



Munich Personal RePEc Archive

Banks As Social Accountants: Credit and Crisis Through an Accounting Lens

Bezemer, Dirk J

Groningen University

13 June 2009

Online at <https://mpra.ub.uni-muenchen.de/15766/>

MPRA Paper No. 15766, posted 17 Jun 2009 00:45 UTC

**Banks As Social Accountants And Social Controllers:
Credit and Crisis in Historical Perspective***

Dirk J Bezemer**

Groningen University

ABSTRACT

This paper probes the role of banks and credit in our socio-economic system using the metaphor of banks as social accountants, introduced by Stiglitz and Weiss (1988). It highlights the credit nature of money, and thus the fact that money is an accounting construct. It then views credit through an accounting lens and distinguishes between bank credit to the real sector (which grows apace with the size of the economy) and banks credit to financial and asset markets, which by accounting necessity create a debt overhead on the real economy. This mechanisms is illustrated by dissection of long-term credit glows in the US economy. The paper considers the role of banks and regulators in facilitating the long credit boom and debt growth since the 1908s. It identifies three ways in which debt growth was de-emphasized in monitoring and policy making in OECD countries.

* This papers has benefited from conversations with (in alphabetical order) Arno Mong Daastoel, Geoffrey Gardiner, Michael Hudson, Gunnar Tomasson and Richard Werner.

** d.j.bezemer@rug.nl Postal address: University of Groningen, Faculty of Economics PO Box 800, 9700 AV Groningen, The Netherlands. Phone/ Fax: 0031 -50 3633799/7337.

Banks As Social Accountants And Social Controllers: Credit and Crisis in Historical Perspective

1. Introduction

This paper is about the role of banks as social accountants. The topic is an important one at any time. But banks, bank credit and its effect on broader economic performance are now of particular interest because of the credit crisis which broke in 2007. This is indeed a credit crisis, in two senses. First, its most urgent symptom is banks' inability to continue their social function of providing credit to society: there is a liquidity crisis. But underlying this symptom, there also is a credit cause for the crisis. This is the neglect of the basic accounting fact that every credit is accompanied by a debt. In that sense, the credit crisis really is a debt crisis. Society has neglected to ensure that credit would be directed towards self-amortizing investment, with real returns that would allow the paying off of debts. Instead, credit flows have led to the accumulation of debt, balanced for a time by rising asset values. Their plunge left the banking sector with a large net debt, ruined balance sheets and incapacitated to serve the economy well.

In this paper I take a step back from current developments to place this in broad historical perspective. The aims are to (1) draw attention to the accounting nature of credit and money, (2) its implications for the function of credit in our socio-economic system, and (3) consider the role of banks and bank regulators in managing that function. I will find it helpful to employ the metaphor of banks as social accountants, introduced by Stiglitz and Weiss (1988).

In a nutshell, the argument developed in this paper is the following. The basic fact underpinning it is that all money is credit. Money is the expression of an accounting relation of liability and asset, created as one agent extends credit to another, who assumes a debt. (Therefore the study of money and credit is *au fond* a study in accounting.) Such IOUs are monetized as they are made into tradeable instruments, typically backed by the state's authority; in other words, money is 'transferrable debt' (Ingham, 2004; Gardiner, 2006). The next section briefly introduces the historical relation between credit and money, and the role of banks and states in developing and providing both. This is relevant beyond its historical interest, as money and credit today still essentially is what it was in the days of earlier

accounting systems such as ancient Babylonian *shubati* and medieval English tally sticks: the accounting trail of income, wealth and debt. Money historically emerged as credit, and this is how it still is created today in the bank lending process. Bank loans give rise to bank deposits, which is the form of liquidity generally accepted for all transactions of goods and services - in short, bank loans create the deposits that are money, and so bank credit creation is money creation.

The second point this paper makes is that the pattern of money creation in the bank lending process (for instance, more to one sector and less to another) mirrors the pattern of economic activity. In particular, it mirrors the size of society's investments in self-amortizing tangible capital formation and in financial market assets and instruments, which leave a debt overhead. It is in this sense that banks are 'social accountants'. Their books are the accounting trail of income flows and of the creation of wealth and debt. In section 3, I delve into the accounting details of credit creation, setting out the relations between lending, saving, investment and debt, as they are mirrored in banks' bookkeeping. This illustrates that banks truly are 'social accountants', as Stiglitz and Weiss (1988) wrote. To illustrate, in section 4 the paper follows that trail for the US economy over the half quarter century in the national credit flow data. This illustrates how the accounting nature of the money creation process matters directly to growth of the economy and of the debt overhead imposed on it.

The third point developed in this paper is to suggest that banks may go beyond the role of passively recording liquidity flows. As credit is typically a bottleneck factor in economic growth and development, banks may be 'controllers' rather than only 'accountants'. They may not merely facilitate, but actively shape the structure of the economy, and of its aberrations. But this is not uncontroversial. Section 5 therefore critically probes this assertion, juxtaposing it to the more common view that the moving forces in the economy are in the real sector and in 'economic fundamentals', not in the financial sector. It provides arguments and evidence either way, but on balance concludes that there is firm ground to view banks as active 'controllers' rather than only as passive 'accountants' of the economy.

Fourth, this is not to be reduced to simplistically blaming (or crediting) the banking system for the (im)balance in society's income, wealth and debt growth. For it throws up the question of 'who controls the controller?', bringing into focus the role of monetary and financial authorities in setting the accounting rules for banks. In section 6 I identify three development

that have contributed, since the mid-1980s, both to redirect bank lending from real-sector investments towards financial investments - so increasing debt levels and endangering sustainability - and to make this sea change less than obvious to the public at large, to economic commentators and even to regulators.

This paper, in brief, is about accounting, organizations and society - the accounting rules that underlie money creation, credit extension and debt buildup; the institutionalization of this process in banking organizations; and the society's delegation of oversight and control to the financial and monetary authorities.

2. All Money is Credit...

In this section we consider the first plank in the above account: the proposition that all money is credit, an assertion that underpins all that follows. This proposition goes against a widely held belief, based on textbook economics, that money historically emerged as a convenient unit of account to replace the cruder barter trade; and that the use of credit and debt was an optional extra, predicated on the prior existence of money and conceptually quite separate from it. This convenient pedagogical narrative has been taught since times immemorial – at least since Aristotle, as Ingham (2004) recounts - but if assessed as actual financial history, it is found to be devoid of historical or ethnographic evidence to support it. There are reasons (some of them reviewed by Wray, 1998) why it is nonetheless a popular and persistent fable, but these are beyond the scope of the present paper.

Instead we consider recent evidence from the ‘archeology of money’ (which comprises research in archeology, anthropology and numismatics) in favour of the credit origin of money – see e.g. Wray (1998, 2004), Ingham (2004), and Hudson (2002), building on early seminal contributions by Knapp ([1905] 1924) and Mitchell Innes (1913, 1914). A major argument for this position is logical. It is that specialization of labour - which characterized societies as early as the Mesolithic age – must have implied credit relations. Specialization of labour and the attendant exchange of goods (e.g. between hunters, toolmakers and gatherers) requires a social mechanism to bridge the time between delivery of the various goods. A hunter needs bow and arrow from the toolmaker before he can hunt and deliver meat in return. In the meantime, the hunter is a debtor as he owes the toolmaker, who is a creditor. In societies also involving farmers, bakers, and so on, the web of debtor-creditor relations quickly becomes complex. Such relations would therefore have been recorded in some way. This is not just another pedagogical narrative. For instance, archeologists have found notched bones from Stone Age hunter-gatherer societies, where the notches have been interpreted by scholars as evidence of quite elaborate accounting systems (Gardiner, 2004).

