



## **What have we learned about money and banking during and since the Great Recession?**

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### A Trip down Memory Lane

As some of you may know, [and as Tim Congdon has kindly reminded me], I recently had my 80<sup>th</sup> birthday, on October 23, 2016. Once one reaches this milestone one tends to be less keen on looking forward, because the horizon is rather short, and the path is generally downhill. Instead one prefers to look back, since then one has a larger canvas. So, I am going to take you on a trip down memory lane, where I want to describe, briefly, some of the factors that have driven macroeconomics in general, and monetary economics in particular, through the last 50 or 60 years, during which I have been studying this particular field.

#### The 1960s

When I started the study of macroeconomics, (I completed my PHD in 1962), it was, I think, in many ways the most optimistic decade for the subject that we have had. It brought together three factors simultaneously – comprising a generally accepted analytical structure, the Keynesian income-expenditure structure, together with an increase in the availability of relatively high-quality data, from what was the equivalent of the ONS at that time, and the introduction of computers. And that meant that we began to be able to study functional relationships in an econometric manner, using regressions. And at that time, many of us thought that this would enable us to put macroeconomics, and policy advice, onto a quasi-scientific basis. So we studied consumption functions, all kinds of investment functions, determinants of inventories, import functions – you name them, they were there.

#### The 1970s

And we started to build models. We thought that we were going to use a relatively scientific approach to try and answer policy problems. In practice, however, what this amounted to was the use of fiscal policy to shift demand, in order to achieve the best trade-off on the Phillips curve. What we did not know, was that it was a short-run Phillips curve, because during the period which Bill

Phillips had studied, from the 1890s through to just after World War II, during all peacetime periods the average level of inflation was at just about 0 or slightly negative. Indeed most people after World War II were much more worried about a recurrence of deflation than they were of inflation. Partly because of the disaster of unemployment in the interwar period, the optimal point on the short-run Phillips curve was thought to be a level of unemployment lower, and quite considerably lower, than what turned out to be the natural rate. So the level of price inflation which occurred, and consciously intended, was higher than the previous average in peacetime from 1890 onwards. And again, what we did not realise was that this eventually, and rather slowly over the first few decades, would lead to people realizing that inflation was going to be higher than zero, in due course significantly so. And that would lead them to try and achieve what they thought to be the best real-wage contract that they could get. So we got worsening inflationary expectations, and as a result we moved into a period of stagflation in the 1970s. This was undoubtedly the worst decade, from an economic perspective, until you get to the great financial crisis (GFC) in the last decade.

Now most economists and politicians at that time were perfectly clear that if you put *enough* pressure on demand, if you lower demand sufficiently, if you had enough fiscal austerity and you had a really tight restrictive policy, this would eventually bring down inflation. But most of those in power and authority at the time had a very strong recollection of the disasters of the higher unemployment of the interwar period, and did not want to go down that road. So, while recognizing the likelihood that prices and incomes policies would probably break down, they still, on almost all occasions, preferred to try such prices and incomes controls rather than go down the route of being very tough on demand, whether by fiscal or by monetary policy. What I should also have said was that in the 1960s monetary policy was almost entirely predicated to maintaining a fixed exchange rate, the pegged Bretton-Woods exchange rate.

At this juncture, the emerging (US) monetarists took a somewhat differing view, both on the likelihood of controls, prices and incomes policies, working – they were correct that they would not and did not work. And also on the likely flexibility of wages and prices. There has been a tendency for monetarists and the Currency School in general –David Ricardo always tended to believe – that wages and prices were as flexible downwards as they may be upwards. So the monetarists as a whole believed... were more optimistic that... downwards pressure on demand would achieve stable prices and low inflation, with less unemployment than the Keynesians had feared.

