

Finance and Growth: When Credit Helps, and When it Hinders

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EXTENDED SUMMARY

The financial sector can support growth but it can also cause crisis. The present crisis has exposed gaps in economists’ understanding of this dual potential. This paper grounds an alternative approach in the credit nature of money, and in an older distinction between credit flows that grow the economy of goods and services (the GDP), and credit that inflates markets for financial assets and property. This increases the debt-to-GDP ratio and can be a helpful catalyst of the real sector. But if it overshoots, it leads to bloated financial markets and the pursuit of capital gains rather than profit, with rising costs due to high asset values, rising inequality, falling fixed capital formation, rising uncertainty, and fraud and corruption. Unfortunately, overshooting is built into the system due to the nature of money, banking and compound interest. That is why financial deregulation leads to credit booms and busts.

A return to financially sustainable growth in the longer term requires a shrinking of the mortgage, consumer credit and nonbank financial sector which is a creditor to the real sector, and absorbs a continuing flow of liquidity in interest payment and financial fees that would otherwise be effective demand for goods and services, supporting economic growth. Financial deregulation has allowed the US ‘FIRE’ sector to grow to about three times the size it had in the 1980s and so its claims on the real sector are three times larger than a quarter century ago. This is unsustainable, but present policies are to sustain it by supporting the financial sector, even more than supporting the economy. Instead, we need consistent de-financialization policies: less is more, in our situation. And given finance’s built-in expansionary drive, achieving freedom from the rule of capital gains requires restraining regulation: no liberty without law.

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In der Beschränkung zeigt sich erst der Meister

(less is more)

Und das Gesetz nur kann uns Freiheit geben

(no liberty without law)

J.W. von Goethe (1802)

1. Introduction

This paper is part of a conference session addressing the question “how can we create a financial system that is socially useful?”. When James Tobin in his 1984 Hirsch Memorial Lecture spoke “On the Efficiency of the Financial System”, he disparaged that “... we are throwing more and more of our resources, including the cream of our youth, into financial activities remote from the production of goods and services, into activities that generate high private rewards disproportionate to their social productivity.” It is sobering to realize that he said this when the stock of outstanding credit in the US supporting such activities – mortgages, consumer lending, and all sorts of financial investments - , was only a third of its present size, relative to GDP (not even counting the shadow banking sector). Tobin’s hunch was that what undermines the social usefulness of the credit system is precisely this trend. This paper develops an analytical and historical underpinning of the ‘Tobin Conjecture’.

An uncontroversial starting point is that the financial sector can support growth but it can also cause crisis. The present crisis has exposed gaps in economists’ understanding of this dual potential, and in this sense it is a paradigm test (Bezemer 2011). Current macroeconomic models do not distinguish between credit flows that help and those that hinder the economy and they ignore the role of debt stocks (Godley and Lavoie 2006). It is as if all credit supports growth with no risk of crisis, and as if levels of debt are irrelevant when assessing if further debt growth is helpful or harmful. In this paper both these problems are addressed by tracing credit flows and their different impacts on the economy’s debt burden which, in turn, affects key socio-economic indicators such as productivity and equality.

Is this new? The question may arise since stated in its simplest form, a credit-focused approach seems to spell out the obvious. It is that finance is both credit and debt, that both these sides of the financial process need to be traced; and that different financial flows have different impacts with regard to credit and its ‘dark side’, debt. For instance, prolonged booms in mortgage flows and consumer lending tend to create larger net debt burdens than lending to nonfinancial business. Non-economists may assume that money, debt and credit flows, and the different effects they may have, are at the heart of macroeconomic models. Economists will appreciate that to take this as a starting point is a radical difference with today’s mainstream thinking. For instance, while most non-economists would agree that a financial crisis can be deeply traumatizing to the economy, Bernanke already in 1983 already wrote that “only the older writers seemed to take the disruptive impact of financial breakdown for granted” (1983:258). That impact has since been vanishing from economists’ collective memory, until very recently.

It is no coincidence that in the same quarter century, DSGE models (which by design exclude the tracing of financial flows and of debt) rose to prominence. The type of macroeconomics they represent cannot, in principle, help us understand either credit’s growth effects, or its capacity to precipitate crisis. It is important to explain this, since it implies the need for an alternative (though not a brand new) discourse on credit, growth and instability – a discourse started by the Classical economists, especially Marx,

continued by Keynes, Schumpeter and Minsky, and sidelined over the last decades. The implications of its seemingly simple starting point are not all that obvious, nor is the surprisingly wide array of applications. This is new thinking based on old principles.

The paper proceeds as follows. In the next section ‘state of the art’ macroeconomics is discussed, and why it has had such a hard time addressing the question implied in the title of this paper. Section three turns from models to reality, to show that historically, money emerged as one form of credit. This is relevant as the credit nature of money still defines the impact that money has on the economy. In section four, that distinction is made operational, both in concept and in measurement. This shows that credit to the nonfinancial business sector (‘real-sector credit’ for short) is equal to GDP growth, while an economy’s net build-up of debt – the cause of financial fragility and instability - is due to an increase in credit flowing to the finance, insurance and real estate sectors – or ‘financial-sector credit’. Marx, Schumpeter, Keynes and Minsky, and in our time Tobin (1984), Godley (1999), Werner (1997), Hudson (2006), Keen (2011) and others have written on this important distinction, but mainstream macroeconomics is still to incorporate it.

Sections five and six introduce empirical measures and a stylized flow chart model, and section seven discusses what the optimal level of credit to the economy is, and when there is ‘too much finance’. The answer is fairly straightforward in principle. Section eight show that in practice things are not so simple, in an examination of the diverse way in which excessive growth of financial-sector credit may hinder rather than help economic growth, even as it fuels booms in wealth and consumption. Amidst this diversity, it is emphasized how at the heart of each credit boom gone wrong is the inability (or refusal) to make the distinction between real-sector and financial-sector credit flows. Section nine concludes with a summary and conclusions. We need to shrink the debt overhead. This will happen in any case, but the choice is whether to do this by overall deleveraging and prolonged recession, or by targeted and time-honoured regulation that reduces the economy’s debt to the property and nonbank financial sector.

2. A Problem With ‘State of the Art’ Macroeconomics

The state of the art of today’s macroeconomics is expressed in the ‘Dynamic Stochastic General Equilibrium’ (or DSGE) family of models. They ‘have become very popular in macroeconomics over the past 25 years. They are taught in virtually every Ph.D. program and represent a significant share of publications in macroeconomics.’ (An and Schorfheide 2007:113), and they are widely used in policy analyses in international institutions and central banks – see, for instance, introductions to the DSGE model used by the IMF (Botman et al, 2007), the European Central Bank (Smets and Wouters, 2003) or the Reserve Bank of New Zealand (Lees, 2009). Given their predominance at the time of the crisis, DSGE models have come in for vocal criticism from within the profession (e.g. Buiter (2009) and Solow (2010)).

The problem in the present context is that DSGE models are characterized by the “absence of an appropriate way of modeling financial markets” (Tovar 2008:29). And what is true for DSGE models is true for macroeconomics in general, and has been for a long time. Schumpeter (1934:95) already noted that “processes in terms of means of payment are not merely reflexes of processes in terms of goods. In every possible strain, with rare unanimity, even with impatience and moral and intellectual indignation, a very long line of theorists have assured us of the opposite.” If payment flows are seen as mere reflexes to ‘fundamentals’, they can be safely omitted from the model, and this is just what macro models do. Cechetti *et al* (2011:2) writes that “for a macroeconomist working to construct a theoretical structure for understanding the economy as a whole, debt is ... trivial ... because (in a closed economy) it is net zero – the liabilities of all borrowers always exactly match the assets of all lenders. ... With no active role for money, integrating credit in the mainstream framework has proven to be difficult.” Cechetti and his co authors here understate the problem. As Hahn (1965) and Godley and Shaikh (2002) show, it is not just difficult, but impossible: financial sectors cannot be integrated in general-equilibrium style macroeconomics, of which DSGE models are only the latest offspring.

One might defend this thesis simply by noting that general-equilibrium models have no balance sheets, and hence no debit for every credit, which rules out a financially insightful model. The response may be that these could be added if desired. But the more forceful argument is that the absence of money, balance sheets, credit and debt is no coincidence, or a feature that could be rectified by adding a financial sector to the model. One can add symbolic frictions and tell a story that this represents the financial sector, which is something different. At a fundamental level, any genuine role for money is alien to the (DS)GE models structure and trying to introduce it undermines key model properties. Frank Hahn already noted this as a puzzle that has become known as ‘Hahn’s Problem’. The title of his famous 1965 paper ‘On Some Problems of Proving the Existence of an Equilibrium in a Monetary Economy’ may well be inverted: there are insurmountable ‘problems of proving the existence of money in an equilibrium economy’.

