

What post-Keynesian economics has brought to an understanding of the Global Financial Crisis

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Abstract

The claim made here is that post-Keynesian economics has greatly improved our understanding of the causes as well as some of the consequences of the Global Financial Crisis. The paper deals with some exemplars related to monetary issues, namely the financial instability hypothesis of Minsky and its extension to the household sector, as well as the post-Keynesian theory of endogenous theory, with its extension to quantitative easing policies set within a framework where the target rate of interest of the central bank is set equal to the rate of interest paid on reserves.

Introduction Back in November 2008, visiting the London School of Economics, the Queen of England (and of Canada) asked: since the meltdown was so massive, 'why did nobody notice it?'.¹ It took more than six months to get a bland answer from members of the British Academy, who blamed their lack of collective imagination. A proper answer from the mainstream of the profession was only provided four years later, when the Queen visited the Bank of England. She was then told that: a financial crisis is a rare event which is difficult to predict; regulators thought that markets were efficient and hence that regulation was not necessary; and economists did not realize how interconnected the economic system had become.²

Still, some economists did predict the crisis while simultaneously having reasons backing up their prediction. On the mainstream side one can name Robert Shiller, Raghuran Rajan and Paul Krugman; on the heterodox side, there was in particular Wynne Godley, Dean Baker and Steve Keen. Dirk Bezemer has argued that most of those (but not all) who predicted the crisis had a framework in common:

Accounting (or flow-of-funds) models of the economy turn out to be the shared mindset of a large subset of those analysts who worried about a credit-cum-debt crisis followed by recession, before the policy and academic establishment did. They are 'accounting' models in the sense that they represent households', firms' and governments' balance sheets and their interrelations, and that accounting identities play a major role in the model structure and outcomes. If society's wealth and debt levels reflected in balance sheets are among the determinants of its financial stability and of the sustainability of its growth, then such models are likely to timely signal threats of instability. Models that exclude balance sheets are prone to rejecting the possibility of crisis when in reality it is just months ahead.... Models that exclude balance sheets are prone to rejecting ... the possibility of crisis when in reality it is just months ahead.³

Godley, who was making forecasts based on financial flows in addition to building stock-flow consistent models, certainly fitted this description.⁴ Robert Blecker, in his contribution to this symposium,⁵ mentions that Wynne Godley, as early as 1999, was worried by the development of what he saw as several unsustainable processes, including the evolution of household debt, citing in particular Godley's belief that if things continued at the same pace a day of reckoning would happen eight years later. In their September 2005 report, Godley and his colleagues at the Levy Economics Institute were just as pessimistic and precise. They wrote:

Our strong view is that, before the decade is out, the housing market will have peaked, a development that will check the growth in personal debt and reduce net lending..... We are influenced in reaching the conclusion that the present position is unstable by the fact that the rise in lending has so far been fed by a process (the progressive easing of underwriting standards) that must have nearly run its course. And this conclusion is reinforced by evidence that a new kind of speculative behavior by buyers has invaded the housing market: people are buying second homes, and even buildings that do not yet exist, in the expectation of making the kind of quick profit once reserved for financial assets. In short, we are witnessing a classic bubble. Lending and house prices have both been rising rapidly in a self-reinforcing process.⁶

Obviously, Godley and his co-authors were announcing that there was a real estate bubble, and that it was about to be pricked. But they went further, pointing out in their strategic analysis that net lending to households had been adding as much as 15 per cent to disposable income and that once banks would realize that the real estate boom was over, this additional spending power would be removed from the economy, so that if the U.S. government was unwilling to apply a 'huge fiscal stimulus, the U.S. economy will enter a period of stubborn deficiency in aggregate demand with serious disinflationary consequences at home and abroad'.⁷ This is exactly what happened: the bubble burst, the US economy went into a recession before the September 2008

Lehman Brothers default which was the key signal that the financial crisis had arrived, and the fiscal stimulus of the US government was too late and too small.

The Global Financial Crisis was also a crisis of macroeconomic theory. Besides the fact that, with very few exceptions, mainstream macroeconomists were unable to predict the crisis, more importantly they were unable to provide the coherent answers that the public was asking from them when discussing the impact of fiscal policies and the consequences of the unconventional monetary policies that were put in place. On the other hand, heterodox economists, in particular post-Keynesian macroeconomists, could provide a coherent narrative of what was going on. In a previous paper published in this journal, I have already emphasized the fact that post-Keynesians, in contrast to current mainstream theory, do not start from the presumption that all of macroeconomics must be micro-founded, with macroeconomics being a simple aggregate extension of some simplified version of microeconomics.⁸ Post-Keynesians entertain a number of macroeconomic paradoxes which pertain to avoid fallacies of composition. Among those is the well-known Keynesian paradox of thrift, but there are many others, namely, the paradox of costs, of public deficits, of debt, of liquidity, of risk, and of tranquility. I will deal in some detail with only the last one.

