
BOOK REVIEW

THE IMPORTANCE OF “MONEY”

THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION.
By Morgan Ricks. Chicago, Ill.: University of Chicago Press. 2016. Pp.
ix, 336. \$45.00.

*Reviewed by Kathryn Judge**

In a provocative new book, *The Money Problem: Rethinking Financial Regulation*, Professor Morgan Ricks argues that the government should reclaim control over money creation. Money, Ricks argues, is not just the cash in your pocket or the balance in your checking account. Instead, at least for purposes of financial stability policy, money is best equated with short-term debt. For most of the twentieth century, such debt was issued primarily by regulated commercial banks and insured by the Federal Deposit Insurance Corporation (FDIC), resulting in a fairly stable financial system. As a result of financial innovation, however, much of today’s short-term debt is issued in the far-less-regulated shadow banking system — a market-based system of intermediation that serves many of the same functions traditionally performed by banks. Runs by money claimants in the shadow banking system were central to the 2007–2009 financial crisis (Crisis). The Dodd-Frank Wall Street Reform and Consumer Protection Act¹ and other post-Crisis reforms, however, have done relatively little to shut down this unauthorized money creation. That, in Ricks’s assessment, is a mistake.

The book provides a seemingly simple blueprint for reform: the government should allow only banks to issue demandable debt, it should heavily regulate and insure all such debt, and it should prohibit anyone else, other than the government, from issuing debt with a maturity of less than a year, thereby preventing private money creation (pp. 12–24). According to Ricks, this set of reforms would “panic-proof[]” the financial system and prevent the type of recessions that leave lasting scars on a country’s economic health (p. 3). Moreover,

* Professor of Law, Columbia Law School. I am grateful to Jeffrey Gordon, David Skeel, Scott Hemphill, Eric Hilt, and Patricia Mosser for helpful comments and conversations, Francesca Cocuzza and Catherine Walsh for exceptional research assistance, and the editors of the *Harvard Law Review* for thoughtful feedback throughout the editing process. I also wish to thank Morgan Ricks, whose thought-provoking book inspired this response and with whom I look forward to decades of ongoing debate.

¹ Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified as amended in scattered sections of the U.S. Code).

this approach is sufficiently certain to work that the government could roll back the myriad other financial regulations aimed at promoting stability. Even the Federal Reserve would be optional in the new landscape that Ricks envisions (p. 229). Regardless of whether one buys into his proposed reforms — and let me state at the outset, I don't — the book makes a lasting contribution by demonstrating the importance of money, broadly construed, and the shortcomings inherent in the current academic and regulatory efforts to understand and address money claims.

A virtue of the book's reform proposal is the way it brings to life the incredible oddity of money as a financial asset. According to Ricks, the best way to promote financial stability is to allow banks to fund themselves with debt from creditors who are indifferent to whether the bank fails or succeeds. No matter how large or sophisticated the creditor, so long as maturity of its claim is less than a year, Ricks does not want that creditor to undertake any due diligence, engage in any ongoing monitoring, or impose any discipline on the bank.² Those roles would be left to the bank's shareholders — who will often want the bank to assume more risk than is socially optimal — and the government.

At first blush, many might agree with then-Treasury Secretary Timothy Geithner, who described the author's first iteration of the idea in 2009 as "wacky" (p. xi). In most financial markets, information generation and discipline are the types of activities that we want market actors, not government regulators, to undertake. In equity markets, for example, stability is often assumed to flow from efficiency and promoting private information generation is widely viewed as the optimal, even if imperfect, route to enhancing efficiency.³ In this frame, intentionally short-circuiting market-based information production by making a firm's debt insensitive to any kind of information would seem like a recipe for disaster. And that's before layering on the challenges posed by the contrary interests of the firm's shareholders. Yet, Ricks argues thoughtfully, and at times quite persuasively, that this is the best way to achieve financial stability.

As Ricks shows, the assumptions that underlie corporate finance have only limited applicability when the financial asset in question enjoys some degree of moneyness. Moneyness alters the premium a holder will pay for a claim and the amount of due diligence the holder will undertake before acquiring the claim, rendering the efficiency-

² Ricks would allow, but not require, banks to obtain funding by issuing long-term debt, leaving open the option, but no obligation, of long-term creditor discipline.

³ E.g., GARY B. GORTON, MISUNDERSTANDING FINANCIAL CRISES 48 (2012); Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984); Kathryn Judge, *Information Gaps and Shadow Banking*, 103 VA. L. REV. (forthcoming 2017).

oriented assumptions underlying standard asset-pricing models largely inapplicable to money claims.⁴ At the same time, when short-term debt funds longer-term liabilities, a defining characteristic of banks and much of the shadow banking system, the institutions that result are inherently fragile. If money claimants withdraw their funds en masse, as they do in a run, the institution issuing those claims will be compelled to sell its relatively illiquid assets at discounted fire-sale prices, potentially rendering even a solvent institution insolvent. This fragility alters the incentives of money claimants, who now must worry about the behavior of their fellow claimants in addition to the health of the institution issuing their claim, setting the stage for financial panics and the deep recessions that often follow. Although these insights are not new, *The Money Problem* demonstrates in new light the importance of recognizing money as a type of financial claim that can be readily produced by private mechanisms, absent a prohibition, and one that poses unique public policy challenges. This is the book's most important contribution and it alone justifies the undertaking, for author and reader alike.

Shifting from the author's claim that money poses a distinct policy challenge to his proposed solution to that challenge reveals the limits of his analysis. His claim in the abstract is simple and appealing. Because money claims created in the shadow banking system are not insured like bank deposits, the shadow banking system is more prone to runs, which in turn inflict lasting damage on the economy. We should, accordingly, update and expand the banking system and prohibit any money creation outside of that system. The details of the proposal, however, reveal that he wants to significantly expand, not just update, traditional bank regulation. Ricks proposes a scheme of government control over money creation and short-term debt that is, to my knowledge, unprecedented in any advanced economy.⁵ According to Ricks, the government should significantly expand government-provided insurance to cover all bank deposits, no matter how large the deposit or how sophisticated the holder and irrespective of any systemic threat. The government should also limit the aggregate deposits that the system could create, control the terms pursuant to which banks accept deposits, and prohibit virtually all private debt with a maturity of less than a year — no more traditional money market mutual funds, sale and repurchase agreements (repos), or commercial paper (p. 226). Despite this significant expansion, Ricks contends that traditional bank regulatory tools will suffice to constrain bank risk

⁴ See *infra* Part III, pp. 1163–1173.

⁵ See *infra* Part I, pp. 1153–1158.

taking and counteract the moral hazard and other distortions that the massive insurance scheme would induce.

The breadth of Ricks's proposal allows almost countless angles of attack. Concerns could be raised on issues as diverse as operational challenges (e.g., could the government rely on market actors to provide elasticity when it is most needed?), desirability (e.g., how would the proposal impact the status of the U.S. dollar as the reserve currency?), and political feasibility (e.g., could the proposal overcome a significant challenge on both the domestic and international fronts?).⁶ As a result, any assessment of *The Money Problem* is likely to reveal as much about the person launching the critique as it does about the book's strengths and shortcomings.

Rather than hiding from this fact, let me make my biases plain. Ricks and I agree on a number of key issues. We both see shadow banking as central to the Crisis. We agree that the shadow banking system grew outside the direct purview of prudential regulators, and that policymakers and other experts failed to appreciate its scope or significance prior to the Crisis. We further agree that the shadow banking system's extensive reliance on short-term debt increases its fragility, and we are skeptical that the post-Crisis reforms adequately address these challenges. On other issues, our biases diverge. To grossly oversimplify, students of banking can be categorized into two groups — one that views banking crises as primarily the byproduct of coordination problems and a second that believes crises are triggered by information and the fundamentals that information conveys.⁷ Ricks provides an alternative to the classic coordination-based theory (pp. 52–77), and I have my own alternative account of the ways that information and information gaps contribute to fragility.⁸ We also both recognize that information and coordination problems typically interact to produce crises. Nonetheless, Ricks assumes that the challenge money poses is primarily a coordination game and that banks will not assume excess risk unless incentivized to do so by bad government policies even in the absence of creditor monitoring or disci-

⁶ Ricks recognizes each of these as issues (e.g., pp. 229, 239–40, 263).

⁷ See, e.g., Franklin Allen, Ana Babus & Elena Carletti, *Financial Crises: Theory and Evidence*, 1 ANN. REV. FIN. ECON. 97, 99–100 (2009) (“Academic research proposes two distinct theories to explain the origins of banking panics” — one suggesting “bank runs are self-fulfilling prophecies” arising from coordination challenges, *id.* at 99, and a second suggesting “crises are not random events, but responses of depositors to the arrival of sufficiently negative information on the unfolding economic circumstances,” *id.* at 100.).

⁸ Judge, *supra* note 3; Kathryn Judge, Essay, *The First Year: The Role of a Modern Lender of Last Resort*, 116 COLUM. L. REV. 843 (2016) [hereinafter Judge, *The First Year*].

pline.⁹ In contrast, I see information as the critical factor distinguishing periods of stability from crises, and I view some private information production and the threat of creditor discipline as helpful in efforts to maintain stability.¹⁰

For related reasons, we have different takes on the history of banking and bank regulation, leading to very different views on the capacity of any single government intervention to bring about lasting stability.¹¹ Ricks believes this is possible. In his assessment, the key is ensuring that the scope of government control and the complementary prohibitions are sufficiently broad to shut down shadow banking and its kin. A very different lesson one could take from the growth of shadow banking and our collective blindness to it before the Crisis is that the exceptional dynamism of financial markets ensures that policymakers will never succeed in identifying and addressing all sources of systemic instability in advance. Shadow banks will reappear, in one form or another, and private money creation will emerge, whether driven by insufficient authorized money or the high cost of holding such money. A regulatory regime that does not anticipate such dynamism can itself inhibit the capacity of regulators to identify and respond to new threats. Taking the latter view leads me to favor a regulatory regime that is responsive rather than rigid and regulators who bring more humility than hubris to the challenge of identifying systemic risks.¹²

These differences make me skeptical of Ricks's proposal, but they also serve as a lens for illuminating valuable insights embedded in *The Money Problem* that can get lost in the author's conviction regarding his proposed reforms. A concrete example of a reform measure that builds on the book's insights while addressing these concerns would be to expand and clarify the situations wherein the government should serve as an "insurer of last resort" — providing broad guarantees to money claimants to prevent runs in situations that pose a systemic threat. This approach would provide many of the benefits of the book's proposed scheme and would frequently be more effective than the lender-of-last-resort interventions often used in such circumstances while still allowing market discipline to deter idiosyncratic risk-taking outside of crisis periods.¹³

⁹ See *infra* Part II, pp. 1158–1163. This assumption is reflected, among other places, in the baseline scenario that Ricks uses when describing the way certain government interventions affect bank risk taking (Chapters Six & Seven, pp. 164–99).