The highly developed ancient civilizations likewise had credit-money, typically linked to the temple-state administration system. In ancient Egypt, (to be completed...) From the temple ruins of the ancient Babylonian and Sumerian civilisations (from 2,000 to 3,000 BC) have been recovered thousands of clay tablets (called *shubati*, meaning ‘received’) which are receipts for grain deliveries to the temple (in payment of taxes to the temple-state elite), recording the sender’s and receiver’s names, the quantity, and the date. In striking analogy to

modern double-entry accounting methods, many of these tablets were sealed in cases inscribed with the same information. These tax receipts are the oldest IOUs we know of, and like bills of exchange used in later times, these cases and their contents were 'signed and sealed documents and passed from hand to hand' (Innes, 1914:35). When the debt described on the case was cleared, it was broken. Archeologists have recovered many such cases intact, indicating that, just like the outstanding stock of money in our economic system, their primary use had become to facilitate transactions, not to settle debt. They were tradable and functioned as means of payment, their value determined by the authority of the temple-state ruling elite. In short, these IOUs were money, long before coins were introduced to Babylonia and Persia by Alexander the Great in 331 BC, when he minted temple gold into coins to pay his army. In ancient Egypt and Babylonia credit preceded token money, and coins and notes are tokens of credit relations.

So it was in Europe, where since the earliest times formalized and recorded creditor-debtor relations were used as money, i.e. to settle transactions of goods and services. In many Western European societies, the form this took was the square wooden stock with notches, known as a tally (Wray 1998:41). It was created when a buyer became a debtor to seller. Both their names, with the date, were written on opposite sides of the stick. Then the stock was split down the middle but stopped about an inch from the base. There thus were two smaller sticks with a equal amount of notches, one (called the 'stock' and retained by the creditor) longer than the other (the 'stub', held by the debtor). Stock and stub could always be matched to ensure they has not been tampered with, and to ascertain the debt to be paid. Again, it is obvious that tallies, like Sumerian *shubatis*, were a form of double-entry bookkeeping. And like *shubatis*, wooden tally sticks were not primarily used to settle bi-personal debts but circulated as means of payment. Innes (1913) recounts how well known mediaeval fairs such as St. Glies in Winchester or Champagne and Brie in France were primarily clearing houses, where merchants came to clear their tally stocks and stubs. As wooden tallies are not preserved as well as clay *shubati*'s we do not know for how long wooden tallies have been used as money. But tallies in one form or another were widespread through ancient Europe. Copper pieces purposely broken like jigsaw puzzle pieces in analogy to stock and stub have been found in Italy, dating from between 1000 and 2000 BC.

In summary, credit cannot have evolved from money, as textbook allegory has it. The actual process was the other way round. The evidence is that historically, tax debts and trade debts

were monetized – that is, debt tokens such as tally sticks became transferrable and circulated as medium of payment. Credit historically preceded money, and money has been and still is a category of credit. In our society, banks have replaced the Babylonian temples and medieval European merchant and feudal lords of earlier times as the institutions authorized to issue money. But they still essentially do what was always done. They create new credit tokens (now electronic bits) that are transferable and widely accepted as means of payment.

This also implies that it is not the case that banks lend out pre-existing money at some multiple when they make a loan. Rather, it is the other way round: banks create money as they lend. This reality is ancient, as we have just seen, but also modern. Money, most commonly defined in terms of bank deposits or ‘liquid liabilities’ is created as banks grant loans. Each act of bank lending so increases the money stock. As the Federal Reserve Bank of Chicago explains: ‘The actual process of money creation takes place primarily in banks.’ ... “What they do when they make loans is to accept promissory notes in exchange for credits to the borrowers' transaction accounts. Loans (assets) and deposits (liabilities) both rise by the amount of the loan” (FRBC, 1992:3,6). The Federal Reserve Bank of Dallas on its educational website simply states that ‘[b]anks actually create money when they lend it’ (FRBD, 2009). This continuing reality of money emanating from the credit creation process is also borne out by modern econometric research. Caporale and Howells (2001) show for UK data that loans precede and ‘cause’ deposits, in the sense of statistical causality tests in the context of a Vector Auto Regression framework. Banks first make loans, which give rise to the bank deposits that are generally accepted as ‘money’.

3. ... But Not All Credit Is Money

The historical credit nature of money, and the key role that banks play in its creation, make it clear why a credit crisis is a liquidity crisis. If banks are unable to create credit due to ruined balance sheets, this chokes off the supply of modern-day ‘tally sticks’ to the real economy, and hampers the transactions in goods and services. But this does not explain the role of debt. Again, the historical analogy of tallies may be helpful here. If each tally stick were created in a transaction of actual goods or services, to the amount of the price of that transaction, each debt would be matched by a credit, and there would not be net debt in the economy. But where tally sticks are ‘monetized’ - that is: circulate without direct link to a specific transaction between two parties - it is possible to create credit tokens without transactions and thus without the necessity of first having produced goods and services. Debt and credit have now been created without counterparts in the real economy in terms of goods and services. If such tokens are also traded at interest (so that new means of payment have to be created to cover the interest), the growth of debt may take on its own dynamic, functionally separate from transactions of goods and services in the real economy. The burden of debt servicing may then easily grow out of proportion with the economy’s ability to pay. This was indeed the case in ancient societies which used monetized trade and tax debts as means of payments. These economies therefore typically had in place mechanisms to clear the debt overhead, such as periodical ‘clean slate’ or ‘jubilee’ debt cancellations in the ancient Babylonian and Israelite societies, respectively (for details, see Hudson 2002).

Again, what was true in ancient societies is still true in ours. While all money is credit, credit is not all money. In our economy, most newly created ‘tally sticks’ (that is, bank loans) are not used in payments for goods and services. Only a minority share of bank lending is devoted to creating bank deposits in support of investment and consumption. Such deposits then circulate and are generally accepted means of payment for goods and services: they are money. But most lending is, in contrast, in support of financial investment, that is: the creation of, and trade in, financial assets and instruments. Most liquidity available in the world today is used in financial markets, not in transactions of goods and services. The balance between the two has sharply changed since the mid-1980s, as we will explore below in section 4 for the case of the US. Such financial assets and instruments are not generally accepted means of payment, and the bank credit creation that supports them is therefore not part of the money creation process in support of the real economy. It bears repetition: all

money is bank credit, but not all bank credit is money. The difference matters directly to our understanding of how banks have performed in their role of ‘social accountants’.

Let us therefore retrace this argument in detail in the setting of contemporary bank credit creation. This will clarify the link between the accounting nature of bank money creation and the development of a credit crisis (symptomatic of a debt crisis). The argument starts from a simple principle, familiar to any fledgling student of accounting. In bank lending, as in any area where double entry bookkeeping is used, assets must equal liabilities. Each act of bank lending creates a liability to some customer (a debt payable to the bank) and the accompanying asset (the bank deposit, which is money). But the way in which credit is used determines whether there will be a net debt left. If the loan is used for a self-amortizing investment (e.g. in fixed capital formation), this creates value-added in the form of products and services, and allows the debt to be paid off. If, on the contrary, the loan is ‘invested’ in the financial markets, this will push up the price of financial assets and creates asset wealth for the owners. The assets may be traded many times by ‘investors’ who each have taken out a loan to finance the purchase, and each time the asset may increase in value – but total debt grows in parallel. It can only be repaid by withdrawing from the financial markets the liquidity equal to that created by the total of the loans. This settles the debt, but also deflates the price of the financial assets to their original value.