Earlier, Marx and Schumpeter made the related observation that the existence of profit flows are problematic in a circular-flow or general equilibrium model; there is a ‘Profit Puzzle’, as we discuss in Tomasson and Bezemer (2011) (also, Rochon 1999; Graziani 2003). Godley and Shaikh (2002) showed that it is literally impossible to introduce money flows (specifically, flows of profit and interest) in a multi-market equilibrium model. What they characterize as the ‘Standard Macroeconomic Model’ cannot survive an explication of its structure (specifying the financial payments to households) consistent with one of its assumptions (all of the real value of the net product is distributed to households). The equilibrium concept prevents the explicit modelling of financial variables which are not fully determined in the real-sector optimization processes which drive the model. In order to be solvable, it must have ‘financial black holes’ - e.g. there may be asset market, but not the debt growth that makes growth in asset values beyond GDP growth possible. Assets are traced, but not liabilities. That is possible (and typically goes unnoticed) because the model has no balance sheets.

Another way to put this is to observe that in (DS)GE models, the monetary side of the economy is fully determined in the real sphere. Therefore money must exist strictly in

proportion to the sum value of all real-sector transactions - that is, to real-sector output. General-equilibrium modeling so denies the nature of finance, which is leverage: the creation of debt claims and credit instruments in excess of current output. This is the problem when it comes to understanding credit cycles and financial instability, which can arise only if with this of ‘over-borrowing’, as Adam Smith called it. All theories of financial instability from Wicksell to Minsky include this element, as Bezemer (2010a) shows. Mainstream macroeconomics today omits it. It is no wonder that the credit crisis came as a complete surprise – at least to the mainstream (Bezemer 2010b, 2010c).

Equally, the growth effect of credit cannot be theorized if credit and money are assumed to grow in parity with the economy. As Schumpeter (1934) explained, for credit to foster growth it must be additional liquidity advanced beyond the liquidity that circulates current output. “From this it follows”, Schumpeter (1934:101) concluded, “that in real life total credit must be greater than it could be if there were only fully covered credit. The credit structure projects ... beyond the existing commodity basis.” Likewise Minsky (1982:6) – a student of Schumpeter at Harvard - wrote that “[i]t follows that over a period during which economic growth takes place, at least some sectors finance a part of their spending by emitting debt or selling assets.” The mechanism from credit extension to growth in transactions is given by e.g. Caporale and Howells (2001:555) who write that “loans cause deposits and those deposits cause an expansion of transactions”.

The problems with GE-type macro models require a restating of the role of the financial sector in the economic system. In one word, that restatement is ‘credit’ - and its balance sheet counterpart, which is debt. An emphasis on credit and debt is fundamentally at odds with the logic of such macroeconomic models, where both debt and wealth are dispensable (if present at all), as Nobel laureate Paul Krugman recently recognized (Krugman and Eggertson 2011): “...despite the prominence of debt in popular discussion ... and the long tradition of invoking debt as a key factor in major economic contractions, there is a surprising lack of models that correspond at all closely to the concerns about debt ... Even now, much analysis (including my own) is done in terms of

representative-agent models, which by definition can’t deal with the consequences of the fact that some people are debtors while others are creditors.”

Indeed, the study of real effects of debt on the economy has been progressively sidelined since the 1980s and the rise of DSGE-type macro. Some even felt compelled to retract their earlier views on a more active role for credit in supporting growth and precipitating crisis. Ben Bernanke in his early academic career wrote on the Great Depression, 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 twelve years later, when financial liberalization was in full swing. In a paper with Mark Gertler in the authoritative *Journal of Economic Perspectives*, Bernanke deplored his earlier work and wrote that some authors focus - inappropriately, in our view- on the behavior of credit aggregates. Why inappropriate? Since ‘...examining the dynamic responses of various credit aggregates is...largely uninformative...’. He added in a note, referring to his (1983) study, ‘[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 a model world where debt does not exist and credit aggregates are not studied, a credit crisis (which is really a debt crisis; Bezemer, 2009b) cannot be anticipated. Alan

Greenspan (2008) professed to ‘shocked disbelief’ while watching his ‘whole intellectual edifice collapse in the summer of [2007]’. Glenn Stevens, Governor of the Reserve Bank of Australia asserted in December 2008: “I do not know anyone who predicted this course of events.” This is understandable since a quarter century ago it was already considered old fashioned to assert the disruptive impact of financial breakdown, as noted (Bernanke, 1983:258). This neglect was the intellectual background for the 2007 credit crisis. It goes a long way back. For instance, they were a shared feature also of the last great crisis. US Federal Reserve Chairman Lauchlin Currie in 1933 complained about the “Treatment of Credit in Contemporary Monetary Theory”. This was echoed by BIS economists Borio and Lowe in 2004 who wrote a paper titled “Should Credit Come Back From The Wilderness?”.

Any such come-back must start from the fact that finance tends to grow in excess of the economy (or there would not be leverage) and that finance is both credit and debt (or there would only be credit-driven growth, never debt deflation). Both these sides of the financial process need to be traced to understand ‘when credit helps and when it hinders’. Again, this seems now obvious but it is not. Cecchetti *et al* (2011:2) retrospectively claim that “as the mainstream was building and embracing the New Keynesian orthodoxy, there was a nagging concern that something had been missing from the models. On the fringe were theoretical papers in which debt plays a key role, and empirical papers concluding that the quantity of debt makes a difference. The latest crisis has revealed the deficiencies of the mainstream approach and the value of joining those once seen as inhabiting the margin.” It is surprising to read there were ‘nagging concerns’ all along when economists like Blanchard as late as 2008 published a paper titled ‘The State of Macro is Good.’ And actually, that is what Cecchetti and co-authors still think, apparently. They continue that ‘[i]n response to the challenge, macroeconomists are now working feverishly to put financial stability policy on the same theoretical footing that exists for conventional monetary policy.’

Nothing could be more damaging to an understanding of financial stability than this feverish work. The state of macro is not good, nor is the theoretical footing that exists

for conventional monetary policy. As Malcolm Knight, then General Manager of the Bank for International Settlements noted, “the prevailing mainstream theoretical paradigms, enshrined in current textbooks and research, find it difficult to accommodate a significant role for quantitative aggregates ... They typically have limited — or no — room for an active role for liquidity ... They see the economy as being quickly self-equilibrating, which can hardly allow for the cumulative build-up of financial imbalances and the corresponding distortions in real expenditures and capital accumulation.” (Knight, 2006).

In contrast, ‘the come-back of credit’ needs to be grounded in actual, historical fact before proceeding to construct models. That is, to ‘build a science of economics for the real world’ (the title of the summer 2010 US Senate Hearings on the credit crisis) requires an inductive approach, taking history and facts seriously, rather than the deductive models that underpins conventional monetary policy. Money’s dual potential (for growth and for crisis) is implied in what may be called the ‘credit nature of money’: the fact that money emerged as a form of credit, and that money creation still occurs in the process of credit creation. A little history is helpful at this point.

3. Money is Credit, But Credit Is Not All Money: Some History

One definition of money is that which is universally accepted within a society as means of payments in commercial transactions for goods and services. A central conclusion in the study of the archeology of money (reported in *e.g.* Hudson and Van de Mieroop, 2002), is that all such money is a form of credit. Historically - prehistorically, in fact - credit already existed as social (rather than commercial) currency before coinage came into existence (Graeber 2011). Credit came first and money, a form of credit, came later when commercial markets emerged. Many forms of credit continue to exist apart from money, since there are many transactions that do not involve goods and services. In particular, there are assets and wealth.

This historical sequence (credit came first, money later) goes against a widely held belief, based on textbook economics, that money historically emerged when some token

(e.g. shells or silver lumps) came to be used 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 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 and Graeber, 2011) why it is nonetheless a popular and persistent fable, but these are beyond the scope of the present paper. For one thing, money as just a unit of account fits hand-in-glove with the numéraire money of macro models. This is how fictional history supports science fiction models.

Instead, there is extensive evidence in favour of the credit origin of money from the ‘archeology of money’, a field which comprises research in archeology, anthropology and numismatics – see e.g. Wray (1998, 2004), Ingham (2004), Hudson (2004) and Hudson and Van de Mieroop (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 – and the attendant exchange of goods requires a social mechanism to bridge the time between delivery of the various goods (Gardiner, 2004).

