The Bank-Centered View of the Money Market, Part I: Why Banks Are Different

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Abstract

This paper introduces modern readers to the basic understanding of the banking system that was held by academics and practitioners in the early years of the 20th century – that is, to traditional banking theory. This theory is completely inconsistent with the theoretic framework that views banks as financial intermediaries that receive deposits and invest those deposits in assets. Thus, this paper first sets forth in detail the basic elements of traditional banking theory and then relates those elements to the modern network effects literature. From this a bank-centered view of the money market is derived: all demand and short-term bank liabilities, including contingent liabilities, are potential money and nearmoney assets, and any non-bank liabilities that have monetary properties will derive them from their relationship with the banking system. This framework is then used to evaluate modern money markets, and this paper finds that indeed the so-called market-based money market in fact functions as a means of reallocating the bank liabilities held (indirectly) by the public from deposits to wholesale and contingent bank liabilities. This paper proposes that bank liability-based measures of the money supply be developed, and that regulators recognize that contingent bank liabilities often function as a substitute for deposits and should be regulated similarly.
The Bank-Centered View of the Money Market

Part I: Why Banks Are Different

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Traditional banking theory developed over the course of the 19th century and was the first school of thought to relate fluctuations in the money supply to economic performance. The fundamental and distinguishing insight of traditional banking theory is that the money supply in a modern economy is a private sector phenomenon. Thus, this theory relegated the role of government – and indeed of fiat money itself – to that of supporting and stabilizing the privately issued money supply. This paper argues that traditional banking theory’s bank-centered view of money is a useful framework for understanding the modern financial system.

Subsequent to the policy failures of the Great Depression and in particular the failure of monetary policymakers to recognize that they could and should have acted to mitigate the effects of the Depression, traditional banking theory was subject to significant criticism. My goal in this paper is not to dispute that when policymakers view themselves as playing only a supporting role in the fundamentally private sector activity of issuing money, they will tend to do too little, but rather to argue that that traditional banking theory provides a sophisticated framework for understanding the interlocking institutions of banking and money that should inform modern policymakers in their efforts to support the economy and the financial system.

There are three principal ways in which this institutional knowledge can make modern financial regulation more effective:

First, the understanding that banks are different from other financial intermediaries, because they issue liabilities that due to social norms circulate as a means of payment, means that an economy’s allocation to bank-issued assets is not determined at the individual margin, but by social norms and network effects, and this in turn has implications for both bank and non-bank liabilities: When analyzing bank liabilities, changing social norms, not the legal form of the liabilities, determine whether or not such liabilities circulate as money and, therefore, all short-term bank liabilities, including contingent liabilities, should be viewed as potential monetary assets. When analyzing non-bank liabilities, any non-bank liabilities that function as near-money assets must derive their monetary characteristics from their relationship to the
banking system because they are not directly supported by the social norm. In short, traditional banking theory provides a bank-centered framework for analyzing the money supply. This framework makes clear – and could have made clear forty years ago – that the so-called shadow banking system is best understood as an extension of the actual banking system, and this framework has significant implications for the reform of financial market regulation.

Second, the “real bills” approach to banking seeks, as its name implies, to limit bank finance of long-term assets, in order to avoid the financial instability that tends to be created by feedback loops between increases in the money supply and increases in asset prices. Given that short-term finance of long-term assets played an important role in the severity of the recent crisis, limiting the exposure of the banking system to long-term assets, and limiting the liquidity that is available to finance long-term assets are two “real bills”-based policies that regulators should consider as a means of reducing financial instability.

Third, the financial structure that was put in place in the U.S. in the 1930s was largely founded on this theoretic structure. Thus, the financial system that we have was built on this framework, and even though subsequent changes have dramatically altered the financial system, many aspects of it still can only be explained and understood using the traditional framework.

All three of these topics cannot be addressed in a single paper. For this reason, this paper, Part I, addresses only the first topic: that banks are fundamentally different from and more important than other financial intermediaries because of the role that they play in the money supply. Traditional banking theory’s approach to the macroeconomy and “real bills” will be addressed in Part II, while Part III explains how the reforms of the 1930s were built on the framework of traditional banking theory.

The first section of this paper is a brief literature review. The second section of this paper explains the most basic elements of traditional banking theory. First, discount banking, the type of 18th century banking that evolved into the modern demand deposit system, is described, as this is the foundation upon which traditional banking theory is built. Then, some basic elements of traditional banking theory are
explained: money is issued by banks and the quantity of money is determined by bank lending, the stock of bank-issued assets is less responsive to individual portfolio choices than non-bank-issued assets due to social norms, but individual portfolio choices determine how the money supply is reflected in the liability structure of banks, e.g. in the form of bank notes, bank demand deposits, or bank term deposits.

The third section of the paper explains some implications of traditional banking theory, and discusses in turn money market funds, securitization, and the shadow banking system more generally. This section finds that, because a bank deposit – once it has been created – can only be extinguished by repayment of the underlying loan or non-temporary conversion of the deposit into cash, a change in preferences on the part of the public in favor, for example, of money market funds has the effect of introducing an intermediary between the public and the bank liability and of changing the structure of bank liabilities, but does not effect a fundamental change in the banks’ role in the money supply or in lending. In short, from the perspective of traditional banking theory, banks have been disintermediated only nominally by the so-called market-based system of short-term lending. What has happened instead is that the form that the bank liabilities take has shifted – both off-balance sheet and into wholesale funding.

The point of this analysis is that treating money market funds and similar near-money assets as separate asset classes that compete with bank deposits obfuscates the fact that money markets funds lend to the private sector for the most part through the banking system, not independently of it. Thus, the availability of money market funds as a near-money alternative for the public should be viewed as the means by which bank liabilities are restructured to favor wholesale lending and off-balance sheet contingent bank liabilities.

The fourth section discusses policy recommendations. The fact that the shadow banking system has served to increase the variety of bank liabilities that stand on an equal basis with deposits in a bank resolution without changing the role that banks play in the money supply and in the economy, provides guidelines for the regulation of shadow banking. First, bank liabilities should be regulated on the basis not of their accounting classification, but on the basis of whether they create a claim on bank assets in adverse
economic conditions that will be *pari passu* with deposits in a bank resolution. Such a policy would have the effect of recognizing that contingent bank liabilities can play the same economic role as bank deposits. Second, this analysis indicates that the actual money supply may be measured more effectively when the measure is based on bank liabilities, rather than on assets held by the public. The fifth section concludes.

I. LITERATURE

Because banking theory is not generally treated as an important element of the history of economic thought, only a few recent authors have discussed the work of the early banking theorists. Allan Meltzer reviews this work in his *History of the Federal Reserve* and Perry Mehrling discusses aspects of this work in *The Money Interest and the Public Interest*.

Meltzer’s focus is not on the theory of banking itself, but on the theory of monetary policy. He concludes that instead of developing a theory of monetary policy, at the turn of the 20th century central bankers relied on three rules to determine monetary policy: the discount rate should be raised and lowered so as to protect the gold stock and exchange rates, the central bank should act as a lender of last resort, and the central bank should discount mainly commercial paper.¹ Because this paper focuses on the theory of banking and not on monetary policy, it reaches very different conclusions from Meltzer.

Mehrling’s emphasis is also on money rather than on banking, and he contrasts academic proponents of the quantity theory of money with “the financial community” which he argues rejected the quantity theory “without, however, offering any coherent alternative construct.”² The focus in this paper is, by contrast, on banking theory, and one goal is to explain why the early 20th century financial community focused its attention on the theory of banking and had a bank-centered view of the economy – that was supported by prominent academics.