This brief narrative in essence is the story of an asset boom followed by a debt deflation. The two uses of credit broadly reflect real-sector investment typical of commercial banking and financial investment as done by, for instance, merchant banks and securities traders. The important point is that in terms of liquidity growth, financial investment by itself is a zero-sum game. Financial markets can only grow sustainably by absorbing liquidity created in the real sector, which is based on self-amortizing loans. Alternatively, they can grow unsustainably by simultaneously diverting liquidity from the real sector and increasing indebtedness. This is unsustainable as it must, with axiomatic certainty, at some point end. Still, such (ultimately) unsustainable debt growth may be sustained over decades by expanding the stock of financial assets and instruments.

From the above it is clear that the growth of debt depends on the use of newly created credit-money – whether in support of self-amortizing tangible investment, or in debt-bearing financial market investment. This may not be so obvious on the microeconomic level since in

an asset price boom any single individual can borrow, purchase assets, and sell them to pay off the debt with a profit left. No personal debt remains, and the good news spreads. However, as in many areas of economics there is a micro-macro paradox, or a ‘fallacy of composition’. For on the macro, society-wide level, there must be a growth in indebtedness of the economy when assets are traded at rising prices. This indebtedness takes the form of both rising commitments for the real sector to finance asset transaction out of wages and profit, and rising actual debt levels. When the asset was sold at a profit, someone else bought the asset at the new, higher price. He or she financed this either by diverting liquidity away from real-sector transactions, or by borrowing – at higher levels than did the first buyer. Therefore asset price booms are accompanied by rising debt and by a slowdown in real-sector nominal growth.

This exploration of the growth in assets and liabilities following the accounting act of credit creation also has implications for what is probably the most widely known accounting equality in macroeconomics. This is the “ $I = S$ ” equality, stating that savings S equal investment I . ‘Savings’ is a residue concept defined as the difference between income and consumption, and often measured by total deposits. So in light of the above, an act of bank lending creates the savings (deposits) necessary to finance an investment (with the loan): “ $I = S$ ” holds. During an asset boom most such ‘investments’ do not create tangible capital that generates a future income flow to pay off the debt. They are the creation of financial assets and instrument representing claims on others’ income – that is, they create debt. High rates of gross savings are so accompanied by high rates of debt growth. It is still the case that $I = S$ holds – it must do, because it is an axiomatic accounting equality, not an empirical regularity. But total savings equal total investments, not just fixed capital formation. Real-sector investment (which we will denote I_R) and financial investments (denoted I_F) make up total investment (denoted I) so that $I = I_R + I_F = S$. With I_F being vastly greater than I_R and debt growth equal to I_F , it is obvious that a society can grow into debt by directing its bank credit flows, and thereby its savings, away from tangible capital formation and towards financial market investment. This trend will be readily apparent from inspecting society’s accounting ledger: the record of bank credit flows. To this we turn in the next section.

4. Searching the Books: An Audit of US Credit Flows, 1952-2007

In this section we apply the approach developed above to recent trends in today's largest economy, that of the US. The aim is to illustrate that credit to the real and to the financial sector correspond to growth of the real economy and to debt buildup, respectively. US trends have been indicative of those in most of the industrialized countries. Their banking sectors, in the long credit boom that preceded the crisis, had been directing its lending so as to profit from asset price gains, rather than supporting investment in real-sector development, especially since the early 1980s. The growth in debt that accompanied the 1980s-1990s boom in asset markets was manageable as long as asset prices kept rising. Starting from a low level of indebtedness, this dynamic was sustained for about a quarter century, and played a particularly large role in growth and development of the Anglo-Saxon economies. Its end came with the summer 2006 turnaround on the US housing market, the US banking crisis this caused throughout 2007, and the financial contagion to other banking sector and then to entire economies throughout 2008, which is still continuing at the moment of writing.

In order to operationalize the distinctions developed above, consider that money is whatever is generally acceptable in payment for goods and services (which together make up the 'real' sector). Statistically, the total value of those payments for final goods and services is measured by the Gross Domestic Product (GDP). At the same time, as was shown above, money is bank deposits arising from bank credit creation. Therefore any increase in GDP must be mirrored in bank credit creation supporting transactions of final goods and services (plus interfirm trade credit). This is an accounting equality implied in the fact that money is credit. A first illustration of the money-is-credit approach is therefore to demonstrate that growth in bank credit to the real sector (plus any increase in its trade credit) equals growth in the value of GDP. This extends the approach first developed by Werner (1992;1997;2005) and applied to the Japanese economy.

In order to probe this, we must split US debt into credit to the real sector and credit to the financial sector, also called the 'FIRE' (Finance, Insurance and Real Estate) sector. The data are provided in the US ledger book – its 'flow of funds' accounting (FOFA) framework, in which table Z.1 reports the flow of funds for different debt instruments, for different sectors (Federal Reserve 2009). In the debt definition used in FOFA table D1, growth of total debt in the US domestic real economy is equal to growth in the value of all credit and equity market

instruments held as liability by the US domestic nonfinancial sector – that is, its domestic firms, households and local, state and federal government. This includes consumer credit, business credit, mortgage credit, government credit, equity, and finance credit market instruments (but it excludes employee retirement funds credit). In mapping debt growth onto economic growth (in GDP), we note that the FOFA total-debt definition is both too wide (it includes FIRE sector debt) and too narrow (it excludes trade credit). Therefore in order to arrive at credit to the real sector (i.e. in support of GDP), we subtract from the total value of credit market instruments all equity, mortgage and finance credit market instruments which support FIRE sector transactions, not transactions in goods and services. We also correct for inter-firm trade credit (account FL383170005 in table Z.1), which is debt creation in support of transactions in goods and services, but not via credit market instruments and therefore not recorded in the FOFA definition of total debt. Trade credit is substantial: the stock of outstanding trade debt equals a quarter of GDP (24.4 % in 2007Q4), up from 12 % at the start of the series we study in 1952Q1. This is just one illustration of the importance of studying the whole credit supply, not just an (arbitrary) statistical definition of ‘money’.

The other part of the US debt is FIRE-sector debt: principally equity, insurance and mortgage credit. In terms of sectors, this includes both interbank credit and credit to nonbank financial institutions such as savings institutions, credit unions, funding corporations, property-casualty and life insurance companies, mortgage pools, closed-end funds, exchange traded funds, private pension funds, money market mutual funds, real estate investment trusts, and security brokers and dealer. In term of instruments, US domestic FIRE-sector debt is mainly (for about 95 %) bank debt, i.e. credit market instruments; but it also includes other instruments such as equities, bonds and currency.

Growth of credit to the US real sector and the US FIRE-sector since 1952 relative to growth of US GDP are shown below in tables 1 and 2 in terms of stocks and flows, respectively. The graphs clearly show that total debt growth trends are equal to financial-sector debt growth, as in the conceptual account developed in section 3. Financial-sector debt growth was double-digit growth in most years, leading to an expansion of the financial sector from being equal to the size of the real economy in 1952 to a volume of nearly five times GDP in 2007. In contrast, growth in real-sector credit closely tracked growth in the value of all transactions of goods and services as measured by GDP - again, just as was suggested above on the basis of the money-is-credit approach. Over the long term, credit to the real sector grows almost

exactly in parity to GDP: over the 1952-2008 period, the ratio of the stock of real-sector credit to GDP has a mean of 1.01 and varies between 0.83 and 1.11. Until the 1980s, real-sector credit growth rates also closely track the ups and down of GDP growth. Afterwards, during the financial liberalization era, the link becomes looser in the short term, but the quantity correspondence (in nominal US Dollars) in the long term is preserved.

