

Credit cycles

The credit cycle is the periodical increase and decrease in credit conditions (supply, demand and price) in an economy. Credit cycle theories address the questions “What are credit cycles and why do they occur?” and “Does the credit system cause volatility in the rest of the economy?”. Writers as early as the British ‘assay master of the mint’ De Malynes (1601, ch. 2) claimed that “[t]he Want of Money is the First cause of the Decay of Trade, for without money, commodities are out of request”. Sismondi (1815, ch. 2) wrote, “[i]f it be then asked why [the entrepreneur] stops, he will answer, like the workman, that money is wanting, that money does not circulate”. Roscher (1877) wrote that “a general crisis may be produced, especially by a sudden diminution of the medium of circulation.” Marx (1887, ch 30) observed that “[i]n a system of production, where the entire continuity of the reproduction process rests upon credit, a crisis must obviously occur ... when credit suddenly ceases”.

Mainstream Economics and Reflective Finance

Such observations found no place in the theoretical system of Classical political economy, which viewed the economy through the prism of the circular flow of goods and money, where Say’s Law holds. Say Law posits that the purchasing power embodied in the funds acquired by producers to produce goods will pass via wages and profit to become the funds that embody the demand for those goods. In a truly circular flow, it cannot be else; no value appears *ex nihilo* or leaks away, so that inputs and output must be equal in money terms. A major conundrum therefore is how profit can exist – how, in the aggregate, can the value of produce exceed the value of factor inputs? An implication is also that investment is constrained by savings. Both observations arise because the Classical circular flow depicts a barter economy.

Modern neoclassical economics follows this. The core macro models view money as an optional add-on to the real economy, a mere unit of account that allows for comparing the values of goods and services. They ignore the conundrum and maintains that investment is constrained by savings, and thereby rule out the possibility of credit cycles. Credit cycles, though, can only exist if there is a systematic tendency towards over-borrowing (more borrowing beyond a rate

strictly in proportion to resources and output), as explained below. They are impossible in models where money is a value unit for transactions of current output, and which therefore must exist in a one-on-one proportion to output. All attempts to integrate finance into a general equilibrium (GE) model world therefore picture it as a mere conduit of existing money from savers to investors, in line with a 'loanable funds' theory of banking.

General-equilibrium macroeconomics so espouses a 'reflective finance' view, where the credit system is seen as reflecting economic 'fundamentals' in the real sector, such as productivity and resources. Finance itself cannot be the cause of economic volatility; at most, imperfections in financial markets may be, just as wage rigidity in labour markets can be (Kyotaki and Moore, 1997). This explains why there is little theorizing on credit cycles in mainstream economics, so that Bernanke (1983:258) could note that "only the older writers seemed to take the disruptive impact of financial breakdown for granted". As Arestis and Mihailov (2010) show in a recent overview of monetary theory, 'reflective finance' is still dominant despite innovations in secondary issue such as inclusion of transaction costs, heterogeneous agents, risk, information imperfections, and sticky prices. It characterizes the earliest money-less Walrasian models up to the currently dominant DSGE models, of which Tovar (2008) notes that "the main weakness in current DSGE models, is the absence of an appropriate way of modelling Financial markets" (p.5). In consequence, in DSGE models "aggregate financial wealth does not matter for the behaviour of agents or for the dynamics of the economy' (p.7).

This is true also of models ostensibly focusing on credit, as in the 'credit channel' view, where changes in borrowers' balance sheets should have an impact on their decisions to lend and spend, and procyclical movements in balance sheets can amplify business cycles – a mechanism known as the 'financial accelerator' (Bernanke, Gertler and Gilchrist, 1999; Aoki et al, 2004). Kiyotaki and Moore's much cited 'Credit Cycles' (1997) show theoretically how credit constraints interact with asset prices so that sectoral shocks may be amplified and spill over to other sectors - a model of how credit conditions may amplify (not cause) external shocks to the economy. Likewise, the 'bank lending channel' approach (Bernanke and Blinder, 1988) suggests that monetary policy may affect the external finance premium by shifting the supply of intermediated credit, particularly loans by commercial banks. This literature explores whether "imperfect information and other "frictions" in credit markets might help explain the potency or

otherwise of monetary policy” but no independent effect of credit flows on the real economy is presumed. Indeed, in describing it, Bernanke and Gertler (1995:44) assert it is “inappropriate” for “some authors to focus on the behavior of credit aggregates” since “...examining the dynamic responses of various credit aggregates is...largely uninformative...”. They advise 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”. This stance is in line with the passive role of finance imposed by a general-equilibrium view of the economy, as explained above.

