure 1 reports the total stock of deposits for all "depository institutions": a category that includes banks, savings and loan associations, credit unions, and industrial loan companies. Despite subtle differences in their chartering and regulation, all of the institutions are essentially conventional deposit-taking banks.

away the dominant source of money in the United States: with the deposit-to-currency ratio currently standing at just under 10:1. Second, this dominance appears only to be increasing over time.

There are three key takeaways from this whirlwind history tracing the development of the U.S. banking and monetary systems. First, monetary systems can and do evolve over time. Second, our current monetary system is based on institutional arrangements that considerably predate the invention of the lightbulb—let alone the personal computer, the cellphone, or the internet. Third, this system has come to be dominated by a single and remarkably hardy species of financial institution: banks.

B. Plumbers in Pinstripes: Banks and Payments

Given the central role of banks in money *creation*, it is perhaps not surprising that they have also come to play a central role in the *transfer* of money between individuals, businesses, and governments. The fact that bank deposits represent the accounting liabilities of a bank to its customers makes it relatively easy to execute payments between customers at the *same* bank. With the proverbial stroke of the bookkeeper's pen, all a bank needs to do is debit the account of the payor and credit the account of the recipient payee. The first evidence of these "book" transfers dates back to 1200, where Italian court records describe Genoese bankers as enabling their wealthy clients to make payments to each other on the accounts of the bank.[69] This basic system of book transfers would eventually spread throughout Western Europe, where it was also adopted by our resourceful London goldsmiths.[70]

The far more challenging problem was how to facilitate payments between customers at *different* banks. Within the goldsmiths' system, the solution initially revolved around an informal network of correspondent relationships.[71] Within this network, banks would maintain a separate set of books recording the checks and other negotiable instruments drawn and cashed with each of the other banks.[72] Representatives of two banks, typically junior clerks, would then meet on a periodic basis to calculate and settle their accounts: with the net debtor paying the net creditor in paper currency or coins.[73] Amongst this system's many inefficiencies was thus that it required these clerks to navigate London's crowded streets and alleys carrying large quantities of money.[74]

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[69] *See* Reynolds, *supra* note __ (describing the records and what they reveal about 13th century Genoese banking practices).

[70] Geva, *supra* note __, 359.

[71] *See generally* Stephen Quinn, "Balances and Goldsmith-Bankers: The Co-ordination and Control of Inter-Banker Debt Clearing in the Seventeenth-Century", in DAVID MITCHELL (ED.), GOLDSMITHS, SILVERSMITHS, AND BANKERS 53–76 (1995).

[72] Geva, *supra* note __, 494.

[73] *See* PHILLIP MATTHEWS, THE BANKERS' CLEARING HOUSE: WHAT IT IS AND WHAT IT DOES 2 (1921).

[74] *Id*., 6-7.

Over time, this system took on a more formal—and secure—institutional structure.[75] In the early 1770s, a number of large London banks rented a room at The Five Bells pub on Lombard Street where their clerks would regularly meet to clear and settle payments.[76] By 1775, clearing and settlement were taking place on Lombard Street on a daily basis.[77] A permanent rules committee was created in 1821, a new home on Lombard Street was erected in 1833, and in 1841 the bilateral settlement system was replaced with a multilateral one—with each bank's net obligations calculated on the basis of the negotiable instruments drawn and cashed with *all* the other banks in the network.[78] The institutionalization of this once informal network would be completed in 1895 when member banks reorganized it as private company: the Bankers Clearing House Limited.[79]

Echoing the emergence of the first proto-banks in the American colonies over a century earlier, this new institutional innovation—the *clearinghouse*—would eventually take root in the United States.[80] The first clearinghouse was established in New York in 1853.[81] Within a little over a decade, clearinghouses had also sprung up in other major commercial centers: including Boston (1856), Philadelphia (1858), Baltimore (1858), and Chicago (1865).[82] By the end of the century, hundreds of regional and local clearinghouses "dotted the American banking landscape".[83] Like the Bankers Clearing House Limited, these early clearinghouses were almost invariably owned and operated by member banks. Once established, these clearinghouses then imposed strict criteria governing the admission of new members. Member banks were also subject to basic capital and liquidity requirements, financial reporting and audit obligations, and restrictions on the interest rates they were permitted to charge their customers. While these admission criteria and ongoing membership requirements were designed to protect the clearinghouse against member default, they also erected potentially significant barriers to direct participation in this burgeoning new financial infrastructure.

For those banks that enjoyed direct access to them, these clearinghouses held out three important advantages. The first stemmed from the use of multilateral netting. Rather than periodically calculating and settling their net debts on a bilateral basis, multilateral netting enabled *each* member bank to settle its net debts with *all other* member banks with a single institution: the clearinghouse itself. To facilitate multilateral netting, the clearinghouse would first aggregate, calculate, and confirm the payments owed by or to each member bank. This

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[75] *See* WILLIAM LAWSON, THE HISTORY OF BANKING 215 (2D ED. 1885); MATTHEWS, *supra* note __, 3-19 (both providing a more detailed description of the transition to a more formal institutional structure).

[76] GEVA, *supra* note __, 495; MATTHEWS, *supra* note __, 8.

[77] *Id.*

[78] *Id.*

[79] MATTHEWS, *supra* note __, 14.

[80] Once again, the Goldsmiths did not *invent* the clearinghouse. The basic practice of merchants meeting periodically to calculate and settle net debts dates at least as far back as medieval European champagne fairs and was likely employed in parts of Asia far earlier.

[81] *See* Gary Gorton, *Private Clearinghouses and the Origins of Central Banking*, FED. RES. BANK PHILA. BUS. REV. 3, 4 (1985).

[82] *Id.*, 5.

[83] *Id.*

process was known as "clearing". It would then pay (or collect) the net amount owing to (or by) each member bank. This process was known as "settlement". By clearing and settling payments on a multilateral basis, clearinghouses thus reduced the total number and size of payments, along with the exposure of the clearinghouse and each member bank to the default of its members.

The second advantage was that, having reduced the number and size of payments, clearinghouses greatly reduced the need for banks to keep large amounts of cash on hand to settle their bilateral payment obligations.[84] Indeed, in theory, each bank needed only to keep enough cash on hand to settle its net obligations to the clearinghouse. In practice, clearinghouses would often issue certificates that served as cash substitutes for the expressly limited purpose of settling transactions between a clearinghouse and its member banks.[85] These certificates eliminated the transportation, security, and other costs of settling payments in cash. They also steadied the once frayed nerves of the clerks that had previously been the backbone of the interbank payment system.

Lastly, in the absence of a central bank, early American clearinghouses played an important role in crisis management.[86] In response to an incipient banking panic, clearinghouses would authorize the issuance of loan certificates designed to serve as a form of "emergency" currency.[87] Member banks facing correlated depositor withdrawals could apply for these certificates, pledging their loans and other assets as collateral. Banks could then use them to satisfy their outstanding obligations to other member banks, thereby freeing up cash for the purpose of honoring their commitments to depositors and other creditors.[88] Banks were willing to accept these certificates not only because they were backed by collateral but also, and crucially, because they represented the *joint* obligations of other member banks. Where a clearing member defaulted and the posted collateral was insufficient to cover its outstanding obligations, surviving members would thus be required to cover the residual losses in proportion to their capital in the clearinghouse.[89] Initially, these loan certificates were only issued in large denominations and circulated exclusively amongst member banks. By the 1890s, however, clearinghouses had begun issuing small denomination certificates, many of

[84] *Id.* During the free banking era in the United States, this cash was typically made up of gold; *id.*, 4-5.

[85] These certificates were themselves backed by gold deposited by one member bank with another designated member bank; *id.*, 4-5.

[86] *See* Richard Timberlake, Jr., *The Central Banking Role of Clearinghouse Associations*, 16 J. MONEY BANKING & CREDIT 1, 2 (1984); Gary Gorton, *Clearinghouses and the Origin of Central Banking in the United States*, 45 J. ECON. HIST. 277 (1985).

[87] These certificates carried an interest charge and were typically issued at fixed maturities between one and three months; *id.*

[88] Unlike the gold-backed "specie" certificates issued under normal market conditions, which could only be used to satisfy financial obligations to the *clearinghouse*, these "loan" certificates could also be used to satisfy obligations to *other member banks*.

[89] While defaulting banks were typically not permitted to fail during a panic, they were often expelled from the clearinghouse once the panic subsided. The threat of expulsion was thus viewed as a powerful enforcement mechanism. *See* Gorton, *supra* note __, 279.

which found their way into public circulation.[90] In effect, the issuance of these certificates enabled clearinghouses to expand the money supply during periods of financial instability, thus providing much needed liquidity to member banks and preventing widespread bank failures.[91]

This last advantage had a sobering upshot: if a bank or other financial institution was *not* a member of a clearinghouse, the absence of a central bank meant that they would be left to fend for themselves in the event of a crisis. This is exactly what happened during the Panic of 1907. The epicenter of the panic was a group of New York City trust companies: state-chartered financial institutions that competed with banks for deposits, but which were not members of the New York Clearing House.[92] While a more widespread financial crisis was ultimately averted following a private bailout orchestrated by John Pierpont Morgan, the Panic of 1907 would become one of the primary catalysts for the creation of a new central bank: the Federal Reserve System.[93] The creation of the Federal Reserve signaled the end of the historical role of clearinghouses in managing banking panics. Nevertheless, clearinghouses would continue to perform a number of important functions at the heart of the U.S. payment system.

Today, the architecture of the U.S. payment system revolves around three core institutions. The first is the Federal Reserve. The Fed is best known for conducting monetary policy[94], acting as "lender of last resort" during financial crises[95] and, more recently, coordinating the economic response to the COVID-19 pandemic.[96] Less well known and understood is the role the Fed plays at the heart of the payment system. Most importantly, the regional Federal Reserve banks maintain a system of master accounts in the name of each participating member bank. These master accounts enable banks to settle their payment obligations to other banks using their deposit balances—known as "reserves"—on the books

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[90] During the Panic of 1893, for example, clearinghouses issued approximately $100 million in small denomination certificates. During the Panic of 1907, this figure jumped to approximately $500 million; *id.*, 282.

[91] *See* Timberlake, *supra* note __, 14. *See also* Gorton, *supra* note __, 280–81 (describing the use of loan certificates by clearinghouses).

[92] *See* Hugh Rockoff, "It Is Always the Shadow Banks: The Regulatory Status of the Banks That Failed and Ignited America's Greatest Financial Panics," in HUGH ROCKOFF & ISAO SUTO (EDS.), COPING WITH FINANCIAL CRISES: SOME LESSONS FROM ECONOMIC HISTORY 95–96 (2018); ROBERT BRUNER & SEAN CARR, THE PANIC OF 1907: LESSONS LEARNED FROM THE MARKET'S PERFECT STORM 65–70 (2007).

[93] For a more detailed description of the economic and political developments leading to the creation of the Federal Reserve System, see ROGER LOWENSTEIN, AMERICA'S BANK: THE EPIC STRUGGLE TO CREATE THE FEDERAL RESERVE (2016).

[94] For a detailed history of the Federal Reserve and its role in monetary policy, see ALLAN MELTZER, A HISTORY OF THE FEDERAL RESERVE, VOLUME 1: 1913-1951 (2004), VOLUME 2:1: 1951-1969 (2014), and VOLUME 2:2: 1969-1986 (2014).

[95] For a description of the Fed's role as lender of last resort, especially during the global financial crisis, see Dietrich Domanski, Richhild Moessner & William Nelson, *Central Banks as Lender of Last Resort: Experiences During the 2007–2010 Crisis and Lessons for the Future, Federal Reserve Board*, FEDERAL RESERVE BOARD, DIVISION OF RESEARCH, STATISTICS & MONETARY AFFAIRS, FIN. & ECON. DISCUSSION SERIES NO. 2014-110 (2014).

[96] For a detailed overview of this response and analysis of its legality, see Lev Menand, "Unappropriated Dollars: The Fed's Ad Hoc Lending Facilities and the Rules That Govern Them", Working Paper (May 22, 2020), https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=1562288.

of the Federal Reserve. The monetary liabilities of the Fed to repay these reserve balances then represent the ultimate settlement asset within the domestic banking system. As explained by long-time Federal Reserve payments expert Bruce Summers: "The central bank is the logical final settlement authority because of its unique status as an institution that does not pose credit or liquidity risks to its accountholders."[97]

Figure 2

Major U.S. Clearing Networks

Name	Est.	Ownership	Membership	Other Key Features
Fedwire	1918	Public	Approximately 5,500 deposit-taking institutions	• Large-value interbank clearing and settlement system • Real-time gross settlement via member accounts at the Federal Reserve • Operates 21.5 hours/day, business days only
CHIPS	1970	Private	48 member banks	• Large-value interbank clearing and settlement system • Deferred net settlement funded via transfers from Fedwire
FedACH	1981	Public	Approximately 5,500 deposit-taking institutions	• Small-value interbank clearing system • Deferred net settlement via member accounts at the Federal Reserve
EPN	1981	Private	Approximately 450 deposit-taking institutions	• Small-value interbank clearing system • Deferred net settlement via member accounts at the Federal Reserve
RTP	2017	Private	92 member banks	• Small-value interbank clearing and settlement system • Real-time gross settlement via a joint account held by members at the Federal Reserve • Operates 24 hours/day, seven days a week

The second group of core institutions consists of a small network of public and private clearinghouses. Technological advances over the course of the past several decades have resulted in a marked increase in the volume of electronic payments between banks.[98] As these payment volumes have increased, so too have the demands on the technological and administrative infrastructure of both individual banks and the Federal Reserve System. Reflecting their historical role, modern clearing networks have stepped into this breach by employing highly automated processes to clear the vast majority of interbank payments, before routing these payments to the Federal Reserve for final settlement.[99] However, in stark contrast with the 19th and early 20th centuries, these clearing networks are now highly concentrated: with five national networks dominating the U.S. market. Figure 2 lists these

[97] Bruce Summers, "The Payment System in a Market Economy", in BRUCE SUMMERS (ED.), THE PAYMENT SYSTEM: DESIGN, MANAGEMENT, AND SUPERVISION 5 (1994).

[98] For annual payment statistics collected by the Committee on Payments and Market Infrastructure (CPMI), see Bank for Int'l Settlements, *Payment, Clearing, and Settlement Statistics*, https://www.bis.org/statistics/payment_stats.htm?m=3|16|385.

[99] In theory, banks can also settle these payments using private settlement agents or their correspondent accounts with other banks.

clearing networks and describes their ownership structure, membership, and other key features.

The third group of core institutions is, of course, banks. At the beginning of 2020, the United States was home to over 4,500 licensed commercial banks, over 5,200 credit unions, and 659 thrifts.[100] Despite this extremely high level of industry fragmentation, the vast majority of payments are cleared and settled through a relatively small number of very large banks. Research conducted by the Federal Reserve, for example, found that just 66 banks—less than 1 percent of licensed deposit-taking institutions—accounted for roughly 75 percent of the total volume of payments between banks.[101] Using techniques from network topology, the same researchers then mapped the interconnections between all the banks within the U.S. payment network. They found that while almost 50 percent of banks had less than four direct connections with other banks, the largest banks averaged more than 2,000 connections.[102] The result is a large, diffuse network of relatively small banks surrounding a tightly-knit core of large and highly-interconnected money center banks.[103]

So what exactly does the flow of money look like within the current U.S. payment system? Figure 3 depicts the stylized sequence of events in a typical "push" payment.[104] The process begins when the payee, who holds an account at Bank B, issues an invoice requesting payment in the amount of $100 from the payor (*step 1*). Upon receipt of this invoice, the payor then instructs its bank, Bank A, to transfer $100 from her account to the payee's account at Bank B (*step 2*). Bank A will then transmit the details of this and any other transactions to the clearinghouse which, after sorting, calculating, reconciling, and confirming payments owed by or to each bank (*step 3*), will communicate the net payment obligations between Bank A and B to the Federal Reserve (*step 4*). Final settlement then takes place on the books of the Fed: with $100 transferred from the master account of Bank A to the master account of Bank B (*step 5*).[105] If Bank B has not already done so, it will then credit $100 to the payee's account.

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[100] *See* Federal Deposit Insurance Corporation (FDIC), *Statistics at a Glance* (December 31, 2019), https://www.fdic.gov/bank/statistical/stats/2019dec/industry.pdf and National Credit Union Administration, Quarterly Credit Union Data Summary Q4-2019 (December 31, 2019), https://www.ncua.gov/files/publications/analysis/quarterly-data-summary-2019-Q4.pdf.

[101] *See* Kimmo Soramäki, Morten Bech, Jeffrey Arnold, Robert Glass & Walter Beyeler, *The Topology of Interbank Payment Flows*, FED. RES. BANK OF N.Y. STAFF REPORT NO. 243 (March 2006), 2-3 (figures reported by dollar value).