¹⁰ See *infra* Part III, pp. 1163–1173.

¹¹ See *infra* Part IV, pp. 1173–1180.

¹² See *infra* Part IV, pp. 1173–1180.

¹³ See *infra* Part IV, pp. 1173–1180.

This Book Review proceeds in four Parts. Part I provides context. It explains why the book deserves to be widely read and discussed, but also why the policy prescription that serves as its backbone ought to be, and probably will be, ignored. Parts II and III address why that reform proposal is both over- and underinclusive by situating the proposal in the literature on banking and money, respectively. Part IV expands the focal point by providing a very different reading of the history of financial panics and banking regulation, leading to a very different set of conclusions about how best to address the challenges that shadow banking poses.

I. THE BOOK

The Crisis started in August 2007, when an announcement by a French bank revealed a striking lack of liquidity in the market for subprime mortgage-backed securities (MBS) and raised questions about the value of those instruments.¹⁴ The announcement triggered widespread market dysfunction, as holders of short-term debt backed by subprime MBS and other types of structured financial instruments effectively withdrew from these markets. With the benefit of hindsight and empirical investigation, most experts now recognize these developments and other significant turning points in the Crisis as runs on the shadow banking system.¹⁵ Through a panoply of government interventions, including creative new uses of the Federal Reserve's lender-of-last-resort authority to increase market liquidity, capital injections by the Treasury Department to improve the health of weak financial institutions, information injections to enable market participants to better understand the health of those institutions, and an array of government insurance programs, policymakers succeeded in containing the Crisis and restoring market functioning. Unfortunately, the inflection point that put the system back on a path toward recovery was not reached until well after the Crisis had inflicted significant, and potentially lasting, harm on the real economy.¹⁶

In early 2009, well over a year into the Crisis and months after Congress had granted financial regulators extraordinary new powers to rein in the Crisis but when regulators were still experimenting with how best to use their expanded authority, Ricks joined the Treasury Department. Coming in as a lawyer turned banker, Ricks was inti-

¹⁴ See Judge, *The First Year*, *supra* note 8, at 876–77.

¹⁵ See Daniel Covitz et al., *The Evolution of a Financial Crisis: Collapse of the Asset-Backed Commercial Paper Market*, 68 J. FIN. 815, 824 (2013); Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 425 (2012).

¹⁶ For a thorough overview of how the Crisis evolved and the myriad government programs aimed at reining it in, see, for example, FIN. CRISIS INQUIRY COMM'N, *THE FINANCIAL CRISIS INQUIRY REPORT* (2011); ANDREW ROSS SORKIN, *TOO BIG TO FAIL* (2009).

mately familiar with how financial markets work and the role of law in constituting the framework for those operations. It was during his tenure at Treasury that Ricks came to believe that the best way to contain the unfolding financial crisis was for the government to insure all short-term debt in the financial system. He concedes that Geithner dismissed the idea and that his proposal failed to get traction even in a period of great regulatory experimentation, but he persisted. Even after he left Treasury to become a law professor, he devoted much of his time to writing multiple papers and now a book advancing increasingly sophisticated and nuanced accounts of how an expansive insurance scheme, coupled with entry and risk restrictions, could panic-proof the financial system.¹⁷

These origins help to explain two of the book's most important contributions: its sweeping scope and its convincing argument that understanding the type of financial claims that get treated as "money" is central to promoting financial stability. Because Ricks spent so many years promoting and refining his vision and engaged with so many academics and policymakers in the process, *The Money Problem* seeks to address virtually all of the challenges one could raise. To do this, Ricks undertakes an expansive review of all-too-often disparate bodies of literature. This undertaking aids the newbie just beginning to wade into these waters, but it also enables the expert to see familiar ideas through a new lens. Ricks's diverse set of experiences, combined with his exceptional willingness and capacity to engage across disciplines, enables him to provide a fresh perspective on the main contributions and limits to the literature on financial regulation and how that literature maps onto reality. What becomes clear from his review is just how little experts of any stripe really know about the causes of financial fragility and the mechanisms through which that fragility adversely affects the real economy. It is hard not to be humbled by his almost inadvertent revelation that all that we have "learned" may well prove to be wrong and that shared understandings remain frustratingly elusive.

The book's second core contribution is to demonstrate why the questions of what constitutes money and how money shapes financial markets are fundamental and all too often misunderstood. As Ricks explains, "when we talk about the liabilities of banking firms, we are not in a 'corporate finance' world" where "the value of a firm . . . equal[s] . . . the present value of the firm's expected future *cash* flows" (p. 79). Unlike other firms, banks and shadow banks are "*issuers*" of

¹⁷ E.g., Morgan Ricks, *Regulating Money Creation After the Crisis*, 1 HARV. BUS. L. REV. 75 (2011); Morgan Ricks, *A Regulatory Design for Monetary Stability*, 65 VAND. L. REV. 1289 (2012); Morgan Ricks, *Reforming the Short-Term Funding Markets* (Harvard Law Sch. John M. Olin Ctr. for Law, Econ. & Bus., Discussion Paper No. 713, 2012), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2062334 [<https://perma.cc/V7VS-3AUL>].

cash and cash equivalents and "applying standard corporate finance principles to banks can lead to big mistakes" (p. 79). Ricks convincingly demonstrates that financial economists are not the only ones to assume away the distinctiveness of money claims and the institutions that issue them and that in doing so, academics and many policymakers all too often assume away the heart of the issue in the process. Ricks's position at Treasury afforded him a front-row seat to the ways that the structure of money claims and the incentives of money claimants can lead to destructive spirals during periods of systemic distress. He also convincingly argues that short-term debt has long been the primary type of financial claim to be afforded money-like status (pp. 29–49) and that, because of the distinct coordination challenges that arise when short-term liabilities fund long-term assets, such claims are an important source of fragility (pp. 52–73). In calling for renewed and widened appreciation of the distinct importance of money claims, the book makes a lasting contribution to the ongoing efforts to understand and address financial fragility.

These strengths are sufficient to make the book an important addition to the already sizeable literature on the Crisis, but they do not immunize it from critique. I doubt I will be the only reader unconvinced that Ricks has found the magic bullet that can panic-proof the financial system and prevent the most harmful recessions. Some of the issues are transitional. As Ricks's figures attest, there is more than \$25 trillion in short-term claims outstanding. The majority of these claims, including Eurodollars issued overseas, commercial paper issued by blue-chip companies, asset-backed commercial paper (ABCP) sponsored by financial institutions, and repos, are pervasive in today's financial markets (p. 33) and would be prohibited under Ricks's proposal. Often, these arrangements serve as links in much longer intermediation chains that fund an array of productive undertakings.¹⁸ Eliminating these arrangements would thus not only create a challenge for the holders of the money claims at issue, but also require that the underlying projects currently funded by this capital either develop alternative mechanisms for accessing capital or remain unfunded. The book makes no effort to quantify these costs, with respect to either the short-term costs of radically changing significant swathes of how the financial markets currently function or the long-term costs that might result from reduced credit creation. Given the claim that the proposed reforms would panic-proof the financial system and eliminate severe recessions, the purported benefits may well justify these exceptional

¹⁸ See, e.g., TOBIAS ADRIAN & HYUN SONG SHIN, FED. RESERVE BANK OF N.Y., *THE CHANGING NATURE OF FINANCIAL INTERMEDIATION AND THE FINANCIAL CRISIS OF 2007–09*, at 4 (2010).

costs, but one would need to be exceptionally confident regarding the gains.

The second set of issues relates to how markets would evolve in response. According to Ricks, the government should: set an explicit cap on the aggregate deposits in the banking system (p. 228); dictate that all deposits earn 0% interest, irrespective of whether prevailing interest rates are negative or the country is mired in inflation (p. 224); prohibit any other entity from accepting deposits or issuing any debt with a maturity of less than a year, with some modest carve-outs for trade credit and other de minimis exceptions (pp. 17, 226); and fully insure all deposits (p. 224). The centerpiece of this plan is the insurance component, which is designed to prevent depositors from ever running. The government would commit, *ex ante*, to insure all outstanding money claims, irrespective of size and regardless of how sophisticated the holder. Moreover, full government backing would not be limited to situations when the banking (or shadow banking) system as a whole might otherwise collapse, but would be fully provided in all states of the world.¹⁹

To address the moral hazard and adverse selection that this broad insurance scheme would induce, Ricks relies on familiar bank regulatory tools, like activities restrictions and capital requirements — tools with a decidedly mixed track record of success.²⁰ This is why other advocates of safe banking — of which there have been many — routinely insist that we must fundamentally change the nature of banking.²¹ Austrian economist Ludwig von Mises, Chicago School economists like Professors Irving Fisher and Milton Friedman, and contemporary academics like Professors Laurence Kotlikoff and Adam Levitin have all championed some form of full-reserve banking.²² Like Ricks, these scholars emphasize the virtues of a “panic-proof” banking system and greater government control over monetary crea-

¹⁹ *Cf.* GORTON, *supra* note 3, at 124 (“Courts, legislatures, and Congress . . . have distinguished between normal times and times of crisis, and have not enforced bank-debt contracts in times of crisis.”); MERVYN KING, *THE END OF ALCHEMY: MONEY, BANKING, AND THE FUTURE OF THE GLOBAL ECONOMY* 264 (2016) (“[O]ne role of governments is to provide catastrophic insurance when something wholly unexpected happens.”).

²⁰ For an overview of the costs of deposit insurance, see generally Charles W. Calomiris & Matthew Jaremski, *Deposit Insurance: Theories and Facts* (Columbia Bus. Sch., Research Paper No. 16-35, 2016), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2771346 [<https://perma.cc/7JJWT-6Z6X>].

²¹ See Morgan Ricks, *Safety First? The Deceptive Allure of Full Reserve Banking*, 83 U. CHI. L. REV. ONLINE 113 (2016), https://lawreview.uchicago.edu/sites/lawreview.uchicago.edu/files/uploads/Dialogue/Ricks_FINAL.pdf [<https://perma.cc/MDT3-DS9U>] (recognizing the long and illustrious history of “call[s] for full reserve banking”).