In this paper, I wish to focus on a number of themes which have been studied for a long time by post-Keynesian authors, and which are relevant to the crisis.⁹ These themes will be related to the monetary side and are the following: Minsky's financial fragility hypothesis, in its original version based on the behaviour of banks and that of the corporate sector, and as it can be extended to household debt and the shadow banking system; the post-Keynesian theory of endogenous money supply and of exogenous interest rates, in particular the defensive role of central banks; and finally the effects of credit easing and quantitative easing in a world where agents are likely to deleverage. The paper concludes with brief remarks on additional themes that could have been developed – the Eurozone crisis and the slowdown in world growth since the crisis.

Minsky's financial instability hypothesis Hyman Minsky, an author belonging to the post-Keynesian tradition, was brought out of obscurity when Wall Street journalists started talking of a 'Minsky moment'. This was defined as a situation where liquidity seems to be vanishing, because, as cash flows get reduced, all agents try to sell what they earlier considered to be highly 'liquid' financial assets but find no buyers. The financial balloon bursts, as the value of financial assets fall, leveraged borrowers get margin calls, being forced to sell what they would otherwise have held on. This leads to a further fall in all asset prices. On the real estate side, the fall in housing prices is

accompanied by home owners who must refinance their mortgages on new, less favourable terms. A number of them see the value of their house falling below the amount of their mortgage, so they decide to default, and their bankers receive 'jingle mail'.¹⁰ The Minsky moment is nothing else than Irving Fisher's debt-deflation process due to distress selling. As prices start to fall, a vicious circle sets in, whereas in mainstream theory flexible prices will allow the economy quickly to recover equilibrium.

The Minskyan view of capitalism, as can be recovered from Minsky's major works, is that capitalism is inherently unstable.¹¹ When designing regulations, the starting assumption must be that financial markets are destabilizing, not that the financial markets are always right, which is the assumption that accompanies the efficient market hypothesis which has come to dominate economics and finance in academia. The implication is that financial regulators must design regulations by assuming that things will go wrong, not that a financial crisis is an unlikely event. One may ask why one should worry about problems arising in the financial sector: after all, what is of concern to most people is what happens in the real sector, where most of the jobs can be found. But there is another key feature of Minsky's vision: real and financial variables are interdependent, so that anything bad that happens to the financial sector will have necessary repercussions for the real economy; the financial problems cannot be contained to the financial sphere, which is what occurred with the subprime financial crisis.

Minsky's view of capitalism has been summarized under the terms of the financial instability hypothesis, also sometimes referred to as the financial fragility hypothesis. As Minsky indicated himself, the hypothesis 'is a variant of post-Keynesian economics'.¹² For Minsky, a stable growing economy is a contradiction in terms. In a world of fundamental uncertainty, a string of successful years diminishes perceived risk. As time goes on memories fade. Financial agents suffer from myopic insight. The last recession becomes one remote observation among a series of successful years or quarters. The longer an economy is in a tranquil state of growth, the less likely it is to remain in such a state. As Minsky says, 'each state nurtures forces that lead to its own destruction'¹³, and hence 'stability – or tranquility – in a world of a cyclical past and capitalist financial institutions is destabilizing'.¹⁴ This is what I have called earlier the paradox of tranquility.

Why is this so? Minsky uses psychological arguments that are very similar to those advanced by John Kenneth Galbraith – who also became associated with post-Keynesian theory.¹⁵ Speculative euphoria in market capitalism is an inevitable outcome, as speculators and bankers ride the wave by using leverage, and believe they become rich because they are smart. There is nothing like a bull market to make geniuses. 'Success

breeds a disregard of the possibilities of failure'.¹⁶ The validation of optimistic expectations leads to a dismissal of contrary opinion. Managers are rewarded by dancing as long as the music does not stop. Those who warn about impending disasters are proven wrong time and time again: they get fired. As Keynes said, 'worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally'.¹⁷ Market participants believe that a *new era* has arrived and that the old rules no longer apply. For instance during the information technology boom of the NASDAQ in the late 1990s, it was said that standard accounting rules did not apply to this 'new economy'; and with respect to the real estate boom of the 2000s, it was thought that 'just this once' housing prices would not taper.

