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MONEY AND (SHADOW) BANKING: A THOUGHT EXPERIMENT

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Introduction

The term “shadow banking” is often used to signify very different things, so it is helpful to start with a definition. In this paper, “shadow banking” refers to the activity of issuing very short-term IOUs and investing the proceeds in longer-term financial assets. This activity is, of course, the traditional domain of depository banking. The shadow banking system performs a similar function, but its short-term liabilities are not formally styled as “deposits.”

The short-term IOUs issued by shadow banking entities are commonly said to be *money-like*. What does this mean exactly? Consumers and businesses find it convenient to allocate a portion of their resources to assets whose value *in relation to* currency is extremely stable. Short-term IOUs tend to have this characteristic. More precisely, they have both very low credit risk *and* very low interest-rate risk. Consequently, their price volatility is extremely low. These instruments function as cash-parking contracts. Economists sometimes refer to them as “near money” or “private money.”¹ Financial managers often just call them “cash,” and they are classified as “cash equivalents” for accounting purposes.² They offer exceptionally low yields; agents are willing to sacrifice investment returns for this “moneyness” quality. These short-term IOUs appear to satisfy an aspect of money demand.³

There is a reason for emphasizing this point at the outset. Shadow banking is a *monetary* phenomenon, not just a financial one. This distinction may seem subtle, but it is conceptually significant. It implies that the shadow banking problem is bound up with the

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¹ See Gary Gorton & Guillermo Ordoñez, *Collateral Crises 1* (Jan. 13, 2012) (unpublished manuscript), available at <http://ssrn.com/abstract=1984715> (referring to short-term debt instruments as “private money”).

² FIN. ACCOUNTING STANDARDS BD., STATEMENT OF FINANCIAL ACCOUNTING STANDARDS NO. 95: STATEMENT OF CASH FLOWS ¶¶ 7-10 (1987).

³ For a more thorough discussion of this proposition, see Morgan Ricks, *Regulating Money Creation After the Crisis*, 1 HARV. BUS. L. REV. 75, 89-97 (2011).

institutional structure of the monetary system. In other words, the question “what to do about shadow banking” is closely linked to the question “how should our monetary system be designed.”

This paper approaches the shadow banking problem from this monetary point of view. It does so by means of a simple thought experiment. The aim is to strip away the inessentials so as to reveal some of the basic legal-institutional design considerations that attend the establishment and management of a monetary system. It is the author’s experience that underlying assumptions in this area are surprisingly divergent and, at any rate, are seldom made explicit in the shadow banking literature. If this paper merely assists in surfacing some otherwise unstated assumptions, it will have served its purpose.

I. A Simple Monetary System

Imagine an economy with a fiat money system. There is no paper currency. Instead, money consists of entries in an electronic database maintained by the government. The database has two columns. The left-hand column contains unique identifiers for each agent in the economy. The right-hand column contains non-negative values—“money-values”—one for each agent. To make a payment, an agent instructs the government to reduce (debit) his or her money-value and increase (credit) the payee’s money-value by an equivalent amount. There is no such thing as a *physical* transfer of money. All payments are made via these bookkeeping entries.

The money-values in this database do not merely “represent” or “stand for” money. They *are* money. They do not carry a redemption option of any kind. They do not default, at least not in any conventional legal sense. They are not contracts, any more than a dollar bill is a contract. They have no explicit terms and conditions. It might initially seem implausible that agents would ascribe value to these electronic book-entries. But the proposed system is essentially no different from our existing monetary system, in which people ascribe value to intrinsically valueless bits of paper. Our hypothetical system merely substitutes database entries for bits of paper.⁴

If there is anything mysterious about this system, the mystery has to do with the phenomenon of fiat money itself—not with its particular institutional realization in our hypothetical economy. At a

⁴ To import a basic concept from the securities field: money in this hypothetical economy is “uncertificated.” See U.C.C. § 8-102(1)(b) (1977).

basic level, fiat money is indeed puzzling. James Tobin, one of the preeminent monetary theorists of the past century, discussed this puzzle in his Nobel Prize lecture:

Th[e] quest for the microfoundations of monetary theory ... is still unfinished. The reason, I think, is the difficulty of explaining within the basic paradigms of economic theory why paper that makes no intrinsic contribution to utility or technology is held at all and has positive value in exchange for goods and services. I certainly have no solution to that deep question, nor do I regard one as prerequisite to pragmatic monetary theory.⁵

This article does not purport to shed any light on Tobin's deep question.⁶ Like Tobin, we will take it for granted that fiat money "works."