The graphs confirm that real-sector credit is used in support of self-amortizing production and consumption of goods and services, leaving no net debt growth beyond the nominal growth rate of the economy. FIRE-sector bank credit creation bears no link to real economic growth patterns at all during the financial liberalization era. It pushed up asset prices and left an increasing debt burden to the real economy. US households' financial obligations – principally, debt servicing and financial fees - rose by a quarter between 1980 and 2007, from 16 % to 20 % of household disposable income (Federal Reserve 2009). As is well documented elsewhere, the era of high debt growth from the 1980s to the end of the boom in 2006-2007 was indeed also a time of low to negative household savings levels, falling real-sector investments (ref) and skyrocketing asset prices (ref).

Table 1

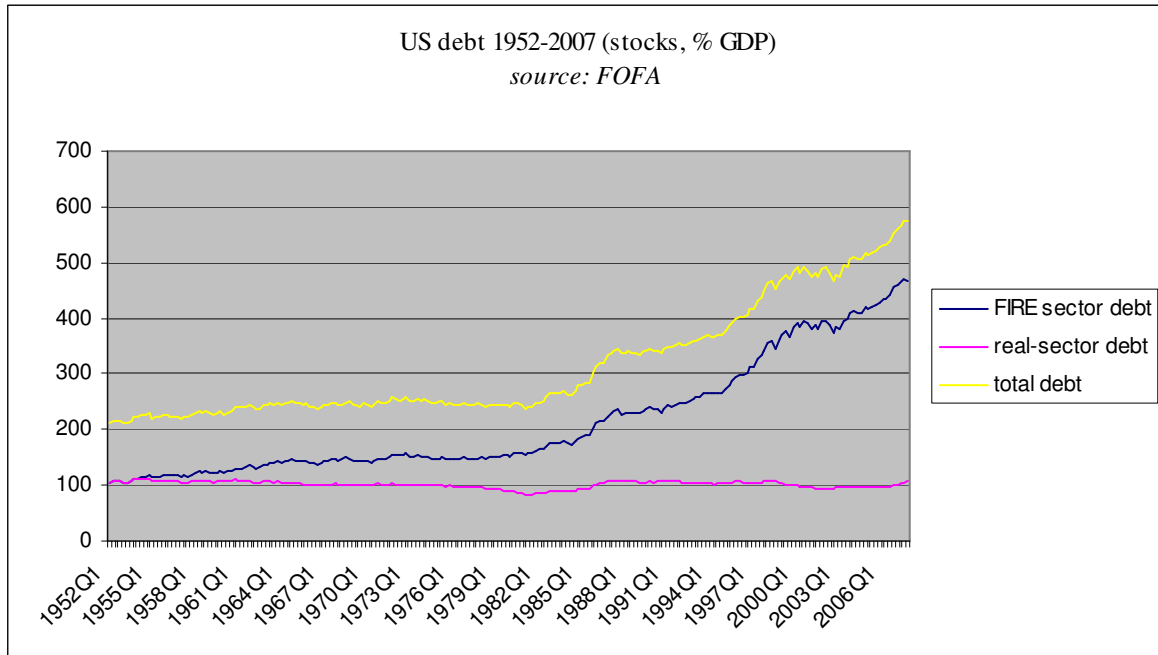
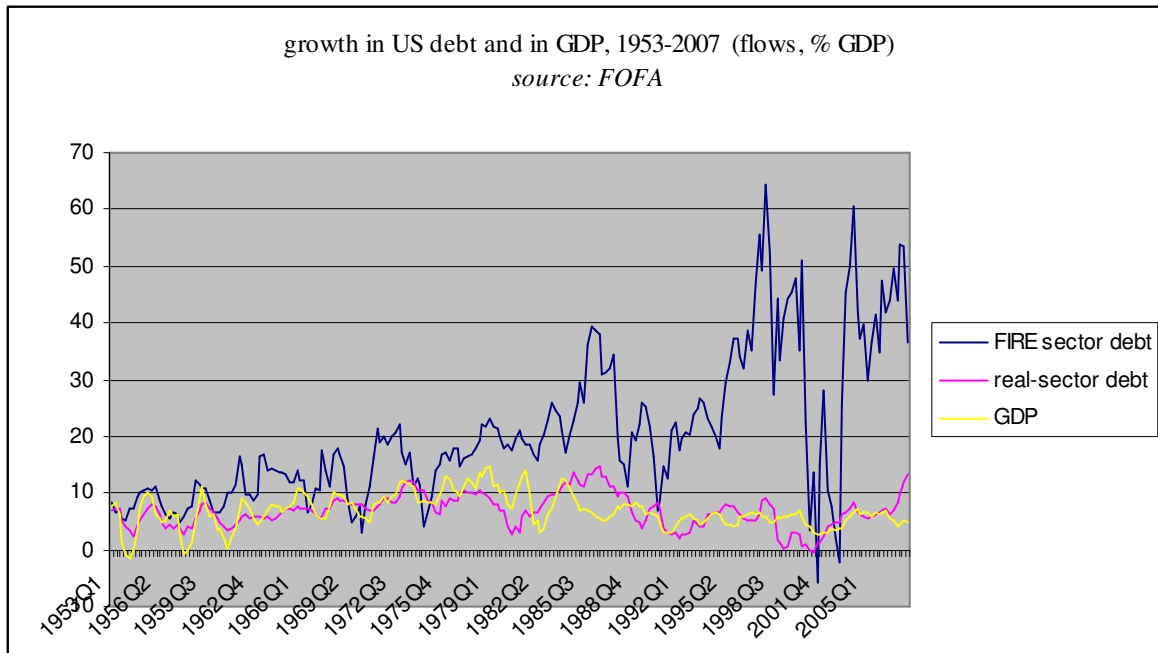


Table 2



5. Banks: Accountants Or Also Controllers?

We now move from description of an asset-cum-debt boom to its possible causes. As noted, almost all FIRE sector debt originated as credit market instruments, which is bank credit creation. The above exploration of the centrality of bank credit creation also suggests that an analysis of the impact of credit on the economy should center on the role of banks and on those regulating the banks. There is however one powerful objection to this. In the metaphor of banks as social accountants (Stiglitz and Weiss 1988), banks are passive recorders of the financial implications of society's choices and preferences. Even if it is recognized that the economy can grow out of kilter due to bank-created debt, with too much debt relative to the capacity of the real-sector to add value and pay off the debt, it might be argued that banks have little to do with this. Bank practices are the proximate, but not the ultimate cause of a credit boom and credit crisis. Juxtaposed to this view may be an alternative metaphor of banks not as accountants, but as controllers – as not only recording, but also actively managing and advising society's financial course. In this section we contrast these two views and reflect on the evidence for both.