There was another advantage to monetarism, which was that it was politically almost impossible for a central bank, or monetary policy committee, to go ahead and say that we want to set the level of the official short-term interest rate at, shall we say, 25% or 20%. And remember that during the 1970s inflation in this country frequently ran up to that kind of level, whereas the level that was politically feasible to set interest rates meant that real interest rates remained negative throughout. And what Paul Volcker did was to espouse a form of practical monetarism, which effectively said: 'We are not trying to control interest rates, what we are trying to do is to control a version of the

high-powered monetary base', in the guise of unborrowed reserves, so interest rates are simply what comes out in the market thereafter.

### The 1980s

Now that, the Volcker approach, combined with Mrs Thatcher and Nigel Lawson's medium-term financial strategy, and so on, was successful in the battle against inflation. But that success was achieved at quite a high price. The 1981-82 recession was a severe recession, and it was a particularly severe recession in some of the developing economies such as in Latin America. The Mexico, Argentina and Brazilian LDC financial crisis was undoubtedly the most dangerous financial crisis to affect the developed world, until the great financial crisis of 2008-2009. It was defused by the central bankers around the world doing things which they would not be allowed to do now, which were effectively forbearance and evergreening. What Paul Volcker, Gordon Richardson, and Fritz Leutweiler, and the rest did, was to tell their banks to go on rolling over loans to MAB – Mexico, Argentina and Brazil - to enable MAB to pay back the interest that they owed to these same banks, until the natural sources of recovery could occur.

Thereafter, pragmatic monetarism, which was tried quite generally, and particularly in the UK and the US during these years, ran into considerable trouble, as we all know, because of instability in the demand for money functions, and because of concerns about which M was the right aggregate; there were discussions in the UK about whether it should be M1 or M3, or whatever. Finally that debate was overtaken by the realization that you could finesse this, because the aim of monetarism was to bring about price stability and to get low inflation. And you could finesse the instability in the demand for money functions by simply relating the central bank's objective to inflation, rather than to the potentially unstable demand for money functions. That meant that, at the end of the 1980s, the beginning of the 1990s, we moved on to inflation targetry, and a shift of focus from the monetary aggregates to interest rates – interest rate setting – to the nominal interest rate, estimates of the real interest rate and also expectations of inflation. And such variables have played a central role in policies ever since then.

### The Current State of Mainstream Macroeconomics

That leads us to the current state of mainstream macroeconomics, because analysis has not really moved on much since the adjustments and changes at the end of the 1990s. Basically we are still in a three-equation model – the simplified three-equation model – demand function and supply function and a Taylor-type central bank reaction function, but expanded into mathematically, much fancier dynamic stochastic general equilibrium models. Essentially all of them are real business cycle

models, with the addition of price-wage frictions. Having got rid of the demand for money functions, or in a sense jumped over them, by going straight from interest rates to inflation, what this enabled and encouraged was the exclusion of financial frictions from mainstream macro. With a representative-agent model, which effectively they all are, you cannot have any default, because if there was a default either everyone would default, which would mean that the whole world would collapse, or nobody defaults. So effectively the models all assume no default, except nowadays a few models – for example by Christiano et al., in the ECB – where there are some defaults in firms but still not in banks.

In almost all of these models, or virtually all of them, there are no banks at all, there is no credit, there is virtually nothing, or very little, in the way of risk premia. Indeed, the models are entirely inconsistent in their approach to money. They are inconsistent, because if there is no default, anyone can pay for anything by simply offering their own IOU. Because without default, effectively everyone redeems their IOU with 100% certainty. So you do not need money. My IOU, scrawled on a piece of paper, is as good as a Bank of England note, and effectively Bank of England notes would disappear in a world without default.

So the whole intermediary monetary side of modern macro has just disappeared. In addition there is not much about housing, the housing market. The interaction between bank credit expansion and housing booms, which has played a central role in so many of our financial expansions and subsequent busts, simply does not exist in these models. I was reading the latest paper by Jorda, Schularick and Taylor, which focuses on that topic, i.e. the interaction between property finance and bank credit expansion, and that is simply not there in the standard models. There are no liquidity constrained households in these models. There is no transmission mechanism via the banking and the wider financial system. All there is, is just a direct relationship between the official, nominal, interest rate that is set by the authorities and expectations of inflation, which determine the real interest rate, and the link from that to real incomes and inflation. There is a recent paper by Reifschneider, David Reifschneider, who is one of the more influential of the Federal Reserve Board economists, and whose paper formed the basis of Janet Yellen's talk at the Jackson Hole meeting in summer 2016, where the whole discussion, about what a central bank can do and what it might do in the future, is simply based around the question about signalling the future path of interest rates, and trying to influence expectations thereof.