The successful management of our hypothetical monetary system requires a measure of government competence. The government must possess adequate recordkeeping capabilities, and it must reliably process debits and credits. Furthermore, the government will need to establish payment authentication procedures in order to prevent fraud. These are routinized, processing functions—"back office" functions, in business jargon. This is not to say that they are trivial. On the contrary, they require a real commitment of resources and technology. However, this kind of commitment appears to be inescapable in *any* monetary system that

⁵ James Tobin, Nobel Memorial Lecture: Money and Finance in the Macroeconomic Process 14 (Dec. 8, 1981) (transcript available at http://www.nobelprize.org/nobel_prizes/economics/laureates/1981/tobin-lecture.pdf).

⁶ According to one theory, the government imparts value to fiat money by requiring that taxes be paid in it. *See, e.g.*, Abba P. Lerner, *Money as a Creature of the State*, 37 AM. ECON. REV. 312, 313 (1947) ("The modern state can make anything it chooses generally acceptable as money and thus establish its value quite apart from any connection, even of the most formal kind, with gold or with backing of any kind. It is true that a simple declaration that such and such is money will not do But if the state is willing to accept the proposed money in payment of taxes and other obligations to itself the trick is done."). *See also* Douglas W. Diamond & Raghuram G. Rajan, *Money in a Theory of Banking*, 96 AM. ECON. REV. 30, 36 (2006) (noting that one of the "natural sources of value for money" is that it "can be used to pay future taxes").

the state might choose to establish. For example, in a fiat paper system, paper currency must be printed and physically distributed, and anti-counterfeiting measures must be established and enforced.

We have seen how transfers of money take place in our hypothetical economy. But we have neglected the question of money *creation*. How does new money come into existence? In one sense, the answer is obvious. Money is created *ex nihilo*, by increasing agents' aggregate money balances. Presumably, however, these increases do not happen at random. They arise in the context of some *operation*. For instance, money might come into existence through government expenditures. When the government buys a battleship, compensates a postal worker, or makes a social welfare payment, the payee receives a credit to his or her money balance. So long as the government does not debit its own money balance correspondingly, it has augmented the money supply. These government expenditures are financed through *seigniorage*: "revenue" that arises from money creation.

Of course, there is no necessary connection between the optimal path of the money supply and the desired level of government expenditure. What if the optimal growth in the money supply over a given period were *greater* than the desired amount of government spending over that period?⁷ One alternative would be for the government simply to exceed its desired level of spending. But this would be wasteful. The very notion of a "desired" amount of government spending implies that the government satisfies its policy objectives at that level. In other words, the government has exhausted whatever opportunities it has identified to generate positive social value. Buying more battleships for *monetary* purposes would divert resources from other uses. Making larger-than-desired social welfare payments might undermine incentives for productivity. These wasteful expenditures would be socially counterproductive.

Does the government have other ways to augment the money supply, apart from more spending? Consider this option: a "money split" (analogous to a stock split in corporate finance). The government could declare that, at the stroke of a computer keyboard, it has increased everyone's money balance by some proportion, say five percent. Suddenly, each agent would have a larger nominal money-value than before. The government seemingly would have increased the money supply without spending anything.

⁷ Assume for now that the government has no outstanding debt, so it cannot create money through sovereign debt redemptions.

Unfortunately, there appears to be a serious practical problem with the money-split strategy. To see why, imagine that, for whatever reason, some agents expected the government to announce a money split. At the margin, these agents would seek to accumulate money in order to profit from the split: they would reduce spending and/or monetize assets.⁸ This behavior would tend to reduce economic activity and exert downward pressure on prices. These effects, in turn, would further raise expectations of a money split, causing more agents to hoard money. Thus the money-split policy generates a perverse, self-fulfilling equilibrium, in which the expectation of a money split generates the very economic conditions that the money split is intended to counteract. Other “keystone” approaches (such as randomized, electronic “helicopter drops”⁹ of money) are similarly susceptible to incentive problems and likely social costs.