Bank may be viewed - as indeed they are in most monetary analyses - as passive accommodators of whatever it is that (real-sector) economic agents want to have financed. The idea that generous credit might be an independent causal factor stimulating growth (but in an unsustainable manner) has recently been very far from regulators' minds; and so was the very possibility that financial collapse might have real economic impacts. Some even felt compelled to retract their earlier views on a more active role for banks in supporting growth and precipitating crisis. Ben Bernanke for instance, the current Chairman of the Federal Reserve, in a former life was an academic researching the role of credit in the macroeconomy. One of his better known studies in his early academic career was on the Great Depression, and the role of bank leverage and credit aggregates in bringing it about. Already then it was 'only the older writers who seemed to take the disruptive impact of the financial breakdown for granted' (Bernanke 1983:258). By 1983 to suggest this had become innovative and controversial. Bernanke did so, asking 'did the financial collapse of the early 1930's have real effects on the macroeconomy?'. He studied the behaviour of credit aggregates and cautiously answered his own question with the observation that '[t]he evidence at least is not inconsistent with this hypothesis'(1983:275). But even this carefully phrased double negative

had become a bridge too far another twelve years later, when financial liberalization was in full swing and Bernanke had risen to a position of prominence in the economics profession. In a paper with Mark Gertler in the authoritative *Journal of Economic Perspectives*, he deplored his earlier work and wrote it was ‘inappropriate’ for ‘some authors to focus on the behavior of credit aggregates’ since ‘...examining the dynamic responses of various credit aggregates is...largely uninformative...’. He added in a note, referring to his (1983) studied, ‘[n]otwithstanding the fact that, in a previous life, Bernanke has performed similar exercises. Mea culpa.’(Bernanke and Gertler 1995:44). The only mechanism, in the mainstream literature, through which credit can affect growth is via the so-called ‘credit channel’ of monetary transmission, a strand of literature of which Bernanke was one of the founding fathers. This literature explores whether “imperfect information and other "frictions" in credit markets might help explain the potency of monetary policy” ((Bernanke and Gertler 1995:44) – no independent effect of credit flows on the real economy is presumed. Indeed, in describing it, Bernanke advises that it is unwise to “think of the credit channel as a distinct, free-standing alternative to the traditional monetary transmission mechanism, but rather as a set of factors that amplify and propagate conventional interest rate effects.” (Bernanke and Gertler 1995:44).

In the conventional view, then, there is no model for a robust and lasting impact of credit conditions themselves on economic growth. It is relatively uncontroversial that an occasional credit crunch can temporarily restrain growth in some sectors. An alternative view is based on the logical corollary to this generalized to the entire economy. This is that generous credit conditions (such as reigned over the last quarter century) can accelerate growth, with some sectors typically being stimulated more than others. In this sense, banks *can* be viewed a ‘driving force’, as in Bernanke’s repudiated early views. But it is not implied that the growth regime so instigated is sustainable, even though it can be kept going for decades. The theory underpinning this would refer to conceptualisations of capitalist societies as ‘financial capitalism’, where financial markets are accorded a dynamic independent of real-sector developments. Because of this independence, there is theoretical scope also for financial markets as ultimate, not just proximate causal factors in shaping the business cycle – so that there is also a ‘credit cycle’. Such theories, while not part of standard textbook lore, have a long pedigree stretching from Thornton (1802), Sismondi (1815), List (1842), Tooke (1844), Roscher (1877) and Marx (1884) to Keynes (1930), Schumpeter (1954) and Minsky (1978)

and on to contemporary writers including Werner (1992), Hudson (1992), Gardiner (1998), Wray (1998), Borio and Lowe (2004), Roubini (2008) and Geanakoplos (2009).

Many of these approaches counterpose the interests of asset owners (*rentiers*) to those of wage earners and real-sector entrepreneurs. Some interpret financial market developments, including interest policies and (de-)regulation preferences, as the outcome of class struggles between social strata (as in Ingham, 2004). All view the windfall gains that asset price booms bring to rentiers – the ‘unearned increment’ as JS Mill famously called it – with a critical eye. It diverts purchasing power from industry and wages, creates a debt burden on the economy (Hudson 1992), and may lead to resource misallocation (Geanakoplos 2009). Keynes, for instance, expressed a longing for the ‘euthanasia of the *rentier*’ as part of his envisaged solution to imbalanced monetary and financial policies. Alternatively, financial market developments in this tradition are interpreted as arising endogenously from changing risk-and-return preferences of investors over the course of the business cycle. The seminal articulation of this is Hyman Minsky’s analysis of financial market dynamics, which cause instability to be built into capitalist economic systems. In complete contrast to the mainstream view, credit aggregates and leverage play a central role in these analyses. Geanakoplos (2009:9) called for an end to ‘the obsession with interest rates’ and asserted that ‘regulating leverage, not interest, are the solution for a troubled economy’.

Quite apart from the theoretical view underlying it, there is quantitative research to support an interpretation of leverage and bank credit creation as causal force in the business cycle. Caporale and Howells (2001) analyse the interactions between bank loans, bank deposits and total transactions in the economy (both in the real economy and in the financial sector). They conclude that “loans cause deposits and that those deposits caused an expansion of wealth/GDP/transactions” (Caporale and Howells, 2001:555). Causality runs from bank lending to bank deposit creation and on to economic expansion, reflected in the total of real-sector transactions and financial-sector (wealth) transactions. Werner (2005:224) disaggregated bank credit flows in Japan from 1980 to 2000 and runs a number of tests on causality, concluding that “causality runs from credit to nominal GDP and not inversely”.

So the evidence, as they say, is mixed. Most monetary researchers currently adhere to a view of banks as accountants and bank credit creation as a passive reflection of economic fundamentals, at best allowing for temporary balance sheet effects which are superficial to the

economic system. As Malcolm Knight, General Manager of the Bank for International Settlements put it in a 2006 speech “The prevailing mainstream theoretical paradigms, enshrined in current textbooks and research, find it difficult to accommodate a significant role for quantitative aggregates over and above that played by interest rates”. In the current crisis turning into a genuine depression that threatens to engulf that economic system, this may read as a view seriously out of touch with reality. But in fairness, it should be noted that present conditions can quite consistently be, and have indeed been, interpreted as one of those rare events that are bound to happen once in a lifetime. Such events do not undermine the validity of theories describing the normal situation – that is, of the New Monetary Consensus and of its subcategory the Credit View.

Alternatively, there is theory and evidence to support the view that banks are not only accountants, but also controllers; and bank credit creation not only reflects, but is also a causal factor in the pattern of economic growth and recession. Whether or not the 2007-8 credit crisis and the 2009 - ? recession will turn this minority view into conventional wisdom remains to be seen and this paper leaves readers to make up their own minds on the issue. Meanwhile, proponents of either view are agreed on the accounting role of banks, and on the fact that over the last few decades banks have failed in their role of prudent accountants. Banks have, apparently, not timely and effectively signaled financial aberrations that were building up to those who were in a position to curb them. This is not necessarily to put undue blame for the crisis on the banking sector – the problem may be with banks or with their regulators (or with both). We now turn to an examination of the possible causes for this failure.

6. Asset Booms, Debt Buildup and Society's Accounting Rules

In order to provide true social accounts, banks' books should keep track both of society's income stream and of its wealth and debt. It was demonstrated in section 3 that the imbalance between, on the one hand, income and wealth and, on the other, its debt, is what constitutes the nub of a financial crisis; and that the genesis of this imbalance is in the bank credit creation process and in the use of bank credit flows (which may or may not mirror economic fundamentals outside of the banking sector). Whether or not such imbalance is monitored and acted upon depends importantly society's accounting rules in this area - on the ways in which income, wealth and debt are recorded by banks and by national and international statistical institutions, and signaled to financial regulators. If the rules do not ensure close monitoring and correct interpretation, this may be one reason for growing imbalances without alarm bells going off¹. In this section we discuss three features of society's accounting rules, and the way they are used or ignored, which have made banks' role of prudent accountants more difficult - in particular, which have obscured the development of debt alongside wealth. These features are:

- (i) The treatment of financial investments (I_F introduced in section 3) in the *System of National Accounts*,
- (ii) financial market deregulation, exemplified by the 1999 repeal in the US of the 1933 Glass Steagall act, and
- (iii) Monetary authorities' conviction that asset prices and wealth should play a small role or no role in monetary policy.