All civilizations we know of had credit systems, and in highly developed ancient civilizations this supported a money system typically linked to a centralized temple-state administration. For instance, from the temple ruins of the ancient Babylonian and Sumerian civilisations (from 3,000 to 2,000 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). They record 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 however recovered many such cases intact, indicating that, just like the outstanding stock of money in our economic system which stays in the banks, 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 authorities by setting tax levels. In short, these IOUs were money, long before coins were introduced to Babylonia and Persia by Alexander the Great in 331 BC (Hudson, 2004).

So it was in Europe, where since the earliest times accounting tokens of creditor-debtor relations were used as money, i.e. to settle transactions of goods and services. In many ancient and mediaeval European societies, the form this took was the square wooden stick with notches, or tally (Wray 1998:41). It was created when a buyer became a debtor to a seller. Both their names, with the date, were written on opposite sides of the stick. Then the stick was split down the middle but stopped about an inch from the base. Thus there were two smaller sticks with equal numbers 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 they likewise circulated as means of payment. Innes (1913) recounts how well-known mediaeval fairs such as St. Giles in Winchester or Champagne and Brie in France were primarily clearing houses, where merchants came to clear their tally stocks and stubs. If wooden tallies were used also in ancient times, they have not been preserved. There is other evidence, however, that tallies in one form or another were widespread throughout ancient and prehistoric Europe. For instance, 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 (Wray 1998).

In contemporary society, banks have replaced Babylonian temples and medieval merchant as the institutions authorized to issue money. But they still essentially do what was always done, and money still is a category of credit. As they grant loans, banks create new credit tokens (now electronic bits) in the form of bank deposits or ‘liquid

liabilities’, which are transferable and widely accepted as means of payment. Today’s banks, such as the Federal Reserve make clear that ‘banks actually create money when they lend it’ (FRBD, 2009). “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). This continuing reality of money emanating from the credit creation process is also borne out by modern theoretical and econometric research. Arestis and Sawyer (2008) show that credit money is endogenously created within the private sector, and how this in turns explain the effects of monetary policy better than other views of money which leave its credit nature out of account. Caporale and Howells (2001) use UK data to show with statistical causality tests in the context of a Vector Auto Regression framework that loans precede and ‘cause’ deposits. Banks extend loans, which give rise to bank deposits that are generally accepted as ‘money’.

While money is a category of credit linked to transactions in goods and services, there are other categories also. Once debt tokens are ‘monetized’ – that is, once they circulate without direct link to a specific transaction between two parties – it is possible to create debt tokens without the accompanying transactions in goods and services. Since the growth of such liabilities is functionally separate from transactions of goods and services in the real economy, this debt may take on its own dynamic, growing out of proportion with the economy’s ability to service debt.

Historically, the canonical example of this development is the second half of the 17th century when London’s goldsmith-bankers formed a system of banking through mutual debt acceptance and interbanker clearing, where promissory notes came to be used as paper money (e.g., Quinn 1997). But similar developments had occurred also in ancient societies. Wherever debt creation decoupled from the exchange of goods and services, there was the potential - indeed, the built-in drive - for the debt burden to grow too large. In Sumer and Babylonia, debt related to taxes tended to grow beyond the economy’s capacity to pay, due to compound interest. These economies therefore typically had in place social mechanisms to periodically clear the debt overhead, such as

‘clean slate’ or ‘jubilee’ debt cancellations in ancient Babylonian and Israelite societies, respectively (for details, see Hudson and Van de Mierop 2002).

Again, what was true in ancient societies is in essence still true in ours (except for jubilees and clean slates). Only a minority share of newly created ‘tally sticks’ (bank lending) is devoted to creating bank deposits supporting transactions of goods and services. Most lending is in support of financial investment, that is: the creation of, and trade in, financial assets and instruments. Assets are not generally accepted means of payment for goods and services, and so are not ‘money’. But their creation does grow the economy’s debt overhead.

The upshot of this excursion into history is this. First, finance is an accounting system to trace credit and debt. Any model of real-financial interactions needs to take balance sheets and accounting seriously; for instance, it needs to reflect that assets equal liabilities so that growth in goods, services and wealth always implies growth in liabilities also. It cannot be else.

Second, all money is credit, but not all credit is money – most credit today goes into financial investments not linked to the goods-and-services transactions that we use money for. Goods and services (measured in the GDP) are the asset counterpart of the money stock, or ‘liquid liabilities’. But there is also a liability counterpart (a debt overhead) of growth in wealth - stocks, bonds, property and the like. Unlike money creation supporting goods-and-services transactions, this growth in debt does not directly stimulate economic growth (though it may do so indirectly, in the benign scenario), but it does imply liabilities. That is why this distinction was important to great economists like Keynes who wrote on ‘money in the ‘financial and industrial circulations’ (1930:217-218) and to Schumpeter, who separated what he called ‘capital markets’ for stocks, bonds, mortgages, real estate and land (Schumpeter 1917:124) from ‘circulating money’ in the real sector (1917:176). How do we bring it back into contemporary analysis?

4. Credit is What Credit Does

This is where accounting is important. The central principle in double-entry bookkeeping is that 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, on a society-wide level, there will be net debt growth. If the loan is used for a self-amortizing investment in fixed capital formation, this creates value-added in the form of products and services that typically 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 took out a loan or drained liquidity from the real sector in order to finance the purchase, and each time the asset may increase in value – but the debt and/or drain from the real sector grows in parallel. It can only be repaid by withdrawing from the financial markets or from the real sector at least 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 at most their original value.

The two uses of credit broadly reflect, respectively, real-sector investment typical of commercial banking on one hand, and financial investment as done by, for instance, merchant banks and securities traders on the other. The important point is that in terms of liquidity growth, financial investment by itself is a zero-sum game: for someone to make a capital gain someone else must give up income or go into debt. Financial markets can grow by absorbing liquidity created in the real sector or by increasing indebtedness. This is unsustainable as it must, with axiomatic certainty, at some point end. Still, such (ultimately) unsustainable debt growth may be kept going over decades by expanding the stock of financial assets and instruments relative to the size of the economy.

This trend may be obscured by a ‘fallacy of composition’. What is clear on the macro level may not be obvious on the micro level. In an asset price boom any single

individual can borrow, purchase assets, and sell them to pay off the debt with a profit left – except that this is not profit, but capital gain. But this distinction makes sense on the macro level only. On the individual level, there is no difference between capital gain and profit made from investment, production and sale. The financial costs and benefits, and the returns, may be exactly equal to the individual asset trader or entrepreneur. However, there is a micro-macro paradox as on the macro, society-wide level, there must be a growth in indebtedness of the economy for assets to be traded at rising prices. This is not true for profit from production, where the wages paid out to produce the good become the purchasing power that buys the good – or as Joan Robinson put it, ‘workers spend what they get, capitalists get what they spend’. This circular-flow process ‘pays for itself’ while the economy expands so that all can gain – in contrast to asset trade, which is a zero sum game.

Therefore on the macro level, rising indebtedness resulting from asset trade 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. Despite appearances on the micro level, asset price booms are accompanied by rising debt and by a slowdown in real-sector nominal growth even as ‘net worth’ and income from assets may rise. This is illustrated empirically below in a contemporary setting, but the principle was noted long ago. John Stuart Mill (1848, ch 4 book 1) already wrote that “[a]ll funds from which the possessor derives an income, .. are to him equivalent to capital. But to transfer hastily and inconsiderately to the general point of view, propositions which are true of the individual, has been a source of innumerable errors in political economy. In the present instance, that which is virtually capital to the individual, is or is not capital to the nation, according as the fund ... has or has not been dissipated by somebody else”. Funds not used (“dissipated”) in the real economy create income to their owner, but not to the economy. They are capital to the owner, but not to the nation.

5. Finance Is Not the Economy: Credit, Growth and Debt Buildup

Given these different processes, it is unsurprising that models that did anticipate the crisis and its mechanism were models that explicated the economy’s financial structure (Bezemer 2009b, 2010b, 2010c). We must “distinguish between different categories of credit, which perform different economic functions”, as the LSE *The Future of Finance* report (LSE, 2010:16) urges (but does not do). We can think of the economy as composed of a real sector where goods and services are produced and distributed, and a financial sector which facilitates the real sector, but does not produce goods and services itself. Rather, its role is to originate and circulate financial claims, which constitute net debt to the real sector.