[102] *Id.*, 5. *See* also Adam Copeland & Rodney Garratt, *Nonlinear Pricing and the Market for Settling Payments*, 51:1 J. OF MONEY, CREDIT & BANKING 195 (February 2019), 207 (reporting that while 50% of banks processed less than 148 payments per month via Fedwire, a major wholesale payment system described in greater detail below, the top 0.5% of banks processed over 1,483,387 payments per month).

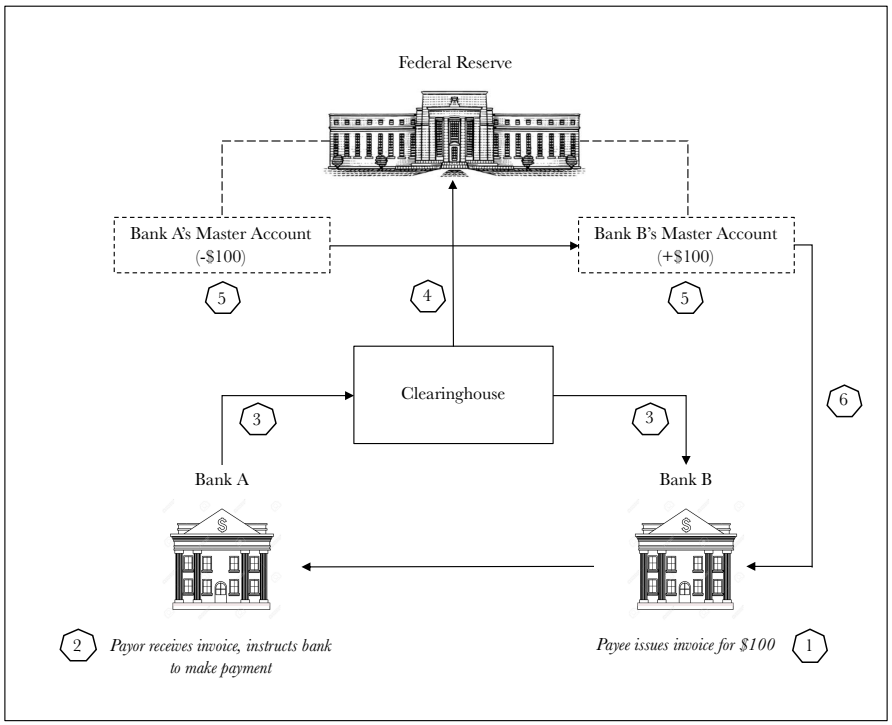
[103] Soramäki et al., *supra* note __.

[104] This form of payment can be contrasted with so-called "pull" payments initiated by the payee. For the purpose of Figure 3, the only difference between the two is the reversal of steps 1 and 2.

[105] For the sake of simplicity, we assume here that the $100 is the only payment between accountholders at Bank A and Bank B over the relevant period.

Figure 3

The Stylized Flow of Money Within the U.S. Payment System



What this description makes clear is that banks are deeply embedded at virtually every stage of the payment process. Banks are the interface through which most people make and receive electronic payments.[106] Banks are also members—and often owners—of the clearing networks that process the vast majority of payments. And perhaps most importantly, banks have access to the Federal Reserve master accounts that represent the fastest, most convenient, and most reliable means of final settlement. On its own, the centrality of banks within the U.S. payment system is not necessarily problematic. Yet as we shall see, this centrality can generate significant distortions where the law *privileges* the monetary liabilities of banks, grants them *exclusive access* to our basic financial infrastructure, and provides a range of *regulatory subsidies* that entrench the existing system of banking, money, and payments.

II. HOW THE LAW ENTRENCHES BUNDLING

There are a variety of reasons why banking, money, and payments have remained so deeply intertwined for so long. The first is simple path dependence: once a set of institutional arrangements has taken root, high switching costs and other factors can make it extremely

[106] Indeed, as described in greater detail in Parts II and III, even where banks are not the interface, they are typically the conduit through which payments are ultimately settled.

difficult to supplant them.[107] Compounding matters, both banking and payments exhibit significant economies of scale.[108] Money and payments, meanwhile, are characterized by pronounced network effects.[109] Together, these economies of scale and network effects can create significant barriers to entry, thus further entrenching existing institutional arrangements. With greater scale then comes greater economic importance and, ultimately, greater political influence—and specifically the power to shape the law and regulation in ways that reinforce the comparative advantage of incumbent firms and industries, thereby erecting yet further barriers to entry.[110] Viewed from this perspective, it is hardly surprising that banks have become so firmly entrenched at the heart of our systems of money and payments.

What is perhaps more surprising—or at least far less well understood—are the important roles that the law plays in entrenching the tightly bundled relationship between banking, money, and payments.[111] Broadly speaking, the law privileges and protects this

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[107] The term "path dependence" is used to mean different things in different contexts; see Scott Page, *Path Dependence*, 1 Q. J. POL. SCI. 87, 91 (2006). For the present purposes, the term is being used to encapsulate the idea that *prior* states of the world have an influence on the current and future states of the world via mechanisms such as high switching costs; see DOUGLASS NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE, 94 (1990).

[108] Economies of scale exist when the average unit costs of production *decrease* when the number of units produced *increases*, thereby giving larger firms an advantage over smaller firms. For recent empirical research examining the existence of economies of scale in banking, see David Wheelock & Paul Wilson, *The Evolution of Scale Economies in U.S. Banking*, 33:1 J. OF APP. ECONOMETRICS 16 (2018); Joseph Hughes & Loretta Mester, "The Future of Large, Internationally Active Banks: Does Scale Define the Winners?" in Douglas Evanoff (ed.), THE FUTURE OF LARGE, INTERNATIONALLY ACTIVE BANKS (2016); Anne Kovner, James Vickery & Lily Zhou, *Do Big Banks Have Lower Operating Costs?*, 3:1 J. ECON. PERSPECTIVES 1 (2015); Elena Becalli, Mario Anolli & Giuliana Borello, *Are European Banks Too Big? Evidence on Economies of Scale*, 58 J. OF BANKING & FIN. 232 (2015); David Wheelock & Paul Wilson, *Do Large Banks Have Lower Costs? New Estimates of Returns to Scale for US Banks*, 44 J. OF MONEY, CREDIT & BANKING 171 (2015); Guohua Feng & Apostolos Serletis, *Efficiency, Technical Change, and Returns to Scale in Large US Banks: Panel Data Evidence from an Output Distance Function Satisfying Theoretical Regularity*, 34 J. OF BANKING & FIN. 127 (2010). For empirical research examining economies of scale in payment systems, see Christine Beijnen & Wilco Bolt, *Size Matters: Economies of Scale in European Payments Processing*, 33 J. OF BANKING & FIN. 203 (2009); Wilco Bolt & David Humphrey, *Payment Network Scale Economies, SEPA, and Cash Replacement*, 6 REV. OF NETWORK ECON. 453 (2007); Robert Adams, Paul Bauer & Robin Sickles, *Scope and Scale Economies in Federal Reserve Payment Processing*, FED. RES. BANK OF CLEVELAND WORKING PAPER 02-13 (November 2002); Paul Bauer & Gary Ferrier, *Scale Economies, Cost Efficiencies, and Technical Change in Federal Reserve Payments Processing*, 28:4 J. OF MONEY, CREDIT & BANKING 1004 (1996).

[109] Network effects exist when the introduction of new users to a network increases the value of the network to existing users, thereby giving larger networks an advantage over smaller networks. For empirical research examining network effects in monetary and payment systems, see e.g. Sujit Chakravorti & Roberto Roson, *Platform Competition in Two-Sided Markets: The Case of Payment Networks*, 5:1 REV. OF NETWORK ECON. 118 (2006) (examining network effects in payment networks); James McAndrews, *Network Issues and Payment Systems*, FED. RES. BANK OF PHILADELPHIA BUS. REV. 15 (November/December 1997) (examining network effects in payment systems); Kevin Dowd & David Greenaway, *Currency Competition, Network Externalities and Switching Costs: Toward an Alternative View of Optimal Currency Areas*, 103 ECON. J. 1180 (1993) (examining network effects in monetary systems).

[110] *See* George Stigler, *The Theory of Economic Regulation*, 2:1 THE BELL J. OF ECON. & MAN. SCI. 3 (1971) (analyzing the interaction between the demand for regulation by incumbent industries and its supply by political actors).

[111] Of course, the notion that the law would entrench the position of incumbent banks is entirely consistent with Stigler's theory of economic regulation; *id.*

bundling in three ways. First, by providing banks with a robust financial safety net, the law gives these institutions a comparative advantage in the creation of monetary liabilities: transforming otherwise risky deposits into the bedrock of our monetary system.[112] Second, by granting banks exclusive access to Federal Reserve master accounts, the law effectively bars emerging competitors from direct participation in the U.S. payment system. Third, through low profile and highly technocratic mechanisms such as brokered deposit rules, the law is continually changing in ways that make it less costly for banks to embed their products and services into the business models of their nascent competitors. This Part explores these important, complex, and multifaceted roles in greater detail.

A. The Financial Safety Net

The first way that the law entrenches bundling is by extending banks a unique, public, and highly credible financial safety net. The rationale for this safety net is typically grounded in the observation that banks are susceptible to destabilizing depositor *runs*. The business of banking is based on leverage: with banks obtaining the vast majority of their financing through the issuance of deposits and other short-term debt.[113] Banks then combine this short-term financing with investments in longer term, risky, and illiquid loans and other assets. Ultimately, it is the mismatch created by this combination of short-term, highly liquid debt with longer term, risky, and illiquid assets that makes banks vulnerable to runs by depositors and other short-term creditors.[114]

The financial safety net seeks to reduce the probability and impact of bank runs in three principal ways. First, the Federal Reserve Act authorizes the Fed to provide financial assistance to banks through both its discount window and open market operations.[115] These "lender of last resort" facilities enable a bank facing an incipient run to transfer its longer term, less liquid loans and other assets to the Fed in exchange for highly liquid funds—typically in

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[112] Awrey, *supra* note __.

[113] As of September 2019, for example, over 77 percent of the financing obtained by banks and other depositary institutions insured by the Federal Deposit Insurance Corporation (FDIC) took the form of demand deposits and other short-term debt. *See* FDIC, QUARTERLY BANK PROFILE: THIRD QUARTER 2019 (2019), https://www.fdic.gov/bank/analytical/qbp/2019sep/qbp.pdf#page=1.

[114] The vulnerability of banks to runs is typically framed in one of two ways. The first account, articulated by economists Douglas Diamond and Philip Dybvig, views runs as a coordination problem amongst a bank's dispersed depositors; Douglas Diamond & Philip Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983). For a critique of this account see Kevin Dowd, *Models of Banking Instability: A Partial Review of the Literature*, 6:2 J. ECON. SURVEYS (1002). The second account views runs as a product of the realization by depositors and other short-term creditors that the claims they previously believed to represent reliable stores of nominal value—or "moneyness"—are in fact sensitive to the revelation of new information about a bank's creditworthiness, the quality of its underlying assets, or other variables; see Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 425 (2012); Bengt Holmstrom, *Understanding the Role of Debt in the Financial System*, BANK FOR INTERNATIONAL SETTLEMENTS WORKING PAPER NO. 479 (2015), https://www.bis.org/publ/work479.pdf.

[115] Federal Reserve Act 12 U.S.C. §§ 221–522 (2018) [hereinafter FRA], § 10B (authorizing the Fed's regional reserve banks to extend discount window loans to member banks) and § 14 (authorizing the Federal Reserve Board to purchase or sell gold and U.S. treasury securities on the open market, along with any cable transfers, bankers' acceptances, or bills of exchange eligible for discounting under § 10B).

the form reserve balances credited to the bank's master account.[116] These reserve balances can then be used by the bank to pay its ongoing liabilities to depositors and other creditors. In effect, these lender of last resort facilities serve to relax the bank's liquidity constraint: thus avoiding the fire sale of illiquid loans or other assets, and enabling the bank to remain open for business under conditions where almost any other type of enterprise would be forced into bankruptcy.

The second way that the financial safety net seeks to address the problem of bank runs is through an expansive system of deposit insurance. The first federal deposit insurance scheme was introduced under the Banking Act of 1933.[117] The Banking Act created the Federal Deposit Insurance Corporation (FDIC) and established a guarantee scheme that provided the depositors of failed banks with compensation of up to $2,500.[118] Today, the FDIC insures 100 percent of covered deposits up to a maximum of $250,000 per depositor per bank.[119] Importantly, the FDIC commits to compensate depositors of failed banks within an extremely short timeframe—typically in as little as one business day.[120] The FDIC thus effectively steps into the shoes of a failed bank: honoring its commitment to return depositors' money on demand. In order to make this commitment credible, this compensation is provided by a dedicated deposit insurance fund that, in the normal course, is financed by *ex ante* contributions from banks and other insured depository institutions.[121] In theory, the existence of the FDIC's deposit insurance scheme thus reduces the incentives of depositors to engage in destabilizing runs.[122] In practice, the effect is to insulate covered depositors from the risk of bank failure.

The same New Deal reforms that established the FDIC and introduced federal deposit insurance also created the third core pillar of the financial safety net: a special bankruptcy or "resolution" regime for failing banks.[123] Between 1865 and 1933, the standard bankruptcy practice was to treat the depositors of a failed bank in the same fashion as its other unsecured

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[116] In the case of discount window lending, this transfer is facilitated by way of a *loan* collateralized against the bank's assets. In the case of open market operations, this transfer is facilitated by way of the *sale* of these assets to the Federal Reserve. While originally created for the purpose of providing banks with assistance during periods of financial distress, today open market operations are more commonly viewed as a monetary policy tool.

[117] *See* Banking Act of 1933, Pub. L. No. 73–66, § 8, 48 Stat. 162 [hereinafter Banking Act of 1933]. Before 1933, several states had experimented with forms of deposit insurance. For a more detailed history of these state-level deposit guarantee schemes, see FDIC, *A Brief History of Deposit Insurance in the United States* (1998), https://www.fdic.gov/bank/historical/brief/brhist.pdf.

[118] Banking Act of 1933, § 8.

[119] *See* Federal Deposit Insurance Act, Pub. L. No. 81–797, § 11, 64 Stat. 873 [hereinafter FDIA].

[120] *See* FDIC, *FDIC Consumer News* (December 22, 2014), https://www.fdic.gov/consumers/consumer/news/cnfall14/misconceptions.html.

[121] *See* FDIA, § 7 and 11(4).

[122] *See* Diamond & Dybvig, *supra* note __, 413 (describing how deposit insurance eliminates coordination problems amongst depositors by rendering them indifferent to the effects of bank failure).

[123] *See* Banking Act of 1933, § 8.

creditors.[124] Depositors would thus have to wait until the conclusion of any bankruptcy process before getting their money back.[125] The FDIC has estimated that this process typically took somewhere in the neighborhood of six years.[126] Even then, where the eventual liquidation of a failed bank did not generate enough cash to fully repay its creditors, depositors would often only receive pennies on the dollar.[127] Understandably, this prospect only served to reinforce the incentives of depositors to run at the first sign of trouble.

The Banking Act of 1933 circumvented this standard bankruptcy practice by mandating the appointment of the FDIC as the receiver for all national banks. Today, the FDIC is also the receiver for the state-chartered banks, thrifts, and other depository institutions for which it provides deposit insurance. In this capacity, the FDIC has a duty to maximize the value of the assets of a failed bank, whilst simultaneously minimizing any compensation that must be paid by the deposit insurance fund.[128] The FDIC has been given several tools in pursuit of these objectives, including the ability to write-down a bank's liabilities, convert its outstanding debt into equity, repudiate its contracts, and transfer its assets to either a private sector purchaser or public sector bridge bank.[129] Armed with these tools, the expectation is that the FDIC will trigger the resolution process after the close of business on Friday afternoon, with the newly restructured or acquired bank then able to open its doors for business as usual on Monday morning. Accordingly, while the resolution process can unfold in a variety of different ways, the result in all cases is once again to insulate depositors from the adverse consequences of bank failure.

This financial safety net is far from perfect. Perhaps most importantly, it is the source of moral hazard problems that require an enormously complex and controversial system of bank entry and activity restrictions, capital and liquidity regulation, and intensive prudential supervision.[130] Yet what is most important from our perspective is the impact of this safety net on the relationship between banks and money. Crucially, each pillar of the safety net enhances the credibility of a bank's core commitment to its depositors: enabling them to deposit,

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[124] *See* FDIC, RESOLUTIONS HANDBOOK 24–25 (2014), https://www.fdic.gov/about/freedom/drr_handbook.pdf. Indeed, in many respects, bank receivership was even less favorable to depositors and other unsecured creditors than normal corporate bankruptcy processes; see STEPHEN LUBBEN, THE LAW OF FAILURE: A TOUR THROUGH THE WILDS OF AMERICAN BUSINESS INSOLVENCY LAW, 103-104 (2018).