Why is this possible? One crucial reason is that there are no intrinsic limits to the amount of credit that can be granted by the banking system and the rest of the financial system. Credit is an immaterial service, which can be granted by punching a keynote and where the consequences of excessive credit do not immediately show up. This is in contrast to production in the real sector, where over-production quickly becomes obvious when unsold goods start piling up. As a result, banking is based on trust and confidence, that is, on conventions. A bank can keep creating loans, way in excess of the deposits that it manages to collect back, as long as it maintains the trust of its clients and of other banks, who agree to provide liquidity to banks whose loan portfolio is increasing at a fast pace. The most obvious case was that of the Icelandic banks, who grew to such absurd proportions and who managed, despite this, to keep the highest credit rating from Moody's until 2007. The business of banking is a continuous trade-off between the appeal of profits and the fear of losses. The fear of losses will gradually vanish in good times. It gets weakened by the successful validation of previous decisions, and it was further weakened by the generalization of securitization – a financial innovation, noted by Minsky back in 1987, that allowed banks to bunch together a set of loans and have them sold as a security – the asset-based securities and the collateralized debt obligations that were so much in the vanguard of the Global Financial Crisis.

The financial instability hypothesis applied to households While Minsky, and rightfully so, thought that the financial instability hypothesis applied to banks and other financial institutions, he believed that the main counterparty to excessive credit would be firms. He did not realize that the hypothesis also applied to households. He seemed to be unaware or unconvinced by the evidence showing that the debt ratio of US households also rose substantially prior to the 1929 crash, due to both real estate and stock market speculation, and that the Great Depression was preceded by a real estate crash in 1926. As a consequence of all this, Minsky wrote that 'the typical financing

relation for consumer and housing debt can amplify but cannot initiate a downturn in income and employment'.¹⁸ This was clearly an unwarranted statement in view of the subprime financial crisis, and indeed Howard Sherman in his analysis of US post-WW2 business cycles shows that the real estate sector is an advanced indicator of downturns.¹⁹

Thus it was left to younger post-Keynesians to remedy to this oversight. This was done in particular in a book by Christopher Brown, who examined the links between consumer and real estate credit, rising income inequality and the puzzling decrease in the household saving rate – all the problems that were soon to be uncovered with the crisis.²⁰ In the mid-1990s Thomas Palley was the first to extend Minskyan analysis to household debt within a formal model.²¹ Ten years later, as household debt relative to disposable income was reaching new heights and hence generating more attention from scholars, post-Keynesians engaged in several other formal attempts to model household debt. All these models lead to the conclusion that the effects of household debt are positive in the short run and negative in the long run, unless the weight of debt payments induces households to reduce their saving flow instead of their consumption flow, which is what happened for a while (at least in Anglo-saxon countries), until falling housing prices forced households to deleverage.

As Blecker mentions in his paper, current authors often like to use the terminology proposed by Minsky to characterize the risk of a system. Minsky referred to hedge, speculative and Ponzi finance. Paul McCulley, himself a Minskyan and the former chief economist at PIMCO (one of the largest investment fund in the world), has applied this terminology to the mortgages taken by households. In his terms, *hedge finance* is defined by standard mortgages, amortized over standard periods of 25 or 30 years, preferably at a fixed interest rate. *Speculative finance* consists of interest-only mortgages, whereby borrowers do not pay back the principal, so that they can take on bigger mortgages and buy bigger houses, thus pushing up real estate prices. *Ponzi finance* is made up of negative-amortization mortgages – the so-called 2/28 mortgages, where interest rates are lower than the market rate during the first two years, with the difference in interest payments being added to the capital due for the next 28 years.

These mortgages were granted under the hypothesis that, since real estate prices had continuously gone up for a number of years, they would keep rising, so that borrowers could easily refinance their loans. But prices cannot rise forever, because at some point the housing market runs out of qualified buyers. Under such conditions, how could Ponzi-finance mortgages be granted by lenders? The answer, as pointed out earlier, is *securitization*! The risk is removed from the balance sheet of the lender, and

passed on to the shadow banking system, whose liabilities are thought to be as safe as those of a standard bank. McCulley makes this crystal clear in the following statement, as he points out that validation of previous bets contributed to make ever riskier loans.

Shadow bank liabilities were viewed ‘just as good’ as conventional bank deposits because they had, in fact, been just as good over any historical period that a prospective investor could observe.... And the power of this conventional thinking was aided and abetted by the sovereign and sovereign-blessed rating agencies – until, of course, convention was turned on its head.... Rating agencies thought the default rates would be low because they had been low. But they had been low because the degradation of underwriting standards was driving up asset prices.²²

This could be another paradox: the paradox of *degrading standards*.

