

Money Problems: Shadow Banks, Conceptual Stretching, and Misaggregation.
Kurt Mettenheim, FGV-EAESP

Abstract

This review essay separates the valuable analytic contributions of Morgan Ricks' *The Money Problem: Rethinking Financial Regulation* (2016) from his proposal for regulation of shadow banking in the US through concession of rights to emit digital dollars by these financial firms. Ricks synthesizes vast bodies of evidence and theory about private, money center banking and shadow bank operations, and provides a different, compellingly simple suggestion for bank regulation in the US. However, selection bias toward private banks, conceptual stretching that conflates credit money with base money, insufficient consideration of the concentration of the most problematic shadow bank operations at four US banks, and an unrealistic view of policy making cast doubt on the viability of his blueprint for regulation of shadow banks. We argue that an *institutional* theory of banking; the *disaggregation* of monetary statistics; historical-institutional analysis; and theories of public policy making and monetary statecraft promise to build on Ricks findings and reassess prospects for reform of banking and money in the US and abroad.

Introduction

Morgan Ricks' *The Money Problem: Rethinking Financial Regulation* presents an important opportunity to reassess banking, money, and public policy. Published in 2016, eight years after the 2007-8 financial crisis, Ricks presents a 'blueprint' for new US policies to regulate shadow banks and money markets. Basically, Ricks argues that the US should *endogenize* the credit and finance operations of shadow banks as part of the money supply by granting concessions to these firms to emit digital dollars, albeit subject to capital guidelines and other regulations. This, he suggests, would simplify regulation, induce sound banking, and avert panics in short term money markets that cause financial crises. Ricks' proposal extrapolates from core ideas in contemporary banking theory about the virtues of banks as profit maximizing financial firms and both the efficiencies and failures of markets for money, credit, and finance.

This essay first considers Ricks' contributions to academic studies and public policy debates about shadow banking and monetary systems. We then present four reasons to doubt both the desirability of granting concession of rights and responsibilities to shadow banks to emit digital currency and the viability of endogenizing their operations as part of the money supply to ensure liquidity provision and sound banking. The first reason for doubt is that Ricks conflates contested theories and risky practices of private credit money production with longstanding, and still valid, minimal definitions and conceptions of banking and base money as currency and consumer deposits.

The second reason for doubt is that although Ricks sketches the legal outlines of a regulatory framework, he underestimates the complexities of public policy. From this perspective, *The Money Problem* is an important book that contributes to understanding the two initial stages of public policy cycles, those of problem identification and much needed debate about redesign of bank regulation. However, his proposal requires a more complete assessment of further phases of public policy, i.e. how ideas are implemented,

the often unexpected consequences of public policies, and the tendency of industries to capture government regulation, especially regulation of banking, finance, and money. The rich literature on US public policy since Lindblom's *The Science of Muddling Through* (1959), Lowi's 'law of capture' and typology of public policies (1964) and generations of research wisely separate the distinct phases of problem identification, agenda setting, legislative production of law, executive implementation, and evaluation. The policy cycle thereby produces new problems, recursive processes, contested politics, and opposing social interests that bely simple links between new ideas such as Ricks' proposals and the complex and often recursive realities of policy implementation.¹

The third reason for doubt is his selection bias toward private, shareholding, money center banking. This reinforces the tendency of contemporary studies to ignore other types of banks and financial institutions that have proved to be *better banks* by many measures (Butzbach and Mettenheim, 2014). In the US, regional banks, community banks, and credit unions have consistently outperformed the big four money center banks (Baily and Holmes, 2015; Baily and Montalbano, 2015). In the US, and, especially abroad, cooperative banks, public and private savings banks, special purpose banks, and other institutions continue to manage more traditional balance sheets with stakeholder governance, social missions, longer term horizons for profit sustainability, and corporate cultures that help avoid the failures of profit maximizing financial firms (Scherrer, 2017).

The fourth reason for doubt is that, although Ricks is right to argue that many current problems with money and banking are conceptual, he commits the analytic error of *conceptual stretching* that conflates credit money with base money. Endogenizing the credit and finance operations of shadow bank within the base money supply is an especially problematic proposal given 1) the unprecedented acceptance, by US regulators, of shadow banking money claims, 2) the deterioration in quality of monetary statistics provided by the US Federal Reserve and 3) the erosion of monetary authority in the country caused by deregulation (Mettenheim, 2013). Theory, history, and comparative perspectives suggest that aggregating credit money as part of the monetary base has taken us in the wrong direction. Instead, we argue that the *disaggregation* of monetary statistics is required to better understand how banks and financial institutions produce credit money and, in turn, how we may better manage their effects on banking, the money supply, and the economy.

In a broader sense, Ricks' analysis of shadow banking and his policy proposals culminate a trend away from the theory and practice of traditional banking (deposit taking and loan making) in the US and abroad. What began in the 1970s as valid observations about inefficiencies in US banking caused by the restrictive regulations of the Glass Steagall Act has become the reverse; the misconception that a select number of very large money center banks (currently four in the US) can do just about everything that, previously, a large number and wide variety of longstanding banks and credit institutions used to do. Any good sense contained in the original view, as it emerged in the 1970s, of how the US banking industry should be *liberalized* has become lost amidst

¹ For review of the policy making literature, see: Moran, Michael; Martin Rein; and Robert E Doodin (eds). (2006). *Oxford Handbook of Public Policy*. Oxford: Oxford University Press. Fischer, Frank; Gerald J. Miller; and Mara S. Sidney (eds). (2007). *Handbook of public policy analysis: theory, politics, and methods*. Boca Raton, FL: CRC Press

the consequences of excessive *deregulation* that caused both the 2007-8 crisis and produced new problems with money, banking, and regulation since.

A closer look at arguments and evidence in *The Money Problem* indicates how new (and classic) approaches to the production of public and private money claims improve understanding of banking, money, and related public policies.² This is timely and urgent for two reasons: The evisceration of central bank capacity because of deregulation in the US; and the prospect of transition to digital or electronic currencies, a matter now appearing on the policy agendas of regulators, bankers, and markets for credit, finance, and money.

The following sections first review the core ideas and proposals of Ricks' book, then argue for the importance of historical-institutional and transaction cost approaches to banking. We then turn to the need to separate credit money from monetary aggregates in the US and sketch core ideas in classic authors to defend this claim. We then turn to historical and contemporary evidence from the US that suggests the dire consequences of confusing credit money and monetary aggregates. This provides new approaches to understand the disappointing record of deregulation, disintermediation, and the domination of shadow banking, over the counter derivatives, and the most problematic financial products and services at four big US money center banks.

The Money Problem: Rethinking Financial Regulation; core ideas and proposals

Ricks begins *The Money Problem* with the claim that US banks use vast amounts of short term debt to fund portfolios of financial assets. This is the core observation of contemporary banking theory (Battacharya and Thakor, 1993) and financial intermediation theory (Battacharya et al, 2004). Indeed, ironically, this view of banking is also shared by critical approaches to the industry (Hardie and Howarth, 2013), and post-Keynesian approaches in the tradition of Hyman Minsky.³ Ricks gathers evidence from some of the best studies of the 2007-8 crisis to remind readers that short term debt unraveled first in investment conduits, then throughout short term funding. This reinforces the explanation of Bernanke, Gorton, Krugman, and others that the financial crisis of 2007-8 was a classic panic, 'a generalized run by providers of short term funding to a set of institutions' (p. x). Ricks, as member of the US Treasury Department Crisis Response Team, authored a memo during 2009 entitled 'Liability Reform' that proposed the creation of federal government guarantee of the short term borrowings of financial firms. While Ricks admits that his proposal for reform was, at that time, 'crude, unworkable, and subject to moral hazard,' (and, indeed, that it was called 'wacky' by Treasury Secretary Timothy Geithner), the basic ideas in Ricks' 2009 proposal nonetheless remain behind his designs for a public-private monetary system in *The Money Problem*.

For Ricks, because the Dodd-Frank Wall Street Reform and Consumer Protection Act lacks provisions for short term funding markets, its reforms have failed to address the fundamental causes of the 2007-8 crisis. Moreover, he suggests that the most important limits to reform are *conceptual* not political. For Ricks, shadow banking should be viewed as a problem of monetary system design. His experience as corporate

² On public and private money claims, see: Aglietta et al, (2014), Blair (2013), Bell, (2001).

³ For discussion of new, and traditional, views of banking, see the contributions to the special issue of *Accounting, Economics, and Law – a Convivium*, Vol. 3, no. 3, 2013.

takeover lawyer, investment banker, risk arbitrage trader at a hedge fund, and analyst of financial institutions inform what he claims are simpler and more effective reforms. His charge that regulations since the 2007-8 crisis are excessive, costly, and too complex is shared by many observers of US banking. This is an important observation about the unexpected consequences of reforms that have increased compliance costs and hurt smaller banks and credit unions disproportionately (Drew et al, 2016).

Ricks' description of how the manufacture of assets by financial firms has transformed the determinants of the US money supply is compelling and timely. However, his proposed scheme to regulate shadow banks remains too abstract and fails to consider the how the contested phases of public policy making determine the final shape and consequences of government regulations. Ricks' proposal, basically that of permitting shadow banks to emit electronic dollars, also underestimates how private financial firms often escape regulatory constraints and succumb to agency problems, misaligned incentives, unethical and illegal behavior, and other failures of corporate governance and markets for credit, finance, and money. In this respect, his proposal to simply regulate shadow banks is hard to reconcile with his insider knowledge about the intricacies of money center banking and the breadth of his review of research on banking and finance.

To elaborate his plan for a new system of banks and money in the US, Ricks defines shadow banking as entities that use large quantities of short term debt to fund portfolios of financial assets and *are not* chartered banks. For Ricks, the non-deposit short term debt of shadow banks is the key problem. It follows that 'panic-proofing' rather than asset bubble prevention or systemic risk mitigation is the central challenge for regulation. From this perspective, Ricks argues that misguided regulations have led to excessive, costly, and open ended public support and lending of last resort that reinforce rather than help mitigate this core problem. Moreover, this has caused further bloating of the financial sector and continued to induce excessive leverage and credit supply at artificially low cost. Ricks presents a provocative case that existing policy strategies may contribute to rather than prevent future crises.

However, by defining shadow banks 'as entities that use large quantities of short term debt to fund portfolios of financial assets' (p. ix) *that are not chartered banks*, Ricks ignores one of the most important legacies of the 2007-8 crisis; that the shadow banking operations of the top US investment banks were transformed into chartered commercial banks registered at the Federal Deposit Insurance Corporation (FDIC). The holding companies of shadow banking operations thereby became eligible for insurance coverage and other benefits previously limited to individual depositors at commercial banks, savings institutions, and credit unions. This slight of hand by the biggest US money center banks has led to further capture of public policy through design of 'bail-in' procedures (favoring banks over depositors) and other mechanisms (Avgouleas and Goodhart, 2015). This is a powerful example of Lowi's law; that regulations often increase capture of public policy through the action of lobbies from precisely the industry that regulations were designed to control (Lowi, 1964).

Another contribution of Ricks is his summary of a new generation of research on shadow banking that clarifies how off balance sheet operations (his definition of

shadow banking), create money, it is claimed, much like deposit banks.⁴ For Ricks, issue of short term IOUs in money markets become cash equivalents, near- or quasi-money that increase the money supply. He argues that financial phenomena are, therefore, also, monetary phenomena. For Ricks, if shadow banking is similar to deposit banking in this sense, then it follows that ideas about how deposit banks relate to monetary problems also apply to shadow banking. This has been a central idea in economics for some time; that banking panics cause monetary contractions and economic downturns.

Because regulations written for deposit banking since the 2007-8 crisis do not apply to shadow banking operations, Ricks argues that banking law should take another track; one that starts from the short term IOUs of these firms that serve as credit money. However, because shadow banks produce credit money through private property law and contract law, Ricks' parallel between traditional deposit banks and shadow banks falters. If legal relations between private parties based on property law and contract law are 1) celebrated off markets, 2) not marked to market prices, and 3) remain untradeable on legal exchanges for capital, money, and financial products, we ask the following. How is it possible that these private contracts can nonetheless be the object of regulations similar to those designed for much simpler, traditional 'deposit taking loan making' banks? Whatever financial contribution is made by private contracts that promise to hedge foreign exchange or interest rate fluctuations (or promise to buy and/or sell bonds, securities, derivatives, repos, or synthetic financial instruments), these contracts remain a matter between private parties with no clear market price or obvious monetary value. Ricks' proposal to accept the face value of these, often very complex, private contracts (or some percent of their face value) removes perhaps the only mechanism of control over the production of financial assets and money claims by shadow banking operations beyond regulation with all its vicissitudes; that of market pricing. Granting shadow banks legal concessions to emit digital dollars may indeed end panics. However, panics, when all else fails, are often the only mechanism to correct markets.

Ricks' proposal to grant concessions to shadow banking operations to emit digital dollars would also conflate *credit money claims* (based on financial assets that remain off balance sheets and off legal exchanges for money, credit, and capital) with traditional conceptions of *base money as currency and consumer deposits* with banks. This would further what we see as the mistaken aggregation of private bank produced credit money within measures of base money in the US, especially since the Federal Reserve, controversially, stopped reporting traditional monetary aggregates in 2006. To the contrary, we argue that it is essential to separate the fundamentally different logic and the fundamentally different circuits of traditional money accumulation (for example, based on wages, bank deposits, and savings in the case of households) from the production of financial assets that become money claims based on theories of credit money and the practices of shadow banking.

The misaggregation of credit money as base money violates core rules of social science that require the use of *minimal definitions* to separate what is consensual about a problem across opposing theories and methodological approaches from what is object of disagreement (Gerring and Berresi, 2003). From this perspective, traditional

⁴ On shadow banking, see: Adrian and Ashcraft, (2012)

conceptions of base money are a strong candidate for a minimal definition of money as currency and consumer deposits at banks. The monetary status of other types of quasi money or assets with money ‘equivalents’ that are based on credit and finance operations are, logically, theoretically, and conceptually different: they are *money claims*. The language of money center bankers may conflate the tools of their trades with base money by using terms such as cash equivalents, quasi money, or simply ‘cash’ on balance sheets. This is easy during the good times of upswings in markets and the economy, but makes a mess of downturns. It is wrong to aggregate the money claims of financial assets and private contracts alongside the core, traditional categories of currency and consumer deposits as base money. This inserts complex and contested matters about credit and finance that require theory and evidence alongside measures of base money; thereby concealing precisely the problematic phenomena raised by Ricks and others about the money claims of shadow banks.