[125] FDIC Resolutions Handbook, *supra* note __.

[126] *Id.*

[127] Between 1921 and 1930, the United States experienced over 1,200 bank failures. Amongst those failures, depositors of state-chartered banks were on average able to recover 62 percent of their deposits. For national banks, the equivalent figure was 58 percent. *Id.*

[128] *See* FDIA, § 11(d)(13)(E) (requiring the FDIC to maximize the net present value, or minimize any loss, from the sale of a failed bank's assets); 12 C.F.R. § 360.1 (requiring the FDIC to pursue the resolution option that would impose the lowest costs on the deposit insurance fund).

[129] *See* FDIA, § 8 and 11 (describing in full the FDIC's powers as receiver). In practice, most failed banks are sold via a process known as "purchase and assumption." *See* BARR ET AL., *supra* note __, 966–68 (describing the purchase and assumption process). For a more detailed examination of the development and evolution of special resolution regimes, see John Armour, *Making Bank Resolution Credible*, *in* NIAMH MOLONEY ET AL. (EDS.), THE OXFORD HANDBOOK OF FINANCIAL REGULATION (2015).

[130] These regulatory frameworks are discussed in greater detail in Part III.B.

transfer, and withdraw their money on demand. The Fed's lender of last resort facilities prevent runs from triggering the failure of fundamentally solvent banks, thereby ensuring that they can continue to honor their obligations to depositors under conditions where most firms would be forced to close their doors. The FDIC's deposit insurance scheme, meanwhile, ensures that covered depositors are promptly and, in the vast majority of cases, fully compensated when a bank crosses over into insolvency. Lastly, the FDIC's special resolution regime relaxes the harsh strictures of general corporate bankruptcy law: ensuring that depositors of a failed bank are not deprived of access to their money during what might otherwise be a lengthy and uncertain legal process.

Ultimately, this financial safety net is what transforms a bank's otherwise risky deposit liabilities into so-called "safe assets"[131]—and why the public almost universally trusts them as a source of "good money".[132] Even more importantly, this safety net is only available to banks, savings associations, and a limited range of other "insured depository institutions".[133] Accordingly, while virtually anyone can promise that you will always be able to deposit, transfer, and withdraw your money on demand, only banks can back this promise up with an explicit and highly credible public safety net. This gives banks an enormous comparative advantage over other private firms in the issuance of monetary liabilities. It is thus little wonder that banks have become so firmly entrenched as the dominant source of our money in the money economy.

B. Restrictions on Infrastructure Access

In the aftermath of the global financial crisis, the financial safety net has come under considerable and largely justifiable scrutiny.[134] What has received far less attention is how the law grants banks exclusive access to the key technological and operational infrastructure that connects and drives the U.S. payment system.[135] Pursuant to § 13.1 of the Federal Reserve Act, the Fed's regional reserve banks are only permitted to accept deposits from "member banks", "other depository institutions", or, for a limited range of purposes, any "nonmember

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[131] *See* Anna Gelpern & Erik Gerding, *Inside Safe Assets*, 33 YALE J. ON REG. 363, 387–404 (2016); Robert Hockett & Saule Omarova, *The Finance Franchise*, 102 CORNELL L. REV. 1143, 1150–65 (2017); RICKS, *supra* note __ (all describing the role of various components of the financial safety net in manufacturing safe assets).

[132] Awrey, *supra* note __.

[133] Technically, while the Fed is only authorized to extend discount window loans to banks that are members of the Federal Reserve System (Federal Reserve Act, § 10B(a)), it is authorized to enter into open market transactions with a broader range of counterparties that includes "domestic or foreign banks, firms, corporations or individuals" (§ 14.1). The FDIC's deposit insurance scheme and special resolution regime, meanwhile, are only available to banks, savings associations, and other insured depository institutions; see FDIA, § 3(c)(2), 5, and 11(d).

[134] *See e.g.* Jaime Caruana, "Post-Crisis Financial Safety Net Framework: Lessons, Responses, and Remaining Challenges", Keynote Address at the FSI-IADI Conference on Bank Resolution, Crisis Management, and Deposit Insurance Issues (December 6, 2016), https://www.bis.org/speeches/sp170105.pdf.

[135] Two notable exceptions are Morgan Ricks and Colleen Baker, both of whom have called out the privileged access that banks enjoy; Morgan Ricks, *Money as Infrastructure*, COL. BUS. L. REV. 758, 774 (2018) and Colleen Baker, "Master Accounts at the Fed: An Arcane But Highly Important Issue", BUSINESS LAW PROF BLOG (March 29, 2020), https://tinyurl.com/yxpvk4pv.

bank or trust company".[136] As reflected in the Fed's operating rules[137], jurisprudence[138], and academic commentary[139], the practical effect of § 13.1 is thus to restrict eligibility to open a Federal Reserve master account to commercial banks, mutual and federal savings banks, savings and loan associations, and credit unions.[140] Whereas banks are permitted to settle their obligations to one another on the accounts of the Federal Reserve, the rest us are therefore forced to transact through banks as the gatekeepers of the payment system.

In reality, even eligible banks have sometimes encountered significant obstacles when applying for a Federal Reserve master account. A recent case in point is the application of TNB USA Inc. for a master account with the Federal Reserve Bank of New York (FRBNY). TNB—which stands for The Narrow Bank—is a state-chartered bank established with the objective of offering large institutional investors a safe place to park their money at attractive interest rates.[141] Rather than using deposits to make loans or other investments, TNB's plan was to hold the vast majority of its assets in the form of reserve balances in its Federal Reserve master account.[142] When TNB received its temporary charter in August 2017, these reserve balances were paying an annualized interest rate of 1.25 percent—far higher than interest rates offered by conventional banks.[143]

TNB's application for opening a master account consisted of a one page standard form agreement that stated that the application process "may take 5-7 business days".[144] Despite this statement, TNB was forced to wait over six months before eventually being informed that the Fed had "policy concerns" regarding its application.[145] In August 2018, TNB filed a complaint in the Southern District of New York seeking declaratory judgment and injunctive relief requiring the FRBNY to open an account in TNB's name.[146] This complaint was

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[136] FRA, § 13.1.

[137] Federal Reserve Banks Operating Circular 1: Account Relationships (February 1, 2013), ss. 2.2-2.3, https://www.frbservices.org/assets/resources/rules-regulations/020113-operating-circular-1.pdf.

[138] *See e.g. Fourth Corner Credit Union* v. *Fed. Reserve Bank of Kansas City*, 861 F.3d 1052, 1053 (10th Cir. 2017) ("A master account, simply put, is a bank account *for banks*.") [emphasis added].

[139] *See* Ricks, *supra* note __, 774.

[140] In addition to these deposit-taking institutions, the Federal Reserve is authorized to maintain accounts for the U.S. Treasury (Federal Reserve Act, § 15), foreign governments and central banks (§ 14e), international organizations such as the International Monetary Fund and World Bank (12 U.S.C. § 286d), designated financial market utilities (12 U.S.C. §5465), and specific government-sponsored entities (12 U.S.C. § 1435, 1452(d) and 1723a(g)).

[141] *See* TNB, "About Us", https://www.tnbusa.com/about/.

[142] *See* Complaint in *TNB USA Inc.* v. *Federal Reserve Bank of New York*, United States Distinct Count in the Southern District of New York (August 31, 2018), ¶ 2 [hereinafter TNB Complaint].

[143] *See* FRED Database, Federal Reserve Interest on Required Reserves (IORR), https://fred.stlouisfed.org/series/IORR and Federal Reserve Interest on Excess Reserves (IOER), https://fred.stlouisfed.org/series/IOER.

[144] *See* Opinion and Order, *TNB USA Inc.* v. *Federal Reserve Bank of New York*, S.D.N.Y. (D.C.) (March 25, 2020), 4 [hereinafter TNB Decision].

[145] TNB Decision, *supra* note __, 6.

[146] *See* TNB Complaint, *supra* note __.

subsequently dismissed on standing and ripeness grounds in March 2020[147] and, as of writing, TNB is still waiting for a decision on its application. The FRBNY's message thus appears to be that, not only must a financial institution be a bank in order to open a master account, but the bank's business model must not explicitly seek to capitalize on the unique advantages that come with access to this vital financial infrastructure.

The Federal Reserve Act's eligibility restrictions become even more critical once we expand our frame to encompass the central operational role of master accounts within the U.S. payment system. As described in Part I, the operational frameworks of each of the five major U.S. clearing networks contemplate final settlement of net payments through Federal Reserve master accounts.[148] In the case of Fedwire, CHIPS, FedACH, and EPN, these net payments settle on the master accounts of individual member banks.[149] In the case of RTP, net payments settle within a master account held jointly for the benefit of the network's members.[150] Given this important operational role, having a Federal Reserve master account is understandably a threshold condition for membership in these clearing networks. The Rules and Administrative Procedures governing CHIPS, for example, restrict direct participation to depository institutions that "have an account on the books of a Federal Reserve Bank."[151] The Participation Rules for RTP similarly restrict direct participation to depository institutions that have "an account with a Federal Reserve bank".[152] The practical effect of the Federal Reserve Act's strict eligibility requirements for master accounts is therefore to bar all financial institutions, businesses, and individuals other than banks from direct access to the U.S. payment system.

To sum up, the Federal Reserve Act dictates that only banks and other depository institutions have access to the Federal Reserve master accounts that represent the fastest, most convenient, and most reliable means of final settlement in our current payment system. And since the current payment system is built around these master accounts, this effectively excludes financial institutions other than banks from direct access to the major clearing networks. Importantly, this leaves financial institutions that aspire to compete with banks in the highly lucrative payments industry with a stark and unpalatable choice. First, they can themselves become conventional deposit-taking banks: incurring the time, expense, and ongoing regulatory compliance burdens that this entails. This option is particularly costly for

[147] *See* TNB Decision, *supra* note __.

[148] *See* Figure 2.

[149] Typically, the clearing network itself will also have a (pre-funded) master account for the purpose of making (receiving) payments to (from) member banks; see e.g. CHIPS Rules and Administrative Procedures (April 1, 2020), Rule 12, https://tinyurl.com/y2rnqo9p [hereinafter CHIPS Rules].

[150] RTP Operating Rules (October 30, 2020), Rule VI, https://tinyurl.com/y49r4s2u.

[151] CHIPS Rules, Rule 19(i)(1)(A). In addition to depository institutions, CHIPS Rules also contemplate direct access for foreign banks and Edge Act or Agreement corporations with an account at a Federal Reserve Bank; *id.* While CHIPS Rules also contemplate i*ndirect* participation, indirect participants must still be depository institutions; Rule 19(a)(1).

[152] RTP Participation Rules (November 18, 2019), Rule 1.A.3, https://tinyurl.com/tkm79zl. For the purposes of Rule 1.A.3, a "depository institution" means an entity that is an (1) "insured depository institution" as defined in the FDIA; (2) uninsured branch or agency of a foreign bank that is included in the term "insured depository institution" under the FDIA, or (3) "insured credit union" as defined in the Federal Credit Union Act, 12 U.S.C. §1752(7); *id.*, Rule 1.A.B.

financial institutions—like TNB—that have no intention of combining deposit-taking with the extension of loans and other forms of credit to the public. Second, they can enter into agreements with banks—their primary competitors—that give them indirect access to the basic clearing and settlement architecture. Either way, the consequence is to further entrench the role and importance of banks at the heart of the current payment system. As explored in greater detail in Part III, this has significant implications for the competitive structure of the U.S. payments industry.

C. Brokered Deposit Rules

The financial safety net and restrictions on access to basic financial infrastructure are not the only ways that the law privileges and protects banks. Indeed, bank regulation is constantly changing in response to new technological, financial, and other developments that threaten the dominant position of banks at the apex of our intertwined systems of money and payments. In most cases, these responses are not implemented through Acts of Congress or major regulatory initiatives. They attract few newspaper headlines, scant academic commentary, and little or no public attention. Instead, these responses generally fly under the radar as part of the day-to-day process of revising and updating low profile and highly technical agency rules and procedures. Recent amendments to the FDIC's rules governing so-called "brokered deposits" offer a timely and illuminating example.

Historically, brokered deposits consisted of large denomination deposits that were negotiated between banks and third party deposit brokers. These deposit brokers would pool money from individual investors and then invest it in either an interest-bearing account or certificate of deposit with a commercial bank. For investors, these brokered deposits typically offered higher interest rates than those available on retail savings products. For banks, brokered deposits were viewed as a large and relatively cheap source of liquid financing.[153] Yet for bank supervisors such as the FDIC, brokered deposits were a source of two potentially significant risks. The first was that, due to the size of these deposits and the power wielded by deposit brokers, brokered deposits exposed banks to large, correlated, and potentially destabilizing withdrawals.[154] The second was that competition for brokered deposits would compel banks to offer unsustainably high interest rates, reducing bank profitability and driving them to make more risky loans and other investments.[155] In the eyes of many observers, this second risk played an important role in setting the stage for the Savings and Loan Crisis of the late 1980s and early 1990s.[156]

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[153] While banks would typically pay higher interest rates on brokered deposits, they often considered them relatively "cheap" sources of financing because of the associated savings on marketing, administration, and other expenses.

[154] FDIC, Advance Notice of Proposed Rulemaking, "Unsafe and Unsound Banking Practices: Brokered Deposits and Interest Rate Restrictions", FED. REG. 84:25 2366, 2366 (February 6, 2019) [hereinafter FDIC ANPR].

[155] *Id.*

[156] *See e.g.* Robert Laughlin, *Causes of the Savings and Loan Debacle*, 59:6 FORDHAM L. REV. S301, S315-S318 (1991) (describing brokered deposits as sparking interest rate competition among thrifts). Ultimately, however, the empirical case for the claim that brokered deposits played a significant role in the crisis is mixed. Specifically, while brokered deposits no doubt contributed to the rapid growth of many savings and loan

Today, brokered deposits represent approximately $1.1 trillion—or 8.5 percent—of the nearly $13 trillion deposited with U.S. banks.[157] Pursuant to § 29 of the Federal Deposit Insurance Act, the ability of a bank to accept brokered deposits hinges on the FDIC's assessment of its regulatory capital position.[158] Specifically, whereas "well capitalized" banks are not subject to any restrictions on their ability to accept brokered deposits, "adequately capitalized" banks must first apply to the FDIC for approval on the grounds that accepting these deposits would not constitute an "unsafe or unsound practice".[159] At the other end of the spectrum, "undercapitalized banks" are completely prohibited from accepting brokered deposits.[160] While there is a strong theoretical case for this differential regulatory treatment, these restrictions arguably have little practical impact given that the FDIC currently considers well over 99 percent of insured depository institutions to be well capitalized.[161]

From the perspective of banks, the far more costly feature of the FDIC's rules is that high concentrations of brokered deposits can attract higher deposit insurance premiums. In fact, depending on the FDIC's assessment of its risk profile, brokered deposits can account for up to 25 percent of a "large and highly complex" bank's total premiums—and up to over 45 percent for a small and newly established bank.[162] Brokered deposits are also treated as a less stable source of funding for the purposes of calculating a bank's liquidity coverage ratio: a key tool for ensuring that banks hold sufficient cash and other high quality, liquid assets in order to meet their obligations to depositors and other short-term creditors.[163] In effect, banks that rely more heavily on brokered deposits are thus required both to make larger contributions to the FDIC deposit insurance fund and to hold more liquid assets in reserve—assets that would otherwise be available for the purposes of making loans and other more profitable investments.

All this makes the definition a brokered deposit extremely important. For the purposes of § 29, this hinges on the definition of a "deposit broker", a category that includes "any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions or the business of placing deposits with insured

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associations, it is not clear that savings and loan associations that relied more heavily on brokered deposits were more likely to fail during the crisis. For a summary of the empirical literature, see David Pyle, "The U.S. Savings and Loan Crisis", in ROBERT JARROW ET AL. (EDS.), HANDBOOK ON OPERATION RESEARCH & MANAGEMENT SCIENCE (1995).

[157] FDIC, Proposed Rules, "Unsafe and Unsound Banking Practices: Brokered Deposit Rules", FED. REG. 85:27 7453, 7464 (February 10, 2020) [hereinafter FDIC Proposed Rules].

[158] § 29 of the FDIA is then supplemented by a more detailed set of FDIC rules and procedures; see 12 C.F.R. § 337.6 (Brokered deposits) [hereinafter FDIC Brokered Deposit Rules].