²² *Id.*; see also MARTIN WOLF, *THE SHIFTS AND THE SHOCKS: WHAT WE’VE LEARNED — AND HAVE STILL TO LEARN — FROM THE FINANCIAL CRISIS* 206–07, 209–11 (2014).

tion.²³ In stark contrast to Ricks, however, each assumes that the only way to ensure banks are truly safe is to eliminate the liquidity mismatch that renders banks fragile.²⁴ While the proposals vary in the specifics, each requires banks to hold only safe and liquid assets. In Ricks's view, such proposals are grounded on a false dichotomy — that we must choose between a panic-proof banking system, on the one hand, and one that allows banks to engage in credit, maturity, and liquidity transformation and that enables them to assume other risks, on the other. According to Ricks, we can have both.²⁵

Moreover, Ricks is sufficiently confident that his proposed reforms will panic-proof the financial system, and that panics are the critical factor explaining the most damaging recessions, that he would allow a significant rollback of the myriad other policies currently in place to promote financial stability. By adopting his proposed reforms, "we could worry far less about a lot of other things" that other academics and policymakers view as critical to financial stability and economic health, including "'excessive debt,' . . . 'excessive risk taking,' . . . 'too big to fail,' 'interconnectedness,' [and] 'systemic risk'" (p. 24). In more concrete terms, this means that "securities firms and other nonbanks might be given free rein to engage in structured finance, derivatives, proprietary trading, and so forth" (p. 25). The proposal thus envisions a massive expansion of the government's role in the production of short-term debt and the oversight of banks and a significant reduction in the government's footprint elsewhere in the financial markets.

Ricks's position is cohesive, elegant, and enticing, making it a great starting point for debate. He affirms the widely acknowledged but insufficiently addressed threats posed by shadow banking and short-term financing, and he demonstrates the advantages of using structural reforms to address these challenges.²⁶ Nonetheless, his proposal never

²³ WOLF, *supra* note 22, at 206–07, 209–11.

²⁴ *Id.*

²⁵ To be sure, Ricks downplays the role of banks as financial intermediaries in his regime and suggests that they will be allowed to hold only diversified assets that pose limited risk, but he also recognizes that "the risk constraints need to be permissive enough to accommodate the desired money supply" (p. 16).

²⁶ See, e.g., Ben S. Bernanke, Chairman, Bd. of Governors of the Fed. Reserve Sys., Remarks at the 49th Annual Conference on Bank Structure and Competition: Monitoring the Financial System (May 10, 2013), <http://www.federalreserve.gov/newsevents/speech/bernanke20130510a.htm> [<https://perma.cc/RG4D-NS99>] ("The crisis revealed that [the short-term] funding [relied on by many broker-dealers] is potentially quite fragile if lenders have limited capacity to analyze the collateral or counterparty risks associated with short-term secured lending, but rather look at these transactions as nearly risk free."); William C. Dudley, President and Chief Exec. Officer, Fed. Reserve Bank of N.Y., Remarks at the New York Bankers Association's 2013 Annual Meeting & Economic Forum: Fixing Wholesale Funding to Build a More Stable Financial System (Feb. 1, 2013), <https://www.newyorkfed.org/newsevents/speeches/2013/dud130201> [<https://perma.cc/7MMK-G9NK>] (identifying "the extensive use of short-term wholesale funding in the years leading up to the crisis" as a "serious flaw[] in the system"); Daniel K. Tarullo, Governor, Bd. of

escapes the core challenge that if he is wrong in his assessment of the problem or the sufficiency of his solution, his path to reform may prove to be little more than an alternative route to disaster. Nor does he adequately address the potential adverse effects on credit creation and economic growth. Ultimately, following an illustrious academic tradition, Ricks succeeds not by providing the right answer, but by asking the right questions, showing what is at stake, and laying bare the inadequacies of the understandings developed thus far.

The remainder of this Book Review engages more deeply with aspects of the book's analysis to clarify and to build on its contributions. The striking fact at the heart of the book is the massive growth and size of the market for short-term debt. The aggregate volume of the instruments Ricks identifies as money claims grew at an average annualized rate of 9.3% from 1995 to 2007, and has continued to grow since the Crisis (p. 33).²⁷ As a result, in 2013, the total volume outstanding stood well in excess of \$25 trillion (p. 33). Even though these figures entail some double counting, given the inherent fragility of short-term funding arrangements, the growth and size of these markets beg the question of why. By addressing the benefits of such debt for both the issuers and the holders, Parts II and III provide complementary accounts of the reasons for this growth. By situating Ricks's work in the broader literature on banking and the functions of money, respectively, these Parts suggest that Ricks's proposal is both over- and underinclusive, but they also reveal how his insights could lay the foundation for an alternative path to reform.

II. ELIMINATING PRIVATE SHORT-TERM DEBT

Ricks groups the banking literature into three strands, each of which offers a different answer to the question of why banks have long relied on short-term debt as a major source of financing. One theory, promulgated by economists like Professor Gary Gorton, focuses on the distinct utility of "information insensitive" financial instruments for the holders of those instruments and why the structure of banks makes them well suited to issue such instruments (pp. 83–85).²⁸ A second,

Governors of the Fed. Reserve Sys., Remarks at the Distinguished Jurist Lecture at the University of Pennsylvania Law School: Financial Stability Regulation (Oct. 10, 2012), <https://www.federalreserve.gov/newsevents/speech/tarullo20121010a.htm> [<https://perma.cc/3WXH-WV5D>] (explaining that "[t]he vulnerability of shadow banking to runs, as investors rapidly withdraw funding, can lead to systemic problems").

²⁷ Ricks includes all dollar-denominated short-term debt, excluding trade debt, wherever it is issued (pp. 32–33).

²⁸ Ricks characterizes this as the "information asymmetry theory" of banking (p. 83), a term not used here as information asymmetries are also fundamental to the view that short-term debt can serve a useful disciplinary function.

endorsed by economists like Professors Charles Calomiris and Douglas Diamond, suggests that short-term debt serves as a commitment device that can helpfully reduce particular agency costs (pp. 81–83). The third, first formalized by Professors Douglas Diamond and Philip Dybvig, assumes that the short-term debt that banks issue serves as a form of liquidity insurance, while focusing on bank fragility as an unfortunate by-product of coordination challenges that arise when short-term liabilities are used to fund long-term, illiquid assets (pp. 85–89). Ricks embraces a variation on the third and suggests deficiencies in the first two. In his view, “market discipline” in money markets “is just another name for runs and panics” (p. 201).

A primary way that Ricks seeks to discredit the first two theories of banking is by claiming that the two theories are fundamentally incompatible. According to Ricks, “[i]f you buy one of these theories, there is no buying the other” (p. 84). Going to the models animating these theories, however, suggests a more complicated dynamic and sheds light on some drawbacks of following the book’s proposal to eliminate private short-term debt.

Professors Gary Gorton and George Pennacchi introduced the notion of information sensitivity to show that financial claims vary in the degree to which the value of the assets underlying a financial claim affects the value of the claim.²⁹ Gorton and Pennacchi’s key insight is that financial claims can be structured to reduce the ramifications of information asymmetries among traders.³⁰ If, for example, a financial claim is a debt claim and information known to all suffices to establish that the value of the underlying assets far exceeds the face value of the claim, traders with more accurate information about the value of those assets cannot profit at the expense of less informed traders. Thus if a bank has \$100 in demand deposits outstanding and the value of its assets is widely known to be between \$120 and \$150, depositors do not have any reason to worry about the precise value of those assets. More accurate information is pertinent to the value of the bank’s equity, but the value of the deposits is not affected.³¹ Deposits thus serve as a useful store of value for relatively uninformed traders.³²

This value arises precisely because the claims are privately issued, and thus not truly risk-free or entirely insensitive to information. As Gorton has explained in subsequent work, “it is not possible for the

²⁹ Gary Gorton & George Pennacchi, *Financial Intermediaries and Liquidity Creation*, 45 J. FIN. 49 (1990).

³⁰ *Id.* at 50.

³¹ These examples deviate somewhat from Gorton and Pennacchi’s original analysis, but illustrate their core insight. The simplified example given here also puts aside the important consideration, incorporated into their model, of uncertainty with respect to liquidity demand.

³² See *infra* Part IV, pp. 1173–1180 for additional reasons why such claims might be useful.

private sector to produce riskless collateral,” and all privately created money is vulnerable to runs should “depositors suspect problems with the collateral.”³³ Framed in terms of the banking example, a depositor should be indifferent to information about whether the underlying assets are worth something closer to \$120 than \$150, but *highly* responsive to any signal that casts doubt on that range, such as a pending macroeconomic contraction or indications that a bank manager is engaging in fraud. Information insensitivity has thus always been a term of art, not a literal characterization of the financial claims at issue. Even “information insensitive” claims are highly sensitive to some types of information.³⁴

Turning to the work on the value of short-term creditor discipline, two models merit attention.³⁵ The first, set forth by Professors Charles Calomiris and Charles Kahn, shows that bank managers facing the threat of immediate liquidation in the event that monitoring depositors detect bad behavior are less likely to engage in malfeasance.³⁶ Calomiris and Kahn assume that bank managers have “a comparative advantage in allocating funds for investment, but . . . also may have the ability to act against the interests of uninformed depositors.”³⁷ They demonstrate how banks’ reliance on demandable debt operates in connection with the sequential servicing restraint — which causes depositors who withdraw early to fare better than those who withdraw late — to incentivize some depositors to monitor bankers. Runs occur when a sufficient proportion of monitoring depositors believe a bank’s managers are engaged in malfeasance.³⁸ Short-term debt thus enables bankers to signal information that they could not readily convey through other means, making it easier for banks to attract depositors.

In the second model that merits attention, Professors Douglas Diamond and Raghuram Rajan assume that loans are illiquid, in part, because a banker’s skill is required to fully realize the value of out-

³³ GORTON, *supra* note 3, at 9.

³⁴ Gorton has, in subsequent work, launched a more full-throated defense of the notion that bank debt is and should remain completely insensitive to information. *See, e.g.*, Tri Vi Dang, Gary Gorton, Bengt Holmström & Guillermo Ordoñez, *Banks as Secret Keepers* 37 (Nat’l Bureau of Econ. Research, Working Paper No. 20255, 2014); Tri Vi Dang, Gary Gorton & Bengt Holmström, *The Information Sensitivity of a Security* (Mar. 2015) (unpublished manuscript) (on file with the Harvard Law School Library). The notion that bank debt should remain information insensitive is not, however, core to the notion of information sensitivity as commonly used by others, nor is it inherent in Gorton and Pennacchi’s original theory for short-term debt.

³⁵ Another vein in the literature highlights how reliance on short-term financing can serve as a signaling device. *See, e.g.*, Jeremy C. Stein, *Why Are Most Funds Open-End? Competition and the Limits of Arbitrage*, 120 Q.J. ECON. 247 (2005).