Since the work of Max Weber, this is described in the social sciences as the difference between minimal and descriptive definitions. Minimal definitions must exclude all characteristics (of money in this case) that are contested by opposing theories. Far from being essentialist, as Ricks asserts, this is the key to sound social science. Minimal definitions thereby place the burden of theory and evidence on *descriptive* definitions that separate phenomena that are not consensual (the money claims of shadow banks and credit money in this case) from what is consensual (that the money base is composed of currency and consumer bank deposits). By aggregating the money claims of shadow banks as part of the money base, both Ricks (and the revised reporting standards of the Federal Reserve since 2006) have the effect of inserting the boom and bust cycles of unregulated finance into the money supply, in theory and practice. This is an egregious example of conceptual stretching (Sartori, 1971).

A closer look at *The Money Problem* helps draw out the implications of how private credit money claims originate and profligate. Chapter one, entitled ‘taking the money market seriously,’ traces how private issue of money equivalents (mutual market fund shares, uninsured deposits, Eurodollars, securities lending, collateral IOUs, commercial paper, and repos) increased dramatically before the 2007-8 crisis, outpacing both base money and traditional government money equivalents such as treasury bills and federal reserve balances. Ricks insightfully reviews complex matters in bank accounting, financial markets, law, monetary aggregates, and economics to explore the implications of the private issuance and circulation of money equivalents. This is an important contribution to better understanding of shadow banking and recent trends in the US.

However, selection bias restricts his analysis to money center banks and a mistakenly construed transition from ‘currency warehousing’ to banking.⁵ The focus of Ricks on money center banks (shared in contemporary theory and studies of banks) ignores other types of banks in the US such as regional banks, community banks, and credit unions. This also ignores an even wider variety of banks abroad such as special purpose banks, government savings banks, cooperative banks, and other non-private banking institutions that remain important in many banking systems. This focus on money center banking errs historically, conceptually, and theoretically because non-

⁵ On the different definitions and histories of banking as money center operations and traditional, socially oriented institutions see Mettenheim and Butzbach, 2014.

private, non-shareholder banks and financial institutions 1) emerged in history *before* private shareholding financial firms 2) grew alongside private, money center banks, and 3) continue to often *outperform* private, money center banks that are presented as a paradigm by Ricks and contemporary banking theory. This selection bias reinforces the tendency to see money center banking as the only game in town. This, in turn, reinforces the idea that regulation and monetary policy may best endogenize this reality of private money production on, and off, financial markets.

In chapter two of *The Money Problem*, review of classic and contemporary debates about money and banking inform Ricks astute and synthetic use of game theory to explain how private, shareholding money center banks *create money*, especially when property law and contracts free banks to manufacture financial assets that become money claims or cash equivalents. In chapter three on banking in theory and reality, Ricks further specifies how modern banking theory elaborates models based on views of banks as commitment devices amidst information asymmetry and consumption insurance. These chapters provide a valuable overview of money center banking. However, his analysis risks performing two slights of hand alluded to above; one of selection bias that risks taking money center banking as the only game in town; another as uncritically accepting the money claims of shadow bank operations at face value, or too near face value.

Historical-institutional transaction-cost view of alternative banking

We have argued that minimal and descriptive definitions of money are required to separate consensus about how to measure base money from contested theories and claims about credit money and the operations of shadow banks. This section argues further that the *disaggregation* of monetary aggregates may improve understanding of Rick's money problem; i.e. the private credit money production of shadow banks. By separating and disaggregating the categories of money traditionally reported by the Federal Reserve, it is possible to trace the institutional origins and different composition of assets and liabilities behind credit money claims in the US past and present. This historical-institutional approach is based on a different theory of banks as institutions rather than profit-maximizing firms as maintained by much of contemporary banking theory and studies (Mettenheim and Butzbach, 2012). From this perspective, banks are seen as institutions that are designed to ameliorate market failures and reduce agency costs and transaction costs that shape banking and markets for credit, finance, and money.⁶ From this perspective, banks *are not* profit maximizing financial firms able to tap market efficiencies. Instead, banks are institutions that grow organically to the extent that they are able to solve market failures and reduce agency costs and transaction costs in markets for credit and other financial products and services.

Mention of five types of alternative (non-private) banking institutions must suffice to make this point here. First, the savings and pawn operations of religious orders were consolidated into Monti de Pietá pawn and savings banks throughout Italian states and cities during the 15th century. Second, in the late 18th and early 19th century, savings banks grew out of municipal savings agencies and philanthropic initiatives first in Northern Germanic states and free cities, then quickly across Europe and North

⁶ Reinhardt Schmidt challenged us, in 2011, to elaborate a historical explanation of banks as institutions from a transaction cost perspective.

America. Third, amidst economic crisis, hunger and the 1848 revolutions, credit cooperatives were founded by protestant and catholic movements in German speaking regions to share risk and provide credit to farmers and others not served by savings banks and private banks operating in urban areas. The international cooperative and credit union movements also spread rapidly across North America, and the globe, during the late 19th and early 20th century. Fourth, to invest in infrastructure, railways, and industry beyond the terms private banks were willing to lend, governments across Continental Europe founded development banks during the 19th century. Fifth, after the UK post office savings bank was founded in 1862, governments across Europe also used the branch office networks of postal services to mobilize popular savings for public finance; both at home and in colonial holdings.

Five different types of banking institutions, at minimum, must therefore be added to the single model of private, shareholding, money center banks that are too exclusively the focus of Ricks and contemporary banking theory. Studies of alternative banks (i.e. non-joint stock banks) help redress this biased view of banking. Indeed, historical and contemporary evidence abounds that public savings banks, cooperative banks, and special purpose banks elaborated over time, and continue to retain, viable business models because of seven institutional foundations of competitive advantage: Stakeholder governance; two-tier (retail-wholesale) organizational structures; long-term profit sustainability orientations; relationship banking; greater trust; lower cost of capital; and corporate cultures that better align incentives (Butzbach and Mettenheim, 2014).

Institutional theory and historical analysis reveal how alternative banks elaborated organizational solutions to manage agency risks, transaction costs, liability risk, and other matters at the core of banking theory. Savings banks emerged with strong roots in local communities, social movements, and public agencies.⁷ Cooperative banks were created by the Raiffeisen and Schultz-Delitz local, regional, and transnational social movements. Savings banks and credit cooperatives thereby acquired, over time, powerful competitive advantages in terms of retail networks and relational banking in local communities. Independent local savings banks and cooperative banks then created a second tier of shared joint operations for giro payments and wholesale banking services to reduce costs, increase scale, and manage risks.⁸ The social missions of savings banks and cooperative banks also sustained corporate cultures and long-term profit sustainability orientations that helped to manage risks and avert losses in capital and money markets.

The lean organizational structure of development banks and special purpose banks provide a different competitive advantage. Without expensive branch office networks or large staff and operational costs, and with access to official savings and other sources of capital at low or zero cost, special purpose banks were able to direct credit to strategic economic sectors at below market rates, a powerful comparative

⁷ This section summarizes: Butzbach and Mettenheim, (eds). (2014). *Alternative Banking and Financial Crisis*. London: Routledge.

⁸ On the second tier of cooperative banks, see: Guinnane, T.W. 'Delegated Monitors, Large and Small: Germany's Banking System, 1800-1914.' *Journal of Economic Literature*, (2002), 40(1): 73-124

advantage for Continental European policy makers and governments.⁹ Special purpose banks multiplied the resources available for public policies to help alleviate fiscal constraints. Ricks correctly notes that a central idea about banks is that they are uniquely able to multiply money. It follows that development banks were, and special purpose banks continue to be, uniquely able to multiply funds for public policy. Given the increasing severity of fiscal constraints on governments since the 2007-8 financial crisis, the ability of special purpose banks to multiply money for public investments is an especially important comparative advantage for public policy.

Table 1) Banks as financial firms versus banks as institutions

	<i>Financial firms</i>	<i>Institutions</i>
Capital Theory	Liquidity	Patient capital
Governance	Shareholder	Stakeholder
Mission	Profit maximization	Profit sustainability
Business Model	Manufacture assets	Balance asset and liabilities
Strategy	Maximize leverage	Moderate leverage
Risk Management	VaR or risk model	Relationship banking & soft info.
Theory	Financial intermediation	Uncertainty and institutional theory
Expected Change	Convergence	Persistent variety

An institutional approach to banks goes back to basics in banking theory (Mettenheim, 2013). Traditionally, banks were seen as deposit taking and loan making institutions that differed from other businesses in terms of the composition and character of assets, liabilities, governance, risk management, and performance. Since the 1980s, contemporary banking theory has redefined banks as firms specialized in financial intermediation between clients, money markets, and investment funds that are able to manufacture assets. Table 1 enumerates seven differences between contemporary banking theory that sees banks as financial firms and institutional banking theory that updates traditional concepts and theories. Contemporary banking theory emphasizes shareholder governance, profit maximization, the manufacture of assets, strategies of leverage, quantitative methods of risk management on efficient financial markets, theories of financial intermediation, and expectations that the banking industry would converge toward market-based banking. In contrast, institutional theories of banking emphasizes traditional conceptions of stakeholder governance, the production of sustainable returns over time, more conservative balancing of assets and liabilities, moderate leverage, the use of soft information and relationship banking, the

⁹ Aghion, B. 'Development Banking', *Journal of Development Economics*, 58 (1999), pp. 83–100.
 Diamond, W. *Development Banks*. (Baltimore, MD: Johns Hopkins University Press, 1957). Zysman, J. *Governments, Markets, and Growth: Financial Systems and Politics of Industrial Change*. (Ithaca, NY: Cornell University Press, 1983).

reality of uncertainty, theories of institutional difference, and expectations of persistent variety in banking industries rather than convergence.

Institutional approaches to banking provide new perspectives on the problems about money raised by Ricks. Historical and comparative institutional analysis may improve understanding of how banks build trust to manage liquidity risk that he correctly argues is essential for banking operations. Case studies and low n comparisons help clarify how banks, as institutions, may better align the incentives of owners, managers and staff through corporate cultures that go beyond profit maximization. Organizational studies help explain how banks develop mechanisms to reduce transaction costs and agency costs. The time series data on bank balance sheets that are available from banks and monetary authorities help explain not only the origin and evolution of banks, but also the recent behavior of banks as they adapt to liberalization, deregulation, and new technologies of information and communication. Case studies and focused comparisons of banks are especially suited to explain how the institutional characteristics of banks use soft information and insertion in social and political life to realize competitive advantages. The large scale and scope of banks are institutional characteristics necessary not only for the maturity transformation of short term deposits into long term lending, but also for the macro functions of banks such as counter cyclical lending and shock absorption. This provides an analytic advantage. Although large banks are still amenable to micro or organizational analysis, their size also means that the effects of individual bank behavior and performance are often felt on the mezzo and macro levels.

Empirical studies of banks also suggest the persistence of organizational diversity alongside processes of convergence. We are not advocates of nationalism. However, the consolidation of a select number of large domestic banks continues to be a priority for most governments and business communities. Despite the forces of globalization and the liberalization of many domestic banking markets around the world, banking continues to be shaped, in this respect, by views of banks as institutions that are critical not only for economic reasons, but also for reasons of geopolitics and conceptions of national interest. In this respect, Ricks' 'money problem,' that of private credit money production by shadow banks, *is not* as widespread as he, and indeed many observers of US banking assume. The problems (and advantages) of shadow banking are not related to all US banks, but instead to *four* money center banks.¹⁰ Indeed, analyses of US banking have separated discussion of 'the big four' money center banks from discussion of regional banks, community banks, and credit unions, thereby averting selection bias toward money center banking and placing the debate about shadow banking operations on a better footing.

Deregulation and capture of public policy by money center banks have, in fact, marginalized alternative banking in the US (Mettenheim and Butzbach, 2014). However, bank change abroad has differed. Instead of convergence toward private, money center banking practices, the liberalization of banking and the adoption of new technologies have produced a 'back to the future' modernization of traditional banking institutions of many types in many ways. In this respect, the liberalization of banking across Europe since the 1990s provides opportunities to better understand how domestic banking systems have changed (Schmidt, et al, 2014; Groeneveld, 2014). Contrary to the

¹⁰ See evidence below in Tables 4 and 5.

widely held expectations of convergence toward private, money center banking, (shared by critical and contemporary theories of banking), cooperative banks, government savings banks, and special purpose banks have instead realized competitive advantages since liberalization of the industry, despite the difficulties from the greater fallout of the 2007-8 financial crisis in Europe. In this respect, Ricks, contemporary banking theory, and indeed many critical studies of market based banking can be said to have also suffered from selection bias. Studies of banking tend to elevate money center banking to universal theory. This ignores alternative banks that often continue to provide between one and two thirds of credit and banking services in many countries.

On The Need to Separate Credit Money from Money Aggregates

Our historical institutional approach to banks and credit money also differs from the aggregation of monetary statistics in monetary economics. Monetary historians generally aggregate monetary statistics to explore causal relations between money and economic indicators such as growth, inflation, and business cycles (Friedman and Schwartz, 1963). Economists in the monetarist tradition also trace the stocks and flows of monetary aggregates as context for government policy and control of money, reporting thereby a variety of changes in the money stock and markets for money and credit (Rosche and Johannes, 1987; Brunner, 1964; Friedman, 1956). Aggregation theory has used index number theory and divisia number theory to criticize the errors of simply summing different classes of money that often informed traditional monetary aggregates published by monetary authorities and bank regulators (Barnett, 2010). Research in neo-classical and post-Keynesian monetary economics also aggregates monetary statistics to study stocks and flows of assets and liabilities across households, banks, firms, governments, and between domestic economies and the rest of the world (Arestis and Sawyer, 2007).

However, the mathematics of aggregation and the econometric techniques used to study monetary stocks and flows both tend to break down because of the complexity of flows across sectors, the difficulty of counting and comparing different classes of assets and liabilities, and the quagmire of tracing monetary values across time through use of index- or divisia-index numbers. A historical institutional approach averts these problems by *disaggregating* monetary statistics and using current prices to better compare the market shares of institutions and the composition of balance sheets; both in cross section and across time. This averts the errors of aggregation that have hindered economic analyses of money.

Disaggregation of monetary statistics permits comparison of the production of credit money and the money claims of different institutions over time. In other words, unpacking monetary aggregates reveals how different institutions contribute to the money multiplier over time. This averts the daunting problems of aggregation in accounting, economics, and law by focusing on the different money claims behind the categories of currency, bank deposits, loans, credit, bonds, securities, derivatives, structured finance, repos, and other financial instruments that, unfortunately, have been increasingly thrown together to compose monetary aggregates.

