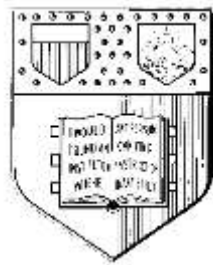


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The Finance Franchise

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THE FINANCE FRANCHISE

Robert C. Hockett & Saule T. Omarova†

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INTRODUCTION

A common view of banks and other financial institutions is that they function primarily as intermediaries, managing flows of scarce funds from those who have accumulated them to those who have need of them and are ready to pay for their use. This view of finance is routinely stated in treatises,¹ textbooks,²

¹ See, e.g., LUDWIG VON MISES, *THE THEORY OF MONEY AND CREDIT* 262 (H. E. Batson trans., Yale Univ. Press 1953) (1912) (“Banking is negotiation between granters of credit and grantees of credit.”).

² See, e.g., ZVI BODIE & ROBERT C. MERTON, *FINANCE* 22–23 (2000) (modeling financial flows as transfers from “surplus units” to “deficit units,” such as “households” and “firms”); KENT MATTHEWS & JOHN THOMPSON, *THE ECONOMICS OF BANKING* 33 (2005) (“[F]inancial intermediation is a process which involves surplus units depositing funds with financial institutions who in turn lend to deficit units.”); BARBARA CASU ET AL., *INTRODUCTION TO BANKING* 18 (2006) (Banks and “other financial intermediaries . . . channel[] funds from units in surplus to units in deficit.”); STEPHEN G. CECCHETTI & KERMIT SCHOENHOLTZ, *MONEY, BANKING, AND FINANCIAL MARKETS* 39 (3d ed. 2008) (“[A]n institution like a bank stands between the lender and the borrower, borrowing from the lender and then providing the funds to the

learned journals,³ and the popular media.⁴ It also lurks beneath the surface of familiar references to “loanable funds,” “skittish capital,” “public crowd-out of private investment,” and the like.⁵

An unspoken assumption behind the orthodox picture of finance is that a certain defined quantum of unavoidably scarce finance capital first accumulates in private hands, after which financial intermediaries facilitate flows of the privately-owned funds toward other private (and some public) actors. State instrumentalities are assumed to perform mainly secondary functions, regulating and otherwise supporting the operation of the essentially private financial marketplace from the outside. When public instrumentalities occasionally act inside the financial system, the orthodox view treats them as simply another category of market actor, functionally indistinguish-

borrower.”); RICHARD SCOTT CARNELL ET AL., *THE LAW OF FINANCIAL INSTITUTIONS* 37 (5th ed. 2013) (describing the “traditional banking function of matching checking account deposits against . . . commercial loans”); *id.* at 39 (explaining that banks, as financial intermediaries, “take money from investors, pool it, and invest the pooled money in other enterprises”).

³ See, e.g., John G. Gurley & Edward S. Shaw, *Financial Aspects of Economic Development*, 45 AM. ECON. REV. 515 (1955) (elaborating “the role of financial institutions or intermediaries in transmitting loanable funds between spending units”); John G. Gurley & Edward S. Shaw, *Financial Intermediaries and the Savings-Investment Process*, 11 J. FIN. 257 (1956) (describing financial institutions as intermediaries that transfer funds between parties); James Tobin, *Commercial Banks as Creators of “Money,”* Cowles Foundation Paper 205 (1963) (same); C. W. Sealey, Jr. & James T. Lindley, *Inputs, Outputs, and a Theory of Production and Cost at Depository Financial Institutions*, 32 J. FIN. 1251, 1252 (1977) (“The transformation process for a financial firm involves the borrowing of funds from surplus spending units and lending those funds to deficit spending units, i.e. financial intermediation.”); Ernst Baltensperger, *Alternative Approaches to the Theory of the Banking Firm*, 6 J. MONETARY ECON. 1, 1 (1980) (“The main economic functions of financial firms are those of consolidating and transforming risks on the one hand, and of serving as dealers or ‘brokers’ in the credit markets . . . on the other hand.”).

⁴ See, e.g., Paul Krugman, *The Rage of the Bankers*, N.Y. TIMES, Sept. 21, 2015, at A21 (“[B]anks make their profits by taking in deposits and lending the funds out at a higher rate of interest.”).

⁵ See, e.g., Landon Thomas, Jr., *Bond Investors are Skittish Over Emerging Markets*, N.Y. TIMES, Dec. 17, 2014, at B1 (discussing panic sales and “bond frenz[ies]” in connection with emerging markets); Tom Lydon, *Skittish Investors Turn to Safe-Haven Government Bonds, ETFs*, ETF TRENDS (Oct. 15, 2014) (discussing “safe-haven” investors in U.S. government debt); Donald P. Morgan & Kevin J. Stiroh, *Bond Market Discipline of Banks: Is the Market Tough Enough?*, FRBNY Staff Reports (Dec. 20, 1999) (discussing the putatively “disciplining” role of bond markets); Christopher J. Mailander, *Tempering a Chill on Skittish Capital Markets: Illiquid Investments in the Wake of Global Volatility*, 13 AM. U. INT’L L. REV. 379 (1997) (attributing global capital market volatility to investor “skittishness”); Olivier Blanchard, *Crowding Out*, THE NEW PALGRAVE DICTIONARY OF ECONOMICS 327 (2d ed. 2008) (discussing the idea that public investment “crowds out” private investment).

able from the private parties with whom they compete for access to inherently scarce private capital.

This understanding of finance is a pernicious and costly myth.

It is pernicious and costly because its fundamental premise that capital is inherently scarce and privately provided functions as a would-be “objective” justification for policy choices that place control over the allocation of resources—a matter of obvious public significance—exclusively in private hands.⁶ Private misallocation of capital and needlessly painful public austerity measures, often adopted in response to harms brought by such misallocation, are easier justified as putatively unavoidable costs that society must bear in return for a viable market economy.⁷

The intermediated-scarce-private-capital orthodoxy is a myth, in turn, because it profoundly misrepresents the reality of modern financial systems. Financial institutions and markets do intermediate, but, as we will demonstrate, that is not what they are mainly about.⁸ Nor is capital scarce in any sense recognizable under current conditions of chronic credit over-

⁶ Even self-professed liberal policymakers implicitly commit to this pattern when they treat capital as a privately-provided scarce resource. See David J. Lynch & Cordell Eddings, *Obama Says Real Boss in Default Showdown Means Bonds Call Shots*, BLOOMBERG (Oct. 11, 2013) (“President Barack Obama knows who is the boss: the bond market.”); James Surowiecki, *Bonds and Domination*, N.Y. MAG. (Mar. 1, 1999) (citing President Clinton’s incredulous question, “You mean to tell me that the success of the [economic] program and my re-election hinges on the Federal Reserve and a bunch of fucking bond traders?”).

⁷ See, e.g., EUGEN V. BÖHM-BAWERK, *CAPITAL & INTEREST* (1884), a founding work of the Austrian School of economics. A helpful corrective is JOSEPH A. SCHUMPETER, *THE THEORY OF ECONOMIC DEVELOPMENT* (Redvers Opie trans., Harv. U. Press 1934) (1912) (discussing the role that endogenous credit-generation by banks plays in the economic development process).

⁸ On one understanding of “intermediation,” it is *trivially* true that banks and other financial institutions intermediate, in the most readily visible sense: they stand between (1) parties to whom they are liable on deposit and other (generally short-term) financial liabilities, and (2) end-users of funds who are liable to *them* (generally on longer-term obligations). It is also *trivially* true that, in this role, banks and other financial institutions engage in maturity, liquidity, and risk transformation. The defining feature of what we call the “intermediated scarce private capital myth” is not that it acknowledges such trivially true facts, but that it inserts a fundamentally incorrect—and conceptually unnecessary—assumption of *unidirectional causality* in explaining these phenomena. It assumes, often implicitly, that intermediated finance always originates with private “savers” putting their finite pre-accumulated funds into the financial system. That is the core assumption behind the intermediation myth that is fundamentally false. We show why in greater detail below, in connection with the mechanics of bank lending. See *infra* Parts I and II.

supply and consequent “capital glut.”⁹ In fact, since the 1980s, credit-excess and consequent “searching for yield” by global investors have produced multiple asset price boom-and-bust cycles.¹⁰

This Article works to debunk the myth of finance as intermediated scarce private capital and offers an alternative, more up-to-date theoretical framework for understanding the structure and operation of our financial system.¹¹ We argue that, contrary to contemporary orthodoxy, modern finance is not primarily scarce, privately provided, and intermediated, but is, in its most consequential respects, indefinitely extensible, publicly supplied, and publicly disseminated. At its core, the modern financial system is effectively a public-private partnership that is most accurately, if unavoidably metaphorically, interpreted as a *franchise* arrangement. Pursuant to this arrangement, the sovereign public, as franchisor, effectively licenses private financial institutions, as franchisees, to dispense a vital and indefinitely extensible public resource: the sovereign’s full faith and credit.

In the United States, public full faith and credit flows through the financial system in two principal forms. The first form comprises directly-issued public liabilities: mainly Federal Reserve notes and U.S. Treasury securities. The second, quantitatively more significant yet less commonly recognized form is *publicly accommodated and monetized* private liabilities. What we call “accommodation” occurs when a public authority—typically, the Federal Reserve (the “Fed”)—takes on a

⁹ Our baseline for terms like “glut” or “excess” is the quantum of investment capital necessary to (1) fund reasonably persuasive improvements to material life, and (2) provide adequate liquidity to secondary markets in financial instruments associated with such projects. Anything more is excess, the measure of which can be tracked, for example, in the ratio of secondary market transaction volume to primary market capitalization. See *infra* Part VII.

¹⁰ See generally DANIEL ALPERT, THE AGE OF OVERSUPPLY (2013) (arguing that the central challenge facing the global economy is the oversupply of labor, productive capacity, and capital relative to their demand); see Ben S. Bernanke, The Global Savings Glut and the U.S. Current Account Deficit: Remarks at the Sandridge Lecture, Virginia Association of Economists (March 10, 2005), <http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/> [<https://perma.cc/7A73-M3JW>]; Daniel Alpert, Robert Hockett, & Nouriel Roubini, *The Way Forward: Moving From the Post-Bubble, Post-Bust Economy to Renewed Growth and Competitiveness*, NEW AMERICA FOUNDATION (Oct. 11, 2011), http://newamerica.net/publications/policy/the_way_forward [<https://perma.cc/EC8N-FAEG>]. For a thorough catalogue and analysis of recent credit-fueled asset price bubbles, see ERIK GERDING, LAW, BUBBLES, AND FINANCIAL REGULATION (2013).

¹¹ Our analysis will focus primarily on the United States. Our conclusions are likely generalizable to other jurisdictions as well, but we do not explore that prospect in this Article.

privately-issued debt liability as a liability of its own.¹² “Monetization” occurs when the ultimate beneficiary of accommodation is then able to spend the proceeds thereof as if they were currency.¹³ When a public instrumentality directly or indirectly accommodates or monetizes a private liability, it effectively extends the full faith and credit of the sovereign—in this case, the United States.

We argue that continuous public accommodation and monetization of private liabilities constitute the key mechanisms through which continuous generation and distribution of capital throughout the financial system occurs.¹⁴ To aid understanding of these dynamics, we identify three analytically distinct modes of generating and organizing financial flows: (1) credit-*intermediation*; (2) credit-*multiplication*; and (3) credit-*generation*. We show that what is routinely portrayed as the universal dynamic of “financial intermediation”—namely, “one-to-one” private intermediation of a fixed quantum of pre-accumulated private funds—actually describes only a modest fraction of financial flows in contemporary financial systems. The greater part of contemporary financial flows are generated and multiplied in conformity to what we call the credit-multiplication (“one-to-many”) and credit-generation (“none-to-many”) models. They are driven fundamentally by the sovereign public that places its own full faith and credit behind the vast quantity of private liabilities that it accommodates and monetizes.

Shifting focus from *private* intermediation to *public* accommodation and monetization as the key mechanisms of modern finance yields a more accurate and coherent picture of the structure and operation of the financial system. In this Article, we begin the project of fully constructing that picture, tracing the flow of the full faith and credit of the United States from the banking sector that lies at the core of the franchise, up through the surrounding layers of capital and shadow banking markets, all the way out to the disruptive fringe of high-tech finance.¹⁵

¹² See *infra* subpart II.B and Part IV.

¹³ See *id.*

¹⁴ We use the terms “finance,” “capital,” “credit,” etc. interchangeably and in distinction from physical capital (plant, equipment) and “human capital” (human skills and capacities). These terms generally refer to money claims conditionally and temporarily conveyed by actor A to actor B, on the understanding that (1) B will generate value through use of those claims, and (2) A will receive either a share in that newly-generated value or a non-contingent premium for making the claims temporarily available to B.

¹⁵ This picture of the financial system stands in marked contrast to the commonly accepted view of capital markets and shadow banking markets as largely

Our re-conceptualization of modern finance as a hybrid public-private franchise system bears potentially transformative analytic and normative implications. At the level of positive theory, it reverses the core presumption that has long defined and permeated the study of finance and financial policy-making: rather than falsely portraying private actors as sole suppliers of the finance capital that fuels economic growth, we show that it is the sovereign public that ultimately generates and underwrites capital flows in a modern financial system. At the level of normative theory, by standing contemporary orthodoxy's paradigmatic assumption on its head, our account yields vitally important new understandings of the appropriate roles of public and private actors in the financial system: private franchisees lever micro-informational advantages to assist the public franchisor with the task of productively allocating its full faith and credit, while the public franchisor, leveraging macro-informational advantages, retains primary responsibility for preventing both under- and over-generation of credit (i.e., modulating credit aggregates) and monitoring private franchisees' performance of their delegated credit-allocative task.¹⁶ Finally, as a practical matter, redefining the financial system's core dynamics along the proposed lines allows for more accurate, less superficial diagnoses of that system's present dysfunctions, which fundamentally constitute manifestations of an underlying failure on the part of the franchisor to modulate and oversee the allocation of credit. It also opens the policy agenda to bolder and more comprehensive reform options for restoring a healthy relation between the financial and "real" economies.¹⁷

independent, parallel alternatives to the banking system. See, e.g., FRANKLIN ALLEN & DOUGLAS GALE, *COMPARING FINANCIAL SYSTEMS* (2000) (describing bank-centered European and securities-market-centered Anglo-American financial systems as "alternative models").

¹⁶ See *infra* Part VII.

¹⁷ While our interpretation of the financial system as a public-private franchise bears obvious normative implications, it is not meant itself to be a normative theory, let alone an apologetic defense of the institutional status quo. It is, rather, an unavoidably normatively inflected "best lights" interpretation of the existing financial system's characteristic operations. Our aim is to enable that system to maximize its publicly beneficial performance potential, or to be the best that it can be, given its current institutional structure. Of course, it is important to acknowledge that even "the best that [our present arrangements] can be" might ultimately not be good enough. For purposes of this Article, however, we deliberately leave open the question whether present institutional arrangements might require wholesale replacement. For more on best-lights interpretation, see, generally, RONALD DWORIN, *FREEDOM'S LAW: THE MORAL READING OF THE AMERICAN CONSTITUTION* (1996) (proposing that courts interpret the Constitution by reference to moral principles to which broadly worded constitutional provisions

The Article proceeds as follows. Part I outlines the analytical framework on which our franchise view of finance is constructed. It defines and explains each of (a) our three models of financial flows (credit-intermediation, credit-multiplication, and credit-generation), and (b) the two key mechanisms through which the public can underwrite private such flows (accommodation and monetization).

In Parts II through VI, we use that framework as the basis for developing our comprehensive interpretation of modern finance as a public-private franchise arrangement. Part II analyzes how the franchise dynamics operate in banking, which constitutes the core of the system. Part III examines the variations of these dynamics that constitute contemporary capital markets. Part IV focuses on shadow banking, which functionally integrates traditional banking and capital markets. Part V supplements these functional accounts with essential institutional detail. It maps the critical regulatory and firm-level developments that have enabled capital and shadow banking markets to amplify, then replicate core banking credit-generation functions. Part VI shows how new modes of high-tech finance cohere with our model of franchise finance.

Finally, Part VII highlights some of the far-reaching normative implications of our view. It offers a novel interpretation of the nature and underlying causes of financialization, and emphasizes the importance of explicitly recognizing the inherent primacy of the *public*—the “franchisor”—in the public-private finance franchise as the basis for more effective and socially-beneficial policy-making.

I

THE FRANCHISE VIEW OF FINANCE: ANALYTIC FOUNDATIONS

This Part lays the foundation of our theory of modern finance as a public-private franchise. We show that only a fraction of modern finance actually flows in accordance with the textbook version of financial intermediation.

A. Three Models of Finance

There are three ways in which finance can originate and flow: what we call the (1) credit-intermediation (“one-to-one”);

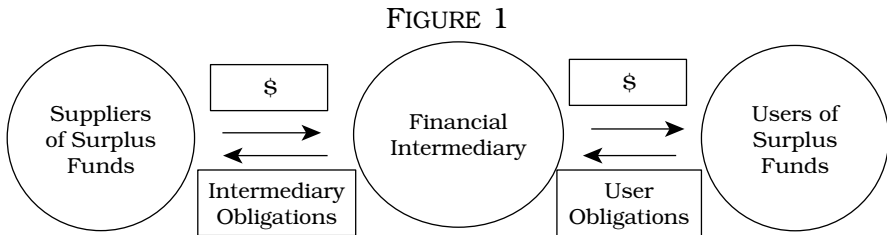
can be viewed as giving expression); RONALD DWORKIN, *LAW'S EMPIRE* 47 (1986) (arguing that interpretation involves grasping that which is interpreted “in its best light” and then “restructur[ing] it” in keeping with the “meaning” that must be imposed upon it for it to emerge in its best light).

(2) credit-multiplication (“one-to-many”); and (3) credit-generation (“none-to-many”) models.

1. *The Credit-Intermediation Model*

The “one-to-one” credit-intermediation model is the familiar image implicitly assumed by contemporary orthodoxy.¹⁸ In this picture, that which is lent or invested is always something that has been previously accumulated, hence is limited both by the finite stock of the latter and by the willingness of its private accumulators to invest it. Private parties essentially borrow from or invest in *one another*, and one can only invest or borrow what is “already there” in previously accumulated, privately-owned form. In this model, financial institutions and markets function primarily as sites of capital accumulation (where savers or “surplus units” keep their accumulated funds) and intermediated exchange (where savers and would-be users of capital can inexpensively “find” and “monitor” one another).¹⁹

This orthodox view of how finance works is schematically represented in *Figure 1*, in which the temporal (pre-accumulation) aspect of the process is depicted when read left to right, and the intermediation (“one-to-one”) aspect is shown in the equal sizes of the discs.



If this standard textbook picture of intermediation were an accurate representation of the entire financial system, then (a) all financial institutions would effectively be variations on the mutual fund form, and (b) all financial markets would effectively be variations on peer-to-peer lending platforms.²⁰ This observation alone suggests that the credit-intermediation model might overlook something in modern financial systems. At the very least, it overlooks banking.

¹⁸ See sources cited *supra* notes 1–5.

¹⁹ *Id.*; see also Douglas W. Diamond, *Financial Intermediation and Delegated Monitoring*, 51 REV. ECON. STUD. 393, 393–94 (1984); Douglas W. Diamond, *Monitoring and Reputation: The Choice Between Bank Loans and Directly Placed Debt*, 99 J. POL. ECON. 689, 690–91 (1991).

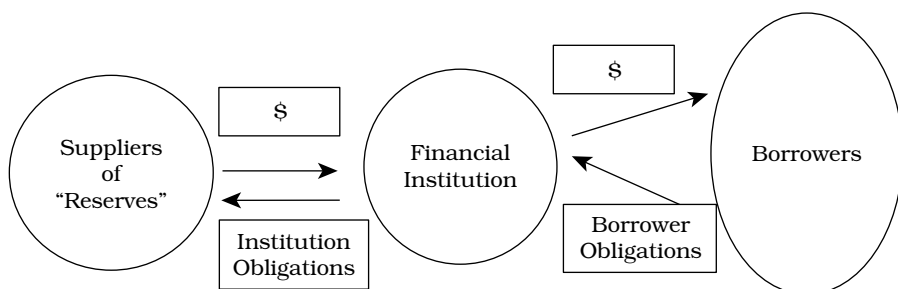
²⁰ See sources cited *supra* notes 1–5.

2. The Credit-Multiplication Model

The most familiar counter-example posing a direct challenge to the “one-to-one” intermediation orthodoxy is the commercial bank that engages in so-called “fractional reserve banking.”²¹ In the fractional reserve picture, the banking system lends out more than it receives in investor deposits.²² It holds only enough of the latter to handle anticipated daily withdrawals or similar obligations, and lends out the rest. “The rest,” crucially, serves as the basis of additional lending, so that an originally deposited monetary “base” can be multiplied many-fold. We accordingly call this picture the “one-to-many” credit-multiplication model.²³

This view of how finance works is schematically represented in *Figure 2*, in which the multiplicative (i.e., “one-to-many”) feature is represented by the larger size of the disc on the right relative to the disc on the left.

FIGURE 2



The credit-multiplication model, were it accurately to capture much of what occurs in the financial system, would signifi-

²¹ See CHESTER ARTHUR PHILLIPS, *BANK CREDIT: A STUDY OF THE PRINCIPLES AND FACTORS UNDERLYING ADVANCES MADE BY BANKS TO BORROWERS* 165–69 (1920); PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, *ECONOMICS* 464–65 (19th ed. 2010); JOSEPH STIGLITZ, *ECONOMICS* 732–34 (W.W. Norton & Co. 2d ed. 1997).

²² Demand deposits are typically viewed as callable loans extended to banks by depositors. As explained below, however, loans made by banks also take the form of demand deposits opened by lenders for their borrowers. Therefore, it is potentially misleading to think of all deposits as loans to, as distinguished from liabilities of, the bank. See *infra* subpart II.A.

²³ The typical illustration of credit-multiplication through fractional reserve banking begins with a bank that holds 10% of its deposit liabilities in reserve. The remaining 90% is lent out, with borrowers depositing that remainder in their own accounts in the banking system. The banks receiving this 90% as deposits lend out another 90% of the amount received, and repeat this step until an initial depository base is multiplied nine-fold in the aggregate. See FRIEDRICH A. HAYEK, *GELDTHEORIE UND KONJUNKTURTHEORIE* 90 (1929).

icantly falsify the one-to-one credit-intermediation model.²⁴ While the two models share the fundamental assumption that finance capital must be pre-accumulated before credit can be extended, the credit-multiplication model explicitly rejects that only previously accumulated capital can be lent or invested. In this picture, the aggregate funds lent or invested constitute a multiple of the funds originally supplied by private savers, with the multiplicative factor inversely proportional to the reserve ratio.

These observations have two significant implications. The first is that, for any x representing the percentage of pre-accumulated funds that financial institutions hold in reserve, “100 minus x ” will represent the percentage of credit outstanding that is *not* pre-accumulated capital.²⁵ The multiplicative factor effectively “levers up” previously accumulated funds and thus diminishes putative capital scarcity proportionally, even if not eliminating it entirely.

The second, more far-reaching implication is that, since the “100 minus x ” percent of credit outstanding is not pre-accumulated and the x can in theory be made arbitrarily small—even to the vanishing point—credit cannot be dependent upon privately pre-accumulated “loanable funds.”²⁶ In other words, finance capital need not actually be scarce even in the more limited sense implied by the credit-multiplication model. This takes us directly to the third model of financial flows.

3. *The Credit-Generation Model*

The fact that x can be made arbitrarily small in the fractional reserve banking story raises the prospect that credit-extension, and hence the supply of financial capital, might not be scarce at all. Instead, it might be more accurate to view lending institutions as *generating* finance capital, rather than simply *intermediating* or even *multiplying* it. This is the prospect captured by what we call the “none-to-many” credit-generation model of finance.

²⁴ This does not prevent some scholars from proffering the one-to-one intermediation and credit-multiplication models simultaneously. See, e.g., CARNELL ET AL., *supra* note 2, at 45 (“[B]anks need to keep only a fraction of total deposits on reserve as cash . . . [t]hey can invest the rest in loans or other illiquid but profitable ventures. Only because of fractional reserves can banking be highly profitable.”).

²⁵ In the standard example cited above, this percentage would be 90%.

²⁶ “Loanable funds” is the orthodox term-of-art for that which is pre-accumulated and then invested. See *infra* Part II.