Endogenous money Hyman Minsky argued early on that central banks had little control over the stock of money. His reasons had mostly to do with the innovations that banks and other financial institutions would introduce to avoid the regulations and quantity restrictions put forth by the monetary authorities. The supply of money, within this framework, was thus an endogenous variable, which could not be determined by the decision of the central bank. There is however an alternative endogenous money view, which is based on reversed causation. Post-Keynesians such as Joan Robinson, Richard Kahn, Nicolas Kaldor and Basil Moore have been arguing for decades that the money supply is endogenous and demand-determined.²³ There is nothing new here, as Knut Wicksell was already making the same claims more than a hundred years ago when dealing with his pure credit economy. Indeed the idea that central bankers have little control over money goes back to Thornton and Tooke in the 19th century. As my former co-author Wynne Godley has put it in ironical terms, ‘governments can no more “control” stocks of either bank money or cash than a gardener can control the direction of a hosepipe by grabbing at the water jet’.²⁴

For a long time central bankers recognized the same, at the Fed or even at the Bundesbank, arguing that they were subjected to a reverse causality between reserves (or high powered money) and money. This all changed for a while, under the frontal attack of the Monetarists and of textbook writers, when central bankers in the 1980s tried to persuade the public that interest rates were market-determined and that they were not responsible for the high interest rates that had been brought about to fight the inflation of the 1970s and early 1980s. By contrast, post-Keynesians have long argued that interest rates, at least short-term interest rates, had always been under the control of the central bank, so that they could be considered as the exogenous monetary variable.

Another crucial point made by post-Keynesian authors is that banks *are not* mere financial intermediaries, which transform short-term liabilities – the deposits of households – into medium- or long-term assets – the loans made to firms. Banks create loans and deposits *ex nihilo*. Here as well, causality is reversed. It is not the deposits of the economic agents that allow banks to make more credit; it is the decision of banks to grant more credit that leads to the creation of money deposits. This gave rise in 2012 to a well-publicized debate on the web between post-Keynesian author Steve Keen (who held the view that credits make deposits) and Paul Krugman (who argued that banks need deposits to be able to make loans). Stunned readers discovered that being a Nobel Prize winner did not necessarily imply an understanding of how the monetary system works. Indeed, there is so much confusion about this, both among mainstream economists and the general public, that the Bank of England felt it necessary to clarify things, issuing a statement to the effect that ‘one common misconception is that banks act simply as intermediaries, lending out deposits that savers place with them. In this view deposits are typically “created” by the saving decisions of households and banks “lend” out those existing deposits to borrowers’. The officers of the Bank concluded instead, as have post-Keynesians, that ‘commercial banks create money, in the form of bank deposits, by making new loans’.²⁵

The ability of banks to create credit independently of previous saving is a feature of a monetary production economy which makes it distinct from the exchange economy which is described in most neoclassical models, where credit can only be granted if some other agent in the economy accepts to be thriftier. It is true that, at the end of the period, from an *ex post* accounting point of view, the liability of the borrower has to have a counterpart, which is an asset held by someone else. Post-Keynesians such as Augusto Graziani and Paul Davidson have always made the distinction between initial finance (credit availability) and final finance (funding or saving). As Keynes famously put it, calling it the coping stone of his liquidity theory of money, ‘the public can save *ex ante* and *ex post* and *ex* anything else until they are blue in the face, without alleviating the problem in the least’. What he meant is that a rise in economic activity will require an expansion of the loans granted by the banking system, not an increase in saving.²⁶ This point has recently been emphasized by officers at the Bank for International Settlements, when criticizing the ‘world saving glut’ explanation of the boom that had preceded the crisis: ‘Because saving and investment are the mirror image of each other, it is misleading to say that saving is needed to *finance* investment. In *ex post* terms, being simply the outcome of various forms of expenditure, saving does not represent the constraint on how much agents are able to spend *ex ante*. The true constraint on expenditure is not saving, but *financing*’, meaning here the initial finance, the bank loans that post-Keynesians are talking about.²⁷

How is all this related to the events of the crisis? In the traditional view of central banks – the wrong view – the central bank controls the supply of money and credit issued by banks. This is done through the control of bank reserves. Monetary creation is said to be based on the fractional-reserve banking system, with at its heart the money multiplier story. By this account, the central bank takes an offensive posture, by modifying the amount of bank reserves, through open market or repos operations, that is, by accepting to purchase financial assets from the private sector, thus leading to an increase in the size of the balance sheet of the central bank. The consequent increase in reserves and deposits of bank customers is said to lead to a nearly automatic multiple increase in the loans and deposits of banks. By this account, the so-called quantitative easing policies of central banks in Japan, the US and the UK should have led to multiple increases in bank loans and the money supply.