To illustrate the potential of this approach, we disaggregate statistics compiled by the Federal Reserve System, the US Census Bureau, and other US government agencies in the empirical sections below. For recent developments, we rely on further

data reported by international institutions on bank credit, financial markets, money stocks and flows, and the monetary value of assets and liabilities reported by banks on (and off) balance sheets and on (and off) official exchanges for capital, money, and financial instruments. Historical statistics from the US make it possible to trace 1) the multiple currencies in US history (1800-1995); 2) the institutional composition of US money stock (1888-1970); and 3) the market for US savings deposits and time deposits by type of institution (1820-1970). Further statistics indicate the importance of socially oriented alternative banking and directed government credit in most phases of US history. Finally, recent statistics reveal the concentration of US shadow banking operations in four money center banks rather than an industry wide trend as often assumed in theory, practice, and regulation.

The historical evidence explored below also permits the following observations about bank change in the US. Since the 1970s in the US, deregulation has produced the centralization and capture of monetary policy making by the Federal Reserve Bank of New York. This runs counter not only to the importance of institutional variety in banking, but also to core liberal ideas about decentralization, moral hazard, accountability, and effective political representation. Disaggregation of monetary statistics also confirms the central observation of Ricks and others about the money problem: The exponential increase of private sector money claims based on financial assets. In historical and comparative perspective, we emphasize the other side of this coin: the marginalization of savings banks, cooperative banks, and credit unions in the US that have followed the unprecedented recognition of shadow banking money claims by monetary authorities.

Contrary to expectations about *disintermediation* in both contemporary banking theory and empirical studies of private banks, the disaggregation of historical time series from 1952-2010 indicates 1) a substantial decline in the share of US financial assets held by households and 2) the manufacture of financial assets and money claims by different types of financial firms and different financial products and services on capital markets. Moreover, these phenomena *on* capital markets omit further manufacture of financial assets and money claims by private contracts held *off* market exchanges and *off* bank balance sheets. Of special concern is the concentration of ‘over the counter’ derivatives at *four money center banks* in the US. The concentration of *over ninety percent* of ‘over the counter’ derivatives in the shadow banking operations of four US money center banks runs counter to the widespread assumption that shadow banking now pervades banking in the US and beyond. *Four* banks do not constitute an industry wide trend. A closer look at how the US arrived at this situation is in order. However, before turning to empirical comparisons between historical and contemporary dynamics in the US, we need to first justify and explain both the theoretical grounds for separating credit money from monetary aggregates and our focus on how financial instruments imply a social and political economy of *money claims* in the policy process. For this we return to the classics.

Classic foundations for a credit theory of money

One of the most important contributions of Ricks’ book is to reaffirm the importance of problem oriented social science. Ricks surveys vast literatures in accounting, economics and law to clarify how shadow banks produce credit money, including many classics on banking, money, and credit. We therefore turn, albeit briefly, to Schumpeter and Keynes

to clarify both how minimal and descriptive definitions help avert conceptual stretching and how disaggregating monetary statistics may help clarify how the different money claims of institutions differ from base money. First, the classics provide strong grounds to agree with Ricks placing money and banking at the center of economic analysis.

Although generally seen as concerned exclusively with the real economy, Schumpeter discusses empirical problems of money and banking extensively and, indeed, in ways contrary to his general assertion that money matters only if, and indeed has a *modus operandi*, if and only if it gets out of order:

‘Monetary Analysis, in the first place, spells denial of the proposition that, with the exception of what may be called monetary disorders, the element of money is of secondary importance in the explanation of the economic process of reality... We are thus led, step by step, to admit monetary elements into Real Analysis and to doubt that money can *ever* be ‘neutral’ in any meaningful sense.’ (Schumpeter, *History of Economic Analysis*, p. 265)

Moreover, once the analytic focus of Schumpeter turns away from broader questions about the real economy to specific problems of money and monetary policy, he adopts views that embrace the independent or endogenous characteristics of money, credit, and banking. Schumpeter thereby adopts ideas that are consistent with Ricks and recent ‘money view’ studies cited above.

Schumpeter also supports the disaggregation of monetary indicators to uncover institutional characteristics. For Schumpeter, when items such as credit, bank notes, and checking deposits perform functions of money, it follows that these instruments ‘intrude into the monetary system.’¹¹ Schumpeter’s use of the verb ‘intrude’ suggests that these items are different than base money but nonetheless take on attributes of base money. This reinforces Ricks’ claim that financial phenomena thereby become monetary phenomena, with the proviso that the advantages of aggregating credit money in the money supply to not follow.

In a broader sense, we argue that it is necessary to follow the ‘intrusions’ of credit money into the broader money supply in two senses. The first is a positive sense; that of seeing alternative banks (cooperative banks and savings banks) as large scale examples of social reactions of self-defense against the commodification of banking and money (in the sense of Polanyi’s second movement). The second sense of following the incursions of credit money into the money supply is in a more critical vein. This is necessary to account for the devastating consequences, especially in the US, of marginalizing traditional social banks in favor of money center banking (Polanyi’s first movement of deregulation that destroys traditional institutions).¹² We argue that these are two powerful, and largely ignored, broader theoretical descriptions of how credit money intrudes into base money to shape social, political, and economic change (Butzbach and Mettenheim, 2016).

¹¹ Schumpeter, *History of Economic Analysis*, p. 305

¹² We have developed this parallel between an institutional theory of banking and Polanyi’s classic idea of a dual movement between the imposition of free markets and the social reactions against them in Mettenheim and Butzbach, SASE 2016.

Schumpeter also disaggregates monetary aggregates by using *minimal and descriptive definitions of money*. First, Schumpeter proposes a minimal definition of money as coin and currency. Only then does he broaden the definition of money by including credit, bank deposits, government bonds, and other securities and derivatives. As argued above, minimal and descriptive definitions of money are essential for problem oriented, empirical approaches to money and banking. Again, the method here is not to exclude broader phenomena of money but to separate each phenomenon, one by one, for empirical, theoretical, and conceptual analysis. Measures of monetary aggregates, from this perspective, are considered as institutional and social money claims, the validity of which are subject not only to theory, method, and accurate aggregation of numbers, but, equally important, to the social realities of transforming assets and liabilities on (and off) bank balance sheets into money. This, of course, is a core idea in social economy about money claims since Max Weber; ‘that money prices are the result of conflicts of interest and compromises; they thus result from power constellations’ (apud Swedberg, 1998:44). We explore below the implications of recognizing the ‘intrusive’ money claims of shadow banks below.

According to Schumpeter, two positions predominate in the history of economic theories of money. Metallist theories first insisted on a restricted or minimal definition of money as currency backed by precious metals. From this perspective, other, broader types of money are secondary legal claims to currency. For Schumpeter, the second position of a broader, ‘descriptive’ definition of money began with John Law: ‘Manufacture of money! Credit as a creator of money! Manifestly, this opens up other theoretical vistas.’¹³ Similar minimal and descriptive (or limited and broader) definitions of money pervade differences in economics until today. Two insights can be drawn here. First, Schumpeter supports the central contribution of Ricks, i.e. the need to focus on credit, bank deposits, bonds, and other instruments *that intrude on the money supply and shape monetary phenomena*. Second, the independent causes and consequences of banking, finance, and money are far more important than one may be led to believe when reading Schumpeter’s works on the real economy.

Indeed, Schumpeter’s history of economic theory increasingly recognizes independent causes of monetary phenomena. This culminates in his endorsement of *a credit theory of money*: ‘practically and analytically, a credit theory of money is possibly preferable to a monetary theory of credit.’¹⁴ And this trajectory is paved by problem oriented analysis. For Schumpeter, debates between proponents of the banking principle and proponents of the currency principle turned on empirical questions about the Bank of England’s policies. He discusses further, specific, empirical problems of money and monetary policy such as the gold standard, bimetallism, international monetary cooperation, currency stabilization, and techniques to manage the supply of money.

Keynes provides a key idea for Ricks and this review; that banks and financial institutions *multiply money*. Banks multiply money because credit, loans, and finance ‘create’ assets on the balance sheets of banks above and beyond the value of deposits or

¹³ *ibid*, p. 305

¹⁴ *ibidem*, p. 686 and Schumpeter, J.A. (2016). ‘Bank Credit and the “Creation” of Deposits,’ *Accounting, Economics and Law: A Convivium*. 6(2): 151-9,

other liabilities.¹⁵ Even if deposits ‘match’ loans, loans can still be said to multiply money *by two*. Traditionally, the management of banks was seen as the balancing of liabilities and assets. From this perspective, the gradual accumulation of deposits, equity ownership, and capital reserves on the liability side of bank balance sheets was seen as necessary to cover the risks and maturity schedule of credit, loans, or finance on the asset side of bank balance sheets. However, contemporary banking theory suggests that banks no longer operate in this manner. Instead, contemporary banking theory sees banks as profit maximizing firms that intermediate between clients and investments in more lucrative and more efficient products and services traded on financial markets.¹⁶

However, if financial markets are seen to be efficient, then the constraints of reserve requirements are not needed. Market positions may replace traditional conceptions of how capital, equity, and cash held in reserve are needed to cover credit risk and other risks of banking. The theory of efficient markets has thereby led banks, and theories of banks, to see banking as able to leverage much further, far beyond traditional limits set by liabilities and capital reserves (Acharya and Wiswanathan, 2011). This implies 1) that banks do not need to maintain traditional reserves and 2) may multiply money far beyond the factor of two that arises from traditional bank management (that matches loans with deposits, equity, and capital reserves).

From this perspective, current regulations free banks to *multiply money over ten times*. According to the Bank for International Settlements (BIS) Capital Reserve Accords, banks are required to retain minimum capital reserves against risk of eight percent (risk weighted) against total assets. These measures remain widely debated and involve complex measurement and capture of the final definition of what constitutes bank capital against risk by investment banking lobbies (Lall, 2012). Indeed, recent reforms call for use of simpler measures of *liquidity* instead of complex (and biased) calculations of capital reserve requirements (Bank of England, 2013). However, for core ideas about the multiplication of money, the point remains the same. Capital infusions, whether through sales of shares (in the case of joint stock banks) or cash from treasury or official funds (in the case of state banks) or members (in the case of cooperative banks), permit these institutions to lend *over ten times* the value of fresh capital above minimum values required by the BIS guidelines that inform most domestic regulations. From this perspective, capital held in reserve by banks are seen to be sufficient to safely cover *over ten fold* its value in loans or other financial operations.

However, banks, especially shadow banks, may multiply credit money further. Financial transactions such as derivatives or repos that often remain ‘off balance sheets’ and ‘over the counter’ (i.e. *contracts not traded* on stock exchanges, or capital markets, or money markets) multiply money even further; indeed exponentially as a function of leverage. From the perspective of contemporary banking theory, new financial products and services *manufacture assets*. This multiplies money beyond the limit imposed by the eight percent rule of Basel Accords, or other limits based on minimum levels of liquidity or limits to leverage. Manufacture of assets may become excessive if banks buy, sell, or trade financial derivatives, repos, or other products to third parties and, on

¹⁵ We thank Yuri Biondi for noting that this points to fractional reserve theories of Money. However, instead of a formal theory of fractional reserve banking, we are concerned with how shadow banks leverage credit and finance operations that ignores traditional strategies of holding reserves to survive panics in money markets and cushion losses during downturns.

¹⁶ Berger et al (2010) and Bhattacharya and Thakor (1993).

this basis, declare assets on (or off) balance sheets. Indeed, the value of financial products off the balance sheets of US banks *surpassed* the value of assets declared by banks on balance sheets in the years preceding the global financial crisis of 2007-8. This suggests the importance of Ricks' identification of the core problem about money in the US: The money claims of shadow banks. This is also consistent with theories of how banks multiply money in the post-Keynesian tradition (Wray, 1990).

A second idea in Keynes reinforces Schumpeter's minimal and descriptive definitions of money and the need for problem oriented, empirical studies of money. For Keynes, categories of money such as paper currency, bank notes, credit, deposits, government bonds, discounted credit from central banks, and many other sources may all determine the stock and supply of money *depending on the question about monetary policy at hand*. In the General Theory, Keynes suggests this research strategy:

'Without disturbance to this definition,¹⁷ we can draw the line between 'money' and 'debts' at whatever point is most convenient for handling a particular problem. For example, we can treat as *money* any command over general purchasing power which the owner has not parted with for a period in excess of three months, and as *debt* what cannot be recovered for a longer period than this; or we can substitute for 'three months' one month or three days or three hours or any other period; or we can exclude from *money* whatever is not legal tender on the spot. It is often convenient in practice to include in *money* time-deposits with banks and, occasionally, even such instruments as (*e.g.*) treasury bills. As a rule, I shall, as in my *Treatise on Money*, assume that money is coextensive with bank deposits.' (Keynes, X, p.)

This observation of Keynes reinforces the ideas taken above from Schumpeter about base money and credit money. It also reinforces the need for a historical institutional approach, based on a credit theory of money, to disaggregate monetary statistics to more carefully consider the balance sheets, financial assets, and money claims of banks and other social entities.

Historical Evidence of Banks and Money Production in the US

Contrary to Ricks' claim that the history of private banking and money production in the US, is well known, recent studies reveal the importance of both a great variety of monies that circulated throughout its history (Zelizer, 1997) and the presence of non-private banking institutions and government directed credit for public policy (Hoffman, 2001). Upon independence, the Second Bank of the US served as a development bank for native industry and commerce. Despite congressional refusal to renew the bank's charter in 1829 under President Andrew Jackson, balance sheet data reported in US Historical Statistics (BEA, 1976) nonetheless indicate that large scale credit, finance, and money operations continued at the Bank through 1840. Soon thereafter, credit unions, mutual savings associations, and savings and loan associations were also founded and grew in the US, inspired by the new, bottom up conceptions of social banking in Europe described above. Creation of the US postal savings system (1911), Federal Reserve System (1913), and regulatory framework marked by the Glass-

¹⁷ Keynes refers to the definition of the rate of interest in The General Theory, Ch. 13, part II: 'For the rate of interest is, in itself, nothing more than the inverse proportion between a sum of money and what can be obtained for parting with control over the money in exchange for a debt for a stated period of time.'

Steagall Act (1933) led to the further expansion of savings and loan associations, mutual savings associations, credit unions, and other social banking groups well into the 20th century (Hoffman, 2001).

From the 1870s through the 1970s, the US banking system (like most banking systems abroad) can be described as relying on *three pillars*; one pillar being private commercial and investment banks, one pillar being savings banks, and one pillar being cooperative banks or credit unions.¹⁸ Policies of liberalization and deregulation were designed to replace savings banks and cooperative banks with what were seen as more efficient and more effective ways of providing banking and financial services; i.e. directly to clients/customers/investors through large, money center banks. Based on theories of financial market efficiency (ironically contrary to the focus on *market failures* in contemporary banking theory and financial intermediation theory), large private banks operating in markets for capital and money were seen as able to provide cheaper and better banking products and services. Financial disintermediation was seen as the modernization of banking.