In the credit-generation picture, credit outstanding is not fundamentally dependent upon—or, therefore, limited by—pre-accumulated investment capital. It is limited only by investment opportunities that certain financial institutions—namely, those authorized to credit or open borrower accounts whose contents are spendable as money—view as potentially profitable.²⁷ In other words, credit is endogenous rather than subject to exogenously given, pre-accumulated funds.²⁸

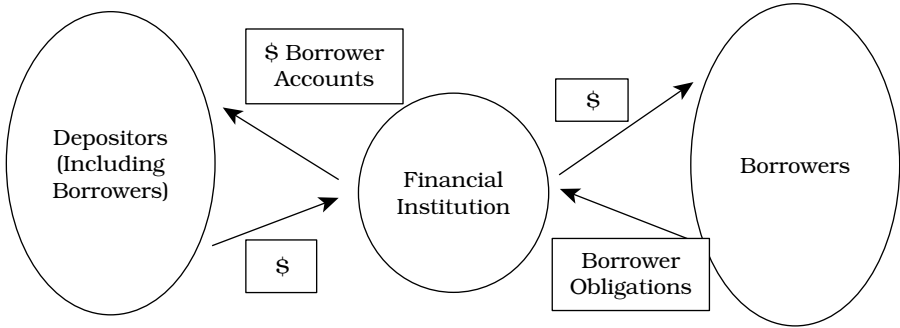
This view is schematically represented in *Figure 3*, in which the pre-accumulation factor disappears, and the indefinite extensibility of credit is represented by the enlarged sizes of the discs to right and left: loan volume grows (on the right), and loan proceeds are then deposited in accounts upon which borrowers may draw (on the left). It is important to note that, in contrast to *Figures 1* and *2*, causation here runs from right to left.²⁹

²⁷ The credit-generation model has a venerable pedigree and is probably the oldest view of banking, shared by most bankers and central bankers even today. This Article not only reasserts this view but also shows its applicability and explanatory power with respect to a broader spectrum of financial activities beyond banking.

²⁸ The classic texts on endogenous credit-money are HENRY THORNTON, AN ENQUIRY INTO THE NATURE AND EFFECTS OF THE PAPER CREDIT OF GREAT BRITAIN (F.A. v. Hayek ed., A.M. Kelly 1965) (1802); KNUT WICKSELL, INTEREST AND PRICES (R.F. Kahn trans., A.M. Kelly 1962) (1936); JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT (Redvers Opie trans., Harv. U. Press 1934) (1912).

²⁹ As mentioned earlier, it is precisely this fact that the intermediated scarce private capital myth overlooks. See *supra* note 8. The fact that the discs on the left and right hand sides of the diagram are roughly equal in size reflects the truisms that (a) the financial institution “stands between” parties to whom it is obligated and parties that are obligated to it, (b) the institution’s liabilities and owner equity roughly equate to its assets, and (c) the institution in that sense “intermediates” between obligors and obligees. But this is a matter of accounting identities, and in that sense is only trivially true: it tells us nothing about causal directionality. For the latter, we must turn to the mechanics of actual lending and deposit-opening. See *infra* Part II. There we find that, contrary to what is simply assumed by the intermediated scarce private capital orthodoxy, causation runs primarily from lending to deposit-opening, not the other way around—and that, consequently, obligors and obligees are often the very same parties.

FIGURE 3



Another important element of the credit-generation picture is that, as noted above, the financial institution in its center is *authorized* to credit or open borrower accounts *spendable as money*.³⁰ This capacity, represented on the left-hand side of *Figure 3*, proves critical in demonstrating the falsity of another implicit assumption behind the intermediation orthodoxy: that finance is primarily, if not exclusively, *privately* accumulated and supplied.³¹ These two conditions—“authorization” and “spendability as money”—signal a foundational role played by the public in generating and sustaining financial flows.³²

B. Public Underwriting of “Private” Finance: Accommodation and Monetization

Where credit flows conform to the multiplication or generation models, as they do in all modern financial systems, the public inevitably becomes the financial system’s principal protagonist. Here, we explain *why* and *how* this happens.

As noted above, the public enters the realm of finance in two primary capacities and for two primary reasons: (1) as the source of legal authorization and oversight of financial institutions multiplying or generating credit; and (2) as the guarantor of the money-like “spendability” of deposits held by such institutions.³³ The public must act in these capacities in order to provide an elastic currency and a payments system: indispensable public goods fundamentally dependent on the continuing functioning of financial institutions that multiply or generate credit-money.

³⁰ CASU ET AL., *supra* note 2, at 22–25.

³¹ *Id.* at 59–63.

³² *Id.* at 196.

³³ See *supra* text accompanying notes 12–13.

This explains why any modern financial system, in which credit flows primarily in conformity with the multiplication or generation models, constitutes a public-private franchise arrangement. To reap the growth benefits of expandable yet stable credit-money and a payments system, it becomes imperative that the sovereign undertake *ex ante* to recognize certain private liabilities associated with credit-multiplication or -generation as liabilities of its own.³⁴ It is equally imperative that these publicly-accommodated private liabilities be freely spendable as money. That takes us to the phenomena of what we call “accommodation” and “monetization.”

Accommodation and monetization are the two principal mechanisms through which the sovereign enables credit to be indefinitely generated in immediately spendable form, by committing *ex ante* to convert certain private liabilities into public liabilities that serve as money.³⁵ It is by virtue of performing these twin acts of accommodation and monetization of privately-issued liabilities that the sovereign becomes a *de facto* franchisor. As Parts II through IV will demonstrate in detail, the principal components of modern financial systems jointly constitute such franchise arrangements.³⁶ Under the terms of each such arrangement, the sovereign public, as franchisor, effectively licenses private financial institutions, as franchisees, to dispense what it pre-commits to convert into the sovereign’s own monetized full faith and credit.

This arrangement is schematically represented in *Figure 4*, in which a financial institution extends credit-money to borrowers in exchange for borrower liabilities, then monetizes those liabilities through a public institution. The latter “accommodates” the initial credit extensions by crediting lending institution accounts through which drafts clear.³⁷

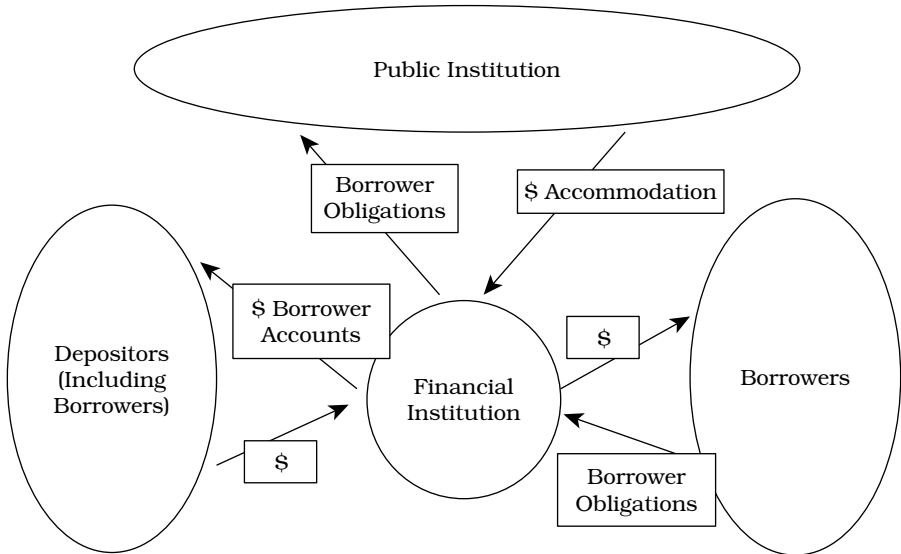
³⁴ This does not refer solely to deposit insurance mechanisms. As described below, more important is the sovereign’s guaranteed clearing of drafts drawn on accounts. See *infra* Part II.

³⁵ See generally Michael McLeay et al., *Money Creation in the Modern Economy*, BANK ENG. Q. BULL., Q1 2014, at 2–12, <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q1prereleasemoneycreation.pdf> [<http://perma.cc/R29Q-MX28>] (describing the role of the central bank in money-generation).

³⁶ This is generally true of jurisdictions that issue their own currencies and rely upon stable credit-multiplication or -generation to maintain economic growth. See *infra* subpart II.B.

³⁷ See *infra* Part II for further detail on these mechanics. Note that, in contrast to *Figures 1* and *2*, where credit flows originate on the left-hand side and work their way to the right, *Figure 4* depicts a double-movement. On the one hand, flows originate on the right and proceed simultaneously leftward and upward. On the other hand, the public’s pre-committing to what occurs at the top

FIGURE 4



The Fed and the Department of Treasury (“Treasury”) are the two principal federal instrumentalities that act on behalf of the American public as sovereign franchisor in channeling the flow of public full faith and credit throughout the financial system.³⁸ Their actions are most readily observable in the banking sector, where the Fed directly and routinely accommodates and monetizes both public and private credit.³⁹ The same dynamics, however, are also at work in the capital and other financial markets.⁴⁰ Thus, Fed-accommodated bank credit directly flows through those markets. The Fed also directly accommodates the monetized credit generated in the so-called shadow banking sector. Furthermore, U.S. Treasury debt—directly issued, securitized full faith and credit of the United States—plays a critical role in underwriting private financial flows in those markets. Tracing these dynamics in greater detail helps to reveal the operative logic of finance as a public-private franchise.

enables the great bulk of what occurs on the right, and hence on the left, to occur at all.

³⁸ Other public instrumentalities that perform these functions in more narrowly drawn circumstances include, e.g., the government sponsored enterprises (“GSEs”) and the Federal Deposit Insurance Corporation (“FDIC”). We note their roles at relevant points below, but concentrate mainly upon the Fed and the Treasury.

³⁹ See *infra* Part II.

⁴⁰ See *infra* Parts III–V.

II

THE CORE OF THE FRANCHISE: BANKS, CENTRAL BANKS,
FULL FAITH & CREDIT

The intermediation orthodoxy portrays banks as paradigmatic financial intermediaries operating as depicted in *Figure 1* above. They are said to engage in qualitative asset transformation, enabling depositors' privately-supplied, short-term loanable funds to finance longer-term lending on a scale required in a modern economy.⁴¹ This Part shows that view to be false, notwithstanding the truth of the truism that a bank's liabilities comprise primarily short-term demand deposits while its assets comprise mainly longer-term loans and fixed-income securities.⁴² Contrary to the intermediation myth, a modern bank's primary—or "special"—role is that of licensed private purveyor of the public full faith and credit as depicted in *Figure 4* above.⁴³

A. Banks: Loans Make Deposits

According to the orthodox view of financial intermediation, banks link accumulators of surplus capital with households, firms, and sometimes government instrumentalities that require temporary access to this capital.⁴⁴ In this model, a finite quantity of exogenously given, privately pre-accumulated finance capital is deposited in banks in the form of short-term deposits and is subsequently used by banks to finance, on a simple pass-through ("one-to-one") basis, long-term loans to those who make productive use of that capital. This view of banking is a straightforward variation on the generic intermediation model in *Figure 1*, as depicted in *Figure 5*.

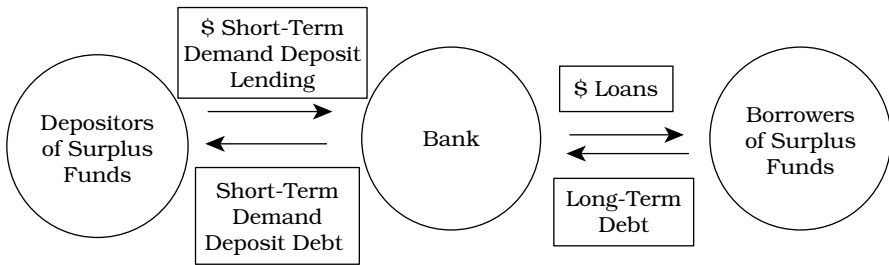
⁴¹ See Bryan Noeth & Rajdeep Sengupta, *Is Shadow Banking Really Banking?*, THE REG'L ECON., Oct. 2011, at 8 (explaining qualitative asset transformation); see also *supra* notes 2–5; STUART I. GREENBAUM & ANJAN V. THAKOR, CONTEMPORARY FINANCIAL INTERMEDIATION 55–58 (2d ed. 2007).

⁴² Focusing on this trivially true fact of "qualitative asset transformation"—i.e., the transformation of maturities, liquidity, or risk associated with the two sides of a financial institution's balance sheet—often obscures the pernicious causal assumption embedded in the orthodox view of financial intermediation. That banks engage in maturity, liquidity, and risk transformation is both true and irrelevant to our argument: it is the assumption of a specific causal directionality that defines the orthodox view of banking and explains why that view is incorrect. See *supra* notes 8, 29.

⁴³ The word "special" is something of a term of art in bank-regulatory parlance. See, e.g., E. Gerald Corrigan, *Are Banks Special?* FED. RES. BANK OF MINNEAPOLIS ANN. REP. 1982 (Jan. 1, 1983); E. Gerald Corrigan, *Are Banks Special? A Revisitation*, THE REGION, Mar. 1, 2000, at 14.

⁴⁴ See *supra* notes 2–5.

FIGURE 5



This is the essence of the “loanable funds” model of banking, pursuant to which “deposits make loans,” savings determine investment, and funding costs are simply prices (or money rental rates) determined by the familiar confluence of supply of and demand for privately-provided funds.⁴⁵ Despite its well-established status, however, this intermediated loanable funds view of banking is fundamentally incorrect. Outlining the mechanics of a simple bank lending transaction reveals how the orthodox view, in fact, *reverses* the causal directionality of actual banking relations.

When a bank receives a loan application from a creditworthy business or household, the bank does not peer into a vault to determine how much in the way of depositors’ funds are on hand to lend out to others, then put available such funds at the disposal of the borrower. Nor does the bank engage in any contemporary analogue to that act, like checking its reserve balance at the regional Federal Reserve Bank and then using the available balance to transfer funds to the borrower.⁴⁶ The bank simply credits a checkable borrower account (either newly opened or pre-existing), then books this transaction as an asset and a liability of its own, on the one hand, and an asset and a liability of the borrower, on the other hand.⁴⁷

The transaction books as an asset of the bank because the bank is now owed on the loan: it holds a promissory note issued by the borrower. It books as a liability of the bank because the bank must now honor all drafts drawn on account by

⁴⁵ See M. G. Hayes, *The Loanable Funds Fallacy: Saving, Finance, and Equilibrium*, 34 CAMBRIDGE J. ECON. 807, 812 (2010) (describing the “loanable funds” model of banking); L. Randall Wray, *Alternative Theories of the Rate of Interest*, 16 CAMBRIDGE J. ECON. 69, 85 (1992) (characterizing the conventional model as one in which exogenously determined “deposits make loans”).

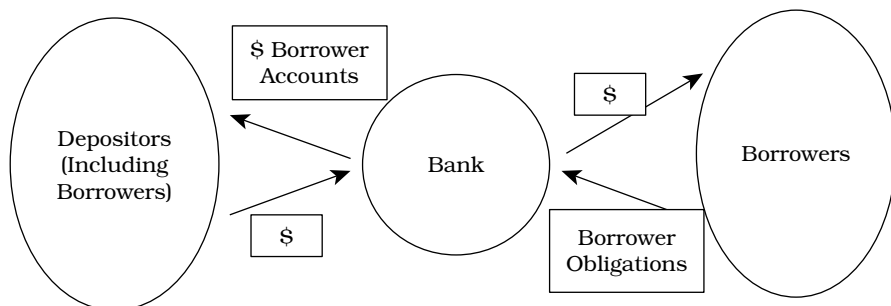
⁴⁶ The latter prospect is envisaged by the credit-multiplication model described *supra* section I.A.2.

⁴⁷ On the basic mechanics of bank lending, see McLeay et al., *supra* note 35, at 2–8.

the borrower up to the loan amount. At the same time, the transaction books as an asset of the borrower because the borrower now owns, and is able to draw upon, a new or newly credited account. It books as a liability of the borrower because the borrower must repay the bank in accordance with the terms of the promissory note.

As a matter of accounting, there is obviously a one-to-one correspondence between assets and liabilities, which by accounting convention always are mutually offsetting.⁴⁸ Nevertheless, as a result of this simple transaction, there is now more money at work in the economy, as routinely tracked by the “broad money” measures.⁴⁹ In making the original loan, the bank has temporarily created a form of credit-money seemingly out of the proverbial “thin air.”⁵⁰ It has not simply transferred a preexistent quantum of loanable funds from depositors to borrower, thereby intermediating between them on the model of *Figures 1* and *5*. It has temporarily increased—for as long as the loan remains outstanding—the aggregate credit-money supply, i.e., the supply of finance capital, along the lines pictured generically in *Figure 3* and now more specifically in *Figure 6*.

FIGURE 6



As *Figure 6* makes clear, this process is not reducible to mere credit-multiplication in the form of fractional reserve banking, described above.⁵¹ Contrary to the credit-multiplication view, it is not necessary for banks to accumulate privately-supplied deposits as the requisite base to be multiplied

⁴⁸ *Id.* at 3.

⁴⁹ *Id.* “Broad money” is “a measure of the total amount of money held by households and companies in the economy” and includes “bank deposits” and “currency.” *Id.* at 2.

⁵⁰ Of course, as we show below, banks do not possess any magical ability to create credit-money “out of thin air”—they merely monetize the sovereign public’s full faith and credit. See *infra* subpart II.B.

⁵¹ See *supra* section I.A.2.

through lending. Deposits do not make loans: loans make deposits.

This finds stark regulatory expression in the fact that bank reserve requirements serve purely as a liquidity-maintenance measure of no direct relevance to the process of money-creation.⁵² Even the introduction of capital regulation, which limits bank investments to a multiple of shareholder equity (rather than deposits) as a means of protecting bank solvency and/or limiting economy-wide leverage, does not appreciably alter the causal relation between bank assets and liabilities. Violation of such requirements will trigger regulatory sanctions, but will not retroactively cancel any accomplished act of credit-extension—hence money-generation—by a banking institution.⁵³ In that sense, neither reserve nor capital requirements function as inherent or natural limits on bank lending: they are simply regulatory tools through which the sovereign modulates the aggregate quantity of credit—and, ultimately, the sovereign's own full faith and credit—circulating throughout the economy.⁵⁴

B. Central Banks: Deposits Are Money

As if to underscore this last point, the central bank or monetary authority has to *accommodate* this act of money-creation undertaken by the privately-owned lending bank. Ac-

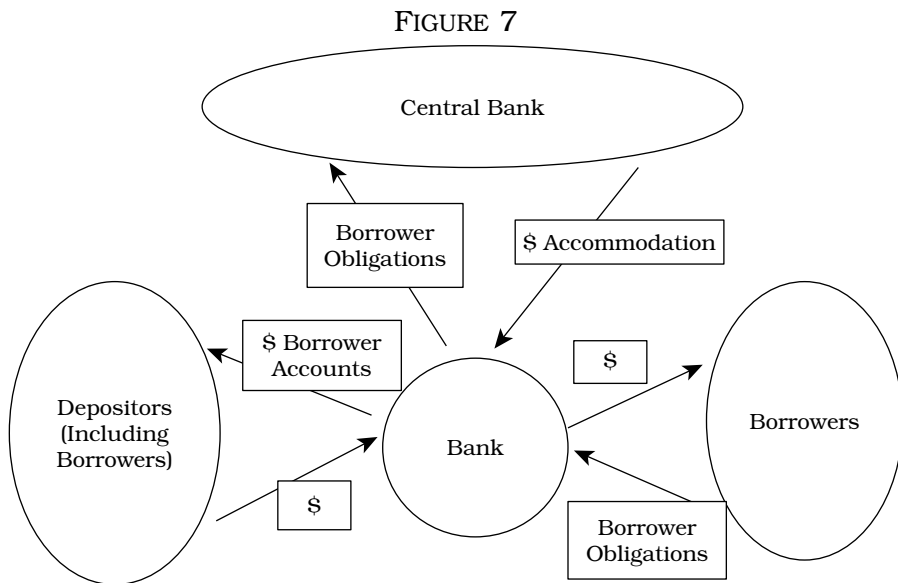
⁵² Many financially well-developed jurisdictions—notably, the U.K. and Canada—impose no reserve requirements on banks. See McLeay et al., *supra* note 35, at 3, n.2 (noting absence of reserve requirements in U.K.); Robert H. Rasche, *Reserve Requirements and Monetary Policy*, CENT. BANKER, Spring 1999, <https://www.stlouisfed.org/publications/central-banker/spring-1999/reserve-requirements-and-monetary-policy> [<http://perma.cc/T3AW-T8DZ>] (noting Canada's abolition of reserve requirements).

⁵³ The bank maintains compliance with reserve requirements either by lending less, by seeking more deposits, or by borrowing in the (typically overnight) interbank lending market. It is essentially because deposit funding is less expensive than interbank borrowing that banks seek deposits, even though they do not depend on deposits as sources of loanable funds. In other words, banks seek deposits simply because the franchisor—the public, via the central bank—modulates the dispensing of its resource partly by reference to deposited funds. The bank generally maintains compliance with capital requirements either by lending/investing less, by reducing the risk of its asset portfolio, or by issuing equity. See, e.g., John Carney, *Basics of Banking: Loans Create a Lot More Than Deposits*, CNBC (Feb. 26, 2013), <http://www.cnbc.com/id/100497710> [<http://perma.cc/UWP3-78ZF>] (explaining how banks comply with reserve requirements).

⁵⁴ It is worth emphasizing here that capital requirements in particular are a critically important regulatory tool for modulating the private generation of credit by banks, especially if such requirements are set at appropriately high levels. For a compelling argument that capital requirements should be much higher than they are presently, see ANAT ADMATI & MARTIN HELLWIG, *THE BANKER'S NEW CLOTHES* 6–9 (2013).

commodation is the act by which the central bank transforms a private liability (that of the lending bank) into a public liability (that of the central bank). It does so by crediting a reserve account in the name of the lending bank, and thereby enabling checks drawn on the new (or newly augmented) account by the original borrower from the bank to clear.

Schematically, central bank accommodation transforms *Figures 3 and 6* above into a more accurate picture in *Figures 4 and 7*.



Central bank accommodation is an unavoidable result of the fact that, in most modern economies, the central bank or monetary authority maintains an overnight interbank lending rate target and/or administers a payments infrastructure on which privately drawn checks clear at par.⁵⁵ Without accommodation, some checks drawn on lending banks would fail to clear. That would undermine the payments system and, with it, the essential functioning of the real economy.⁵⁶ Central

⁵⁵ For a general overview of the Fed's role in maintaining interbank lending rates and administering the U.S. payments system, see BD. OF GOV. OF FED. RES. SYS., *THE FEDERAL RESERVE SYSTEM: PURPOSES & FUNCTIONS* (10th ed. 2016), http://www.federalreserve.gov/pf/pdf/pf_complete.pdf [<https://perma.cc/23D7-NJFL>].

⁵⁶ For more on these mechanics, see Jaromir Benes & Michael Kumhof, *The Chicago Plan Revisited* (IMF, Working Paper No. 12/202, 2012); Ulrich Bindseil, *The Operational Target of Monetary Policy and the Rise and Fall of the Reserve Position Doctrine* (Eur. Cent. Bank, Working Paper No. 372, 2004); Piti Disyatat, *Monetary Policy Implementation: Misconceptions and Their Consequences* (Bank for Int'l Settlements, Working Paper No. 269, 2008).

banks are accordingly constrained to accommodate to ensure effective clearing, hence to ensure smooth transacting.

Because the central bank's crediting of the lending bank's reserve account also enables borrowers to spend out of their new or newly credited demand deposit accounts, the act of *accommodation* here also amounts to an act of *monetization*.⁵⁷ The central bank is in effect *publicly monetizing* the privately issued promissory note that has been signed by the individual borrower in favor of the lending bank. By publicly monetizing a privately-issued financial instrument, the central bank is placing the full faith and credit of the nation behind the credit of the individual.

To put the point differently, the private borrower "securitizes" her own creditworthiness in issuing her promissory note to the private bank, while the public central bank in turn "monetizes" that promissory note in "accommodating" the private bank's act of crediting the private borrower's account.⁵⁸ In this sense, the private bank is simply assisting the public central bank in deciding which privately-issued promissory notes to monetize. The interest it earns on the loan is its payment—its privatized *seigniorage*—for assisting the central bank in this allocation of the public's full faith and credit.⁵⁹ In effect, not only do loans make private deposits, rather than the other way round, but privately originated loans can also make public central bank reserves, rather than the other way round.⁶⁰

The "public" central bank, operating in part through the "private" banks, thus enables us collectively to "spot one an-

⁵⁷ Robert C. Hockett & Saule Omarova, *Challenging the Financial Intermediation Myth*, CLS BLUE SKY BLOG (Oct. 17, 2016), <http://clsbluesky.law.columbia.edu/2016/10/17/challenging-the-myth-of-financial-intermediation/> [<https://perma.cc/K8RA-ZN4V>].

⁵⁸ For a more technical description of securitization, see *infra* Part III.