This paper relies on textbooks on American Banking written by Charles Dunbar in 1909 (2d edition) and H. Parker Willis in 1916, as well as the Federal Reserve’s Tenth Annual Report, to represent the general understanding of banking at the turn of the 20th century in the U.S.\(^3\) Because these volumes present an understanding of banking that, this paper argues, was both coherent and consistent with the important British works on banking theory of the 19th century, written by Henry Thornton and Walter Bagehot, as well as the 20th century work of Ralph Hawtrey, this paper treats these works as presenting a traditional banking theory. I acknowledge that the question of whether the analysis in these works is of a quality and consistency that merits the term theory is open to debate and that authors such as Meltzer and Mehrling are probably taking the position that it does not.

Another literature that is related to this paper is the literature on regulatory arbitrage that has developed, in particular, subsequent to the 2007-08 crisis. Sissoko (2013) and Acharya, Schnabl and Suarez (2010) both discuss how asset-backed commercial paper conduits were designed to arbitrage the differences in regulations governing banks and money market funds.\(^4\) White (2012) discusses how regulatory arbitrage of the rules governing risk weighted assets promoted the development of securitization and contingent bank liabilities.\(^5\) Erik Gerding (2013) discusses regulatory arbitrage more generally.\(^6\) Most of these works frame regulatory arbitrage as the growth of a “shadow” banking system that relies on market mechanisms to perform many of the same functions as the banking system.

By embracing the bank-centered perspective of traditional banking theory, this paper provides a new framework for understanding regulatory arbitrage and the shadow banking system more generally. This paper argues that shadow banking does not represent the growth of a market-based form of banking, but

\(^3\) The Federal Reserve’s Tenth Annual Report is generally viewed as “the most important policy statement” of the Fed’s early years. Meltzer, supra note 1, at 154. See also Milton Friedman & Anna Schwartz, A Monetary History of the United States 1867 – 1960 at 251 ff. (1963).


\(^6\) Erik Gerding, Law, Bubbles, and Financial Regulation Ch. 5 (2013).
instead a shift in the type of bank liabilities that function as money. Prior to the growth of shadow banking demand deposits were by far the most important bank liabilities that circulated, but subsequent to the growth of the shadow banking system, the banking system has shifted back to a structure more like the one that existed in the 19th century where contingent and off-balance sheet bank liabilities supported a money supply that is nominally issued by non-banks, but in fact derives its monetary character entirely from the banking system. In short, from the perspective of traditional banking theory, the shadow banking system is just a shift in the type of bank liabilities that support the money supply.

II. AN INTRODUCTION TO TRADITIONAL BANKING THEORY

In order to understand early 20th century banking theory it essential to leave behind the theoretic framework that views banks as financial intermediaries that receive deposits and invest those deposits in assets. This framework of banks-as-money-market-funds is not an accurate depiction of the historical and empirical foundations of modern banking, and is unsurprisingly incompatible with the theoretic framework that developed based on the actual historical development of modern banking. This paper shows that an understanding of traditional banking theory with its focus on the reality of how banks function provides remarkable insights into the operation of modern money markets.

First, the foundations of modern banking in discount banking are explained. Discount banking had the notable characteristic that “deposits” were entirely unnecessary to the function of the banking system. Then, the paper discusses the most basic elements of traditional banking theory: when banks make loans they create money by issuing bank liabilities, bank creditors are using money and only incidentally “saving” and lending, thus the public’s portfolio choices affect the composition of bank liabilities, not their quantity.

A. Discount Banking: The Origins of the Modern Banking System

It is a commonly repeated myth that in Britain modern banking developed from the deposit-taking goldsmith-banks that existed in the 17th century. As Temin and Voth observe, however, during the late
18\textsuperscript{th} and 19\textsuperscript{th} centuries the lending of goldsmith bankers was “heavily concentrated among the elite.”\textsuperscript{7} In fact, in Britain through this crucial formative period, the bankers who provided services to the typical tradesman and the general business community were not goldsmith bankers, but discount bankers. As a result, modern banking in Britain grew out of the discount banking system that was the basis for the payments system that supported economic activity in pre- and early-industrial Britain.

To develop an intuition for what a discount bank does, it is easiest to think of discount banking as the institutionalization of the credit chains that were ubiquitous in European villages in the late Middle Ages.\textsuperscript{8} To give a simplified example: John, the blacksmith, shoes the horse of Geoffrey, the farmer, in exchange for an IOU of £1, and Geoffrey sells grain to Arthur, the butcher, for a similar IOU. Arthur, in turn, provides pig meat to John for another £1 IOU. In this simple example it is obvious that no hard cash ever needs to change hands; instead all three villagers can simply cancel their IOUs. In practice, villagers would work through the clearing of such IOUs on regular settlement dates.\textsuperscript{9}

An important function of a discount bank is to act as a registrar by maintaining accounts and clearing the local community’s debt on an on-going basis and at very low cost. If a bank’s only function is that of a registrar, then the degree to which an individual’s bank account balance is negative depends only on the degree to which the local community is willing to lend to that individual. Observe, however, that the banker who acts as registrar gains an extraordinary amount of information about the success of each account-holder’s business and his or her ability to manage debt. Thus, the banker is best positioned to determine how much debt an account-holder can carry, and to adjust that determination as circumstances change.

\textsuperscript{7} Peter Temin & Hans Joachim Voth, Prometheus Shackled 146 (2013).
\textsuperscript{8} One should recognize, however, the historical reality that discount banking developed in Europe’s major urban centers where this service was provided to larger scale merchants and was only extended to towns in Britain over the second half of the 18\textsuperscript{th} century.
The primary function of the discount banker is thus to increase the degree to which the members of the local community are willing to lend to each other by intermediating the debt. The discount banker stands ready to “discount” or convert into cash the IOU’s issued by those who hold accounts with him, and pays out, not gold, but his own bank notes. Thus, a community may benefit from a discount bank’s services even if no member of the community has net savings, because it is through the intermediation of the banker that the members of the community all borrow to make purchases from each other and lend the value of what they produce to each other. Any creditors in this model of banking are not a static group but an amorphous and ever-changing body that can shift with every transaction that takes place in the community.

To return to the original example, John may discount Geoffrey’s bill with Henry, the banker. In exchange for endorsing Geoffrey’s IOU over to Henry, John receives a bank note issued by Henry. When John purchases pig meat from Arthur, he may then choose to pay Arthur with the bank note or to simply write his own IOU to Arthur.

As this example indicates, it is in the nature of the economic transactions that are taking place that any given member of community may be a net borrower at one moment in time and a net creditor at another. As long as the members of the community are willing to transact using Henry’s bank notes, there is no need for “savings” or an inflow of funds to support the system.