[159] FDIA, § 29(a) and (c) and FDIC Brokered Deposit Rules, § 337.6(a)(3)(i) and 337.6(b)(1)-(3).

[160] *Id.*

[161] *See* S&P Global Market Intelligence, "10 U.S. Banks are Undercapitalized" (March 18, 2019), https://tinyurl.com/y6alko5z.

[162] *See* FDIC Assessment Rates, https://www.fdic.gov/deposit/insurance/assessments/proposed.html.

[163] *See* Department of the Treasury, Federal Reserve System, and FDIC, Final Rule, "Liquidity Coverage Ratio: Liquidity Risk Measurement Standards", FED REG. 79:197, 61440 (October 10, 2014) (describing at various points how the risks associated with brokered deposits are factored into the calculation of the liquidity coverage ratio).

depository institutions for the purpose of selling interests in those deposits to third parties."[164] This definition is then subject to a number of exemptions, including one for agents or nominees "whose *primary purpose* is not the placement of funds with depository institutions."[165] Despite the primary purpose and other exemptions, the definition of a deposit broker—together with the FDIC's interpretation of this key term—has been roundly criticized by banks for potentially capturing a far broader range of transactions and relationships than would have historically been viewed as brokered deposits: with the result that a bank's advertising and marketing partners, technology platforms, and fintech firms all risk being classified as deposit brokers for the purposes of the FDIC's rules.[166]

One emerging line of business where the broad scope of the FDIC's brokered deposit rules has reportedly posed a particular challenge are the burgeoning correspondent relationships between banks and *non-bank* payment platforms such as PayPal, Venmo, Circle, and TransferWise. These platforms rely on banks to perform a variety of important functions. First, given the legal restrictions on their ability to directly access both Fed master accounts and the major clearing networks, these platforms are often forced to rely on banks to send and receive electronic payments on behalf of their customers.[167] In many cases, these payments also settle on accounts that the customers of these platforms hold with conventional deposit-taking banks. Second, many of these platforms pool customer funds and hold them in bank accounts, certificates of deposits, or other money market instruments. PayPal, for example, currently holds almost $25 billion in customer funds, the vast majority of which are invested with banks.[168] In theory, this last function in particular risks being interpreted by the FDIC as these platforms "placing" deposits with banks, thereby subjecting these banks to the enhanced deposit insurance premiums and liquidity coverage ratio requirements associated with brokered deposits.

In December 2018, the FDIC published an advance notice of proposed rulemaking seeking public input on possible changes to its brokered deposit rules in light of "significant changes in technology, business models, and products" since these rules were first introduced.[169] This was followed in February 2020 by a notice of proposed rulemaking[170] and, in December 2020, an announcement that the FDIC had approved new brokered deposit

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[164] FDIA, § 29(g)(1)(A) and FDIC Brokered Deposit Rules, § 337.6(a)(5)(i). § 337.6(a)(2) defines a brokered deposit as "any deposit that is obtained, directly or indirectly, from or through the mediation or assistance of a deposit broker".

[165] FDIA, § 29(g)(2)(I) [emphasis added].

[166] *See* FDIC Proposed Rules, 7454-7456 (describing the comments that the FDIC received in response to its 2018 advanced notice of proposed rulemaking).

[167] The only exception being where (1) both the payor and payee have proprietary accounts with the platform and (2) the payor elects to use any positive balance in their proprietary account to fund the payment to the payee. In this (limited) case, the payment would be processed by the platform and settled on the platform's proprietary accounts, thus completely circumventing the conventional payment system.

[168] *See* Paypal Holding, Inc., Annual Report (Form 10-K), 62 (February 6, 2020), https://investor.paypal-corp.com/node/10866/html#s1C367BFBF31B54739AAB95CC30496EA0 (disclosing "Funds payable and amounts due to customers").

[169] FDIC ANPR, 2366.

[170] *See* FDIC Proposed Rules.

rules.[171] At the heart of these new rules is a technical change to the definition of a deposit broker. Specifically, the FDIC has amended the primary purpose exemption to clarify that agents or nominees that place customer funds into "transaction accounts" held "for the purposes of enabling payments" will not be deemed to be acting as a deposit broker.[172] An agent or nominee will satisfy this new test where it can demonstrate compliance with two requirements. First, the agent or nominee must place 100 percent of its customer funds into transaction accounts at depository institutions.[173] Second, the banks in which these funds are deposited must pay no fees, interest, or other remuneration to the agent or nominee that has deposited these funds.[174] Where a bank wanted to pay depositors nominal interest or other remuneration, the FDIC would more closely scrutinize the case to determine whether the depositor was still eligible to make deposits under the exemption.[175] While the FDIC does not mention them by name, the proposal is clearly designed to exempt large denomination deposits by PayPal and other non-bank payment platforms from the application of its brokered deposit rules.

On the surface, the FDIC's new brokered deposit rules might seem like a reasonable and straightforward change designed to update an aging definition in response to new industry developments. Indeed, in many respects, that is exactly what it is. Yet this seemingly innocuous rule change will also have a number of potentially significant consequences—all of which further entrench banks as the gatekeepers of the U.S. payment system. As a preliminary matter, it is not clear why large denomination deposits by PayPal or other non-bank payment platforms represent a more stable source of financing than more conventional brokered deposits. Even if we do not think they are technically "deposit brokers", excluding the deposits of these platforms from the FDIC's brokered deposit rules would thus seem to represent little more than a case of incremental deregulation. More importantly for our purposes, excluding these platforms from the definition of a deposit broker means that the relevant deposits will not attract the higher deposit insurance premiums and liquidity coverage ratio requirements normally associated with brokered deposits. The net result will therefore be to reduce the overall regulatory compliance burden on banks in connection with their correspondent relationships with non-bank payment platforms.

In theory, we might expect at least some of these cost savings to be passed on to bank depositors in the form of lower fees, higher interest rates, or other benefits. Once again, however, the FDIC's new rules will tip the scales decidedly in favor of banks. As we have seen, non-bank payment platforms are often forced to maintain correspondent relationships with banks in order to gain access to the conventional payment architecture. Notably, the new rules further limit their options insofar as banks, ostensibly seeking to ensure compliance with the new primary purpose test, might demand that these platforms deposit 100 percent of their customer funds as a condition of any correspondent relationship. Compounding matters, these rules would then potentially limit the ability of banks to pay any interest on these deposits.

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[171] *See* FDIC, Unsafe and Unsound Banking Practices: Brokered Deposits and Interest Rate Restrictions, 12 C.F.R., Parts 303 and 337 (December 15, 2020) [hereinafter FDIC Final Rule].

[172] *Id.*

[173] *Id.*

[174] *Id.*

[175] *Id.*

Accordingly, even where platforms attempted to push back against these strict terms, the effect of the rules will still be to shift the bargaining power in these relationships even further toward banks. Paradoxically, it will also mean that the banking industry's cheapest and most captive source of financing may come from some of its potentially most disruptive competitors.

Together, the financial safety net, restrictions on infrastructure access, and brokered deposit rules privilege and protect conventional deposit-taking banks: thereby reinforcing the historical bundling of banking, money, and payments. The salient questions thus become: why should we care about this bundling? What distortions does it create? And what, if anything, can we do to eliminate these distortions without jeopardizing monetary and financial stability? It is to these important questions that we now turn.

III. THE DISTORTIONS CREATED BY BUNDLING

The historical bundling of banking, money, and payments has been the source of enormous benefits. For depositors, bank accounts offer a safe and secure environment in which to build and grow their hard-earned savings. Depositors can also use banks and their vast clearing networks to make and receive electronic payments: enabling them to transact with friends, family, businesses, and governments across the globe. Simultaneously, banks mobilize these savings for the purpose of making productive investments in the people, businesses, and governments that are the ultimate engines of economic growth and development. These important and intertwined benefits are reflected in the spectacular success of banks over the course of the 19th and 20th centuries.[176] Paradoxically, they are also reflected in their often even more spectacular failures.[177]

Yet like any constellation of institutional arrangements, the time inevitably comes when we are forced to reexamine their rationale, benefits, and costs in light of new developments. This Part examines the costs: and specifically the *distortions* created by the legally entrenched bundling of banking, money, and payments. Three distortions stand out. First, by providing banks with a robust financial safety net and exclusive access to Federal Reserve master accounts, the law distorts the competitive landscape for both money and payments: creating significant barriers to entry and, ultimately, undercutting financial innovation and inclusion. Second, by imposing strict rules on banks, the law incentivizes

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[176] This success can be measured in a number of different ways: including the number and size of banks, the scope of their activities, and the profits they generate. Of course, the ostensible success of banks on the basis of these measures must be distinguished from the broader and more important question of whether they have contributed to economic growth and development. On this question, the available empirical evidence is decidedly more mixed. For a useful overview of this evidence, see Howard Bodenhorn, *Two Centuries of Finance and Economic Growth in the United States, 1790-1980*, NAT'L BUREAU OF ECONOMIC RESEARCH WORKING PAPER NO. 22652 (September 2016), http://www.nber.org/papers/w22652.

[177] *See* Ben Bernanke, *Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression*, 73:3 AM. ECON. REV. 257 (describing the impact of bank failures during the Great Depression on credit allocation, screening and monitoring) and FRIEDMAN & SCHWARTZ, *supra* note __ (describing the impact of bank failures during the Great Depression on the money supply).

aspiring new entrants to engage in potentially destabilizing regulatory arbitrage. Remarkably, this regulatory arbitrage often forces these new entrants to rely on conventional deposit-taking banks. And last but not least, by preventing these new entrants from offering functionally substitutable products and services outside the conventional banking system, the law effectively increases our own reliance on banks, thus exacerbating the too-big-to-fail problem.

A. Less Competition, Innovation, and Inclusion

Perhaps the most significant distortions created by the law stem from its impact on competition. As a preliminary matter, the financial safety net gives banks a clear and obvious comparative advantage in the issuance of monetary liabilities. In theory, almost anyone can issue their own money: witness Ithaca hours, Brixton pounds, Canadian Tire money, and thousands of other small-scale private monies that have emerged throughout history.[178] In good times, when the issuers of these liabilities are fundamentally solvent and confidence is high, these private monies may appear to be close functional substitutes for conventional bank deposits—with holders viewing them as a reliable store of value and using them as a means of payment.

In bad times, however, when these issuers are in financial distress and confidence evaporates, the difference between bank deposits and these other monies becomes all too clear. Specifically, whereas the financial safety net serves to insulate depositors from the economic consequences of bank failure, the holders of these other monetary liabilities are subject to the strict substantive and procedural requirements of general corporate bankruptcy law.[179] As a result, if your bank fails, you are very likely to get your money back with 24 hours. But if PayPal fails, you may be waiting several years for your money and eventually get back only pennies on the dollar. Ultimately, this is the difference between good and bad money and why—despite all their manifest shortcomings—bank deposits continue to make up the vast majority of the money supply.

The law has a similar impact on competition in the payments industry. Most importantly, by restricting access to Federal Reserve master accounts and, indirectly, the major clearing networks, the law deprives non-bank payment platforms such as PayPal, Venmo, Circle, and Transferwise of an intermediate input that is essential to the products and services they offer to their customers. As described in Part II, payment systems are characterized by significant economies of scale, with the costs of operating a system *decreasing* as the number of member banks and volume of payments i*ncreases*. These systems are also characterized by pronounced network effects: with the benefits accruing to each user *increasing* with the size of the network. The conventional payment system capitalizes on these economies of scale and network effects through the use of clearinghouses that expand the payment networks of individual member banks to include the depositors of all other member banks—thus exponentially increasing the size of the payment network. In effect, these clearing networks serve as the rails of the modern payment system. As a result, any payment platform

[178] *See* http://www.ithacahours.com/ (describing Ithaca hours); https://brixtonpound.org/ (describing Brixton pounds); Harold Allen, "Canadian Tire Scrip", 119:12 NUMISMATIST MAG. 64 (December 2006) (describing Canadian Tire Money).

[179] For a more detailed description of the impact of corporate bankruptcy law on the ability of non-banks to honor their contractual commitments to customers, see Awrey, *supra* note __, 130-131.

that does not have access to these rails will be severely limited in terms of the timetables, routes, and destinations that it is able to offer its customers.

Payment platforms that do not have access these rails are essentially left with two unpalatable options. The first is to build their own financial infrastructure and attempt to attract customers and achieve scale organically by offering superior products and services. However, while this option might be attractive in a world of perfect competition, the path dependence, economies of scale, and network effects associated with the conventional payment system represent significant barriers to entry for platforms looking to establish and grow their business in this way. The second option, typically pursued in parallel with the first, is to enter into correspondent relationships with conventional deposit-taking banks. This option has the obvious and immediate benefit of giving platforms indirect access to the major clearing networks. Yet it also makes these platforms extremely reliant on banks for access to the vital infrastructure necessary for them to successfully compete with the very same banks. To continue with the railroad analogy, it is as if one consortium of incumbent railroad companies owned all the existing lines, leaving new and potentially more efficient entrants no choice but to contract with these incumbents to secure the use of the rails necessary to transport their passengers to their destinations. In the antitrust context—including railroads—these relationships are typically subject to so-called "common carrier" rules that ensure that competitors have equal access to this infrastructure on equal terms.[180] In the banking context, however, new payment platforms are essentially left at the mercy of incumbent banks.

The competitive distortions created by this reliance can manifest themselves in a variety of different ways. First, correspondent relationships provide banks with valuable insights into a platform's payment volumes, growth rates, and other strategic information—information that could conceivably be used to give banks a competitive edge. Second, correspondent banks can potentially leverage their position as the gatekeepers of the conventional payment system to set prices and other terms in ways designed to limit a platform's profitability, growth, and returns from scale. Lastly, over the longer term, these informational and positional advantages make banks the logical acquirers of these platforms—thus eliminating a source of potential competition.[181]

Measuring the real world impact of these competitive distortions is extremely difficult. Amongst a host of other methodological challenges, it requires us to imagine a counterfactual world in which banks and non-bank payment platforms competed on a level legal playing field. Beyond the law, there are also a variety of other factors at play: including the economies of scale and network effects that characterize banking, money, and payments. Nevertheless, there is ample evidence to suggest that the markets for money and payments in the United States fall far short of the ideal standard of perfect competition. Most importantly, in a competitive marketplace, we would expect the threat of potential new entrants to drive incumbent banks to continuously improve the products and services they offer. It should also drive them to expand the delivery of these products and services to an ever wider range of

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[180] *See* Joseph Kearney & Thomas Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323 (1998).

[181] For an example of this type of "buy to kill" strategy in the tech context, see Lina Khan, *Amazon's Antitrust Paradox*, 126 YALE L.J. 710 (2017). *See* generally, Colleen Cunningham, Florian Ederer & Song Ma, *Killer Acquisitions*, J. POL. ECON. [forthcoming].

customers. Put simply, we should expect to observe high levels of both financial i*nnovation* and *inclusion*.

The reality is often starkly different. In terms of financial innovation, the United States is something of an anomaly amongst developed countries. Over the past several decades, the United States has been relatively slow to roll out a variety of new banking and payment technologies: including open banking[182], mobile banking[183], EMV security chips[184], contactless payments[185], and real-time settlement.[186] While their use has declined significantly in recent years, the United States is also the only developed country in the world that still relies heavily on costly, inconvenient, unsecure, and environmentally harmful paper checks.[187] Put bluntly: the problem is not that new and better banking and payment technologies do not presently exist. Indeed, in many cases, American financial institutions and technology firms have played an important role in their *development*.[188] Rather, the problem is that American banks have been relatively slow in the *adoption* of these new technologies. Accordingly, while the United States is often held up as a global leader in both finance and technology, the benefits of this leadership have not always been immediately or fully shared with the customers of U.S. banks.

In terms of financial inclusion, while the United States has undoubtedly made strides in recent years, the stark reality is that a significant number of American households still do not have access to a basic bank account. The FDIC's most recent *Survey of Household Banking*

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[182] "Open banking" refers to the development of application programming interfaces (APIs) that enable banks to securely share customer data with third parties. *See* Susan Pandy, *Developments in Open Banking and APIs: Where Doe the U.S. Stand?*, FED. RES. BANK OF BOSTON BRIEF (March 17, 2020) (describing the status of open banking initiatives in the U.S. relative to Singapore, Hong Kong,, China, Japan, Australia, and New Zealand).

[183] Compare e.g. FDIC, *How America Banks: Survey of Household Use of Banking and Financial Services* (2019), 4, https://www.fdic.gov/analysis/household-survey/ [hereinafter FDIC Household Survey] (reporting that 34% of survey respondents in the U.S. used mobile banking) versus Statistica, "Online banking penetration in Great Britain from 2007 to 2020)" (November 23, 2020), https://www.statista.com/statistics/286273/internet-banking-penetration-in-great-britain/ (reporting that 76% of households in the U.K. used mobile banking as of 2019).