⁵⁹ "Seigniorage" denotes the benefit traditionally enjoyed by a sovereign that issues its own currency in virtue of its being able to "produce" *ad libitum* that which it "spends" in commanding goods and services. See, e.g., *Definition of Seigniorage*, FIN. TIMES, <http://lexicon.ft.com/term?term=seigniorage> [<https://perma.cc/S5D3-CC4Q>] (last visited Mar. 18, 2017). Where the sovereign is the sole authorized issuer, seigniorage is in the nature of a rent. As its etymology suggests, the term goes back a long way. The most straightforward contemporary instance of seigniorage is that in which a sovereign issues, e.g., a \$1 bill that costs it 5 cents to print. In such case, the seigniorage is 95 cents. The money-issuance we discuss below is not that involving "money printing" but, rather, lending, which we shall see creates what is known now as "credit-money" or "bank-money." *Id.*

⁶⁰ Seth Carpenter & Selva Demiralp, *Money, Reserves, and the Transmission of Monetary Policy: Does the Money Multiplier Exist?*, 34 J. MACROECON. 59 (2012); Finn E. Kydland & Edward C. Prescott, *Business Cycles: Real Facts and a Monetary Myth*, 14 FED. RES. BANK. OF MINN. Q. REV. 3, 9 (1990).

other credit” individually, as we jointly and severally work to improve our material lives over time. It is all a matter of *ex ante* gatekeeping by private banking institutions acting pursuant to publicly provided guidelines, followed by *ex post* accommodation and monetization by the public’s agent—the central bank or monetary authority.⁶¹ Ultimately, private banks are purveying public credit.

As privileged purveyors of the monetized full faith and credit of the United States, explicitly accommodated and protected by the central bank, privately owned banks constitute the inner core of the financial system.⁶² Not surprisingly, other financial institutions and markets tend to grow around, attach themselves to, and even attempt functional *amplification and replication* of the core banking franchise. However, they often do so without paying the “franchise fees” imposed on banks in the form of chartering conditionality and close regulation.⁶³ That takes us on to the capital and shadow banking markets.

⁶¹ See FDIC, *Privatizing Deposit Insurance: Results of the 2006 FDIC Study*, 1 FDIC Q. 23, 26 (2007). Serious violations of the guidelines can result in withdrawal of bank charters but not a refusal to accommodate and monetize loans already extended. COMMERCIAL BANK EXAMINATION MANUAL, STATUTES AND REGULATIONS ADMINISTERED BY THE FEDERAL RESERVE 11 (2000).

⁶² In a similar vein, Morgan Ricks calls the formal banking system a “joint venture” between the state and private institutions, i.e., banks, to which the state grants the exclusive legal privilege of creating money by issuing deposit liabilities. See, e.g., Morgan Ricks, *Money and (Shadow) Banking: A Thought Experiment*, 31 REV. BANKING & FIN. L. 731, 743 (2011–2012) (“[O]ur existing system of *depository* banking can be understood as a joint venture with the state for the efficient distribution of the money supply.”). While Ricks focuses on short-term bank and “shadow bank” liabilities as sites of money-creation, our work focuses on bank and “shadow bank” assets as sites of publicly “accommodated” credit-money-expansion. In our view, the modulation and productive allocation of the latter is as urgent a long-term policy concern as the “panic-proofing” of short-term funding markets that motivates Professor Ricks’ proposals. See, e.g., Morgan Ricks, *A Simpler Approach to Financial Reform*, REGULATION 36, 36 (Winter 2013–2014) (“The licensed money approach is designed to render the financial system panic-proof.”). For a book-length account of Ricks’ approach, see MORGAN RICKS, *THE MONEY PROBLEM* (2016).

⁶³ The conventional explanation of bank regulation portrays the standard regulatory requirements—chartering, enumerated powers, portfolio regulation, capital regulation, and expedited liquidation in bankruptcy—as strings attached to receipt of federal deposit insurance. While this is correct, it tends to overlook the fact that bank regulation antedates deposit insurance, precisely because banks are granted credit-money-generation authority. FDIC, *supra* note 61, at 26.

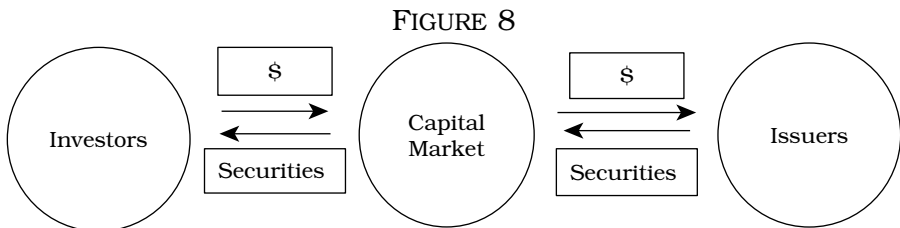
III

CAPITAL MARKETS AND THE BANKING CORE: PUBLIC
CREDIT UNDERWRITES PRIVATE CREDIT

The precise channels through which public credit flows outside the formal banking system are more subtle and difficult to trace than the mechanics of traditional banking, described above. This fact partly accounts for the persistence of the intermediated-scarce-private-capital myth in descriptions of the operation of the capital and money markets.⁶⁴ However, a careful examination of the underlying dynamics in these markets reveals the essential role of the public's full faith and credit in generating and amplifying private financial flows. This Part traces these core dynamics in capital markets, while Part IV focuses specifically on the shadow-banking sector.

A. Transactional Links Between Capital Markets and Banking

On the orthodox understanding, capital markets function as sites for bringing together those who have pre-accumulated scarce private capital and those—primarily firms—that seek capital to finance their growth and operations. Credit thus flows in accordance with the one-to-one intermediation model, discussed in section I.A.1 and illustrated in *Figures 1* and *5* above. All that changes is the nomenclature, as depicted in *Figure 8*.



In this picture, capital markets functionally replace individual financial institutions, such as banks, as intermediaries of financial flows.⁶⁵ Just like banks or other financial intermediaries, capital markets minimize participants' "search

⁶⁴ "Money markets" are conventionally understood as markets in instruments with maturities of one year or less. "Capital markets" are markets in instruments with maturities greater than one year.

⁶⁵ This is another way of saying that, in this view of finance, capital markets "disintermediate" banks by providing alternative channels for borrowers and savers to transact with one another on a more directly "peer-to-peer" basis. As we argue below, this commonly encountered notion of disintermediation captures only certain superficial differences between capital and banking markets but

costs” and “monitoring costs,” via such markets’ “price discovery” function.⁶⁶ Importantly, however, capital markets’ ability to reduce these transaction costs does not, in and of itself, serve as a proof that the one-to-one intermediation model accurately describes how these markets operate: searching and monitoring must be done by investors who *borrow* to invest just as by investors who deploy *pre-accumulated* funds to invest. In fact, there are many reasons to doubt the orthodox view of capital markets as pure sites of one-to-one intermediation. For example, growing volumes of corporate “stock-buyback” activity in recent decades indicate that modern firms are not as dependent on diffuse investor-supplied capital in financing their operations as orthodoxy postulates them to be.⁶⁷

But there is an even more directly visible link between the capital and banking markets, which shows the limited reach of the orthodox intermediation narrative. That narrative ignores the basic fact that capital market investors—not only financial institutions but also ordinary investing individuals—are able to finance their purchases of securities in capital markets by *borrowing* (directly or indirectly) *from banks*, in accordance with the model in Part II above.⁶⁸ To the extent such levered investing is a basic fact of the capital markets, it defies the fundamental assumption that “accumulators” of scarce funds directly finance issuing firms.⁶⁹ It shows that capital market investors themselves often act as the true “intermediaries” in the process of transferring capital from banks—the ultimate “investors” in securities purchased with the money borrowed from them—to firms.

Of course, banks’ involvement as the ultimate source of capital that is being “intermediated” in capital markets directly implicates public accommodation and monetization, discussed above. Accordingly, the process can be schematically represented by combining *Figures 7 and 8*, as shown in *Figure 9*.

overlooks the underlying mechanisms through which these markets are deeply integrated.

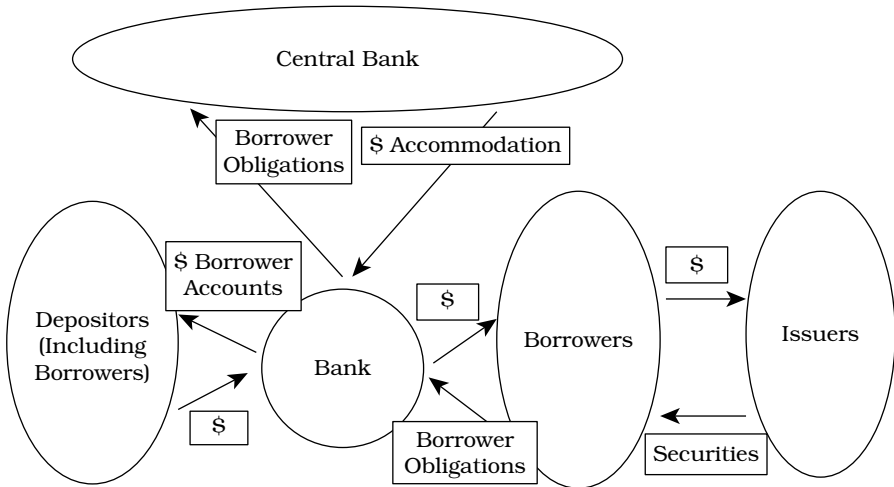
⁶⁶ This crucial “price discovery” function is performed mainly by secondary markets, in which many parties buy and sell previously issued securities on the basis of continuously leaking, value-germane information. Indeed, one of the cardinal advantages of this “disintermediated” mode of finance is said to be its efficiency in aggregating information, which no single intermediary can match.

⁶⁷ See William Lazonick, *Profits without Prosperity: Stock Buybacks Manipulate the Market and Leave Most Americans Worse Off*, HARV. BUS. REV., Sept. 2014, at 46, 47–51.

⁶⁸ See *infra* subpart V.C for more on the law and mechanics of margin lending.

⁶⁹ Hockett & Omarova, *supra* note 57.

FIGURE 9



In most modern jurisdictions, this type of “margin lending”—extensions of credit for the purpose of purchasing securities—is limited by regulation, which historically emerged in response to financial asset-price bubbles and busts brought about by procyclical endogenous-money creation.⁷⁰ But this is precisely the point. Margin lending is regulated because it is a conduit through which indefinitely extensible public full faith and credit finds its way into the capital markets, via the banking (or shadow banking) channels.⁷¹ In effect, margin regulation signals implicit recognition of the basic fact that what flows through capital markets is not primarily scarce pre-accumulated funds but the public’s own full faith and credit—a potent financial fuel prone to over-generation and misallocation by its private purveyor-institutions.⁷²

Public credit also flows through capital markets in a variety of less readily visible forms. As we show below, public full faith and credit serves to *underwrite* putatively private finance in the capital markets. In this case, however, the full faith and credit is not *monetized* by the central bank but *securitized*—in the

⁷⁰ In the U.S., margin regulation was introduced in the wake of the market crash of 1929 in order to curb securities speculation fueled by cheap credit. See *infra* Part V.

⁷¹ For more on the “banking channel” and the “financial accelerator model” in which it figures prominently, see Benjamin Bernanke et al., *The Financial Accelerator and the Flight to Quality*, 78 REV. ECON. & STAT. 1 (1996); Nobuhiro Kiyotaki & John Moore, *Credit Cycles*, 105 J. POL. ECON. 211 (1997).

⁷² This last point has significant policy implications, which we analyze below. In our franchise view of finance, much financial regulation can be generally viewed as a necessary safeguard against over-generation and misallocation of the public franchisor’s full faith and credit by private franchisees. See *infra* Part VII.

United States, through the operations of the U.S. Treasury and certain government-sponsored enterprises (“GSEs”).⁷³

B. Public Underwriting of “Private” Investment: Securitized Full Faith & Credit

Capital and money markets appear to depend for their emergence and continued functioning on massive issuances of securitized public debt in the form of Treasury and related government liabilities, such as GSE Agency securities. In these markets, public debt liabilities function as a form of publicly supplied “monetary base” that privately extended credit, in effect, “multiplies” along the lines of the credit-multiplication model discussed in section I.A.2 and depicted in *Figure 2*.⁷⁴

This claim bears an important causal-directionality implication.⁷⁵ It implies that the large share of securities markets represented by sovereign debt is not a matter of sovereigns with massive government operations, and consequent borrowing needs, taking advantage of pre-existing private market infrastructures to finance their operations.⁷⁶ To the contrary, the causal relation between government debt markets and markets for privately-issued securities runs primarily in the other direction. Large *sovereign* debt markets are effectively prerequisites to the emergence and sustenance of large *private* debt and equity markets.

⁷³ As discussed below, public securities are then monetized via Fed operations and shadow banking transactions.

⁷⁴ “Monetary base” is the term of art that denotes the supply of Federal Reserve notes and reserve liabilities in the banking system. See Philip Cagan, *High-Powered Money*, in DETERMINANTS AND EFFECTS OF CHANGES IN THE STOCK OF MONEY, 1875–1960 45 (1965) <http://www.nber.org/chapters/c1642.pdf> [<https://perma.cc/PXQ6-3MFH>]. The concept of the “base” is thus at home in the “credit-multiplication” model. While this model does not accurately portray banking, we shall see that it captures certain dynamics in some segments of the capital and “shadow banking” markets.

⁷⁵ This is analogous to the causality-reversing claim in Part II that loans make deposits more than deposits make loans.

⁷⁶ A few figures provide a preliminary grasp of the relative market shares of public and private debt. Thus, of the approximately \$41 trillion in debt securities held by Americans as of Q3 2016, less than one-third (\$12.1 trillion) were U.S. and foreign corporate bonds. See Bd. of Gov. of Fed. Res. Sys., FINANCIAL ACCOUNTS OF THE UNITED STATES: SECOND QUARTER 2016 117, Table L.208 Line 1 (Dec. 8, 2016), <http://www.federalreserve.gov/releases/z1/current/z1.pdf> [<https://perma.cc/4YPU-T8CQ>]; see also *id.* at 119–22 Tables L.210 through L.213. By contrast, \$15.6 trillion were U.S. Treasury securities, \$8.4 trillion were Agency securities, and \$3.8 trillion were municipal government securities. *Id.* at 117 Table L.208 Lines 3–5. Government debt thus dominates privately-issued debt on these markets by a factor of over 19 to 12.

Historically, the world's first heavily-capitalized securities exchanges—those in Amsterdam,⁷⁷ London,⁷⁸ Paris⁷⁹ and New York⁸⁰—emerged either as outright government instrumentalities, as adjuncts to government instrumentalities, or as sites for trading in government-issued debt. Numerous other European and Asian securities exchanges followed a similar path.⁸¹ Far more important than historical correlations, however, is modern capital markets' functional dependence upon treasury and government agency liabilities—a dependence that mirrors bank lending markets' dependence upon central bank liabilities.⁸² This indispensability of securitized sovereign full faith and credit in the capital and money markets stems from three related critical roles that sovereign liabilities play in these markets: their roles as ultimate reserve assets, price benchmarks, and shadow-bank “base money.”

⁷⁷ Amsterdam Exchange was established by statute as a trading platform for shares in Dutch East India Company, a government instrumentality. See JAN DE VRIES & ANDREAS VAN DER WOUDE, *THE FIRST MODERN ECONOMY: SUCCESS, FAILURE, AND PERSEVERANCE OF THE DUTCH ECONOMY, 1500–1815* (1997); LODEWIJK PETRAM, *THE WORLD'S FIRST STOCK EXCHANGE: HOW THE AMSTERDAM MARKET FOR DUTCH EAST INDIA COMPANY SHARES BECAME A MODERN SECURITIES MARKET* (Lynne Richards trans., Colum. Univ. Press 2014) (2011).

⁷⁸ RANALD C. MICHIE, *THE LONDON STOCK EXCHANGE: A HISTORY* (1999); JOHN BREWER, *THE SINEWS OF POWER: WAR, MONEY, AND THE ENGLISH STATE 1688–1783* (1990); STUART BANNER, *ANGLO-AMERICAN SECURITIES REGULATION: CULTURAL AND POLITICAL ROOTS 1690–1860* (2002).

⁷⁹ PIERRE-JEAN LEHMANN, *HISTOIRE DE LA BOURSE DE PARIS* (1997).

⁸⁰ CHARLES R. GEISST, *WALL STREET: A HISTORY* (2d ed., 2012); THOMAS K. McCRAW, *THE FOUNDERS AND FINANCE: HOW HAMILTON, GALLATIN, AND OTHER IMMIGRANTS FORGED A NEW ECONOMY* (2012).

⁸¹ Frankfurt's exchange emerged as a site for the exchange of sovereign currencies. See Deutsche Börse Group, *History of the Frankfurt Stock Exchange* https://deutsche-boerse.com/dbg/dispatch/en/kir/dbg_nav/about_us/20_FWB_Frankfurt_Stock_Exchange/70_History_of_the_FWB [<https://perma.cc/4SFT-4VJ2>] (last visited Nov. 7, 2016). Tokyo's began as a site for the trading of government bonds issued to former Samurai in the late 19th century. See *Tokyo Stock Exchange* ENCYCLOPEDIA BRITANNICA, <http://www.britannica.com/topic/Tokyo-Stock-Exchange> [<https://perma.cc/B5FU-8B6E>] (last visited Nov. 7, 2016). Shanghai's and Seoul's began their lives as state-established sites for the jump-starting of domestic industrial development. See W. A. THOMAS, *WESTERN CAPITALISM IN CHINA: A HISTORY OF THE SHANGHAI STOCK EXCHANGE* (2001).

⁸² See Commissioner Daniel M. Gallagher U.S. Sec. and Exch. Comm'n, *Speech: A Watched Pot Never Boils: The Need for SEC Supervision of Fixed Income Liquidity, Market Structure, and Pension Accounting* (March 10, 2015), <https://www.sec.gov/news/speech/031015-spch-cdmg.html> [<https://perma.cc/B2KQ-HKB7>].

1. *Government Securities as Necessary Liquidity Reservoir*

The first role can be labeled the “safe asset” role.⁸³ Securities markets appear to require for their stable functioning a liquidity or quasi-liquidity reservoir into which investor funds can be rechanneled during times of turbulence.⁸⁴ Sovereign debt obligations, backed by the full faith and credit of their issuers, are the principal form that liquidity takes in these markets—much as publicly-accommodated bank credit-money is the form that liquidity takes in other markets. They constitute the reserve asset in securities markets—much as central bank reserves constitute, by definition, the reserve asset in banking markets.⁸⁵

In this sense, U.S. Treasury and GSE debt can be modeled as the securities markets’ rendition of multipliable banking-market “base money,” functioning as a close money substitute.⁸⁶ This accounts for striking empirical findings to the ef-

⁸³ There is a growing literature on so-called “safe assets,” and government liabilities as “safest of the safe.” See Marcus Brunnermeier & Valentin Haddad, *Safe Assets*, FED. RES. BANK OF N.Y. (Oct. 17, 2014), https://www.newyorkfed.org/medialibrary/media/aboutthefed/pdf/FAR_Oct2014.pdf [https://perma.cc/9D25-XTW5]; Gary Gorton et al., *The Safe-Asset Share*, 102 AM. ECON. REV. 101 (2012); Pierre-Olivier Gourinchas & Olivier Jeanne, *Global Safe Assets* (Bank for Int’l Settlements, Working Paper No. 399, 2012), http://www.bis.org/events/conf120621/gourinchas_presentation_new.pdf [https://perma.cc/LRZ6-9J78]; Arvind Krishnamurthy & Annette Vissing-Jorgensen, *The Aggregate Demand for Treasury Debt* (May 12, 2010), https://www.treasury.gov/about/organizational-structure/offices/RoundTable/2011%20session%204%20vissing_tsy%20demand%20PAPER.pdf [https://perma.cc/ZF98-TZVB]; Garry J. Schinasi et al., *Financial Implications of the Shrinking Supply of U.S. Treasury Securities* (IMF, Working Paper WP/01/61, May 2001), <https://www.imf.org/external/pubs/ft/supply/2001/eng/032001.PDF> [https://perma.cc/Y6QU-X8RB]. On the role of law in constructing “safe assets,” see Anna Gelpern & Erik F. Gerding, *Inside Safe Assets* (working paper, Sept. 2, 2015, on file with the authors).

⁸⁴ Schinasi et al., *supra* note 83, at 15, echo others in calling this public debt instruments’ “near-money” role. This role is subtly distinct from the “cash-equivalent” role played by very short-term debt, obtainable in the money markets for corporate cash-management purposes. See *infra* Part IV.

⁸⁵ *Id.*

⁸⁶ Krishnamurthy & Vissing-Jorgensen, *supra* note 83, at 1 (“We show that when the supply of Treasuries falls, the supply of bank-issued money . . . rises. We show that the channel underlying this response is that a reduction in the supply of Treasuries increases the prices of liquidity and safety, lowering the yield on bank deposits, and inducing the banking sector to issue more deposits.”); Schinasi et al., *supra* note 83, at 24 (“Government securities are close substitutes for the currency of the issuing country. At very short maturities, [they] have little market risk and thus are reliable stores of value. As a result, government securities are a medium of exchange—they are widely accepted as collateral against the future delivery of cash (including transfers of central bank reserves and bank deposits).”).

fect that “safe assets”—government liabilities chief among them—have represented a more or less constant share of global financial assets over time, even as the latter have grown continuously over the decades to dwarf “real” global and domestic GDP measures.⁸⁷ Total financial market capitalization, in other words, has for many decades now been a constant and straightforward multiple of public debt, even as both of these quanta have multiplied many-fold relative to the sizes of nonfinancial assets. This so-called “safe-asset share” represented by the securitized public credit, in effect, functions as the “high-powered money” of the capital markets.⁸⁸ To put it another way, privately-intermediated credit appears to be a function of publicly-issued credit.

The role of the government as issuer of the key “safe asset” in the capital markets is qualitatively different from its commonly recognized roles as the regulator of, or provider of “last resort” assistance to, financial markets. A sufficiently deep market in government securities seems to be a prerequisite to the emergence and stable operation of sufficiently deep and liquid markets in privately-issued securities. Investors appear to require that there be a large stock of effectively “risk-free” asset in any securities market, partly so as to be able to move into the safe securities from securities seen as unsafe during times of trouble. In this sense, government securities—e.g., U.S. Treasury debt—constitute the securities markets’ liquidity reservoir.⁸⁹

2. Government Securities as Necessary Benchmarks

The second, related, role played by government liabilities—securitized public full faith and credit—in the capital markets is that of indispensable “benchmarks” in pricing other, more risky privately-issued securities. In fact, the very tools that have spurred exponential growth of the securities markets

⁸⁷ On the “safe asset share,” see Gorton et al., *supra* note 83, at 101. For the share of the government debt in U.S. bond market capitalization, see BD. OF GOV. OF FED. RES. SYS., *supra* note 76. See also SIFMA, Statistics Page (Sept. 4, 2015), <http://www.sifma.org/research/statistics.aspx> [<https://perma.cc/F3R9-DGG6>]. For counterpart global market measures, see, e.g., Charles Roxburgh et al., *Mapping Global Capital Markets 2011*, MCKINSEY & CO. (Aug. 2011), http://www.mckinsey.com/insights/global_capital_markets/mapping_global_capital_markets_2011 [<https://perma.cc/59KB-WKL9>].

⁸⁸ “High-powered money,” also known as the “monetary base,” is conventionally defined as currency and bank reserves. See Cagan, *supra* note 74.

⁸⁹ DEPT. OF THE TREAS., JOINT REP. ON THE GOV’T SEC. MKT. (1992), <https://www.treasury.gov/resource-center/fin-mkts/Documents/gsr92rpt.pdf> [<https://perma.cc/V3UU-JCRQ>].

since the late 1960s—namely, modern asset-pricing methods from CAPM through arbitrage pricing models—require for their operation a postulated “risk-free” asset.⁹⁰ Without this risk-free asset, a reliable pricing of privately-issued financial assets is not only impractical—it is impossible.⁹¹

In U.S. as well as global capital markets, this “risk-free” asset is the U.S. Treasury or GSE security, universally considered the safest of safe assets in its ready convertibility into cash—i.e., into Federal Reserve notes—at par.⁹² Importantly, the capacity of U.S. Treasury and GSE liabilities to play this benchmark role—and the related “liquidity reservoir” role—requires not only that they be safe, but also that there be *massive issuances* outstanding at any given moment. When the size of the U.S. national debt shows signs of shrinking—as it did in the late 1990s, for example—Treasuries’ reliability as benchmarks declines. The result is that securities markets become much more volatile and market-watchers worry about the prospect of there being *too little U.S. federal debt*.⁹³ Somewhat ironically against the backdrop of popular “austerity” rhetoric, the Fed and White House economic teams have been especially alarmed by this prospect.⁹⁴

⁹⁰ For more on the indispensable role played by a postulated “risk-free asset” or “risk-free rate of return” in modern portfolio and asset pricing models, see Harry Markowitz, *Portfolio Selection*, 7 J. FIN. 77 (1952); James Tobin, *Liquidity Preference as Behavior Toward Risk*, 25 REV. ECON. STUD. 65 (1958); Jack L. Treynor, *Towards a Theory of Market Value of Risky Assets* (1962), reprinted in ASSET PRICING AND PORTFOLIO PERFORMANCE: MODELS, STRATEGY AND PERFORMANCE METRICS 15 (Robert A. Korajczyk ed., 1999); William F. Sharpe, *Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk*, 19 J. FIN. 425 (1964); John Lintner, *The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets*, 47 REV. ECON. & STAT. 13 (1965); Jan Mossin, *Equilibrium in a Capital Asset Market*, 34 ECONOMETRICA 768 (1966); Robert C. Merton, *An Intertemporal Capital Asset Pricing Model*, 41 ECONOMETRICA 867 (1973); Stephen Ross, *The Arbitrage Theory of Capital Asset Pricing*, 13 J. ECON. THEORY 341 (1976). For more on the importance of U.S. Treasury debt in this respect, see Schinasi et al., *supra* note 83, at 4–9, 13.