The US did indeed have a very large number of commercial banks (over 30,000 at peak in the 1920s). The geographical and functional restrictions of the Glass Steagall Act and other regulations from the 1930s did indeed impede the acquisition of scale and scope that are so critical in banking. However, liberalization and deregulation after 1970 unleashed not only a wave of bank mergers (Dymski, 1990), but also a transition from traditional banking (i.e. the acceptance of deposits and making of loans), to a new style of banking that placed the savings and deposits of clients directly on financial markets. This disintermediation was seen as modernization because money-center commercial banks and investment banks were supposed to be able to replace traditional institutions such as savings banks, mutual banks, credit unions, and cooperative banks whose cautious portfolios were seen as dead weight dragging the economy.

The emergence of distinct business models at savings banks and cooperative banks during the 19th century appears in balance sheet data reported from US government statistical sources; data that can often be joined with further data compiled by other US government agencies and international institutions to follow bank change through the 21st century. Tracing the accumulation of balance sheets at savings banks and cooperative banks reveals how these institutions grew as they ‘solved’ fundamental problems of banking such as agency costs, transaction costs, asymmetric information, misaligned incentives, and other failures of firm governance and markets.

These arguments also involve changes in the concepts and categories of money and banking used in the collection and reporting of money categories by monetary authorities in the US.¹⁹ Until 1971, the Federal Reserve Board counted money in the following aggregates:

M1 = currency and demand deposits at commercial banks.

M2 = M1 + commercial bank savings and small time deposits.

M3 = M2 + deposits at mutual savings banks, savings and loans, and credit unions.

¹⁸ On the concept of these three pillars in banking, see Schmidt, etal (2014).

¹⁹ Board of Governors of the Federal Reserve System (1976), pp. 10-11 and Anderson and Kavajecz (1994).

M4 = M2 + large time deposits.

M5 = M3 + large time deposits.

From this perspective, M3 captured the stock of personal savings of households that had been accumulated at socially oriented banks. This was one of the three pillars of banking in the US. Similarly, the value of large time deposits also captured the importance of traditional banking strategies of maturity transformation, i.e. to transform the shorter maturities of consumer deposits into longer term investments.

However, in 1980, the Federal Reserve decided to no longer report M4 and M5. And in 2006, the Federal Reserve further reduced and redefined monetary categories as follows:

M1 = currency and demand deposits at commercial banks.

M2 = M3

M3 no longer reported

In 2006, the Federal Reserve System also ended reporting of repurchase agreements and Eurodollars, while large-denomination time deposits and institutional money market mutual funds became a memorandum item in Z1 releases. This decision was taken by Governor Ben Bernanke because ‘M3 failed to convey additional information about economic activity not already embodied in M2 and has not played a role in the monetary policy process for many years’ (Bernanke, 2012).

Further analysis of these changes is needed.²⁰ Whatever the explanation, we argue that it is conceptual stretching and wrong to insert the credit money claims of money center banks (and, by extension, Ricks’ proposal to endogenize shadow banking operations) into traditional measures of the base money supply. Recognition of the money claims of financial assets by revisions to the measures of the money supply at the Federal Reserve does indeed appear to reflect a new reality; that traditional and socially oriented banking in the US has been marginalized by recognition of the money claims of private, money center banks. It remains to be seen if this is based on intentional design, reaction to circumstances, the unintended consequences of reforms, or other causes.

However, the point here is about disaggregation, not aggregation. We argue that the disaggregation of monetary indicators and financial reporting categories uniquely provide measures of the institutional capacity of different social entities *to create credit money*. A historical institutional approach thereby traces, across time, how the money claims of banks, financial institutions, and other social entities compose flows and stocks of money as assets and liabilities. This empirical and inductive approach works backward from monetary aggregates to the reported values on balance sheets and then, most importantly, to the social relations and circuits of credit and finance of the institutions that report them.

²⁰ Barnett (2010:5-6) cautiously notes: ‘The cost of supplying the component data [of M3] was negligible to the Fed. Then why did they discontinue it? I would not presume to answer that question for the Fed, but here might be an unpleasant “clue.” M3 picked up repurchase agreements (repos), which were huge elements of the shadow banking system’s creation of money. Nonbanks used AAA- rated mortgage-backed securities (MBS) in overnight repo trades for cash on a daily basis, effectively creating money from a growing stock of AAA MBS.’

This approach builds on recent advances in understanding how private and public entities expand the stock of money through the manufacture of assets. For Blair,

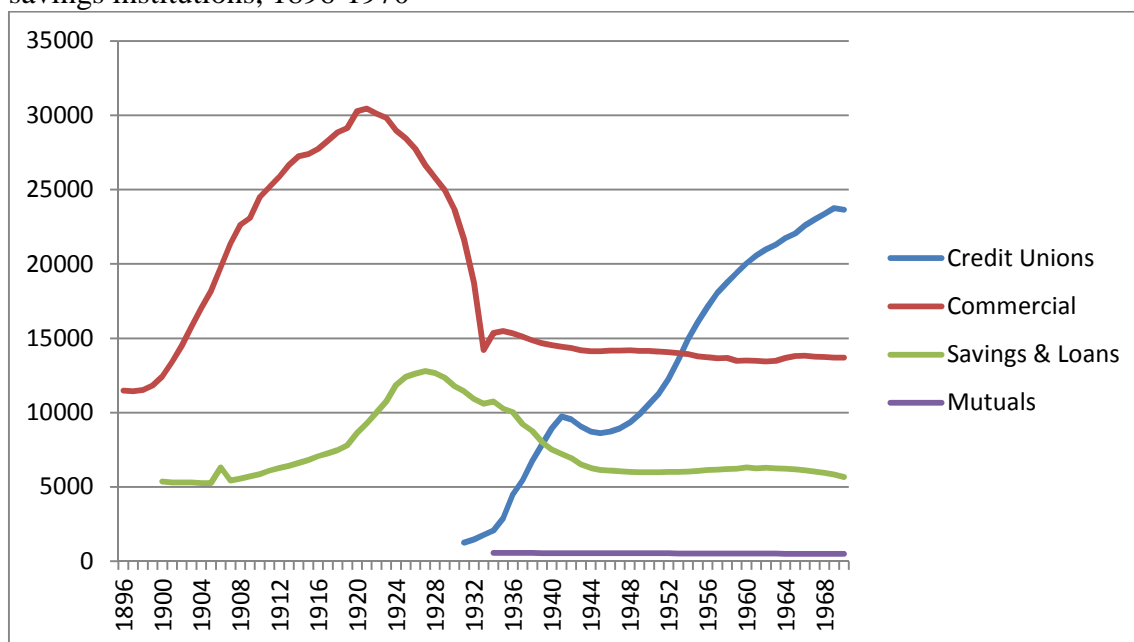
... while the Federal Reserve has significant influence over the narrow measures of money in the economy, such as M1, the private sector now has much more control over the creation and use of near-money assets and other securities that act like money in the economy. The Federal Reserve, which is the governmental body that is supposed to control the flow of money and credit in the economy in order to promote economic activity while keeping inflation under control, actually has much less influence over the supply of money and credit than it has had historically, except through its influence on interest rates. A substantial part of money creation is now in the hands of the private sector. (Blair, 2013, p. x)

Gabor and Vestergaard (2015), Gabor (2012), Stein (2011), and Gorton and Metrick (2010) have elaborated a new 'money view' approach that takes into consideration the monetary status of new financial derivatives, repos, and shadow banking operations that do not appear in the traditional monetary aggregates and bank balance sheets reported by US (and other) monetary authorities. In this paper we argue that historical and comparative perspectives can improve understanding of the consequences of this increased recognition of shadow bank production of financial assets and money claims in the US.

Discussion of the need to disaggregate money claims would be incomplete without consideration of the massive supply of money to large private banks by the New York Federal Reserve Bank during and since the 2007-8 financial crisis. In 2012, Federal Reserve Governor Bernanke reported the total value of liquidity provision to large private banks summed over *\$3 trillion* (Bernanke, 2012). However, in 2012 the US Government Accounting Office reported that a total of over *\$12 trillion* in emergency assistance had been issued by US government entities since the 2007/8 crisis (GAO, 2012). But differences are even greater. Felkerson (2011) added information released by the Federal Reserve Board to the US Senate Banking Committee under a Freedom of Information Act request to reach a sum of over *\$29 trillion(!)* for the total value of US government spending on emergency assistance and liquidity policies since the 2007-8 crisis. Such divergence suggests that care is required in the study of monetary aggregates.

We therefore return to empirical evidence about bank change and money in the US. The first observation is simply to compare the *number* of commercial banks and non-bank financial institutions in the USA from 1896-1970. This is necessary to avert the selection bias of contemporary banking studies that focus, almost exclusively, on private, commercial money center banking. Figure 1 indicates the importance not only of private commercial banks in the US, but also the large number of credit unions, savings and loan associations and mutual savings banks through 1970. Further data on the market shares of credit, finance, and other indicators explored below indicate the *marginalization* of these institutions after 1970. However, the evidence from 1896-1970 suggests that commercial banks remained just one part (or one pillar) of banking and the production of credit money during most of US history.

Figure 1) Number of US commercial banks, credit unions, savings and loan, and mutual savings institutions, 1896-1970



Source: US Bureau of the Census, 1975: XX

The number of commercial banks, savings and loan associations, and mutual savings and trust institutions in the US remained largely stable in the period spanning the regulatory framework of the 1930s embodied by the Glass Steagall Act through 1970. However, in comparison, the number of credit unions increases substantially over the 1930-1970 period. The stabilization of the number of savings and loan institutions at around 6000, the stabilization of the number of mutual savings banks at approximately 500, and the increase in the number of credit unions from around 10,000 during the mid-1940s to over 23,300 by 1970 suggest the importance of alternative, socially oriented banking institutions during in US history. Although other factors may be at play here, (such as tax benefits enjoyed by credit unions), the history of banking in the US clearly involves very much more than private, money center banking.

Two further comments are in order. First, the debate about deregulation and disintermediation in US banking often focuses on the very large number and small size of banks that is normally seen to have been caused by the geographical and functional restrictions on bank operations imposed by the Glass Steagall Act and accompanying regulations in the wake of the 1929 crisis. However, the number of commercial banks and savings and loan associations peaks *not after regulations* were introduced in the 1930s but, instead, during the 1920s *well before the crisis of 1929*. This is consistent, instead, with the mechanisms of endogenous money and asset creation emphasized in Keynesian and recent money and credit money approaches. The simple number of banks over time may conceal much about these institutions and their monetary circuits. However, because the peak in the number of these institutions comes *before* the restrictive regulations of the 1930s, these regulations seem not to be the cause of the large number of commercial banks and savings institutions in the US.

Second, the large number of banks and savings institutions in the US is usually discussed in terms of competition theory. However, this descriptive data and studies of

the US banking system are consistent with a different view emphasized herein; that banks grow and compete as institutions designed to avert market failures. Indeed, for Allen and Gale (2000), it may be better to have four big banks that cover the national market for banking products and services than to have thousands of local banks, restricted geographically as was the case in most of US history. This runs contrary to theories and concepts about competitive markets and the sufficient number of banks that is necessary to ensure competition and avert oligopoly/monopoly such as the Herfindahl-Hirschman (HH) index. If market failures, agency costs and transaction costs are the key to understanding banks and banking systems, as is the trend generally in contemporary banking theory and financial intermediation theory, then it follows that traditional measures of competitive markets and market efficiency may not tap the most important phenomena of bank change and credit production of money.

A more complete comparison of the balance sheets of US banks over time is beyond the scope of this review. However, Table 2 introduces the differences in the balance sheets of US commercial banks (1896-1970) as compared to US mutual savings and loan institutions (1896-1970) and US savings and loan associations (1929-1970). This comparison indicates the different place of these three different types of banking institutions in financial circuits. Commercial bank accumulated assets primarily through loans (instead of mortgages), government bonds (more on that below), and cash for payments, while holding sight deposits, interbank loans, and, traditionally, higher levels of capital reserves as liabilities. Mutual savings banks and savings and loan institutions operated differently by accepting longer term savings deposits as liabilities and making longer term mortgages to hold as assets.

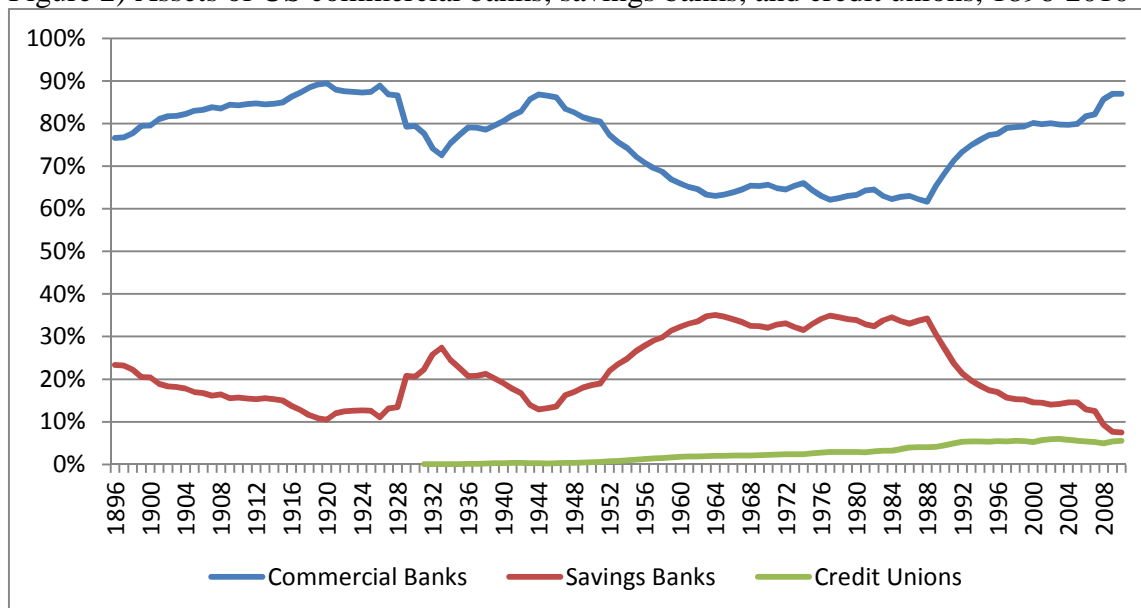
Table 2) Comparing Balance Sheets 1896 and 1970

	Commercial Banks		Mutual Savings Banks		Savings and Loans	
Assets	1896	1970	1896	1970	1896	1970
Loans	53.6%	42.6%	7.8%	2.9%	0.0%	0.0%
Mortgages	7.1%	13.3%	38.7%	73.1%		85.3%
Fed Gov Bonds	5.6%	9.7%	8.4%	4.0%		
Muni-State Bonds	1.7%	11.8%	25.6%	0.2%		
Cash	21.6%	16.1%	4.8%	1.6%		2.0%
Liabilities						
Time Deposits	11.5%	38.8%				
Savings Deposits			91.3%	90.6%	71.7%	83.1%
Capital Reserves	28.1%	7.8%	8.7%	7.2%		6.8%

Source: US Bureau of the Census, 1975

The second historical perspective explored herein is the value of assets held by banks in the US. Figure 2 traces the evolution of assets held by commercial banks, savings institutions (both savings and loans and mutual) and credit unions from 1896-2010. The disjuncture caused by policies of liberalization and deregulation in the 1980s is apparent. Different phenomena appear to hold during the preceding periods. From 1896-1929, the market share of commercial banks increases from 76.6 - 88.5 percent of total bank assets in the US, while the share of total assets held by savings institutions declined from 23.4 - 11.5 percent 1896-1918. Loss of commercial bank assets after the 1929 crisis continued through 1932 and, after recovery during World War II, declined thereafter to *remain between 65 and 62 percent* of total bank assets until liberalization and deregulation produced the savings and loan crisis in the late 1980s.