This distinction allows us to make important inferences about the link between credit, economic growth and debt buildup. Credit to the real sector grows the economy literally in tandem, while credit to the financial sector is the driving force of the growth in the debt-to-GDP ratio. Banks can lend to those sectors in the economy whose function it is to manage wealth, not to produce goods and services – collectively known as the Finance, Insurance and Real Estate (FIRE) sector. Or credit may be created to be used in payment for goods and services (which together make up the ‘real’ sector). The total value of those payments is measured by the Gross Domestic Product (GDP). Any increase in the sum of all final goods-and-services transactions that make up the gross domestic product (GDP) requires the additional money that these transactions are conducted in – with ‘money’ being bank deposits arising from credit creation for the real sector. In other words, bank lending to the real economy should be constant in proportion to the size of the economy. Debt creation in support of the real economy by definition does not rise in proportion to the size of the economy.

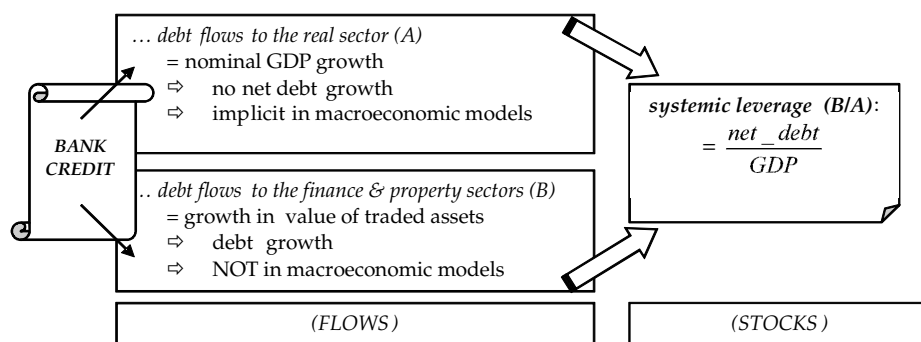
Before this is shown empirically in the next section, note that this is not a novel idea. For instance Marx, in Chapter 30 of *Capital* titled “Money-Capital and Real Capital” already wrote of [real-sector] “credit, whose volume grows with the growing volume of

value of production”, as different from “the plethora of moneyed capital —a separate phenomenon alongside industrial production”. Werner (1997; 2004) arrived at the same conclusion by modifying Fisher’s equation of exchange, distinguishing between credit to the real and financial sectors on the left-hand side and transactions in goods and services from transactions in assets on the right hand side. Testing this empirically on Japanese data he finds a ‘stable relationship between that ‘money’ (that is, CR [denoting credit to the real sector, DJB]) that enters the real economy and nominal GDP (Werner, 2004: 222). Likewise, Godley and Zezza (2006:3) observe on the US that “[m]ajor slowdowns in past periods have often been accompanied by falls in net lending. Indeed, the two series have moved together to an extent that is somewhat surprising...”. Indeed, Federal Reserve analysts note that many contemporary “[a]nalysts have found that over long periods of time there has been a fairly close relationship between the growth of debt of the nonfinancial sectors and aggregate economic activity” (Board 2009:76). The above analysis actually allows us to be more precise – if measured accurately, the relationship should be a one-on-one ratio. It is an accounting equality implied in the fact that money is credit.

The strong link between (real-sector) credit and (GDP) growth has been thoroughly researched. Uhlig (2003) finds that two shocks can typically explain more than 90% of the variance in real GNP: productivity shocks and another, undefined shock which “seems to be a wage-push or inflationary shock, unrelated to consumption or government spending and not induced by monetary policy. While the first shock can be viewed as a “supply shock”, the second shock does not have an obvious “demand shock” interpretation” (Uhlig 2003:1). This undefined shock, off the radar screen of conventional models since it is neither private nor government spending, is bank credit, as Benk et al (2005:1) confirmed empirically; their “results put forth the credit shock as a candidate shock that matters in determining GDP, including in the sense of Uhlig (2003)”. The burgeoning empirical literature following King and Levine’s (1993) “Credit and Growth: Schumpeter Might be Right” has confirmed credit’s growth effect, but has neglected Schumpeter’s emphasis that there must be net credit (and debt) flows beyond current

output, and that this can go badly wrong (Levine, 2005). For in the normal course of things, credit flows not just to the real sector but also to the finance property sectors, building up net debt. This is helpful in many ways, but it also implies finance’s potential for instability, rather than only growth. To distinguish between the two is therefore vital. Figure 1 is a stylized representation.

Figure 1: Credit, Debt and Systemic Leverage



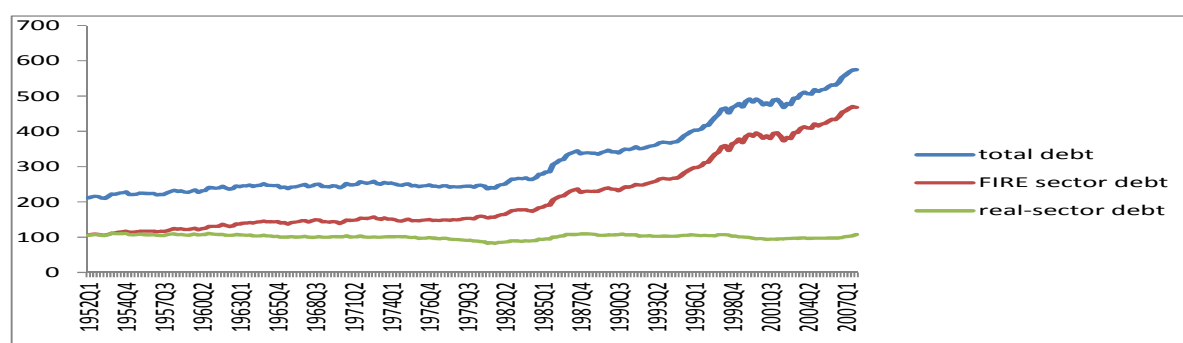
The ratio of these two flows is the growth in *systemic leverage*, a stock (or level) measure for the economy’s net debt (Bezemer 2012). High levels of systemic leverage may be damaging to the economy. ‘High levels’ implies that there needs to be attention not only to flows but also to stocks. Stock variables (such as debt levels) co-determine the economy’s fate, but are left out of conventional models (Godley and Lavoie 2006). This is analogous to monitoring a patient’s intake of iron but not iron levels in the blood; or to monitor rainfall in a catchment area but not water saturation levels in the soil. Such science ignoring stock variables will always be surprised by the patient’s death or by sudden inundation. We can do better than that in economics.

Leverage itself is not a problem to be avoided; it is not even avoidable, or optional. Having a financial sector means having systemic leverage. It is what allows modern economies to save, accumulate wealth, diversify risk and smooth consumption. But it also implies debt, and the risk of over-leveraging followed by financial crisis. Separating out different credit flows is necessary to understand finance’s dual potential, for growth and for instability.

6. Measuring and Modelling Finance’s Dual Potential

Graph 1 below, based on the flow-of-fund accounts of the US Bureau of Economic Analysis, applies this distinction to the data. It shows net debt build-up due to credit flowing to the ‘finance, insurance and real estate’ or ‘FIRE’ sector (in the US NIPA classification). This includes property and myriad financial assets and instrument – connected to pension funds, savings institutions, credit unions, funding corporations, mortgage pools, exchange traded funds, private pension funds, money market mutual funds, and the like. This credit to the ‘asset’ sector is emitted from banks and absorbed up front by the nonbank financial sector. None of this ever enters the real sector or directly finances physical investment or wages; its principal effect is to raise property and asset market valuations, and to increase the debt-to-GDP ratio, as Graph 1 clearly shows. By inducing debt service flows it is also a drain of liquidity from the real sector. Friedman (2009) wrote that: “an important question—which no one seems interested in addressing—is what fraction of the economy’s total returns ... is absorbed up front by the financial industry.” Ignoring this fraction is to ignore debt and its consequences.

Graph 1: Total US bank domestic debt stocks (% GDP) 1952-2007



Source: Bezemer (2012) based on the Z table in the US flow of fund accounts, series FL794194005.Q

The Graph validates the Figure 1 equality that “over long periods of time there has been a fairly close relationship between the growth of debt of the nonfinancial sectors and aggregate economic activity”. During the 1952-2007 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. That is (to repeat) because real-sector credit increases the economy’s value-added realised in final transactions and measured in GDP; it grows the economy in tandem with the debt. All empirical research on the effects of credit (Ang, 2009) only looks at this credit flow so that it always finds positive growth effects of credit. But that is only one side of the coin.