[184] *See* Kathleen Elkins, "Why It Took the US So Long to Adopt the Credit Card Technology Europe Has Used For Years", BUS. INSIDER (September 27, 2015), https://www.businessinsider.com/why-it-took-the-us-so-long-to-adopt-emv-2015-9.

[185] "Is the US on the Verge of a Contactless Surge", PYMENTS (June 6, 2019), https://www.pymnts.com/news/retail/2019/contactless-payments-tap-and-pay-mpos/ (noting that the U.S. has lagged behind other developed countries in the adoption of contactless payments).

[186] *See* U.S. Treasury Department, "A Financial System that Creates Economic Opportunities: Nonbank Financials, Fintech, and Innovation" (2018), 156, https://tinyurl.com/yanbhebt ("Many jurisdictions around the world have embarked on initiatives to increase the speed of payments. In many cases, the progress towards faster payments abroad has outpaced progress in the United States."); Morten Bech, Yuuki Shimizu & Paul Wong, "The Quest for Speed in Payments", BANK FOR INT'L SETTLEMENTS QUARTERLY REV. 57 (March 2017) (describing country-level developments in real-time payment systems and notably excluding any mention of the United States).

[187] *See* Katie Robertson, "Why Can't Americans Ditch Checks?", BLOOMBERG BUSINESS (July 26, 2017), https://www.bloomberg.com/news/articles/2017-07-26/why-can-t-americans-give-up-paper-checks.

[188] EMV security chips, for example, were first developed by US-based Visa and Mastercard, together with Belgium-based Europay.

and Financial Services estimates that over 5 percent of all households—7.1 million households in all—did not have any members with an active checking or savings account.[189] The rates of these "unbanked" households were even higher for lower income households, households with lower levels of educational attainment, African Americans, Hispanics, Native Americans, and people with disabilities.[190] Of the unbanked households that took part in the survey, over 34 percent identified high fees as one of the reasons for not having a bank account, almost 20 percent identified a lack of products and services that met their needs, and almost half identified insufficient funds to meet minimum balance requirements imposed by banks.[191] Asked what their "main" reason was for not having a bank account, 29 percent of respondents said they were not able to meet minimum balance requirements, 7.3 percent said high fees, and just under 2% said that banks did not offer the right products and services.[192]

While these statistics are obviously part of a larger and more complex set of problems, they are also consistent with the observation that the banking industry as a whole has not been subject to the type of vigorous competition that might otherwise have driven it to harness new technologies in order to drive down costs, offer new and better products and services, and reach new customers. At the very least, it suggests that a little more competition from outside the conventional banking industry might yield some meaningful progress toward these objectives.

B. Destabilizing Regulatory Arbitrage

Given the significant competitive advantages that the law confers on banks, one might reasonably ask why new payment platforms do not simply obtain conventional banking licenses.[193] The answer, in many cases, is bank *regulation*. The financial safety net created by lender of last resort facilities, deposit insurance schemes, and special resolution regimes reduces the incentives of depositors and other creditors to monitor a bank's capital structure, investment decisions, and overall financial health.[194] In theory, the resulting lack of oversight can then give bank shareholders and managers free reign to take socially excessive risks.

The regulatory frameworks governing banks seek to address this moral hazard problem using three principal strategies. The first strategy is *liquidity regulation*. This liquidity regulation includes reserve ratios designed to ensure that banks hold enough cash and other reserves to protect themselves against potential runs—thereby minimizing their reliance on

[189] FDIC Household Survey, *supra* note __.

[190] *Id.*

[191] *Id.*

[192] *Id.*

[193] In a limited number of cases, payment platforms have obtained conventional banking licenses. PayPal, for example, owns a subsidiary that has a banking license in the European Union. At present, however, it is not clear whether PayPal holds balances or processes payments on behalf of its European customers through this subsidiary's accounts.

[194] *See* ARMOUR ET AL., *supra* note __, 370–90 (identifying various reasons, including the financial safety net, why bank depositors and other creditors have limited incentives to play an active role in bank governance).

lender of last resort facilities during periods of institutional or systemic stress.[195] In the wake of the global financial crisis, these reserve ratios have been supplemented by more sophisticated mechanisms such the Basel III liquidity coverage ratio (LCR) designed to ensure that banks hold enough cash and other high-quality liquid assets to survive a hypothetical stress test scenario.[196]

The second strategy is *capital regulation*. Capital regulation requires banks to finance their operations using a minimum amount of retained earnings, common equity, and other capital instruments. The defining feature of these capital instruments is that—unlike debt—they are capable of absorbing losses without triggering bankruptcy: i.e. while the bank is still a going concern.[197] At present, banks licensed in the United States are subject to a minimum capital requirement of at least eight percent of their total risk-weighted assets. This basic requirement is then subject to potential increase on the basis of a bank's idiosyncratic risk profile, systemic importance, prevailing macroeconomic conditions, and other factors.[198] As of June 2019, the average common equity tier one (CET1) capital ratio of U.S. banks was approximately twelve percent.[199] Whereas liquidity requirements reduce the temptation of bank shareholders and managers to operate with an insufficient stock of liquid assets, minimum capital requirements reduce the temptation to maximize bank leverage as a means of increasing a bank's return on equity.[200]

Lastly, in order to ensure compliance with capital, liquidity, and other regulatory requirements, banks are subject to intensive *prudential supervision*. The basic building blocks of bank supervision include comprehensive reporting requirements, onsite examinations by supervisory personnel, and a composite rating process designed to evaluate the safety and soundness of individual banks.[201] In the aftermath of the financial crisis, banks have also been subjected to periodic "stress testing" designed to evaluate the resilience of their balance sheets

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[195] The Federal Reserve's current reserve ratio requirements are published at https://www.federalreserve.gov/monetarypolicy/reservereq.htm.

[196] For a more detailed description of the rationale and design of the liquidity coverage ratio, see generally Basel Comm. on Banking Supervision, *Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools* (2013), https://www.bis.org/publ/bcbs238.pdf.

[197] For a detailed explanation of why common equity in particular is capable of absorbing losses while a bank is a going concern, see ANAT ADMATI & MARTIN HELLWIG, THE BANKERS' NEW CLOTHES: WHAT'S WRONG WITH BANKING AND WHAT TO DO ABOUT IT (REV. ED. 2014), 81–99.

[198] For a more detailed description of the various components of minimum capital requirements, see ARMOUR ET AL., *supra* note __, chapter 290–313 (describing the definition of capital, the basic requirements, along with various mandatory and discretionary capital buffers).

[199] *See* BD. OF GOVERNORS OF THE FED. RESERVE SYS., FINANCIAL STABILITY REPORT 29 (2019), https://www.federalreserve.gov/publications/files/financial-stability-report-20191115.pdf.

[200] This temptation arises from the fact that, for any given amount of revenue, increasing the amount of debt on a bank's balance sheet will mechanically increase its return on equity. A simple numerical example will illustrate this point. Imagine a bank with $100 of assets that generates income of $5 per year. With a capital ratio of 10 percent ($10 of equity and $90 of debt), this bank will have a return on equity of 50% ($5 revenue/$10 equity). However, if the bank reduces its capital cushion to 5% (thereby increasing its debt to $95), this increases its return on equity to 100% ($5 revenue/$5 equity).

[201] *See* BARR ET AL., *supra* note __, 898–903 (describing these reporting requirements, onsite examinations, and the CAMELS rating process).

in the face of a hypothetical set of adverse financial and macroeconomic conditions.[202] The results of these stress tests are then fed back into the supervisory process, helping supervisors identify and address potential weaknesses in a bank's capital or liquidity positions. Where these stress tests reveal material weaknesses, banks may then be prohibited from making distributions to shareholders or required to raise additional capital.

These regulatory frameworks are amongst the largest, most complex, and most costly in the world. Using techniques from software programming, economist Andrew Lo and his colleagues have found that Title 12 of the U.S. Code, governing banks and banking, is second only to the Tax Code in its complexity.[203] And while estimates of compliance costs should be taken with a grain of salt, a recent survey conducted by the Conference of State Banking Supervisors (CSBS) found that the regulatory compliance burden for a medium-sized bank with between $1 and $10 billion dollars in assets represented, on average, approximately 5.3 percent of its total operating expenses.[204] Further compounding matters, these regulatory frameworks are specifically tailored to the business models of conventional deposit-taking banks. Perhaps most importantly, sophisticated risk-based capital requirements, intensive prudential supervision, and rigorous stress testing are all designed to measure, monitor, and constrain risk-taking by financial institutions that combine deposit-taking with retail and commercial lending, investments in capital markets, and an increasingly wide range of other financial services.[205]

The upshot for payment platforms and other aspiring competitors is that obtaining a conventional banking license requires ongoing compliance with complex and costly rulebook that is not tailored to their specific—and often far narrower—business models. It is hardly surprising, therefore, that many of these platforms have instead sought out more flexible, less burdensome regulatory frameworks. For these platforms, the regulatory frameworks of choice have been a collection of highly fragmented and heterogeneous state laws that were first introduced in the 1930s to regulate telegraphic wire transfer services such as Western Union. While the names given to these firms vary from state to state, they are often referred to generically as "money services businesses" or MSBs.[206]

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[202] In the United States, these stress tests involve two separate but complementary processes: the Dodd–Frank Act mandated stress tests (DFAST) and the Comprehensive Capital Analysis and Review (CCAR). For the results of the 2020 DFAST stress tests, see BD. OF GOVERNORS OF THE FED. RESERVE SYS., DODD-FRANK ACT STRESS TEST: SUPERVISORY STRESS TEST RESULTS (2020), https://www.federalreserve.gov/publications/files/2020-dfast-results-20200625.pdf. For the results of the 2020 CCAR tests, see BD. OF GOVERNORS OF THE FED. RESERVE SYS., COMPREHENSIVE CAPITAL ANALYSIS AND REVIEW: ASSESSMENT FRAMEWORK AND RESULTS (2020), https://www.federalreserve.gov/supervisionreg/ccar.htm.

[203] William Li, Pablo Azar, David Larochelle, Phil Hill & Ani Lo, *Law is Code: A Software Engineering Approach Analyzing the United States Code*, 10 J. BUS. & TECH. L. 297 (2015).

[204] Excluding interest expense; see Federal Reserve Bank of St. Louis, *Compliance Costs, Economies of Scale, and Compliance Performance: Evidence from a Survey of Community Banks* (April 2018), https://tinyurl.com/ycvweld8.

[205] For a description of how the "business of banking" has expanded over time, see BARR ET AL., *supra* note __, 189-219. *See also* Saule Omarova, *The Quiet Metamorphosis: How Derivatives Changed the 'Business of Banking'*, 63 U. MIAMI L. REV. 1041 (2009).

[206] These names include "money services business," "money transmission businesses," and "money remittance businesses." As used here, the term MSB encompasses all of these other terms. MSBs are also subject to regulation at the federal level: e.g. they are required to register with the U.S. Department of the Treasury, fall

The state laws that govern MSBs utilize three principal regulatory strategies to ensure their safety and soundness. These strategies include minimum net worth requirements, security requirements, and restrictions on permissible investments. Together, these strategies—often referred to as a "three-legged stool"[207]—are designed to protect customer funds, ensure that MSBs can meet their customer obligations and, more generally, preserve confidence in both the money services business and the broader financial services industry.[208] At least in theory, therefore, this three-legged stool can be viewed as broadly equivalent to the core regulatory strategies employed by conventional bank regulation.

In practice, however, these strategies are generally far less sophisticated, less standardized and, ultimately, less effective. Take minimum net worth requirements for example. Like bank capital requirements, minimum net worth requirements are designed to ensure that MSBs hold sufficient retained earnings and equity capital to absorb a threshold level of losses without triggering bankruptcy. At present, however, these requirements vary significantly from state to state: ranging from zero dollars in four states, to up to $3 million in Washington and Oklahoma.[209] Even more importantly, these requirements are not cumulative. This means that PayPal, for example, can comply with its net worth requirements *in all states* by holding the $3 million in retained earnings and equity required in both Washington and Oklahoma.[210] Given that PayPal reported total assets of just over $50 billion in its most recent financial statements,[211] this translates into an effective minimum capital requirement of just under 0.006 percent.[212] To put this figure into context, that's less than 1/2000th of the average CET1 capital level for U.S. bank holding companies.[213] Viewed from

within the perimeter of its Financial Crimes Enforcement Network (FinCEN), and must comply with basic customer disclosure obligations; 31 U.S.C. § 5330 (2018) and 12 C.F.R. § 1005.31(b) (2020). Nevertheless, the bulk of the regulation to which MSBs are subject, including most importantly the requirements designed to ensure their prudential safety and soundness, are imposed by state law.

[207] *See* Conference of State Bank Supervisors (CSBS), *MSB Model Law: Executive Summ*ary 5 (2019), https://www.csbs.org/sites/default/files/2019-10/Executive%20Summary%20-%20Draft%20Model%20Law%20%28Sept%202019%29.pdf.

[208] *See* Uniform Money Services Act § 204, UNIF. LAW COMM'N (2004) (surety bond requirements); *id.* § 207 (net worth requirements); *id.* § 701–02 (permissible investment restrictions), https://tinyurl.com/yzuj9ukf; *see also* CSBS, *supra* note __, 2 (explaining that the model law is designed to protect consumers from harm, prevent bad actors from entering the money services industry, and preserve public confidence in the financial services sector).

[209] Similarly, while some states only impose minimum net worth requirements, others combine minimum requirements with a hard cap on the amount of equity and retained earnings that MSBs must hold. Moreover, harkening back to the golden age of the telegram, many states still calculate these requirements based on the number of physical locations—i.e. offices or branches—that an MSB has within a given state.

[210] In some cases, of course, this will create de facto harmonization of net worth requirements across states.

[211] *See* Press Release, PayPal, PayPal Reports Third Quarter 2019 Results 4 (October 23, 2019), https://investor.paypal-corp.com/node/10571/pdf (reporting total assets of $50,223,000,000 as of September 30, 2019).

[212] Calculated as $3,000,000/$50,223,000,000 = 0.005973358819664300000%.

[213] *See* BD. OF GOVERNORS OF THE FED. RESERVE SYS., *supra* note __. While one might reasonably object to this comparison on the basis that banks take more risks, this is ultimately an empirical question that cannot simply be taken for granted; see Awrey, *supra* note __. A technically more valid criticism is that, while the

this comparative perspective, MSB minimum net worth requirements thus contemplate a razor thin layer of capital protection.

The protections afforded under surety bond, letter of credit, collateral deposit, insurance, and other security requirements are similarly inadequate. Like deposit insurance schemes, these security requirements are designed to ensure that a minimum amount of money is put aside for distribution to an MSB's customers in the event of its bankruptcy.[214] Once again, however, these security requirements vary significantly from state to state: ranging from as low as $10,000 to as much as $1 million.[215] Unlike net worth requirements, these security requirements are typically cumulative. As a result, MSBs are required to satisfy the minimum security requirement, plus any supplemental amounts, in each state. Thus, for example, assuming that PayPal was subject to the maximum security requirement in each state, it would currently be required to set aside somewhere in excess of $42 million.[216] While this is obviously a significant sum, it also pales in comparison to the approximately $25 billion currently sitting in PayPal's customer accounts.[217] Roughly speaking, it is the equivalent of a deposit insurance scheme that committed to pay out just under *17 cents* for every hundred dollars deposited with a failed bank.

The third and arguably most important leg of the stool are restrictions on the types of financial instruments in which MSBs are permitted to invest. Like bank liquidity requirements, these permissible investment restrictions are designed to ensure that MSBs retain enough cash and other highly liquid assets to immediately and fully honor customer redemption requests. Against this backdrop, it is perhaps surprising that many states permit MSBs to investment in a range of risky financial instruments: everything from publicly-traded shares and corporate bonds, to mortgage-backed securities and opaque and illiquid intragroup debt.[218] Indeed, no less than 12 states do not impose any restrictions whatsoever on how MSBs invest customer funds.[219] While these lax restrictions give MSBs considerable latitude when investing customer

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calculations for PayPal are based on its *total* assets, bank capital requirements are typically based on *risk-weighted* assets. Ultimately, however, this divergence is nowhere near large enough to account for the more than 2,000 times difference between these figures.

[214] Whereas surety bond and bank account requirements envision that an MSB will put aside liquid assets, letters of credit envision that an MSB will arrange (and pay for) a guarantee from a bank pursuant to which the bank agrees to pay the specified amount to customers in the event of the MSB's bankruptcy.

[215] Several states impose additional security requirements on MSBs whose financial condition is impaired. In many cases, these minimums are then supplemented by additional amounts calibrated on the basis of either the volume of payments processed by an MSB or the number of physical locations within the relevant state. Many states also impose a cap on these requirements, ranging from to $125,000 in Alaska to $7 million in California.