⁹¹ The sole partial exception here—the so-called “Black CAPM,” too unwieldy for financial practitioners to employ in practice—effectively proves the rule. See Fischer Black et al., *The Capital Asset Pricing Model: Some Empirical Tests*, in STUDIES IN THE THEORY OF CAPITAL MARKETS 79 (Michael Jensen ed., 1972).

⁹² See Krishnamurthy & Vissing-Jorgensen, *supra* note 83; Schinasi et al., *supra* note 83, at 4–9, 13.

⁹³ See Schinasi et al., *supra* note 83.

⁹⁴ See Michael J. Fleming, *The Benchmark U.S. Treasury Market: Recent Performance and Possible Alternatives*, FRBNY ECON. POL. REV., April 2000, <http://www.ny.frb.org/research/epr/00v06n1/0004flem.pdf> [<https://perma.cc/3S94-7C5J>]. An unpublished document obtained by NPR offers an amusing (in retrospect) glimpse of Clinton Administration’s fears of the likely repercussions of paying down the national debt. See ‘Life After Debt,’ Second Interagency Draft, 11/3/2000, <http://media.npr.org/assets/img/2011/10/20/LifeAfterDebt.pdf>

That shortages of public debt are seen as a serious threat to securities markets' ability to thrive finds further evidence outside the United States. Thus, Australia and South Africa have in recent years been compelled to issue a new form of government obligation to play the safe-asset role in capital markets, despite the fact that their governments had no need of further debt issuance to finance their fiscal operations.⁹⁵ This "Committed Liquidity Facility"⁹⁶ is a dramatic illustration of the proposition that securities markets need public liabilities, regardless of whether or not governments need debt financing.

3. *Government Securities as Shadow-Bank "Base Money"*

The third role of securitized public full faith and credit in the capital markets is what some scholars dub a "transaction technology" and what we call shadow-bank "base money."⁹⁷ As described below, Treasury and GSE securities serve as collateral in many transactions that functionally amplify or replicate bank lending.⁹⁸ These instruments are able to play this role only because of their superior reliability, both as claims upon future payouts and as benchmarks in calculating other asset values.⁹⁹

The demand for securitized public full faith and credit—tradable Treasury and GSE liabilities—as lending collateral in the securities markets appears to be so insistent that some scholars have attributed the proliferation of mortgage- and other asset-backed securities in the 1990s-early 2000s to the

[<https://perma.cc/HPR7-6LS6>]; see also Jason Kestenbaum, *What if We Paid Off the Debt? The Secret Government Report*, NPR PLANET MONEY, (Oct. 20, 2011, 12:59 PM), <http://www.npr.org/sections/money/2011/10/21/141510617/what-if-we-paid-off-the-debt-the-secret-government-report> [<https://perma.cc/K3S8-4SMT>].

⁹⁵ See Matthew C. Klein, *Getting Around the 'Safe Asset Shortage,' Australian Style*, FT ALPHAVILLE (Jan. 13, 2015), <http://ftalphaville.ft.com/2015/01/13/2085482/getting-around-the-safe-asset-shortage-australian-style/> [<https://perma.cc/Z76H-MKS5>]; Izabella Kaminska, *Manufacturing Quality Collateral*, FT ALPHAVILLE (Nov. 25, 2011), <http://ftalphaville.ft.com/2011/11/25/765031/manufacturing-quality-collateral/>; South African Reserve Bank, *Committed Liquidity Facility*, <https://www.resbank.co.za/Markets/Domestic/CommittedLiquidityFacility/Pages/default.aspx> [<https://perma.cc/C9AP-7GTJ>] (last visited Nov. 7, 2016).

⁹⁶ See sources cited *supra* note 95; Guy Debelle, *The Committed Liquidity Facility*, BANK FOR INT'L SETTLEMENTS REV. (Nov. 23, 2011), <http://www.bis.org/review/r111124d.pdf> [<https://perma.cc/8MZA-R6EP>].

⁹⁷ See Gorton et al., *supra* note 83; Gelpert & Gerding, *supra* note 83.

⁹⁸ See *infra* Part IV.

⁹⁹ See *supra* note 97; Schinasi et al., *supra* note 83 at 4–9, 14; RICKS, *supra* note 62.

fact that there was not sufficient Treasury debt outstanding to play the crucial role of lending-transaction technology.¹⁰⁰ If correct, this lends more weight to the proposition that securities market capitalization, and hence the securities markets' share of credit aggregates, are functions of total Treasury and GSE liabilities outstanding—much as credit aggregates in the bank lending markets are a function of Fed liabilities in the form of currency and member bank reserves.¹⁰¹

This essential role of public debt as the securities markets' "base money" is fundamentally consistent with the credit-multiplication model, discussed in section I.A.2 and originally depicted in *Figure 2*, with public credit itself serving as the pre-accumulated "base" that is "multiplied." With this correction, it is schematically represented in *Figure 10*.

FIGURE 10

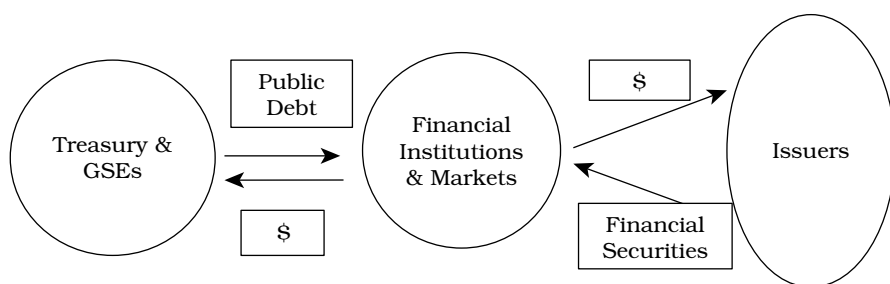


Figure 10 complements *Figure 9* in showing how the sovereign's full faith and credit works to magnify the volume of finance capital available to issuers in the capital markets. *Figure 9* represents the banking channel, through which *monetized* full faith and credit in the form of Fed (central bank) liabilities grows the supply of finance capital (credit-money/bank-money). *Figure 10* depicts the public-debt channel, through which *securitized* full faith and credit in the form of Treasury and GSE liabilities further increases the supply of finance capital (available investment funds).

This vital role of government debt as a form of high-powered money, on which larger credit-money aggregates are

¹⁰⁰ See Gary B. Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo* (Nat'l Bureau of Econ. Res., Working Paper No. 15223, Aug. 2009).

¹⁰¹ As discussed above, these reserves are the product of Fed accommodation rather than actual deposits.

levered, comes into a particularly sharp relief in the context of “shadow banking.”¹⁰²

IV

FUNCTIONAL INTEGRATION OF BANKING AND CAPITAL MARKETS: SHADOW BANKS

The financial crisis of 2007-09 drew widespread attention to so-called “shadow banking,” which generally refers to credit extension and maturity transformation outside of the regulated banking system.¹⁰³ The shadow banking sector is a crucial channel of credit-money proliferation, with lending volumes rivaling those of the traditional banking sector.¹⁰⁴ This Part argues that the phenomenal growth of the shadow banking markets reflects the fact that these markets ultimately operate in conformity with the credit-generation model, whereby private liabilities generated in the shadow banking markets are publicly accommodated and monetized. Accordingly, we define and analyze shadow banking by reference to specific mechanisms through which capital and money markets *amplify* and functionally *replicate* the role of banking and Treasury securities markets as channels for dispensing the sovereign’s full faith and credit. This Part maps the flow of monetized and securitized public full faith and credit through the key sub-sectors of the shadow banking sector.

A. Securitization & Repo Markets

Bank-reminiscent dynamics are intuitively easiest to grasp in the securitization and repo markets. “Securitization” generally refers to the practice of pooling revenue-generating assets, such as commercial or mortgage loans and using the pooled assets as collateral backing the issuance of debt securities to

¹⁰² Use of the phrase “high-powered money,” another term for the “monetary base,” is the Fed’s way of communicating this money aggregate’s multiplicative properties. See Cagan, *supra* note 74.

¹⁰³ The term was coined by Paul McCulley. Paul McCulley, *Teton Reflections*, GLOBAL CENTRAL BANK FOCUS (PIMCO) (Sept. 1, 2007) at 2, http://easysite.com/monwealth.com/EasySites/EasySite_Z3263Y/_uploads/Teton%20Reflections.pdf [<https://perma.cc/XE3T-636F>]; see also Bryan Noeth & Rajdeep Sengupta, *Is Shadow Banking Really Banking?*, THE REG’L ECON., Oct. 2011, at 8.

¹⁰⁴ As of Q3 2016, shadow-banking assets totaled at approximately \$7.2 trillion, while commercial bank loan assets came in at approximately \$10 trillion. We break down the shadow-banking figure into its component parts below, taking our data from BD. OF GOV. OF FED. RES. SYS., *supra* note 76. For the bank loan figure, see BD. OF GOV. OF FED. RES. SYS., *supra* note 76, at 123 Table L.214 Line 18, 124 Table L.215 Line 15, 126 Table L.217 Line 19, 129 Table L.222 Line 7.

investors.¹⁰⁵ A securities “sale and repurchase agreement,” or “repo,” is a transaction in which a cash borrower sells certain financial assets to a lender and commits to repurchase the same assets within a short period of time at a higher price.¹⁰⁶ Examining these two markets side-by-side reveals that they operate in accordance with the credit-multiplication and credit-generation models, discussed above, by amplifying and replicating publicly accommodated and monetized bank lending.

1. *Mechanics: Amplification and Replication of Bank Lending*

Securitization allows a bank or other lender to remove an asset from its balance sheet and thus be able to purchase additional assets—and thereby extend further credit—without incurring higher capital-regulatory obligations.¹⁰⁷ In this sense, it can function as what we call a bank-credit *amplification* mechanism: it enables banks to issue more credit ultimately accommodated and monetized by the Fed, as described above.¹⁰⁸

In a typical securitization, the bank establishes a “special purpose vehicle” (“SPV”) or “special investment vehicle” (“SIV”), usually in the legal form of a trust.¹⁰⁹ The bank then “sells” loans to the trust, with the proceeds of the sales becoming available for further lending activity. To the extent that securitization enables banks to extend far more credit over time than would otherwise be compatible with regulatory capital requirements, it functions to lever up the bank-generated credit-money supply, as described in Part II above. We use the term “amplification” to describe this effect.

The securitization trust purchases the assets in question with the proceeds of bond sales to investors. These bonds are commonly known as “asset-backed securities” (“ABS”), one species of which is the mortgage-backed security (“MBS”). An SPV or SIV can be internally “structured”—or “tranching”—in order to distribute the credit risk associated with its assets in

¹⁰⁵ See Kenneth C. Kettering, *Securitization and Its Discontents: The Dynamics of Financial Product Development*, 29 CARDOZO L. REV. 1553, 1556 (2009); Jonathan C. Lipson, *Re: Defining Securitization*, 85 S. CAL. L. REV. 1229, 1257 (2012).

¹⁰⁶ Viral Acharya & Sabri Oncu, *The Repurchase Agreement (Repo) Market*, in REGULATING WALL STREET 320 (Viral Acharya et al. eds., 2011).

¹⁰⁷ See sources cited *supra* note 105.

¹⁰⁸ See *supra* subpart I.B, Part II.

¹⁰⁹ Lipson, *supra* note 105, at 1234.

accordance with specific risk/reward tradeoff preferences held by different investors.¹¹⁰ Tranching enables SPVs and SIVs to issue at least some classes of bonds that are plausibly considered “risk-free” and rated as such by a credit rating agency. Such bonds can also be further insured against loss via financial derivative transactions, as described below. Not surprisingly, in the early 2000s, certain ABS—in particular, MBS—came to supplement Treasuries as putatively safe assets and “transactions technology.”¹¹¹

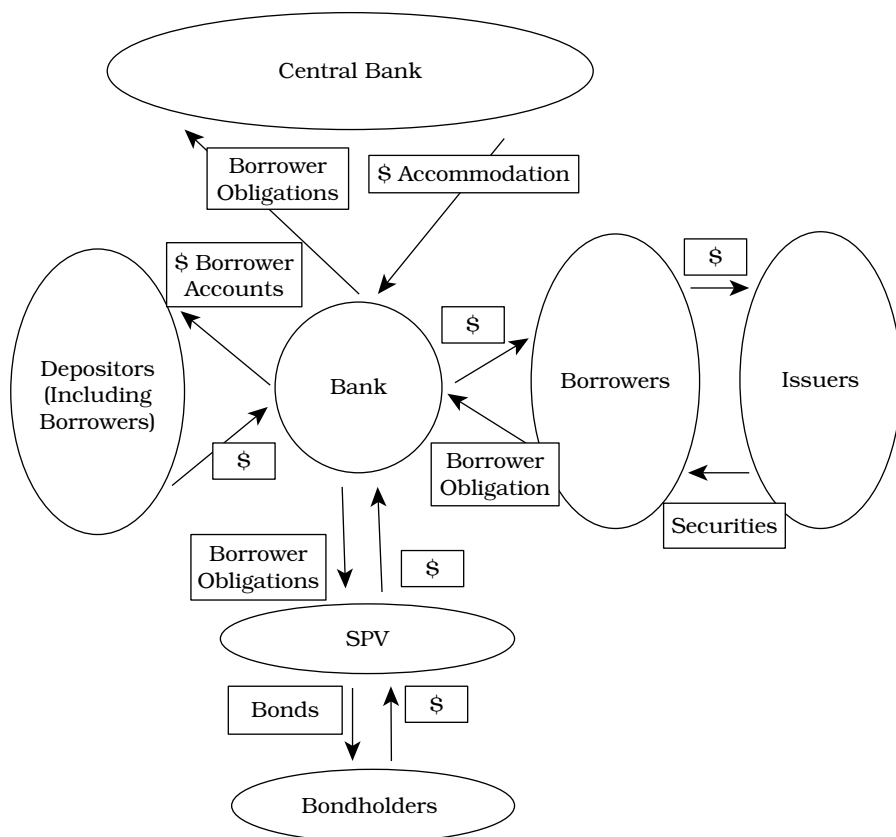
This process is depicted in *Figure 11*. It shows the bank transferring its borrowers’ obligations to the SPV rather than the central bank. Importantly, use of the SPV enables the bank to keep lending without violating capital requirements designed to prevent excessive bank credit-generation.¹¹²

¹¹⁰ In a typical structure, one class of investors (“equity tranche”) contractually agrees to be the first loss-absorber in the event of SPV or SIV losses on some investments, in return for higher payouts on assets when they perform. Another class of investors contracts to take the next layer of losses, in return for slightly lower rewards, and so on. See Gorton & Metrick, *supra* note 100, at 8–9.

¹¹¹ See Gorton et al., *supra* note 83, at 105.

¹¹² Note that (1) the bank continues to lend to people who invest in issuing firms, as originally depicted in *Figure 9*; and (2) the SPV is itself an issuer, some of whose bonds might be purchased by other banks or by investors who borrow from other banks.

FIGURE 11



This already complex picture, however, is incomplete without a discussion of the repo market. In economic terms, a repo is a close functional equivalent of a short-term secured loan.¹¹³ The difference between selling and repurchasing prices serves as the (typically low) borrowing charge. The initial selling price serves as the loan principal. The sold and then repurchased asset—typically, U.S. Treasury or other federal Agency securities—serves as collateral.¹¹⁴

In late 2016, the repo markets accounted for some \$3.5 trillion in transaction volume.¹¹⁵ They are so large, and have grown so rapidly in recent decades, that demand for continu-

¹¹³ See Gorton & Metrick, *supra* note 100, at 9.

¹¹⁴ Repos usually require over-collateralization of the loan, with the value of the securities exceeding the initial sale price by a specified amount, or the “hair-cut.” See Gorton & Metrick, *supra* note 100, at 3.

¹¹⁵ BD. OF GOV. OF FED. RES. SYS., *supra* note 76, at 116, Table L.207 Lines 17 (total \$3.67 trillion), 22 (-\$20.1 billion in Fed Funds), and 25 (-\$1.0 billion in Fed Funds). We exclude Fed Funds lines to show repo volume exclusive of borrowing in connection with interbank Federal Funds transactions.

ous supply of potential repo collateral—far beyond the available supply of Treasuries and Agency securities—is thought to have been a significant driver of the pre-crisis over-production of highly-rated, but ultimately risky, ABS.¹¹⁶

Repo transactions do not so much *amplify* ordinary banking activity, like securitizations do, as functionally *replicate* it. It is generally well-understood how they replicate traditional banking activity in their maturity transformation properties: low-cost short-term borrowings accompanied by higher-yielding longer-term investments.¹¹⁷ But repos also replicate bank lending in their capacity to increase privately-extended credit aggregates and to trigger public accommodation and monetization of the same.

In addition to being secured-loan equivalents, repo transactions augment credit aggregates economy-wide in a manner reminiscent of that at work in the “credit-multiplication” model of finance, discussed above.¹¹⁸ This occurs through the practice of rehypothecation, pursuant to which a cash lender can re-pledge the underlying repo securities as collateral in a repo borrowing of its own—thus initiating a chain of multiple credit extensions using the same piece of collateral.¹¹⁹ The more links in the rehypothecation chain involving the same collateral, the more credit is generated upon its basis in an inverted pyramid style, so that an initial quantum of pre-accumulated capital—the securities used as collateral—can be dwarfed by the resulting investment capital.

The concatenation of multiple sequential lending transactions upon the basis of a single piece of collateral, sometimes referred to as “churning,” lends repo transactions a “velocity” akin to the velocity of money circulation.¹²⁰ Combined with the fact that sovereign debt makes up the lion’s share of repo collateral, this attribute of the repo market has led some econo-

¹¹⁶ See Gary Gorton & Guillermo Ordonez, *The Supply and Demand for Safe Assets* (Nat’l Bureau of Econ. Res., Working Paper No. 18732, Aug. 2013); Gelpert & Gerding, *supra* note 83; Schinasi et al., *supra* note 83.

¹¹⁷ See Acharya & Oncu, *supra* note 106; Gorton & Metrick, *supra* note 100; RICKS, *supra* note 62; Bengt Holmstrom, *Understanding the Role of Debt in the Financial System* (Bank for Int’l Settlements, Working Paper No. 479, Jan. 2015).

¹¹⁸ See *supra* section I.A.2.

¹¹⁹ See Tobias Adrian & Hyun S. Shin, *Liquidity & Leverage*, 19 J. FIN. INTERMEDIATION 1 (2010); Manmohan Singh, *The Velocity of Pledged Collateral* (IMF, Working Paper WP/11/256, 2011); Manmohan Singh & James Aitken, *The (Sizable) Role of Rehypothecation in the Shadow Banking System* (IMF, Working Paper WP/10/172, 2010).

¹²⁰ Singh, *supra* note 119, at 16 (“Velocity of collateral” is “analogous to the concept of the ‘velocity of money.’”). The idea of money’s circulation at a specific “velocity” stems from IRVING FISHER, *THE PURCHASING POWER OF MONEY* (1911).

mists to suggest that rehypothecated collateral chains and more orthodox monetary aggregates, such as the Fed's M2 measure,¹²¹ are effectively substitutes for one another.¹²²

Importantly, rehypothecated collateral transactions occur with few serious equivalents of bank reserve or capital requirements that might serve as regulatory brakes on long-term credit extension.¹²³ During boom times like those in the lead-up to 2008, when repo haircuts drop to near-zero, existing collateral buffers serve as the basis for effectively unlimited growth in credit aggregates.¹²⁴ This is how “the leverage cycle” operates in repo markets.¹²⁵

¹²¹ M2 includes the cash and checking deposits that constitute M1, along with “near mon[ies]” including savings deposits, time deposits, and money market mutual funds (“MMMFS”) as discussed below. See *Definition of 'M2.'* INVESTOPEDIA, <http://www.investopedia.com/terms/m/m2.asp> [<https://perma.cc/NP96-SRUN>] (last visited Jan. 6, 2017).

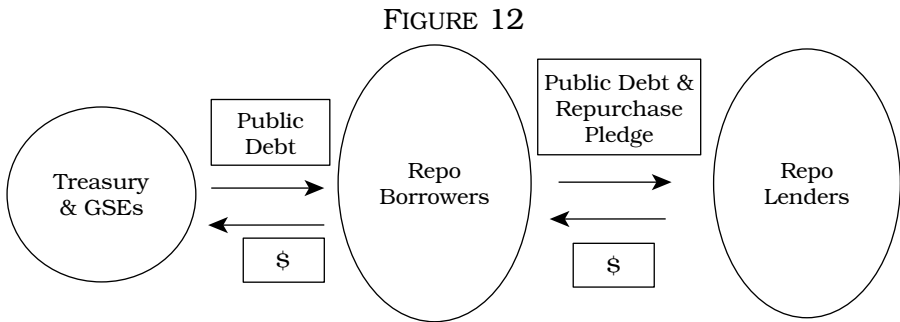
¹²² Singh, *supra* note 119, at 3 (suggesting that “monetary aggregates (e.g., M2) can interact [with] or substitute for financial collateral that is reused”); *id.* at 16 (“[A] shortage of acceptable collateral would have a negative cascading impact on lending similar to the impact on the money supply of a reduction in the monetary base.”). If correct, this view would mean that repo rehypothecation chains should be included in measures of the money supply. In fact, Gorton and Metrick have suggested that they already are. Gary Gorton & Andrew Metrick, *Haircuts*, FED. RES. BANK OF ST. LOUIS REV., Nov./Dec. 2010, at 507, <https://research.stlouisfed.org/publications/review/10/11/Gorton.pdf> [<https://perma.cc/9SF2-PHN3>] (“Repos are considered part of the money supply. . . .”). Gorton and Metrick are correct that *some* repos were included in the Fed's M3 measure of the money supply, which was discontinued in March 2006; but this was true only of repo transactions between primary dealers and the Fed. *Id.* at 507 n.3, 510.

¹²³ Regulation T and SEC Rule 15c3-3 under Section 15(c) of the Securities Exchange Act of 1934 prohibit broker-dealers from rehypothecating more than 140% of a client's debit balance or more than 100% of total client debits to finance their own proprietary trading activities. But these restrictions apply only to broker-dealers, and even the latter are able to get around them in many cases by booking transactions offshore—in the UK, for example, where rehypothecation is not limited at all and cumulative “collateral creation” can accordingly be infinite. Singh, *supra* note 119, at 4–9; Singh & Aitken, *supra* note 119, at 4 n.5.

¹²⁴ In boom times, haircuts tend to be very low, approaching the vanishing point, while rollovers are taken for granted as being indefinitely available. It is easier to find both investors in the riskier equity tranches of ABS and credit-derivative counterparties, or cheap “insurers.” This is how “endogenous money” creation works: people grow more willing to spot one another credit in its many transactional and securitized forms, which then (1) enables banks that can tap into the associated markets to extend more ultimately Fed-accommodated loans, and (2) ultimately increases the likelihood that the Fed will effectively ratify and accommodate *ex post* even non-traditional forms of credit-extension, if systemic financial stability itself has quietly come to depend upon their being honored.

¹²⁵ See generally John Geanakoplos, *The Leverage Cycle*, 24 NBER MACROECONOMICS ANNUAL 1 (2010) (detailing the leverage cycle and its connection to the subprime mortgage crisis), <http://www.nber.org/chapters/c11786> [<https://perma.cc/PEN9-8JQZ>]. See also Adrian & Shin, *supra* note 119; Tobias Adrian, Nina Boyarchenko, & Hyun Shin, *On the Scale of Financial Intermediaries*, Federal

These dynamics are schematically represented in *Figure 12*. The smaller disc at the left represents the comparatively small “base” of Treasury and GSE debt—securitized full faith and credit—that supports a much larger volume of repo lending, through the practice of rehypothecation. The larger discs to the right correspondingly represent this larger volume of repo borrowing and lending built upon the smaller base of public debt.¹²⁶



2. From Private to Public: Fed Accommodation and Monetization

Ultimately, however, the key to the rapid growth of the repo market is public accommodation and monetization of private repo liabilities. The public is an indispensable actor in the repo market. The Federal Reserve Bank of New York (“FRBNY”) is currently the largest counterparty in repo markets.¹²⁷ Public debt—U.S. Treasury and Agency securities—still constitutes the principal underlying asset on which repo transactions occur.¹²⁸ In effect, private repo “monetizes” trillions of dollars of securitized public full faith and credit.