³⁶ Charles W. Calomiris & Charles M. Kahn, *The Role of Demandable Debt in Structuring Optimal Banking Arrangements*, 81 AM. ECON. REV. 497, 509–10 (1991).

³⁷ *Id.* at 500.

³⁸ *See id.*

standing loans and bankers cannot commit to use their skill to maximize the value of a loan while simultaneously promising the returns on that loan to a new creditor.³⁹ By giving creditors the ability to exit immediately should a banker engage in opportunistic behavior, demandable debt solves this challenge, enabling banks to borrow against the full value of the loans they hold and to offer better terms on the loans they extend.⁴⁰ The model thus shows how the fragile nature of banks may "enhanc[e] the returns from real assets over and above what would be available if investors tried to manage them directly."⁴¹ Significantly, in both models, it is the threat of a possible run, not runs themselves, that brings about the value-creating change in behavior.⁴²

Clearly, there is tension between the notion that money claims are valuable because they limit the amount of due diligence a holder must undertake and the notion that money claimants impose informed, socially useful discipline. The assertion that one cannot "buy" both theories of banking, however, goes too far — an assumption that some depositors engage in some monitoring and thus have some information about bank activities and investments can be reconciled with each. Such an assumption may also help to explain why government insurance schemes typically insure only smaller deposits, leaving large depositors that are better positioned to discipline banks potentially exposed. And it is consistent with Ricks's own depiction of money claimants as persons who rely on proxies and other devices that provide them some, but incomplete, information about the institutions issuing their claims (pp. 212–15).

A better way to understand the relationship among these theories, including the coordination dynamics that Ricks embraces, is not as competing visions that demand full buy-in, but as incomplete truths, each of which illuminates aspects of the short-term debt market and the intermediation system that market feeds. This revised framing illuminates the value of the book's critique while also bringing into relief some significant drawbacks of the proposed reforms.

On the one hand, the book reveals significant shortcomings in the policy recommendations frequently made on the basis of the models just described. As Ricks emphasizes, coordination challenges accentuate the fragility of institutions that use short-term debt to fund longer-term assets. When such an institution faces excess withdrawals, it can

³⁹ Douglas W. Diamond & Raghuram G. Rajan, *Liquidity Risk, Liquidity Creation, and Financial Fragility: A Theory of Banking*, 109 J. POL. ECON. 287, 322–23 (2001).

⁴⁰ See *id.* at 317.

⁴¹ *Id.* at 320.

⁴² Cf. JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 85 (3d ed. 2008) ("[The threat of disruptive innovations] acts not only when in being but also when it is merely an ever-present threat. It disciplines before it attacks.").

be forced to sell assets at discounted, fire-sale prices, potentially rendering even a healthy institution insolvent. Moreover, as Ricks saw firsthand during his time at Treasury, widespread runs can reduce credit creation and have other deleterious effects on the real economy. These costs are acknowledged but not incorporated into the accounts highlighting the informational and disciplinary virtues of short-term debt, leading to inaccurate assertions, like claims that more market discipline will necessarily lead to better outcomes or that the use of short-term debt is always welfare justified.

On the other hand, recognizing the large costs associated with short-term discipline is a far cry from dismissing its utility altogether. As the formal models reflect, the primary benefit of market discipline is the way that the threat of a run alters information dynamics and incentives. A bank manager who anticipates that malfeasance or laziness could lead to a run has fundamentally different incentives than one who does not face such a risk, and money claimants know this. Ricks's proposed reforms would not only protect money claimants in the event of a run on the system; they would also shield money claimants from any loss even when an institution fails for entirely idiosyncratic reasons and poses no systemic threat. Money claimants would thus have no reason to care about whether bank managers are assuming excessive risk or engaging in malfeasance. And bank managers, aware of money claimants' indifference, would have limited tools to precommit or signal an intention toward honesty and hard work. One need not romanticize the distinct benefits of short-term discipline to believe that financial institutions are more risk averse when they face the possibility of a run than they would be in the absence of that threat.

Given the social costs of runs, unfettered market discipline may well lead to socially suboptimal outcomes, but ignoring the benefits of creditor discipline is no more likely to lead to the optimal policy response than ignoring the costs. Runs are the exception, not the norm. One reason that the scope and fragility of the shadow banking system went under the radar pre-Crisis was that the system had been relatively stable during decades of growth despite its heavy reliance on short-term debt.⁴³ The same was true for banks, even before they were heavily regulated, except in situations when money claimants had rea-

⁴³ See, e.g., Jonathan Macey, *Reducing Systemic Risk: The Role of Money Market Mutual Funds as Substitutes for Federally Insured Bank Deposits* 18–28 (Yale Law Sch. Faculty Scholarship Series, Paper No. 2020, 2011) (using the performance of money market funds prior to and during the crisis to illustrate the benefits of market discipline coupled with regulation but no government insurance).

sons to be concerned about the health of the institutions issuing those claims.⁴⁴

Letting go of assumptions that short-term debt is always or never useful or that short-term creditors are fully informed or entirely ignorant reveals rocky terrain. There is no easy way to assess how the mere threat of discipline affects risk taking within the array of private institutions that produce money-like claims or how it impacts the monitoring performed by those who hold such claims. Nonetheless, in revealing tensions among prevailing theories and juxtaposing the realities of the market with those theories, the book demonstrates that these are the questions that must be asked. It also suggests that developing a richer understanding of the information environment surrounding the issuance of short-term debt, how the information and disciplinary dynamics vary across the myriad institutions that currently issue short-term debt, and how those realities map onto theory are important threshold issues that must be addressed to devise a viable plan to reform these markets.

III. SHORT-TERM DEBT AS MONEY

A different way of approaching the questions of why money markets have gotten so large and how the market will likely respond to the proposed reforms is to consider the demand side of the equation — who wants to hold money claims and why? To do this, let us consider what would happen if the proposal were adopted. A person that had been holding a privately issued short-term claim would have three options: (1) pay the higher price to continue to hold even safer short-term debt; (2) acquire longer-term assets that have meaningful credit and other risks, undertake the due diligence required to understand those risks, and accept the variability that might result; or (3) seek out viable but imperfect substitutes for short-term debt, that is, other types of money-like claims. The book covers both the first and second. The interesting question is what types of instruments might fall into category three.

Note that the issue here is not one of pure regulatory arbitrage. One of the virtues of the author's background as both lawyer and banker is that he understands how one could cloak an effective short-term debt instrument in other clothes and he knows how to craft language to foreclose such efforts. The book even includes impressively thorough proposed legislation (pp. 243-45). Ricks is not about to allow a financial institution to escape the prohibition by issuing nominally

⁴⁴ See, e.g., Charles W. Calomiris & Gary Gorton, *The Origins of Banking Panics: Models, Facts, and Bank Regulation*, in FINANCIAL MARKETS AND FINANCIAL CRISES 109 (R. Glenn Hubbard ed., 1991).

long-term instruments with embedded put options, for example, which would be economically equivalent to short-term debt instruments (p. 244). It is not clear that the legislation adequately addresses understandings not formalized in contract, an issue that proved quite troublesome during the Crisis.⁴⁵ Nor does Ricks provide a convincing solution to the challenge that shadow banking could move overseas and still pose a systemic threat to the U.S. financial system (pp. 237–40). Nonetheless, he is attuned to the challenge of regulatory arbitrage. The issue here is whether there are instruments other than short-term debt that might be money-like, and whether those instruments might also be a source of fragility.

We can begin by looking at the demand-side forces that have helped propel the growth of the shadow banking system. For example, recent work by Zoltan Pozsar suggests that the growth of “institutional cash pools,” that is, “large, centrally managed, short-term cash balances of global non-financial corporations and institutional investors such as asset managers, securities lenders and pension funds” is critical to explaining the growth of shadow banking.⁴⁶ According to Pozsar, “between 2003 and 2008, institutional cash pools’ demand for insured deposit alternatives exceeded the outstanding amount of short-term government guaranteed instruments not held by foreign official investors by . . . at least \$1.5 trillion” and potentially far more — data is limited — and shadow banking arose, at least in part, to satisfy this excess demand.⁴⁷

Pozsar’s findings attest to the magnitude of the current demand for money-like claims. As extensively documented elsewhere, nonfinancial U.S. companies are holding record amounts of cash. According to one set of studies, such companies increased their aggregate cash holdings

⁴⁵ See, e.g., Linda Allen & Anthony Saunders, *Risk Management in Banking*, in THE OXFORD HANDBOOK OF BANKING 160, 162 (Allen N. Berger et al. eds., 2015) (noting that in the Crisis, “HSBC absorbed \$45 billion in assets” held in off-balance-sheet, and theoretically bankruptcy-remote, vehicles “in order to protect its reputation”); Thomas M. Hoenig & Charles S. Morris, *Restructuring the Banking System to Improve Safety and Soundness*, in THE SOCIAL VALUE OF THE FINANCIAL SECTOR: TOO BIG TO FAIL OR JUST TOO BIG? 401, 412 (Viral V. Acharya et al. eds., 2014) (explaining that when a lack of liquidity caused another form of innovative money creation — ABCP programs — to dysfunction during the Crisis, the banks sponsoring the programs “generally provided full support when affiliates ran into problems,” despite having no legal obligation to do so, in order “to protect their reputations”); Anatoli Segura, *Why Did Sponsor Banks Rescue Their SIVs? A Signaling Model of Rescues 2* (June 16, 2014) (unpublished manuscript), <http://ssrn.com/abstract=2552475> [<https://perma.cc/U8FA-FQNX>] (explaining that “most sponsor banks stepped in and rescued” the ABCP programs they sponsored “even though they were not contractually obliged to do so” and that “regulators attributed these and similar voluntary support decisions to the reputational concerns of the sponsors”).

⁴⁶ Zoltan Pozsar, *Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System*, 22 FIN. MARKETS INSTITUTIONS & INSTRUMENTS 283, 285 (2013); see also *id.* at 291.

⁴⁷ *Id.* at 284 (emphasis omitted); see also *id.* at 290 fig.5.

by 117% between 2007 and 2014,⁴⁸ with holdings rising to a record \$1.73 trillion by year-end 2014.⁴⁹ Although the trend has been attributed in part to tax considerations, numerous other countries face similar challenges, suggesting other forces may be contributing to this growing demand.⁵⁰ At the same time, the rise of institutional investors introduces an additional set of sophisticated players with significant amounts of cash that banks are not suited, and do not want, to hold.⁵¹ Overlaying and accentuating these developments are improvements in cash management technology, which enable companies and other institutions to consolidate an increasing proportion of their cash in large, centralized pools.