The Graph also shows that total debt growth is equal to financial-sector debt growth. Asset trade is a zero sum game, and leaves a net debt burden on the economy; it increases systemic leveraged. 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 nearly five times GDP in 2007. FIRE-sector bank credit creation in this graph bears no obvious link to real economic growth patterns but pushed up asset prices. US households’ financial obligations – principally, debt servicing and financial fees – rose by a fifth between 1980 and 2007, from 15.9 % to 19.0 % of household disposable income (Federal Reserve 2009). The era of high debt growth from the 1980s to the end of the boom in 2006-2007 was also a time of falling household savings levels and real-sector investments (Stockhammer 2004) and rising asset prices and debt levels, as was noted above. The debt burden was obscured for a time by the illusion of wealth during the long asset price boom-turned-bubble. Thanks to rising prices of real estate and its derivative instruments, US households’ ‘net worth’ increased from 4.7 times disposable household income in the 1980s and 1990s to a multiple of 5.9 in 2000 and 6.1 in 2007.

Graph 1 suggests that compared to the co-movement of real-sector credit growth and GDP, asset market dynamics are only very indirectly linked to the economy. These independent dynamics are precisely the reason they must be explicitly included in any helpful model of real-financial interactions. If (hypothetically) all credit flows were real-sector credit flows, then they might just as well be omitted from the model: they are equal to GDP anyway. This is just the assumption in mainstream macroeconomic models, as if money only exists to circulate goods and services. It does not, and that fact explains finance’s potential both for growth and for crisis.

Figure 2: How Credit Helps and Hinders The Economy

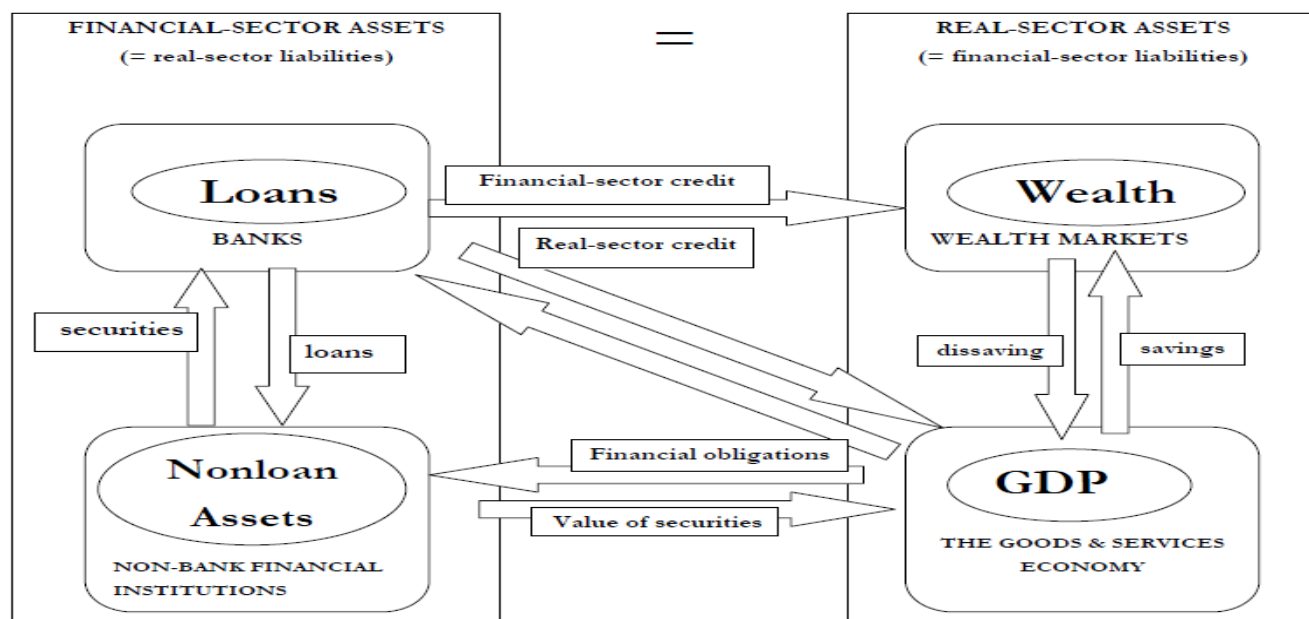


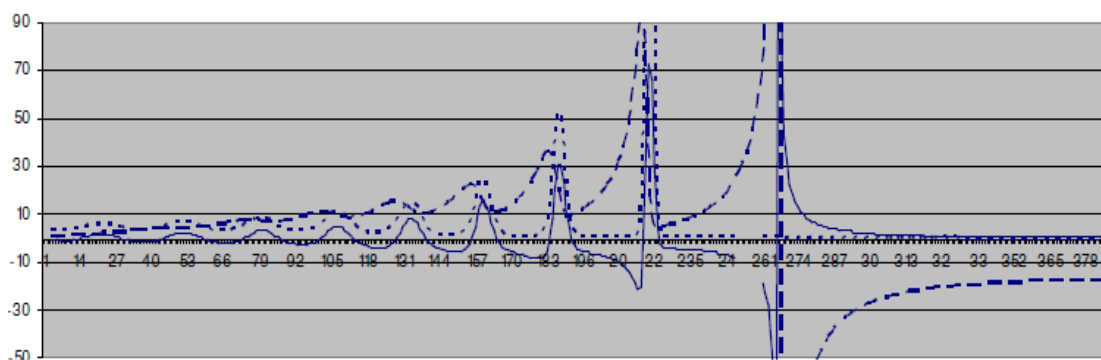
Figure 2 is a highly stylized model charting the relations between the real and financial sectors, and capturing much of the above in one flow chart. A full specification plus simulations are in Bezemer (2012). The Figure brings out that each asset is someone’s liability. In particular, wealth held in the financial sector (its liabilities) can only grow when debt in the economy (the real sector’s liabilities) grows. It also shows how banks can choose to issue loans to boost wealth or to build up the economy’s productive capacity. Wealth is not only built up by the act of saving, as is commonly assumed. It can

also grow just by an increase in financial-sector credit- which is the opposite of saving, namely borrowing. With growing wealth, and thus high returns on financial-sector credit, the loan flow will accelerate and be progressively skewed away from real-sector investments, an empirical reality shown in Graph 1. This elicits return flow of financial obligations, outflows which due to compound interest grow faster than loan inflows, and overwhelm the system is unchecked.

The flow chart make clear that the existence of a nonbank financial sector that is allowed to take on bank loans, means that there is a channel for banks to offload loans, so creating room for fresh lending. But loans are still liabilities to the real sector, so it increases the flow of financial obligations (interest, repayment and financial fees). 1. The economy’ growth results either from an influx of real-sector net lending (which is sustainable), or from consumption financed by home equity withdrawal - which is unsustainable, but can be prolonged for years or decades, given continues growth in financial-market credit flows, and given adequate supply consumption goods. Historically, both conditions were taken care of, respectively by financial globalization and by the growth of the Asian economy.

In such conditions, there is no particular reason why financial-sector credit would not grow unchecked, boosting wealth levels. The economy could benefit for the time being by dissaving (via e.g. home equity withdrawal and asset sales). This is the link between falling savings rates with growing wealth and equity withdrawal in the US since the mid1980s. The process can only continue as long as the financial-sector credit flow continues and exceeds the growth in financial obligations. In this sense the growth fuelled by financial-sector credit is literally a Ponzi scheme: fresh lending is required to finance existing obligations. Bezemer (2012) presents and formalization and simulation of the system. Graph 2 shows a simulation over 1000 periods (horizontal axis), with money units on the horizontal axis. The economy goes through a high-growth period with increasing and then breaks down. Both the growth and the breakdown occur because the amplitudes of growth and debt cycles are increasing as the Ponzi scheme grows.

Graph 2: Simulation of an economy driven by financial-sector credit



Note: the dotted curve is the GDP growth rate, the dashed curve is the economy’s systemic leverage, the solid curve is net flows of liquidity from finance to the economy. Source: Bezemer, 2012.

The end comes when, for some reason - such as falling asset prices due to maximum mortgage debt levels being reached – the flow of financial-sector credit dries up while financial obligations continue. The problem is that asset prices may rise and fall but liabilities, once taken on, are fixed. Since liabilities can no longer be serviced out of capital gains and lending against rising asset prices, they must now be serviced out of wages and profit. This leads to GDP contraction, unless the flow of real-sector credit compensates. But the same conditions that trigger the worsening of real-sector balance sheets (falling asset prices and reduced loan servicing capacity on debt-financed wealth) render banks more likely to restrict than to expand lending. Recession must axiomatically result, unless some factor outside of this simplified model intervenes – for instance, government deficit spending.