Public *accommodation*, in the full sense of that term, takes the classic form of guaranteed clearing.¹²⁹ Two publicly guar-

Reserve Bank of New York Staff Report No. 743, at 6–8 (Oct. 2015), http://www.newyorkfed.org/research/staff_reports/sr743.pdf [<https://perma.cc/36LK-RNZ5>].

¹²⁶ Note that, to the extent banks act as cash lenders in repo markets, rehypothecation not only *multiplies* pre-accumulated funds, but also *generates* a certain amount of credit without tapping into such funds at all.

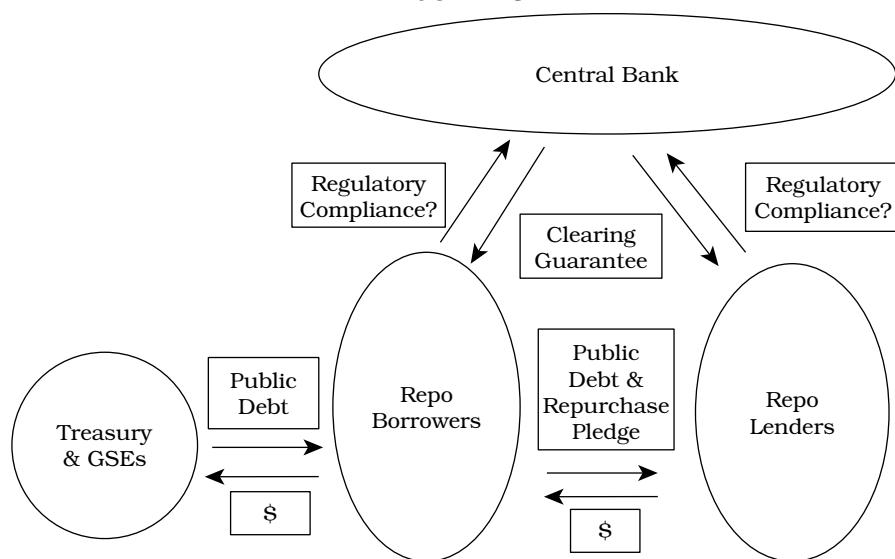
¹²⁷ See Tracy Alloway & Michael MacKenzie, *New York Federal Reserve Takes on Key Role in Repo Market*, FIN. TIMES (June 19, 2014), <https://www.ft.com/content/65255abc-f7cc-11e3-baf5-00144feabdc0> [<https://perma.cc/R5TN-W9GK>].

¹²⁸ *Id.*; see also GARY GORTON, SLAPPED BY THE INVISIBLE HAND: THE PANIC OF 2007, 39–40 (2010).

¹²⁹ See *supra* subpart I.B, on Fed bank-loan accommodation as a function of necessary check-clearing.

anted banks—BNY Mellon and JPMorgan Chase—serve as guarantor/clearing banks for the largest of the repo markets, the tri-party repo market.¹³⁰ This is especially significant in light of the fact that Fed accommodation of bank lending, as described above, is itself necessitated by the need to ensure clearing of checks.¹³¹ The process is depicted in *Figure 13*, which leaves clearing banks out of the picture for simplicity's sake but is nevertheless easily recognized as a variation on *Figures 4 and 7* above.

FIGURE 13



The Fed's post-crisis efforts to limit risk-taking by tri-party repo clearing banks reflect an implicit recognition of this fundamental similarity between repo clearing and ordinary bank-check clearing—and of the role of public accommodation in the repo markets. The Fed has been pushing for reform in this area with a view explicitly to the linkages between the repo market infrastructure and “other payment clearing and settlement services that are central to U.S. financial markets” and

¹³⁰ See Alloway & MacKenzie, *supra* note 127; BRUCE TUCKMAN, CFS POLICY PAPER: SYSTEMIC RISK AND THE TRI-PARTY REPO CLEARING BANKS 3 (Feb. 2, 2010). Because repo transactions are exempt, under the “qualified financial contract” provision, from the automatic stay and claw-back provisions of the U.S. Bankruptcy Code, repo lenders are effectively guaranteed against counterparty credit risk. See 11 U.S.C. §§ 362(b)(7), 546(e), 559; 12 U.S.C. § 5390(c)(8)(D) (2016). This renders repo borrowings functionally equivalent to informationally insensitive bank liabilities—i.e., deposits. See Gorton & Metrick, *supra* note 100; GORTON, *supra* note 128.

¹³¹ See *supra* subpart I.B.

“operated by the two tri-party agent banks” backed by the Fed.¹³² Functionally, these reform measures can be analogized to capital and other prudential regulatory requirements imposed upon banks with a view to the centrality of check-clearing to the broader economy—and the consequent need for Fed accommodation of bank loans.¹³³ In this context, the fact that the Fed is stepping in to limit the risk of excessive leverage build-up through indefinite rehypothecation of repo collateral further strengthens the analogy between repo and traditional bank lending.

B. Credit Derivatives Markets & Clearinghouses

Credit derivative markets constitute another important segment of the shadow-banking sector. Derivatives are contingent claim contracts that confer payout or other rights upon counterparties in response to changes in a contractually referenced, or “underlying,” value.¹³⁴ Many of these complex financial products—including the credit default swaps (“CDSs”) and collateralized debt obligations (“CDOs”)—are used either to construct synthetic transactions that replicate bank loans or, by enabling lenders to hedge credit risk, increase leverage in already transpiring lending transactions.¹³⁵ Thus, derivative transactions can both amplify bank lending (as securitization does) and replicate bank lending without limit (as rehypothecated repo does). Amplification of bank lending necessarily augments public accommodation and monetization, as described above. Public accommodation and monetization also

¹³² See FED. RES. BANK OF N.Y., TRI-PARTY REPO INFRASTRUCTURE REFORM, http://www.newyorkfed.org/banking/tpr_infr_reform.html [<https://perma.cc/4VAH-NCP5>] (last visited Mar. 19, 2017). The initial focus of this reform effort was on the need to minimize and potentially eliminate intraday extensions of credit by the clearing banks to repo dealers and counterparties from 100% to less than 10% of the total repo volume. See Task Force on Tri-Party Repo Infrastructure, Payments Risk Committee, Final Report (Feb. 15, 2012), https://www.newyorkfed.org/media/microsites/tripartyrepo/pdf/report_120215.pdf [<https://perma.cc/2HA5-YB8H>]. In mid-2015, the FRBNY has reported significant progress in this area, while noting a number of remaining hurdles on the path toward making the triparty repo infrastructure less prone to failure. See FED. RES. BANK OF N.Y., UPDATE ON TRI-PARTY REPO INFRASTRUCTURE REFORM (June 24, 2015), http://www.newyorkfed.org/newsevents/statements/2015/0624_2015.html [<https://perma.cc/65WA-KT5C>].

¹³³ See *supra* Part II.

¹³⁴ See generally JOHN C. HULL, *OPTIONS, FUTURES, AND OTHER DERIVATIVES* (9th ed. 2014); R. STAFFORD JOHNSON, *INTRODUCTION TO DERIVATIVES: OPTIONS, FUTURES, AND SWAPS* 1–10 (2009).

¹³⁵ See Erik Gerding, *Credit Derivatives, Leverage, and Financial Regulation's Missing Macroeconomic Dimension*, 8 BERKELEY BUS. L. J. 29, 32–36, 45 n.76 (2011); GORTON, *supra* note 128.

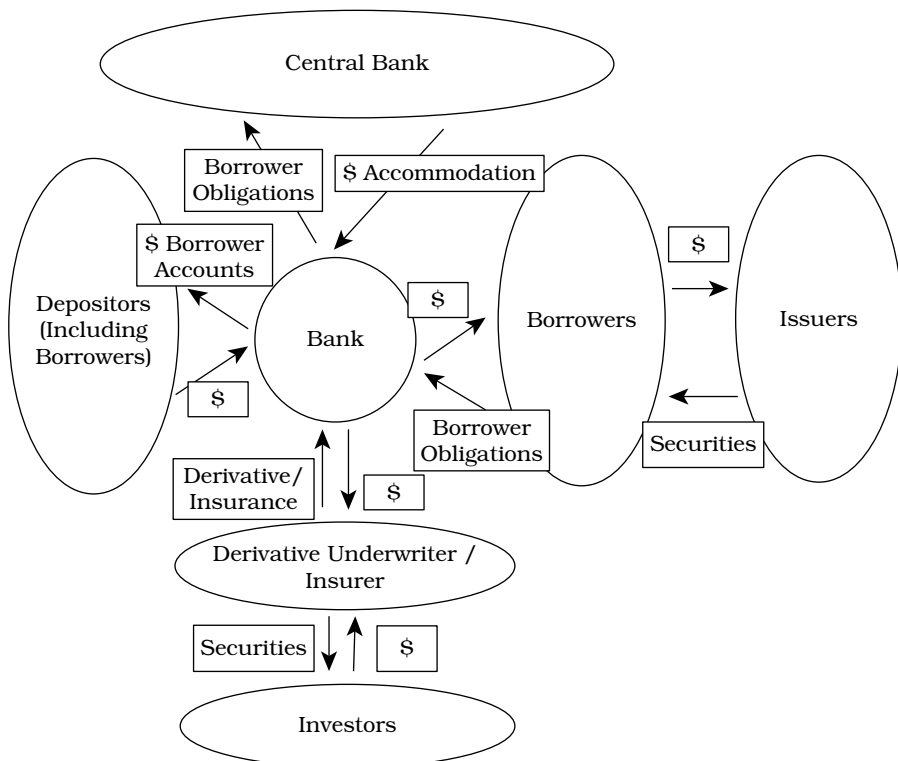
take place, however, where bank lending is functionally replicated by non-banks.

1. *Mechanics: Amplification and Replication of Bank Lending*

The amplification dynamic here follows a familiar logic. Where a bank wishes to lend more than risk-based capital requirements permit, an alternative to securitization is to reduce asset risk by “insuring” its assets. This it can do by purchasing derivative contracts that purport to guarantee payouts in the event of asset defaults or value-loss. The purchased derivative in this sense simulates an insurance contract. It transfers risk, for a fee, to a party willing to bear it, partly because that party is not constrained by regulation to the degree that the bank is.

Derivative transactions thus serve to amplify already publicly accommodated and monetized bank lending, in a manner similar to securitizations. This is depicted in *Figure 14*—a variation on *Figure 11*.

FIGURE 14



Like securitizations, derivatives enable banks to keep lending without violating risk-weighted capital requirements imposed by regulators to modulate bank credit-generation.¹³⁶ However, derivative transactions also can *replicate*, rather than merely amplify, bank lending—now in a manner similar to repo rehypothecation. This is readily appreciated by comparing a credit derivative to its insurance contract counterpart. In essence, the former is a tradable and indefinitely-multipliable variation on the latter. Free of any “insurable interest” requirement applicable to ordinary insurance policies, derivative contracts are bought and sold without limit, allowing multiple parties to bet on the same underlying contingencies.¹³⁷ The contracts thus become financial securities that are readily monetized, either through sale or through use as collateral in other transactions.¹³⁸

Importantly, there is no *ex ante* limit to these contracts’ issuance.¹³⁹ Not only are they free of the insurable interest doctrine, but there also is no reserve or capital requirement that might restrict their proliferation via some stipulated multiplier. In this sense, these contracts—like rehypothecated repos—are cases of pure credit-generation, as modeled in section I.A.3. Moreover, like bank loans and repo transactions, these contracts tend to proliferate during boom times, as risk percep-

¹³⁶ Note also that (1) the bank continues to lend to those who invest in issuing firms, as originally depicted in *Figure 9*; and (2) the derivatives counterparty/insurer is itself an issuer of securities that might be purchased by other banks or by investors who borrow from other banks.

¹³⁷ For more on the long-standing “insurable interest” requirement in insurance law, see Emeric Fischer, *The Rule of Insurable Interest and the Principle of Indemnity: Are They Measures of Damages in Property Insurance?*, 56 *IND. L. J.* 445, 449–59 (1981).

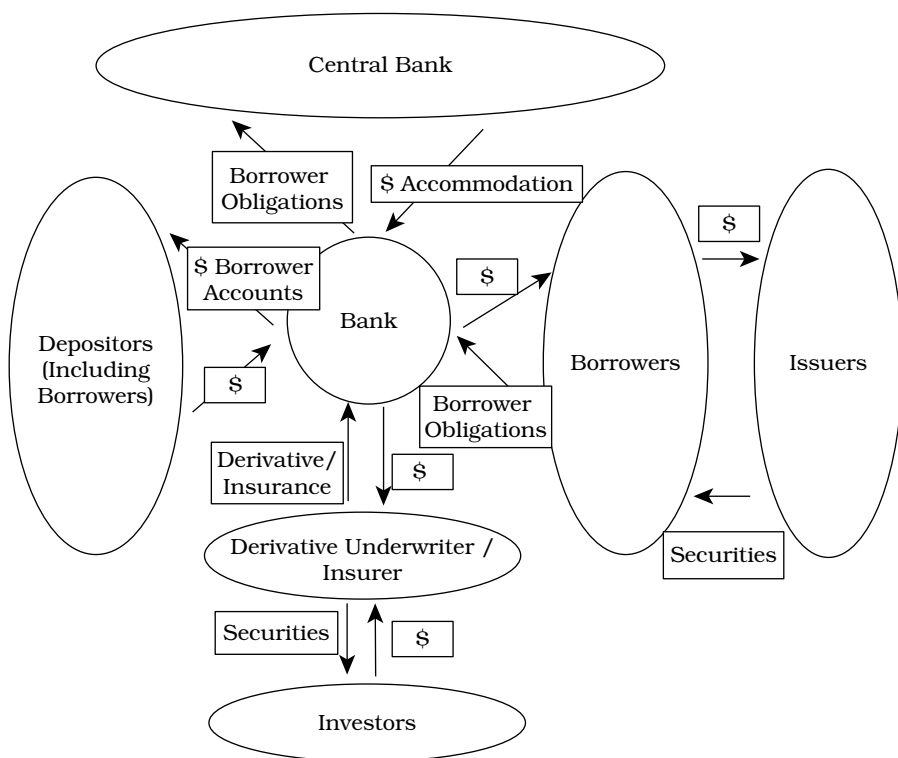
¹³⁸ A simple example illustrates this phenomenon. Consider a fire insurance policy taken out on a house. Such a contract amounts to a bet entered into between insured and insurer—a bet that the former “wins” in the event of fire, and that the latter “wins” in the event that no fire occurs during the life of the policy. This transaction is presumably beneficial both to the insured and the insurer, but is in most cases of negligible significance to the broader public. That is because, under the “insurable interest” doctrine long operative in the law of insurance, parties may not sell the contract, and no other person may become party to it. Now imagine a derivative contract with the same house as the “underlying” asset. If everyone is allowed to take either side of the fire bet by purchasing or selling tradable contracts that replicate most of the terms of the original insurance contract, the situation changes dramatically.

¹³⁹ Lynn Stout, *The (Re)regulation of Financial Derivatives*, HARV. L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (June 5, 2009), <https://corpgov.law.harvard.edu/2009/06/05/the-reregulation-of-financial-derivatives/> [<https://perma.cc/A8PT-AVD3>].

tions diminish across the financial system.¹⁴⁰ Derivatives can thus function as channels of bubble-inflating over-generation of credit-money aggregates.

These dynamics are depicted in *Figure 15*, which introduces an important correction to *Figure 14*: the discs representing bank loan volume and corresponding loan-created deposit volume are now much larger. This expansion represents the indefinite growth in loan and consequent deposit volume enabled by the capacity for indefinitely replicated risk-transfer through derivatives. If publicly accommodated, such contracts can come to constitute an indefinitely extensible form of securitized, and subsequently monetized, full faith and credit of the United States—just as rehypothecation chains do in the repo markets.

FIGURE 15



¹⁴⁰ See Geanakoplos, *supra* note 125, at 32–41; Adrian & Shin, *supra* note 119, at 419.

2. *From Private to Public: Fed Accommodation and Monetization*

In fact, credit derivatives *are* publicly accommodated—once again, through publicly-guaranteed clearing. Prior to passage of the Dodd-Frank Act in 2010, most credit derivative transactions traded over-the-counter (“OTC”) through large dealer-banks.¹⁴¹ Under the Dodd-Frank regime, most of these transactions are required to clear through regulator-approved and federally-guaranteed clearinghouses, which effectively assume the risk of failure on the part of the counterparties.¹⁴² Both the dealer-banks that constituted the OTC market prior to 2010 and the clearinghouses that have underwritten the lion’s share of the derivatives market post-2010 have been implicitly or explicitly publicly-guaranteed—and thus widely considered to be “too-big-to-fail”—institutions.

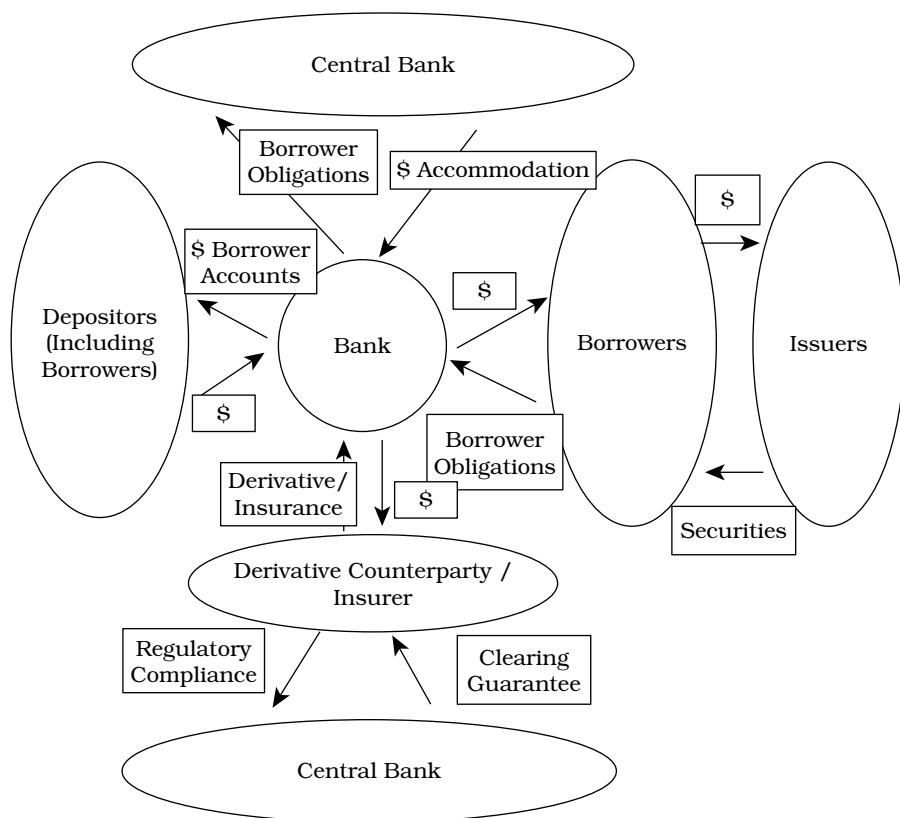
The Fed’s guarantee of derivatives clearing is functionally similar to its guarantee of clearing bank checks via accommodation of bank loans, as described above in Part II. As if to underscore this point, the major derivatives clearinghouses now have access to Fed emergency liquidity lending in the event of crisis—a privilege previously restricted to banks.¹⁴³ This structure is depicted in *Figure 16*, which leaves investors in the derivatives counterparty out of the picture for simplicity’s sake.

¹⁴¹ See Adrian & Shin, *supra* note 119, at 422, 426.

¹⁴² Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, Title VIII, 124 Stat. 1376, 1641 (2010) (codified at 12 U.S.C. § 5301 et seq. (2012)).

¹⁴³ See 12 U.S.C. § 5462 (2012); Ben S. Bernanke, Chairman, Fed. Reserve Comm’n, Speech at the 2011 Financial Markets Conference: Clearinghouses, Financial Stability, and Financial Reform (Apr. 4, 2011). They likewise have authority to call on their large, implicitly guaranteed member-banks for additional capital in the event of financial distress.

FIGURE 16



Notably, the Fed (labeled as the “Central Bank” in *Figure 16*) now appears in two places in the diagram. It accommodates both bank lending, as discussed in Part II, and the insurance of bank loans via derivatives. Both forms of Fed accommodation enable greater growth in credit-money aggregates. When the Fed converts *both* private borrower-liabilities and private insurer-liabilities into public liabilities, it effectively monetizes the corresponding increases in public full faith and credit, which is then injected into the financial system.

C. Commercial Paper & Money Market Mutual Funds

A third significant component of the shadow-banking sector comprises the commercial paper (“CP”) and money market mutual fund (“MMMF”) markets. In late 2016 there were nearly \$1 trillion in CP instruments and \$ 2.7 trillion in MMMF shares outstanding.¹⁴⁴ For purposes of the present discussion,

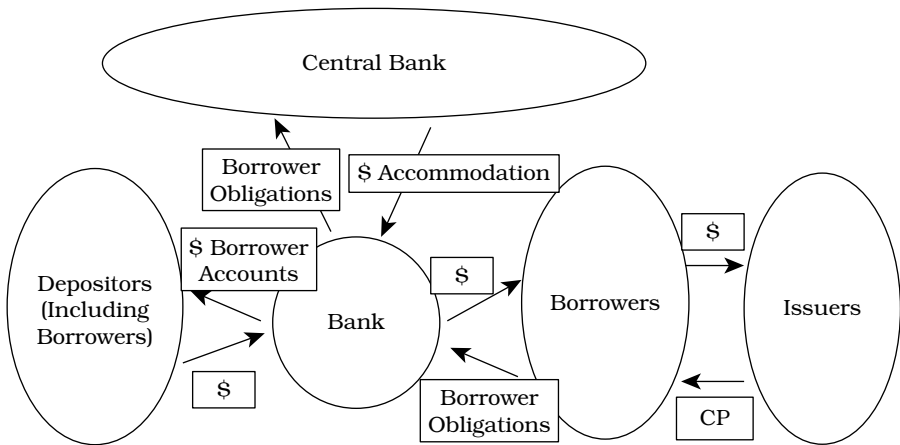
¹⁴⁴ BD. OF GOV. OF FED. RES. SYS., *supra* note 76, at 101 Table L.121 Line 1, 115 Table L.206 Line 1., 118 Table L.209 Line 2.

MMMFs and CPs are relevant primarily as straightforward bank and bank-loan substitutes that mimic traditional banking sector dynamics, both in terms of credit extension and in terms of public accommodation and monetization.

1. *Mechanics: Amplification and Replication of Bank Lending*

CP is very short-term debt issued by high quality, “investment-grade” borrower-firms.¹⁴⁵ Both of these attributes render CP a low-risk form of lending for purchasers, and thus a low-cost form of borrowing for issuers. For that reason, the CP market is generally considered a constituent part of the so-called “money market” for short-term debt instruments that function as close money substitutes.¹⁴⁶ Because CP can be purchased on margin, the dynamics of the CP market are best represented as in *Figure 17*—a variation on *Figure 9* above.

FIGURE 17



The public indirectly accommodates purchases of private CP issuances when it accommodates bank margin loans that fund such purchases, as discussed in Part III. In so doing, it monetizes private debt just as it does in accommodating bank loans made in exchange for borrower promissory notes, as discussed in Part II.

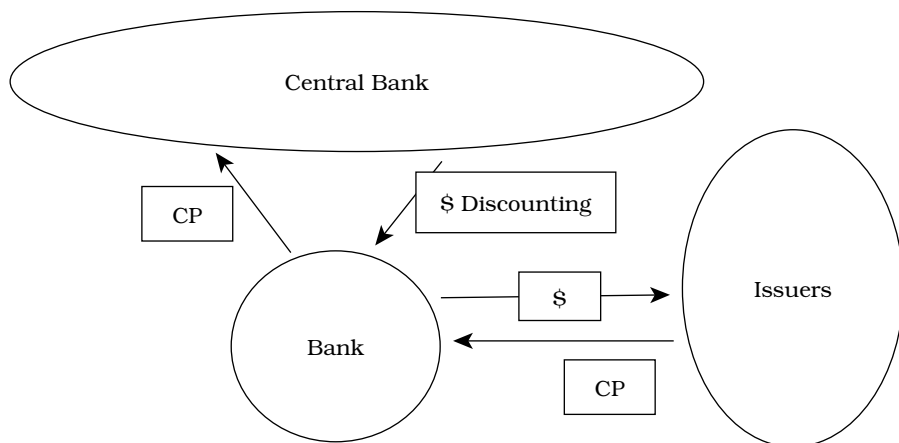
The public also accommodates CP purchases more directly, however, by providing for direct Fed “discounting” of CP

¹⁴⁵ See Richard G. Anderson & Charles S. Gascon, *The Commercial Paper Market, the Fed, and the 2007–2009 Financial Crisis*, 91 FED. RES. BANK ST. LOUIS REV. 589, 589, 599–600 (2009).