As Pozsar's work further highlights, this increasingly sophisticated demand for money claims comes at a time when the assets that have long served a money-like function are in distinctly short supply.⁵² As documented by economists like Ben Bernanke, we remain in the midst of a "global saving glut" in which emerging-market and oil-rich countries are holding massive volumes of U.S. Treasuries and other agency-backed, dollar-denominated assets, substantially reducing the availability of such instruments for other holders.⁵³ The Federal Reserve's post-Crisis monetary interventions, which include buying up massive quantities of such assets, further contribute to the limited supply.⁵⁴ Collectively, these trends help to explain both the size of the money market today and why, as Ricks shows, most of that demand is being met outside the banking system (p. 33). They also illuminate the mag-

⁴⁸ Caitlin Huston, *Apple Still on Top as U.S. Corporate Cash Holdings Reach \$1.73 Trillion*, MARKETWATCH (May 7, 2015, 1:59 PM), <http://www.marketwatch.com/story/apple-still-on-top-as-us-corporate-cash-holdings-reach-173-trillion-2015-05-07> [https://perma.cc/5RRL-AF5P].

⁴⁹ *U.S. Non-Financial Corporates' Cash Pile Grows to \$1.73 Trillion, Led by Technology*, MOODY'S (May 7, 2015), https://www.moodys.com/research/Moodys-US-non-financial-corporates-cash-pile-grows-to-173--PR_324721 [https://perma.cc/C293-73GQ].

⁵⁰ *Corporate Savings: Dead Money*, THE ECONOMIST (Nov. 3, 2012), <http://www.economist.com/news/finance-and-economics/21565621-cash-has-been-piling-up-companies%E2%80%99-balance-sheets-crisis-dead> [https://perma.cc/FC92-ULJY]; *Corporate Savings in Asia: A \$2.5 Trillion Problem*, THE ECONOMIST (Sept. 27, 2014), <http://www.economist.com/news/leaders/21620203-japanese-and-south-korean-firms-are-worlds-biggest-cash-hoarders-hurts-their> [https://perma.cc/ZD3A-DV7X].

⁵¹ See generally Ronald J. Gilson & Jeffrey N. Gordon, *The Agency Costs of Agency Capitalism: Activist Investors and the Revaluation of Governance Rights*, 113 COLUM. L. REV. 863 (2013).

⁵² Pozsar, *supra* note 46, at 284.

⁵³ Ben S. Bernanke et al., *International Capital Flows and the Returns to Safe Assets in the United States, 2003–2007*, at 1 (Bd. of Governors of the Fed. Reserve Sys., International Finance Discussion Paper No. 1014, 2011), <https://www.federalreserve.gov/pubs/Ifdp/2011/1014/ifdp1014.pdf> [https://perma.cc/7JVB-CVLP]; see also Ricardo J. Caballero & Arvind Krishnamurthy, *Global Imbalances and Financial Fragility*, 99 AM. ECON. REV. 584 (2009).

⁵⁴ Min Zeng & Christopher Whittall, *Central Bank Buying Puts Squeeze on Bond Market*, WALL STREET J. (July 6, 2016, 7:16 PM), <http://www.wsj.com/articles/central-banks-put-squeeze-on-sovereign-debt-market-1467847016> [https://perma.cc/R4PJ-KQ5S].

nitude and sophistication of market forces that will create a demand for assets that fit into the third category described above — imperfect substitutes for money claims — should the supply of authorized money claims fall short or the cost of holding those claims prove too great.⁵⁵

Turning to the empirical work on the premia that holders pay for money-like financial assets affirms the value of moneyness and shows that some longer-term claims already serve money-like functions. To support the claim that short-term debt is money-like and that money claims have distinct utility, Ricks draws on work by Professor Robin Greenwood and coauthors showing that holders of short-term Treasuries pay a premium relative to “what one would expect based on an extrapolation of the rest of the yield curve” for other Treasury instruments (p. 44).⁵⁶ In that work, Greenwood and his coauthors attribute this deviation to the extra moneyness associated with shorter-term instruments. As they explain, their work contributes to a broader body of “literature that documents significant deviations from the predictions of standard asset pricing models — patterns that can be thought of as reflecting money-like convenience services — in the pricing of Treasury securities generally, *and* in the pricing of short-term T-bills more specifically.”⁵⁷ They further acknowledge that work by Professors Arvind Krishnamurthy and Annette Vissing-Jørgensen suggests “that *all* Treasuries have some of the same features as money, namely, liquidity and ‘absolute security of nominal repayment,’”⁵⁸ and that “these liquidity and safety attributes lead Treasuries to have significantly lower yields than they would in frictionless asset pricing models.”⁵⁹ In other words, short-term Treasury instruments are more money-like than longer-term Treasury instruments, but all Treasury instruments enjoy a moneyness premium. Moneyness is greater for shorter-term instruments than longer-term ones, but the issue is one of degree.⁶⁰

Ricks recognizes that defining money has always been a tricky enterprise and that any line drawing will result in some arbitrariness. This is one of the domains where Ricks makes a lasting contribution

⁵⁵ See *infra* Part IV, pp. 1173–1180.

⁵⁶ The author quotes Robin Greenwood, Samuel G. Hanson & Jeremy C. Stein, *A Comparative-Advantage Approach to Government Debt Maturity*, 70 J. FIN. 1683, 1687 (2015).

⁵⁷ Greenwood, Hanson & Stein, *supra* note 56, at 1685 (emphasis added).

⁵⁸ *Id.* at 1686 (emphasis added) (quoting Arvind Krishnamurthy & Annette Vissing-Jørgensen, *The Aggregate Demand for Treasury Debt*, 120 J. POL. ECON. 233, 234 (2012)); see also Zhiguo He, Arvind Krishnamurthy & Konstantin Milbradt, *What Makes US Government Bonds Safe Assets?*, 106 AM. ECON. REV. 519 (2016); Arvind Krishnamurthy & Annette Vissing-Jørgensen, *The Impact of Treasury Supply on Financial Sector Lending and Stability*, 118 J. FIN. ECON. 571 (2015).

⁵⁹ Greenwood, Hanson & Stein, *supra* note 56, at 1686.

⁶⁰ *Id.* at 1688 fig.1, panel A (showing “[t]he money premium on short-term Treasury bills, 1983–2009”).

by providing a concise yet thorough overview of the myriad approaches different groups use in defining what constitutes money. In addition to explaining why central banks use multiple metrics when assessing the aggregate money supply, he explores alternative ways of approaching the question, exploring, for example, what qualifies as "cash and cash equivalents" under U.S. and foreign accounting rules (pp. 27–46). This overview supports his claim that drawing the line at one year should suffice to capture the great bulk of financial claims that today get treated like money (p. 46). He does not, however, address the fact that even long-term instruments already enjoy some money-like status. Nor does he address what the private money market might look like in a world where all claims of less than a year are government-insured and costly to hold; rather, he seems to assume it won't exist.

A simple example illustrates why this assumption may not hold. Consider two claims a person could hold — a \$100 demand deposit at a local bank and a nominally long-term financial instrument that the holder is guaranteed to be able to sell, instantly and at no cost, for \$100. Economically, there is no difference between the two, assuming the bank and the guarantee can both be trusted. Recent history provides a more concrete example and shows that one need not resort to hypotheticals or government guarantees to find long-term instruments that enjoy money-like status.

Auction rate securities (ARS) are municipal and corporate bonds, and sometimes preferred stocks, which typically have a maturity of thirty years.⁶¹ ARS derive their name from the fact that the investment banks underwriting the issuances would hold auctions for the securities on a regular basis, ranging from every seven to every thirty-five days. These auctions served two purposes — allowing holders of ARS to sell those securities if there was someone ready and willing to buy them and establishing the interest rate for ARS outstanding. Further augmenting the apparent liquidity and price stability of these instruments, the investment bank running the auction, which typically had also sold and marketed the issue, would often provide support if needed to avoid a failed auction.⁶² As a result, ARS appeared to provide many of the virtues of much shorter-term instruments. At the same time, ARS holders regularly earned a higher rate of interest than they could earn from bank deposits or even money market mutual funds.⁶³ By 2008, there were \$330 billion ARS outstanding, and the range of persons holding these instruments had expanded beyond

⁶¹ *Auction Rate Securities Market: A Review of Problems and Potential Resolutions: Hearing Before the H. Comm. on Fin. Servs.*, 110th Cong. 138 (2008) [hereinafter *Hearing*] (statement of Linda Chatman Thomsen, Director, Division of Enforcement, SEC).

⁶² *Id.*

⁶³ *Id.*

large, sophisticated institutional players.⁶⁴ When the Crisis hit and liquidity generally became scarce, the differences between ARS and truly short-term instruments became evident. Because of a lack of interested buyers and because many of the investment banks sponsoring those auctions — facing liquidity constraints of their own — ceased their traditional practice of providing support to prevent failure, auctions increasingly failed. This situation left many ARS investors, at least for a while, stuck holding the instruments.⁶⁵

ARS specifically will not again be an issue. The Securities and Exchange Commission (SEC) charged the leading ARS underwriters with making fraudulent representations to clients regarding the liquidity and safety of ARS and subsequently entered into settlement agreements that required the underwriters to buy back significant swathes of the instruments still outstanding.⁶⁶ Moreover, because Ricks knows the history of ARS, his proposed legislation would treat the date of any auction for an instrument as a maturity date, thus prohibiting the issuance of ARS. Nonetheless, the history of ARS remains instructive. ARS were always long-term, risky instruments. For example, as explained in the offering documents pursuant to which Citigroup sold ARS, “[e]xisting holders will be able to sell the ARS in an auction only if there are bidders willing to purchase all the ARS offered for sale.”⁶⁷ Those documents further stated that “failed auctions are possible, especially if the issuer’s credit were to deteriorate, if a market disruption were to occur or if, for any reason, Citigroup were unable or unwilling to bid.”⁶⁸

As reflected in the SEC’s enforcement actions, some of the persons selling ARS made overly rosy statements regarding the capacity of ARS to serve as cash equivalents, which may well have contributed to the growth of the market at its height. But the ARS market grew steadily before the misstatements occurred and before any unsophisticated investors entered the market. As Martin Wolf has explained with respect to the relationship between fraud and booms and busts in general, “fraud accompanies booms” and “exacerbates . . . fragility,” but “it does *not* cause them.”⁶⁹ “Vastly more important than the outright fraud that always accompanies credit booms is what was legal”⁷⁰ ARS offered some degree of moneyness and a higher rate

⁶⁴ *Id.*

⁶⁵ *Id.*; *Auction Rate Securities: What Happens When Auctions Fail*, FINRA (Nov. 18, 2008), <https://www.finra.org/sites/default/files/Investor-Alert-Auction-Rate-Securities-What-Happens-When-Auctions-Fail.pdf> [<https://perma.cc/WB9Y-YXWQ>].