Figure 2) Assets of US commercial banks, savings banks, and credit unions, 1896-2010



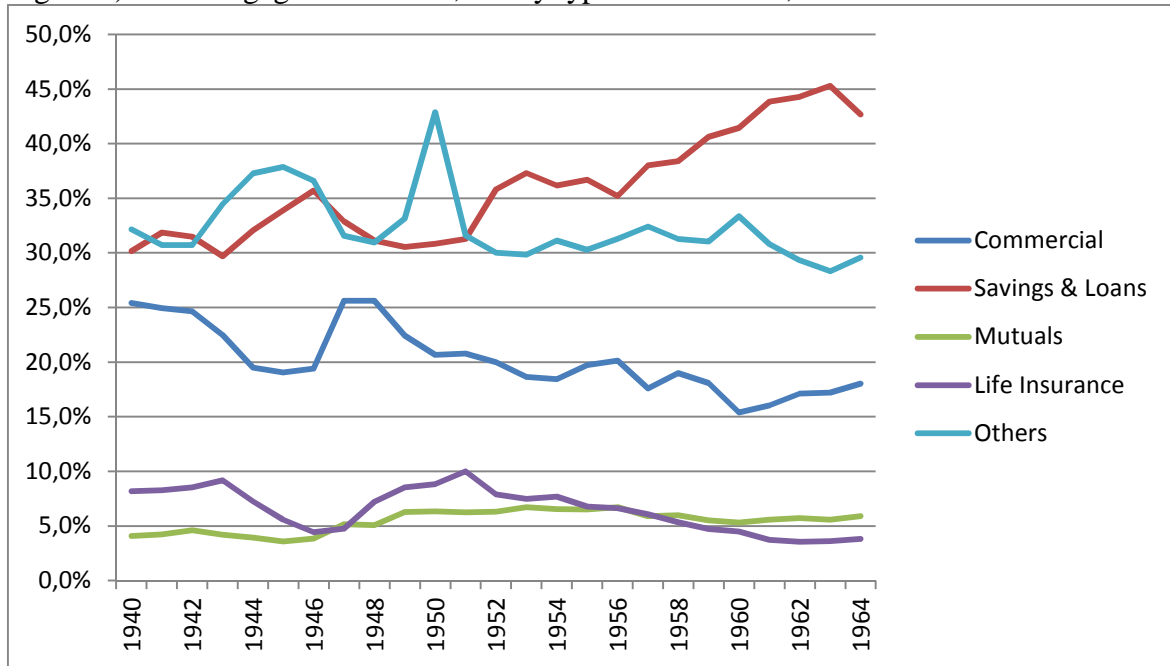
Source: For 1896-1970 period, US Bureau of the Census, 1975: For 1970-2010, US Federal Reserve Z1 Reports.

In other words, savings institutions retained a third of US bank assets during the post WWII period until liberalization produced the collapse of savings and loan institutions in the late 1980s and early 1990s. Credit unions grew gradually after the 1920 crisis to hold approximately 5 percent of total bank assets through 2010.

The third historical perspective explored herein is that of directed credit in the form of down-market mortgage lending (See Figure 3). The market shares of different types of financial institutions for mortgages in the US under \$20,000 from 1940-1964 indicate the importance of public policy and alternative banks to avert credit rationing. Data from this earlier period indicates the shift away from savings institutions and direct mortgage lending toward government sponsored enterprises and errors of securitization that produced the 2007-8 financial crisis.

This is one example of the long history of mortgages and directed credit in the US on balance sheets of non-private banking institutions. Further evidence from US government budget statistics indicates that a significant part of mortgage lending was directed credit from US government home finance programs. The importance of US government directed credit policies for mortgage lending both downmarket and to social groups such as veterans (and the better performance of these portfolios compared to massive problems with Government Sponsored Enterprises and packaging of mortgage backed securities during the 1990s and 2000s) indicate more positive sum relations between policy making and social banking in the US past.

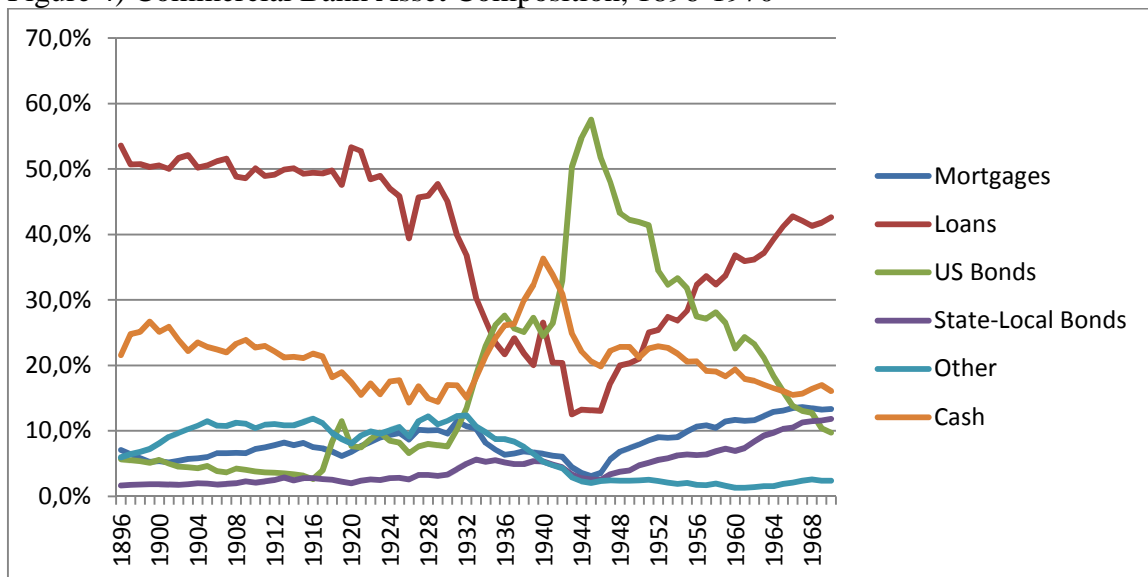
Figure 3) US mortgages under \$20,000 by type of institution, 1940-1964



Source: US Bureau of the Census, 1975, XX

The fourth historical perspective explored herein is that of disaggregating commercial balance sheets to demonstrate the importance of public finance (See Figure 4). The predominance of public finance (after loans) in US commercial bank asset holdings from 1896-1970 indicates that the business model of banks in the US traditionally focused more on government bonds and public finance and less on private sector firms that is seen to be so central in theories of corporate finance and financial intermediation. While most economists emphasize the role of banks in allocating resources from savings to private firms to accelerate innovation and growth, the bulk of bank assets since the 1929 crisis are, instead, composed of *government bonds*.

Figure 4) Commercial Bank Asset Composition, 1896-1970



Source: US Bureau of the Census, 1975, XX

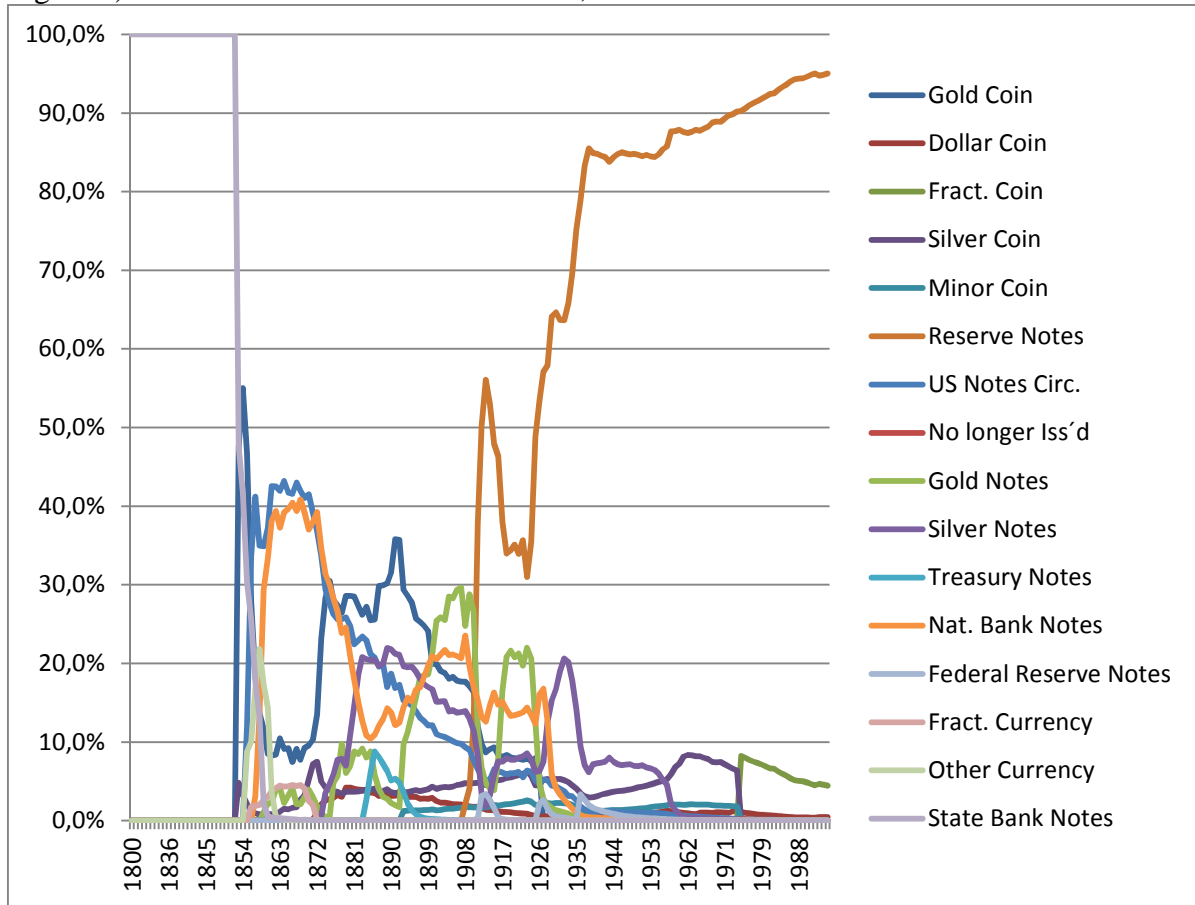
The value of US federal government bonds held by commercial banks increase from 7.8 percent of total assets in 1929 to peak at 57.5 percent of total assets held by these institutions at the end of World War II (1945). Thereafter, the value of central government bonds declines, as expected, to below ten percent of commercial bank assets by 1970. However, the value of state and local government bonds on commercial bank balance sheets increase in the post-World War II period from three percent in 1945 to reach 11.8 percent of commercial bank assets in 1970. In comparison, the value of loans (we were unable to disaggregate these loans) on commercial bank balance sheets drops from levels of 50 percent from 1896 through the 1929 crisis to reach 13.1 percent at the end of WWII in 1945; to recover thereafter to reach a full 42.8 percent of all assets held by US commercial banks by 1968. This indicates that crowding out of private finance (i.e. loans) during war gave way, after 1945, not only to commercial bank lending, but also to increased finance of local and state governments through municipal bond markets in the post-war period. Mortgages also increase from 3.0 percent of assets held by commercial banks in 1945 to reach 13.0 percent by 1968.

The increase of mortgage lending and municipal finance on commercial bank balance sheets indicates how dimensions of local political economy and household home finance are central in the post war US. This differs from financial intermediation theory that focuses on the allocation of resources from savers or surplus units to private firms as the most critical channel for economic growth. From 1896-1970 (a period, by all accounts, of rapid economic growth), commercial banks held more government bonds than commercial paper, stocks, and securities from the private sector on the asset side of their balance sheets. This is consistent with histories of capital markets that emphasize the importance of public finance rather than the traditional focus on corporate finance.

Since Dickson (1967), historical studies of stock markets have confirmed that government bonds for war finance contributed far more to the deepening of capital markets than equities, stocks, and corporate bonds issued to finance firms, both in New York (Geisst, 2012) and London (Michie, 2001). And after the holding of US federal government bonds for war finance declined in the 1950s, US commercial banks shifted not to an exclusive focus on financing private firms but, in addition, to home mortgages and municipal and other sub-national public entity bonds.

The fifth historical exploration indicates the late development of a monopoly over money management by the US federal government Federal Reserve System (See Figure 5). Tracing the origin of money, by issuer, in the US from 1800-1995 indicates the very late emergence of a core assumption of monetary theory today; that the Federal Reserve System retains a monopoly on the issue of official currency and, thereby, monetary policy. From the issue of greenback US dollars for Civil War finance in 1860s through World War I, a variety of coin, printed notes, and currencies circulated widely in the US. This differs from the monopoly of paper note printing and coin issue consolidated by the Federal Reserve System after 1945.