But this is not how the monetary system operates in the real world. Central banks do not attempt to set an exogenous amount of reserves in the banking system. On the contrary, central banks try to make sure that the supply of reserves (now called settlement balances in Canada) is exactly equal to the demand for reserves, at the target interest rate set by the central bank. Thus central banks do not take an offensive posture; rather they pursue essentially defensive operations. This is clearly the case now, because the operating procedures of central bank are more transparent, but it has always been so in the past. The purpose of the existence of compulsory reserve requirements is not the control of the stock of money. Its purpose is to smooth fluctuations in the demand for reserves, making it easier for the central bank to avoid unexpected large changes in overnight rates (the interbank rate, the rate at which banks lend to each other for one day), as the demand for reserves can be highly interest-inelastic.

This feature of central banking was well understood by a number of post-Keynesian authors. For instance, back in 1987, Alfred Eichner wrote that ‘the Fed’s purchases or sales of government securities are intended primarily to offset the flows into or out of the domestic monetary-financial system.’²⁸ This, as has been explained in detail by a branch of post-Keynesianism called either modern money theory (MMT) or neo-chartalism, is due to the fact that any transaction involving the central bank or the government account at the central bank, be it to manage the exchange rate by buying or selling foreign currency, to pay civil servants and other government expenditure or to collect taxes, will have an impact on the amount of reserves available to the banking system.²⁹ Thus the central bank must constantly pursue compensating operations to sterilize, so to speak, what central bankers call changes in ‘autonomous factors’. An indication of this is that, in normal times – that is, before the some central banks started

pursuing quantitative easing operations – there is no relationship whatsoever between the purchases or sales of government securities by the central bank and changes in bank reserves at the central bank. The daily sales (outright or as part of sale and repurchase agreements) of government bonds by the central bank do not have the objective to constrain the amount of reserves and the supply of money; the goal is to keep the overnight market interest rate on target.

This goal is more easily achieved by the adoption of the *corridor system*, whereby the interest rate targeted by a central bank such as the Bank of Canada is set in the middle of a corridor delimited by two interest rates defining the standing facilities of the central bank: the floor rate or deposit facility rate, which is the rate of interest paid on bank reserves at the central bank; and the ceiling rate, which is the rate of interest at which banks can borrow reserves from the central bank. Thus, as was pointed out by a researcher at the European Central Bank (ECB), it follows that ‘changes in the monetary policy stance, that is, of the target short-term interest rate, may be made without any change in reserve market conditions by simply moving the standing facilities corridor in parallel with the target rate’.³⁰ In that sense, interest rates are *partially decoupled* from the quantity of reserves. In Canada, this is made even more obvious by the fact that there are no compulsory reserves anymore, so that a zero amount of reserves is compatible with any short-term interest rate that the Bank of Canada cares to target. Also, obviously, with zero reserves, the so-called money multiplier story based on a fractional-reserve banking system makes no sense at all.³¹

Quantitative easing (QE) As the subprime financial crisis was developing, the Federal Reserve did not wish to stay put. It first engaged into programs best described as *credit easing*, through which the Fed purchased private financial assets from the financial sector so as to sustain the prices of these assets, thus creating reserves in the process, but simultaneously removing them by proceeding to compensating operations, selling equivalent amounts of government securities. This allowed the Federal Reserve to keep its control over the overnight interest rates (the fed funds rate). However, after the Lehman Brothers debacle in mid-September 2008, the Fed was forced to engage in ever larger credit easing operations, finding it ever difficult to ‘sterilize’ the reserves so created and thus to keep control of the fed funds rate. As a result, the Fed introduced the corridor system described above in early October 2008, paying interest on reserves. But it still lost control of the fed funds rate, as the excess amount of reserves brought the fed funds rate towards the floor of the corridor. In November 2008 the Fed thus adopted a *floor system*, whereby the target interest rate is set equal to the rate paid on reserves – the floor rate.³² This is the situation still relevant at the time of writing (Summer of 2015). In Canada, starting in April 2009, but only for about a year, a floor

system was also adopted by the Bank of Canada as part of its zero interest rate policy (ZIRP) framework.

Figure 1 describes what a floor system looks like: the central bank achieves its target rate by supplying more reserves than is demanded by banks, forcing them to park their excess reserves at the central bank. With the banking system being overall in a position of excess reserves, that is, on the far right of Figure 1 at QE, the overnight rate will tend towards the deposit rate – the interest rate on reserves – as a bank with excess reserves will lend to a bank lacking reserves only if the interest rate is as high as the one it could obtain at no risk from the central bank. Thus, with a floor system, the central bank has the ability to *fully disconnect* the interest rate from the amount of reserves. The central bank can keep control of the overnight rate whatever is the amount of reserves in the economy, provided the supply of reserves is much larger than the amount being demanded by banks at the target rate of interest. This will be the case when a central bank pursues the so-called quantitative easing (QE) operations, as was the case in Japan, the USA and the UK, that is, when a central bank purposefully buys large amounts of financial assets from the private sector without trying to sterilize the effects that these purchases have on the amount of reserves of the banking system.