Furthermore, if Arthur knows that Henry is willing to discount John’s IOU, Arthur can convert the IOU into cash whenever he wants or needs to do so, and is therefore much more likely to accept the IOU in payment. And, in fact, it appears that the growth of discount banking did successfully create and consolidate enough information that the credit lines available to the members of the various local
communities increased significantly when discount banking spread throughout Britain in the late 18th and early 19th centuries.\textsuperscript{10}

During this period a tradesman in Britain did not open an “account” at a bank by depositing gold or claims on gold, but instead opened a “discount” with the bank. The discount was a commitment by the bank to discount the tradesman’s bills, or in other words to provide cash to the tradesman’s creditors when they presented the bank with bills issued by the tradesman as long as the aggregate value of such bills – less any bills deposited at the bank that were owed to the tradesman – did not exceed a specified credit limit. As was noted above, it was not necessary as a rule for the banker to keep sufficient supplies of gold to discount all the bills that were presented to him, since it was common for the local community to accept payment in the banker’s own notes. By the start of the 19th century bills in Britain that could be discounted clearly comprised an important part of the money supply.\textsuperscript{11} Observe that discount banking turned privately issued bills into liquid assets, because bankers provided credit lines to the issuers and stood ready to discount their bills. Thus, the monetary character of the bills derived from the contingent and off-balance sheet liabilities of those entities, known as banks, that issued notes that circulated as a means of payment.

Observe also that the rather obvious similarity between bills and checks and between discounts and checking accounts is not at all coincidental: checking accounts developed as an alternate form of bank liability in an environment where the legislature had imposed quantity limits on the issuance of bank notes. General familiarity with this history was one of the reasons that early 20th century banking theorists viewed arguments that policymakers could control the quantity of money with great skepticism.

To summarize, the discount banker not only cleared the debts of the local community, but also issued bank liabilities that circulated as money, determined how much credit the community should extend to

\textsuperscript{10} See, e.g., Adam Smith, Wealth of Nations ¶¶ II.2.40-41 (1776); Henry Thornton, An Enquiry into the Nature and Effects of the Paper Credit of Great Britain 175 – 176 (1802).
\textsuperscript{11} Thornton, supra note 10, at 92. See also Meltzer, supra note 1, at 38.
local tradesmen, and monetized the debts of tradesmen by standing ready to discount them thereby making it possible for those debts themselves to circulate by endorsement. This system greatly increased the availability of credit in these communities. Thus, discount banks are the institutions that gather the information necessary to make unsecured, reputation-based borrowing incentive compatible for both borrowers and lenders. The fact that bank liabilities are monetized means that the community as a whole is the actual lender – as the relevant creditor changes from day-to-day and moment-to-moment with the exchange of money or bank liabilities.

In short, the distinguishing characteristic of bank lending on discount is that it can take place without any depositor or source of funds. The deposit or issue of bank notes that offsets the loan for accounting purposes is literally created by the loan, and what acts as a source of funds supporting the creation of this deposit is the willingness of the community to circulate the banker’s liabilities as money. Needless to say, in the early 20th century this was clear to both banking practitioners and banking theorists.

Discount banking, thus, had three implications: First, as long as bank liabilities are included in the definition of the money supply, bank lending is the most important determinant of the money supply. Second, the choice made by the members of the community who circulate bank liabilities is not a decision to lend money; instead they choose to use as money an asset that is backed by lending to the private sector, where the choice of a money asset is not in fact an individual decision, but is governed by social norms. Third, because of the monetary nature of certain bank liabilities, the determinants of the assets an individual chooses to hold with typically include whether the issuer is a bank, whose liabilities are accepted by the community in payment, or a non-bank, and in the case of non-bank assets whether the asset is protected by a contingent bank guarantee. These three implications will be discussed in turn in the next subsection.
B. Traditional Banking Theory Basics

Traditional banking theory argues that banks play a unique role in both the financial system and the economy itself. The key identifying characteristic of banks is that they issue liabilities that circulate as a means of payment. Because the status of bank liabilities is supported by a social norm, a portfolio-based comparison of bank liabilities to non-bank liabilities will be incorrect unless the analysis incorporates the network effects that make holding a means of payment desirable. In short, banks are special because of the social norm that supports the circulation of their assets from one individual to another as money, and due to this social norm a correct analysis of banking must necessarily treat banks as a special category of financial intermediaries.

This subsection explains how the three implications of discount banking that were found in the previous subsection are framed in traditional banking theory and then shows that this provides a bank-centered framework to use when analyzing modern money markets. This framework has two components: first, all bank liabilities that may be payable on demand or over the short-term can easily become assets that circulate especially when they will be paid out in a bank resolution on an equal basis with liabilities that already circulate as money; second, when analyzing non-bank short-term assets it is essential in order to understand the role played by the banking system in supporting such “non-bank” near-money assets both to trace the path of the bank liabilities used to purchase those short-term assets back to the banking system, and to evaluate whether the non-bank assets are protected by contingent bank guarantees.

1. Bank Lending is an Important Determinant of the Money Supply

The discussion above makes clear that when early banking theorists explain that money is created by a bank when it lends, they are explaining quite literally the function of a discount bank. In fact, turn of the century banking textbooks typically opened by explaining discount as the means by which banks lend and
put their liabilities in the form of notes and deposits into circulation.12 Because both bank notes and deposits were clearly part of the money supply, as the term money supply is currently understood, these textbooks explain how bank lending determined the extent of the money supply.13 Indeed, such textbooks explicitly connect the excessive growth of bank liabilities with inflation,14 a macroeconomic issue that will be discussed in Part II.

When this theory was first developed, there was no question of central bank control of the money supply by setting required reserves and then limiting the supply of such reserves, because in Britain, there were no required reserves, and in the U.S. there were required reserves but there was no central bank. In the case of Britain, the Bank of England effectively supplied reserves in the form of high-powered money to the banking system, but limited the availability of such reserves by changes in the interest rate at which they were made available, not by imposing quantity controls on the amount of high-powered money supplied. By setting the price and not the quantity of high-powered money, the Bank of England left the banking system to determine the quantity of money, given the expected price of obtaining reserves.15

In the U.S., the National Bank Act imposed required reserves on a large segment of the banking system; however, the fact that reserves were in limited supply caused interest rate volatility that disrupted markets on a seasonal basis (when the annual harvest created an increase in the demand for cash and for reserves). Indeed, an important motivation for the formation of the Federal Reserve was to make it possible for the supply of reserves in the form of high-powered money to expand according to the demands of the banking system. From the start the Federal Reserve Banks put in place a discount policy modelled on the Bank of England. Within its first decade the Federal Reserve added to its tool kit open market operations, which

12 See, e.g., Charles Dunbar, Chapters on Banking 9 ff., 13 (1909); H. Parker Willis, American Banking 22-23, 24-26 (1916).
13 See, for example, Benjamin Strong on the fact that bank notes and deposits should be included in the money supply. Benjamin Strong, Interpretations of Federal Reserve Policy in the Speeches and Writings of Benjamin Strong 229-30 (W. Randolph Burgess ed. 1930). Note, however, that neither Dunbar nor Willis used the term “money supply” in this way.
14 Dunbar, supra note 12, at 29; Willis, supra note 12, at 59.
15 Indeed, the movement away from quantity restrictions and to a policy of lending freely at a given rate is often viewed as a significant advance in British banking policy. See Walter Bagehot, Lombard Street ¶¶ VII.62-70 (1873).
adjust the quantity of high powered money available to banks. The use of this tool was designed, however, to “accommodate” the demand for money and to give effect to the Federal Reserve’s interest rate policy. Indeed in its Tenth Annual Report the Federal Reserve Board observed that the volume of reserve bank credit was not a good indicator of either business activity or the volume of the supply of bank money.