7. When Is There ‘Too Much’ Finance?

All this is not to say that financial-sector credit must always be harmful on balance, as it was recently; just that it comes at the price of more debt servicing. Financial innovation - more financial assets and instruments - means more opportunities for risk diversification, consumption smoothing and investment for real-sector agents. These flows are not just luxury items in the economic system and vehicles of excessive consumption – they are

vital to the economy’s financial machinery by monetizing profit and interest (which cannot exist in DSGE models - Godley and Shaikh 2002). This is what the financial sector was meant to do: support real-sector growth, profit and productivity. But financial wealth cannot grow unless net debt grows. This is an unyielding aggregate accounting identity. Any excess is always located in the nonbank financial sector and in the mortgage and consumer lending flows emanating from banks. These create liabilities without real-sector asset counterparts, leading to financial-wealth booms and debt problems. Therefore, there can be ‘too much’ finance.

Again, the possibility of credit excess is less obvious to economists than it seems to outsiders: without the notion that all financial expansion is debt expansion, it is actually a puzzle why there would ever be ‘too much’ finance. And of course, that notion was absent in the popular mind (as in most academic minds) during the long credit boom since the 1980s. If one only sees the credit side, one only sees the advantages or more purchasing power and the larger diversification and savings opportunities that larger credit markets bring. Due to decreasing returns, economists would expect that more credit over time produces ever decreasing benefits in terms of increased economic growth. But there is nothing in the mainstream theory that leads one to expect negative effect on growth of credit expansions. This is because there is no debt, and no attention to stocks rather than only flows.

In the perspective developed here, there is reason to believe that a level of the credit-to-GDP ratio of about 100 % would be optimal for the economy’s growth performance. To see this, consider (following the notation in Werner, 1997, 2004) that total credit (C) can be split up in credit to the real sector (CR) and credit to the financial sector (CF) so that $C = CR + CF$. The typical credit-growth empirical study is a regression of GDP growth on some credit-to-GDP ratio:

$$\Delta \text{GDP} / \text{GDP} = K + a.(C/\text{GDP}) + bX + e$$

where K is a constant, bX a vector of control variables and their coefficients and e an error term. The coefficient a is commonly interpreted to reflect the growth effect of credit, since it equals the first-order partial differential of growth with respect to the credit-to-GDP ratio:

$$a = d(\Delta\text{GDP}/\text{GDP}) / d(\text{C}/\text{GDP}) = d(\Delta\text{GDP})/d(\text{C})$$

The growth effect of an increase of the total credit stock is a weighted average of the growth effects of its components, by definition. With weights $a1$ and $a2$, that implies:

$$a = a1 * d(\Delta\text{GDP}) / d(\text{CR}) + a2 * d(\Delta\text{GDP}) / d(\text{CF})$$

Since wealth is not part of GDP, movements in CF are in the first instance unrelated to contemporaneous changes in GDP, except for a wealth effect on consumption (there will be an indirect, lagged effect that is positive or negative). And movements in CR are numerically equal to contemporaneous changes in GDP, as shown above:

$$d(\Delta\text{GDP})/d(\text{CF}) = 0$$

$$d(\Delta\text{GDP})/d(\text{CR}) = 1$$

If the growth effect of credit can be decomposed in a zero effect for CF and a one-on-one effect for CR, then it follows that coefficient a is at its maximum for $\{a2=0, \text{CF}=0\}$. In that case, $\text{C} = \text{CR}$ so that the credit-to-GDP ratio also takes value one.

Allowing for the large measurement issues surrounding the measuring of credit to the real and financial sectors, this theoretical estimate will be empirically observed with a band of uncertainty. And there are also substantial reasons for some variation: a wealth effect on consumption will mean that $a2$ can be positive, and the optimal credit level somewhat above 100 %. Pushing in the other direction are declining returns to credit so that $d(\Delta\text{GDP})/d(\text{CR})$ will start falling below its optimum already as it approaches the

CR/GDP=100% mark. In sum, the theoretical expectation of the maximum growth effect of credit is around a credit-to-GDP ratio of 100%. The upshot is that ‘lending must support the real economy’ (Bezemer 2009b) – and only very moderately if at all, the FIRE sector.

How does this conclusion compare to what we know empirically about the ‘optimal’ level of debt? Stiglitz *et al* (2000) document that the volatility of growth tends to decrease and then increase with increasing financial depth. They note that “standard macroeconomic models give short shrift to financial institutions...our analysis confirms that role that financial institutions play in economic downturns (Stiglitz *et al* 2000:6). The paper was however never published. But recently two analyses have come out. In their paper ‘Too Much Finance?’, Arcand *et al* (2011) use different empirical approaches to show that there can indeed be too much finance – especially, finance starts having a negative effect on output growth when credit to the private sector reaches 110 percent of GDP. And in their paper on ‘The Real Effects of Debt’, Cecchetti *et al* (2011) also argue that ‘beyond a certain level, debt is a drag on growth’. They assess that for government and household debt, the threshold is around 85% of GDP while for corporate debt, it is around 90% of GDP (the differences between these figures are perhaps not statistically significant). These empirical estimates, all close to 100 %, tally with the distinction between real-sector and financial-sector debt, and the different effects that these have on growth as introduced above.

8. The Many Faces of ‘Too Much’ Credit

It was established that credit to the real sector stimulates growth, and credit crises and other credit-caused ‘drags on growth’ result from too much credit (well above 100 % of GDP), and that this must mean too much credit to the financial and property sectors. In addition to the analytical and quantitative evidence for this, this section presents institutional evidence. How does too much credit harm growth?

Just as happy families are all alike but every unhappy family is unhappy in its own way, so we find credit systems doing fairly similar things in high-growth episodes, be it late 18th century Scotland, late 19th century Germany, post-war Europe during its ‘golden age of capitalism’ from the 1950s to the 1970s, or the ‘NIC’s’ in south east Asia over the past decades - South Korea and Malaysia in the 1960s and 1970s; Indonesia and China from the 1980s; India and Vietnam from the 1990s. In each case there was steady expansion of the credit system with the bulk of credit flowing to real-sector investment and innovation and almost none to property and financial markets, initially. The result was strong productivity growth with low inflation, leading to remarkable increases in living standards that typically lasted for decades. The specific institutions to bring this about varied, although common elements included systems of guided credit rather than free markets, managed interest rates, a (part-)state credit system, and limitations put on foreign credit and international capital flows.

But as Tolstoy noted, each unhappy family is unhappy in its own way and likewise, credit excess may lead to a variety of problems. The best known of it is crisis, but that is merely the end of excess. Those ‘type B’ credit flows to the FIRE sector in Figure 1 are diverse, and while helpful at low levels, are harmful in many different ways at high levels – from the South Sea Bubble and the Tulip Trade all the way to today’s supermarket credit card debt crisis. And the harm is done already during the boom, as can be demonstrated for recent examples of extreme credit bubbles and Ponzi schemes in Central Europe (Bezemer 2006; Bezemer et al, 2010). But the same mechanisms have been at work in the major capitalist economies since the 1980s.

In this section, four contemporary ways are discussed in which credit systems have been damaging to the economy before, during and after the credit deluge of the 1990s and 2000s. For while the crisis put an end to credit growth, it did not do away with excessive debt levels, which are still with us. In each of these brief case studies, contemporary analysis consistently missed (and in some cases still misses) the fact that what was growing was not credit to support growth, but credit to blow asset bubbles. That was (it bears repetition) because mainstream analysis does not make this distinction.

The four studies below are about the M&A waves since the 1980s, housing-led growth in the US in the 1990s and 2000s, the ‘Great Moderation’ that was and still is celebrated as an example of good monetary policy, and ‘quantitative easing’ which was the dominant response to the 2008 credit crisis.

The M&A waves since the 1980s

One example of the harm that excessive financial-sector credit stocks may do to the real economy can be found in the M&A waves since the 1980s. Kosnik and Shapiro (1997) report that from 1981 to 1989, reliance on investment banks to handle mergers and acquisitions increased from 75 percent of the merger deals to 100 percent. Despite the millions of dollars per deal this generated, there was a strangely high failure rate of new acquisitions, write Kosnik and Shapiro (1997). From a real-sector point of view, this does not make sense; it is a puzzle, just like the ‘Great Moderation’ (see below), and academics love puzzles. Subsequent researchers have regressed a large array of firm characteristic and deal features on the success of the deals (in terms of share prices or firm profit), and this branch of research has blossomed into a genuine cottage industry. Throughout, the combination of the strong rise in the incidence of M&A deals with their high failure rate remains somewhat bemusing. But taking the deals for what they are – leveraged asset trades in pursuit of capital gains and fees – they were not failures; they were resounding successes. Firms were loaned up to the hilt and financial fees ran into the millions.