FIGURE 1 INSERTED HERE

Two issues and two apparent puzzles have arisen regarding the adoption of quantitative easing and the floor system. First, what is the effect of QE on price inflation? Second, what is the effect of QE on interest rates and economic activity? Third, why did QE have so little impact on bank lending? And fourthly, why did QE have so little impact on the money supply? Within the standard mainstream theory, QE should have led to a huge increase in the money supply and in bank loans; and it should have led to a substantial increase in the inflation rate and possibly in the level of economic activity. None of this happened. Mainstream textbooks led most observers to believe in the following story. With QE, sellers of financial assets will deposit the proceeds of their sales in banks, which will have more funds and more reserves at the central bank, allowing them to make more loans; this will lead to a multiple increase in loans and deposits, through the standard model of the money multiplier and fractional reserve banking system; the larger money supply will generate higher economic activity and higher inflation, as well as reduced real interest rates, thus driving up real investment. With this story, QE is just the child of Monetarism, but in reverse gear, with Monetarist policies based on targets of the money supply in an attempt to generate price inflation rather than to rein it.³³

The acceptable arguments in favour of QE are quite different. QE supports asset prices and thus reduces long-term yields. QE thus may help firms to issue bonds and shares at a lower interest cost to finance their real investments. QE also generates capital gains for sellers or holders of financial assets, thus helping to raise consumption expenditure. And finally QE may help to depreciate the domestic currency, as asset holders may decide to use their newly-acquired deposits to rebalance their portfolio by purchasing foreign capital assets, thus contributing to a capital account deficit. Post-Keynesians argue however that this sort of monetary policy can only have small effects on the real economy; what is truly needed is an expansionary fiscal policy – with increases in government expenditure or even government programs of employment as they have existed during the Great Depression – which directly increases aggregate demand.

When arguing on the merits of QE, central bankers are caught in a contradiction. On the one hand, QE policies are advocated by a number of mainstream economists because they believe that they will generate inflationary expectations and hence price inflation, in the hope that this will reduce real interest rates. On the other hand, central bankers were fearful that financial agents would take the inflation argument overly seriously and that a greatly expanded central bank balance sheet would necessarily imply high inflation or even hyper-inflation: ‘There is a concern that markets may at some point, possibly based on the “wrong model”, become excessively concerned about the potential inflationary implications of these policies. Such an “inflation scare” would naturally undermine their effectiveness’.³⁴ There is some irony in such a statement: it implies that the ‘market’ has the ‘wrong’ model. This undercuts all the neoclassical models built on the assumption of ‘rational expectations’ with all agents being assumed to have the ‘correct’ model of the economy!

Post-Keynesian theory helps to solve the two QE puzzles mentioned above. When QE is done with non-bank agents, it has been found that this led to an increase in the amount of reserves but to a much smaller increase in the amount of money deposits (thus contradicting the standard money multiplier story). The explanation can be found in the reflux principle, emphasized notably by Kaldor.³⁵ The reflux principle says that there can never be ‘an excess supply of money’. When individual agents sell their financial assets to the central bank, they get a money deposit at the bank while the bank acquires reserves at the central bank. But what will these agents do with their bank deposits? During a financial crisis, especially in the case of a balance sheet recession as Richard Koo calls it, where many agents have over-extended their borrowing capacities, there is a high probability that these agents will use their newly-acquired deposits to reduce their debt. They will deleverage.³⁶ When the proceeds of the sales are entirely

devoted to pay back past loans, there will be no increase in bank deposits and in the money supply, despite the increase in bank reserves. Indeed, the outstanding stock of loans does not increase, it decreases!

When QE is done directly with banks, the latter sell some of their financial assets and get reserves in exchange. Again it has been found that this leads to no increase in bank loans and bank deposits. While this is puzzling from the mainstream perspective, it is not from the post-Keynesian point of view. With the supply of money and high-powered money being endogenous, banks do not need to wait for more reserves to make loans. Getting more reserves will not induce banks to make more loans: they have already made all the loans they were willing to offer to those that they consider as credit-worthy borrowers. Having more reserves will not create additional credit-worthy borrowers.