Figure 5) Currencies in circulation in the US, 1800-1995



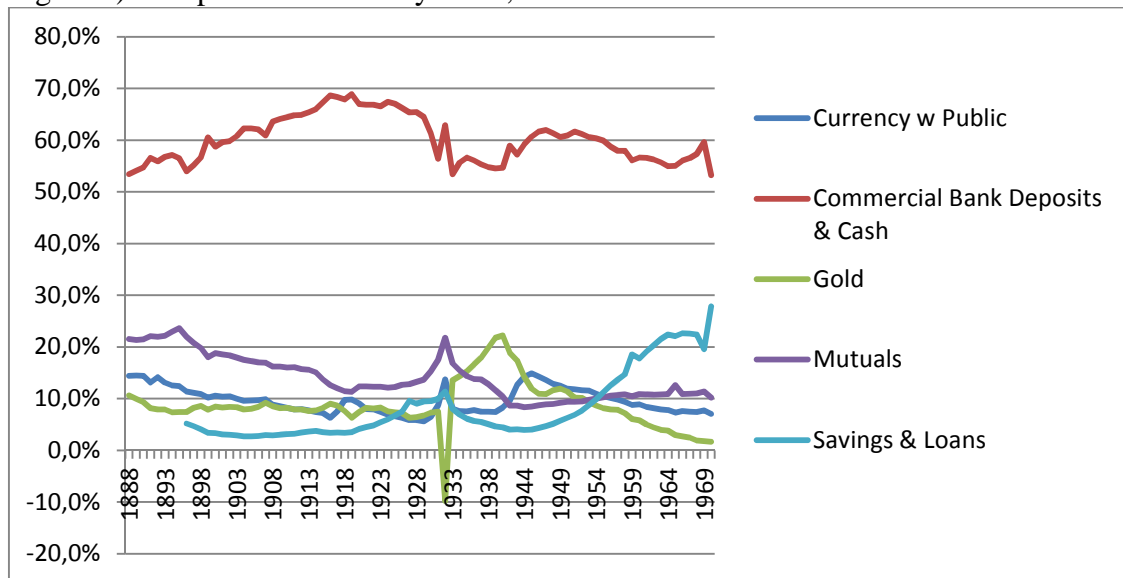
Source: US Bureau of the Census, 1975, XX

Further data reported below indicates that the monopoly of currency and money management by the Federal Reserve System (and the independence of the Federal Reserve Bank of *New York*) coincides with the realization of large money claims by a select number of private banks that dominate the production and holding of financial derivatives and other assets held *off balance sheets* and *off markets*. Since deregulation in the 1970s, the governance of the Federal Reserve Bank of New York has been captured by a select number of money center banks antagonistic not only to social banking in general but also to the other regional Federal Reserve offices throughout the US that remained responsible to local and regional institutions rather than money center banks (US Commission, 2010).

The sixth empirical test explored in this paper is to compare the respective contribution of commercial banks, savings and loan institutions, and mutual savings banks to the composition of the US money stock from 1888-1970 (See Figure 6). Although deposits and cash held by commercial banks remains approximately two thirds of the total money stock from 1888-1970, savings and loans institutions and mutual savings associations also retain substantial shares of the money stock. The value of savings deposits held at mutual savings associations peak at 24.0 percent of the total US money stock in 1894, but decline gradually thereafter (with recovery during the late 1920s and early 1930s) to remain just above ten percent of the total money stock through 1970. The value of deposits held at savings and loan associations increase from under five percent through World War I briefly during the late 1920s and early 1930s

(and decline during the 1940s), but increase after 1950 to reach 27 percent of total money stock in 1970.

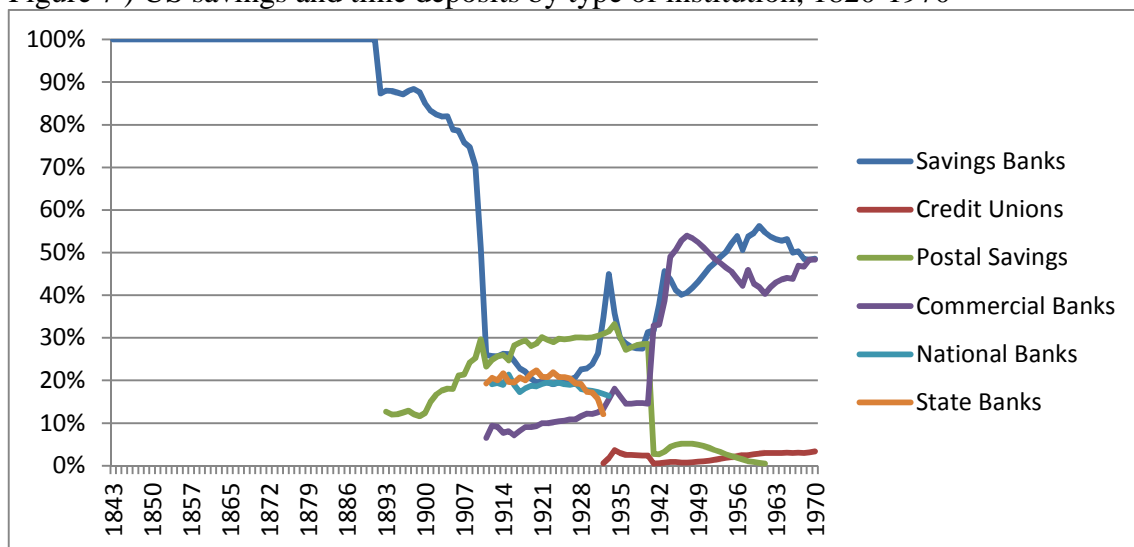
Figure 6) Composition of money stock, 1888-1970



Source: US Bureau of the Census, 1975, XX

The seventh historical-institutional exploration presented herein is the emergence and evolution of savings deposits and other time deposits held by savings banks and other institutions in the US from 1820-1970 (See Figure 7). The market share of savings accounts and other time deposits by different types of banks and financial institutions from 1820-1970 indicates the importance of traditional savings banks and the US postal service savings operations throughout this period. Indeed, savings banks can be said to have *invented* savings accounts, while commercial banks appear not to have offered savings accounts until 1910. Moreover, the recovery of market share of savings and time deposits in the US by savings banks from 1945-1970 indicates not a linear displacement of these institutions but another process.

Figure 7) US savings and time deposits by type of institution, 1820-1970



Source: Historical Statistics of the United States.

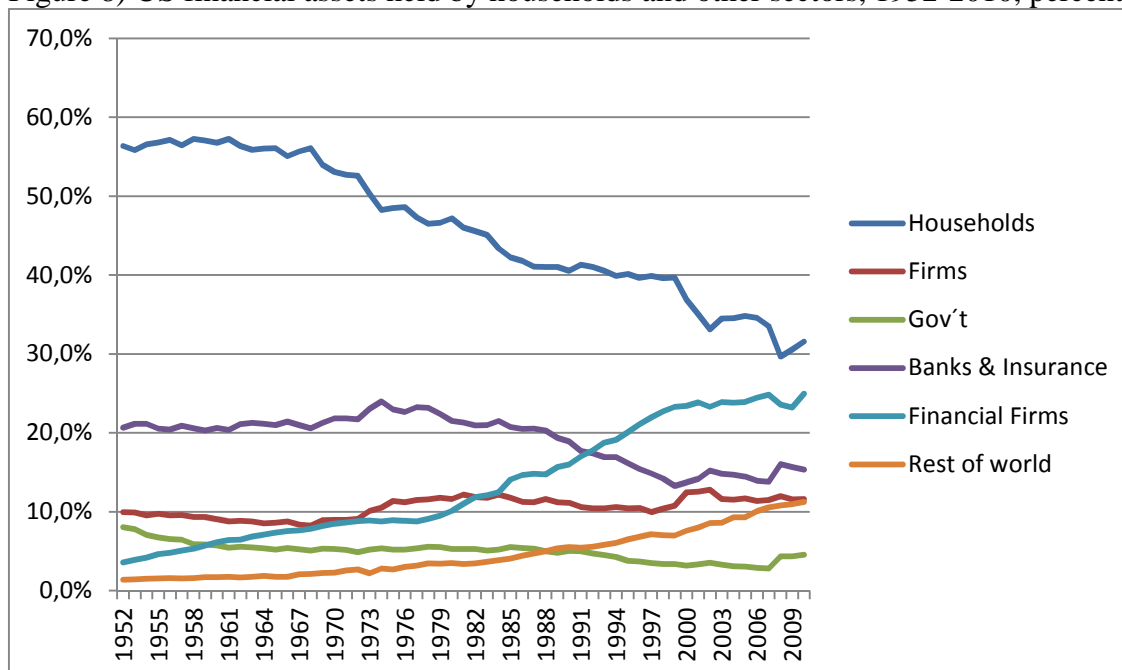
In sum, historical statistics on money, credit, and banking in the US suggest a variety of different agents above and beyond private commercial, money center banking that has become the exclusive paradigm of contemporary banking theory. The importance of diverse notes and coins that were widely accepted as currencies, the importance of government credit policies and institutions, the role of socially oriented directed credit programs, the importance of savings banks, mutual banks, and credit unions, and the traditional balance sheet composition of US banks in the past, at minimum, serve as reasons to doubt the wisdom of reforms that emphasize, exclusively, private, shareholding, money center banking. The evidence presented in this section suggests that various monies and a greater variety of banks helped sustained economic growth in the US before 1970. This calls for caution about the virtues of private, money center banking.

Bank change, credit money and money claims since deregulation

This section turns to further historical-institutional evidence about the marginalization of traditional banking institutions and transition to a more exclusive reliance on money center banking in the US. We first compare the evolution of financial assets held by US households, firms, government, banks and financial firms, and the rest of the world from 1952-2010 (See Figure 8). A core idea in financial intermediation theory and contemporary banking theory is that ‘disintermediation’ has produced the modernization of banking in the sense that clients and customers increasingly deposit their savings not in traditional time, sight, or savings deposits at banks but, instead, directly with financial institutions that tap efficient markets to allocate resources to firms and other financial products and services on capital and money markets.

The declining share of financial assets held by US households from 1952-2010 suggests a different phenomenon. Disintermediation implies that financial firms work with households to place their assets directly on markets to provide cheaper and better finance. In 1958, households held 57.3 percent of all financial assets in the US, a level that remained largely unchanged through 1967. However, thereafter, the value of financial assets held by households *declines from 57.3 to 29.7 percent* of the total by 2008. The contrary of disintermediation appears to have occurred. From this perspective, US households lost almost half their share of the country’s financial assets from 1967-2010. The share of US financial assets held by banks and insurance companies also remains approximately 20 percent of the total through 1987, whereupon these institutions loose significant market share to hold around 15 percent of the total after the late 1980s.

Figure 8) US financial assets held by households and other sectors, 1952-2010, percent



Source: BEA/FED Z1 reports historical statistics.

In comparison, financial firms increased their share of financial assets from 3.6 to 24.4 percent from 1952-2006. Contemporary banking theory appears to be correct about the ability of financial firms to manufacture assets. However, contrary to the view that financial firms increasingly ‘originate to distribute’ bonds and other financial instruments, the data indicate that financial firms not only manufactured assets: they appear to have *manufactured and retained assets*. And the numbers are very large. The value of financial assets in the US increases from \$1.4 billion in 1952 to over \$150 trillion in 2010. If we count the financial assets of different institutions as money claims, then it follows that financial institutions appear have manufactured, *and retained as their own*, 20.8 percent (or \$31.2 trillion) of the total increase of value reported in the total of US financial assets. Households, in comparison, lost 29.6 percent of their share of US financial assets, despite the fact that the value of their financial assets increased nominally in current prices from \$802.2 million in 1952 (57.3 percent of \$1.4 billion) to \$44.5 trillion in 2010 (29.7 percent of \$150 trillion).

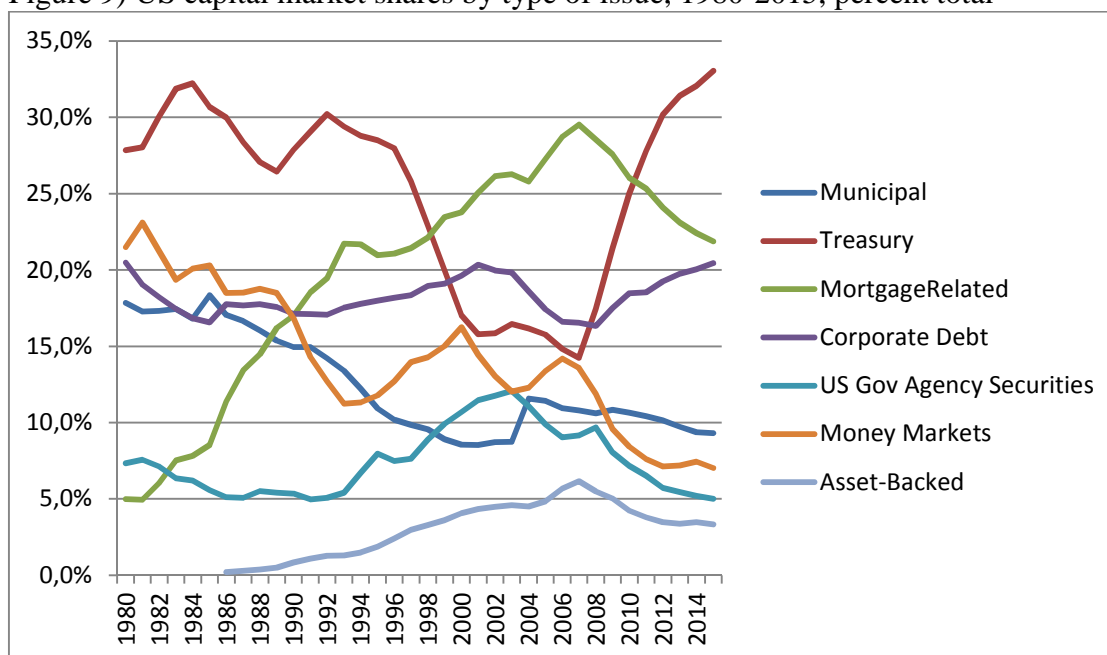
Through the 1970s, households in the US tended to hold shares of companies traded on the stock market and government bonds, alongside their bank accounts, insurance policies, and other financial assets. Since the 1970s, the trend is toward household purchase of participation in mutual funds, money market funds, and a wide variety of financial investments sold by private, money center banks. Ironically, what is normally seen as disintermediation appears, from this perspective, to be the very opposite. Contrary to the idea that banks increasingly ‘originate to distribute,’ private, money center banks have, instead, *manufactured financial assets and kept them*. The geometric expansion of financial assets is overwhelmingly a story within and among an increasingly select number of large banks. Further evidence presented below suggests that the concentration of over the counter derivatives at four large banks is especially marked.

In sum, the historical and comparative evidence explored herein indicates that the institutions and financial circuits in the US past have given way to a single pillar of private, money center banking. Instead of retaining large amounts of capital and money claims in long-term traditional balance sheets as practiced for decades at different types of banks, the financial circuits of money center banking, shadow banking, derivatives, repos and other money claims on and off markets now threaten to become the only game in US banking. From this perspective, boom and bust cycles of credit and finance have become worse since deregulation in the US because the buffer provided by alternative banks in the past no longer exists. If we remove the selection bias of Ricks and contemporary banking theory toward money center banking, the implications of bank and credit money change in the US becomes apparent. This can be expressed in terms of the ‘three pillar’ expression. Through the 1970s, one third of banking was exposed to the boom and bust cycles of markets for capital and money (actually less than one third because not all private banks focused their operations on capital and money markets in the US). However, liberalization, deregulation, and disintermediation in the US have place the entire banking system (or at least a much greater part of it) within the boom and bust cycles of financial instability as described by Minsky and other scholars since (See special issue of AEL, 2013).