This is well documented. Bodnaruk *et al* (2009) analyse how firms are targeted by financial conglomerates in which affiliated investment banks advise the bidders. They show that these investment bank advisors take positions in the targets before M&A announcements, with their positions then positively related to the likelihood there will be a bid, the premium of the target and, of course, the termination fees. However, Bodnaruk *et al* (2009) note “these deals are not wealth creating: there is a negative relation between the advisory stake and the viability of the deal”. This is how financial sector processes imposed on the real sector may undermine its proper functioning. Bodnaruk *et al* first published this research as a working paper under the title “The dark role of investment

banks in the market for corporate control", but had it published in the prestigious *Review of Financial Studies* under the more moderate “Investment Banks as Insiders and the Market for Corporate Control”. Giovanni (2005) recognizes that what drives these waves was not firm features and new market opportunities, but the availability of finance looking for returns. He writes that "in particular, the size of financial markets, as measured by the stock market capitalization to GDP ratio, has a strong positive association with domestic firms investing abroad." Hayward (2003) concludes diplomatically that "overall, these results suggest that professional firms (investment banks, DJB) lead clients to complex solutions with problematic outcomes." Such processes should not be researched or regulated as real-sector processes, but as financial speculation. Only when making the distinction to start with, can we make sense of the unprecedented M&A waves we have witnessed.

Housing-led growth in the US

Housing-led growth in the US is an all too familiar story. During the 1980s - 2007 era now labeled the ‘Great Moderation’ (based on decidedly immoderate credit creation), US house prices tripled and mortgage credit stocks lent by US banks to US households went from 15 % of GDP in the 1970s to 96% in the 2000s until the crisis (Grydaki and Bezemer 2012). In the 1970s, one in ten Dollars lent out by US banks was towards a mortgage; but in the 2000s, this was one in three - such was the redirection in the transactions that the credit system supported. We are now so used to seeing the disaster for what it was, that it is hard even to remember that right up till the crash, monetary luminaries did not distinguish this junk credit from loans that durably support the real sector. In a speech on 27 September 2005 to the National Association for Business Economics, then Federal Reserve Chairman Alan Greenspan spoke about the “... development of financial products, such as asset-backed securities, collateral loan obligations, and credit default swaps, that facilitate the dispersion of risk These increasingly complex financial instruments have contributed to the development of a far more flexible, efficient, and hence resilient financial system than the one that existed just a quarter-century ago”.

Similarly, the Canadian academic Philip Das in a 2006 survey article of financial globalization pointed out its benefits as “[f]inancial 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” (Das, 2006; emphasis added).

Indeed, so common was this view that after the crisis a myth developed that ‘no one saw this coming’. In reality, there were literally dozens of reputed academic and policy economists who did see it coming, but they were not mainstream economists (Bezemer 2010b, 2011). Indeed, many of those who did ‘see it coming’ made precisely the distinction between the real and financial sectors and their different functions elaborated in this paper. One of them was Wynne Godley of the Levy Institute at Bard College (NY). In contrast to official (Congressional Budget Office) projections in 2007 of US GDP growth averaging 2.85 percent between 2007 and 2010, Godley and others in April 2007 predicted US output growth “slowing down almost to zero sometime between now and 2008” and warned that “unemployment [will] start to rise significantly and does not come down again.”

This was no freak warning. Based on a so-called stock-flow consistent model (Bezemer 2010b, 2012), Godley had written already in 1999 of the growth of mortgage and consumer lending that that it was “impossible that this source of growth can be forthcoming on a strategic time horizon... If, *per impossibile*, the growth in net lending and the growth in money supply growth were to continue for another eight years, the implied indebtedness of the private sector would then be so extremely large that a sensational day of reckoning could then be at hand.” (1999:5); and he repeated these warnings as that day drew closer. He chose the number well, incidentally: eight years later it was 2007, now known as the subprime mortgage crunch year. What was special about this particular bubble was the large dependence of the real sector on its continued growth, so much so that most did not see that was fueling it was asset price inflation, not growth in value-added.

The ‘Puzzle’ of the ‘Great Moderation’

Contemporaneous with the housing bubble was a remarkable decline in macroeconomic volatility of the U.S. economy between the mid-1980s and the start of the 2007 financial crisis (Kim and Nelson 1999). Stock and Watson (2002) found that the standard deviation of U.S. GDP declined from 2.6 - 2.7% in the 1970s and 1980s to 1.5% in the 1990s. Warnock and Warnock (2000) documented strongly declining employment volatility. Bernanke (2004) drew broad attention to these trends by making it the topic of his 2004 Eastern Economic Association speech. Many countries, particularly the Anglo-Saxon economies, shared this feature. Cechetti and Krause (2006) find that in sixteen out of twenty-five countries they examined, real GDP growth was on average more than fifty per cent less volatile than it was twenty years earlier to their study.

The name ‘Great Moderation’ is reminiscent of America’s Great Depression and Great Inflation episodes and conveys the sense of a new era. Authors have variously located the novel element in better inventory management, fundamental labour market changes as the Baby Boomer generation is aging, oil shocks, changes in responses to shocks or broader factors such as development levels, external balances, the size of the economy and (inevitably) lack of strong institutions. Others suggest that the volatility decline may well be due to smaller or less frequent shocks to the economy, quite outside the influence of policy makers – or ‘good luck’. In all these studies, it is curious that what apparently stabilised the economy for a quarter century suddenly ceased to do so from 2007 (for a literature review, see Grydaki and Bezemer 2012).

The credit-based approach offers an explanation not only of the ‘Great Moderation’ but also of the crisis that followed, fully developed in Grydaki and Bezemer (2012). The reasoning is as follows. Figure 2 showed that the economy has two possible sources of growth (albeit not both sustainable growth), which are substitutes. With abundant financial-sector liquidity on offer which can be used to finance consumption, firms and households can time their borrowing decisions so as to buffer real-sector shocks. Increasing financial-sector credit flows may so cushion real-sector shocks if real-

sector and financial sector flows come to move counter-cyclically, resulting in lower overall volatility of GDP. The result: credit to asset markets (rather than overall credit conditions) both allows for increased consumption (e.g. through capital gains and equity withdrawal) that stabilizes the economy, and builds up the debt that subsequently erupted into crisis – a premier illustration that ‘stability is destabilizing’, as Minsky famously put it.

There is empirical evidence for this. Grydaki and Bezemer (2012) show how financial innovation during the Great Moderation increased credit flows in the U.S, especially mortgages, both in volume and with regard to the range of activities and investments they financed. Financial-sector credit flows so came to determine more of real-sector dynamics. If more of economic activity was debt-financed during the Great Moderation than before, and those debt-financed incomes moved more independently from overall GDP, this would be consistent with a reduction in overall output volatility. Grydaki and Bezemer (2012) document that the start of the Moderation coincided with a surge in bank credit creation (especially mortgage credit), a rise in property income, a rise in the consumption share of GDP, and a change in correlation (from positive to negative) between consumption and non-consumption GDP components (investment, export and government expenditure). It also shows in a VAR model evidence consistent with the hypothesis that mortgages came to finance a wider range of GDP components beyond residential investments, and came to move more independently from output.

Central bankers and researchers propounding the ‘good policy’ explanation of the new stability congratulated themselves on the success of monetary policies in conquering inflation (Bernanke 2004), and they still do (Taylor 2011). The excessive growth of financial-sector credit was not seen to throw a shadow over the sustainability of the Great Moderation while it lasted. This was consistent with the lack of attention to credit dynamics in general, and to a functional distinction between credit flows that help and those that hinder sustainable prosperity in particular.

Quantitative Easing: ‘Putting Money into the Economy’?

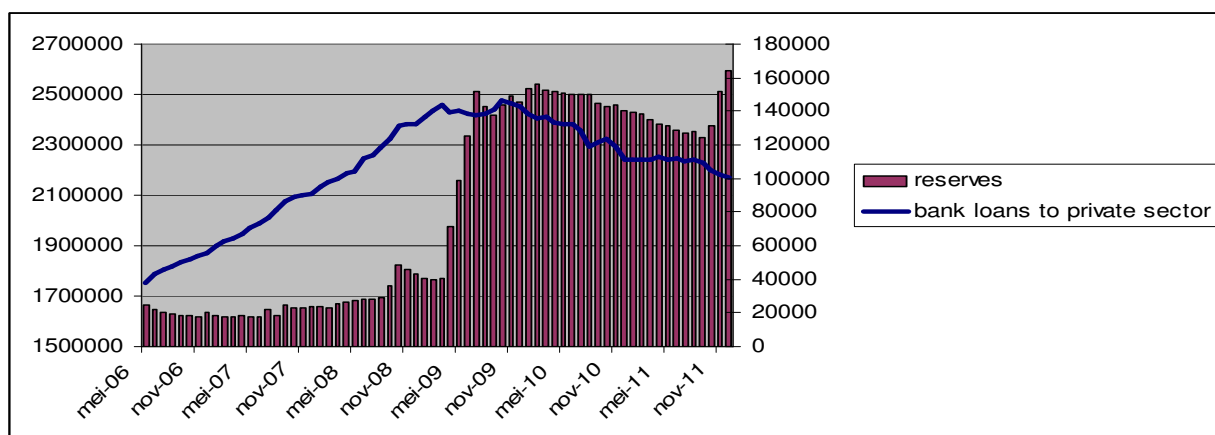
This confusion also played havoc with the response to the crisis. A post-crisis policy of ‘quantitative easing’ (or ‘QE’) was tried in 2009 in the UK and repeatedly in the US (we now have QE1, QE2 and QE3, and counting). Central banks bought bonds from commercial banks, paying by increasing banks’ reserves, which they were thought to lend on to the public. The policy was curiously ineffective, as it had been in Japan during 2001-2006 (Ugai 2006). This is because it confused credit to the financial sector, which may boost asset values, with creating credit to the real sector, which increases GDP. Consider the British case.