The role played by the central bank in traditional banking theory will be discussed further in Part II. Here it is sufficient to observe that in the early 20th century, banking theorists viewed the quantity of money as determined by the banking system. While many understood that a central bank policy rate could – and should – affect economic activity and the supply of bank-issued money, it was also a tenet of the theory that the central bank could not control the supply of bank-issued money. Given the experience in the U.S., any central bank effort to control the bank-issued money supply using its control over the quantity of high-powered money risked generating volatility in interest rates comparable to that which existed prior to the formation of the Federal Reserve.

Notice that in this framework the role played by high-powered money is a supportive role. The money supply that is most important to economic performance is the bank-issued money supply, and the primary role of high-powered money is to stabilize the bank-issued money supply. The classic example of a circumstance in which the availability of high powered money becomes important is when requests to convert bank-issued money into cash are threatening to cause a significant decline in the bank-issued money supply.

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16 Federal Reserve Board, Tenth Annual Report 15-16 (1923). On the importance of interest rate policy, see also Strong, supra note 13, at 196-97. 17 Tenth Annual Report, supra note 16, at 2-3. See also Strong, supra note 13, at 185, 197; Ralph Hawtrey, Currency and Credit 49 (1919). 18 In the Fed’s Tenth Annual Report, for example, it is taken as given that discount rate policy should be used to “influenc[e] the general credit situation” in order affect the growth and/or liquidation of business debt. Tenth Annual Report, supra note 16, at 3, 32. 19 See, e.g., Tenth Annual Report, supra note 16, at 10 (“The Federal reserve banks are the country's supplementary reservoir of credit and currency, the source to which the member banks turn when the demands of the business community have outrun their own unaided resources. The Federal reserve supplies the needed additions to credit in times of business expansion and takes up the slack in times of business recession.”).
money supply. This theory of the subordinate nature of high-powered money was explicitly laid out by Ralph Hawtrey in 1919.\(^{20}\)

Hawtrey also explained the relationship between money and prices using the framework of banking theory: Raising the discount rate affects economic activity, which both restricts the growth of money (including high-powered money) and works to restrain growth in the price level.\(^{21}\) Thus, the quantity of money and the price level are both effects of the level of economic activity, so all three will be correlated, but the causality in normal circumstances starts with real economic activity.\(^{22}\) In short, traditional banking theory does not dispute the correlation between high-powered money and the price level, but views both as the effects of the central bank’s interest rate policy on the real economy.

### 2. Social Norms Make Bank Liabilities Money

In the traditional banking theory framework, bank lending is the means by which banks put their liabilities into circulation. Thus, the role played by bank lending in the money supply depends on the borrowers’ willingness to accept bank liabilities in exchange for the IOUs that they discount. A foundational principle of traditional banking theory is that borrowers are not willing to accept bank liabilities solely because they view the issuing bank as a good credit risk, but in significant measure because a social norm exists that allows those bank liabilities to circulate as money. Thus, a precondition

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\(^{20}\) Hawtrey, supra note 17, at 185. Perry Mehrling explains that the debate over whether the quantity of the money supply is subject to the control of policymakers or whether it is determined by bank lending and only subject to indirect influence by policymakers through the policy rate was already clear in the early years of the twentieth century. Interestingly, Mehrling also claims that the quantity theory was much better articulated, and apparently does not view Hawtrey, whose work Mehrling is very familiar with, as having laid the theoretic foundations of the traditional banking theory view. Mehrling, supra note 2, at 104. It is possible that Mehrling places Hawtrey in the “quantity theory” school, because Hawtrey believed that price stabilization should be an important policy goal, Ralph Hawtrey, *Tenth Annual Report of the Federal Reserve Board*, 34 Econ. J. 283, 284 (1924), in contrast to other traditional banking theorists, who believed that the central bank’s role should focus more generally on economic conditions, Tenth Annual Report, supra note 16, at 31. In my view, it is Hawtrey’s understanding of the constraints on central bank “control” of money that makes him a traditional banking theorist. See Hawtrey, supra note 17, at 185; Hawtrey 1924, supra, at 285 (“it is a grave mistake to claim too much for the [price] index-number. A mechanical adherence to it is supported neither by practical experience nor by theory.”). Furthermore, I believe that Mehrling underestimates both the influence of academic supporters of traditional banking theory, such as H. Parker Willis, and the quality of their analysis.


\(^{22}\) This was also clearly explained in the Federal Reserve’s Tenth Annual Report, supra note 16, at 31.
for bank lending to determine the supply of money is that there is a social norm which supports the
circulation of bank liabilities as money. Because bank liabilities can take many forms it is useful to
distinguish here between bank money, or bank liabilities that circulate as money such as checking
deposits, and bank liabilities more generally which would include, for example, term deposits.

Early banking textbooks remark on the fact that in Britain and in the U.S. the use of checking accounts is
a habit that distinguishes their banking systems from those on the continent, where the norm is to make
extensive use of central bank notes in payment.23 Due to the general use of checking deposits as a means
of payment in the U.S. and Britain, most businessmen maintain deposit accounts, and funds withdrawn
from one bank are typically redeposited in another.24

To express the concept that bank money is held, not due to a simple individual optimization problem, but
because the behavior of the other members of the economy changes the value of holding such assets in the
context of the modern financial literature the appropriate framework is a network effects model. A good
exhibits network effects when its value to any one individual depends on how many other individuals are
using it. Theoretic work has demonstrated the relationship between liquidity and network effects,25
reflecting the common sense understanding that the choice of trading infrastructure, such as the payment
mechanism, is at least in some measure a solution to a coordination problem. The intuition behind this is
that once most of the members of an economy have coordinated on the same payment mechanism, the
cost to any one individual of deviating from this choice may be high.

To give an example, in a world where only a few merchants accept credit cards in payment, each
merchant has a genuine choice whether or not to accept them; however, once almost all merchants accept
credit cards – and the social norm is for customers to be able to pay with credit cards – network effects
are likely to cause the individual merchant’s optimization problem to favor the acceptance of credit cards,

23 Dunbar, supra note 12, at 49-50; Willis, supra note 12, at 313.
not because they of the benefits they provide to the merchant, but due to the costs of failing to conform to the norm. Of course, the corollary to accepting credit cards in payment is carrying a temporary merchant account balance with the card issuer during the period between a charge and the posting of the funds charged to the merchant’s bank account. That is, the fact that the use of credit cards is a social norm creates a demand to hold funds in merchant account balances – but the solution to the merchant’s optimization problem would likely be very different in the absence of network effects and the social norm.

Thus, traditional banking theorists understood that the exceptional status of bank money required some explanation, and found that explanation in the fact that the use of money was a social norm. This social norm made it easier for banks to put their liabilities into circulation – especially in comparison with other financial intermediaries whose liabilities were not supported by a similar social norm. An implication of the traditional banking theory view is that in a world where most payments are made by check, a merchant may not have a genuine choice of whether or not to maintain a checking account.

In short, traditional banking theory includes a strong and theoretically sound riposte to the portfolio view of money and near-money assets, that has dominated bank policy circles for decades. James Tobin purported to critique the traditional theory in a 1963 article titled Commercial Banks as Creators of ‘Money.’ Tobin’s argument for not treating the means-of-payment characteristic as a unique attribute of certain bank liabilities that differentiates them from the liabilities of other financial intermediaries is that this attribute like all other has its price: “the community's demand for bank deposits is not indefinite, even though demand deposits do serve as means of payment.” The latter statement is, however, flatly wrong in a network effects framework: the producer who is a dominant incumbent firm will typically, like a monopolist, face a range of quantities and prices, before consumers are incentivized to change products.