But reality asserts itself in the widespread recognition that credit is not merely unit-of-account money, and that cycles in credit exist and are causal factors in cycles in economic activity. For instance, Stiglitz and Weiss (1988) wrote, “the central means by which the banking system (and the monetary authorities) affect the level of economic activity is through control of the availability of credit, not through the medium of exchange”. Likewise, Austrian economists attribute errors in mainstream analysis at root to theorists’ “confusing the demand for credit with the demand for money” (Yeager and Greenfield 1997) which obfuscates the role of asset markets. Geanakoplos (2009:9) asserts that “regulating leverage is the solution for a troubled economy”. Benk et al (2005), building on Uhlig (2003), identify credit shocks as candidate shocks that matter in determining GDP. 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 cause an expansion of wealth/GDP transactions” (Caporale and Howells, 2001:555). Werner (2005) shows that bank credit Granger-causes GDP growth and asset price inflation.

Critical Credit Cycle Theories

These and similar observations are poorly theorized in general-equilibrium economics, given its limited theoretical scope. They fit into alternative ‘critical’ theories of finance (Toporowski 2005) where variation in credit conditions do constitute a causal factor in the wider business cycle – not because of some imperfections, but because of the very nature of finance and its role in the economic system. To illustrate the distinction, Irving Fisher in a 1907 book attributed credit

caused economic volatility to variations and imperfections in investors 'foresight' – that is, outside the credit system. Only in his 1933 paper 'The Debt Deflation explanation of the Great Depression' did he describe how finance *always and by definition* tends to instability and to destabilise the economy (Toporowski 2008:75-76). The remedy following from his 1907 book is that with better information and training of investors, instability can be avoided; the policy implication from his 1933 paper is that instability is inevitable, and must be managed. The dichotomy was apparent in the 2007-8 Great Financial Crisis and its aftermath. Public debate informed by the reflective finance view suggested that financial reform should focus on breaking up banks, banning bonuses, reintroducing a separation of deposit taking and investment banking, and the like. Only a handful of Post-Keynesian and Austrian economists had been pointing out (long before the crisis, as documented in Bezemer, 2010a, 2010b) that financial instability trends were ever present and needed constant rather than occasional regulation.

Wicksell, Mises, Veblen, Hayek, Fisher, Schumpeter and Keynes/Minsky theorized how credit fluctuates and cause the business cycle The key features of their and others' critical credit cycle theories are:

- (1) 'free' credit flows not linked to real-sector growth,
- (2) assets distinguished from money and
- (3) debt as the counterpart of credit.

Free credit (i.e., debt flows not linked to production) can only exist if credit (and credit–money) is recognized to be created 'out of nothing', in contrast to the 'loanable funds' theory of banking. There are no 'free resources' (or savings) in the real sector which are the loanable funds that limit the expansion of the credit system. Rather, crediting bank accounts is how free (financial) resources are created, in excess of current real-economy output. There is no necessary link to real-sector income; credit expansion can be self-propelled for long periods of time. Moreover, credit flows over and above those linked to current output have to be linked to some other market, namely asset markets; these are dispensable in the core GE models but central to 'critical' theories of finance. Such theories always need a dual economy, with finance distinguished from the real economy and assets distinguished from money. Finally, by balance sheet identity credit is also debt, which is key to the peaking of a credit boom and the adverse real-sector consequences of a debt deflation.

The common scenario in credit cycle theories starts with over-borrowing. While Adam Smith and subsequent 'Real Bills' advocates had argued that money demand would be limited by the 'needs of trade', Henry Thornton (1802) noted that there is no natural limit to the amount of bills of exchange that merchants may demand. Hence overborrowing is possible: in a money system based on convertibility into such notes, money growth may exceed output growth. Knut Wicksell (1898, 1906) built on this to originate the best known theory of a credit cycle. He broke the mould of Say's Law and the Quantity Theory by recognising investment to be independent of savings. If money is (trade or bank) credit, it is freely expandable. This implies that aggregate demand and investment is free to rise above (or fall below) a given aggregate supply.

Wicksell (1889;1906) theorized a "natural" interest rate (the return on capital, or the real profit rate) and the "money" rate of interest (the loan interest rate, determined in the financial system with no necessary reference to real-sector returns). If the natural rate is greater than the money rate (so that the marginal product of capital is greater than its cost), then entrepreneurial borrowing for investment in capital goods is attractive and investment will rise above savings. The excess demand that this eventually causes will push up prices, encouraging entrepreneurs to borrow yet more, so that a selfpropelled credit boom is in existence. The peak will be reached when banks increase their loan rates and/or restrict lending (for instance, because they have limited reserves), or when the inflation reduces the real return on capital, and thereby the real rate. Either or both of these processes eventually cause the money rate to exceed the natural rate, undermining entrepreneurs' incentive for further borrowing. By introducing self-propelled money growth with real-sector effects, Wicksell did away with the (neo)classical view that money is merely a 'veil' over the real sector, and with the exogeneity of the money supply. He specified how credit cycles may engender the business cycle via investment decisions and separate markets for productive capital and financial assets.