[216] Assuming that PayPal is not in a compromised financial position, in which case many states would require additional security. Regrettably, without more detailed state-by-state information regarding PayPal's payment volumes, it is not possible to provide a more accurate estimate.

[217] Unfortunately, PayPal does not disclose granular information regarding the geographic location of its customers or payment flows. However, if we (conservatively) assume that the United States accounts for ten percent of PayPal's outstanding customer balances, the estimated aggregate security requirements ($42 million) would amount to less than two percent of these balances as of September 30, 2019.

[218] *See* Awrey, *supra* note __, Appendix A (describing the range of permissible investments in each state).

[219] *Id.*

funds, they also expose the customers to significant liquidity and solvency risks. Equally important, these risks may be poorly understood by the customers that face them.

Ultimately, state MSB laws are the product of a bygone era when firms like Western Union would only hold customer funds for a very brief period of time: typically only as long as it took for the intended recipient to get to the nearest branch. The fleeting nature of these holdings meant that MSBs were not in a position to invest customer funds in risky financial instruments, and that customers were only briefly exposed to the risk that an MSB might default on its obligations. But times have changed. Today, some of the largest MSBs are using customer funds to accumulate vast pools of longer-term capital. Existing state laws then permit these MSBs to invest this capital in potentially risky financial instruments, all while continuing to promise customers that they can transfer or withdraw their funds on demand. While this combination of longer term, risky, and potentially illiquid assets with short-term and highly liquid monetary liabilities presents familiar risks, they are not the risks that state MSB laws are currently designed to address. By exploiting these antiquated state laws, payment platforms are thus contributing to the emergence of a less stabile monetary and financial system.

The potential instability generated by the exploitation of lax state MSB laws would likely be amplified by the co-dependent relationship between payment platforms and conventional deposit-taking banks. State MSB laws generally permit platforms to deposit customer funds with banks or other insured depository institutions. Where an MSB then combines these deposits with more risky investments, this will increase the probability that the platform will experience a run—thereby triggering a large withdrawal of customer funds from the bank. Indeed, given their legally constructed liquidity, MSBs are likely to withdraw bank deposits *first*: i.e. before selling risky and more profitable investments in order to fund customer withdrawal requests. In theory, these large and lumpy withdrawals could then spark doubts about the bank's own liquidity and solvency, potentially triggering a run on the bank itself. Crucially, of course, this is precisely one of the risks that brokered deposit rules were designed to address. Accordingly, the combination of lax state MSB laws and the recent rollback of the FDIC's brokered deposit rules serves both to cement the interconnectedness between banks and MSBs and sow the seeds of potential monetary and financial instability.

C. Exacerbating The "Too-Big-to-Fail" Problem

Last but not least, the unique privileges and protections that the law extends to conventional deposit-taking banks exacerbate the too-big-to-fail problem. As described by the Financial Stability Board (FSB), the global oversight body for systemic risk, the too-big-to-fail problem arises:

> "when the threatened failure of a [systemically important financial institution]—given its size, interconnectedness, complexity, cross-border activity or lack of substitutability—puts pressure on public authorities to bail it out using public funds to avoid financial instability and economic damage."[220]

[220] *See* Financial Stability Board, "Evaluation of Too-Big-to-Fail Reforms: Summary Terms of Reference" 1 (May 23, 2019), https://www.fsb.org/wp-content/uploads/P230519.pdf.

Historically, the too-big-to-fail problem has reflected society's reliance on banks as critical sources of financing, money, and payments.[221] As we have seen, while banks may no longer represent the dominant sources of financing in the United States, as we have seen, they remain the dominant sources of both money and payments.[222] Moreover, despite the striking fragmentation of the U.S. banking industry, the vast majority of money and payments are concentrated in a handful of systemically important banks. As of September 2020, for example, the 61 member banks of the RTP clearing network were collectively responsible for approximately 70 percent of the total demand deposit accounts in the United States.[223]

Ultimately, of course, this reliance provides a compelling rationale for the financial safety net. Importantly, however, it also creates the widespread expectation—reinforced by historical experience—that policymakers will go beyond the financial safety net to bail out systemically important banks in the thick of a crisis.[224] This expectation can be observed empirically in the form of lower financing costs for banks that are viewed as protected by this second, implicit, and far more controversial safety net.[225] In effect, if a bank's creditors expect the government to bail them out in a crisis, they will be willing to lend the bank money at lower rates of interest. Viewed in this light, the too-big-to-fail problem is yet another source of competitive distortions: giving the banks that benefit from it access to an important resource—capital—at a lower price than their competitors.

As reflected in the FSB's description, one of the key determinants of the existence and size of the too-big-to-fail problem is *substitutability*.[226] In a nutshell, where a socially useful financial product (like money) or service (like payments) is only offered by a relatedly small number or type of financial institutions, the failure of these institutions introduces the risk that the supply of these products or services may be insufficient to meet societal demand.[227] The destructive effects of this lack of substitutability were observed during the Great Depression,

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[221] *See* FDIC, HISTORY OF THE EIGHTIES – LESSONS FOR THE FUTURE: VOL. 1 AN EXAMINATION OF THE BANKING CRISES OF THE 1980S AND EARLY 1990S, 235-257 (1997), https://www.fdic.govfbank/historical/history/235_258.pdf (describing the origins of the term "too big to fail" in this context).

[222] *See* Part I.A and B.

[223] The Clearing House, Press Release, "Financial Institutions Holding 70% of U.S. Deposit Accounts Have Access to RTP Network for Real-Time Payments" (September 9, 2020), https://www.theclearinghouse.org/payment-systems/articles/2020/09/09-09-2020-fis-holding-us-deposit-accounts-access-rtp-network.

[224] *See* Ben Bernanke, Chairman, Bd. of Governors of the Fed. Res. Sys., Statement Before the Financial Crisis Inquiry Commission 20 (September 2, 2010), http://www.federalreserve.gov/newsevents/testimony/bernanke20100902a.pdf.

[225] For recent empirical work documenting this phenomenon, see Viral Acharya, Deniz Anginer, & Joe Warburton, *The End of Market Discipline? Investor Expectations of Implicit Government Guarantees*, Working Paper (May 1, 2016), https://mpra.ub.uni-muenchen.de/79700/1/MPRA_paper_79700.pdf; Priyank Gandhi & Hanno Lustig, *Size Anomalies in US Bank Stock Returns*, 70:2 J. FIN. 733 (2015).

[226] The importance of substitutability is also reflected in the Basel III capital rules, where it represents one of the key variables for identifying, and calculating the capital surcharge for, systemically important banks.

[227] Conversely, where these products and services are offered by a wide variety of different financial institutions, policymakers can permit a subset of these institutions to fail without risking a more general contraction in their supply.

where widespread bank failures led to a severe contraction in both the money supply[228] and the provision of lending and other financial services.[229] It is this risk that ultimately compels policymakers to intervene: using bailouts as an administratively expedient, if politically toxic, strategy for ensuring the continued supply of these products and services. Against this backdrop, the financial safety net and restrictions on infrastructure access make it extremely difficult for firms other than banks to provide truly substitutable products and services. This serves to increase our reliance on banks for arguably the two most important products and services in our entire economic system—money and payments. Ultimately, this legally mandated reliance amplifies the too-big-to-fail problem.

Inevitably, measuring the impact of these distortions with any real certainty is incredibly difficult. Identification, measurement, and other methodological problems abound. Compounding matters, we are unable to observe the counterfactual worlds in which banks are not so deeply embedded within our systems of money and payments. Nevertheless, identifying these potential distortions provides us with a starting point for evaluating two important questions. First: what role should the law play in supporting the development of new financial technologies, platforms, and institutions that hold out the potential to transform our systems of money and payments? Second: how can the law balance this role with the overarching objective of promoting financial and monetary stability?

IV. THE UNBUNDLING PROJECT

The distortions created by the legally entrenched bundling of banking, money, and payments only matter in a world where we might have better options. After all, these distortions only represent a barrier to competition if there is actually something on the other side: the seeds of a better, faster, and more inclusive financial system. For most of the past two centuries, it was far from clear that this was the case. This left conventional deposit-taking banks safely ensconced at the apex of our financial and economic system. But recent technological developments have opened up a world of new possibilities—including in the realm of money and payments. This is not to suggest that all of these new technologies will necessarily yield meaningful social benefits. Indeed, there is good reason to think that at least some of them will turn out to be little more than a flash in the plan—fool's gold.[230] Yet predicting the potential uses and ultimate social value of emerging technologies has always been fraught with difficulty. In the case of money and payments, this difficulty is compounded by the existence of regulatory frameworks that, while distorting competition, also play a vital role in promoting financial and monetary stability. The question thus becomes how public policy should balance the objectives of fostering greater competition and innovation with the

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[228] *See* FRIEDMAN & SCHWARTZ, *supra* note __.

[229] *See* Bernanke, *supra* note __.

[230] *See e.g.* Edmund Schuster, *Cloud Crypto Land*, MODERN L. REV. [forthcoming].

imperative of protecting society against the build-up and crystallization of systemic risk. This Part explores this question in greater detail.

A. The Essential Policy Problem

In almost any other industry, the existence of significant legal obstacles to effective competition would not pose anything resembling an intractable policy problem. In many cases, all policymakers would need to do is *remove* the obstacles, thereby creating a level legal playing field. But banking is not just any industry. In banking, the essential policy problem is that these obstacles—and specifically the financial safety net—also perform a socially useful function: reducing the probability and impact of idiosyncratic bank failures and preventing them from metastasizing into wider and more destructive financial crises. For this reason, the conventional wisdom has long been that leveling the legal playing field would pose a serious threat to both monetary and financial stability.[231] At one end of the policy spectrum, eliminating the financial safety net could undermine public confidence in banks, precipitating correlated depositor runs, draining money from the banking system, and ultimately triggering a generalized contraction in the money supply. At the other end, expanding this safety net beyond the conventional banking system could generate moral hazard problems, thus sowing the seeds of future financial and monetary instability.

The resulting dilemma is compounded by the fact that, in order to successfully eliminate potential moral hazard problems, policymakers must expand the perimeter of financial regulation to encompass the emergence of new markets, institutions, and technologies. This poses a host of technocratic challenges.[232] As a preliminary matter, policymakers must demarcate the optimal boundaries of the expanded regulatory perimeter: identifying the universe of markets, institutions, and activities that should fall within the subject matter scope of the relevant regulatory frameworks. Having set this boundary, policymakers must then design and implement rules that are both functionally equivalent to existing regulatory frameworks and yet specifically tailored to the unique business models of these new markets, institutions, and activities. Lastly, policymakers must attempt to insulate these frameworks from the corrosive effects of regulatory arbitrage and the resulting prospect that burdensome new rules will simply incentivize market participants to shift their business—and risk—outside the regulatory perimeter.

Predictably, policymakers have not always been entirely successful in addressing these challenges. In most cases, this is not for lack of trying, but because designing these regulatory frameworks is genuinely hard. Two brief examples from the realm of money and payments help illustrate this point. The first is money market funds (MMFs). MMFs emerged in the 1970s in response to demand for savings products that promised the safety and liquidity of bank deposits, but that where not subject to the restrictions then imposed by the Federal

[231] *See e.g.* Gary Stern, "Government Safety Nets, Banking System Stability, and Economic Development" Speech to the Conference on Monetary and Financial Markets in Asia: A Challenge to Asian Industrialization" (1997), https://www.minneapolisfed.org/speeches/1997/government-safety-nets-banking-system-stability-and-economic-development.

[232] For a more detailed description of these challenges, see ARMOUR ET AL., *supra* note __, chapter 4.

Reserve on how much interest banks were permitted to pay their depositors.[233] Over time, MMFs grew to play an important and largely unchecked role within the U.S. financial system: most notably as ready purchasers of short-term debt issued by other financial institutions.[234] This role would eventually bring MMFs to prominence in the thick of the global financial crisis.

The financial crisis exposed the vulnerability of MMFs to the same types of destabilizing runs as conventional deposit-taking banks, ultimately forcing the Federal Reserve and U.S. Treasury Department to provide a public backstop to the entire MMF industry.[235] In response, policymakers undertook a comprehensive review of MMF regulation. This review included a 693 page notice of proposed rulemaking, prompted over 1,400 comment letters from industry and other stakeholders, and resulted in an 893 page final rule that came into effect almost eight years after the financial crisis.[236] Yet despite years of study, consultation, and deliberation, the final rule appears to have done little to enhance the safety and soundness of MMFs. By the time the ink was dry, most institutional investors had already shifted their funds into MMFs that were not subject to the new rules.[237] Even more importantly, the COVID-19 pandemic triggered a pronounced spike in investor redemptions from MMFs that were subject to the new rules, once again forcing the Federal Reserve to provide liquidity support to the MMF industry.[238] More than a decade after the financial crisis, policymakers thus find themselves back at square one in terms of designing an effective regulatory framework for MMFs.

The second example is MSBs. As we have seen, the state level regulatory frameworks governing MSBs were originally introduced in response to the emergence of telegraphic wire services such as Western Union. Today, however, these same regulatory frameworks are at the front lines of regulating a far more sophisticated and risky range of payment platforms. In response, the CSBS has recently proposed updating its model MSB law to incorporate a mechanism ostensibly based on a combination of bank capital and liquidity requirements.[239] Known as the "suspension bridge," this mechanism would use an MSB's loss absorbing capacity—i.e. its tangible net assets minus total liabilities—to determine the scope of applicable permissible investment restrictions.[240] In effect, the larger an MSB's capital

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[233] *See* generally, Alton Gilbert, *Requiem for Regulation Q: What It Did and Why It Passed Away*, 68 FED. RES. BANK ST. LOUIS REV. 22 (1986), http://research.stlouisfed.org/publications/86/02/Requiem_Feb1986.pdf.

[234] *See* Jeffrey Gordon, *Letter to the SEC on Money Market Fund Reform*, COLUMBIA LAW & ECON. WORKING PAPER NO. 352 (2009), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1473275.

[235] For a more detailed description, see Dan Awrey & Kathryn Judge, *Why Financial Regulation Keeps Falling Short*, 63 BOSTON. COLL. L. REV. [forthcoming].

[236] *Id.*

[237] *See* Bd. Of Gov. Fed. Res. Sys., *Financial Stability Report* 33 fig.4-4 (November 2018), https://www.federalreserve.gov/publications/files/financial-stability-report-201811.pdf.

[238] *See* Lei Li, Yi Li, Marco Macchiavelli & Xing Zhou, "Run on Prime Money Funds During the COVID-19 Crisis", VOX.EU (July 14, 2020), https://voxeu.org/article/prime-money-funds-during-covid-19.

[239] *See* CSBS, *MSB Model Law: Executive Summary* 7-9 (2019), https://www.csbs.org/sites/default/files/2019-10/Executive%20Summary%20-%20Draft%20Model%20Law%20%28Sept%202019%29.pdf.

[240] *Id.*

cushion, the broader the range of financial instruments in which it would be permitted to invest.

In many respects, the suspension bridge mechanism can be viewed as an intuitively appealing way of updating what has become an antiquated patchwork of state regulatory frameworks. Nevertheless, the potential application of this mechanism to MSBs raises a host of thorny and as yet answered questions.[241] Paramount amongst these questions is whether this mechanism—borrowed from the toolkit of conventional bank regulation—is sufficiently tailored to the business models of MSBs that it would serve to enhance their safety and soundness without simultaneously imposing costly, inflexible, and potentially unnecessary new regulatory burdens. In this respect, it is worth observing that the business models of PayPal, TransferWise, and other modern payment platforms do not really resemble those of conventional deposit-taking banks. MSBs are essentially intermediaries: aggregating funds from their customers and then using these funds to invest in financial instruments.[242] They do not "create" money in the same way that banks do when they extend loans to borrowers;[243] nor is there evidence to suggest that their portfolios are concentrated in the type of longer term, risky, and illiquid loans that have historically been the staple of conventional deposit-taking banks.[244] These differences suggest that bank regulation may not be the most constructive starting point for designing a new regulatory framework for MSBs. Perhaps for this reason, the CSBS's proposal has yet to gain any significant traction with state banking supervisors.

Collectively, these technocratic challenges help explain why policymakers have often been reluctant to fundamentally rethink the legal frameworks that support and entrench our current bundled system of banking, money, and payments. If policymakers fail to rapidly and effectively expand the perimeter of regulation in response to the emergence of new markets and institutions, they risk contributing to the build-up of new sources of systemic risk. By the same token, however, if policymakers introduce new and untested regulatory frameworks, they must thread a difficult needle between taking too light a hand and imposing overly burdensome regulation that risks undercutting the transformative potential of new firms, business models, and technologies.