6.1 Financial investments in the *System of National Accounts*

The important point, in the present context, about the *System of National Accounts* that all countries adhere to when drawing up their national accounting statements, is that most of the returns from financial investment are not recorded as income. Therefore official income (GDP) represents only a part of actual spendable income. Especially during an asset boom, official

¹ Or if they do go off, to ignore or 'fix' them, as the Icelandic authorities did in 2006. The Chairman of the Central Bank's Board of Governors at the bank's Annual Meeting on March 31, 2006, declared that "[i]n an age of technology and computers we sometimes experience malfunctions in the warning bells themselves and fixing them is all that needs to be done. That may be the case with some of those which have sounded recently" (Tomasson 2008).

statistics so obscure the extent to which a nation's consumption has become dependent on income from asset wealth, and is proportionally vulnerable to an asset price plunge.

It is obvious that financial transactions themselves - which are wealth transactions - do not fall under an income definition, such as the Gross Domestic Product. GDP is "...equal to final consumption expenditure plus gross capital formation plus exports minus imports (UN et al, 2008, par. 2.222)", according to the *System of National Accounts*, the authoritative prescription for GDP calculations published jointly by the United Nations, the Commission of the European Communities, the International Monetary Fund, the Organisation for Economic Co-operation and Development, and the World Bank. Financial transactions are clearly not part of consumption, government spending, imports or exports.

But what about the income from financial investment? The question may be raised if not the returns on those investment are part of income. The answer is that for the larger part, they are not. Firms undertaking financial investments take their returns mostly as capital gains (or 'holding gains') that is, from increases in the value of their financial assets. These are not profits which are included in GDP - although these firms do make profit, as a typically minor part of their total returns. A confusion may arise because 'taxes on capital gains are treated as taxes on income' (UN 1993), and as such are included as a sub category within *System of National Accounts* entry D51. But specialists have emphasized time and again that holding gains, while taxed as income '... are not included in the SNA definition of income' (UN, 1993). Again, another confusion may arise by considering holdings gains as part of property income. But the *System of National Accounts* '...draws a distinction between property income and holding gains and losses. The latter are changes in value of an asset due to changes in its price that constitute neither transactions nor income' (Schreyer and Stauffer, 2004). '[T]he SNA definition of income excludes holding gains' (Lequiller, 2004). 'In the SNA, ... holding gains and losses are neither the result of production nor income...' (Nordin, 2005). Instead, holding gains are included in the item 'change in real national net worth', defined as '...[t]he sum of changes in net worth of all resident institutional sectors less the neutral holding gains/losses (that is, in proportion to the general price level)...' (UN, 2003). They are part of wealth, not income.

In considering how the returns of the financial industry are to be represented in the *System of National Accounts*, Schreyer and Stauffer (2004) explicitly recognize that the most important

element of these returns, viz. capital gains, are not included in the income of the financial industry (and thus excluded from GDP); and note that this exclusion is odd. It is helpful to quote Schreyer and Stauffer (2004) at some length:

‘...It would thus appear that holding gains or losses cannot enter the valuation of financial services. Such a categorical exclusion sits, however, uneasily with economic theory and with the perception of practitioners in the financial services industry. If one admits that all assets and liabilities on the balance sheet contribute to and are potential carriers of implicitly-priced financial services and if there is a presumption that the value of these services during a period is somehow related to the financial return on assets and liabilities during the same period, then it seems difficult to exclude all price changes from measures of financial return, and to limit the latter to interest and dividend payments, i.e. to property income as conventionally defined in the SNA. The difficulty of excluding price changes from measures of financial return lies in the simple fact that economic actors look at all components of remuneration of financial assets and (expected) price changes are an important component. For certain instruments, in particular shares, they are the most important element and their exclusion would render measures of financial return void of content.’

The issue was deemed of sufficient importance to form a dedicated ‘OECD Task Force on Financial Services’ to consider it. In 2005 this Task Force reported that ‘[b]ecause of the conceptual and practical difficulties in estimating expected holding gains and losses, the Task Force agreed to presently not recommend the inclusion of expected holding gains and losses in the measurement of financial services output. Still it is recommended that further investigation of the role of expected holding gains and losses throughout the system be made.’ (Nordin, 2005). The task force met for the last time in May 2005, in Paris. Holding gains are thus not part of the financial services industry output and therefore are not include in its income.

In sum, neither financial investments not the greater part of the incomes from the returns on those investments (namely, holding gains) are part of GDP. It is not suggested here that the *System of National Accounts* should be changed to make GDP include capital gains. This would run into insurmountable conceptual problems. But, like Schreyer and Stauffer (2004) quoted above, it should be noted note that in a substantial sense it is odd that large incomes are excluded from the most widely used income definition. Especially during an asset price boom, the discrepancy will be large. This in turn obscures what the actual effects o the asset price boom, and of a possible collapse in asset prices, would be on incomes, and via knock-on

effects also on those real economy firms depending on those incomes for part of its demand. Income depending on debt creation is off society's income balance sheet. Actual incomes are therefore more vulnerable to debt deflation than GDP income development, the standard yardstick for economic performance, would suggest. This leads to an underrating of the macroeconomic income effects of debt deflations. When assessing the rate and sustainability of income growth, policymakers should inspect both society's income and its wealth balance sheets.

6.2 financial market deregulation

A similar problem arises with respect to society's accounting rules for the key sector of banking. Such rules provide a legal answer to the question 'What can banking companies do?', as Barth et al (2000) observe. In particular, the question is how extensive banks can mix real-sector and FIRE sector investments – or, in other words, whether commercial banks can engage in merchant banking and the marketing of securities and insurance products; and what their reporting and disclosure requirements are. Advocates of regulation point to systemic risks that accompany private profitability and the limited scope for effective monitoring that deregulation brings. If accounting rules allow banks to move part of their investments and revenues off balance sheet, then a balanced assessment by bank regulators of their profitability and risk exposure will be impaired.

In contrast, regulation has often been argued to be costing too much in terms of financial innovation, efficiency and risk diversification. This view, which has been held by monetary policy makers since the 1980s until very recently, ties in with their position discussed in section 5 that the moving forces in the economy are in the real sector and in 'economic fundamentals', not in the financial sector. Its implication is that credit regulation and restraint can only restrain real-sector growth. Numerous empirical studies have indeed found that higher values of some measure for the aggregate credit stock (e.g. as % of GDP) are robustly associated with higher GDP growth rates (e.g. Beck et al, 2000; Leahey et al, 2001; Levine 2005- but none of these make the distinction between credit to the real and to the financial sector). We here briefly review what deregulation meant in the context of the US. Again, this is illustrative for most of the world's industrialized countries, and especially for the Anglo Saxon economies.