¹⁴⁶ See Ricks, *A Simpler Approach to Financial Reform*, *supra* note 62, at 37.

purchased by banks either from issuers or in secondary markets.¹⁴⁷ Figure 18 depicts the basic mechanics of Fed discounting, leaving depositors out of the picture for the sake of simplicity.

FIGURE 18



The practice of discounting CP amounts to near-direct Fed lending to CP issuers, effected by immediately crediting the accounts of banks that monetize CP and pass it on to the central bank. Public credit-money generation could hardly be more visible.

In addition, CP issuance is publicly accommodated, at least in part, when federally-insured banks guarantee the creditworthiness and liquidity of asset-backed CP (“ABCP”).¹⁴⁸ Finally, the public accommodates CP issuance by guaranteeing certain institutions that specialize in investing in, and subsequently monetizing, this form of debt—money market mutual funds, or MMMFs.

2. *From Private to Public: Fed Accommodation and Monetization*

MMMFs are open-end investment companies that specialize in forming diversified portfolios of CP and other “safe” investment securities—in particular, Treasury and Agency

¹⁴⁷ See 12 U.S.C. § 372 (2012); FED. RES. BANK DISC. WINDOW, FEDERAL RESERVE COLLATERAL GUIDELINES 3 (June 3, 2015).

¹⁴⁸ See Emma-Jane Fulcher et al., *The Difference Between Traditional ABCP Conduits and SIVs, ABCP/Europe Special Report*, FITCH RATINGS (2008), at 2.

securities—on behalf of their investors.¹⁴⁹ MMMFs also actively engage in short-term repo lending, discussed above.

With some exceptions, special accounting rules permit MMMFs to maintain their value at precisely \$1.00 per share, while other regulatory provisions permit them to offer check-writing capabilities to account-holders.¹⁵⁰ This means that MMMFs effectively *monetize* CP and repo on both sides of the balance sheet: on the asset side by purchasing and lending in the first place, and on the liability side by enabling their shareholders to write checks out of shares held in CP and repo portfolios. Thus, at first approximation, things look as depicted in *Figure 19*.

FIGURE 19

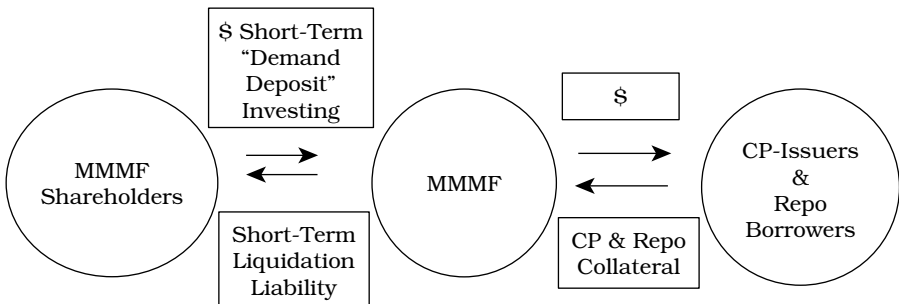


Figure 19 closely resembles *Figure 1*. This is because MMMFs finance most of their activity with pre-accumulated investor funds and are one of the few species of financial institution that conform, when considered in isolation, to the intermediated-credit model of finance discussed in section I.A.1 and depicted in *Figure 1*.¹⁵¹

MMMFs must *not* be considered in isolation, however. Like investors in any other issuer, fund investors are able to purchase MMMF shares on margin. Hence, the relevant dy-

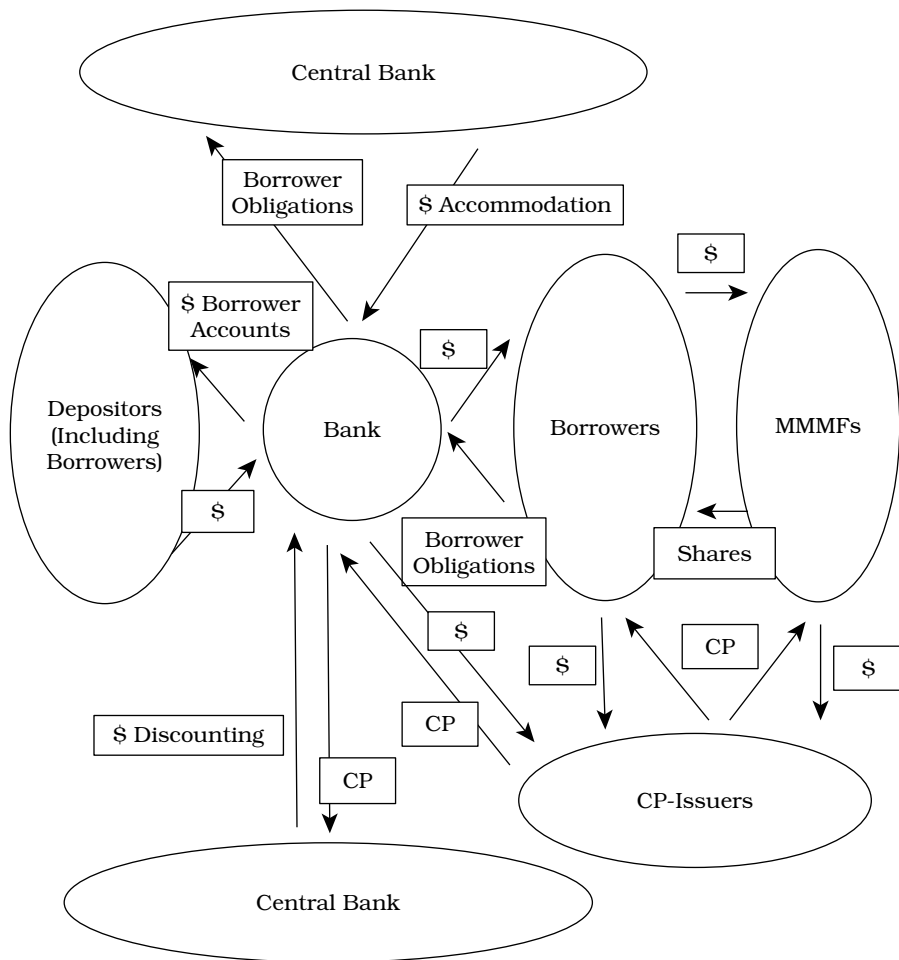
¹⁴⁹ *Money Market Fund*, INVESTOPEDIA, <http://www.investopedia.com/terms/m/money-marketfund.asp> [<https://perma.cc/E67X-X4MS>] (last visited Jan. 30, 2017).

¹⁵⁰ The SEC rules require prime institutional MMMFs to use floating net asset value (“NAV”) for their shares but allow retail and government MMMFs to maintain stable NAV in the same manner as they did before the crisis. 17 C.F.R. § 270.2a-7 (2016); SEC, *Money Market Fund Reform; Amendments to Form PF*, 79 Fed. Reg. 47736 (Aug. 14, 2014) (to be codified at 17 C.F.R. pts. 230, 239, et al.).

¹⁵¹ Recall that the one-to-one credit-intermediation model of finance effectively portrays all financial institutions as mutual funds. See *supra* subpart I.A.

namics are more accurately depicted in *Figure 20*, which corrects and completes *Figure 19*.¹⁵²

FIGURE 20



In sum, all of the shadow-banking channels enable the capital and money markets to amplify and replicate, in all salient respects, the functions of traditional banks. This they do not only in their maturity-transformation properties, as focused on by regulators and academic observers concerned with panic-proofing,¹⁵³ but also in their publicly accommodated and monetized credit-generative capacities.¹⁵⁴

¹⁵² Not surprisingly, MMMF accounts are counted in the Fed's M2 measure of the money supply. See *supra* note 121.

¹⁵³ See RICKS, *supra* note 62; Gorton & Metrick, *supra* note 100.

¹⁵⁴ Recognizing the importance of the shadow banking sector in replicating the traditional banking sector, the Fed recently announced its intention to use not

We turn now to the key *institutional* mechanisms that have enabled shadow banking's amplification and functional replication of traditional banking. This is a different side of the story, which highlights the role that organizational affiliations between banks and non-bank institutions play in enabling the expansion of the shadow banking system. Indirectly, it also shows the role that the government, as a lax public franchisor, has played in enabling the growth of "rogue franchisees" and destabilizing excess credit-money generation in the first place.

V

INSTITUTIONAL INTEGRATION OF BANKING AND CAPITAL MARKETS: FINANCIAL CONGLOMERATES

The rise of bank-centered financial conglomerates has been one of the key financial-industry developments of recent decades.¹⁵⁵ In the United States, the turning point was the passage of the Gramm-Leach-Bliley Act of 1999 ("GLBA"), which lifted longstanding legal prohibitions on affiliations between commercial banks and securities firms.¹⁵⁶ The GLBA allowed the creation of "financial holding companies" ("FHCs") that own or control commercial banks, investment banks, insurance underwriters, private equity funds, and even regular commercial businesses.¹⁵⁷ Post-GLBA, a few large, diversified conglomerates came to dominate markets in complex financial products, including ABS/MBS and derivatives, discussed above.¹⁵⁸

only traditional bank channels, but also shadow-banking channels in conducting its monetary policy through open market operations. See Binyamin Appelbaum, *The Fed's Policy Mechanics Retool for a Rise in Interest Rates*, N.Y. TIMES (Sept. 12, 2015), http://www.nytimes.com/2015/09/13/business/economy/the-feds-policy-mechanics-retool-for-a-rise-in-interest-rates.html?_r=0 [https://perma.cc/WD4Q-SPW8].

¹⁵⁵ Xavier Freixas et al., *Regulating Financial Conglomerates*, 16 J. FIN. INTER-MEDIATION 479, 480 (2007); see generally Anthony Saunders & Ingo Walter, *Financial Architecture, Systemic Risk, and Universal Banking*, 26 FIN. MKTS. & PORTFOLIO MGMT. 39 (2012) (detailing both the historical rise of conglomerates and the policy implications of this trend).

¹⁵⁶ Financial Services Modernization Act (Gramm-Leach-Bliley Act), Pub. L. No. 106-102, 113 Stat. 1338 (1999). The GLBA repealed Sections 20 and 32 of the Banking Act of 1933, popularly known as the Glass-Steagall Act, which established legal separation between commercial banks and investment banks.

¹⁵⁷ See 12 U.S.C. § 1843(k) (2012).

¹⁵⁸ Arthur E. Wilmarth, Jr., *The Dark Side of Universal Banking: Financial Conglomerates and the Origins of the Subprime Financial Crisis*, 41 CONN. L. REV. 963, 1002-46 (2009) [hereinafter *The Dark Side*]. In the wake of the recent crisis, the financial services industry became even more concentrated. By mid-2012, nearly all U.S. banking assets were controlled by bank holding companies, and U.S. BHCs collectively controlled assets well in excess of \$15 trillion, a five-fold

This Part examines how these fundamental changes in the structure of individual financial institutions affected the broader dynamics of the financial system as a public-private franchise. Given the complexity and opacity of financial conglomerates' operations, it is difficult to construct a fully detailed picture of how non-bank firms benefit from their bank affiliates' privileged franchisee status. The sheer number of non-bank subsidiaries of large FHCs would render this task nearly futile.¹⁵⁹ With these caveats in mind, this Part sketches out some of the main channels through which conglomeration quietly expands access to the full faith and credit resource beyond the banking core.

A. Why Affiliate? Non-Bank Access to Bank Subsidy

So, what explains the drive toward conglomeration in the financial sector? The standard answers to this question invoke the two-fold benefit of diversification and intra-group synergies. Diversification is seen as an important consideration for banks, whose permissible activities are still limited to those included in the statutory category of the "business of banking."¹⁶⁰ Organizational affiliation with other firms is expected to enhance banks' financial soundness.¹⁶¹

For present purposes, however, the more interesting question is what kind of synergistic benefits securities firms and other non-bank financial institutions gain through affiliation with heavily-regulated commercial banks. Typical explanations stress the convenience of providing "one-stop shopping" for institutional clients and the value of bank branches as points of marketing and delivery of non-bank financial services to retail clients. Affiliation with banks also creates potentially significant economies of scale, for example, by allowing integra-

increase since 1991. Dafna Avraham et al., *A Structural View of U.S. Bank Holding Companies*, 18 FRBNY ECON. POL. REV., July 2012, at 1.

¹⁵⁹ In 2012, JPMorgan Chase & Co., an FHC that controlled four commercial banks, reported a total of 3,391 non-bank subsidiaries. Bank of America Corporation, another FHC that controlled five commercial banks, reported 2,019 non-bank subsidiaries in its structure. Avraham et al., *supra* note 158, at 6.

¹⁶⁰ See 12 U.S.C. § 24 (2012).

¹⁶¹ The proponents of this view typically point to the "source of strength" doctrine that requires bank holding companies to commit to providing financial support for their bank-subidiaries in certain circumstances. For more on the "source of strength" doctrine, see Paul L. Lee, *The Source-of-Strength Doctrine: Reversed and Revisited*, 129 BANKING L.J. 771 (2012). For a study of the negative effects of diversification away from traditional banking activities, see Kevin J. Stiroh & Adrienne Rumble, *The Dark Side of Diversification: The Case of US Financial Holding Companies*, 30 J. BANKING & FIN. 2131 (2006).

tion of constituent entities' information technology or "back-office" processing platforms.

These familiar explanations gloss over the most fundamental reason for non-bank institutions' affiliations with banks: their desire to tap directly into the core of the public-private finance franchise.¹⁶² In fact, some of the most important synergies within financial-service groups involve not merely marketing or operational cost-savings, but shared access to the full faith and credit of the United States that is initially injected into and flows through the banking system. A multitude of seemingly disparate and mundane intra-group transactions, only some of which are highlighted in this Part, form the shadow "pipeline" for diverting that vital public resource into shadow banking markets. It is in this sense that conglomeration provides the vital institutional infrastructure that enables capital and money markets to amplify and functionally replicate the banks' capacity for indefinite credit-generation, as discussed above.¹⁶³

Perhaps the most critical overall benefit that non-bank financial institutions derive from affiliating with commercial banks is access to banks' deposit base. Because federal deposit insurance puts the U.S. government's full faith and credit directly behind banks' deposit liabilities, deposits are the cheapest and most stable source of funding for financial institutions that must borrow to invest. In the words of an industry expert, "the fundamental economics of a diversified bank holding company with a huge insured depository at its heart is to use those core funds for an array of activities, not just traditional lending."¹⁶⁴

Of course, as we show in Part II, pre-accumulated deposits are not needed for *bank* lending at all. This fundamental theoretical point, however, should not obscure the fact that depos-

¹⁶² In this Part, we focus primarily on the channels through which various non-bank actors in capital markets—investment banks, securities broker-dealers, investment managers, etc.—tap into the public resource administered by commercial banks. In Europe, by contrast, one of the main forms of conglomeration involved the emergence of so-called "bank assurance" groups, which combined banks and insurance companies. See Alan D. Morrison, *The Economics of Capital Regulation in Financial Conglomerates* (Oxford Fin. Res. Ctr., Working Paper No. 2002-FE-08, Aug. 2002), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=331040 [<https://perma.cc/Q9TZ-FWXB>].

¹⁶³ See *supra* Parts III, IV.

¹⁶⁴ Barbara A. Rehm, *Coming Rules Could Wall Off Banks from Affiliates*, AM. BANKER (Sept. 3, 2013, 12:26 PM) (quoting Karen Shaw Petrou) <https://www.americanbanker.com/opinion/coming-rules-could-wall-off-banks-from-affiliates> [<https://perma.cc/K7WS-U8CP>].

its can be used quite profitably for other forms of investing, dealing, and speculative trading in financial instruments—especially by firms that are not subject to regulations imposed on banks in virtue of banks’ “special” franchisee status. Thus, ironically, banks’ non-bank affiliates—in particular, securities broker-dealers—have a far greater need of deposit funding than do banks themselves.¹⁶⁵

Securities firms are the key players in translating the *institutional* integration of banking and capital markets into their *functional* integration, discussed above.¹⁶⁶ Organizational walls render the intricate links between conglomerates’ capital markets activities and deposit-taking largely invisible to outsiders. Nevertheless, a few key examples demonstrate how aggressively non-banks use structural affiliation with publicly-subsidized banks to tap into the core of the finance franchise in order to expand their shadow-banking activities, as discussed above in Part IV.

B. Derivatives Trading

The dynamics driving conglomeration are particularly visible in OTC derivatives trading, an important source of profitable business for financial institutions.¹⁶⁷ From a securities firm’s perspective, affiliation with a bank offers an opportunity to combine its derivatives expertise and client book with a bank’s balance-sheet strength—and to avoid potentially harsh regulatory consequences.¹⁶⁸ It is common practice within an FHC to have broker-dealers enter into derivatives trades with third parties and then enter into mirror-image trades with their

¹⁶⁵ This need for cheap and abundant funding reflects a recent shift in large U.S. securities firms’ business model toward more aggressive proprietary trading in financial instruments. See NORMAN S. POSER & JAMES A. FANTO, *BROKER-DEALER LAW AND REGULATION* § 1.02 (4th ed. 2015). Much of that trading and dealing takes place in various shadow banking markets, and indeed creates such markets, as described in Part IV above.

¹⁶⁶ Given the ongoing financial innovation and product convergence, this category should be understood in functional, rather than legal-status, terms.

¹⁶⁷ See generally Arthur E. Wilmarth, Jr., *The Transformation of the U.S. Financial Services Industry, 1975–2000: Competition, Consolidation, and Increased Risks*, 2002 U. ILL. L. REV. 215, 332–37 (2002) (showing that OTC derivatives trading is a major line of business for large banks).

¹⁶⁸ The SEC’s net capital rule penalizes securities broker-dealers for holding illiquid assets and thus makes it costlier for them to maintain large OTC derivatives trading portfolios. See SEC Rule 15c3-1, 17 C.F.R. 240.15c3-1 (2016) (detailing net capital requirements for broker-dealers). Designed to protect securities firms’ customers and creditors from losses in the event of failure, the rule requires registered securities broker-dealers to maintain an adequate “cushion” of liquid assets at all times. *Id.* See POSER & FANTO, *supra* note 165, § 12.02.

sister-banks, offloading the entire exposure onto banks' books. These back-to-back trades give FHCs a tremendous market advantage: their securities subsidiaries get to grow lucrative derivatives business without regard to otherwise crippling regulatory constraints and to transfer the risk to their publicly-backed sister-banks.¹⁶⁹ Because banks generally have the lowest funding costs and the highest credit ratings among the affiliated entities—a by-product of banks' privileged position as first-tier outlets for distributing the full faith and credit of the United States—this intra-group arbitrage lowers the overall costs of derivatives dealing and trading to the FHC.¹⁷⁰ Institutional clients prefer to have a highly-rated, federally-insured bank with a capacious balance sheet as a counterparty to their derivatives trades, and are willing to enter into such transactions on more generous terms than they would demand from less creditworthy counterparties. Bank affiliation with derivatives-trading securities firms, therefore, works to increase aggregate credit-growth via the derivatives channel, as discussed above in Part IV.

In the wake of the latest crisis, the U.S. Congress attempted to cut off this channel for shifting derivatives risk to publicly-backed banks. Section 716 of the Dodd-Frank Act, known as the “swaps push-out” provision, effectively prohibited federally-insured banks from trading and dealing in equity and commodity derivatives.¹⁷¹ This provision sought to force banks to “push out” these activities into a non-depository affiliate ineligible to be bailed out by the federal government in case of failure, and to minimize “the possibility that banks would use cheaper funding provided by deposits insured by the FDIC,

¹⁶⁹ See STEPHEN LOFCHIE, *LOFCHIE'S GUIDE TO BROKER-DEALER REGULATION* 509 (2005) (stating that, because of harsh capital treatment, SEC-registered broker-dealers less frequently act as principal than as agent for an affiliated bank, which has the effect of simply transferring the risks of derivatives trading within the group).

¹⁷⁰ See Andrew P. Cross, *The “Repeal” of the Swaps Push-Out Rule: A Q&A For The Buy-Side*, PERKINS COIE, *DERIVATIVES & REPO REPORT* (Jan. 16, 2015) <http://www.derivativesandrepo.com/2015/01/the-repeal-of-the-swaps-push-out-rule-5-things-that-the-buy-side-should-know/> [<https://perma.cc/6PJW-XEJ6>] (explaining how Section 716 of the Dodd-Frank Act impacts different buy-side participants).

¹⁷¹ Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 716, 124 Stat. 1376 (2010) (codified at 12 U.S.C. § 5301 et seq. (2012)). This provision did not impair banks' right to use derivatives for hedging purposes and to continue dealing in interest rate, currency, and certain credit derivatives. § 716(d).

to subsidize their trading activities.”¹⁷² For our purposes, the key point is that implementing the push-out provision, as originally enacted, would have potentially curtailed the excess amplification and replication of bank credit-creation in derivatives markets, described above.¹⁷³ Unsurprisingly, the push-out provision became a center of intense controversy.¹⁷⁴ In late 2014, an industry-backed amendment significantly narrowed the “push-out” requirement to derivatives linked to certain asset-backed securities.¹⁷⁵

This political battle over the derivatives push-out provision serves as a powerful reminder of the critical importance to non-bank financial institutions of organizational affiliation with federally-insured banks. Access to banks’ balance sheets as the cheapest source of funding derivatives trades, thus amplifying and replicating credit creation in shadow banking markets, remains a high priority for financial conglomerates.

C. Transactional Lending and Securitization

Affiliation with banks also offers non-bank financial institutions direct access to a significant internal source of transactional lending. Such access may benefit those institutions directly, by allowing them to borrow from sister-banks, or indirectly, by enabling them to provide transactional loans to their fee-paying clients.¹⁷⁶ Ultimately, a steady flow of in-house bank credit streams into the broader capital and money markets, where much of that credit is functionally replicated and amplified, as described above.¹⁷⁷

For broker-dealers actively trading in a wide range of financial instruments, from stocks and bonds to bespoke derivatives and structured products, fast and reliable access to funding is

¹⁷² Robert Schmidt & Phil Mattingly, *Banks Would be Forced to Push Out Derivative Trading Under Plan*, BLOOMBERG LAW REPORTS: SECURITIES LAW, April 19, 2010, at 9.

¹⁷³ See *supra* subpart III.B.

¹⁷⁴ See Cross, *supra* note 170.

¹⁷⁵ See Amend. to Consolidated and Further Continuing Appropriations Act, 2015, H.R. 83, 113th Cong. (2015), at 617 (defining “structured finance swap” as “a swap or security-based swap based on an asset backed security”), <http://www.gpo.gov/fdsys/pkg/CPRT-113HPRT91668/pdf/CPRT-113HPRT91668.pdf> [<https://perma.cc/WX2S-Y7YS>].

¹⁷⁶ For example, the ability to tap an affiliated bank as a stand-by source of funding for a prospective client’s leveraged buyout (“LBO”) transaction makes a securities firm’s bid potentially more attractive in the client’s eyes and, if the bid is successful, increases the firm’s total revenues from the transaction. The more LBO credit is available, the more LBOs can get done, faster and easier—and the more money ends up in the advising firm’s pockets.

¹⁷⁷ See *supra* Part IV.

crucial. Such access is also crucial for their clients typically trading on margin, i.e. using borrowed money to finance the trade.¹⁷⁸ In Parts III and IV above, we discussed how the practice of margin lending effectively transforms the capital and money markets, which orthodoxy portrays as sites of pure one-to-one intermediation, into functional extensions of the banking market operating in the pure credit-generation mode.¹⁷⁹ For this very reason, margin trading has long been recognized as a source of systemic risk.¹⁸⁰ To alleviate this risk, margin lending by securities broker-dealers is subject to extensive regulation under federal securities laws and rules promulgated by the Fed.¹⁸¹ This regulation generally limits the amount of credit broker-dealers are allowed to extend to any customer to 50% of the current market value of securities in the margin account.¹⁸² Securities self-regulatory organizations (“SROs”) impose additional limits and requirements on broker-dealers’ extensions of credit to their customers.¹⁸³

Margin lending by banks, however, is subject to less strict limitations under the Fed’s Regulation U.¹⁸⁴ Plus, SRO margin rules do not apply to banks. As a result, banks are generally able to finance a greater proportion of securities purchases by broker-dealers’ clients.¹⁸⁵ Affiliation between commercial

¹⁷⁸ The terms “margin trading” and “margin lending” generally refer to the use of credit for purchase and ownership of securities. See POSER & FANTO, *supra* note 165, § 12.04[A]. Typically, securities purchased on margin serve as collateral securing the loan extended to the account holder by the broker-dealer. *Id.*

¹⁷⁹ See *supra* Parts III, IV. The systemic effects of margin lending are depicted in Figures 9, 11, 14, 15, 16, 17, and 20.