In the same years Veblen (1904) published a theory drawing upon the distinction between asset valuations equal to the discounted stream of future profit and asset valuations based on expectations of capital gain. There is a parallel to Wicksell's natural and money rates of interests, but Veblen's account is less systematic and richer psychologically and institutionally. Collateralised lending is the key reason for a credit boom where capital gains and credit extension become mutually reinforcing. Once the disparity with expected income streams becomes too obvious, the resulting change in mood curtails not only credit and asset prices, but also

investments in the real economy. The result is redistribution of ownership claims towards creditors; different from Wicksell's account, any real effects of the entire boom-and-bust episode (e.g. on efficiency) are only secondary. In fact, Veblen's theory is the polar opposite of the (neo) Classical exclusive emphasis on the real side of the economy. The link from credit to physical production is psychological and credit has no effect whatsoever on physical production capacity. This links to Veblen's vision of the role of finance in the economy, which is about controlling and manipulating rather than supporting and facilitating physical production.

The term 'credit cycle' is often linked to the Austrian school. Austrian credit cycle theory was originated by Ludwig von Mises (1912), as a consequence of his exploration of banking theory, and further developed by Friedrich Hayek. The theory is clearly rooted in Wicksell's, but combines elements from Menger's and Bohm-Bawerk's emphasis on individual choice and preferences, and the role of heterogeneous capital investment in economic expansion. The Austrian business cycle also starts with over-borrowing: an (unsustainable) expansion of bank credit through fractional reserve banking (caused, for instance, by low interest rate policy). The resulting enlarged supply of funds and further falling interest rates prompt investors to shift investment from consumer to capital goods, and causes entrepreneurs to invest in longer processes of production, lengthening the capital structure and increasing the 'roundaboutness' of production that Bohm-Bawerk had noted. Monetary expansion so misleads investors by artificially pushing up capital prices and reducing people's time preferences (the degree to which they prefer present to future satisfactions). The results, as with Wicksell, are over-investment and the speculative borrowing to sustain this. The boom comes to an end as the 'artificial' increase in the money supply eventually results in all-round price increases. This inflation restores time preferences, causes people to increase consumption and decrease investment, and so reduces investment funds. In sum, for the Austrians the cycle is based on monetary sleight of hand, and generates unsustainable 'malinvestment': the longer the unsustainable shift in capital goods continues, the more violent and disruptive the necessary readjustment process will be - and rightly so. Fractional reserve banking coupled to government interference is the source of all problems and the resulting recession is seen as essentially healthy, realigning investment to 'real' savings. Austrians view 'free' credit flows - financial development in excess of real-sector development - as problematic, not promising.

Not so Joseph Schumpeter, who was Austrian by birth and often viewed as part of the Austrian school. His seminal *Theory of Economic Development* (1912/1934) is entirely set in the context of “the circular flow of traded goods” (1934:8). In it, he notes that “the fundamental proposition of the equality between the value of the product and of the services of labour and land still excites astonishment”, because it implies zero profit and interest. Schumpeter made the analysis of this puzzle the framework for his theory of profit, interest and entrepreneurship in the rest of the book. He proposed credit as the solution. Schumpeter’s name is therefore linked to the acceptance of the idea that the financial system can promote economic growth. King and Levine in their 1993 paper “Finance and Growth: Schumpeter Might be Right” started a large empirical literature on this theme. Schumpeter (1927) distinguished between the role of credit in stable (nondevelopment) conditions, referring to it as 'circulating credit'. Development, in contrast, requires 'the expansion of bank credit whereby new purchasing power is created out of nothing'- or 'free' credit flows. Credit expansion so facilitates (rather than causes) the upward swing of the business cycle. Likewise, as innovations spread, 'the advanced credit will find its way back to the investor', and prices fall as the boom wears out and turns into slump. Also in his 1939 *Business Cycles*, the source of development is innovation and credit is seen as indispensable to innovation. But for Schumpeter, credit is the proximate and innovation the ultimate cause of development; he did not pinpoint causes of instability within the credit system itself. Development and the business cycle to Schumpeter is an interaction between the stable Walrasian system and revolutionary innovations, facilitated by credit expansions and contractions. In discussing, in chapter XI of *Business Cycles*, the section on “Deposits and Loans”, Schumpeter warns against the “misleading associations” that readers may have when discussing loans as ‘the source of expenditures’. “We are not now moving towards the origin of the cyclical process but, on the contrary, away from it.” He eschews “any implications of mechanical effects of the “flow of funds” (Schumpeter, 1939: 578). In the 1934 preface to *The Theory of Economic Development* he had written that he hoped “to supply before long the detailed material which is here missing by more "realistic" studies in money and credit, interest, and cycles." It may well be that Schumpeter’s material never materialised because later in life he came to favour a general equilibrium framework of analysis, which, as discussed in the Introduction, excludes money and interest.