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28 Farrell and Klemperer, supra note 26, at 2037-38.
Thus, in traditional banking theory the existence of the social norm means that the community’s demand for bank deposits is indeed indefinite, because a whole range of quantities of bank deposits are all potential equilibria. This is not to say that range of the community’s demand is completely unconstrained by competition with competing assets, but only that those constraints are far from sufficient to fully determine the demand for bank deposits.

In short, Tobin’s approach and the portfolio view of money and near-money assets more generally are both founded on a misconception about what it means for an asset to be a means-of-payment. The means-of-payment attribute calls for an analysis based on the coordination problem inherent in the concept of money itself. To abstract from this coordination problem and the network effects that this problem implies is to ignore the essence of the means-of-payment argument.

Additionally, bank deposits pose another problem: the fact that the quantity of deposits created by making loans today is likely to affect the value of such deposits tomorrow. Thus, if one frames commercial banks as a single entity choosing, like a monopolist, the quantity of bank deposits, that monopolist also has some measure of control over the value of its aggregate debt – including both deposits and other liabilities – in future periods. While we must, of course, recognize that a careful analysis of this problem would have to take into account the effects of inter-bank competition, this fact that the changes in the quantity of deposits outstanding can have an effect of the general price level is another reason that comparing bank deposits with non-bank near-money assets based on the interest rate the assets pay fails to take into account the unique attributes of bank deposits.

Not only does Tobin fail to address the essence of the argument that banks are special because their liabilities circulate as a means of payment, but Tobin also embraces the monetarist myth that it is by expanding and contracting the quantity of reserves that the Fed affects the bank-issued money supply, and he even claims that it is due to this mythical regulatory construct of quantity controls that banks are “special.” He writes that all one needs to do to turn “any other system of financial institutions” into such
special intermediaries is to “subject [them] to similar reserve constraints and similar interest rate ceilings.”

As was discussed above, since the earliest days of central banking, central bankers have found that the bank-issued money supply is too unstable for it to be governable by quantity restrictions on the availability of high powered money. In Britain, bank rate, or the use of interest rates to restrict economic activity and therefore demand for both bank money and high-powered money, was one of the fundamental innovations that made the Bank of England a central bank. And, as was noted above, the Federal Reserve from its founding followed a monetary policy that similarly focused on accommodating the privately-issued supply of bank money. Indeed, while the Fed did, in theory experiment with monetarism or quantitative controls from 1979 to 1982, there is significant doubt that those at the Fed with practical experience of the implementation of monetary policy had any illusions about the policy’s likely success. As we all know, after this experiment the Fed quickly moved back to using interest rates as a mechanism of constraining the money supply, while accommodating its fundamentally privately-issued character.

Thus, when Tobin asserts that what makes banks special are legal constraints on their activities, and in particular central bank control over the supply of reserves that banks are required to hold, he errs. Empirically central banks have found that monetary policy is most effective when changes in the policy rate are used to affect economic activity directly and the money supply is then allowed to be demand determined. It is for this reason that the central bank instrument of choice has, since the 19th century, been the control of the interest rate at which high-powered money is made available to the banking system.

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29 Tobin, supra note 27, at 419.
30 Stigum’s Money Market observes “Fed technicians knew that the Fed could not control the money supply with the precision envisioned in textbooks” and the Fed probably “viewed a public profession of monetarism as a sort of temporary expedient,” Marcia Stigum & Anthony Crescenzi, Stigum’s Money Market 374, 503 (2007). Note that this practitioner’s handbook was first published in 1978 and was written based on interviews with practitioners. Id. at xix.
Overall, Tobin’s article does not address the claim that what makes banks special is the fact that a social norm makes bank liabilities money, and therefore makes them the solution to a coordination problem. Because Tobin’s framework does not allow for the special properties that traditional banking theorists actually claimed for banks, his conclusion that imposing similar legal constraints on other financial intermediaries would cause them to have the same properties is flawed. He would need to explain how imposing similar legal constraints on other financial intermediaries would create a social norm that would make their liabilities circulate as money. The fact that even the closest non-bank near-moneys, such money market fund holdings, must be both purchased and sold through the banking system as intermediary belies Tobin’s claim.

In traditional banking theory the social norm inherent in the concept of money did not just explain why banks are special. The functioning of the banking system itself was premised on the maintenance of the social norm and the absence of the conversion of bank money into cash on a large scale. Not only was this fact evidenced in panics, when the mass conversion of bank money into cash threatened to take down the banking system, but it operated on a day-to-day basis as well: when cash that has been withdrawn from one bank is typically deposited back into the banking system by the individual to whom the cash is paid, the ability to convert bank money into cash will have little effect on the aggregate money supply.31 In short, the banking system operates, because of a social norm that means that bank money is not often extinguished by conversion into cash.

According traditional banking theory the principal means by which bank money is extinguished (when the social norm is in place) is the reverse of the means by which it is created: paying off loans extinguishes bank money.32 This point is most obviously true when the instrument used to pay off the loan is drawn on the lending bank itself, for example, when a check drawn on the bank is endorsed over to the bank in

31 Dunbar, supra note 12, at 45-46. See also Hawtrey, supra note 17, at 6. Note that when an individual bank puts an excess of liabilities into circulation, one function of the banking system is to transfer those liabilities to other banks that then demand payment from the over-issuing bank and this has the effect of reducing the incentives of individual banks to over-issue unilaterally. Willis, supra note 12, at 56-57.
32 Dunbar, supra note 12, at 46-48; Willis, supra note 12, at 58.
payment of the loan. It is equally true, however, when the payment takes the form of an instrument drawn on another bank. Because the proceeds of the check are paid to a bank they are not redeposited in the banking system, so the payment of the check extinguishes bank money at the draftee bank without creating any new liabilities.

In the modern context, we should observe that another way of extinguishing bank money is for the bank to sell the underlying loan to an entity that is not a bank. This transaction is comparable to the loan being paid in full, although the payer does not happen to be the debtor. On the other hand, to the degree that the bank retains any obligation to repurchase the loan, the bank has arguably just exchanged one form of bank liability for another.

Observe the implication of this theory for the portfolio view of the demand for money and near-money assets. Traditional banking theory points out that it is a mistake to assume that the use of bank money to purchase a non-bank asset will have the effect of extinguishing the bank money claim. All that such a transaction does is transfer the bank money claim to the non-bank. In order for the bank money claim to be extinguished it must be paid to a bank.

This framework has important implications for financial structure for two reasons. First, this implies that recognizing the difference between banks, which issue liabilities that circulate as money, and non-banks may be important to the regulation of the financial system. Second, it instructs us not to assume that when a bank depositor transfers a significant portion of her deposits into a money market mutual fund that this transaction has the effect of reducing the stock of deposits and increasing the stock of money fund balances. The immediate effect of the transfer is for the stock of bank deposits to stay constant while the stock of mutual fund balances increases. The stock of bank deposits will fall, only when the deposits are actually returned to the banking system.

In the case of money funds, a significant portion of the deposits that flow to them are indeed returned to the banking system when the money funds invest in bank liabilities, such as financial commercial paper,
certificates of deposit, or repurchase agreements. The implications of these relationships will be discussed in Section III. Before continuing to that discussion, however, the view of traditional banking theorists on the role played by the public in determining the structure of bank liabilities should be addressed.