¹⁸⁰ See *supra* notes 70–72 and accompanying text. By allowing greater leverage, margin trading tends to feed excessive speculation in the financial system, thus making it more vulnerable to asset bubble-and-bust cycles. For historical analyses of these dynamics, see generally CHARLES P. KINDLEBERGER & ROBERT ALIBER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (2005); JOHN KENNETH GALBRAITH, *THE GREAT CRASH: 1929* (1997).

¹⁸¹ Section 7 of the Securities Exchange Act prohibits broker-dealers from extending, maintaining, or arranging for credit to any customer in contravention of the Fed’s rules. 15 U.S.C. § 78(g) (2012). The Fed adopted Regulation T that limits the amount of credit broker-dealers are allowed to extend or maintain in their customers’ margin accounts. 12 C.F.R. Part 220 (2016).

¹⁸² See 12 C.F.R. § 220.12(a) (2016).

¹⁸³ Regulation T establishes limits on “initial margin” (the amount of money the customer is required to pay to purchase margin securities) but leaves the regulation of “maintenance margin” (the amount of collateral value the customer must maintain in the margin account) to securities industry SROs. See POSER & FANTO, *supra* note 165, §12.04[C].

¹⁸⁴ See 12 C.F.R. Part 221 (2016). For a detailed, if somewhat dated, discussion of the main differences between Regulation T and Regulation U requirements, see LOFCHIE, *supra* note 169, at 625–29.

¹⁸⁵ See 12 C.F.R. Part 221 (2016). Although Regulation T also governs bank credit “arranged” by the broker-dealer, in practice, this does not present a signifi-

banks and securities firms thus enables yet more credit to be extended for the purpose of purchasing and speculating in corporate securities.¹⁸⁶ Importantly, the higher volume of margin lending also increases banks' and broker-dealers' inventory of securities for use as repo collateral. As discussed above, financing margin loans through rehypothecation of collateral is an important channel of credit replication in the shadow banking system.¹⁸⁷

Another line of securities firms' business that receives a significant boost from affiliating with commercial banks is asset securitization, including mortgage securitization—again, a significant component of the shadow banking system described in more functional terms in Part IV.¹⁸⁸ Before the 2008 crisis, large-scale “private-label” securitization operations conducted by investment banks and large FHCs spurred constantly growing demand for mortgage loan origination.¹⁸⁹ Having an internal source of direct supply of these valuable assets gave FHCs a built-in market advantage. Banks also provided vital funding for FHCs' acquisitions of loan assets from third parties.¹⁹⁰

Not surprisingly, bank-centered financial conglomerates played a leading role in the subprime mortgage boom that resulted in the 2008 crash, followed by the Great Recession.¹⁹¹ It is also hardly surprising that, once the global financial system nearly imploded, free-standing Wall Street investment banks disappeared as a distinct institutional category. Organizational attachment to commercial banks, as the core private purveyors of the full faith and credit of the United States, turned out to be the key to financial institutions' very survival.

To sum up, diversified bank-centered conglomerates provide the key organizational infrastructure for private expansion—and over-expansion—of the primary privilege publicly conferred upon banks: direct access to the key public resource

cant limitation on this type of arbitrage, as long as the broker-dealer acts in “good faith” in arranging such credit. See POSER & FANTO, *supra* note 165, §12.04[D].

¹⁸⁶ For a discussion of the significance of this phenomenon in fueling “financialization,” see *infra* subpart VII.A.

¹⁸⁷ See *supra* subpart IV.A.

¹⁸⁸ *Id.*

¹⁸⁹ See Adam J. Levitin & Susan M. Wachter, *Explaining the Housing Bubble*, 100 GEO. L. J. 1177, 1202–10 (2012).

¹⁹⁰ An important additional benefit of affiliation with a commercial bank was a bank's ability to export their home-state interest rates to borrowers nationwide, without regard to different states' usury laws. See *Marquette Nat'l Bank v. First Omaha Serv. Corp.*, 438 U.S. 299 (1978). On the “exportation” doctrine, see Elizabeth R. Shiltz, *The Amazing, Elastic, Ever-Expanding Exportation Doctrine and Its Effects on Predatory Lending Regulation*, 88 MINN. L. REV. 518 (2004).

¹⁹¹ See Wilmarth, *The Dark Side*, *supra* note 158, at 1008–15.

that flows through the financial system.¹⁹² One of the most insidious and potentially far-reaching, system-wide consequences of financial conglomeration is that it has opened multiple institutional channels for expanding “unauthorized” access to, and diversion of, the monetized full faith and credit of the United States. We do not claim to have mapped all of these intra-group relationships and strategies. Yet, even a brief overview of some of the most popular such strategies further confirms that the core dynamic defining modern finance is not “one-to-one” intermediation between private suppliers and users of scarce capital—it is continuous profitable distribution by private franchisees of a continuously publicly-provided resource. By diverting much of that resource flow into various “shadow” markets of the kind discussed above, financial conglomerates threaten the proper operation of this public-private franchise arrangement.

A very different threat to this arrangement seems to be emerging at the outer edges of the financial system, where financial technology, or “fintech,” companies are promising to “disrupt” and revolutionize money and credit—and to drive both financial institutions and the state out of finance. A brief examination of this phenomenon, however, further confirms the correctness of the franchise view of finance.

VI

THE DISRUPTIVE FRINGE: FROM ENDOGENOUS MONEY TO FRANCHISE EXTENSION?

In recent years, several forms of “alternative finance”—including crowdfunding, marketplace (a.k.a. “peer-to-peer,” or “P2P”) lending, and cryptocurrency networks—have begun “disrupting” some of the familiar patterns of financial services delivery in the United States and globally. While inherently

¹⁹² The principal legal brake on such over-expansion is the operation of Sections 23A and 23B of the Federal Reserve Act, designed to prevent the transfer of federal subsidy to non-bank entities. 12 U.S.C. §§ 371c, 371c-1 (2012). Section 23A imposes certain quantitative and qualitative limits on banks’ extensions of credit to non-bank affiliates, and its companion Section 23B mandates that banks’ transactions with affiliates be conducted on market terms. Although the Dodd-Frank Act strengthened the Section 23A regime, it is far from clear whether these changes will effectively protect the depository system in the future. For an analysis of the practical operation of Section 23A regime, see generally Saule T. Omarova, *From Gramm-Leach-Bliley to Dodd-Frank: The Unfulfilled Promise of Section 23A of the Federal Reserve Act*, 89 N.C. L. Rev. 1683 (2011) (arguing that Section 23A is ill-suited to serve as the principal mechanism for preventing systemically harmful transfers of risks and public subsidy between depository institutions and their affiliates).

diverse and fluid, these alternative financial markets share certain fundamental characteristics: their businesses are organized around the use of advanced technologies for processing and sharing information; they seek to eliminate traditional financial intermediaries from financing transactions; and they seek to avoid governmental or any other “external” control over financial transactions.

In its aspirations to render both the banks and the central banks redundant, this new-century fintech sector portrays itself as a revolutionary alternative to the existing financial system. Ironically, however, despite its disintermediation rhetoric, what this currently unfolding “fintech revolution” seeks to create in practice is a pure form of the orthodox “one-to-one” intermediation model of finance, as described in section I.A. 1 above, in which traditional intermediaries such as banks or securities broker-dealers are replaced by electronic peer-to-peer transaction platforms. Fintech enthusiasts view modern technology as the magic key enabling the flow of pre-accumulated capital among freely-contracting private parties, on a scale sufficiently large to obviate the need for publicly sanctioned and supported credit-generation.¹⁹³ In that sense, fintech revolutionaries are essentially envisioning a sort of financial “return to Eden”—or, at least, to the putatively peer-to-peer origins of finance.¹⁹⁴

It is too early to tell whether or not the emerging fintech industry will succeed in its peer-to-peer “restoration” project. However, a closer examination of the key dynamics in the alternative-finance universe suggests that, in order to expand beyond its present peripheral place, it is bound to seek reintegration into the core finance franchise.¹⁹⁵ Without sustained direct access to the ultimate public resource flowing through that system—the public’s full faith and credit—alternative finance is not likely to outgrow its present fringe status. In fact, as this Part shows, marketplace lending is already effectively re-integrated into the core financial system, if only as a new variant of shadow banking. Cryptocurrencies may be moving in the same direction.

¹⁹³ For a sophisticated and conceptually compelling exposition of this view, see generally JONATHAN MCMILLAN, *THE END OF BANKING* (2014).

¹⁹⁴ Of course, as discussed above, financial markets are also inherently political in their genesis and operation, with sovereigns historically playing a central role in creating and sustaining money and credit flows. See *supra* notes 77–81 and accompanying text.

¹⁹⁵ Again, our discussion focuses on the U.S. fintech sector.

A. Peer-to-Peer Finance

The earliest and most varied form of peer-to-peer finance, crowdfunding¹⁹⁶ denotes raising funds from a large number of individual investors, typically by using online social networks or specialized funding platforms.¹⁹⁷ P2P lending is simply crowdfunding of debt. It seeks to lower the costs of unsecured borrowing by eliminating the need for the services of a commercial bank or any other institutional lender.¹⁹⁸ The basic idea is that, by using advanced technology to process information and underwrite loans quickly and at low cost, P2P lending sites are able to match individual lenders and borrowers efficiently and transparently.¹⁹⁹

Online P2P lending got its official start in late 2005.²⁰⁰ The success of Prosper.com and LendingClub, both of which focused initially on consolidation of consumer debt, spurred a rapid growth of online lending platforms specializing in various loan products.²⁰¹ The rise and proliferation of P2P financing sites in the last decade has led some observers to declare “the beginning of a revolution in how the general public allocates capital.”²⁰² Others have welcomed it as a rising tide of ultimate

¹⁹⁶ See Craig R. Everett, *Origins and Development of Credit-Based Crowdfunding* (May 28, 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2442897 [<https://perma.cc/5AGQ-HMSR>].

¹⁹⁷ See Joan MacLeod Heminway & Shelden Ryan Hoffman, *Proceed at Your Peril: Crowdfunding and the Securities Act of 1933*, 78 TENN. L. REV. 879, 881 (2011).

¹⁹⁸ Lending platforms typically cap the size and maturity of individual loans (e.g., Prosper.com extends loans ranging from \$2,000 and \$35,000 for a term of 3 to 5 years); limit individual investor’s exposure to a particular borrower by breaking up the loan amount among a large number of investors, and use internal and external credit ratings to determine the risk-adjusted interest rate on each loan (e.g., Prosper.com charges borrowers fixed interest rates between 5.99% and 36%); and collect transaction and servicing fees. See, e.g., *Prosper Personal Loan Types*, PROSPER, <http://www.prosper.com/loans/loan-types/> [<https://perma.cc/DRA3-B4NF>] (last visited Mar. 18, 2017).

¹⁹⁹ Unlike banks, P2P platforms typically do not make loans using their own balance sheets: they simply find individuals willing to lend money to a particular borrower at a particular rate. In this model, even high-risk borrowers should be able to find potential lenders willing to take a small portion of the risk, if compensated accordingly. Banks and other balance-sheet lenders don’t have such flexibility.

²⁰⁰ See Everett, *supra* note 196, at 6.

²⁰¹ Already in 2014, marketplace lenders reportedly issued over \$5.5 billion in loans. RICHARDS KIBBE & ORBE LLP, 2015 SURVEY OF U.S. MARKETPLACE LENDING, http://www.rkollp.com/assets/htmldocuments/RKO_LenderSurvey_FINAL2.pdf [<https://perma.cc/3LGN-6QDW>].

²⁰² C. Steven Bradford, *Crowdfunding and the Federal Securities Laws*, 2012 COLUM. BUS. L. REV. 1, 5 (2012).

“disintermediation”²⁰³ and emphasized substantial savings from eliminating the costs associated with government regulation of banks and other financial institutions.²⁰⁴

But the P2P model has not yet been able to “crowd out” in any significant measure the traditional markets for credit and capital. Nor has it been able to distance and insulate itself from the regulated, intermediary-dominated financial system that, as we described above, runs on the ultimate public resource, the full faith and credit of the United States. In fact, a closer look reveals a powerful trend toward a more visible integration—or re-integration—of this mode of alternative finance into the mainstream financial system. Two factors are critical in this dynamic: (1) the central role of deposit-taking banks as originators of marketplace loans, and (2) the dominance of institutional investors as buyers of these loans.

The first factor is both critically important and surprisingly under-appreciated: U.S. marketplace lending platforms have never operated outside the core banking system. The dominant P2P lending platforms rely on insured deposit-taking banks for three critical functions: (1) collecting deposits from individual lenders committing to fund specific loans listed on the platform; (2) initially funding loans by crediting each individual borrower’s bank account in the full amount of the loan; and (3) maintaining a segregated deposit account into which the platform operator deposits payments received from borrowers.²⁰⁵ Banks receive fees for performing these functions.²⁰⁶ After a short period of holding the loan on its own balance sheet, the “ghost-lender” bank sells the loan to the marketplace platform operator, which then issues to each individual lender a note representing such individual lender’s right to receive a proportionate share of all principal and interest payments the platform operator receives from the borrower.²⁰⁷ In effect,

²⁰³ Andrew Verstein, *The Misregulation of Person-to-Person Lending*, 45 U.C. DAVIS L. REV. 445, 449 (2011).

²⁰⁴ *Id.* at 458.

²⁰⁵ See CHAPMAN & CUTLER LLP, THE REGULATION OF MARKETPLACE LENDING: A SUMMARY OF THE PRINCIPAL ISSUES (2015 UPDATE) 2–3 (April 2015) <http://docplayer.net/2792024-The-regulation-of-marketplace-lending-a-summary-of-the-principal-issues-2015-update-april-2015.html> [<https://perma.cc/8RUE-FNTP>].

²⁰⁶ Thus, LendingClub and Prosper partnered with WebBank, a Utah-chartered and FDIC-insured industrial bank, which originates their consumer loans. See, e.g., PROSPER, <https://www.prosper.com/> [<https://perma.cc/EYF7-89JT>] (last visited Mar. 18, 2017).

²⁰⁷ CHAPMAN & CUTLER, *supra* note 205, at 2.

things work much as they do in the case of bank offloading of loans through securitization, as described in subpart IV.A.²⁰⁸

This brief description of the P2P model exposes the points at which marketplace lenders directly tap into the publicly-backed banking system. The money ostensibly flowing “directly” back and forth between individual lenders and borrowers, in fact, flows through federally-insured banks.²⁰⁹ More importantly, the loans extended by the originating banks make deposits at borrowers’ banks, pursuant to the same mode of credit-money generation described above in Part I.²¹⁰ In this process, the public’s full faith and credit is implicated to the same extent as it is whenever credit is extended within the core banking franchise, and funds are wired through the payment network operated by the Fed.²¹¹ By attaching themselves to banks, marketplace lending platforms gain access to banks’ significantly lower cost of funding—without becoming subject to bank regulation.²¹²

The second factor driving the rapid re-integration of the P2P model into the mainstream financial system is the increasingly dominant role of institutional investors in marketplace lending.²¹³ In the presently prevailing low interest-rate envi-

²⁰⁸ See *supra* subpart IV.A.

²⁰⁹ A big part of the reason for this set-up is regulatory: U.S. marketplace platforms cannot maintain individual lender and borrower accounts on their own books without running a serious risk of violating legal prohibitions on unauthorized deposit-taking.

²¹⁰ See *supra* Part I.

²¹¹ See *Automated Clearinghouse Services*, BD. OF GOV. OF FED. RES. SYS. (May 16, 2016), http://www.federalreserve.gov/paymentsystems/fedach_about.htm [<https://perma.cc/P66Z-NAUA>].

²¹² See Renaud Laplanche, *Five Big Myths about Marketplace Lending*, AM. BANKER (Jan. 28, 2015), <https://www.americanbanker.com/opinion/five-big-myths-about-marketplace-lending> [<https://perma.cc/DG6R-S2BL>]. There is another important advantage marketplace lenders get by “purchasing” loans technically originated by banks. U.S. banks are exempted from getting state lending licenses and are legally allowed to charge interest rates permissible in their home state on loans extended to residents of any other state, without regard to such states’ usury laws. See *supra* note 190. Because Utah does not cap permissible interest loans, WebBank is allowed to extend loans nationwide without an upper limit on the rates it charges. This ability to “rent” a bank charter to charge high interest on consumer loans nationwide is a significant boost to marketplace lenders’ profitability—and another mechanism of tapping into the core banking franchise. See Kevin Wack, *Why LendingClub Relies on a Bank You’ve Never Heard Of*, AM. BANKER (Dec. 18, 2014), <https://www.americanbanker.com/news/why-lending-club-relies-on-a-bank-youve-never-heard-of> [<https://perma.cc/UQ2X-TYZF>].

²¹³ See Kathryn Judge, *The Future of Direct Finance: The Diverging Paths of Peer-to-Peer Lending and Kickstarter*, 50 WAKE FOREST L. REV. 603 (2015). In the U.K., where the trend toward institutionalization of P2P lending has not been as pronounced, the model continues to connect primarily retail investors with indi-

ronment, large investors searching for yield—hedge funds, private equity funds, banks, insurance companies, endowments, and super-wealthy individuals—have become the primary buyers of marketplace loan products,²¹⁴ which generally offer higher interest rates than traditional bank loans.²¹⁵ Many of these investments are leveraged, with banks providing financing for hedge funds and other investors in marketplace loans.²¹⁶

The entry of yield-hungry institutional investors has led to increased competition in the sector and is pushing marketplace-lending firms to grow their loan origination volumes, to diversify their loan products, and to consolidate.²¹⁷ In this respect too, the familiar dynamic of securitization is being recapitulated in the evolution of P2P lending. Marketplace lenders are actively forming partnerships with banks and other institutional investors, pursuant to which banks and other investors commit to buying a certain percentage of whole loans

vidual borrowers. In part, this may be a result of a different regulatory approach to P2P lending in the U.K. Nevertheless, some industry experts expect the rise in the role of institutional investors in the U.K.'s P2P lending sector. See Kevin Wack & Bailey Reutzel, *How P-to-P Lending Evolved into Different Animals in U.S., U.K.*, AM. BANKER (Jun. 5, 2015), <https://www.americanbanker.com/news/how-p-to-p-lending-evolved-into-different-animals-in-us-uk> [<https://perma.cc/DW8H-JB7G>].

²¹⁴ See Kevin Wack et al., *Innovation of the Year: Online Marketplace Lending*, AM. BANKER (Dec. 17, 2014), <https://www.americanbanker.com/news/innovation-of-the-year-online-marketplace-lending> [<https://perma.cc/KLS5-AU54>].

²¹⁵ For example, LendingClub has delivered an adjusted annualized return of nearly 8.7% on the first \$8 billion of issued loans, and issued over \$1 billion in personal loans carrying interest rate above 20%. See Todd Baker, *Marketplace Lenders Are a Systemic Risk*, AM. BANKER (Aug. 17, 2015), <https://www.americanbanker.com/opinion/marketplace-lenders-are-a-systemic-risk> [<https://perma.cc/EQ6H-BNQ3>]. In 2014, OnDeck, a marketplace platform specializing in small business lending, reportedly issued loans at an average annual percentage rate of 54%. See Kenneth A. Posner, *Alternative Lenders Have a Ways to Go to Ensure "Revolution,"* AM. BANKER (Jan. 12, 2015), <https://www.americanbanker.com/opinion/alternative-lenders-have-a-ways-to-go-to-ensure-revolution> [<https://perma.cc/3DAM-5QZB>].

²¹⁶ See Kevin Wack et al., *supra* note 214 ("A handful of banks, including Capital One Financial, have taken second-lien positions to lever funding lines to prop up the industry. Other banks involved are also now said to include CapitalSource, Citigroup, Credit Suisse and Deutsche Bank. CapitalSource is offering lenders revolving and term note credit facilities from \$5 million-\$100 million, officials there are telling potential partners."); see also Matt Scully, *Why These Two Big Banks Are Stiff-Arming P-to-P*, AM. BANKER (Oct. 24, 2014), <https://www.americanbanker.com/news/why-these-two-big-banks-are-stiff-arming-p-to-p> [<https://perma.cc/B2JU-8UR5>].

²¹⁷ See Kevin Wack, *Shakeout Is Coming, Marketplace Lenders Warn*, AM. BANKER (Apr. 16, 2015), <https://www.americanbanker.com/news/shakeout-is-coming-marketplace-lenders-warn> [<https://perma.cc/64JK-RESB>].

originated through the marketplace platform.²¹⁸ To satisfy institutional investors' demand for this lucrative asset class, marketplace lenders are driven to intensify their "borrower-acquisition" efforts, which creates incentives to extend more high-risk loans.²¹⁹ Coupled with the fact that many institutional investors leverage their investments in marketplace loans, this is a potentially systemically destabilizing trend reminiscent of the pre-crisis dynamics of the subprime mortgage sector.²²⁰

In sum, within a decade, marketplace lending has effectively evolved from an alternative form of peer-to-peer finance—intended to operate in the truly "one-to-one" credit-intermediation mode described in subpart I.A—into a post-crisis rendition of shadow-banking securitization, as described above in subpart IV.A.²²¹ The new marketplace increasingly looks like simply another conduit for wholesale regulatory arbitrage, whereby publicly-backed banks' low-cost funding is used to finance leveraged investments by non-bank institutions in potentially high-risk consumer debt.²²² In the words of one lamenting observer, "Today, peer-to-peer lending is dead."²²³

²¹⁸ See Kevin Wack et al., *supra* note 214; Mike Cagney, *How Marketplace Lenders Will Save Financial Services*, AM. BANKER (Aug. 19, 2015), <https://www.americanbanker.com/opinion/how-marketplace-lenders-will-save-financial-services> [https://perma.cc/4JWC-44CU].

²¹⁹ See Baker, *supra* note 215.

²²⁰ *Id.* These developments, of course, increase the vulnerability of marketplace lenders to cyclical changes in the institutional investor appetite for their loans. Thus, in 2016, as investors began seeing more attractive returns in other fixed-income markets, their diminished interest caused noticeable contraction across the marketplace lending industry. See Kevin Wack, *Lending Club Finds It Hard to Reconcile with Banks*, AM. BANKER (Aug. 9, 2016), <https://www.americanbanker.com/news/lending-club-finds-it-hard-to-reconcile-with-banks> [https://perma.cc/BNH7-5EH7].

²²¹ There is a growing trend toward securitization of marketplace loans acquired by institutional investors. The evidence of growing interest in real estate loans as the next "hot" asset class for marketplace lending further underscores these troubling parallels. See RICHARDS KIBBE & ORBE LLP, 2016 SURVEY OF U.S. MARKETPLACE LENDING, <http://www.rkollp.com/assets/htmldocuments/2016%20Marketplace%20Lending%20Survey.pdf> [https://perma.cc/XK2G-D359].

²²² Scully, *supra* note 216 ("Obtaining cheaper access to funding is a top priority among so-called marketplace lenders, and their existence may very much depend on how broadly they can access other and cheaper forms of capital."); see also Robert Barba & Tanaya Macheel, *Banks Play Growing Role in Funding Fintech*, AM. BANKER (Aug. 17, 2016), <https://www.americanbanker.com/news/banks-play-growing-role-in-funding-fintech> [https://perma.cc/HVQ2-59XH] (noting that banks are looking for "potential strategic advantages").

²²³ See *Investors Beware: Summers Praised Marketplace Lending*, END OF BANKING, <http://www.endofbanking.org/investors-beware-marketplace-lending-praised-larry-summers/#more-631> [https://perma.cc/L98K-W3HN] (last visited Mar. 18, 2017).

The truth of this observation is underscored by the fact that the industry originally known as “peer-to-peer” lending is now called “marketplace” lending.²²⁴ The rhetoric of marketplace lenders is also changing: instead of claiming to be a new-century alternative to obsolete banks, they now openly advocate partnerships with traditional banks and seek co-branding of loans with banks.²²⁵ The promise of disintermediation is turning into the reality of re-intermediation, with its more visible and systematic pattern of tapping into the public’s full faith and credit.

B. Cryptocurrencies

Arguably even more “disruptive” than marketplace lending, cryptocurrencies might initially appear to threaten the very core of the finance franchise, the centrality of the sovereign’s full faith and credit as the foundation of money. Bitcoin is one of the best-known and potentially influential among cryptocurrencies currently in use.²²⁶ Bitcoin is a decentralized virtual currency that operates through a network of peer-to-peer computers, called nodes.²²⁷ It enables the use of bitcoins, electronic tokens or bits of data, as a means of payment and exchange similar to regular currencies.²²⁸ However, unlike

²²⁴ CHAPMAN & CUTLER, *supra* note 205, at i. According to some estimates, by mid-2015, only about 25% of investors in U.S. marketplace lending were individuals. See Kevin Wack, *More Liquidity Seen as Key to P-to-P Retail Growth*, AM. BANKER (June 17, 2015), <https://www.americanbanker.com/news/more-liquidity-seen-as-key-to-p-to-p-retail-growth> [<https://perma.cc/X3JT-KWR8>].