A more explicitly credit-based theory of the business cycle was put forward by Irving Fisher (1933). He theorized in 'The Debt Deflation Explanation of the Great Depression' that low interest rates, and hence cheap money, was the cause of overborrowing, over-investment and speculation, like the Austrians had done. But different from Wicksell and the Austrians, his emphasis was not on the upswing, but on the aftermath of a credit-boom-turned-bust. Over-indebtedness is followed by asset owner's distress-selling in an attempt to reduce debt levels, causing asset prices to decline. The growing gap between falling asset values and fixed debt levels leads to widespread balance sheet problems, more distress selling, de-investment and so to a general slump with deflation, bankruptcies, and unemployment. Fisher's contribution was so to detail the real-sector implications (in his time, the 1930s Depression) of the credit cycle. He highlighted the role of debt and asset values in the downturn ('balance sheet effects') more than did any predecessor.

Like Schumpeter, John Maynard Keynes placed the financial nature of capitalism at the heart of his mature analysis. It may therefore come as a surprise that novel credit cycle theorizing was absent from his work. Keynes viewed money as a financing 'veil' between the real asset and the wealth owner. The resulting uncertainty explains why capitalist economies are 'so given to fluctuations' (Keynes, 1936: 169). But Keynes did not locate the mechanisms of instability within the 'veil'. Understanding the credit cycle was important to Keynes in the 1920s. His investment approach for some years was to 'play the credit cycle' (i.e., anticipate how credit flows and turning points would influence returns), and this linked to a growing theoretical interest. In 1924, Keynes wrote in a letter that "[t]he conversation with Sraffa about the Credit Cycle has made me very eager to begin writing my book", which was to become his 1930 *Treatise on Money* (Naldi 2006). In it, he included a Wicksellian theory of the credit cycle. But his distinction in the *Treatise* between "money in the real circulations and money in financial circulations" – a cornerstone of critical credit cycle theories – , did not lead him to develop a new theory of finance-induced cycles. When Keynes wrote on "The Consequences to the Banks of the Collapse of Money Values" in his 1931 *Essays in Persuasion*, he did not elaborate on an economy-wide debt deflation but confined his analysis to banks. Nor was he specifically interested in credit. As Naldi (2006) notes, with the phrase 'credit cycle' Keynes generally referred to the business cycle. For instance, Naldi (2006) notes that in the 1924 article *The Speeches of the Bank Chairmen*, "the stability of the internal price level and the damping down of the credit cycle" is presented as

synonym of "to keep prices steady and trade on an even keel" (CW IX p.192). In one of the earliest version of the *Treatise on Money*, the heading "The Analysis of the Credit Cycle" was corrected by Keynes in "The Analysis of the Trade Cycle and the Theory of Credit" (JMK/TM/3/2/12). And Keynes never mentioned debt as a causal factor in the cycle. In Ch 22 of the *General Theory*, titled 'Notes on the Trade Cycle' he wrote that "the predominant explanation of the crisis is, not primarily a rise in the rate of interest, but a sudden collapse in the marginal efficiency of capital" (Keynes 1936:315). For Keynes, cycles were fundamentally caused by physical investment decisions, in turn determined by the interplay of prices, stocks and costs of production as well as (on a deeper level) by uncertainty and 'animal spirits'. Keynes was primarily concerned with the possible persistence of slumps due to demand deficiency. Accordingly, credit in the *Treatise on Money* is not a causal factor in business cycles, but figures as a possible countercyclical policy tool. And in the *General Theory* six years later, his focus had altogether shifted. In the preface to the *GT* (p. vii), he noted that "whilst it is found that money enters into the economic scheme in an essential and peculiar manner", he let "technical monetary detail fall into the background". There are echoes of Schumpeter's preface two years earlier.