⁶⁶ *Hearing*, *supra* note 61, at 1.

⁶⁷ Complaint at 6, SEC v. Citigroup Glob. Mkts., Inc., No. 08 Civ. 10753 (S.D.N.Y. 2008).

⁶⁸ *Id.*

⁶⁹ WOLF, *supra* note 22, at 123.

⁷⁰ *Id.*

of return than other more money-like instruments, and investors seemed quite eager to hold such instruments.

In short, the history of ARS suggests that there may well be the potential for category-three instruments — that is, longer-term instruments that enjoy some degree of moneyness — to flourish if the book's suggested reforms were adopted. Despite the breadth of the proposed legislation, it does not prohibit pricing devices that minimize interest-rate risk, nor does it or could it prohibit longer-term instruments simply because there is a robust, liquid secondary market for the instrument. And it is these features, rather than the auctions themselves, that allowed ARS to function as imperfect but viable money equivalents.

To further assess the viability of longer-term instruments as substitutes for short-term debt, we can turn to the reasons individuals and institutions want, and will pay a premium for, money-like claims. As Ricks recognizes, money is commonly said to serve at least three functions (p. 45). First, money serves as a unit of account — goods and services are priced in monetary terms. Second, money serves as a medium of exchange — money can be given in exchange for goods and services, precluding the need for both parties to have something tangible that the other desires. Third, money serves as a store of value over time. As Mervyn King, former head of the Bank of England, explains, "[m]oney gives us the ability to exchange labour today for generalised purchasing power in the future."⁷¹

As King explains in his own book on money and financial stability, the transactional dimension of money animates "[t]he traditional view of the history of money."⁷² In King's assessment, however, "[m]oney is not principally a means of buying 'stuff' but a way of coping with an uncertain future. . . . Although we cannot literally insure against the uninsurable, we can try to keep our options open by holding claims on future purchasing power in a general monetary unit of account."⁷³ This view is not inconsistent with Ricks's account of money, as Ricks highlights the often-overlooked connection between the stickiness of prices and the utility of a financial asset that holds its value in relation to those prices (p. 46). But it does suggest that longer-term claims that hold their value in purchasing-power terms should serve as money equivalents. Just as importantly, it sheds additional light on the real-world setting in which such claims might evolve and spread. If most money claims are held today to insure against an uncertain and potentially distant future, market expectations with respect to liquidity and the capacity of an instrument to hold its value matter greatly; but

⁷¹ KING, *supra* note 19, at 84.

⁷² *Id.* at 64.

⁷³ *Id.* at 84–85.

whether the secondary market for a particular type of instrument is actually up to that task should numerous holders seek to exit simultaneously could go untested for decades.

Let us again return to the hypothetical that animates this Part. Short-term claims are particularly money-like, even if continually rolled over and held for a long period of time, because they simultaneously limit credit risk, duration risk, and liquidity risk. But in modern financial markets, these risks can be addressed through other mechanisms. Given that Ricks contemplates that “securities firms and other nonbanks might be given free rein to engage in structured finance, derivatives, proprietary trading, and so forth” (p. 25), there is nothing to prevent the creation of longer-term money-like claims. A long-term instrument that the holder expects will hold its value (which means limited credit and interest rate risk) and can reliably be sold at its full value (which means there must be a liquid secondary market) may offer slightly less certainty along each of these dimensions, but the difference is one of degree rather than kind.⁷⁴

That substitutes will likely arise and spread seems even more likely when one considers the effects of the reforms across different interest-rate environments and across boom-and-bust cycles. Regulation Q, which limited the interest rate banks could pay on deposits, worked reasonably well until the country entered a period of high inflation. But rate of return is always a relative measure, and when interest rates on a product are capped, high interest rate environments increase incentives to find viable alternatives.⁷⁵ Growth cycles pose a similar challenge. As the ARS example demonstrates, financial instruments that offer money-like features often evolve and spread during periods of overall financial health and stability. As a result, even risky instruments can appear to be money-like. The rise of instruments that are money-like in good times, but not in periods of unrest (when it really matters), is particularly likely given that the financial institutions underwriting and creating a secondary market for such instruments have a self-interest in promoting perceptions of liquidity and price stability. In short, that short-term claims dominate the money market today does not ensure that other types of money-like instruments will not

⁷⁴ Professor Perry Mehrling and coauthors nicely depict how financial innovations can be used to transform any risky financial instrument into a money equivalent by using swaps to hedge the various risks to which it is exposed. See Perry Mehrling et al., *Bagehot Was a Shadow Banker: Shadow Banking, Central Banking, and the Future of Global Finance* (Dec. 6, 2013) (unpublished manuscript), <http://ssrn.com/abstract=2232016> [<https://perma.cc/H7TS-XWBY>].

⁷⁵ A flip-side challenge arising from the fact that Ricks wants not only a cap, but also a floor, is that the government may have to assume risk and discount seigniorage in order to motivate banks to issue sufficient money-like securities.

proliferate in a world that prohibits the issuance of private, short-term debt.

In Ricks's defense, his lack of concern with the moneyness of long-term assets is consistent with his belief that coordination challenges among short-term creditors are *the* reason for financial panics. Ricks's depiction of the dynamics giving rise to coordination challenges depends on the capacity of money claimants to walk away quickly and without cost, suggesting that the coordination challenge might disappear if the conditions of exit were changed. The capacity of short-term claimants to exit quickly and at low cost certainly contributes to fragility, but the issue, given the scope of his claim, is whether similar dynamics could arise in other markets should his reforms be adopted. Again, history suggests this is possible.

One of the first notable uses of the term "fire sale" in connection with a situation that posed systemic risk had little to do with short-term financing. It came instead in testimony by then-Chairman of the Federal Reserve Alan Greenspan, regarding the Federal Reserve's decision to help avert the failure of the hedge fund Long-Term Capital Management (LTCM).⁷⁶ LTCM was highly leveraged, causing it to face an extreme liquidity crunch, and it was deeply interconnected with other financial institutions, creating concerns that its failure could trigger widespread market dysfunction, but none of the debt was short term and its creditors had no option to run.⁷⁷ We will never know what would have happened had the Fed not intervened, but Greenspan is far from alone in believing "the failure of LTCM" could have "triggered the seizing up of markets," inflicted "substantial damage . . . on many market participants, and impaired the economies of many nations, including our own."⁷⁸

The history of ARS similarly demonstrates that investors can rush to the exit in a panic-like fashion even when the financial assets in question are long term. This history is particularly important when viewed alongside the contraction of another money market that had grown during the 2000s money boom — ABCP. ABCP is short-term debt, and so neatly falls within Ricks's definition of money. Yet one of the primary reasons the seizing up of the ABCP market caused banks sponsoring ABCP programs to incur massive losses was one that could

⁷⁶ Andrei Shleifer & Robert Vishny, *Fire Sales in Finance and Macroeconomics*, J. ECON. PERSPECTIVES, Winter 2011, at 29, 30; see *Private-Sector Refinancing of the Large Hedge Fund, Long-Term Capital Management: Hearing Before the H. Comm. on Banking & Fin. Servs.*, 105th Cong. 1 (1998) [hereinafter *Greenspan Testimony*] (statement of Alan Greenspan, Chairman, Fed. Reserve Bd. of Governors).

⁷⁷ See generally ROGER LOWENSTEIN, WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT (2001).

⁷⁸ *Greenspan Testimony*, *supra* note 76, at 1.

just as easily arise in markets for long-term instruments: they wanted to protect their reputations.⁷⁹ As Federal Reserve Governor Daniel Tarullo has explained in describing the pre-Crisis shadow banking system, there were “notable . . . arrangements in which guarantees of capital preservation or liquidity provision were understood to exist . . . even in the absence of contractual obligations for those guarantees.”⁸⁰ It was only “as asset values were falling to points unknown” that “many of these implicit guarantees by financial entities that were themselves under stress,” were withdrawn, “amplif[ying] the growing liquidity crunch.”⁸¹ Because major financial institutions, whether banks or broker-dealers, are likely to be the ones that create and support the secondary markets for money-like, long-term instruments, if these institutions feel compelled for reputational reasons or are required by regulators like the SEC to provide liquidity and capital support, financing crunches may well result.

I have developed in other work the mechanisms through which the information gaps that arise from shadow banking can give rise to market dysfunction and price dislocations even in the absence of coordination games.⁸² But there is no need to accept that account to question whether Ricks’s plan would achieve its desired aim. Whenever persons hold instruments because of their moneyness and new information casts doubt on the moneyness of those instruments, holders may well rush to exit.⁸³ Panics, as understood since Walter Bagehot authored his classic 1873 treatise, arise when persons demand cash instead of other money-like claims; and they are recurrent phenomena because during periods of economic health, financial claims that entail some risk are regularly given money-like status.⁸⁴

To be clear, this thought experiment is just that. Short-term debt markets long have been and remain the heart of the problem. Short-

⁷⁹ See sources cited *supra* note 45.

⁸⁰ Daniel K. Tarullo, Governor, Bd. of Governors of the Fed. Reserve Sys., Remarks at the Center for American Progress and Americans for Financial Reform Conference: Exploring Shadow Banking: Can the Nation Avoid the Next Crisis? 1 (July 12, 2016).

⁸¹ *Id.*

⁸² See Judge, *supra* note 3.

⁸³ See *id.* at 37–38 (explaining via a mechanism other than coordination challenges why doubts about the value of subprime mortgage-backed securities caused significant market disruptions in an array of other markets).

⁸⁴ WALTER BAGEHOT, LOMBARD STREET: A DESCRIPTION OF THE MONEY MARKET 118 (14th ed. 1924) (1873) (stating that a financial panic is “a sudden demand for cash”); GORTON, *supra* note 3, at 6 (“Whatever the form of the bank money, financial crises are en masse demands by holders of bank debt for cash — panics.”); see also Perry Mehrling et al., Bagehot Was a Shadow Banker: Shadow Banking, Central Banking, and the Future of Global Finance 9 (Aug. 15, 2012) (unpublished manuscript), http://econ.as.nyu.edu/docs/IO/26329/Mehrling_10012012.pdf [<https://perma.cc/WUF6-V7PQ>] (“Why insist on holding genuine Tbills when quasi-Tbills[, i.e., private money like ABCP,] promise the same liquidity but with a slightly higher yield?”).

term instruments are more money-like than longer-term instruments, and their structure increases the fragility of the institutions that issue them. Scaling back private short-term debt markets would do much to improve financial stability and should remain a priority. Ricks's claim, however, is not that his proposed reform would make the financial system safer. His claim is that eliminating uninsured short-term debt would make the system safe. The system would be so safe, in fact, that we could significantly roll back oversight and regulation of other financial markets, including those that the analysis here suggests might end up creating money-like instruments. Given that such reforms would leave regulators woefully unprepared to respond should challenges arise elsewhere in the system, it is entirely possible to believe that Ricks has identified the core of the problem without buying into his proposed solution.