²²⁵ See Laplanche, *supra* note 212. According to Laplanche, the founding CEO of LendingClub, “This arrangement plays to each party’s strengths. Lending Club’s low operating expenses, combined with banks’ low cost of capital, reduces the cost of credit for consumers and businesses.” *Id.* After Laplanche was ousted in May of 2016 following the discovery that the company’s executives falsified some loan data to conform it to a particular loan buyer’s specifications, however, Lending Club lost many institutional buyers and reported an \$81.4 million quarterly loss. Since then, the company’s new leadership announced its plans to expand its retail investor base. See Kevin Wack, *Lending Club Seeks to Bolster Its Retail Investor Base*, AM. BANKER (Sept. 8, 2016), <https://www.americanbanker.com/news/lending-club-seeks-to-bolster-its-retail-investor-base> [<https://perma.cc/D2AH-E6VK>]. Whether or not this strategy succeeds in returning the company back to its roots, Lending Club’s troubles serve as an apt reminder of the fundamental tensions and fragility inherent in the marketplace lending model.

²²⁶ On the history, operation, and regulation of cryptocurrencies, see generally NATHANIEL POPPER, *DIGITAL GOLD* (2015); PAUL VIGNA & MICHAEL J. CASEY, *THE AGE OF CRYPTOCURRENCY* (2015).

²²⁷ See PEDRO FRANCO, *UNDERSTANDING BITCOIN: CRYPTOGRAPHY, ENGINEERING, AND ECONOMICS* 4, 110–11 (2015).

²²⁸ JOSE PAGLIERY, *BITCOIN AND THE FUTURE OF MONEY* 6 (2014). Bitcoin with a capital “B” typically refers to the entire system supporting the virtual currency, while “bitcoin” with a lower-case “b” denotes the actual unit of that currency. *Id.*

such currencies, bitcoin is not backed by any sovereign, and its creation and use are not controlled by any state or any single private institution.²²⁹

At the heart of Bitcoin is an innovative blockchain technology that allows verification and recording of each transaction within the system in a publicly-distributed ledger.²³⁰ Because the public ledger cannot be altered, Bitcoin users need not trust any single institution to keep the system secure—though they must place trust in the network itself.²³¹ Bitcoins are stored in digital wallets but the true identities of the transacting parties are kept secret.²³² Bitcoin may be either bought with conventional money or “mined” by solving the encrypted transactions that are continuously added to the blockchain. The software, in effect, creates bitcoins out of thin air and awards them to community members willing to expend their time and effort to verify encrypted transfers between digital wallets.²³³

To the extent it can serve as a store of value, bitcoin is also a commodity that can be bought and sold for conventional money.²³⁴ The heightened transactional privacy and security make bitcoin an attractive means of money laundering, terrorist financing, and illegal trading in online black markets.²³⁵ The concomitant legal and regulatory risks increase the potential volatility of bitcoin and make it a less reliable store of value.²³⁶ This has two major implications for purposes of our discussion.

First, bitcoin’s ability to displace sovereign currency in any significant measure (i.e., outside the Bitcoin ecosystem) re-

229 FRANCO, *supra* note 227, at 3.

230 *Id.* at 15.

231 *Id.* at 8–9.

232 Rainer Böhme et al., *Bitcoin: Economics, Technology, and Governance*, 29 J. ECON. PERSP. 213, 220–21 (2015); FRANCO, *supra* note 227, at 9.

233 Mining bitcoin requires significant computing power, and the difficulty of solving transaction “puzzles” is programmed to increase, in order to keep the supply of bitcoin from rising too rapidly. PAGLIERY, *supra* note 228, at 33–34.

234 Bitcoin transactions are often accompanied by one or more conversions of the sums into conventional currencies. Böhme et al., *supra* note 232, at 220.

235 See Andy Greenberg, *FBI Says It’s Seized \$28.5 Million in Bitcoins from Ross Ulbricht, Alleged Owner of Silk Road*, FORBES (Oct. 25, 2013, 12:50 PM), <http://www.forbes.com/sites/andygreenberg/2013/10/25/fbi-says-its-seized-20-million-in-bitcoins-from-ross-ulbricht-alleged-owner-of-silk-road/> [https://perma.cc/9MRY-CKPY].

236 Bitcoin’s value has been notoriously volatile, ranging from as low as \$0.75 to as high as \$1,242, between 2011 and 2014. Kevin V. Tu & Michael W. Meredith, *Rethinking Virtual Currency Regulation in the Bitcoin Age*, 90 WASH. L. REV. 271, 292–93 (2015).

mains quite limited. Financial institutions subject to extensive anti-money laundering laws and regulations have to factor-in the elevated risk of transacting in cryptocurrency, which directly affects the rate of bitcoin acceptance in commercial transactions. Furthermore, the majority of the population are not likely to keep their long-term assets in cryptocurrency that is not backed by the central bank—and can at any moment be declared illegal by the government. Accordingly, the value of cryptocurrencies is tied fundamentally to their convertibility into conventional currencies, such as U.S. dollars backed by the full faith and credit of the United States.²³⁷ Cryptocurrencies are therefore likely to remain on the fringes of the financial system.²³⁸ Not surprisingly, startup cryptocurrency firms have reportedly been looking for partnerships with banks that have the resources and scale to reach mainstream audiences.²³⁹

The second implication is that bitcoin's high volatility as a store of value makes it an attractive underlying commodity for derivatives trading. In September 2014, TeraExchange established the first regulator-approved U.S. bitcoin derivatives trading platform.²⁴⁰ It may be only a matter of time before large U.S. FHCs enter this market and turn virtual currencies into the raw material for derivatives trading. The emergence of a deep market for hedging—and speculating on—bitcoin risk would, in turn, enable growth in the bitcoin acceptance rate in commercial transactions. Thus, as in the case of marketplace lending, the most likely mechanism for the success of cryptocurrency, ironically, involves its integration into the ex-

²³⁷ See Kevin Wack, *Handle with Care: Startups Blend Bitcoin with P-to-P Lending*, AM. BANKER (Aug. 19, 2015), <https://www.americanbanker.com/news/handle-with-care-startups-blend-bitcoin-with-p-to-p-lending> [<https://perma.cc/TN3A-ND6H>].

²³⁸ Blockchain technology, however, may potentially revolutionize payments, securities settlements, title recording, and other back-office systems used by financial institutions. See Nasreen Quibria, *Blockchain's Cross-Border Promise*, AM. BANKER, Aug. 10, 2015, at 8; Edward Robinson & Matthew Leising, *Blythe Masters Tells Banks the Blockchain Changes Everything*, BLOOMBERG MARKETS (Aug. 31, 2015), <http://www.bloomberg.com/news/features/2015-09-01/blythe-masters-tells-banks-the-blockchain-changes-everything> [<https://perma.cc/F7LD-5SRF>].

²³⁹ See Wack, *supra* note 237; Sarah Todd, *Banks' Real Fight with Fintech: Who Owns the Customer?*, AM. BANKER (Jun. 19, 2015), <https://www.americanbanker.com/news/banks-i-real-i-fight-with-fintech-who-owns-the-customer> [<https://perma.cc/ZA9S-BPTZ>].

²⁴⁰ See Michael J. Casey, *TeraExchange Unveils First U.S.-Regulated Bitcoin Swaps Exchange*, WALL ST. J. (Sept. 12, 2014), <https://www.wsj.com/articles/teraexchange-launches-bitcoin-derivatives-exchange-1410543989> [<https://perma.cc/A39K-GPUJ>].

isting financial architecture—again, through the familiar channels of shadow banking, described above.²⁴¹

In sum, the current dynamics of alternative finance, including cryptocurrencies and marketplace lending, confirm the basic intuition behind the franchise view of the financial system. While a full discussion of the complex and dynamic fintech universe is beyond the scope of this Article, the key point for our purposes is simple: to move beyond its current fringe position, the fintech industry has to be more explicitly and directly integrated into the core finance franchise.²⁴² It appears that access to the flow of the ultimate financial resource, the full faith and credit of the sovereign, remains the key driver of finance even in its 21st-century form.

VII

FROM THE FINANCIAL TO THE “REAL”: FINANCIALIZATION AND ITS CURE

Our main thrust so far has been to map a new vision of the architecture and dynamics of the financial system, from its inner banking core to its fintech fringe. As our mapping exercise reaches the outer edges of the financial universe, a natural question arises: *Now what?*

What lies beyond the boundaries of the financial sector is the “real” economy, populated by those enterprising firms and thrifty households whose needs a financial system purportedly serves. The orthodox intermediation myth has little to say about how that “service” link works. It is simply assumed that efficient “one-to-one” financial intermediation naturally results in the right quantities of capital flowing to the right economic actors. In recent decades, however, this assumption has grown untenable in light of the so-called “financialization” of most developed economies. In this Part, we indicate how a shift from

²⁴¹ See *supra* Part IV.

²⁴² In one of the most vivid illustrations of this integration dynamic, several of the world’s largest banks—including UBS, Deutsche Bank, Santander, and BNY Mellon—are reportedly developing a new form of digital cash for use in the clearing and settlement of financial transactions via blockchain. Not surprisingly, this venture’s success depends fundamentally on banks securing the relevant central banks’ agreement to ensure direct convertibility of their proprietary coin units into sovereign currencies. See Martin Arnold, *Big Banks Plan to Coin New Digital Currency*, FIN. TIMES (Aug. 23, 2016), <https://www.ft.com/content/1a962c16-6952-11e6-ae5b-a7cc5dd5a28c> [<https://perma.cc/Z76Z-XBKK>]. Moreover, central banks themselves are beginning to explore the possibility of issuing their own digital currency using distributed ledgers. See John Barrdear & Michael Kumhof, *The Macroeconomics of Central Bank Issued Digital Currencies* 3–4 (Bank of England, Staff Working Paper No. 605, July 2016).

the intermediation myth to our franchise theory of finance enables a fuller understanding of what drives financialization—and how to cure it within the parameters of our current institutional arrangements.²⁴³

A. The Cause: Franchisor Absenteeism

Despite its salience in contemporary political and academic debates, the term “financialization” lacks precise definition. It encompasses a variety of phenomena ranging from the growing share of GDP attributable to the financial sector, to the massive entry of financial speculators into commodity futures markets,²⁴⁴ to non-financial companies’ increasing reliance on income from financial investments,²⁴⁵ to a prioritization of “shareholder value” over production-related goals in corporate governance.²⁴⁶

In the academic literature, financialization has been broadly defined as the “increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies.”²⁴⁷ Scholars have examined a wide variety of economic, political, ideological, and other factors thought to explain the march of financialization in recent decades: theoretical advances in finance, structural shifts in the distribution of economic and political power in advanced economies, the influence of neoliberal ideology on states’ policy choices, the ascendance of shareholder supremacy in corporate law and governance, and so on.²⁴⁸

²⁴³ See *infra* note 254.

²⁴⁴ See Ing-Haw Cheng & Wei Xiong, *The Financialization of Commodity Markets* 4–7 (Nat’l Bureau of Econ. Res., Working Paper No. 19642, Oct. 2013), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2350243 [<https://perma.cc/6LAX-GPR8>].

²⁴⁵ See Ken-Hou Lin & Donald Tomaskovic-Devey, *Financialization and U.S. Income Inequality, 1970–2008*, 118 AM. J. SOC. 1284 (2013).

²⁴⁶ Natascha van der Zwan, *Making Sense of Financialization*, 12 SOCIO-ECON. REV. 99, 107–10 (2014), <http://ser.oxfordjournals.org/content/12/1/99.full.pdf+html> [<https://perma.cc/4QSM-DEHH>].

²⁴⁷ GERALD A. EPSTEIN, FINANCIALIZATION AND THE WORLD ECONOMY 3 (2005); see also Thomas I. Palley, *Financialization: What It Is and Why It Matters* 3 (The Levy Econ. Inst., Working Paper No. 525, Dec. 2007), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1077923 [<https://perma.cc/Y72K-3435>] (arguing that financialization elevates the significance of the financial sector relative to the real sector and transfers income from the latter to the former); Gerald F. Davis & Suntae Kim, *Financialization of the Economy* 41 ANN. REV. SOC. 203, 204 (2015), http://webuser.bus.umich.edu/gfdavis/Papers/Davis_Kim_financialization_revised.pdf [<https://perma.cc/BYCB-VHSB>].

²⁴⁸ GRETA R. KRIPPNER, CAPITALIZING ON CRISIS 27–28 (2011).

While all of these analyses provide invaluable insights into various aspects of financialization, they nevertheless fall short of articulating a conceptually unified account of its root causes and core dynamics. Reconceiving the financial system as a public-private franchise for the propagation and allocation of the full faith and credit of the United States provides a useful analytical framework for developing such an account.

The fundamental purpose of the franchise arrangement, whereby the state cedes management of the flow of its key resource to private rent-earning financial institutions, is to supply the macro economy with *sufficient* credit to support *productive* enterprise. There are two key elements of this task: (1) maintaining appropriate *aggregates* of credit, and (2) *allocating* that credit—in each case, to ensure full utilization of the economy’s productive capacity.

As a matter of institutional design, the first task—that of *modulating* the credit supply—is officially reserved to the franchisor, acting primarily through the central bank or monetary authority that conducts its monetary policy.²⁴⁹ This is so because the determination and generation of optimal credit aggregates is best performed by a public actor with a view of the entire economy and an ability to exercise judgment on behalf of the entire polity. The second task—that of *allocating* credit—is generally delegated to private franchisees, including banks and other financial institutions.²⁵⁰ The principal justification given for this delegation of control over the allocation of financial resources to private actors is their putatively superior ability to gather and process vital market information at the micro level faster and more efficiently than any one agent such as the state is able to do.

From this perspective, “financialization” can be defined as a dysfunctional mode of interaction between the financial system and the real (i.e., non-financial) economy, in which a disproportionate share of the flow of the monetized full faith and credit of the sovereign is continuously re-absorbed by the for-

²⁴⁹ For more on the modulation task, see Robert Hockett, *A Fixer-Upper for Finance*, 87 WASH. U. L. REV. 1213 (2010). For more on the allocation task, see Robert Hockett & Saule Omarova, *Public Actors in Private Markets: Toward a Developmental Finance State*, 93 WASH. U. L. REV. 201 (2015).

²⁵⁰ The government often influences credit allocation decisions made by private financial institutions, e.g., through various regulatory and tax policies that encourage or discourage particular behaviors by private actors. However, this does not alter the principle embodied in the system, whereby privately-owned financial institutions control who gets access to credit, and under what conditions. However important in any particular context, regulation is only an overlay.

mer rather than flowing to the latter. In this mode, simply pumping more financial fuel into the system does not ease chronic capital shortages in the non-financial sector—it merely exacerbates capital “glut” in financial markets, further reinforcing the underlying dysfunction. Thus, at its most fundamental, systemic level, financialization is a manifestation of the failure of the finance franchise arrangement to deliver its intended result: effective modulation and allocation of credit that ensures full utilization of the economy’s productive capacity.

The underlying cause of this failure is continuing public accommodation of private credit-generation, as described above, without effective public “quality control” over franchisees’ performance of their delegated responsibilities. More specifically, financialization of the economy happens when (1) the central bank or monetary authority, as arm of the franchisor, is unable or unwilling to modulate credit aggregates in a manner that prevents excess private credit-generation; and (2) private financial institutions, as franchisees, misallocate credit by diverting it to uses other than investment in productive enterprise.

These two dynamics are intimately interconnected, in that fad speculative investment by franchisee-institutions in particular sectors of the economy such as housing (i.e., misallocation), unchecked (i.e., unmodulated) by an active franchisor, continues to the point of becoming an unsustainable bubble (over-allocation). Both accordingly reflect a situation in which the franchisor, intentionally or unintentionally, has taken a sub-optimally passive role in the partnership. Thus, for example, by allowing unrestrained amplification and replication of bank lending activity in the shadow banking sector as discussed above, the Fed effectively ceded too much of its power to generate, and thus determine the aggregate amount of, credit to private financial institutions.²⁵¹ Before the crisis of 2008 exposed the depth of the problem, the Fed’s failure to restrict the accumulation of hidden leverage in the financial system, or even to track such accumulation, rendered its traditional monetary policy largely ineffective as a tool for modulating credit aggregates.²⁵²

At the same time, private franchisees—banks and other financial institutions—failed to live up to the Hayekian ideal of informational efficiency in allocating capital to its most productive uses. As private actors driven primarily by profit-making

²⁵¹ See *supra* Part IV.

²⁵² *Id.*

motives and the need to satisfy increasingly short-term market expectations, these financial institutions are inherently ineffective as macro-level economic decision-makers.²⁵³ The logic of financialization reflects the basic fact that these financial institutions find it more profitable to channel credit toward markets in financial instruments, in which they have significant informational and institutional advantages, than toward real-economy projects with long-term payoffs that depend on a variety of macroeconomic factors these financial institutions cannot control.

B. The Cure: Franchisor Leadership

This approach to defining and explaining financialization lends itself to a simple but powerful solution.²⁵⁴ In order to restore the proper mode of interaction between finance and real economic enterprise, the currently absentee-franchisor must reassert its leadership with respect to both (1) the *generation and modulation* of credit; and (2) the *allocation* of that credit to productive activities. In other words, the franchisor must proactively counteract and minimize the closely related evils of over-extension and misallocation of credit by private profit-driven franchisees.

Post-crisis reforms and current proposals to strengthen macroprudential regulation, and thus limit leverage build-ups, aim explicitly at the modulation task.²⁵⁵ Despite their significance, however, these post-crisis regulatory reform efforts continue to reflect the pervasive influence of the intermediation myth. Even in today's more systemically-conscious regulatory environment, private market actors, seen as the sole source of intermediated scarce capital, retain ultimate control over decisions that directly affect credit aggregates, a matter of urgent

²⁵³ See Hockett & Omarova, *supra* note 249.

²⁵⁴ As discussed above, we leave to one side for present purposes the question of whether our current institutional arrangements might ultimately require wholesale reconstruction or replacement. Our "best lights" interpretation of present arrangements is meant to guide policy in maximizing their publicly beneficial potential. See *supra* note 17. Accordingly, the following discussion assumes that we continue to operate within the currently existing, hybrid public-private system of finance, rather than seek to replace it with something fundamentally different. For an instructive and provocative example of wholesale rejection, on more libertarian grounds, of current institutional arrangements, see MCMILLAN, *supra* note 193.

²⁵⁵ See Gabriele Galati & Richhild Moessner, *Macroprudential Policy: A Literature Review* (Bank for Int'l Settlements, Working Paper No. 337, Feb. 2011); IMF, *Macroprudential Policy: An Organizing Framework* (Mar. 2011); Robert Hockett, *The Macroprudential Turn: From Institutional 'Safety and Soundness' to Systemic 'Financial Stability' in Financial Supervision*, 9 VA. L. & BUS. REV. 201 (2015).

public concern. The reigning narrative of finance thus forecloses any meaningful means of preventing leverage-driven asset price bubbles and busts other than through indirect shaping of private actors' incentives and behavior.²⁵⁶ Debunking the intermediation myth, by contrast, broadens policymakers' field of vision to include measures directly targeting the mechanisms of amplification, replication, and public accommodation of private money and credit creation in the shadow banking sector as discussed above.²⁵⁷

This attitudinal shift has far-reaching policy implications. For example, it opens space on the reform agenda for mandatory pre-approval of complex financial products—a regime under which financial institutions would bear the burden of proof that a particular derivative or other financial product would not amplify or replicate bank credit-creation in a manner likely to lead to a destabilizing over-generation of publicly accommodated private credit.²⁵⁸ The franchise view also provides a more comprehensive analytical and normative justification for thoroughgoing structural reform in the financial sector—reform that would impose institutional limitations not only on bank risk-taking but also, more fundamentally, on excessive functional replication and amplification of bank lending outside that core franchise.²⁵⁹ It also bolsters support for imposition of significantly higher minimum capital requirements than those currently applicable to banks and other systemically important financial institutions.²⁶⁰ Freedom from the intermediation orthodoxy enables policymakers to see the potential of these and other currently off-the-table regulatory measures for curing the perennial problem of credit oversupply.

The finance franchise theory also offers a helpful framing device for addressing the broader problem of ensuring the flow of credit to *productive uses* in the *real* economy. It provides a theoretical foundation for significantly expanding, even fundamentally reimagining, the role of the public as a direct participant in, rather than a mere outside regulator of, financial

²⁵⁶ Currently operative capital adequacy rules, securitization “skin-in-the-game” requirements, and mandatory central clearing of derivatives are examples of such incentive-shaping reforms.

²⁵⁷ See *supra* Parts IV–V.

²⁵⁸ For a discussion of such a regime, see Saule T. Omarova, *License to Deal: Mandatory Approval of Complex Financial Products*, 90 WASH. U. L. REV. 63 (2012).

²⁵⁹ See *supra* Part V.

²⁶⁰ See ADMATI & HELLWIG, *supra* note 54 (arguing for significantly increased bank capital requirements).

markets. It is in this capacity as an endogenous market actor that the public franchisor can—and should—exercise greater and more direct influence on economy-wide credit *allocation*.

Public instrumentalities already actively participate in financial markets in a variety of roles: they buy, sell, lend, borrow, insure, and securitize financial assets. They differ from private market participants in two critical respects: (1) they are typically very large actors with significant funding advantages, directly channeling and/or fully backed by the full faith and credit of the United States; and (2) their actions are not driven—or, therefore, constrained—by profit-making considerations. They have longer time horizons and are uniquely situated to act as indispensable market contrarians in taking privately unpalatable risks with a view to generating systemic public benefits.²⁶¹

The finance franchise framework advocated here enables us to build upon that insight. We can envision, for example, a national development bank, organized as a public-private partnership in which the public takes the lead investment-management role.²⁶² This new hybrid entity would direct the flow of private and public money into projects that enhance the real economy's potential for sustainable growth, thus jumpstarting the development and spread of potentially transformative new infrastructures and industries. Such an institution would not only have obvious allocative significance, but would also assist with the credit-modulation task by issuing a new safe asset class tied to productive investment and thereby draining excess credit from more purely speculative instruments.²⁶³

We do not aim here to elaborate these proposals. This Article—part of our broader project of rethinking finance—is meant to articulate the analytic and normative foundation of our more programmatic proposals advanced in companion pieces.²⁶⁴ By reversing the defining presumptions underlying the dominant paradigm of finance, our theory of “franchise

261 See Hockett & Omarova, *supra* note 249 at 116.

262 *Id.* at 150–159.

263 *Id.*

264 See Robert C. Hockett & Saule T. Omarova, *Systemically Significant Prices*, 2 J. FIN. REG. 1 (2016); Robert C. Hockett & Saule T. Omarova, “Special,” *Vestigial, or Visionary? What Bank Regulation Tells Us About the Corporation—and Vice Versa*, 39 SEATTLE U. L. REV. 453 (2016); Hockett & Omarova, *supra* note 249; Saule T. Omarova, *Bank Governance and Systemic Stability: The “Golden Share” Approach*, 68 ALA. L. REV. 1029 (2017); Robert Hockett, *Are Bank Fiduciaries Special?*, 68 ALA. L. REV. 1071 (2017); Robert C. Hockett & Saule T. Omarova, *Private Wealth and Public Goods: A Case for a National Investment Authority*, 43 J. CORP. L. (forthcoming 2017).

finance” exposes the irrelevance of most orthodox arguments against public “interference” in “private” financial markets. It brings to light new possibilities for using financial markets as a legitimate—indeed, crucial—arena in which public instrumentalities actively pursue a broad range of investing, trading, and other transactional strategies to ensure that credit flows in appropriate quantities to its most productive “real” uses. Only by fully vetting these possibilities can we hope to secure our long-term financial stability and economic prosperity.

CONCLUSION

We began this Article by arguing that the dominant view of finance as intermediated scarce private capital is a profoundly misleading picture of the primary dynamic of a modern financial system. We outlined an alternative, more up-to-date vision of finance, in which the central role is played by the public that continuously distributes its full faith and credit in monetized form throughout the entire system. From this perspective, the financial system operates essentially as a franchise arrangement in which the public is the franchisor, while the private institutions that dispense its full faith and credit are effectively its franchisees.

An overarching implication of this change in the basic narrative of finance—from the intermediation myth to the franchise view—is a fundamental analytical and attitudinal shift with respect to the proper balance between public and private interests, capabilities, and roles in finance and the broader economy. Reconfiguring our basic understanding of the financial system in this way is a necessary first step toward making finance work in a manner that aids, rather than hinders, inclusive and stable economic development. It underwrites explicit recognition that the public must take an active role in modulating and allocating credit aggregates across the economy. It also offers a bolder, more creative approach to designing new means of doing so.

Such new means are not merely desirable: they are necessary if we are to preserve and improve our present hybrid system of finance, in which the sovereign public engages the services of private actors in the critically important process of distributing its full faith and credit. The only other alternative would be to sever this public-private partnership and replace existing institutional arrangements with something entirely different. That, however, is a subject for another day.