The point here is simply that, when it comes to changes in the money supply, the mechanism matters. This is far from an original insight. In his Nobel Prize lecture, Robert Lucas made this point explicitly:

From the beginnings of modern monetary theory, in David Hume’s marvelous essays of 1752, *Of Money* and *Of Interest*, conclusions about the effect of changes in money have seemed to depend critically on the way in which the change is effected

. . . .
. . . [T]here is something a little magical about the way that changes in money come about in Hume’s examples. All the gold in England gets “annihilated.” Elsewhere he asks us to “suppose that, by miracle, every man in Great Britain should have five pounds slipped into his pocket in one night.” Money changes in reality do not occur by such means. Is this just a matter of exposition, or should

⁸ It is assumed that prices in this economy exhibit some degree of “stickiness”—a standard explanation for monetary non-neutrality.

⁹ This well-known term comes from Milton Friedman. See Milton Friedman, *The Optimum Quantity of Money*, in *THE OPTIMUM QUANTITY OF MONEY AND OTHER ESSAYS* 1, 4 (1969).

we be concerned about it! This turns out to be a crucial question.¹⁰

Interestingly, Tobin touched on a similar theme in his own Nobel lecture:

Too often macro-economic models describe monetary policy as a stock M whose time path is chosen autonomously by a central authority, without clearly describing the operations that implement the policy. In fact money supplies are changed by government transactions with the public in which goods or non-monetary financial assets are exchanged for money, or by similar transactions between banks and the non-bank public. What transactions are the sources of variation of money stocks makes a difference¹¹

Lucas and Tobin are making similar points here—namely, that monetary adjustments are undertaken within a particular institutional apparatus, and the apparatus matters. If shadow banking is indeed a monetary phenomenon, then it needs to be examined within the context of the broader legal-institutional structure of the monetary system.

II. Credit and Distribution

Let's continue with our thought experiment. Recall that the government has no debt outstanding. It wants to effect a monetary expansion that exceeds its desired level of spending over some period. What options are available—apart from wasteful expenditures, money splits, or electronic helicopter drops?

Consider this alternative: The government could start lending (or, equivalently, buying bonds). Assume for the moment that the government is a competent underwriter of credit. It can price loans accurately. In that case, this method of monetary expansion has attractive features. When it makes a loan, the government credits the

¹⁰ Robert E. Lucas Jr., Prize Lecture: Monetary Neutrality 246-47 (Dec. 7, 1995) (transcript available at http://www.nobelprize.org/nobel_prizes/economics/laureates/1995/lucas-lecture.pdf) (citations omitted).

¹¹ Tobin, *supra* note 5, at 13.

borrower's money-value without debiting its own. New money is now in circulation.¹² The government has not spent money wastefully on real goods and services. Essentially, the government has “rented out” new money instead of spending it. (For present purposes, it is useful to think of the credit market as the rental market for purchasing power.)

This method of money creation opens up another appealing possibility: the administrative separation of the monetary and fiscal authorities. We have so far assumed that the fiscal authority creates money at will to finance its expenditures. However, there is reason to think that “governments are subject to an inflation bias that stems from attempts to maintain overly ambitious levels of employment and/or to finance budget deficits by means of money creation.”¹³ This bias furnishes a rationale for a commitment device. Specifically, monetary policy might be delegated to an independent agency that is *relatively* insulated from political pressures.¹⁴ This monetary authority would have a legal mandate of prudent monetary management, perhaps along the lines of the Federal Reserve's dual mandate.¹⁵ It would issue money in exchange for loans/bonds in order to achieve its monetary policy objectives. (Some of this lending

¹² The emergence of this institutional technology—the shift from a spending channel to a lending channel—has a real historical basis. Legal historian Christine Desan describes how, in the late seventeenth and early eighteenth centuries, American colonial governments began to issue paper money (“bills of credit”) in direct payment for goods and services. “When public expenses declined,” however, colonial governments “devised a second way of putting money into circulation. They established public land banks that lent borrowers paper money on the security of their land.” Christine Desan, *From Blood to Profit: Making Money in the Practice and Imagery of Early America*, 20 J. POL'Y HIST. 26, 28 (2008).

¹³ Alex Cukierman, *The Revolution in Monetary Policymaking Institutions*, VOX (Sept. 27, 2007), <http://www.voxeu.org/index.php?q=node/575>; see also CARMEN M. REINHART & KENNETH S. ROGOFF, THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY 181 (2009) (presenting evidence of the median inflation rate in sixty-six countries from 1500 to 2007 and noting “a clear inflationary bias throughout history”).

¹⁴ For a theoretical and empirical examination of the relationship between inflation and central bank independence, see ALEX CUKIERMAN, CENTRAL BANK STRATEGY, CREDIBILITY AND INDEPENDENCE: THEORY AND EVIDENCE (1992).