### Response to the Lehman Failure

But having said all that, the initial response by the authorities to the Lehman failure, which brought about a really serious financial crisis, was, in my view, exemplary. The decline in GDP in Q4 2008 and Q1 2009, was more extreme than what happened in 1929. In other words, the initial shock was actually greater than in the interwar period. Unlike in the interwar period, the central banks reduced

interest rates by something of the order of 500 basis points. Quite why everyone gets so het up about whether the central bank would, or would not, raise or lower interest rates by 25 basis points is hard to understand. My colleague on the MPC, Willem Buiter once described a 25 basis points change in the official interest rate as 'chicken feed'.

## QE

Moreover, this lecture is a preliminary to a subsequent conference on quantitative easing with the title 'Quantitative Easing: Triumph or Folly?' In my view, it was both, in the sense that QE1 was a triumph, whereas QE3 and QE4, I think were follies. QE1 was a triumph, again in my view, because all financial intermediaries were terribly frightened both of the solvency of everybody else, and the potentiality for runs on themselves. That meant that everyone was hoarding liquidity for themselves, and was not prepared to lend it out over the interbank market. As a result risk premia and duration premia in financial markets went through the roof. What QE1 did, was it provided so much liquidity that these risk and duration premia went down enormously. But because there was so little appreciation of the importance of banks, the importance of credit, the importance of money, that was not the interpretation that for most of the academics, and in many central banks, was given to the success of QE1. Instead, they assumed that QE worked via signalling the future path of interest rates, and by overcoming a degree of segmented portfolios so that people were encouraged to move into longer term and riskier assets. Such analysis also ignored the effects of QE3 and QE4 subsequently on the workings of the financial system, which were deleterious because they reduced banks' profitability. Again, just look at Reifschneider or Janet Yellen's paper on this.

## Satiation of Demand for Liquidity

Meanwhile, these cumulative QEs have satiated not only banks', but most other intermediaries' need for liquidity, and particularly for reserves. But while the increase in the high-powered monetary base in general, and the banks' reserve base in particular, has been so large, it has actually had hardly any effect on the growth of the monetary aggregates, see Table 1. The column under H, which is the monetary base, shows the percentage change in the monetary base in the US, Japan and the UK. The middle column shows the rate of growth of broad money, and the final column shows the ratio of money to the high-powered monetary base. In fact, the outcome is even more extreme than that, because during this period the rate of growth of currency was on a fairly stable trend. And at the beginning of this period in 2009 currency represented the larger part of a central bank's liabilities, so that almost all the increase in H during this period, on this particular table, between 2009 and 2014, represented the percentage increase in the reserve base of the commercial banking system. So the increase in the reserve base of the commercial banking system in the US, for example, rose over these 6 years by a factor of about a hundred!



Table 1

	% change in		
	H Monetary Base	M Broad Money	Ratio M/H
<b>US</b> 2009	22.5	3.7	-15.3
2010	0.6	3.6	2.9
2011	31.2	9.7	-16.4
2012	2.9	8.2	5.1
2013	39.3	5.4	-24.3
2014	5.9	5.9	0.0
<b>Japan</b> 2009	5.2	2.2	-2.8
2010	7.0	1.8	-4.9
2011	13.8	2.6	-9.8
2012	12.5	2.1	-9.2
2013	47.7	3.3	-30.1
2014	39.1	2.9	-26.1
<b>UK</b> 2009	109.7	5.6	-49.6
2010	-1.3	5.5	6.9
2011	14.0	-3.1	-15.1
2012	50.5	0.2	-33.4
2013	7.6	0.7	-6.5
2014	1.5	-0.1	-1.6
<b>Eurozone</b> 2009	-8.2	-0.5	8.3
2010	2.7	-0.7	-3.3
2011	25.1	2.2	-18.3
2012	22.7	3.0	-16.1
2013	-26.7	0.5	37.1
2014	-0.2	4.8	5.0