IV. HISTORY AND GRAND SOLUTIONS

With the benefit of hindsight, it is clear that the shadow banking system had been growing for decades prior to the Crisis. This system serves many of the economic functions long fulfilled by banks, such as credit creation and money creation.⁸⁵ The system also resembles the banking system in being inherently fragile and vulnerable to runs.⁸⁶ As Professor Gary Gorton has observed: "An important misunderstanding revealed by the crisis is that regulators and economists did not know what firms were banks, or what debt was 'money.'"⁸⁷

Ricks provides one response to these developments. In his view, we should update and significantly expand the regulatory regime long used to regulate banks. Through a sufficiently broad insurance program complemented by a sufficiently broad prohibition on the types of financial instruments private entities could issue, the government could effectively assert complete control over money creation. And because money is the cause of financial panics, and financial panics are the cause of deep recessions, we would eliminate both by asserting such control. The scope of the revised regime may be unprecedented, but if one accepts the book's assumptions, such a scope is required and justified by its capacity to eliminate financial panics and fragility.

Alternatively, one could look at the growth of shadow banking and the failure of policymakers, academics, and other experts to appreciate its importance prior to the Crisis as a reflection of the inevitable dynamism of financial markets, and a sign that policymakers will never be able to identify and address all sources of systemic instability in ad-

⁸⁵ Judge, *supra* note 3, at 19–22.

⁸⁶ *Id.* at 33–34.

⁸⁷ GORTON, *supra* note 3, at 49.

vance. Shadow banking, including private money creation, will emerge — whether driven by insufficient authorized money, the high cost of holding such money, demand for credit, or other market forces. When that happens, the hubris of believing that the government understands and controls more than it does can itself inhibit the ability of regulators to identify and timely address financial fragility, leading to larger and more destructive financial crises.⁸⁸ What we need then is not an all-encompassing and inherently rigid “solution” to financial panics. Rather, we need regulators who recognize that they don’t know everything so they must remain diligent and a regime with sufficient flexibility that it enables regulators to identify and respond to threats even when they arise in corners not previously recognized as risky. As Neel Kashkari, a Fed official who was on the frontlines of the Crisis recently opined, “[t]he financial crisis taught me the limits of dogma. I learned humility and pragmatism the hard way.”⁸⁹ Although Ricks might reasonably protest having his proposal characterized as dogma, his confidence that we can forgo meaningful oversight of much of the financial system so long as we make this one change falls pretty close to the line.

Looking beyond the Crisis to the long history of financial panics provides helpful but not dispositive guidance with respect to which is the better approach. History shows that private money creation is pervasive, as is shadow banking if the latter term is defined as the funding of long-term assets with short-term liabilities. In a new paper, Professor Hugh Rockoff provides one of the first “systematic attempt[s] to compare and contrast” the dozen financial panics that occurred in the United States from the Panic of 1819 through the Crisis.⁹⁰ Rockoff finds that “[t]ypically, panics were started by a cluster of failures,” including “one or more . . . shadow banks” and because one of the failed shadow banks was often a prestigious firm, “[t]hese failures were immediately interpreted as evidence that something fundamental had gone wrong with the financial system and that only cash was safe.”⁹¹ The Panic of 1907, which led to the founding of the Federal Reserve, provides a concrete example. The crisis began with the failure of the noted Knickerbocker Trust and runs on other trust companies. Trusts were less regulated than commercial banks and not members of the

⁸⁸ See, e.g., Judge, *The First Year*, *supra* note 8; Hugh Rockoff, *It Is Always the Shadow Banks: The Failures that Ignited America’s Greatest Financial Panics* (Apr. 29, 2016) (unpublished manuscript) (on file with the Harvard Law School Library).

⁸⁹ Neel Kashkari, President, Fed. Reserve Bank of Minneapolis, Remarks at the Economic Club of Minnesota: The Role and Limitations of Monetary Policy (May 9, 2016); see also WOLF, *supra* note 22, at 113 (“Why did the world’s leading economies fall into such a mess? The answer, in part, is that the people in charge did not believe that they could fall into it.”).

⁹⁰ Rockoff, *supra* note 88, at 3.

⁹¹ *Id.* at 3–4.

clearinghouse system that banks had created among themselves to avert and mitigate the effects of runs.⁹² Nonetheless, just like the shadow banks of today, they had a similar funding structure to banks, played an important role in providing financing to the real economy, and proved just as vulnerable to runs.⁹³

In Rockoff's view, history suggests that any effort to identify *ex ante* the financial institutions whose failure might threaten the stability of the system is "a fraught task."⁹⁴ "The failures that sparked America's financial panics were often shadow banks, not . . . on the radar screen of regulators."⁹⁵ Looking further back and overseas, Professor Perry Mehrling and coauthors argue that today's shadow banking system has much in common with the system of private money creation in nineteenth-century London.⁹⁶

Ricks, I would infer, looks at this history of the growth of private money and the crises that eventually follow as a sign that (with one exception) governments have never gotten it right. They have consistently failed to assert complete control over money creation and as a result have consistently left the financial system vulnerable to panics and the devastation they can wreak. Another view is that market forces and innovation operate collectively to produce a constantly and inevitably evolving financial system. In this frame, the frequent involvement of shadow banks is not a sign that the preexisting regulatory umbrella was inherently too small. Rather, it reflects the fact that private money creation and shadow banking are inevitable, and thus it is best to institute a regulatory regime that can respond to such developments regardless of the particular form they happen to take. Putting the history of panics in context further suggests that despite panics, the U.S. financial system has supported remarkable economic growth. This raises questions about the growth potential that might be sacrificed in attempting to create a panic-proof regime.

Now to the exception on which Ricks hangs his hat: like many banking scholars who appreciate that financial crises are common, Ricks looks to a place and period of comparative stability to see what can be learned. While Canada is the role model for many such scholars,⁹⁷ Ricks is not alone in looking to the Quiet Period, that is, the period between 1934 and 2007 when, despite the costly Savings & Loan

⁹² Carola Frydman, Eric Hilt & Lily Y. Zhou, *Economic Effects of Runs on Early "Shadow Banks": Trust Companies and the Impact of the Panic of 1907*, 123 J. POL. ECON. 902, 903 (2015).

⁹³ *Id.* at 907–12.

⁹⁴ Rockoff, *supra* note 88, at 37.

⁹⁵ *Id.*

⁹⁶ Mehrling et al., *supra* note 74, at 1.

⁹⁷ *E.g.*, CHARLES W. CALOMIRIS & STEPHEN H. HABER, *FRAGILE BY DESIGN: THE POLITICAL ORIGINS OF BANKING CRISES AND SCARCE CREDIT* 283–327 (2014); Kurt Schuler, *Free Banking in Canada*, in *THE EXPERIENCE OF FREE BANKING* 79 (Kevin Dowd ed., 1992).

debacle, the United States did not have a single major financial crisis. This is a venerable methodological approach and one that can yield meaningful insight into the relationship among regulatory regimes, economic and other conditions, and the probability of panics. As Ricks contends, the relative stability of the U.S. financial system during this period supports the value of deposit insurance as a way of helping to deter runs.

One challenge in using the Quiet Period to justify Ricks's proposal is that historically, deposit insurance has always been capped, leaving large depositors and other short-term creditors — like bank counterparties who may have been important disciplinarians in recent decades — nominally exposed.⁹⁸ Larger depositors were regularly protected in practice, but such protection was never assured.⁹⁹ We simply cannot know how much the possibility that large creditors might incur losses shaped bank and creditor behavior in ways that were beneficial and would be foreclosed under Ricks's approach.¹⁰⁰ This itself does not undermine his claim, but it does highlight the importance of recognizing it as a significant expansion — not just an updating — of the historical approach to bank regulation in the United States.

The greater challenge is that the factors distinguishing today's financial system and overall economic conditions from those that prevailed during the Quiet Period go far beyond those that Ricks claims will suffice to restore stability. Other scholars have argued, for example, that meaningful barriers to entry allowed most banks to enjoy "charter value" — the term banking scholars use for the expectation of future monopoly rents — during the Quiet Period.¹⁰¹ This in turn made bank managers and shareholders more risk averse and less inclined to innovate, as they would lose prospective rents in the event their bank failed. But Ricks does not want to restore charter value, and the ramifications of a robust insurance scheme in a world where bank shareholders enjoy monopoly rents are quite different from the challenges such an insurance scheme would pose absent charter value.

⁹⁸ RICHARD SCOTT CARNELL, JONATHAN R. MACEY & GEOFFREY P. MILLER, *THE LAW OF FINANCIAL INSTITUTIONS* 371–75 (5th ed. 2013) (providing history of coverage, in both nominal and inflation-adjusted terms, since deposit insurance was first instituted in 1934).

⁹⁹ *E.g.*, MICHAEL S. BARR, HOWELL E. JACKSON & MARGARET E. TAHYAR, *FINANCIAL REGULATION: LAW AND POLICY* 238 (2016) (noting that since the United States adopted deposit insurance, the country "has seen very few runs," but also noting that "[i]t is not that runs never occur," and providing examples of when they have).

¹⁰⁰ *See, e.g.*, Charles Enoch, Peter Stella & May Khamis, *Transparency and Ambiguity in Central Bank Safety Net Operations* (Int'l Monetary Fund, Working Paper No. 138, 1997).

¹⁰¹ *E.g.*, GORTON, *supra* note 3, at 133 ("There was no financial crisis between 1934 and 2007 because . . . banks were earning monopoly profits . . ."); *see also* Thomas F. Hellman, Kevin C. Murdock & Joseph E. Stiglitz, *Liberalization, Moral Hazard in Banking, and Prudential Regulation: Are Capital Requirements Enough?*, 90 *AM. ECON. REV.* 147 (2000) (showing the benefits of enabling banks to enjoy charter value relative to capital requirements).