¹⁵ See Federal Reserve Act § 2A, 12 U.S.C. § 225a (2006) (articulating the Federal Reserve's dual mandate of full employment and price stability).

might be to the government itself, but this is not important for now.) The government's *fiscal* arm would have no discretionary control over the money supply. The fiscal authority would finance its operations through taxation and borrowing, thereby subjecting itself to political and market discipline.

Thus the credit market serves as an attractive distribution channel in our hypothetical monetary system. Under our imagined institutional design, the path of the money supply need have no connection at all to the path of government spending. The system is compatible with a large government (*vis-à-vis* the size of the economy) or a small one. The administrative independence of the monetary authority insulates monetary policy from volatile political dynamics, mitigating the effect of the government's inflation bias. The state continues to receive the seigniorage revenues that arise from money creation, but these revenues are realized over time via returns on the monetary authority's credit portfolio. This steady and relatively predictable revenue stream is convenient: It facilitates short-term fiscal budgeting.

Of course, the efficacy of this monetary system will depend critically on the monetary authority's skill at credit analysis. If the monetary authority is a bad credit investor, then resources will be poorly allocated. This presents a serious problem. We assumed earlier that the government is proficient at "back office" tasks. Credit investing, however, is a quintessential "front office" operation. It requires information-gathering and analytical skills, local knowledge, and expert judgment. The monetary authority will need to commit resources to this operation. Even with a substantial commitment by the state, there may be reason to doubt its capacity to make sound investment judgments on a consistent basis. Poor credit judgments will generate resource misallocation and social costs.

This circumstance seems to call for a special institutional arrangement—one designed to harness market forces. To this end, the monetary authority might enter into joint-venture agreements with private managers that have expertise in credit investing. Each manager would be required to put up some of its own resources as "skin in the game"—a first-loss equity position. The managers would be granted the authority to acquire credit assets on behalf of the state. The sellers or issuers of these credit assets would receive newly created money (still consisting of entries in the government's database). When the monetary authority wished to expand the money supply, it would authorize the managers to acquire more credit assets, thereby putting new money into circulation.

The returns from each manager's credit portfolio would be split between the manager and the monetary authority. Specifically, each manager would pay a risk-based fee to the state, and the manager would be entitled to retain any investment returns on its portfolio in excess of its fee. In effect, the state would own senior claims on the managers' credit portfolios, and the managers would hold residual equity claims. The state's net returns from its senior claims would constitute its seigniorage revenues. If a manager experienced portfolio losses sufficient to wipe out its equity, the government would revoke its contract and seize and liquidate its investment portfolio. The government could mitigate its risk to some degree by requiring that managers limit their portfolios to the safer end of the credit spectrum.¹⁶

The system described here bears an obvious resemblance to the one we actually have. These joint ventures are analogous to depository banks. Like our hypothetical joint ventures, U.S. depository entities are subject to strict portfolio restrictions, equity capital requirements, and (through the deposit insurance system) risk-based fees. They have special charters that permit them to issue monetary instruments styled as "deposits." Entities *without* depository charters are legally prohibited from issuing these instruments. That is to say, deposit-issuance is a legal *privilege*. When a depository bank depletes its equity, the government—via the Federal Deposit Insurance Corporation ("FDIC")—seizes and liquidates its portfolio in satisfaction of the government's senior claim. Depository banks, then, are engaged in a joint venture with the government: a public-private partnership. They are licensed agents of the state, chartered for the efficient distribution of the money supply.

In at least two basic respects, however, the hypothetical system in our thought experiment differs from the system of money and banking that exists in the United States today. First, the money that our hypothetical managers are licensed to distribute is in no sense a private liability. It is not a contractual promise by the manager to deliver some other "base" or "high-powered" form of money.¹⁷ Our hypothetical system has not introduced any such

¹⁶ Obviously, the licensed managers would not be the *only* credit investors in the economy. The credit market share of licensed managers would depend on the size of the targeted money supply in relation to the size of the entire credit market.

¹⁷ These terms refer to the liabilities of the central bank ("M0"). For a brief and non-technical introduction, see Anna J. Schwartz, *Money Supply*, LIBR.

concept. All money still consists of entries in the government's database. Accordingly, all money remains sovereign and default-free in our imagined economy; the notion of government insurance or guarantees of this money would be superfluous. Second, and relatedly, there is no central bank. There is a monetary authority that is responsible for adjusting the money supply, but it has no asset portfolio of its own that is distinct from the licensed managers' portfolios. Instead, it prescribes the amount of money that the licensed managers are permitted to issue, and it adjusts this figure over time in accordance with its monetary policy objectives. All money is issued through this outsourcing arrangement.