If you had asked most people in 2004 and 2005, 'What would happen if the reserve base of the commercial banking system increases a hundred fold?' they would have said that we would have had unlimited inflation. One of my real concerns about mainstream macroeconomics is they have never really asked themselves the question why this did not happen. One of the reasons why it did not happen, was that the commercial banking reserves became interest bearing. What happened under QE1 and QE2 was that commercial banks had so much in the way of reserves that, left to themselves, and assuming that reserves held at the central bank were non-interest bearing, they would have driven the interest rate on all money market assets (and short-term assets, such as



treasury bills) rapidly down to zero. The central banks involved did not want interest rates to go rapidly all the way down to zero. You can look up the relevant passage in Bernanke's book. So, in order to hold interest rates at a small margin above zero, 50 basis points in the UK, they started paying interest on commercial bank reserve deposits held with themselves. That has meant that it is now the interest rate that is paid on commercial banks' reserves with a central bank that forms the basis, the key interest rate, for the whole of the financial system. But that key interest rate is very closely related to the interest rates, as it has to be, on equivalent very short-term money market obligations and treasury bills and so on. What this has all meant is that reserves, having become interest-bearing, have become just another asset class, and in no sense a constraint. Indeed the demand for reserves, interest-bearing reserves at the central bank, has now become almost infinitely elastic at the level of interest rates set by the central bank.

### What now Constrains Bank Expansion?

So, if reserves, cash, liquidity, commercial bank deposits at the central bank, no longer determine or constrain the money stock in any way, what does? The answer that I would give, (and I think Tim Congdon would have also given himself over the longer term), is that it is not the reserve base that has really ever done this. He and I have criticized the money multiplier approach to the determination of commercial bank deposits for many a long year. What has now happened is that it is the capital regulations, the capital requirements, and not only the capital requirements, but also the profitability of bank assets, in many of the functions that they undertake, that now determines the money supply.

One of the areas where Tim and I do disagree, is whether the banks did need more capital in 2008-2009. I think that they really did. A leverage ratio, which mainly European banks had, of 40 to 50 times means that if any major asset class suffers a significant decline in value, then that bank, and with it increasingly through contagion the banking system as a whole, will get into real difficulties. Therefore in my view you had to have more bank capital, and the increase in the requirements for bank capital is to some large extent justified. But the problem is once you require banks to hold a lot more capital, how do you get them to that point? And here again I would criticise quite a lot of the analysis and theory that has been done.

### A Critique of the Imposition of Raised Capital Requirements

And this critique runs as follows: If you take two equilibrium states, that have been running in equilibrium for a long time, and in one of them the banks have a leverage ratio of shall we say 50:1, and in the other the banks have a leverage ratio of shall we say 7 or 8:1, then you can show that in

those two equilibrium states the increase in the margin – the spread between the deposit rate and the lending rate – necessary to provide the same return on equity is actually relatively low. Pretty small. And David Miles has gone through the algebra, and others have done that as well. And undoubtedly a banking system with a leverage ratio of 7 or 8:1 is vastly safer than one in which the leverage ratio is 40 or 50:1. So you have got a miniscule increase in the net interest margin offset by a massive improvement in financial stability.

So, it would seem to be just common sense to raise the capital requirements enormously. The problem with that, was that it entirely ignored all the transitional problems, and there were huge transitional problems. The problem is, effectively, that when you start off with a leverage ratio of 40 or 50:1 you have a massive debt overhang. And if you are then told to shift to a leverage ratio that is considerably lower, even perhaps just 25:1, that is going to mean that if you were to raise additional equity, the benefit would almost entirely go to the fixed interest creditors because it would be they who would be a great deal safer. Whereas the equity holders would be diluted, and they would find that their return on equity would be much lower, their risk return position worse.