3. **Portfolio Choice Determines the Liability Structure of Banks**

Although traditional banking theorists argued that bank lending largely determines the money supply and that, as long as the social norm is preventing the conversion of bank money into cash, the public can only extinguish bank money by paying off debt, they also argued that the allocation of bank liabilities was determined by the preferences of the public. Here it becomes important to distinguish between bank liabilities generally, and bank money, or bank liabilities that circulate as a means of payment.

At the turn of the 20th century both bank notes and checking deposits were in common use in the U.S. Bank notes had been heavily regulated since the 19th century, so their issue was constrained. Indeed, the fact that the popularity of checking accounts grew alongside increasing government restrictions on bank note issues both in Britain and the U.S. is an indicator that the growth of checking accounts was probably a means by which banks circumvented efforts to control the quantity of bank money in the form of bank notes. Although government constraints on the issue of bank notes played an important role in the development of deposits as a second form of bank money, traditional banking theorists argued that, because bank deposits and bank notes are both payable at sight, public preferences also play an important role in the conversion from one to the other and the allocation between them. Traditionally banking theorists found in addition that the allocation between demand liabilities and term liabilities of the banks will similarly be determined to a significant degree by the desire of the public to hold the different types of assets.

In short, traditional banking theory is in accord with the portfolio approach to money and near-money assets as long as the liabilities under discussion are bank liabilities. The essence of the theory is, however,

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33 Willis, supra note 12, at 90, 93; Dunbar, supra note 12, at 56, 58.
that banks are special, because they are the only financial intermediaries whose liabilities are supported by a social norm that allows them to circulate.

Overall, traditional banking theory’s bank-centered view of money gives us a basic framework for evaluating modern money markets. The starting point is that banks are defined by the fact that they issue a liability that due to social norms is used as a means of payment, and this attribute gives the banking system a unique role in the economy. Given this definition of what constitutes a bank, there are two elements to the analytic framework. First, what constitutes bank money is not necessarily determined by the legal form that the liability takes, but as social norms evolve any bank liability that is either payable on demand or short-term can easily become a money or a near-money asset. Second, because the banking system is special, any non-bank issues of near-money assets will derive their monetary properties from the banking system. By tracing how the bank money that was used to purchase non-bank near-money assets finds its way back into the banking system, one can gain an understanding of the true character of the non-bank near-money assets and how they are related to the banking system.

III. IMPLICATIONS FOR MODERN MONEY MARKETS

Traditional banking theory gives a bank-centered framework for analyzing modern money markets. In this section, money market funds, securitization, and shadow banking more generally are evaluated using the bank-centered framework. Each element of modern money markets is shown to be heavily dependent on the banking system. This analysis indicates that it may be better to think of modern markets not as offering an alternative to the banking system, but instead as enabling the public to invest in a different portfolio of bank liabilities. Arguably, just as in the 19th century, the most important forms of bank money have become contingent off-balance sheet guarantees that support the circulation of non-bank assets that the banks stand ready to purchase.
A. Money Market Funds

What happens when a bank depositor decides not to hold the $3000 balance in her checking account that is in excess of her spending needs, but to transfer it to a money market fund? Bank liabilities do not fall, and in some cases the stock of bank liabilities rises along with the stock of money fund balances. The bank funds that are transferred to the money fund by the erstwhile depositor are put to use when the money fund lends either (i) to a non-bank, in which case the claim on the deposit will be transferred to the non-bank and the non-bank debt will almost certainly be protected by a contingent bank guarantee, or (ii) to the banking system itself, reducing deposits and increasing the stock of whatever bank liability the fund purchased, or (iii) to the government, transferring the deposits to a government account.

At the end of 2013, the most important categories of prime money market fund investments were certificates of deposit, 36%, commercial paper, 24%, repurchase agreements, 16%, and government liabilities, 12%. Using this data on money market fund assets, we can trace the movement of deposits through the agency of money funds back to the banking system.

Certificates of deposit are bank liabilities, so at least 36% of the funds invested in prime money market funds were placed directly in the short-term liabilities of banks. The category of prime money fund direct investment in short-term bank liabilities is, however, much greater than 36%, because both commercial paper, which will be discussed first, and repurchase agreements are also comprised largely of short-term bank liabilities.

Based on Federal Reserve commercial paper data, prime money market funds held about a third of all commercial paper outstanding in the U.S. at the end of 2013. If we assume that the allocation of prime money fund investments across different types of commercial paper is the same as the allocation for the market as a whole, we find that 13% of prime money market fund investments are in financial

34 ICI Fact Book 2014 at Table 44.
commercial paper, 6% in asset-backed commercial paper, and 5% in non-financial commercial paper. Financial commercial paper is typically issued by banks, so this is another direct means by which money funds finance banks.

Non-financial commercial paper, asset-backed commercial paper and a portion of financial commercial paper are used by money funds to lend to non-banks. Observe first that only a fraction of the money that is invested in prime money market funds is actually used to finance non-bank, non-government issuers. Secondly, a deposit used to purchase the interest in the money fund does not stop circulating when it is used to finance non-bank lending. Instead, the claim on the bank gets transferred to the non-bank.

Finally, although these transactions may appear to be examples of money funds increasing the money supply by lending just like a bank, this is a misconception: loans on commercial paper take place only because banks guarantee them. Non-bank commercial paper borrowers do not as a rule have the liquid funds to pay off their commercial paper borrowings when they come due, so borrowers issuing either non-financial commercial paper or asset-backed commercial paper rely on rolling over their commercial paper issues in order to honor their obligations in the commercial paper market. By definition, this means that these instruments have liquidity risk. Banks do not face the same liquidity risk problem, as they will typically be able to pay off their debt by issuing deposits – or bank money. Because non-banks are different from banks in this way, investors will only purchase non-bank commercial paper if it is supported by either a line of credit or a liquidity facility provided by a bank. Such bank liabilities are typically contingent and do not need to be reported on the bank’s balance sheet, so they are classified as off-balance sheet liabilities. Thus, in the case of money funds lending to non-banks on commercial paper, the money fund does not just hold a non-bank liability, but also an off-balance-sheet contingent bank liability.

36 Stigum & Crescenzi, supra note 30, at 977, 995.
Overall, not only do money funds engage in minimal direct lending to the non-bank private sector, but the banking system is intermediating even the small fraction of assets that fit in this category. By contrast, when a money fund purchases government liabilities, a bank guarantee may not be required.

A repurchase agreement or repo takes place when a sale of a financial asset is simultaneously accompanied by an agreement to repurchase that asset at a future date and price. Thus, repos are different from collateralized loans only in their form. Because money market funds are, in general, not equipped to manage the collateral that is posted in a repurchase agreement, they lend on the tri-party repo market, where two clearing banks intermediate between borrowers and lenders. The borrowers in the tri-party repo markets are, for the most part the primary dealer banks. The primary dealer banks are investment banks and the vast majority of them are controlled by bank holding companies.

Under Tobin’s legal restrictions view of banking, investment banks that are affiliated with commercial banks should be considered different entities and such repurchase agreements would not be treated as bank liabilities. However, under traditional banking theory’s social norm view of banking, this distinction is not obvious for two reasons. First, commercial banks are extremely important participants in the repurchase agreement market and in the closely related market for over-the-counter derivatives collateral. To the degree that the largest commercial banks in the U.S. stand ready to lend against assets in the repurchase agreement market, the supply of bank money expands with the repurchase agreement market as a whole. Just as the entire discount market in the 19th century, including those bills that were discountable, but never brought to a bank, was understood to be underwritten by the standby guarantees of the banking system, so the entire repo market today should be viewed as underwritten by commercial banks and the willingness of these banks to lend on repo.