Ignoring the above argument, several mainstream authors, and even some heterodox ones, have wondered why banks just do not get rid of their excess reserves by lending them to firms or households, claiming that quantitative easing policies have failed to expand the money supply. Some authors have put the blame on the fact that reserves now get remunerated at a rate which is close to that of Treasury bills, claiming that it removes the financial incentive to lend these reserves. But these authors do not seem to realize that banks, unless they have previously taken advances from the central bank, can do nothing as a group to reduce the amount of reserves in the banking system. This was pointed out again by officers at the Bank of England: 'The level of commercial banks' reserves *in aggregate* is determined by the way we have funded the asset purchases, not by the commercial banks' own decisions. The size of the banks' reserves cannot, as is frequently claimed, be a sign that they are sitting on them'.³⁷ As the title of a report by an analyst at Standard and Poor's says, 'Repeat after me: banks cannot and do not lend out reserves'!³⁸ These reserves can only be lent to other banks, something that had long been understood by (most) post-Keynesian authors.³⁹ When banks make loans to firms or households, the reserves do not disappear from their balance sheet.

Conclusion

I have attempted to provide some exemplars of how post-Keynesian economics has helped to improve our understanding of the causes as well as some of the consequences of the Global Financial Crisis. The paper has focused on monetary issues, namely the financial instability hypothesis of Minsky and its extension to the household sector, as well as the post-Keynesian theory of endogenous theory, with its extension to

quantitative easing policies set within a framework where the target rate of interest of the central bank is set equal to the rate of interest paid on reserves.

Many more contributions of post-Keynesian economists could have been underlined. Remaining within the field of monetary economics, one can mention the contribution of the neo-chartalists to the debates around the Eurozone crisis. One of the key propositions of this subset of post-Keynesian economics is that governments that issue securities in their own currency, that have a central bank that is unhindered by regulations and that are on a flexible exchange rate regime just cannot default on their public debt. They are said to be currency *issuers*, in contrast to the individual Eurozone countries, which are said to be currency *users*.⁴⁰ Very early on, before the end of 2009, neo-chartalist authors predicted a Eurozone crisis and warned that Eurozone countries were not in the same situation as other industrialized countries such as Canada or Japan, and that they could easily be subjected to speculative attacks on their debt, as if they were semi-industrialized countries issuing their debt in a foreign currency and trying to maintain their exchange rate.⁴¹ While in 2011 Paul Krugman, like other mainstream economists, initially felt puzzled by the high rates of interest in Spain, whereas those in the UK remained low despite similar economic conditions, he later adopted the MMT explanation and terminology of currency issuer and currency user. Similarly, his views on the (im)possibility of default for the US federal government gradually moved towards those of the neo-chartalists (without however referencing their work, despite the fact that many neo-chartalist fans have often commented on his posts).

Leaving monetary economics for macroeconomic theory, one last remark is in order. A key feature of post-Keynesian economics is the claim that aggregate demand is the determining variable, both in the short-run, as would be recognized by New Keynesian and Marxian authors, but also in the long run. This is in contrast to mainstream economic theory which affirms that supply-side factors are the key causal elements for long-run growth. This view is reflected in important notions of mainstream theory such as the natural rate of interest, the natural rate of unemployment, potential output and the natural rate of growth, all said to be determined by supply-side variables only. By contrast, there is a long tradition in post-Keynesian economics, going as far back as to Joan Robinson and Nicholas Kaldor, and including the Canadian John Cornwall, that says that that aggregate demand has an impact on potential output and all the other 'natural' variables of mainstream theory. One of the arguments is that fast growth generates faster technical progress – the Kaldor-Verdoorn effect.⁴² Post-Keynesians say that there is hysteresis and that the economy, as pointed out by Brenda Spotton in her contribution to the symposium, is path dependent.⁴³ The empirical

evidence supporting this view has been further vindicated recently. Right after the 2008-2009 crisis and ever since then, all estimates of potential output or of growth rates of potential output took a dive.⁴⁴ The evidence is such that some mainstream authors now discuss the possibility of secular stagnation, while officials at the Bank of Canada, who used to deny adamantly that restrictive monetary policies could have a long-run negative impact on the economy, now recognize that aggregate demand factors may have a feedback effect on supply-side determinants of potential output.⁴⁵ As a consequence, in the future the Bank of Canada may focus less on inflation and become more concerned with unemployment.