We explore these patterns of change further, first by tracing the institutions responsible for the issue of securities on capital markets and, second, by tracing the value of new financial products produced *off* capital markets and exchanges by type of institutional issuer.

Figure 9 on the following page traces the market share of different types of bonds and securities issued from 1980-2015. Consistent with the observation about the historical importance of public finance in the deepening of capital markets stressed above, the US treasury continued to be the largest single issuer on US capital markets from 1980-1998 and from 2010-2015. Mortgage related bonds, securities, and derivatives increased from five percent in 1980 to reach 29.5 percent of the total value of finance issued on capital markets in 2007. Corporate debt retained a more stable share of issues on capital markets at roughly 20 percent of total, while the market share of other issuers remained smaller, such as US government agency securities (7.3 -5.0 percent, but peaking at 12 percent of total in 2002) and money markets (from 23.1 – 7.0 percent) while asset backed securities increased from zero to peak at over six percent of the total issued on capital markets in 2002.

Figure 9) US capital market shares by type of issue, 1980-2015, percent total



Source: BEA/FED Z1 reports historical statistics.

Studies of the financial crisis of 2007-7 have traced the origin and evolution of these financial products and services that drove the boom and bust cycle of the US economy.²¹ Of interest here is to trace the money claims of different institutions backwards to the institutions behind them. For this purpose, the primary interest here are not the money claims of financial assets traded on capital markets and official exchanges discussed above, but the additional money claims of financial assets that are held by banks and financial institutions off capital markets and off of official exchanges. This takes us, finally, to the issue of shadow banking. Table 3 compares the money claims based on derivatives, repos, and other new financial instruments that have increased geometrically since 2000.

As a preliminary introduction to the new money claims of derivatives traded on and off exchanges, the first two columns of Table 5 report the *notional value* of exchange traded derivatives and ‘over the counter’ derivatives from 2000-2015 taken from statistics reported by the Bank for International Settlements and the international Securities Industry and Financial Market Association. Notional values do not represent market values, as discussed below. However, as an initial comparison, the notional value of derivatives on and off markets nonetheless overshadow the total value of stocks, bonds, repos, commercial paper, and large time deposits on capital markets.

²¹ US Government Financial Inquiry Report (2011). Lo 21 Book review.

Table 3) Notional Value of Global Derivative Markets and US Financial Markets, 2000-14, \$billion

	Derivatives		US financial markets				Large
	Exchange	OTC	US Bonds	US Stocks	US Repos	Com. Paper	T.D's.
2000	14.191.0	95.199.0	17.327.6	204.5	2.532.9	1.606.1	1.201.8
2001	23.670.0	111.178.0	18.795.8	169.7	3.097.6	1.469.2	1.241.0
2002	23.769.0	141.665.0	20.210.0	154.0	3.790.6	1.370.3	1.262.3
2003	36.553.0	197.167.0	21.732.5	156.3	4.027.1	1.288.6	1.323.1
2004	46.304.0	258.628.0	24.389.6	202.7	4.938.2	1.395.0	1.597.0
2005	57.029.0	299.261.0	26.430.3	190.4	5.642.9	1.640.1	1.892.4
2006	69.151.0	418.131.0	29.158.8	190.5	5.613.9	1.957.5	2.181.6
2007	78.864.0	585.932.0	31.741.8	247.5	6.354.6	1.788.1	2.521.9
2008	57.761.0	598.147.0	33.148.9	242.6	6.500.9	1.599.3	2.339.5
2009	73.152.0	603.900.0	33.887.3	264.2	4.399.4	1.137.4	2.105.9
2010	67.972.0	601.046.0	35.407.2	261.7	4.722.7	1.057.5	1.923.2
2011	58.320.0	647.811.0	35.705.6	198.4	4.933.8	969.2	1.750.0
2012	54.109.0	635.685.0	36.602.4	281.8	4.885.9	952.4	1.659.9
2013	64.098.0	710.633.0	37.740.9	300.7	4.651.3	951.6	1.762.0
2014	64.858.0	630.150.0	39.010.2	311.4	4.243.2	930.4	1.972.9

Source: Securities Industry and Financial Market Association (Sifma) 2015 Fact book, collected from BIS.

Notional values represent money claims that depend on recognition from regulators. In 1997, the International Monetary Fund recommended counting the notional values of derivatives reported by banks at 100 percent face value. Current regulators such as the US Comptroller of the Currency have reduced the recommended counting of notional values to around three percent (OCC, 2016). However, even if we use the current discount of three percent, the total value of OTC derivatives remains over 18.9 trillion.

The International Securities and Derivatives Association also reports the notional value of derivatives from 1987-2009. The notional value of interest rate and foreign exchange derivatives increases from \$865.6 billion in 1987 to over \$426.7 trillion in 2009. The nominal value of credit default derivatives and equity derivatives pales in comparison, remaining at \$30.4 and \$6.7 trillion in 2009 respectively. Again, no consensus has emerged in international institutions responsible for regulations of banks on how to calculate fair value or market values for derivatives that are held off of the balance sheets of banks.

If the monetary value of derivatives held off of markets and stock exchanges is difficult to estimate, the evidence of the concentration of these financial instruments at four US banks is clear. Table 4 reports data from the Quarterly Report on Bank Trading and Derivatives Activities published by the US Office of the Comptroller of the Currency (OCC). Although the top four banks hold 34.6 percent of bank assets in the

US declared *on balance sheets*, these four banks hold *over ninety percent of all categories of derivatives* reported by the OCC (except for 85.2 percent of over the counter forward derivatives). Moreover, only 6.7 percent of derivatives are traded *on exchanges*, while 93.7 percent of derivatives are classified as being ‘over the counter,’ in other words as private contracts among banks. This concentration of off balance sheet derivative contracts at four banks suggests that concepts and theories about money center banking are flawed. Since the 1990s, contemporary banking theory and empirical studies of banking have emphasized convergence away from traditional bank balance sheets to the manufacture of assets on capital markets. The bulk of derivatives are not traded on markets.

Table 4) Derivatives on and off markets at top US banks, 2000-2015

	Total Assets	Total Derivatives	Exchange Traded		Over the Counter			
			Futures	Options	Forwards	Swaps	Options	Credit
2015								
JP Morgan Chase	13.3%	28.3%	12.4%	29.8%	31.9%	26.3%	32.7%	41.4%
Citibank	9.1%	25.6%	23.5%	22.9%	20.3%	26.3%	28.8%	29.5%
Goldman Sachs	0.9%	22.7%	26.0%	41.2%	12.1%	25.3%	24.4%	2.3%
Bank of America	11.4%	14.2%	32.0%	2.4%	20.8%	12.9%	7.1%	23.1%
Top 4 Banks	34.6%	90.8%	93.9%	96.4%	85.1%	90.8%	93.0%	96.3%
Total %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total US\$ tri	14.41	180.97	7.15	4.97	28.52	107.39	25.93	6.98

GDP= US\$18,03 tri

	Total Assets	Total Derivatives	Exchange Traded		Over the Counter			
			Futures	Options	Forwards	Swaps	Options	Credit
2010								
JP Morgan Chase	15.3%	33.7%	23.2%	39.0%	36.7%	33.1%	32.1%	38.7%
Citibank	14.1%	21.7%	18.0%	27.5%	19.6%	21.8%	25.6%	17.9%
Goldman Sachs	8.4%	18.4%	12.9%	18.3%	8.3%	20.8%	25.2%	3.4%
Bank of America	13.9%	21.0%	36.5%	8.9%	23.8%	20.5%	12.6%	34.0%
Top 4 Banks	51.8%	94.8%	90.6%	93.7%	88.3%	96.2%	95.5%	93.9%
Total %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total US\$ tri	10.62	231.18	4.88	4.26	30.83	149.24	27.83	14.15

GDP= US\$14,96 tri

	Total Assets	Total Derivatives	Exchange Traded		Over the Counter			
			Futures	Options	Forwards	Swaps	Options	Credit
2005								
JP Morgan Chase	13.4%	47.6%	53.5%	52.5%	33.9%	48.2%	52.3%	39.5%
Citibank	9.4%	20.8%	5.7%	12.0%	29.0%	21.2%	22.6%	14.6%
Bank of America	14.3%	21.4%	20.0%	10.7%	21.8%	22.9%	12.4%	34.9%
Top 3 Banks	37.1%	89.8%	79.2%	75.2%	84.6%	92.4%	87.3%	89.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total US\$ tri	7.53	101.47	4.04	3.26	8.00	64.73	15.60	5.82

GDP=US\$13,09 tri

	Total Assets	Total Derivatives	Exchange Traded		Over the Counter			
			Futures	Options	Forwards	Swaps	Options	Credit
2000								

Chase Manhattan	7.6%	35.7%	26.2%	21.1%	28.5%	41.8%	22.5%	4.8%
Morgan Guarantee	3.7%	23.7%	22.2%	19.4%	14.1%	23.2%	35.6%	64.3%
Bank of America	12.0%	18.2%	26.7%	33.1%	16.1%	18.0%	14.5%	9.5%
Citibank	7.8%	12.5%	6.8%	3.4%	24.1%	9.9%	11.8%	14.3%
Top 4	31.1%	90.1%	81.9%	77.1%	82.7%	92.9%	84.4%	92.9%
Total US\$ tri	4.85	40.54	2.21	1.75	7.65	21.94	6.54	0.42

GDP=US\$13,09 tri

Source: OCC, 2016.

Moreover, the concentration of derivatives at four large banks is evidence against the idea that derivatives involve a broader process of convergence shared by all banks. From the point of view of historical institutional balance sheet approach, the reality that four large banks hold over 90 percent of derivatives suggests that the recognition of money claims is concentrated at the Federal Reserve Bank of New York and involves, overwhelmingly, the top four US banks. US regional banks, community banks, and credit unions do not share in this use of derivative operations. Nor, indeed, do other, smaller, money center banks in the US beyond the top four bank holding companies. Data from 2015 suggests little change, in this respect from previous reports by the OCC that report comparable assets and derivatives from 2010, 2005, and 2000. The implications of this degree of concentration of derivatives at four US banks required further analysis beyond the scope of this review. However, given the evidence that over ninety percent of derivatives are concentrated at four US banks, the arguments of Ricks and the observations of most analysts and observers of shadow banking seem faulty.

Another comparison of the money claims of financial institutions from 2010-14 can be obtained in the values reported by the international Financial Stability Board (See Table 5). The total value of financial assets held by central banks, banks, insurance companies, pension funds, government agencies, and other entities increased from \$69.5-\$85.1 trillion from 2010-14. In comparison, the assets held in shadow banking operations off balance sheets increased from \$12.7-\$14.2 trillion. This indicates that the emphasis of Ricks and other analysts on the geometric expansion of private money claims at shadow banking operations before the financial crisis of 2007-8 was precisely that: a pre-crisis phenomena. Although further disaggregation of these money claims by institutions since 2010, the data reported by the Financial Stability Board indicate that shadow banking assets have not increased at the same pace of other, more traditional institutions such as central banks, licensed commercial banks, insurance companies, and pension funds.

Table 5) Financial assets by type of financial institution, 2010-2014 \$billion

	Total	Central		Insurance	Pension	Government		Shadow
		Banks	Banks			Funds	Agencies	
2010	69.501.3	2.451.7	17.010.1	6.528.3	14.551.3	7.861.8	21.098.2	12.788.7
2011	71.080.3	2.945.2	17.937.5	6.720.1	14.917.2	7.785.0	20.775.2	12.844.3
2012	75.183.2	2.955.0	19.269.9	7.056.9	15.725.5	7.712.1	22.463.8	13.291.6
2013	81.064.8	4.073.8	20.164.2	7.516.8	16.888.6	7.930.7	24.490.7	13.688.4
2014	85.061.9	4.555.4	21.232.7	7.814.1	17.678.5	8.044.7	25.736.4	14.238.6

Source: FSB Global Shadow Banking Monitoring Report. Available on:

<http://www.fsb.org/2015/11/global-shadow-banking-monitoring-report-2015/>

In sum, recent statistics indicate that a select number of private, money center banks manufactured a large amount of financial assets and money claims during the bull market and booming financial years that preceded the 2007-8 financial crisis. Further analysis and more careful disaggregation of data will be required to understand the complexity of categories and accounting procedures for market value, capital exposure, credit risk, collateral, and other questions about financial assets reported by banks off and on balance sheets. However, as these aggregate statistics for financial assets stand, they indicate that the current bases for discussion of shadow banking and new financial products and services are not a widely shared phenomenon, as Ricks and much of scholarly research and public policy debate assumes. Instead, the biggest problem with money and shadow banking are over the counter derivatives. And this is a problem that appears to be over ninety percent related to the top four US money center banks, not the banking system, nor money center banks in general, nor the other more traditional banking institutions that still matter in the country such as regional banks, community banks, credit unions, and other socially oriented financial institutions.

Conclusion – Rethinking Banking Models, Money, and Monetary Statecraft

Our previous research focused on the modernization of banks and central banks in Brazil and other emerging and developing countries since liberalization opened these economies to foreign competition in the 1990s (Mettenheim, 2016). Several anomalies were encountered. First, contrary to the most influential economic policy prescription during the 1990s (that of a Washington consensus to privatize and liberalize, especially banking), many developing and emerging economies, especially the largest ones, chose *not* to privatize government owned banks. Instead, liberalization without wholesale privatizations produced a ‘back to the future’ modernization of the big three federal government banks in Brazil. Contrary to expectations about convergence toward private, money center banking, these (supposedly ‘worst case’ state banks) used institutional foundations to realize competitive advantage over foreign and private banks (Mettenheim, 2010). This anomaly was also found, not only in other large developing and emerging economies, but also in several major advanced economies (Butzbach and Mettenheim, 2014). These studies have now been supported by comparative research on the variety and importance of different models for bank governance and management.

In a parallel research track, further anomalies of monetary statecraft were also found in case studies. Instead of imposing deregulation along the lines of the US, the Central Bank of Brazil increased, dramatically, its capacity to supervise, monitor, and control domestic banks and the money supply through the modernization of its operations in the 1990s and 2000s (Mettenheim, 2016). This made it apparent that, tragically, the deregulation of banking in the US occurred precisely during the decades that new technologies of information and communication both revolutionized banking and permitted better, lighter, and more efficient exercise of monetary authority by central banks. Notwithstanding the immense differences between the US and Brazil, the comparison is valid. Instead of modernizing, the Federal Reserve System, and the many other agencies responsible for regulation of banking and money in the US were left to languish because of faith in deregulation. This has proved a very expensive lost opportunity to modernize central banking and money management in the US. From this perspective, Ricks’ analysis of and blueprint for regulation of shadow banking is especially important to make up time and recover the lost opportunities to modernize monetary authority in the US.