From the early 1980s financial market deregulation (in the context of the freeing of the US Dollar from convertibility a decade earlier) allowed the banking system to step up dollar creation via bank lending. Banks' lending appetite exceeded demand for liquidity from the real sector, which was constrained by the volatile and high interest rates of the period as policymakers used vigorous interest rate management in the battle against inflation. These high and volatile costs of capital were a drag on real-sector investment and consumption but stimulated lending and financial arbitrage. Additionally, US financial-market deregulation in the early 1980s inaugurated a rise in credit to financial markets generally and to mortgage markets specifically. 'Regulation Q', which capped the interest rates at which banks were allowed to loan funds, was phased out over some years in the early 1980s. Simultaneously in the non-bank financial sector, large institutional changes were opening up new investment opportunities, particularly in the household loans and mortgage market. The newly deregulated Savings & Loans market, for instance, absorbed unprecedented volumes of savings during the second half of the 1980s, directing them into mortgage credit. From the mid-1990s the technology stock bubble attracted large liquidity flows into what, in retrospect and despite appearances, were not real-sector but financial-sector investments, speculating on asset price increases. The dotcom bubble in stock markets also stimulated financial innovations which survived its puncturing, and which would facilitate the fast leveraging processes observed during subsequently maturing bubbles in derivatives, currency trade and housing. Predictably, allowing banks to provide credit flows to the FIRE sector strongly fuelled the growth of credit volumes and of indebtedness, as depicted in graphs 1 and 2. Deregulation was the institutional trend that facilitated it.

The 1999 repeal of the 1933 Glass-Steagall Act was another milestone in financial-sector stimulation. Good overviews of its genesis and repeal are provided by Barth et al (2000), Hendrickson (2001) and Kuttner (2007), among others. This Banking Act of 1993, jointly with the Bank Holding Company Act of 1956, restricted the ability of commercial banks to conduct the activities associated with securities firms, insurance companies, merchant banks, and other financial companies – all part of the FIRE sector. The moving forces behind the 1993 Act were Senator Cater Glass and Henry Bascom Steagall, a House of Representatives member and chairman of the House Banking and Currency Committee. 'Glass-Steagall' was motivated by the over-leveraging practices that preceded the 1929 stock market crash. Among other things, it aimed to separate banking proper – that is taking in deposits and creating credit – from wealth investment and money management. Glass-Steagall regulation meant that

bank loans would stay on the books of the lender bank, which was responsible for loan collection or, alternatively, would have to shoulder default costs.

Its 1999 repeal and replacement by the Gramm-Leach-Bliley Act, in contrast, allowed banks to make out loans and then sell them, typically to a pension fund or other institutional investor. This freed banks from much of the loan risk. It also allowed banks to make profits more from fees collected when making out the loan than from safely collecting the loan. Both these changes – lower risk to the lending bank and profits from the number of loan transactions rather than from low risk-corrected returns - induced banks to increase lending volumes, especially to the FIRE sector, from the mid-1980s. Capital gains made in financial markets and on house prices compared well to real-sector profitability, rationalising continuous mortgage credit extension. Thus the repeal of “Glass Steagall” is a good illustration of how deregulation fuelled the growth in FIRE-sector lending to become self propelled, and to continue even after the initial conditions that had started it, had changed (Shiller, 2006). For instance, it stimulated the market for credit derivatives which sliced, sorted, repackaged, and insured loans in order to increase their tradability, to a point where “the level of equity in US homes [had become] the ultimate collateral support for the value of much of the world’s mortgage-backed securities” (Greenspan 2008).

Many observe that the repeal of ‘Glass-Steagall’ had been preceded by a decade of inroads into it by financial innovations, and merely codified the *status quo* developed during the 1990s (Kuttner 2007). Barth et al (2000:192) note three motivations for the repeal of Glass Steagall. Academic studies provided increasing evidence that banks’ securities activities bore little responsibility for the banking traumas of the Great Depression. Experimentation with limited FIRE sector activities had not shown any banking problems. And technological advances reduced the costs of information exchange and of the construction of new financial products, so increasing the opportunity costs of maintaining Glass Steagall. Hendrickson (2001) supports especially the latter point, and shows how market and technological developments interacted with interest group pressure to bring about the repeal of Glass Steagall. She also, like this paper, presents this as an textbook example of the wider deregulation policies of the 1980s and 1990s. Until very recently, these were believed to “eliminate credit risks” as Das (2006:9) asserted in his recent overview of financial globalization: “Financial risks, particularly credit risks, are no longer borne by banks. They are increasingly moved off balance sheets. Assets are converted into tradable securities, which

in turn eliminates credit risks. Derivative transactions like interest rate swaps also serve the same purpose. Risk elimination enables banks to improve their risk-adjusted returns on capital as well as be more competitive in the market.”

Government regulation was to be replaced by self-regulation, where the self-interest of lending institutions would lead them to protect shareholder’s equity, by reigning in risks and thereby safeguarding systemic stability. Greenspan (2008) in his October 2008 testimony before the Committee of Government Oversight and Reform described such “counterparty surveillance” supported by the “modern risk management paradigm that held sway for decades” as “a central pillar of our financial markets’ state of balance”, – but also professed to “shocked disbelief” while watching that “whole intellectual edifice collapse in the summer of [2007]”.

6.3 Monetary Policy Neglect of Asset Prices

So far this section has shown that *System of National Accounts* accounting rules have defined away asset price effects from the most widely observed economic indicators, while bank deregulation has both fuelled asset price growth and hindered their monitoring as FIRE-sector trading went off banks balance sheets. With hindsight, it is clear that this increased the vulnerability of the economy and of bank performance to asset price declines. A possible antidote might have been for analysts and policymakers to closely monitor asset price developments and adjust their analyses and policies accordingly. Asset price inflation would then be taken into account alongside conventional measures such as GDP and consumer price inflation.

Oddly, during the past asset price boom Central Bank economists and policy makers have moved precisely in the opposite direction. They have increasingly neglected or ignored asset markets. That neglect was not accidental but intentional, and supported by theoretical reasoning by central bankers and their (often high powered) research departments, as we show below. The problem here is not one of introducing inappropriate accounting and monitoring rules (as can be argued for some deregulation policies), but rather of not using some of the information that was available (namely, on asset price trends) in formulating monetary policies. This neglect is arguable one of the key reasons why the 2007-8 credit crisis took

most policy makers by surprise, leading to “shocked disbelief”. They did not think an asset price crisis would matter that much. Why not?

An important reason is to be found in the academic debate during the 1990s and 2000s – a debate dominated by central bank researchers – on the role of asset prices in monetary policy. In the face of the global asset price boom, and of demands that central banks and financial authorities should take its effects into account when assessing the impact of monetary policy and of financial system stability, the case was made that policymakers should *not* let asset prices detract attention from inflation (not asset prices) as the only appropriate target and interest rates (not credit aggregates) as the only appropriate instruments of monetary policy. Asset booms or even bubbles were not to be pricked by central bank action. Again, Bernanke (e.g. 2002) and Gertler (e.g. 1998) have been prominently advancing this view, in addition to Greenspan (e.g. 1999). The principal objections are the difficulties associated with identifying an asset bubble (risking policy moves that are premature and therefore costly rather than beneficial to the economy) and the high costs to the real economy of bursting an asset bubble via interest rate increases (the only instrument allowed in orthodox monetary policy). Bernanke (2002) enunciated this view well when he wrote that “my suspicion is that bubbles can normally be arrested only by an increase in the interest rate sharp enough to materially slow the whole economy. in short, we cannot produce ‘safe popping’”. And Greenspan (1999) preferred to “mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion”. In consequence of this reticence of bursting bubbles, and combined with the generous credit facilities that allowed bubbles to develop since the mid-1980s, some critics have portrayed the Federal Reserve as ‘serial bubble blower’, as Wadhani (2009:29) notes.