Faced with these unpalatable choices, policymakers have instead increasingly attempted to shoehorn new entrants into existing regulatory frameworks. The most controversial example of this approach is the proposal, championed by the OCC, for the

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[241] These questions include: Do MSBs have the internal expertise and resources needed to effectively manage the market, liquidity, and other risks associated with their investment portfolios? Do the banking supervisors in all fifty states have the expertise and resources needed to supervise ongoing compliance with these proposed new requirements? And what happens if an MSB—faced with a severe liquidity crisis—is no longer able to comply with these requirements?

[242] ARMOUR ET AL., *supra* note __, 478–504 (describing investment funds, insurance companies, and other financial institutions that perform this type of intermediation function).

[243] *See* Michael McLeay, Amar Radia & Ryland Thomas, *Money Creation in the Modern Economy*, 2014 BANK ENG. Q. BULL. 14, 16 (2014), https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-creation-in-the-modern-economy.pdf (describing how the issuance of loans creates new deposits).

[244] Although at present there is little publicly available information regarding the composition of MSB investment portfolios.

creation of special purpose "fintech" charters.[245] While the full details of this proposal have yet to be made public, the OCC is essentially seeking to use its existing authority to charter national banks to license a broader range of financial technology—hence *fintech*—firms. While these firms would then be subject to the same regulatory and supervisory framework as national banks, the OCC has also signaled that it "may need to account for differences in the business models" of these new licensees.[246] Perhaps not surprisingly, the proposal has received a cool reception from the fintech firms it was designed to attract: many of which do not closely resemble banks, and almost all of which would rather not be subject to the burdensome regulation and supervision that is imposed on them.[247] Compounding matters, the proposal has been challenged in court on the grounds that it contravenes both the letter and spirit of the OCC's chartering authority under the National Bank Act.[248] Yet even if the OCC ultimately prevails in this litigation, the result will still be a functionally compromised fudge that is unlikely to strike an effective balance between promoting greater competition and innovation and addressing potential threats to financial and monetary instability.

So where do we go from here? To answer this question, we must first acknowledge that this policy problem is not the Gordian Knot that it might first appear. Indeed, once we understand that the potential social value of these new markets, institutions, and platforms stems not from their ability to *replicate* the existing relationship between banking, money, and payments—but rather from their potential to *unbundle* it—we can start to untether ourselves from the intellectual, conceptual, and legal frameworks underpinning conventional bank regulation. This, in turn, opens the door to a range of policy options that do not force policymakers to make a false choice between promoting competition and innovation or addressing potential systemic risks.

B. Models of Unbundling

There are a variety of different models of unbundling. The first model, already well established in many parts of the world, involves the issuance and transfer of monetary liabilities by proprietary peer-to-peer (P2P) payment platforms such as PayPal.[249] These payment platforms utilize the internet to communicate payment instructions and execute fund transfers between the platform's customers. Importantly, they also allow customers to maintain positive

[245] *See* OCC, *Exploring Special Purpose National Bank Charters for Fintech Companies* (December 2016), https://www.occ.gov/publications-and-resources/publications/banker-education/files/exploring-special-purpose-nat-bank-charters-fintech-companies.html.

[246] *Id.*, 2 and 6. The OCC's statements in this regard are somewhat inconsistent. On the one hand, the OCC has stated that "applying a bank regulatory framework to fintech companies will help ensure that these companies operate in a safe and sound manner."; id., 2. On the other hand, it has acknowledged that many firms would not be subject to the same safety and soundness standards as insured depository institution; *id.*, 6.

[247] *See* Rachel Witkowski, "Google and PayPal Explored OCC's Fintech Charter, Then Walked Away", AM. BANKER (June 19, 2019), https://www.americanbanker.com/news/google-and-paypal-explored-occs-fintech-charter-then-walked-away.

[248] *See Lacewell*, *supra* note __.

[249] For a more detailed description of proprietary P2P payment platforms and how they differ from bank-based and money remittance platforms, see Awrey & van Zwieten, *supra* note __.

balances in their accounts on the platform's books.[250] When this custodial function is combined with the promise that customers will be able to transfer these balances on demand—including transfers to a customer's own bank account[251]—these balances thus bear a close functional resemblance to conventional bank deposits. Viewed in this light, P2P payment platforms have evolved to perform the same monetary and payment functions as conventional deposit-taking banks.

A second and still embryonic model of unbundling revolves around so-called "stablecoins". Stablecoins are a species of cryptocurrency: privately-organized payment systems that utilize digital ledgers to execute and record P2P payments.[252] As their name suggests, stablecoins are designed to maintain a stable value in relation to the value of a specified reference asset—often a conventional fiat currency such as the U.S. dollar.[253] The value of a stablecoin can be tethered to the value of this reference asset in a variety of different ways. First, the sponsor of the stablecoin can contractually promise that it will redeem each unit of the stablecoin for an equivalent unit of the reference asset on a 1:1 basis. This is the approach taken by JPMorgan's recently launched JPM Coin. Second, the sponsor can make this promise more credible by setting aside dedicated reserve assets.[254] Ideally, these reserve assets should be highly liquid, denominated in the same currency as the reference asset, and equal to the outstanding market value of the relevant stablecoin. This is the approach taken by Circle's USDC. Lastly, sponsors can use algorithms designed to maintain a stable price: typically by increasing or decreasing the supply of the relevant stablecoin, as necessary, in response to changes in market demand.[255]

The first generation of stablecoins were developed as a bridge between crypto and fiat currencies: reducing the holder's exposure to price volatility during the cumbersome and often lengthy process of executing and settling transactions. Other stablecoins, including Tether, USD Coin, and Maker's Dai, have been developed with a view to leveraging the potential applications of "distributed ledger technology" and "smart contracts" in finance and other domains.[256] Increasingly, however, stablecoin sponsors have articulated even grander ambitions to fundamentally transform our systems of money and payments. By far the most

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[250] PayPal, for example, currently has over $25 billion in positive customer balances; see PayPal, *supra* note __.

[251] Crucially, the ability of customers to transfer positive balances to their own banks account is functionally equivalent to a withdrawal.

[252] *See* Morten Bech and Rodney Garratt, *Central Bank Cryptocurrencies*, BANK FOR INT'L SETTLEMENTS Q. REV. 55, 57-62 (September 2017). There is some debate around whether cryptocurrencies should be viewed as "token" or "account-based" systems, along with whether they must necessarily utilize distributed ledger technologies. This paper sidesteps these debates, observing that all cryptocurrencies rely on some form of digital ledger to execute and record transactions; see Sarah Allen et al., *Design Choices for Central Bank Digital Currency: Policy and Technical Considerations*, NAT'L BUREAU OF ECON. RES. WORKING PAPER NO. 27634, 7 (August 2020), https://www.nber.org/papers/w27634.

[253] *See* Arner, Auer & Frost, *supra* note __, 5.

[254] *See* Jess Cheng, *How to Build A Stablecoin: Certainty, Finality, and Stability Through Commercial Law Principles*, 17:2 BERKELEY BUS. L.J. 320, 322 (2020).

[255] Arner, Auer & Frost, *supra* note __, 6.

[256] *Id.*, 4.

high-profile example is Facebook's Diem project, the stated mission of which is to create a portfolio of single-currency stablecoins that serve as "a simple global payment system and financial infrastructure that powers billions of people".[257]

The emergence of privately-issued stablecoins has coincided with—and possibly helped spur[258]—a flurry of announcements by governments and central banks that they are exploring the possibility of launching their own digital currencies.[259] We have already encountered one variety of central bank digital currency (CBDC): the reserve balances held by banks within the Federal Reserve system.[260] What is new is the prospect of expanding access to these CBDCs to individuals, households, and businesses, and then enabling this wider audience to use CBDCs as a general unit of account, store of value, and means of payment.[261] Like stablecoins, these general-purpose CBDCs are still in their infancy and could theoretically vary across a number of important dimensions. Important design questions include whether a CBDC should be held and transferred on a decentralized (or "distributed") ledger or a more traditional centralized book-entry system[262], whether the digital wallets in which the public would hold CBDCs should be managed by the Federal Reserve or commercial banks[263], and what level of security and privacy to offer CBDC users.[264] That these fundamental questions remain outstanding suggests that there is still no broad consensus around the definition of a CBDC or how they would work.[265] Nevertheless, as of December 2020, the Federal Reserve and a number of other leading central banks have announced that they are exploring the prospect of introducing some form of CBDC.[266] By the same token, the

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[257] *See* Diem White Paper (December 1, 2020), https://www.diem.com/en-us/white-paper/#cover-letter.

[258] *See* Omarova, *supra* note __, 17.

[259] For an up-to-date list, see BIS, "Ready, steady, go? Results of the Third BIS Survey on Central Bank Digital Currency, BANK FOR INT'L SETTLEMENTS PAPERS NO. 114 (January 27, 2021), https://www.bis.org/publ/bppdf/bispap114.htm.

[260] Although some would distinguish existing reserve balances from CBDCs, the fundamental principles of holding and transferring an account-based CBDC would essentially be identical to those of existing central bank reserve balances. For the view that CBDCs should be distinguished from central bank reserves, see Michael Kumhof & Clare Noone, *Central Bank Digital Currencies—Design Principles and Balance Sheet Implications*, BANK OF ENGLAND WORKING PAPER NO. 725 (May 2018).

[261] *See* Allen et al., *supra* note __, 5. Indeed, even this prospect is not some much "new" as "rediscovered"; see James Tobin, *Financial Innovation and Deregulation in Perspective*, 3 BANK OF JAPAN MON'Y & ECON. STUDIES 19, 25 (1985).

[262] *See* Michael Bordo & Andrew Levin, *Central Bank Digital Currency and the Future of Monetary Policy*, NAT'L BUREAU OF ECON. RESEARCH WORKING PAPER NO. 23711 (August 2017), https://www.nber.org/papers/w23711.

[263] These wallets would serve as a CBDC user interface for the purposes of authenticating a user's identity and allowing them to view account balances and initiate transactions; *see* Allen et al., *supra* note __, 8.

[264] *Id.*, 10.

[265] *Id.*, 11.

[266] *See* Raphael Auer, Giulio Cornelli & Jon Frost, *Rise of the Central Bank Digital Currencies: Drivers, Approaches and Technologies*, BANK FOR INT'L SETTLEMENTS WORKING PAPER NO. 880 (August 2020), https://www.bis.org/publ/work880.pdf.

myriad of outstanding technical questions suggests that, for most jurisdictions, any potential rollout is still a long way off.

The debates surrounding the possible introduction of CBDCs have largely focused on their potential impact in the realm of monetary policy. Yet CBDCs have also featured prominently in a number of recent policy proposals designed to promote greater financial inclusion and "democratize" finance.[267] One proposal, advanced by Professors Morgan Ricks, John Crawford, and Lev Menand, calls for the creation of "FedAccounts": giving individuals, households, and businesses the option to open an account at the Federal Reserve.[268] These FedAccounts would then be linked to the conventional payment system, thus offering users the same transactional functionality as regular bank accounts. Along the same vein, Professor Robert Hockett has advocated for the creation of scalable public P2P payment platforms that would enable all legal residents of a jurisdiction to hold and transfer balances maintained by local, state, or national governments on a centralized "inclusive value" ledger.[269] Professor Saule Omarova, meanwhile, has articulated a far more ambitious vision.[270] First, unlike both the FedAccounts and inclusive value ledger proposals, Professor Omarova would complete eliminate bank deposit accounts and replace them with a general-purpose CBDC.[271] Second, Professor Omarova would combine this change to the *liability* side of the Federal Reserve's balance sheet with a fundamental overhaul on the *asset* side: including new facilities designed to replace deposit funding for banks, promote investment in public infrastructure, and stabilize financial markets.[272]

It is still far too early to predict which of these models, if any, might eventually rise to compete with or supplant our current bank-based system of money and payments. All of these models hold out potential benefits: whether they be faster and more secure payments, streamlining international payments, or expanding access to basic financial products and services. Yet each of these models also poses significant and unresolved regulatory challenges. As we have seen, P2P payment platforms such as PayPal expose customers to the risk that they will lose their money in the event of a platform's default or bankruptcy.[273] The sponsors of stablecoins may similarly fail to live up to their contractual and other promises. These risks are exacerbated by the fact that both P2P payment platforms and stablecoin sponsors face inevitable commercial pressures to invest customer funds in risk financial instruments, extend loans to related parties, or under-collateralize their outstanding obligations—thus further undermining the credibility of their commitments.[274] Compounding matters, existing rules often fail to address these challenges: potentially necessitating the creation of new, bespoke,

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[267] *See* Omarova, *supra* note __, 16.

[268] *See* Ricks, Crawford & Menand, *supra* note __.

[269] *See* Hockett, *supra* note __.

[270] *See* Omarova, *supra* note __.

[271] *Id.*, 23-33.

[272] *Id.*, 33-45.

[273] Awrey, *supra* note __; Cheng, *supra* note __, 344-345.

[274] *See* Jon Frost, Hyun Song Shin & Peter Wierts, *An Early Stablecoin? The Bank of Amsterdam and the Governance of Money*, BANK FOR INT'L SETTLEMENTS WORKING PAPER NO. 902 (November 2020), https://www.bis.org/publ/work902.pdf; Awrey, *supra* note __.

and untested regulatory and supervisory frameworks.[275] Collectively, these challenges put these models at a competitive disadvantage to conventional deposit-taking banks. Conversely, while CBDCs would effectively eliminate these challenges, they would do so at the potential expense of creating a government monopoly over money and payments. The tradeoffs between these different models thus effectively mirror our essential policy problem: forcing policymakers to make a false choice between competition and innovation versus financial and monetary stability.

Fortunately, there is a better model—a blueprint grounded in the logic of unbundling itself. This logic reflects the fact that our current bundled system transforms money and payments into hostages, with their fate tied firmly to the mast of risks taken within the conventional banking system. To minimize the resulting threats to monetary and financial stability, we then grant banks a financial safety net, exclusive access to basic financial infrastructure, and impose a comprehensive and costly system of prudential regulation and supervision. Yet as we have seen, these well-intentioned regulatory frameworks create significant barriers to entry, undermine financial innovation and inclusion, spur destabilizing regulatory arbitrage, and exacerbate the too-big-to-fail problem. The value of unbundling thus resides in its potential to sever this unstable relationship between banking, money, and payments: thereby enabling us to pursue policies that promote competition and innovation *and* enhance the safety and soundness of the financial system.

This blueprint envisions three relatively straightforward changes to federal law. The first change is an amendment to § 13.1 of the Federal Reserve Act that would enable financial institutions *other than banks* to open and maintain master accounts within the Federal Reserve System. This first change shares fundamental similarities with Tobias Adrian and Tommaso Mancici-Griffoli's recent proposal for a "synthetic" CBDC (or sCBDC).[276] As the authors of this proposal explain, granting non-bank financial institutions access to Federal Reserve master accounts would open the door to something resembling a public-private partnership: with financial institutions harnessing new technologies to provide customers with valuable new products and services and the Federal Reserve providing the basic infrastructure—the rails—on which these products and services are provided.[277]

The second change reflects the potentially significant risks stemming from this proposed expansion of access to Federal Reserve master accounts. Specifically, in order to open and maintain a master account, a non-bank financial institution should be required to hold 100 percent of customer deposits in this account. Thus, for every dollar, pound, euro, or tether that these institutions accept on behalf of their customers, an equal amount, denominated in the same currency, must be immediately deposited into their master account. While this second change—what we might call a *no intermediation* rule—may seem extreme, it is certainly not without precedent. In Kenya, for example, Safaricom's highly successful M-

[275] Compounding matters, insofar as stablecoin ecosystems rely on multiple intermediaries performing different roles, this makes the regulation and supervision of this ecosystem difficult; Cheng, *supra* note [?], 323.

[276] *See* Tobias Adrian & Tommaso Mancici-Griffoli, *The Rise of Digital Money*, INT'L MONETARY FUND NOTE NO. 19/01, 11-15 (July 2019), https://www.imf.org/en/Publications/fintech-notes/Issues/2019/07/12/The-Rise-of-Digital-Money-47097.

[277] *Id.*, 12.

Pesa requires that 100 percent of customer funds be placed in a bankruptcy remote trust.[278] In China, meanwhile, AliPay and WeChat Pay are both required to deposit customer funds into a ringfenced reserve account with the People's Bank of China.[279] And in the United States, Lev Menand and Andrew Summers have advanced a functionally similar proposal designed to replace the heterogenous and inadequate state laws currently governing MSBs.[280]

Perhaps more than any other element of this blueprint, the no intermediation rule reflects the unique logic of unbundling. If new financial institutions and platforms want to bundle lending with money and payments, then functionally speaking there is no reason why they should not be regulated as banks. Indeed, if their objective is simply to *replicate* the business of banking—just without the pesky regulation—then it is difficult to understand what social benefits these new institutions could possibly yield. Simultaneously, if these new institutions and platforms simply seek to provide money and payments, then the no intermediation rule is little more than a peppercorn to pay in exchange for direct access to the U.S. payment system and the ability to leverage new technologies to compete with banks on a level playing field.