Other features of US banking and monetary policy also remain, ironically, both anomaly and paradigm. Although US financial markets remain paradigmatic, no other country may produce such a profound financial crisis while still enjoying a subsequent flight to quality that radically reduces the cost of adjustment and recovery. The US also remains an anomaly because no other country chose to deregulate banking and money markets so completely. Despite these unique realities, the US nonetheless remains a paradigm for academic studies of banks and finance and core ideas about bank regulation. It is good news that the shadow banking operations of US banks have finally begun to receive the serious scholarly analysis they require. However, theory and evidence has been reported in this review to warn about 1) confusing the big four money center banks with the US banking system in general, 2) the selection bias toward private, money center banking, 3) the dangers of freeing shadow banking operations to emit digital dollars, and 4) the unlikely prospect of imposing restrictive reforms on shadow banking operations. Given the behavior of the big four US shadow banking operations before, during, and since the global financial crisis of 2007-8, we are skeptical that regulation of shadow banking may be simply achieved.

Given our insistence of going back to basics and returning to the classics, one of the many keen observations of Karl Polanyi may best conclude this review. In describing the consequences of laissez faire policies imposed on traditional institutions of land, labor, and money in the 19th century, Polanyi lamented that ‘The elementary truths of political science and statecraft were first discredited, then forgotten’ (Polanyi, 1944:33). This review has focused on the money claims of shadow banks to recover some of the elementary truths of monetary statecraft from traditional theories and concepts about banking, money management, and public policy. This is critically important to avert two slights of hand in current research and policy debates about banking and money. Selection bias toward private, shareholding, money center banks and the conceptual stretching of concepts of money, taken together, threaten to further insert the money claims of private derivative contracts into the base money supply. Although the object of this review essay, Ricks’ *The Money Problem*, synthesizes critical findings from recent studies about shadow banking, his proposal to grant shadow banks concessions to emit digital dollars does not follow and, indeed, threatens to conceal from public view the very problems of money that he has helped to reveal.

The rich variety of banking models from the past provide unique opportunities to reassess the back to the future modernization of state owned savings banks, cooperative banks, and special purpose banks in advanced, developing, and emerging countries. Reassessment of bank models is urgent to reframe debates in academic and applied research venues that remain dominated by the single model of private, shareholding, money center banks that have wrecked so much havoc on our societies.

References

Acharya, V.V. and S. Wiswanathan (2011), “Leverage, Moral Hazard, and Liquidity,” *Journal of Finance*, 66, 99-138.

Adrian, T., and A. Ashcraft . (2012). ‘Shadow Banking: A Review of the Literature.’ Federal Reserve Bank of New York Staff Reports, no. 580, October.

Aglietta, Michel, Ould Ahmed, Pepita, and Jean-François Ponsot (2014), 'La Monnaie, la Valeur et la Règle', *Revue de la Régulation* 16(2).

Allen, Franklin and David Gale, (2000). *Comparing Financial Systems*. Cambridge: MIT Press

Anderson, Richard G. (2003). 'Some Tables of Historical U.S. Currency and Monetary Aggregates Data.' Federal Reserve Bank of St. Louis. Working Paper 2003-006A.

Anderson, Richard G. and Kenneth A. Kavajecz. (1994). 'A Historical Perspective on the Federal Reserve's Monetary Aggregates: Definition, Construction and Targeting.' Federal Reserve Bank of St. Louis *Review*. March/April 1994. pp. 1–31.

Anderson, Richard G., Barry E. Jones and Travis D. Nesmith. (1997). 'Special Report: The Monetary Services Index Project of the Federal Reserve Bank of St. Louis.' Federal Reserve Bank of St. Louis *Review*. January/February 1997. pp. 25–82.

Arestis, Philip and Malcom Sawyer. (2007). *Alternative Monetary Economics*. London: Edward Elgar

Avgouleas, Emiliós and Charles Goodhart. (2015). 'Critical Reflections on Bank Bail-ins.' *Journal of Financial Regulation* 1 (1): 3-29.

Baily, Martin N. and Nicolas Montalbano. (2015). 'The community banks: The evolution of the financial sector, Part III.' *Economic Studies at Brookings*, Washington, DC: Brookings Institution

Baily, Martin N. and Sarah E. Holmes. (2015). 'The regional banks: The evolution of the financial sector, Part II.' *Economic Studies at Brookings*, Washington, DC: Brookings Institution

Bank of England (2013), 'Liquidity insurance at the Bank of England: developments in the Sterling monetary framework.'

Barnett, William A. and Apostolos Serletis. (eds). (2000). *The Theory of Monetary Aggregation* (Elsevier Science. North-Holland).

Bhattacharya, Sudipto., Boot, Arnoud., and Thakor, Anjan. (eds). (2004). *Credit, Intermediation and the Macro Economy: Models and Perspectives*. Oxford: Oxford University Press.

Bhattacharya, Sudipto. and Thakor, Anjan. (1993). 'Contemporary banking theory.' *Journal of Financial Intermediation*, (3):1 2-50

Bell, Stephanie. (2001). 'The role of the state and the hierarchy of money,' *Cambridge Journal of Economics*, 25:50

Berger, Allen, Molyneux, Phillip and Wilson, John. (eds.). (2010). *The Oxford Handbook of Banking*. Oxford: Oxford University Press.

Bernanke, Ben S. (2012). 'Monetary Policy since the Onset of the Crisis.' Speech at the Federal Reserve Bank of Kansas City Economic Symposium. Jackson Hole. Wyoming August 31, 2012

Bhattacharya, Sudipto and Thakor, Anjan. (1993). 'Contemporary Banking Theory.' *Journal of Financial Intermediation*, 3: 2-50.

Bindseil, Ulrich. (2014), *Monetary policy operations and the financial system*, Oxford University Press.

Blair, Margaret. (2013). 'Making Money: Leverage and Private Sector Money Creation.' *Seattle University Law Review*. 36: 417-54.

Blanchard, Olivier, Giovanni Dell'Ariccia, Paolo Mauro (2014), "Rethinking Monetary Policy", IMF Staff Position Note, SBP/10/03.

Block, Fred, and Margaret R. Somers (2014), *The Power of Market Fundamentalism. Karl Polanyi's Critique*. Cambridge, MA: Harvard University Press.

Born, Karl E. (1983). 'Vom Beginn des Ersten Weltkriegs bis zum Ende der Weimarer Republik (1914-1933),' in: *Deutsche Bankengeschichte*, Frankfurt. pp. 133-146.

Brunnermeier, Markus K and Arvind Krishnamurthy (eds). (2014), *Risk Topography: Systemic Risk and Macro Modeling*, Chicago: University of Chicago Press.

Butzbach, Olivier and Kurt Mettenheim (eds). (2014). *Alternative Banking and Financial Crisis*. London: Routledge

Dahl, Drew., Andrew Meyer, and Michelle Neely. (2016). 'Scale Matters: Community Banks and Compliance Costs' *The Regional Economist*, St. Louis Federal Reserve Bank.

Federal Reserve Bank of New York, (2015). 'Tri-Party Repo Statistics' Data provided by Bank of New York Mellon and JP Morgan Chase.

Felkerson, J. (2011). \$29.000.000.000.000: A detailed look at the Fed's bailout by funding facility and recipient. Bard College Levy Economics Institute Working Paper no. 698.

Fontaine, Laurence. (2008). *L'Économie Morale: Pauvreté, crédit et confiance dans l'Europe préindustrielle*. Paris: Gallimard.

Freixas, P, Hartmann, C, Mayer (eds) (2008). *Handbook of European Financial Markets and Institutions*, Oxford University Press, New York

Friedman, Milton (ed.). (1956). *Studies in the Quantity Theory of Money*. Chicago: University of Chicago Press.

Friedman, Milton and Anna Jacobson Schwartz. (1963). *A Monetary History of the United States. 1867-1960*. Princeton: Princeton University Press.

FSB (Financial Stability Board) (2015). Global Shadow Banking Monitoring Report. Available on: <http://www.fsb.org/2015/11/global-shadow-banking-monitoring-report-2015/>

Funk, Russell, J. and Daniel Hirschman. "Derivatives and Deregulation: Financial Innovation and the Demise of Glass–Steagall." *Administrative Science Quarterly* 59 (2014): 669–704.

Gabor, Daniela and Jakob Vestergaard. (2015). 'Towards a theory of shadow money' (manuscript).

Gallin, Josh and Paul Smith. (2014). 'Enhanced Financial Accounts,' Feds Notes (Board of Governors of the Federal Reserve System). August 1.

GAO (Government Accounting Office). (2011). 'Federal reserve system: Opportunities exist to strengthen policies and processes for managing emergency assistance.' Washington. DC: GAO.

Gerring, John and Paul Barresi. (2003). Putting Ordinary Language to Work A Min-Max Strategy of Concept Formation in the Social Sciences. *Journal of Theoretical Politics*, 15(2): 201–32.

Gorton, Gary, and Metrick, Andrew. 2012. "Securitized Banking and the Run on Repo". *Journal of Financial Economics*, June 2012, v. 104, iss. 3, pp. 425-51.

Greenwood, R., and D. Scharfstein. (2013). 'The Growth of Finance.' *Journal of Economic Perspectives* 27, no. 2 (Spring): 3-28.

Guinnane, Timothy. (2002). 'Delegated Monitors. Large and Small: Germany's Banking System. 1800-1914'. *Journal of Economic Literature* 40: 73-124.

Guttman, Robert. (2002). 'Money and Credit in Regulation theory.' in Boyer, Robert and Yves Saillard (eds). *Regulation Theory: The State of the Art*. London: Routledge, 2002, pp. 57-73

Hardie, Ian and David Howarth. (eds). (2013). *Market Based Banking and the International Financial Crisis*. Oxford: Oxford University Press

Hulten, Charles and Marshall Reinsdorf (eds.). (2015). *Measuring Wealth and Financial Intermediation and Their Links to the Real Economy*, Chicago: University of Chicago Press.

Ingham, Geoffrey (2004), *The Nature of Money*, Cambridge, UK: Polity Press.

International Securities and Derivatives Association. Derivatives Report

Kavajecz, Kenneth A.. (1994). 'The Evolution of the Federal Reserve's Monetary Aggregates: A Timeline.' Federal Reserve Bank of St. Louis *Review*. pp. 32–66.

- Keyes, Emerson. (1876). *History of Savings Banks in the United States*. New York: Bradford Rhodes. (2 vols.)
- Krishnamurthy, Arvind and Nagel, Stephan. 2013. "Interpreting Repo Statistics in the Flow of Funds Accounts". NBER Working Paper No. 19389, August 2013.
- Krishnamurthy, Arvind; Nagel, Stephan; and Orlov, Dmitry. "Sizing Up Repo". *Journal of Finance*, forthcoming.
- Lall, Nangit. (2012). 'From Failure to Failure: The Politics of International Bank Regulation. *Review of International Political Economy*, 19(4):
- Lintner, John. (1948). *Mutual Savings Banks in the Savings and Mortgage Markets*. Andover, MA: Harvard Business School Press.
- Lowi, Theodore. (1964). 'American Business, Public Policy, Case Studies and Political Theory. *World Politics*. 16:4 (1964), 677-715
- Marquis, C., and M. Lounsbury (2007), 'Vive la Résistance : Competing Logics and the Consolidation of U.S. Community Banking,' *The Academy of Management Journal*, 50 (4): 799-820.
- Mason, David. (2004). *From Building and Loans to Bail-outs: A History of the American Savings and Loan Industry. 1831-1995*. New York: Cambridge University Press.
- Mettenheim, Kurt. (2016). *Monetary Statecraft in Brazil, 1808-2014*. London: Routledge.
- Mettenheim, Kurt and Olivier Butzbach. (2014). 'Alternative Banking History,' in Butzbach, Olivier and Kurt Mettenheim (eds). *Alternative Banking and Financial Crisis*. London: Routledge, pp. 11-27
- Mettenheim, Kurt (2013). 'Back to Basics in Banking Theory and Varieties of Finance Capitalism,' *Accounting, Economics and Law*, 3(3): 357-405
- Mettenheim, Kurt. (2010). *Federal Banking in Brazil: Policies and Competitive Advantages*. London: Routledge.
- Nakamura, Leonard. 2013. "What You Don't Know Can Hurt You: Keeping Track of Risks in the Financial System." Federal Reserve Bank of Philadelphia. *Business Review*, First Quarter, 2013.
- Olmstead, Alan. (1976). *New York City Mutual Savings Banks. 1816-1861*. Chapel Hill: University of North Carolina Press.
- Philippon, T. (2013). 'An International Look at the Growth of Modern Finance.' *Journal of Economic Perspectives* 27(2): 73-96.

Philippon, T. (2012). 'Has the U.S. Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation.' NBER Working Paper no. 18077, May.

Rache, Robert and James Johannes (1987). *Controlling the Money Supply*. Boston: Kluwer

Sartori, Giovanni. (1971). Concept Misformation in Comparative Politics. *American Political Science Review*. 64(4): 1033-53

Schumpeter, Joseph. (1954). *History of Economic Analysis*. London: Routledge.

Securities Industry and Financial Market Association (Sifma) (2016). '2015 Fact book'. Available on: <http://www.sifma.org/factbook/>

The Financial Crisis Inquiry Commission. (2011). 'The Financial Crisis Inquiry Commission Report', Washington, DC: US Government Printing Office.

Thelen, Kathleen. (1999). 'Historical Institutionalism in Comparative Politics.' *Annual Review of Political Science*, Vol. 2, pp. 369-404

U.S. Bureau of the Census, (1975). *Historical Statistics of the United States, Colonial Times to 1970*, Washington, DC, Bureau of the Census, 2 vols.

US Commission (US Government Financial Crisis Inquiry Commission). (2010). *The financial crisis inquiry report*. Washington, DC: US Government Printing Office.

U.S. Government Accountability Office. *Dodd-Frank Regulations – Impacts on Community Banks, Credit Unions and Systemically Important Institutions*. Publication no. GAO-16-169 (Dec. 2015).

U.S. Government Accountability Office. *Large Bank Holding Companies – Expectations of Government Support*. Publication no. GAO-14-621 (July 2014).

U.S. Office of the Comptroller of the Currency, (2016). *Quarterly Report on Bank Trading and Derivative Activities*. Washington, DC: OCC.

Wadhvani, R. Daniel. 2006. 'Protecting Small Savers: The Political Economy of Economic Security'. 18 (2006): 126-45.

Welfling, Weldon. 1968. *Mutual Savings Banks: The Evolution of a Financial Intermediary*. Cleveland: Case Western Reserve University.

Wray, Randall. *Money and Credit in Capitalist Economies: The Endogenous Money Approach*. (Aldershot: Edward Elgar, 1990).

Zelizer, Viviana A. (1997), *The Social Meaning of Money. Pin Money, Paychecks, Poor Relief and Other Currencies*. Princeton, NJ: Princeton University Press.