The key terms of the hypothetical joint venture agreements—portfolio restrictions, equity capital requirements, and risk-based fees—are complementary. Consider first the risk-based fees. In the absence of these charges, the managers would earn windfall profits: They would collect all of the returns from investing newly created money, but they would not incur any associated funding costs. They would thereby capture the seigniorage revenues generated by the monetary system. The risk-based fees are designed to retain these seigniorage revenues as a public asset. The monetary authority aims to charge each manager an actuarially fair rate for the government's senior claim. That is to say, it seeks to replicate the debt financing costs that the managers would incur if they were to finance their portfolios exclusively in the capital markets.¹⁸

If the monetary authority could price these risk-based fees with perfect accuracy and update them continuously, then the joint-venture agreements would need no additional terms. However, if the monetary authority were so skilled at valuation, then it would have had no reason to establish the joint venture regime in the first place. Thus the government's shortcomings as an investor furnish the basis for the other components of the joint venture agreements: portfolio restrictions and capital requirements. Portfolio restrictions seek to limit the volatility of the asset portfolios that managers accumulate. Capital requirements provide first-loss protection and incentive alignment. In combination, these risk constraints serve to counteract the managers' moral hazard incentives and reduce the risk of loss to

ECON. & LIBERTY, <http://econlib.org/library/Enc/MoneySupply.html> (last visited Apr. 4, 2012).

¹⁸ In finance terms, the monetary authority would charge each manager (1) the risk-free rate plus (2) a fair risk premium for a put option written on the manager's portfolio, struck at the quantity of money issued by the manager.

the government, thereby enhancing the regime's efficiency.¹⁹ These terms are analogous to the restrictive covenants that are ubiquitous in privately negotiated debt and insurance contracts—terms which seek to constrain risky behavior and provide a layer of first-loss protection to the underwriter. Thus the components of our hypothetical joint-venture system embody a coherent economic logic.

The regime's three components are calibrated sequentially. First, the monetary authority delineates the universe of credit assets in which the managers may invest (i.e., portfolio restrictions). The permissible range of investments will reside at the safer end of the credit spectrum, but it must be large enough to accommodate the targeted money supply. Second, the monetary authority establishes capital requirements. It balances the cost of additional capital (diversion of investment capital from other projects in the economy) against its benefit (incentive alignment and first-loss absorption). Finally, the monetary authority imposes the risk-based fee, the price of which is determined primarily by the manager's portfolio volatility and its capital level. Standard option pricing models are available to assist with this analysis.

To be sure, this institutional design poses serious implementation challenges. It requires the monetary authority to make difficult appraisals of value. Any deficiencies in its appraisals will result in resource misallocation and social costs. However, challenges of this nature appear to be inescapable in *any* monetary regime that the state might choose to establish. For that matter, valuation problems arise in every government intervention—from national defense, to antitrust enforcement, to infrastructure investment, and so on. All of these interventions require the government to make difficult appraisals of value, and any deficiencies in its appraisals will result in resource misallocation and social costs. The establishment of a monetary system turns out to be no different. As always, the aim is to select the best design from a set of imperfect alternatives.

¹⁹ These requirements reduce the fair value of the put option written by the monetary authority. There is a zero lower bound on the risk premium (the government will not charge a negative risk premium). Accordingly, the lower the fair risk premium, the lower the government's expected underpricing error. For a more detailed discussion of this point, see Morgan Ricks, *A Regulatory Design for Monetary Stability* (Harvard John M. Olin Ctr. for Law, Econ., and Bus., Discussion Paper No. 706, 2011), available at <http://ssrn.com/abstract=1933890.pdf>.

III. Monetary Adjustments

It is useful to conclude our thought experiment with an additional word about monetary adjustments in our hypothetical system. As noted above, the independent monetary authority prescribes the amount of money that licensed managers are permitted to issue. It adjusts this figure over time to suit its monetary policy objectives. In this regard, we might think of the managers as owning special permits for money creation. To generate a monetary expansion, the monetary authority would increase the allowable number of money-units issuable under each outstanding permit. Licensed managers would then be entitled to expand their portfolios by acquiring more credit assets, thereby putting more money into circulation. A monetary tightening would work the other way around, requiring managers to reduce new originations relative to maturing assets, or perhaps even to shed assets in the secondary market. In that case, existing money is retired. To enhance the regime's efficiency, the permits could be made tradable among the eligible managers.