Delivering on the logic of unbundling requires a third and long overdue change to federal banking law: the definition of a bank itself. Under current law, this definition is based on a tautology. 12 U.S.C. § 378(a)(2) defines a "bank" as engaged "in the business of receiving *deposits*."[281] Crucially, however, § 378(a)(2) does not define what constitutes a "deposit" for these purposes. For this definition we must look to 12 U.S.C. § 1813(l), which defines a "deposit" as "money or its equivalent received or held *by a bank*."[282] Under federal law, a bank is thus a firm that issues deposits, and deposits are financial instruments that are issued by a bank. This circular definition has created a glaring loophole that many new financial institutions and platforms have readily exploited. The third and final change would be to close this loophole by adopting a functional definition of a bank as any financial institution that combines lending with the creation of monetary liabilities.[283]

C. Benefits of Unbundling

This blueprint would yield several important benefits—both in comparison with the current bundled system and other models of unbundling.[284] First, it would promote greater competition and innovation in the fields of money and payments. The combination of the no intermediation rule and the requirement to hold 100 percent of customer funds in non-

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[278] *See* Awrey & van Zwieten, s*upra* note __, 31.

[279] *Id.,* 40.

[280] *See* James McAndrews & Lev Menand, *Shadow Digital Money*, WORKING PAPER (March 13, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3554006.

[281] [Emphasis added].

[282] [Emphasis added].

[283] For proposed statutory language, see RICKS, *supra* note __.

[284] This discussion brackets the potential benefits of unbundling in terms of the execution of monetary policy. For a discussion of these potential benefits, see Adrian & Mancici-Griffoli, *supra* note __, 13-14; Omarova, *supra* note __, 23-29.

defaultable and completely liquid reserve balances would transform the monetary liabilities of non-bank payment platforms into good money, thus rendering them true functional substitutes for conventional bank deposits. Granting these platforms access to Federal Reserve master accounts would also remove a significant barrier in terms of their eligibility to become direct participants in the major clearing networks, enabling them to capture the economies of scale and network effects currently enjoyed only by member banks. By the same token, enabling these platforms to become full participants in the conventional payment system would mean that new entrants would not be forced to make the unpalatable choice between paying the extremely high initial and ongoing costs of building and maintaining their own payment networks or relying on banks—their principal competitors—for indirect access to the existing system. Some of the resulting cost savings could then be channeled into the development of new, better, and less expensive products and services.[285] Faced with greater competition, banks would then be compelled to follow suit: driving further competition and innovation and potentially opening up basic banking and payment services to a wider universe of customers.

Ultimately, of course, there are limits on the extent to which policymakers can rely on more competitive markets to promote greater financial innovation and inclusion. Indeed, there is no reason to think that PayPal, Circle, or Facebook will be any more interested in providing *unprofitable* products or services than incumbent banks. Crucially, however, this blueprint would not only foster private competition, but also support state and local governments and civil society organizations hoping to implement proposals such as Professor Hockett's inclusive value ledger. At present, public and charitable sector organizations looking to launch a savings or payment platform would face a variety of obstacles. Perhaps most importantly, they would need to make significant investments in building and maintaining the technological and operational infrastructure necessary to create their own fast, safe, secure, and reliable platforms. Compounding matters, many of these investments would need to be made upfront—i.e. before a platform was in a position to attract the critical mass of new users that would ultimately make these investments worthwhile. Viewed in this light, the ability of these organizations to open a Federal Reserve master account would represent an attractive turnkey solution: eliminating the need to make large, risky, and potentially duplicative infrastructure investments and instead enabling them to focus their attention and resources on designing financial products and services that meet the specific needs of their target constituents.[286]

Second, this blueprint would enhance the safety and stability of our monetary system.[287] The combination of the no intermediation rule and full collateralization of customer funds in a Federal Reserve master account would effectively eliminate the risk that a customer

[285] Amongst the costs that would be eliminated are the fees and expenses associated with maintaining bank correspondent relationships, along with the strategic costs stemming from the reliance of platforms on banks for access to vital financial infrastructure.

[286] In theory, assuming that an organization was not interested making its platform interoperable, all the core functions of the platform could be undertaken within a single master account. Simultaneously, however, where an organization wanted to make its platform fully interoperable with other payment networks, it would have to comply with the membership requirements imposed by these networks.

[287] The impact of this blueprint on the funding model of banks, and specifically their vulnerability to runs, is discussed in Part IV.D.

would lose their money in the event of a platform's default or bankruptcy.[288] By removing credit risk from the equation, this blueprint would thus eliminate the incentives that might otherwise drive customers to engage in destabilizing runs. This would represent a vast improvement over many existing regulatory frameworks—including state MSB laws—which, as we have already seen, do little to address the risk of institutional instability, let alone the wider risk that this instability might spill over into the conventional banking system. Simultaneously, by expanding the definition of a "deposit" for the purpose of federal banking law, this blueprint would help ensure that functionally equivalent products and services did not emerge just outside this expanded regulatory perimeter.

Eliminating the risk of destabilizing runs would yield another important benefit. As we have seen, reducing the probability and impact of runs is one of the principal rationales for extending a public financial safety net to conventional deposit-taking banks. The rationale for sophisticated prudential regulation and supervision is then grounded in the desire to curb the resulting moral hazard problems generated by this safety net. By eliminating run risk, this blueprint would therefore remove the need for policymakers to functionally replicate this complex and costly system of backstops, regulation, and supervision in order to level the legal playing field for new entrants. To be clear, these institutions would still need to be supervised to ensure compliance with the no intermediation rule and that customer funds were deposited in a Federal Reserve master account. They would also be subject to existing conduct, consumer protection, and transaction reporting requirements, along with structural regulation designed to enforce the separation of banking from commerce.[289] Nevertheless, relative to the current state of affairs, this blueprint would enhance the safety and stability of the monetary system without requiring a significant increase in the scale or scope of the regulatory state.

This blueprint would also be relatively easy for policymakers to implement. The basic institutional architecture—master accounts—already exists. Unlike CBDCs, there would thus be no need to design and build entirely new technological and institutional infrastructure. Full collateralization of reserve balances would also mean that the Fed would not be exposed to credit risk. The net result is a blueprint that is relatively low risk from a policy perspective. Ultimately, if it successfully promotes greater competition, the financial safety net will be there to soften the impact on conventional deposit-taking banks. And if this competition fails to materialize, we can continue to rely on banks as the dependable—if sometimes plodding—custodians of our current systems of money and payments.

Lastly, this blueprint would ameliorate the too-big-to-fail problem. Under the current bundled system, restrictions on infrastructure access make the government, businesses, and households extremely reliant on a small handful of large banks to process the vast majority of payments. Likewise, non-bank payment platforms such a PayPal rely on many of these same banks for indirect access to the conventional payment system. By expanding eligibility to open Federal Reserve master accounts, and thus opening the door to direct membership in the major clearing networks, this blueprint would help reduce our reliance on banks for the provision of this most basic of all financial services. At the same time, opening the door for

[288] As discussed in Part IV.D, a process would also need to be put in place to ensure that customers had *immediate access* to their money in the event of a platform's bankruptcy.

[289] While beyond the scope of the Article, because these new platforms would not be insured depository institutions, this blueprint would require technical amendments to federal banking law to ensure the continued separation of banking—in this more narrow, *unbundled* sense—from commerce.

non-bank payment platforms to access the major clearing networks would minimize the distortions created by the FDIC's brokered deposit rules—thereby reducing the fragile and opaque interconnections between these platforms and the conventional banking system. The net effect would therefore be to reduce the threat that the failure of systemically important banks, or more generalized banking crises, would trigger either the widespread interruption of payments or broad-based contractions in the money supply. This, in turn, would serve to undercut two of the most common and theoretically compelling rationales that policymakers have historically advanced in support of taxpayer-funded bailouts.

Viewed collectively, the benefits of this blueprint reflect the comparative advantages of its key stakeholders. As a preliminary matter, leveling the legal playing field would enable private enterprises to compete on more equal terms. It would also enable new entrants to enter and potentially disrupt the market with new products and services without first having to make costly and potentially duplicative investments in building basic network infrastructure. By the same token, this blueprint would give state and local governments and civil society organizations much needed support in filling the inevitable gaps that greater competition fails to address. And last but not least, this blueprint would leave the Federal Reserve to oversee and protect the stability of the financial system, and to coordinate the maintenance and periodic improvement of the basic infrastructure upon which this system is built.

D. Possible Challenges and Objections

Like any blueprint, translating it into institutional structures in the real world will inevitably pose a range of practical challenges. One important threshold challenge would be determining whether this new framework should sit alongside or altogether replace the existing patchwork of state MSB laws and other regulatory frameworks such as New York State's "Bitlicense" regime.[290] In theory, having multiple regulatory frameworks would promote greater competition and experimentation in regulatory design.[291] In practice, however, this experimentation has often failed to materialize: in part because firms are often required to comply with the relevant regulatory frameworks in each state in which they carry on business. This serves to dampen the incentives of regulatory authorities to experiment, while simultaneously increasing the temptation to freeride off the regulatory and supervisory frameworks imposed by other states. Along the same vein, even where regulatory competition did materialize, there is no guarantee that it would be socially desirable—especially when it comes to delivering public goods such as financial stability.[292] Indeed, one might predict that many firms would prefer to remain subject to state MSB laws that enable them to generate profits by investing customer funds in risky financial instruments. Yet from a broader societal perspective, these profits must ultimately be weighed against the potential costs of allowing these firms to continue issuing bad money.

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[290] *See* New York Codes, Rules and Regulations, Part 200 (Virtual Currencies).

[291] For a flavor of the long running debate over the existence and value of regulatory competition in U.S. corporate law, see ROBERTA ROMANO, THE GENIUS OF AMERICAN CORPORATE LAW (1993) versus Lucian Bebchuk, *Federalism and the Corporation: The Desirable Limits on State Competition in Corporate Law*, 105 HARVARD L. REV. 1435.

[292] *See* ARMOUR ET AL., *supra* note __, 59 (describing public goods such as financial stability and why private markets will often underproduce them).

A second practical challenge would be to ensure that the customers of any platform subject to this new regulatory framework had immediate access to their money in the event of its bankruptcy. Importantly, while this blueprint would effectively eliminate the vulnerability of these platforms to destabilizing runs, this would not foreclose the possibility that they might still be forced into bankruptcy stemming from losses in other parts of their business. To replicate FDIC deposit insurance, customers would therefore need to have timely and complete access to funds held in the platform's master account with the Federal Reserve. From a purely technical perspective, this would not be a difficult problem to solve: perhaps simply necessitating that firms be required to send customer balances and contact information to the Federal Reserve immediately upon any bankruptcy filing. Nevertheless, these and other technical challenges would need to be addressed in order to ensure full substitutability with conventional bank deposits and instill confidence in the customers of these new firms.

This blueprint will also undoubtedly attract several, seemingly more substantive, objections. The first is that the no intermediation rule would deprive platforms of an important source of revenue—the returns generated by investing customer funds—necessary for them to monetize their investments in the development of new financial products and services. This objection is uncompelling for several reasons. First, it is worth observing that the Federal Reserve currently pays highly competitive rates of interest on the reserve balances held in its master accounts.[293] Second, the application of new financial technologies by these firms opens the door to a wide range of new revenue sources: including enhancements to the customer experience, the development of application programming interfaces, and the collection and analysis of financial and other data generated from customer holdings and payment flows.[294] Lastly, and most fundamentally, if the business model of these firms relies heavily on revenues from investing—i.e. from *bundling* banking, money, and payments—then there is no functional reason why we should not regulate them as conventional deposit-taking banks.

A second substantive objection is that subjecting banks to greater competition would undermine the stability of the conventional banking system.[295] There are essentially two variants of this objection. The first is that greater competition would slowly siphon deposits away from banks, including the wholesale deposit funding currently provided by non-bank payment platforms. The second is that the existence of truly credible substitutes for bank deposits would further incentivize depositors to run from banks during periods of institutional or broader financial instability. These concerns are valid but overstated. Nothing in this blueprint would stop banks from competing for deposits by offering higher interest rates, better products and services, or offering these products and services to a wider universe of customers.[296] Indeed, this is precisely the type of consumer welfare enhancing competition that this blueprint is designed to promote. Nor importantly does this blueprint do anything to

[293] *See* FRED Database, *supra* note __.

[294] For an overview of some of these potential revenue sources, see McKinsey & Co., "Scanning the Fintech Landscape: 10 Disruptive Models" (May 8, 2019), https://www.mckinsey.com/industries/financial-services/our-insights/banking-matters/scanning-the-fintech-landscape#. Platforms like Transferwise can also generate revenue through foreign exchange spreads.

[295] *See The Disintermediation Dilemma*, THE ECONOMIST 74 (December 5, 2020).

[296] *See* Adrian & Mancici-Griffoli, *supra* note __, 13. The one possible concern here is that banks will offer interest rates on deposits that compel them to take on higher investment risks. However, federal banking regulators already possess the regulatory and supervisory tools to address these risks.

undermine the existing financial safety net. As we have seen, this safety net is there to promote confidence in banks, to prevent destabilizing runs, and to protect depositors when banks cross over the threshold from illiquidity into insolvency. Viewed from this perspective, this safety net puts the conventional banking system in a far better position to undergo a competitive restructuring than just about any other industry.

A third objection is that shifting savings out of the conventional banking system, combined with the no intermediation rule, would decrease the amount of capital available for investment in the real economy. While this objection is again not without merit, it rests on two highly contestable assumptions. The first assumption—grounded in the classical "intermediation" view of banking—is that banks need deposits in order to make loans and other investments.[297] The obvious problem with this view is that it fails to incorporate the important role that banks play in money creation.[298] Specifically, while deposits can certainly be transformed into loans, *new loans also create new deposits*. This, in turn, serves to greatly relax the deposit constraint on a bank's ability to make new investments.[299]

The second assumption is that the customer funds deposited with the Federal Reserve would be somehow immobilized and, thus, incapable of being used to finance productive investments. Crucially, however, the core legal and institutional machinery already exists to channel these funds back into the financial system and real economy. The most important piece of this machinery is the Federal Reserve's discount window. While at present the discount window is almost universally viewed as part of the Fed's "lender of last resort" framework—for use only in the most dire of emergencies—there is little practical reason why it could not be repurposed to provide short-term financing for banks under normal market conditions.[300] Thus, for example, a bank could use its existing loans and other assets as collateral for a discount window loan, the proceeds of which it could then use to make new investments. This discount window lending would thus replace any lost deposit funding—with the additional benefit that it would not leave banks vulnerable to destabilizing depositor runs.

These challenges and objections need to be taken seriously. Ultimately, however, none of them is unresolvable, and many reflect the narrow thinking that is the product of centuries of institutional path dependence. This grounds one final point: unbundling banking, money, and payments will not only require changes in our laws and institutions, but also in our thinking about the universe of what is possible.

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[297] *See* e.g. GREG MANKIW, PRINCIPLES OF MACROECONOMICS 262 (6th ed. 2008).

[298] *See* McLeay, Radia & Thomas, *supra* note __.

[299] Importantly, however, it would not completely eliminate this constraint. To meet short-term liquidity demands, banks will inevitably wish to maintain a stock of vault cash and other reserves. They may also be required to do so by regulation.

[300] For an example of just such a proposal, see Omarova, *supra* note __.

CONCLUSION

Writing in 1985, economist and Nobel Laureate James Tobin observed:

> "The basic dilemma is this: Our monetary and banking institutions have evolved in a way that entangles competition among financial intermediary firms with the provision of transaction media. The entanglement is the source of risks of default and breakdown. Protection against these risks has brought government interventions now seen to have inefficient by-products: bureaucratic surveillance, deposit insurance, lender-of-last-resort guarantees by central banks. There is no complete resolution of this dilemma, but we may hope to limit its scope."[301]

Tobin could not have predicted the sweeping technological and other changes that would revolutionize banking, money, and payments over the next four decades. Yet as Tobin's observation makes clear, these developments present challenges that are almost as old as banking itself. This Article has explored these challenges and articulated a blueprint for how we can harness new technological developments to help overcome them. Like the Babylonians and Goldsmiths before us, we have an opportunity to build a better, faster, safer, and more inclusive financial system. While it may not completely resolve Tobin's dilemma, unbundling banking, money, and payments is the first step in this direction.

[301] Tobin, *supra* note __, 22-23.

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