The trends documented above regarding the consolidation of cash balances among large corporations and institutional investors and foreign demand for safe assets are also relevant. It is not just that financial innovations and the cross-border movement of capital enable the creation of money-like claims outside the banking system, but also that the demand for money claims today comes from institutions that are far more sophisticated and have far more at stake than their twentieth-century counterparts. Even assuming Ricks is correct that, when managing money, a "portfolio manager's job is first to ensure that the funds he invests will be available whenever his firm needs them and only second to maximize the return he earns on these funds" (p. 45),¹⁰² today's money claimants seem unlikely to completely forgo the second of these two aims.

History is an important guide in the ongoing efforts to build a more stable financial system. Understanding how regulatory interventions, market forces, and interactions between the two have contributed to crises as well as periods of stability is critical to carving a better path forward. But to learn the right lessons, all of these dynamics and the historically contingent context in which they arise must be taken into account. My assessment of history is that innovation and dynamism are endemic, suggesting the need for a financial regulatory regime that anticipates and harnesses those forces. Ricks argues instead that, at least in the context of money creation, we can and should shut them down. When coupled with our different assessments of whether there is a role for creditor discipline in connection with money creation and the viability and costs of trying to define and regulate *ex ante* all financial claims that might serve as money, there are some fundamental differences in our optimal reform agendas.

Putting the analyses in each Part together provides a blueprint of those differences. If money market claimants have some, but incomplete, information and if the threat of discipline imposed by money claimants is socially useful in some settings and some states of the world, but highly destructive in others, then unfettered market discipline and excessive government control each lead to suboptimal outcomes, albeit for different reasons. The better response is one that seeks to harness the productive dimensions of market-based information generation and discipline while blunting those forces when they operate contrary to social welfare. To be effective, this approach must also embrace the inevitable dynamism of finance and its responsiveness to regulation.

¹⁰² The author quotes MARCIA STIGUM & ANTHONY CRESCENZI, *STIGUM'S MONEY MARKET* 456 (4th ed. 2007).

In practice, this means distinguishing market developments that threaten the health of individual institutions or that will result in meaningful but contained losses from developments that threaten the stability of the financial system as a whole. It means casting an oversight net that reaches beyond the scope of the prudential regulatory regime, enhancing the capacity of regulators to identify and respond to threats that arise in domains not traditionally recognized as systemically important. It means sometimes using both a belt and suspenders in case the design of one proves wanting or is attached to the wrong pair of pants. It means supporting structural reforms aimed at simplifying financial institutions, instruments, and markets, but not in a way that draws hard lines between domains that should be simplified and monitored and others that should not. It means protecting the existence and, to an extent, the autonomy of central banks, which have a range of tools that they can deploy to fight crises in a manner responsive to the particular challenge they are facing. And it means institutionalizing ex post mechanisms of support alongside ex ante regulation.

A concrete example of a reform that builds on Ricks's insights while fitting the alternative paradigm advocated here would be to expand regulators' crisis management toolkit to explicitly include a role for the government as "insurer of last resort," alongside its established role as lender of last resort. The notion that central banks should act as a lender of last resort to provide needed liquidity when market-based sources run dry dates back more than 200 years, and the principled norms regarding when and how central banks should fulfill this role were largely set forth by Bagehot in 1837.¹⁰³ In theory, access to a lender of last resort enables a financial institution facing excess withdrawals to use its assets as collateral to obtain fresh liquidity, thereby avoiding the need to engage in a value-destroying asset sale.¹⁰⁴ Just as importantly, the very existence of a lender of last resort should deter coordination-based runs, as short-term claimants no longer face the losses resulting from those fire sales.¹⁰⁵

The Crisis affirmed the importance of having a central bank that is authorized and willing to serve as a lender of last resort, but it also revealed the challenges inherent in such interventions.¹⁰⁶ To effectively

¹⁰³ BAGEHOT, *supra* note 84; see also Kathryn Judge, *The Federal Reserve: A Study in Soft Constraints*, 78 LAW & CONTEMP. PROBS., no. 3, 2015, at 65, 78–82, and sources cited therein.

¹⁰⁴ Paul Tucker, *The Lender of Last Resort and Modern Central Banking: Principles and Reconstruction* 14–16 (Bank of Int'l Settlements, Working Paper No. 79, 2014), http://www.bis.org/publ/bppdf/bispap79b_rh.pdf [<https://perma.cc/CBK6-RYZN>].

¹⁰⁵ *Id.* at 15.

¹⁰⁶ *E.g.*, OFFICE OF INSPECTOR GEN., FED. RESERVE, THE FEDERAL RESERVE'S SECTION 13(3) LENDING FACILITIES TO SUPPORT OVERALL MARKET LIQUIDITY: FUNCTION, STATUS, AND RISK MANAGEMENT 3–8 (2010), https://oig.federalreserve.gov/reports/FRS_Lending_Facilities_Report_final-11-23-10_web.pdf [<https://perma.cc/JYW2-RVMZ>] (providing

deter runs, a lender of last resort must be able to signal to short-term creditors that they will be protected. Allowing the government to make such assurances directly, whether through an insurance or guarantee scheme, could be a far more effective way of bringing about the desired result. This is the logic animating the book's claim that expanding insurance will prevent runs. Moreover, given that the government should provide lender-of-last-resort support only to solvent institutions, having the government instead act as an insurer of last resort would not necessarily entail greater credit risk or engender additional moral hazard relative to the prevailing approach.

Significantly, insurer of last resort is not a novel role for the government to play. Some of the more successful government interventions at the height of the Crisis, including a Treasury Department program that provided a guarantee to money market mutual funds when the industry faced widespread withdrawals after one fund "broke the buck" and the FDIC's Transaction Account Guarantee Program, which fully insured noninterest-bearing transactional accounts for participating banks, are prime examples of the government doing precisely this.¹⁰⁷ These programs illustrate that whether a program is structured as an insurance scheme or a guarantee matters little; runs can be stopped whenever the government intervention assures designated claimants that they will be protected from liquidity risk and credit risk, thereby removing the incentive to run. And, because these schemes were adopted well over a year into the Crisis, at a time when panic was widespread and a major threat to market functioning, they would not undermine the incentive of short-term claimants to discipline institutions for assuming idiosyncratic risks outside of crisis periods.

an overview of the various programs the Federal Reserve instituted using its lender-of-last-resort authority); Olivier Armantier et al., *Discount Window Stigma During the 2007–2008 Financial Crisis*, 118 J. FIN. ECON. 317, 326 (2015) (showing that stigma deterred banks from borrowing despite encouragement from the Federal Reserve to do so); Viral V. Acharya & Bruce Tuckman, *Unintended Consequences of LOLR Facilities: The Case of Illiquid Leverage* 3, 4 (Int'l Monetary Fund, Working Paper, 14th Jacques Polak Annual Research Conference, 2013), <http://www.imf.org/external/np/res/seminars/2013/arc/pdf/viral.pdf> [<https://perma.cc/AG7V-DL4M>] (showing that one effect of access to a LOLR "is to give the bank leeway to reduce deleveraging sales of illiquid assets," *id.* at 3, making them more vulnerable to further adverse shocks); Gary B. Gorton, Andrew Metrick & Lei Xie, *The Flight from Maturity* 1 (Nat'l Bureau of Econ. Research, Working Paper No. 20027, 2014), <http://www.nber.org/papers/w20027.pdf> [<https://perma.cc/GS9X-83VS>] ("argu[ing] that the financial system became increasingly fragile *during* the crisis, so that even a small shock would have led to a large response *at that point in the crisis*" in ways that would not have been possible without lender-of-last-resort interventions).

¹⁰⁷ *E.g.*, Press Release, U.S. Dep't of the Treasury, Treasury Announces Temporary Guarantee Program for Money Market Funds (Sept. 29, 2008); *Temporary Liquidity Guarantee Program*, FDIC, <https://www.fdic.gov/regulations/resources/tlgp> [<https://perma.cc/5RQA-CNV5>] (last updated Feb. 27, 2013).

To be sure, the devil is in the details. The ongoing struggle to balance the stability-enhancing benefits of having a lender of last resort with the moral hazard such interventions engender suggests that there is not going to be an easy way to optimize this balance when the government instead provides emergency insurance or guarantees. Moreover, despite the success of the Treasury and FDIC interventions in this vein, those interventions also illustrate that the provision of crisis-period insurance may justify post-crisis reforms.¹⁰⁸ Nonetheless, developing a comprehensive set of principled norms regarding when and how the government should act as an insurer of last resort, explicitly protecting a class of claimants otherwise positioned to run in order to avert the systemic effects of their doing so, is a concrete example of how Ricks's insights could be deployed to expand the arrows in regulators' quiver as part of a more dynamic and viable regulatory reform agenda.

Returning to the big picture, Ricks convincingly demonstrates that today's short-term debt markets are excessively large given their inherent fragility and that insurance should be among the tools regulators use in their efforts to promote stability. Beyond that, the analysis here suggests a more moderate approach to reform may be more effective in tackling the challenges money markets pose, while also inflicting fewer barriers to credit creation and economic growth. Forging a middle path will entail difficult judgment calls, and implementation will require accepting rules that are overinclusive along some dimensions and underinclusive along others. Given the drawbacks of giving too much power to either the market or the government, however, and the inherent dynamism of finance, this type of approach is the least imperfect of the various options available. Regardless of the approach taken, ongoing reform efforts will be enhanced if policymakers heed Ricks's insights regarding the importance and distinctiveness of money.

CONCLUSION

The Money Problem provides a beacon of light amid the morass of complexity that has come to plague financial institutions, financial markets, and efforts to regulate both. In it, Ricks identifies the key questions that must be asked to better understand financial panics and

¹⁰⁸ E.g., Money Market Fund Reform; Amendments to Form PF, 79 Fed. Reg. 47,736 (Aug. 14, 2014) (codified at 17 C.F.R. pts. 230, 239, 270, 274 & 279) (making numerous substantive changes to the rules governing money market mutual funds to address deficiencies contributing to the need for government intervention to prevent runs on these funds); Temporary Liquidity Guarantee Program; Unlimited Deposit Insurance Coverage for Noninterest-Bearing Transaction Accounts, 80 Fed. Reg. 65,919 (Oct. 28, 2015) (codified at 12 C.F.R. pts. 330 & 370) (describing the evolution of the FDIC's emergency guarantee authority, including how it was used during the Crisis and subsequently revised pursuant to the Dodd-Frank Act).

fragility, reveals the inadequacy of the answers produced thus far, and makes a convincing case that structural reforms targeting the institutions that produce money may be critical components of efforts to forge a more stable financial system. Making progress along one of these fronts, much less all three, would be a significant contribution. Some readers may be convinced by Ricks's grand vision of a panic-proof system, but even those who are not have much to gain from allowing him the opportunity to make his case.