The permit mechanism described here has an analogue in our existing monetary system. Depository banks are required to hold base money equal to a specified fraction of their outstanding deposit obligations.²⁰ These reserve requirements can, of course, serve as a basic tool of monetary policy. A decrease in required reserves is expansionary; an increase is contractionary. Depository banks actively trade these reserves in the federal funds market.²¹ In our

²⁰ Federal Reserve Act § 19(b), 12 U.S.C. § 461(b) (2006).

²¹ Economist Jeremy Stein, who was recently nominated by President Obama to join the Federal Reserve Board of Governors, has observed that central bank reserves function as "tradable permits" for money creation. Stein analogizes reserve requirements to a cap-and-trade system:

All of this may sound a bit like science fiction; we don't observe cap-and-trade regulation of banks in the real world. However if banks' short-term liabilities are subject to reserve requirements, it turns out that monetary policy can be used as a mechanism for implementing the cap-and-trade approach. When the central bank injects reserves into the system, it effectively increases the number of permits for private money creation.

Jeremy C. Stein, *Monetary Policy as Financial-Stability Regulation*, 127 Q. J. ECON. 57, 59 (2012).

hypothetical system, monetary policy is conducted entirely through this permit mechanism. There is no need for the monetary authority to transact directly in the credit markets. Accordingly, in our imagined economy, there is a monetary authority, but there is no central bank.

Finally, one can imagine a problematic scenario under which managers declined to expand their portfolios despite the availability of additional permit capacity. In that case, the permits would cease to act as a binding constraint. This circumstance would arise if managers were unable to identify additional investment opportunities with positive net present value (i.e., expected returns in excess of their costs of funds). The result would be a so-called “liquidity trap.” In seeking to expand the money supply, the monetary authority would find itself pushing on a string.²²

What options would be available under these circumstances? The monetary authority might turn to “unconventional” monetary policy, by relaxing managers’ portfolio constraints or capital requirements or by reducing risk-based fees. These steps should generate additional monetary expansion at the margin, but they would come at a subsidy cost. Alternatively, the *fiscal* authority might seek to pursue macroeconomic objectives by other means, i.e., fiscal stimulus. Whether and under what circumstances these types of approaches might be warranted are topics of debate among macroeconomists. These questions are far beyond this paper’s scope. Clearly, though, the liquidity trap dilemma is not unique to the hypothetical monetary system described here.

IV. Shadow Banking and Monetary Design

Shadow banking is a monetary phenomenon. It involves the issuance of money-like instruments. Can our thought experiment shed any light on this activity?

As noted above, our existing system of *depository* banking can be understood as a joint venture with the state for the efficient distribution of the money supply. Depository entities have special licenses that entitle them to issue monetary instruments styled as

²² See Paul Krugman, *Thinking About the Liquidity Trap*, THE OFFICIAL PAUL KRUGMAN WEB PAGE (Dec. 1999), <http://web.mit.edu/krugman/www/trioshrt.html> (“[T]he long-scorned Keynesian challenge to monetary policy—the claim that it is ineffective at recession-fighting, because you can’t push on a string—has reemerged as a real issue.”).

“deposits.” Unlicensed entities are legally prohibited from issuing these instruments. Most deposits are federally insured; they are sovereign money. Depository entities are subject to risk-based fees, strict portfolio limitations, and capital requirements—the key terms of the joint venture. Central bank reserves function as tradable permits for deposit issuance, placing the upper bound of the money supply (insofar as it consists of reservable deposits) under the control of the monetary authority. Our thought experiment suggested that the components of this regime reflect a compelling economic logic.

Compare the shadow banking system. Shadow banking entities are not engaged in any partnership with the state. They issue money-like instruments, but this activity *per se* has no legal or regulatory status. Indeed, very short-term IOUs, as such, are not a cognizable legal category. Shadow banking entities pay no risk-based fees to the state. Many of them are unencumbered by meaningful portfolio restrictions or capital requirements. There are no legal limits on the quantity of money-like instruments that they are permitted to issue. Thus the basic terms of the joint venture are absent.

The shadow banking system might be understood as a parallel system of private money creation, but the reality is somewhat more complicated. During the recent financial crisis, the federal government took extraordinary measures to prevent these purportedly private instruments from defaulting. Indeed, very nearly the *entire* emergency policy response to the crisis was aimed at preventing the financial system from defaulting on its short-term liabilities. These “private” IOUs essentially became public obligations.