37 For example, JP Morgan Chase Bank, N.A. funded more than 5% of its total balance sheet in the repurchase agreement market in both December 2007 and December 2013, and was an even more important lender in the repo market, as (reverse) repos comprised 17% of its assets in 2007 and 12% in 2013. FFIEC data, available at https://cdr.ffiec.gov/public/ManageFacsimiles.aspx. JP Morgan Chase Bank was also the most significant U.S. participant in over the counter derivatives in both 2007 and 2013. OCC Derivatives Report Dec. 2007, 2013, Table 1.
Second, as long as there is a presumption in the market that the resources of a commercial bank will be available to support the affiliated investment bank’s liabilities – perhaps only after the bank has requested and the Federal Reserve has provided an exemption to restrictions on such support\(^{38}\) – then the investment bank’s liabilities may be treated as the liabilities of the commercial bank with which the commercial bank is affiliated. Under this scenario, borrowings via repurchase agreements would be treated by the market as bank-issued near-money liabilities.

Prior to 2014, an additional short-term bank liability protected money funds that lent on the tri-party repo market: the tri-party clearing bank that intermediated the transaction provided an intra-day guarantee on the loan that was contingent on non-payment by the borrowing bank.\(^{39}\)

Despite the strong arguments in favor of treating the entire repo market as the product of implicit commercial bank guarantees, the term quasi-bank liability will be used to indicate that the entity borrowing from the money market fund is not legally a bank, but only affiliated with a bank.

This analysis indicates that close to 52% of prime market funds assets are comprised of the short-term liabilities of banks in the form of wholesale funding, a category that includes certificates of deposit, commercial paper, and repurchase agreements.\(^{40}\) When quasi-bank liabilities are included in this measure of wholesale funding the proportion rises to 68%. Another 11% of prime money market assets are formally the liabilities of non-banks, but are protected by contingent bank guarantees. The remainder is


\(^{39}\) The elimination of the contingent guarantee provided by the tri-party clearing banks was an important policy goal for the Fed subsequent to the financial crisis. It is unclear what effect this change will have on the tri-party repo market over time. Although the market has shrunk only a little since it was first measured in 2010, see http://www.ny.frb.org/banking/pr_infr_reform_data.html, the Federal Reserve began to borrow on the market in 2013 and now accounts for about 17% of the market, Michael Mackenzie and Tracy Alloway, Fed’s growing repo role risks backfiring, Fin. Times, Mar. 24, 2014. About 75% of the Fed’s repo borrowing is from money market funds. Fitch: U.S. Money Market Funds Shifting European Bank Investments to Fed's Reverse Repo Program, 16 Sep 2014 11:29 AM (EDT) https://www.fitchratings.com/creditdesk/press_releases/detail.cfm?pr_id=873394. This indicates that since the withdrawal of the clearing bank guarantee, money funds have substantially reduced their lending to private sector counterparties on the market.

\(^{40}\) This percentage also includes “bank notes,” which were not previously discussed and comprise 3% of prime money market fund assets as of December 2013. ICI Fact Book 2014, Table 44.
comprised of lending to government and other liabilities, most of which are similar in character to those just discussed.\textsuperscript{41}

This analysis shows that it is a misconception to think of prime money market funds as disintermediating banks. Transferring funds to money markets is a means by which the public reallocates its holding of bank liabilities from deposits to wholesale funding and to off-balance sheet contingent liabilities.

\textbf{B. Securitization}

Securitization takes place when a bank sells loans to an investment vehicle that is funded by issuing securities. Payments on the underlying loans are used by the investment vehicle to make payments on the securities. While in some cases the securities issued also carry an explicit guarantee of payment from the entity setting up the vehicle, in recent years it has become common for private-sector securitization to take place without such explicit guarantees. Here the focus will be on the latter.

Securitization is premised, conceptually at least, on the idea that if a bank sells a loan, it is no longer exposed to losses on that loan. Thus, in theory the sale of a loan should have the same effect for the bank as the receipt of the expected payment on the loan: just as in traditional banking theory paying off a loan extinguishes not just the loan, but the bank deposit that was created when the loan was created, so the sale of a loan might be expected to reduce bank liabilities along with bank assets.

The reality of securitization is much more complicated than this simple version of a sale. A bank could probably eliminate most or all contingent guarantees on the sale, if the bank were to sell the assets on an “as is” basis. This, however, is not the norm in securitization. For example, asset-backed commercial paper, which is mentioned above, is a type of securitization vehicle that is financed using commercial paper. As was discussed above such securities can be issued only when they are protected by off-balance sheet contingent bank guarantees.

\textsuperscript{41} Other liabilities include corporate notes, bankers acceptances, municipal securities, and cash reserves. \textit{Id.}
Furthermore, banks generally do not sell assets to securitization vehicles on an “as is” basis, but instead focus on making sure that their sales are “true sales” for accounting purposes, so that they can remove the loans from their balance sheets. Not only do they provide implicit guarantees on these sales by not selling on an “as is” basis, but they generally provide some explicit warranties on their sales.

When claims are made that securitization is a market-based means of financing assets, the authors of these claims are typically focusing on the accounting status of the assets and the fact that they have been removed from bank balance sheets. Such claims about market-based finance typically ignore the contingent bank guarantees that support the market.

Explicit warranties on securitizations have been the grounds for a large number of lawsuits that claim that banks misrepresented to the buyers of the securities the quality of the assets that they were putting into securitization vehicles. Such lawsuits have caused the largest banks to enter into multi-billion dollar settlements in recent years.\(^4^2\) Furthermore, in the interests of preserving their ability to continue to sell and securitize assets, banks have sometimes honored guarantees that were not contractually required.\(^4^3\)

Overall, it is clear in retrospect that an important function of securitization is the creation of off-balance-sheet contingent bank liabilities. Just as money market funds are a means by which the public reallocates its exposure to bank liabilities from deposits to wholesale funding and off-balance-sheet contingent bank liabilities, securitization is another means by which the liability structure of banks is altered, reducing deposits and increasing off-balance-sheet contingent bank liabilities.

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C. Shadow Banking

Traditional banking theory starts from the presumption that banks are special because social norms support the circulation of their liabilities as money. Under this theory non-bank financial intermediaries can issue near-money assets only if those assets are – at least indirectly – supported by banks. The analysis in this paper indicates that traditional banking theory is correct: Market-based money market lending does not appear to exist. Instead, money market lending by its nature depends on bank guarantees, and almost all of the major near-money asset categories are considered investable assets only because they either have access to the support of the banking system or are government liabilities.

Money market funds, which issue assets that do, in fact, compete with bank deposits, use the resources they receive, not so much to compete with the banks for opportunities to lend to the private sector, but to lend through the banking system. Even when money funds lend to non-banks they do so mostly using commercial paper and repurchase agreements. These two instruments comprise the other important near-money asset categories. As was explained in subsection III.A above:

- Commercial paper is either a direct bank liability or a contingent bank liability: since investors don’t trust non-banks to have the liquidity necessary to roll their commercial paper over, they require that non-bank issuers obtain a line of credit or a liquidity facility from a bank.
- Repurchase agreements are quasi-bank liabilities, because under a social norm theory of banking as long as the major commercial banks stand ready to lend on repo, repo is an asset class that is underwritten by the commercial banking system. Furthermore, in the tri-party repo market the liabilities of the investment banks that borrow using repo are likely to be considered by the market to be the indirect liabilities of the commercial bank affiliate.