From March 2009 until February 2010, the Bank of England (BoE) implemented a £200bn QE program. BoE analysts wrote an explanatory document that accompanied the introduction of QE and titled it “Putting More Money into Our Economy.” They erroneously confused money (created by bank lending to the real sector) with bank reserves (created by the central bank boosting commercial banks’ accounts). In the document, it is asked “How will we know if the asset purchases are working?” and the answer is that “[u]ltimately, what matters is the degree to which the cash injection [meaning purchase of government debt, DJB] boosts the growth of money and spending by households and businesses” (Bank of England 2010). In its *Quarterly Bulletin* of 2009Q2, BoE staff explained QE in detail and wrote that “the aim of quantitative easing is to inject money into the economy in order to revive spending” (Benford et al. 2009: 91). Charlie Bean, Deputy Governor for Monetary Policy of the Bank of England, answered a number of frequently asked questions on QE on the BoE web site on July 13, 2009. He explained that QE was motivated by BoE concern “with the growth of money spending in the economy... Quantitative easing aims to increase money spending.” And so on. But what increased was spending on assets, not money in the economy.

Perhaps this was just PR talk: the public would have reacted quite differently had it understood that what was supported was bank balances but not ‘money spending in the economy’. Or perhaps the authors believed what they wrote. In any case, in our analysis (Bezemer and Gardiner 2010) we show in detail how QE policies confuse loans used in the real economy (which were stagnating or falling throughout the experiment)

with bank reserves, which *quadrupled* over 2009 (Graph 3). This was unique in BoFE history. Neither bank loans nor ‘money spending’ or GDP increased noticeably during or after the exercise, but there was a curious stock market rally during 2009. A London Stock Exchange press releases on 29 December 2009 reported that “a record £82.5 billion was raised through new and further issues of equity on the London Stock Exchange during the course of 2009... despite difficult market conditions”. Indeed, asset markets are not the economy. In the UK, bank reserves and systemic leverage increased, real-sector lending and growth did not. Only by tracing them as different flows can the effects of QE be correctly analyzed, without false hopes or promises that bank reserves or asset-market investments will stimulate economic growth.

Graph 3: Outstanding Amounts of UK Resident Monetary Financial Institutions’ (excluding Central Bank) Sterling Loans to Private and Public Sector (curve, left-hand axis) and Bank of England Banking Department Sterling Reserve Balance Liabilities (bars, right-hand axis), Billions of Pound Sterling, May 2006 - December 2011



Source: Bank of England

It is not difficult to extend this series of case studies with others. In each case, real-economy processes supporting wages and profit were crowded out by asset trade deals yielding capital gains. Credit came to underpin asset market rather than restructuring production processes with a view to increasing efficiency and profitability. Anything

from firms to food can become a tradable asset, as also the speculation-fuelled global food price crises of 2006-2008 and 2010-2011 (and ongoing) demonstrate. There is literally no end to the many faces of harm done to the economy when it is shackled to too much debt in search of returns. Unless and until debt levels are reduced - and therefore, the financial sector that has debt creation as its business model has shrunk to manageable proportions - financialization and its discontents will be with us, in boom as in bust.

9. Summary and Concluding Remarks

The financial sector can support growth but it can also cause crisis. The present crisis has exposed gaps in economists’ understanding of this dual potential. Current macroeconomic thinking does not distinguish between credit flows that help and those that hinder the economy, and it ignores the role of debt stocks. This paper explains why credit and debt are absent from today’s macroeconomics, and grounds an alternative approach in the credit nature of money. It builds on an older distinction between credit flows that grow the economy of goods and services, and credit that inflates markets for financial assets and property.

The first type of credit flows accounts for credit’s growth potential. It is financially sustainable as it grows the economy in tandem with debt growth: the debt-to GDP ratio need not rise. The second type of credit does increase the net debt burden. This may be worth it, as by supporting financial market development it can be a helpful catalyst of the real sector initially. But if it overshoots it leads to bloated financial markets, with a number of nefarious impacts on the real economy: rising costs due to high asset values, rising inequality, and rising uncertainty due to financial fragility. As asset prices and consumptive credit come to replace investment and wage growth as the drivers of growth, the economy becomes concerned more with capital gains than with profit. This pervasive financialization imposes the finance motive on both private and public sector processes, turns everything (homes, firms, pensions, food) into an asset to be traded for speculative purposes, is a relentless and continuous pressure to deregulate, and insofar it

does not simply abolish legislation and governance, it invites widespread fraud and corruption, undermining public governance and private norms. Unfortunately, overshooting of financial sector credit, with all these effects in attendance, is built into the system due to the nature of money, banking and compound interest. That is why financial deregulation leads to credit booms and busts. Excessive growth of this second type of credit flows to the financial and property sectors is the proximate cause of financial crisis; lack of public regulation is the ultimate cause.

The Western economies are now in the midst of the debt crisis fallout, and will be for some time to come. This requires continuous short term fixes to prevent the ‘sky from falling in’ – the bank bailout fix; the US debt ceiling fix; the Greek bailout fix; and so on. But beyond short-term survival, a return to financially sustainable growth in the longer term requires a shrinking of the debt due to the nonbank financial sector and of mortgage and consumer credit stocks, and thus of the banks and nonbank firms that have made the accumulation of these claims into their business model . The financial sector is a creditor to the real sector, and absorbs a continuing flow of liquidity in interest payment and financial fees that would otherwise be effective demand for goods and services, supporting economic growth. That is justifiable if it supports growth in other ways, but not if it just inflates asset prices.

Financial deregulation has allowed the US nonbank financial sector to grow to about three times the size it had in the 1980s (more by other standards), and so its claims on the real sector are three times larger than a quarter century ago. Much the same patterns obtained in many other OECD countries. This is unsustainable, but present policies are to sustain it by supporting the financial sector, even more than supporting the economy. Instead, we need consistent de-financialization policies: we need to curb fiscal incentives and close loopholes to run up debt, to encourage or force lenders to keep loans on their books, to simplify financial products for households, and to remove public insurance for casino-type asset trading. We need to bring down debt levels.

Partly this is already occurring as households, firms and government around the world are deleveraging, pressed in many places by austerity policies. But while rationally

individually, that kind of deleveraging is the last thing we need to get the economy back to growth. The framework presented above suggests that we need to reduce FIRE sector debt, not credit that supports the real sector. That reduction requires regulation, not just overall deleveraging.

It is not overly difficult to think of policies that pave the way to renewed financial sustainability. ‘Primitive’ economies like Sumer, Babylonia, Israel and Rome did it thousands of years ago. Granted, our situation is more complex as most debts are now owed to private parties, so that a publicly managed debt restructuring needs to consider the pain this does to a range of (often powerful) creditors, rather than only to the creditor state as in ancient societies (Hudson and Van de Mierop 2002; Hudson, 2004). Obstructing such reforms are academic models and policy analyses with a blind spot for debt and its impacts; a powerful financial lobby; and the pervasive idea (resulting from both) that we depend for our economic survival on the financial sector lock, stock and barrel. This is mistaken. Some credit flows help the economy; but others can, and did, hinder. We need to reshape the sector to foster the first and restrain the second type of credit flows.

When Classical liberals such as John Stuart Mill wrote of the free market, they envisaged not a free-for-all market, but an economy free of the burden of *rentier* interests (Hudson, 2011). The paradox is that this freedom – the freedom from debt burdens and high asset prices; the freedom for firms and households to prioritize other motives over the financial, speculative motive - requires a strong and capable state, which regulates the financial sector and harnesses finance for growth and prosperity. For highly financialized economies like ours, Goethe’s words written in 1802 are as relevant as ever: less is more, and no liberty without law.

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