The instability of the short-term funding markets is, arguably, the central problem for financial regulatory policy. Yet there is reason to doubt that recent and pending financial reforms will be conducive to stable conditions in these markets. The new Orderly Liquidation Authority (“OLA”), a centerpiece of the Dodd-Frank Act,²³ is intended to reduce the collateral damage from financial firm failures. However, this new tool was not designed to prevent defaults on money-like instruments, nor does it provide the legal authority to do so. On the contrary, the FDIC has indicated that, under OLA, short-term claimants will be subject to impairment “in virtually all

²³ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified as amended in scattered sections of U.S.C.).

cases.”²⁴ It is therefore doubtful whether this new authority can be effective in forestalling an incipient liquidity crisis. Moreover, the Dodd-Frank Act has erected significant new obstacles to the deployment of the panic-fighting tools that were used to stabilize the short-term funding markets during the recent crisis.²⁵ Absent future congressional action, these new constraints may very well impede emergency stabilization measures during a future liquidity crisis.

Other core aspects of the Dodd-Frank Act—such as the Volcker Rule, heightened capital and prudential requirements for systemically important institutions, and derivative market reforms—are only tangentially related to the short-term funding markets. They *may* reduce instability in the shadow banking system, but only indirectly and to an uncertain extent. A more direct attempt to address the shadow banking problem is being undertaken internationally through the Basel Committee’s new Basel III liquidity standards.²⁶ However, there are reasons to doubt whether this new liquidity regime, as designed, can provide a meaningful degree of stability to the short-term funding markets. First, the new liquidity regime relies critically on the ability of regulatory authorities to identify *ex ante* those capital-market instruments that will remain highly marketable under panic conditions. Needless to say, this presents a daunting challenge.²⁷ Second, it is currently contemplated that large portions of the financial sector will not be subject to these liquidity requirements. To the extent that there are gaps in coverage,

²⁴ See Orderly Liquidation Authority Provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act, 76 Fed. Reg. 4207, 4212 (Jan. 25, 2011) (to be codified at 12 C.F.R. pt. 380).

²⁵ For a detailed discussion of these new legal constraints and their ramifications, see Ricks, *supra* note 3, at 122-35.

²⁶ See BASEL COMM. ON BANKING SUPERVISION, BASEL III: INTERNATIONAL FRAMEWORK FOR LIQUIDITY RISK MEASUREMENT, STANDARDS AND MONITORING 1-2 (2010), available at <http://www.bis.org/publ/bcbs188.pdf>.

²⁷ John Maynard Keynes addressed this topic directly. “Of the maxims of orthodox finance,” he wrote, “none, surely, is more anti-social than the fetish of liquidity, the doctrine that it is a positive virtue on the part of investment institutions to concentrate their resources upon the holding of ‘liquid’ securities. It forgets that there is no such thing as liquidity of investment for the community as a whole.” JOHN M. KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY* 155 (First Harvest/Harcourt 1964) (1936).

the short-term funding markets can be expected to adapt accordingly.²⁸

These regulatory approaches all have one thing in common: They take the existing “private money” system as a given. It is not obvious why this should be the case. The private money market need not be taken as a fixed and immutable feature of the financial landscape. We might instead imagine a regulatory system in which the issuance of large quantities of short-term IOUs were treated in a fashion similar to the issuance of deposit obligations: as a legal *privilege*. Such an approach would take the “moneyness” of short-term IOUs seriously. It would embrace a more expansive conception of what constitutes money—transcending our formalistic and anachronistic focus on deposits.

In prior work, the author has proposed a sovereign money system whose outlines resemble the joint-venture system described above.²⁹ The proposed regime would largely confine the issuance of money-like instruments—including, but not limited to, deposit obligations—to a designated set of licensed firms. These licensed issuers would be required to abide by portfolio restrictions and capital requirements, and they would pay risk-based fees to the

²⁸ Furthermore, it is an open question whether these liquidity standards will in fact be implemented internationally at anything resembling the originally contemplated level of stringency. According to a recent news report:

Policy makers and regulators in the European Union are weighing whether to permit banks to hold a broader variety of assets to meet new [liquidity] standards. ... Leading banks in France, Germany, Spain and the U.K. are now pushing regulators to allow a wider range of assets—everything from gold to blue-chip stocks to mortgage-backed securities—to satisfy the buffers. ... There are signs that the banks' pleas are gaining traction with some officials. European regulators and central bankers say they have grown increasingly worried in recent weeks that overly stringent liquidity requirements could force banks to rapidly shrink by constraining their lending, a development that could harm the Continent's fragile economies.