In contrast, Wadhvani himself (2009) argues for a mild adaptation of inflation-targeting policies by at least taking asset price effects into account (but not make them policy targets) in conducting interest rate policies. He mentions the higher output volatility during an asset price bubble, and the duration and costs of busts, which are 4 per cent of GDP for equity busts in OECD countries (which last 2.5 years on average), and twice as much for housing busts which also last twice as long) Wadhvani (2009: 25). Roubini (2006) goes further and asserts simply that Central Bank should burst bubbles, suggesting ways that authorities could contain the damage of a pricked bubble. But these and other analysts were decidedly outside the consensus view that asset prices were not part of the fundamentals that policy makers should be concerned with.

7. Summary and Conclusion

This paper has, admittedly, been wide-ranging. In conclusion, it is helpful to recapitulate its main arguments and evidence before reflecting on its merits and shortcomings, and suggest some fruitful avenues for future research.

The unifying theme of the paper is to reflect on the role of accounting principles and rules in our monetary system. It uses the metaphor of banks as ‘social accountants’ as a tool to explain the credit nature of money, but also to replace the conventional ‘quantity theory of money’ with a ‘quality theory of credit’. In particular, it makes the following points. Money is only one category of credit, and other categories matter as well. The impact of the financial sector and of financial and monetary policies on the real economy is not fully reflected in the money supply, interest rates and consumer price inflation; but rather in the total credit supply (including money) and in prices of both goods and services and of assets. It is important to realize that money is bank credit and thus an accounting concept, and therefore that accounting rules and regulations in the banking sector matter to an economy’s performance. Bank credit creation implies debt creation, and regulators’ task is to create an environment in which credit is targeted so as to be welfare-enhancing and in which debts are kept within sustainable levels. It is therefore equally important to realize that not all credit is money and that modern economies are dual economies. The real sector is always accompanied by a financial sector, which allows for risk diversification and smoothing of consumption and investment; but which also generates debt at a rate which is not necessarily in line with the real economy’s ability to pay off debt. If banks and regulator are not sufficiently mindful of these points too large a debt overhead may develop, which may precipitate a credit crisis.

These points were made in a historical review of the archeology of money, which showed that money originated as credit. With asset markets, this implies the possibility of debt growth out of proportion to economic growth. The paper then proceeded by illustrating such a trend the uses of bank credit, and the consequences for debt growth, for the case of the US over the last half century. It showed that total US debt growth is equal to US FIRE sector debts growth, and that these have quintupled over the last halve century, especially accelerating since the early 1980s with the advent of financial deregulation. It discussed the role of banks and of

regulators in facilitating this credit boom, and identified three trends in society's accounting rules that have each played a role in the long asset boom of the 1980s, 1990s and most of the 2000s. First, wealth and debt growth, though they have increasingly influenced income developments in industrialized countries over the last decades, are not included in conventional income definition used in the *System of National Accounts*. This hindered their identification and monitoring. Second, financial deregulation amounted to changing society's accounting rules so as to facilitate the credit boom and debt buildup. Third, asset prices were theoretically believed to be outside the proper domain of what monetary policy makers should take into account when formulating their policies. The judicious pricking of asset bubbles was officially deemed impossible by those in a position to do so. This precluded pre-emptive action.

The accounting approach to monetary matters presented in this paper would seem to imply a number of policy implications, including a greater role for credit flows and asset prices in monetary analysis policy, and reconsideration of financial deregulation. Developing these broad principles into detailed policy proposals and judging their costs and benefits relative to conventional practice is beyond the scope of this paper, and in any case has been taken up by several other researchers (e.g. Borio and Lowe, 2004; Geanakoplos 2009). Instead, we conclude by briefly indicating avenues for further research.

A first area to incorporate the inherently dual nature of modern capitalist economies. Specifically, as with many vital distinction, the dividing line between the real and the financial sector is in reality a grey area. Recognizing the importance of debt buildup to the sustainability of growth implies that the different uses of credit should receive closer monitoring... (to be continued)

References (incomplete & to be ordered)

FRBC (1992) *Modern Money Mechanics*. Chicago: the Federal Reserve Bank of Chicago.

Anderson, R (1959) Interview in *U.S. News and World Report*, August 31, 1959. Washington DC: U.S. News and World Report

FRBD (2009) Federal Reserve Bank of Dallas website education section, at <http://www.dallasfed.org/educate/everyday/ev9.html>. Accessed February 25, 2009 Dallas: the Federal Reserve Bank of Dallas.

Minsky, H (1978) The Financial Instability Hypothesis: A restatement" *Thames Papers on Political Economy*.

J Mills (1867), 'On Credit Cycles and the Origin of Commercial Panics' *Transactions of the Manchester Statistical Society*, Dec 1867

Mill JS (1848) *Principles of Political Economy with some of their Applications to Social Philosophy*. London: Longmans, Green and Co.

Geanakoplos, J (2009) End The Obsession With Interest. *Nature* 457(19): 963

Roubini, N (2008) The Radical Approach. *International Economy* 22(4): 62-63

Tomasson, G (2008) Towards the Future. Presentation at the Reykjavik Academy, February 7 2008.

Hendrickson, J (2001) The Long and Bumpy Road to Glass-Steagall Reform. *American Journal of Economics and Sociology* 60(4): 849:879

Kuttner (2007) Repeal of Glass Steagall Has Caused the Subprime Crisis. Washington: *Testimony before the Committee on Financial Services*, October 2, 2007

Beck, T., R. Levine and N. Loayza (2000), "Finance and the Sources of Growth", *Journal of Financial Economics*, 58: 261–300.

Barth, J, D Brumbaugh Jr., and J Wilcox (2000) The Repeal of Glass-Steagall and the Advent of Broad Banking. *Journal of Economic Perspectives* 14(2): 191-204

Greenspan, A (2008) Testimony for the *Committee of Government Oversight and Reform*, October 23 2008.

Wadhvani, S (2008) Should Monetary Policy Respond to Asset Price Bubbles? Revisiting the Debate. *National Institute Economic Review* 206:25-34

Roubini, N (2006) Why Central Banks Should Burst Bubbles. *International Finance* 9(1): 87-107

Hudson, M (2002) Debt and Economic Renewal in the Ancient Near East. International Scholars Conference on Ancient Near Eastern Economies. Baltimore: CDL Press

Wray (1998) Understanding Modern Money. Cheltenham UK: Edward Elgar

Leahy, M., S. Schich, G. Wehinger, F. Pelgrin and T. Thorgeirsson (2001), Contributions of Financial Systems to Growth in OECD countries, OECD Economic Department Working Papers No. 280.

Levine (2005), R. Finance and Growth: Theory and Growth, in P. Aghion and S. Durlauf eds. *Handbook of Economic Growth*, Elsevier, 2005.

Wray (2004) (ed.) Credit and Sate Theories of Money: the Contributions of Michael Innes Cheltenham UK: Edward Elgar

Mitchell Innes, A (1913) What is Money? *Banking Law Journal*, May issue: 377-408

Mitchell Innes, A (1913) The Credit Theory of Money What is Money? *Banking Law Journal*, December issue: 151-168

Knapp, F ([1924] 1973) The State Theory of Money. Clifton NY: Augustus M Kelley.