Hyman Minsky (1919 – 1996) was unique in that he developed an original theory of finance-induced cycles which differs from the Wicksellian account and the variations on it discussed so far. Minsky was a student of Schumpeter at Harvard and a follower of Keynes and Veblen. He developed Keynes' emphasis on expectations into his 'Financial Instability Hypothesis': financial instability is inherent in monetary capitalism because of expectations. Periods of prolonged prosperity give rise to increasingly optimistic expectations. These will cause the financial system to progressively increase its leverage, return rates and risk exposure (i.e., its 'fragility'), proceeding through the stages of 'hedge finance' on to 'speculative' and finally 'Ponzi' finance. In this view, the monetised economy is inherently dynamic, since the key economic transaction is the exchange of money today (current goods) for money tomorrow (financial assets). Financial commitments on capital markets reflects such transactions, and have to be made in the face of intractable uncertainty (as opposed to calculable risks). This implies that views about the future can undergo marked changes in short periods of time, generating instability (Minsky, 1978). At any point in time, commitments break down into three categories. First, 'hedge finance' includes assets with cash flow revenues equal to or larger than cash flow commitments in both the short and long run. Second, capital assets held in 'speculative finance'

have short-term cash flow revenues that fall short of short-term commitments. These are met instead by rolling over or refinancing debts in the expectation that long-run revenues will be large enough to meet outstanding commitments. This is typical for banking activities. Third, 'Ponzi finance' assets are characterised by cash flow commitments that are larger than cash flow revenues in both the long and short run, and hence need perpetual rolling over, which is naturally not sustainable. Over time, the market share of speculative and Ponzi finance tends to rise through a shift in risk preferences due to a gradual decrease in the value of insurance that the holding of money provides. A consequent shift in portfolios towards the more rewarding, and more risky modes of speculative and Ponzi finance sets off a boom. During the boom, expectations grow optimistic to the point of euphoria. (An economy that is ruled by expectations of perpetual expansion is characterised as euphoric.) Hence, lenders accept assets that would previously have been (risk-corrected) low-yield. The increased financing needs inevitably raise interest rates, lowering the value of long-term debt. When this fall initiates doubts about the validity of euphorical expectations, a reconsideration of investment programs occurs and portfolios are hedged. This as well as the inelasticity of aggregate supply in the real sector yield a shortfall of the investing units below the more optimistic profitability levels of the euphoric expectations. The result is a combination of cash flow commitments from the burst of euphoria and of cash flow receipts based on lower-than-expected income: an untenable debt structure. Depending on the dominance of Ponzi/speculative finance and on financial policies, the unwinding of euphoria may occur with little trouble, and a new boom may be entered; but it may also involve financial instability, and become the source of deep depression and stagnation. Financial crisis occurs if units need or desire more cash than is available from their usual sources and resort to unusual ways to raise cash, such as liquidating positions. To the extent that businesses are funded by financial assets, every position on the financial market that is liquidated cuts off businesses in the real sector from investment channels. Thus financial instability may cause declines in production and employment. Minsky also elaborated on the role of 'Big Banks' and 'Big Government' in restoring stability, though at the costs of higher leverage. In the 1990s he identified a system-wide shift towards Ponzi financing with what he called 'money manager capitalism', the title of his unfinished (and as yet unpublished) book.

Contemporary credit cycles research builds on the above traditions and a number of contemporary writers are further developing and applying credit cycle theory. The 'Monetary

Circuit' school has developed models of the circular flow which include the circulation of credit-money, where money is created endogenously, and banks are modelled separately from firms and consumers (Graziano, 2003). Post-Keynesian researchers such as Keen have further developed and formalised Minsky's hypothesis (1995) and combined it with circuit theory (1999). Wynne Godley, in joint work with Francis Cripps in the 1980s and Marc Lavoie in the 2000s, has developed stock-flow consistent flow-of-fund models of the macroeconomy, applied to the US and UK. These have been the basis for policy concerns of growing indebtedness, unsustainability of growth and accurate predictions of financial crisis (Godley and Wray 2000; Godley and Zezza 2006) and has resulted in an alternative macroeconomic textbook (Godley and Lavoie, 2007) where the flow of funds is central. Werner (e.g. 2005) has extended the Fisher equation of exchange to include asset markets, and developed a theory where over-extension of credit into financial and property markets, and the debt dynamics it implies, causes cycles in credit, and therefore cycles in economic activity, in the context of the Japanese economy. Gardiner (2006) has provided a rationale for the business cycle as credit cycle from the accounting nature of money. The 2007 Great Financial Crisis appears to have reinvigorated interest in the role of credit in the macroeconomy, and these are just some of the recent contributions.

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