David Enrich, *EU Banks: Give Us Leeway on Assets*, WALL ST. J., Feb. 2, 2012, at C1.

²⁹ See Ricks, *supra* note 19, at 1 (proposing a “public-private partnership” framework for the issuance of money and money-like instruments).

monetary authority. They would issue sovereign money. Unlicensed financial firms, on the other hand, would be prohibited from funding their operations with money-like instruments (*de minimis* exceptions would not be problematic). In practical terms, unlicensed firms would be required to “term out” their funding structures, i.e., finance themselves exclusively in the debt and equity capital markets, not the money market. Experience suggests that termed-out financial firms are amenable to ordinary bankruptcy proceedings; they can default without incident. Accordingly, under the proposed regulatory system, unlicensed financial firms would be ineligible for public support in the event of distress. The proposed regime, then, would bring an end to the shadow banking business model. It would establish the money supply as a public good: All money would be sovereign and default-free.

To be sure, this sovereign money approach presents significant implementation challenges. And the historical record of publicly-backed money (deposit insurance) in the United States is not unblemished. The savings and loan debacle of the 1980s and early 1990s was a notable and costly stumble.³⁰ However, it is worth noting that, in the years preceding the S&L episode, depository regulation in the United States was seriously flawed. A rigorous capital regime did not exist until 1988,³¹ and risk-based deposit insurance premiums were not introduced until 1991.³² Furthermore, prior to 1991, the FDIC was not legally required to resolve critically undercapitalized depository institutions on a prompt basis. Problems were left to fester for years.

³⁰ The S&L episode cost U.S. taxpayers about \$124 billion. See Timothy Curry & Lynn Shibut, *The Cost of the Savings and Loan Crisis: Truth and Consequences*, 13 FDIC BANKING REV. 26, 33 (2000). This is a large figure, but it must be considered in context. Gary Gorton and others have given the deposit insurance system significant credit for the unprecedented period of panic-free financial conditions that prevailed in the United States from 1934 to 2008. See GARY GORTON, *SLAPPED BY THE INVISIBLE HAND: THE PANIC OF 2007*, at 54 (2010).

³¹ BASEL COMM. ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS 1 (1988), available at <http://www.bis.org/publ/bcbssc111.pdf>.

³² The FDIC has employed risk-based deposit insurance fees since 1992, as required by the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), Pub. L. No. 102-242, § 302(a)-(b), 105 Stat. 2236, 2345-49 (codified as amended at 12 U.S.C. §§ 1817(b)-(c)).

By the time of the recent financial crisis, Congress had significantly improved the design of U.S. depository regulation. And it is noteworthy that, despite the staggering magnitude of credit impairments in the United States from 2008 to 2010, no taxpayer support of the deposit insurance system was required. Total bank failure costs to the FDIC's deposit insurance fund as a result of the recent crisis are estimated to be around \$100 billion.³³ These losses are being fully recouped from the insured depository sector, whose reported equity capital currently stands at \$1.6 trillion.³⁴ In short, the deposit insurance system has done more or less what it was designed to do.

The monetary aspects of the shadow banking problem have been relatively neglected in the ongoing debates over financial regulatory reform. This may have been a mistake. Shadow banking is a monetary phenomenon, and monetary institutions, like all legal institutions, stand in need of design. Arguably, the critical question for financial regulation today is whether our existing system of "private money" is compatible with stable monetary and financial conditions. If it is not—and there are compelling reasons to think that this is the case—then a sovereign money system may be worthy of further study.

³³ Specifically, the FDIC's deposit insurance fund incurred \$79 billion in bank failure costs in 2008, 2009 and 2010, and another \$19 billion in costs as projected from 2011 through 2015. See Memorandum from Arthur J. Murton, Dir., Div. of Ins. and Research, Fed. Deposit Ins. Corp., to the Bd. of Dirs. of the Fed. Deposit Ins. Corp. 4 (Sept. 27, 2011), available at <http://www.fdic.gov/news/board/2011Octno4.pdf>.

³⁴ See Ross Waldrop, Fed. Deposit Ins. Corp., *Quarterly Banking Profile: Third Quarter 2011*, 5 FDIC Q. 1, 5 tbl. II-A (2011).