So it was not the problem of the right endpoint, it was a problem of about how you get from point A to point B. And the authorities largely failed to assess that or to deal with it. They dealt with it much better in the US, because they force-fed the banking system with public sector capital injections. First of all they did so with public sector money through the TARP exercise, the TARP stress test, and requiring all those banks which did not have sufficient capital to take public sector funds, under relatively adverse terms. In my view financing the US banks through the TARP moneys was the best use of public sector money that has probably been done at any time since the great financial crisis. And yet, it has been demonised as bailout and it has simply become politically impossible to consider any similar kind of force-feeding the banks with public sector funding, however much it might actually be desirable.

And if you cannot force feed them, the only thing that you have really got left is cold turkey. And what cold turkey means is you simply say to the banks: until you get your equity up to a certain level, not to a ratio, to a level, you will not be allowed to pay out anything in dividends and you will not be allowed to increase any remuneration or bonuses at all. And again, to some large extent the Americans did that. And that, again, was relatively effective. Now in Europe we did nothing of that kind. In Europe we simply said that the ratio has got to be much higher, and then left it to the banks to decide what to do. If you were a bank CEO, the inevitable answer is that you try and achieve the ratio by *deleveraging*. What then occurred is that there was a subtext, a form of minor blackmail, whereby each government in effect said to its own domestic banks ‘Yes, go ahead and delever, but don’t do it by reducing bank lending in your own country.’ So what the banks as a generality have done is they have delevered by reducing cross-border lending. Which means that nowadays, French banks lend only in France, English banks only in the UK. What you find in most countries is that the domestic banks in those countries have increased their bank lending within their own country by



considerably more, but the overseas banks have reduced lending so that the total growth of bank credit in these countries has gone down sharply. Moreover, bank equity values remain extremely weak, while monetary policy through negative interest rates, quantitative easing, and even worse these massive-grade fines by Departments of Justice on banks, (not on bankers, on banks), have had the effect of maintaining bank capital extremely weak, bank profitability weak, bank capital insufficient. As is now being said, banks are simply not investible. That means that it is going to be extremely difficult for banks to get out of this situation, particularly in Europe, which is in the worst condition.

### What will Happen Now?

It may be that our banks and our economies will muddle through; there are powers of recovery and restoration. But we still live in a situation which the authorities have allowed to occur, by, I think, mismanaging policy, whereby the banking system, the financial system, particularly on the continent of Europe and least in the US, has been allowed to develop into a condition where it is fragile, weak and dangerous. It could be that, as a result, possibly as a result of other developments, political or economic, we do get into real trouble.

### What if a Downturn?

What can we then do? Well, we can, and I think that we will, do a degree of expansion of fiscal policy. There will be a shift towards infrastructure, an attempt to increase expenditure on housing. One of the problems here is that the public sector debt ratios and the deficits are rising, particularly the debt ratios, in a way that has never previously been the case in peacetime. There have been many occasions in the UK where the debt ratios have been vastly greater than now, after wars. But never before have debt ratios been going up so much in peacetime. So what do we have to do? If we are going to have more expenditure, I think that we need to have more forms of taxation, to try and ensure that the deficit and debt are not rising too much. I think monetary policy is going to be in a very difficult situation next year, because inflation will be going up quite sharply, while the growth of British economy is likely to slow down. Where the Bank of England will come out will depend on domestically generated inflation. Where it will come out will depend on the degree to which wage determination succeeds in bringing about an increase in wages growth, offsetting the reduction in real incomes introduced by foreign generated inflation.

If domestically generated inflation goes up, because wage increases and earnings increase more or less in line with inflation, then the Bank will have no alternative but to start raising interest rates. Perhaps quite sharply. If wages remain low, while RPI and TPI inflation rises under the influence of a lower exchange rate, then the Bank of England will maintain a very expansionary policy. So the key issue to look at, for monetary policy in the short-run, is what is likely to happen to wages.