In addition, securitization itself is founded on contingent bank guarantees, because when assets are securitized, they are never sold on an “as is” basis. Thus, from a traditional banking theory viewpoint, securitization is just a means of transforming deposits into contingent bank liabilities.
Overall, traditional banking theory allows us to view the shadow banking system from a new perspective. In an economy where the money supply is provided by banks, government has never been able to constrain the growth of bank money. Such attempts almost invariably lead to the growth of bank liabilities that are not the focus of government attention. Thus, in the 19th century quantitative restrictions on the issue of bank notes led to the development and growth of checking accounts. In the late 20th century, the growth of checking accounts was constrained by a government policy that promoted competition between banks and entities that were not regulated as banks, that is, with money market funds. The end result of this policy was the growth of wholesale funding and off-balance-sheet contingent bank liabilities. Thus, just as happened in the 19th century, the bank-issued money supply moved out of the bank liabilities that were the focus of regulatory attention, and into forms of bank liabilities that were subject to much less regulation.

From this perspective, the growth of money market funds may be viewed most accurately as a shift in the bargaining power of depositors, who are no longer are left to “bargain” as individuals and for the most part accept whatever the banks are willing to offer, but now engage through mutual fund managers in collective bargaining, forcing banks to offer depositors better terms they could receive before their aggregate interests were represented by a fund manager. The shift in the bank liability structure from deposits to wholesale funding, thus represents a shift in the allocation of the returns from banking from banks to their erstwhile depositors, who are now indirect investors in bank liabilities (and, of course, also to the fund managers who represent the interests of this group).

While the shadow banking system is often framed as having developed due to regulatory arbitrage, this paper points out that the mechanism of regulatory arbitrage is the restructuring of bank liabilities. Thus, shadow banking does not represent market-based competition with the banking system, but rather an aspect of the banking system itself. In the 21st century we find that bank money is once again taking the form of contingent guarantees similar to those that existed in when discount banking was the principal form of banking. Just as contingent bank guarantees made possible markets in commercial bills in the 19th
century, such contingent guarantees are used to make possible markets in non-bank commercial paper and repurchase agreements today.

IV. POLICY RECOMMENDATIONS

Based on this bank-centered analysis of modern money markets, two policy recommendations are proposed. First, some broad measures of the money supply that are comprised of bank and government liabilities, instead of assets held by the public, should be developed. Second, for regulatory purposes accounting norms – and in particular whether a liability sits on or off the balance sheet – should play a relatively small role in the treatment of bank liabilities. Instead, the position of the bank liability – once it becomes payable – in the capital structure should play an important role in the regulation of the liability.

Current measures of the money supply are comprised of assets held by the public: M1 consists of currency held by the public and checkable deposits, while M2 consists of M1 plus savings accounts, small denomination time deposits, and retail money market mutual funds.

This paper proposes that policy-makers use a measure of the money supply that “looks through” assets such as money market funds and measures the underlying bank and government liabilities as components of the money supply. Thus the new measure N1 would be identical to M1. N2 would consist of N1 plus savings accounts, small denomination time deposits, bank-issued commercial paper, and bank-issued repurchase agreements.

The point of this re-definition of the money supply is to shift the focus on money from the assets held by the public to the liabilities issued by the banks. In short, this re-definition would acknowledge the bank-centered view of money.

Two broad liability-based measures of the money supply should also be considered: N3 would include all the non-bank issued short-term liabilities that banks stand ready to lend against including commercial paper that is supported by a bank credit line or liquidity facility, tri-party repurchase agreements, and treasury bills held by the public minus treasury bills repo’d in the tri-party market. An alternate (and
overlapping) broad measure, NC, would expand N2 to include contingent bank liabilities that become payable immediately upon realization of the contingency. This measure might be classified into different categories based on the type of contingency that triggers the liability.

These two measures of the money supply take into account the fact that one role played by banks is to support broader markets in near-money assets by providing guarantees or standing ready to trade on those markets. When banks underwrite markets in this way, they make it possible for non-bank issued assets to circulate as money. It is far from clear that these markets could continue to exist in their current form in the absence of bank participation.

A second recommendation that can be drawn from this application of traditional banking theory to modern money markets is that regulators need to recognize that there can be an equivalence between contingent liabilities and deposits – and that contingent liabilities may need to be regulated as strictly as deposits. This after all is the lesson of discount banking: credit lines – or contingent liabilities – were recharacterized as deposits when policymakers started to constrain the issue of bank notes. In the modern world deposits are strictly regulated, and bank money has re-emerged in the form of contingent liabilities.

Here, accounting norms may have had the effect of blinding regulators to the true nature of contingent liabilities. Because accounting norms only require that a contingent liability be brought on balance sheet when the contingency becomes “probable,” contingent liabilities usually lie off of a bank’s balance sheet for accounting purposes.

While this framework may be appropriate for accountants, bank regulators need to take into account the fact that contingencies are likely to be triggered in adverse circumstances. Because banks are likely to be asked to honor contingent liabilities when it is extremely costly for them to do so, they should probably be viewed as more risky than federally insured deposits. After all, insured deposits are unlikely to run in almost any circumstances, whereas contingent liabilities may appear equally as safe as deposits when the
contingency is improbable, but then will have the same effect as a run on deposits as soon as the contingency is realized or near realization.

In short, given that in most cases the realization of the contingency is likely to coincide with an adverse environment for bank performance, regulators evaluating the risks of a contingent liability should probably focus on the question of where the liability will stand in the bank’s capital structure once the contingency is triggered rather than on the accounting treatment of the liability. Any contingent bank liability that will be treated in a bank resolution on an equal basis with deposits if the contingency is triggered is likely to undermine the return received by depositors or by the federal insurance fund in a bank resolution. Such contingent liabilities should probably be regulated in a manner comparable to deposits. By contrast, contingent liabilities that sit below deposits in the bank’s capital structure when they are realized may be regulated less stringently than deposits.

V. CONCLUSION

In this paper the basic elements of traditional banking theory are introduced. This framework emphasizes the idea that a social norm both supports the circulation of bank liabilities as money and explains why banks are special. The result is a bank-centered view of the economy. In Part II of this series the implications of this theory for the macroeconomy will be discussed, and in Part III the many ways in which the financial structure that was put in place in the 1930s was built on this bank-centered view of the economy will be explained.

In this paper the bank-centered framework is used to analyze modern money markets and to show that the so-called market-based or shadow banking system is not an alternative to the banking system at all. Instead it is just a different way of accessing bank-provided liquidity.

Because efforts to regulate the bank-issued money supply often have the effect of causing a shift in the form taken by the bank liabilities that circulate as money, this paper argues that measures of the money supply should focus on measuring the stock of bank liabilities, instead of measuring the stock of monetary
assets held by the public. In addition, this paper argues that regulators should place little weight on the accounting analysis of contingent liabilities and should instead regulate those contingent liabilities that will be treated on the same basis as deposits in a bank resolution in a manner very similar to the regulation of deposits.

Overall, this paper shows that traditional banking theory provides a very useful framework for understanding the modern financial system. The advantages of understanding this theory will be explored further in Parts II and III of this series.