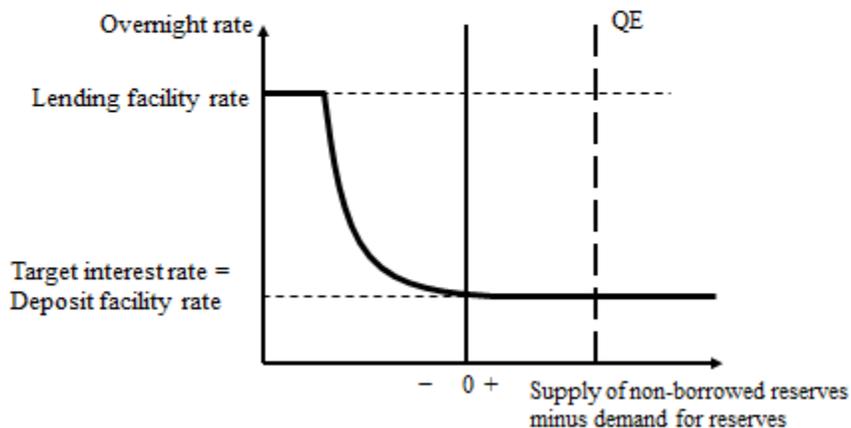


Figure 1: the floor system with quantitative easing

Notes

¹ As reported by P.E. Earl and T.C. Peng, 'Economics fit for the Queen: Barriers and opportunities', in F.S. Lee and M. Lavoie (eds), *In Defense of Post-Keynesian and Heterodox Economics: Response to their Critics*, (London: Routledge, 2013), p. 172.

² See http://www.huffingtonpost.co.uk/2012/12/13/queen-visit-bank-of-england_n_2294771.html

³ D.J. Bezemer, 'Understanding financial crisis through accounting models', *Accounting, Organization and Society*, 35/7, 2010, p. 676.

⁴ See W. Godley and M. Lavoie, *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth* (Basingstoke: Palgrave Macmillan, 2007).

⁵ R.A. Blecker, 'Post-Keynesian economics: Foundations for understanding the crisis', *Studies in Political Economy*, this issue.

⁶ W. Godley, D. Papadimitriou, C.L. Dos Santos and G. Zezza, 'The United States and her creditors : can the symbiosis last?', *Strategic Analysis*, Levy Economics Institute of Bard College, 2005, pp. 1 and 8, http://www.levyinstitute.org/pubs/sa_sep_05.pdf

⁷ *Ibid*, p. 2

⁸ M. Lavoie, 'The global financial crisis: methodological reflections from a heterodox perspective', *Studies in Political Economy*, No 88, Fall 2011, pp. 35-57.

⁹ I have made general remarks about the consequences of the Global Financial Crisis for heterodox economics in the following papers: 'Are we all Keynesians?', *Revista de Economia Política - Brazilian Journal of Political Economy*, 30/2, April-June 2010, pp. 189-200; 'Perspectives for post-Keynesian economics', *Review of Political Economy*, 24/2, April 2012, pp. 321-336; 'Financialization, neo-liberalism and securitization», *Journal of Post Keynesian Economics* 35/2, Winter 2012-13, pp. 211-229; 'Teaching monetary theory and monetary policy implementation after the crisis', *European Journal of Economics and Economic Policies: Intervention*, 12/2, 2015; 'Should heterodox economics be taught in or outside economics departments?', *International Journal of Pluralism and Economics Education*, 6/2, 2015.

¹⁰ This refers to the fact that in many states in the USA, the home owner can simply abandon the house and send the keys to the financial institution holding the mortgage, with no recourse.

¹¹ See *Can It Happen Again? Essays on Instability and Finance* (Armonk: M.E. Sharpe, 1982), *John Maynard Keynes* (London: Macmillan, 1976) and *Stabilizing an Unstable Economy* (New Haven: Yale University Press, 1986). The last two books were reprinted by McGraw-Hill during the crisis.

¹² *Can It Happen Again*, pp. 92-3.

¹³ *John Maynard Keynes*, p. 128.

¹⁴ *Can It Happen Again*, p. 101.

¹⁵ J.K. Galbraith, *A Short History of Financial Euphoria* (New York: Viking, 1990). There are many other post-Keynesian contributions to theories of financial instability, among them those of another participant to the symposium, Brenda B. Spotton Visano, *Financial crises: Socioeconomic Causes and Institutional Context* (London: Routledge, 2006); see also J.Toporowski, *The End of Finance* (London: Routledge, 2000).

¹⁶ *Stabilizing an Unstable Economy*, p. 237.

¹⁷ J.M. Keynes, *The General Theory of Money, Interest and Employment*(London: Macmillan, 1936), p. 158.

¹⁸ *Can It Happen Again*, p. 30.

¹⁹ H.J. Sherman, *The Roller Coaster Economy: Financial Crisis, Great Recession and the Public Option* (Armonk: M.E. Sharpe, 2010).

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²² P. McCauley, 'The shadow banking system and Hyman Minsky's economic journey', in *Insights into the Global Financial Crisis*, The CFA Institute Research Foundation, 2009, pp. 259 and 268, <http://www.cfainstitute.org/learning/products/publications/rf/Pages/rf.v2009.n5.15.aspx>

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