

# DEBT, MONEY AND MEPHISTOPHELES: HOW DO WE GET OUT OF THIS MESS?

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It is five and a half years since the financial crisis began in summer 2007 and four and a half years since its dramatic intensification in autumn 2008. It was clear from autumn 2008 that the economic impact would be large. But only slowly have we realised just how large: all official forecasts in spring 2009 suggested a far faster economic recovery than was actually achieved in the four major developed economies – the US, Japan, the Eurozone and the UK. UK GDP is now around 12% below where it would have been if we had continued the pre-2007 trend growth rate: and latest forecasts suggest that the UK will not return to 2007 levels of GDP per capita until 2016 or 2017. In terms of the growth of prosperity this is truly a lost decade.

This huge harm reflects the scale of pre-crisis financial folly – above all the growth of excessive leverage - and the severe difficulties created by post-crisis deleveraging. And failure to foresee either the crisis or the length of the subsequent recession reflected an intellectual failure within mainstream economics – an inadequate focus on the links between financial stability and macroeconomic stability, and on the crucial role which leverage levels and cycles play in macroeconomic developments. We are still crawling only very slowly out of a very bad mess. And still only slowly gaining better understanding of the factors which got us there and which constrain our recovery.

We must think fundamentally about what went wrong and be adequately radical in the redesign of financial regulation and of macro-prudential policy to ensure that it doesn't happen again. But we must also think creatively about the combination of macroeconomic (monetary and fiscal) and macro-prudential policies needed to navigate against the deflationary headwinds created by post-crisis deleveraging.

In the field of macroeconomic management - the management of aggregate demand to support as best possible low inflationary real growth - two issues are central – appropriate targets and tools. In respect to both, pre-crisis certainty has been replaced by wide-ranging debate.

- (i) Targets. In the pre-crisis period a dominant consensus reigned, most central banks focused on the attainment of low but positive inflation rates, often expressed in formal symmetric targets. Now debate rages. Olivier Blanchard, Chief Economist of the International Monetary Fund (IMF), floated in 2010 the possibility of temporarily higher inflation rate targets (Blanchard et al., 2010): the Federal Reserve has adopted a policy stance

explicitly contingent on the rate of unemployment as well as of inflation. Mark Carney has suggested that the issue of nominal GDP targets should at least be encompassed within the debate (Carney, 2012). And Michael Woodford, a prominent theoretician of pre-crisis monetary policy orthodoxy<sup>1</sup> argued at Jackson Hole last August for an explicit target to return to the level of nominal GDP that would have resulted from the continuation of pre-crisis trends (Woodford 2012). The issue of appropriate targets clearly will be and should now be a subject of intense debate.

- (ii) Tools. But important as the issue of appropriate targets is I will argue in this lecture that the more fundamental issue is what policy tools are needed to achieve in an optimal fashion whatever the chosen objectives or targets should be. More fundamental because even if we did decide to set a new target – such as one related to nominal GDP – we might not be able to meet it except through the use of policy tools which produce damaging side-effects on future financial and thus macroeconomic stability.

The question is by what means can we and should we seek to stimulate or constrain aggregate nominal demand. Before the crisis the consensus was that conventional monetary policy, operating through movements in the policy rate and thus effecting the price of credit/money, should be the dominant tool, with little or no role for discretionary fiscal policy and no need for measures focused directly on credit or money quantities. Post-crisis, a wide spectrum of policy tools is already in use or under debate.

- Interest rates have been reduced close to zero bounds. But central banks can and have implemented quantitative easing (QE) operations:
- QE can be extended to a still wider range of assets than government bonds, and central banks can get into the business of directly subsidising commercial bank lending, as for instance through the Bank of England's Funding for Lending Scheme (FLS).
- And the case that fiscal policy can be an effective tool of demand management in circumstances when interest rates are at the zero bound has been forcefully restated by Brad Delong and Larry Summers (DeLong and Summers 2012).

At the extreme end of this spectrum of possible tools lies the overt money finance (OMF) of fiscal deficits – “helicopter money”, permanent monetisation of government debt. And I will argue in this lecture that this extreme option should not be excluded from consideration for three reasons:

- (i) Because analysis of the full range of options (including overt money finance) can help clarify basic theory and identify the potential disadvantages and risks of other less extreme and currently deployed policy tools;
- (ii) Because there can be extreme circumstances in which it is an appropriate policy; and

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<sup>1</sup> See Woodford, *Interest and Prices: Foundations of a Theory of Monetary Policy* (2003)

- (iii) and because if we do not debate in advance how we might deploy OMF in extreme circumstances, while maintaining the tight disciplines of rules and independent authorities that are required to guard against inflationary risks, we will increase the danger that we eventually use this option in an undisciplined and dangerously inflationary fashion.

Even to mention the possibility of overt monetary finance is however close to breaking a taboo. When some comments of mine last autumn were interpreted as suggesting that OMF should be considered, some press articles argued that this would inevitably lead to hyper inflation. And in the Eurozone, the need utterly to eschew monetary finance of public debt is the absolute core of inherited Bundesbank philosophy.

To print money to finance deficits indeed has the status of a moral sin – a work of the devil – as much as a technical error. In a speech last September, Jens Weidmann, President of the Bundesbank, cited the story of Part 2 of Goethe's Faust, in which Mephistopheles, agent of the devil, tempts the Emperor to distribute paper money, increasing spending power, writing off state debts, and fuelling an upswing which however "*degenerates into inflation, destroying the monetary system*" (Weidmann 2012).

And there are certainly good reasons for being very fearful of the potential to create paper or (in modern terms) electronic money. In a post-gold standard world, money is what is accepted as money: it is simply the "fiat", the creation of the public authority. It can therefore be created in limitless nominal amounts<sup>2</sup>. But if created in excessive amounts it creates harmful inflation. And it was John Maynard Keynes who rightly argued that "*there is no subtler, no surer means of overturning the existing basis of society than to debauch the currency*".

The ability of governments to create money is a potential poison and we rightly seek to limit it within tight disciplines, with independent central banks, self-denying ordinances and clear inflation rate targets. Where these devices are not in place or are not effective, the temptation that Mephistopheles presents can indeed lead to hyper-inflation – the experience of Germany in 1923 or Zimbabwe in recent years.

But before you decide from that that we should always exclude the use of money financed deficits, consider the following paradox from the history of economic thought. Milton Friedman is rightly seen as a central figure in the development of free market economics and in the definition of policies required to guard against the dangers of inflation. But Friedman argued in an article in 1948 not only that government deficits should sometimes be financed with fiat money but that they should always be financed in that fashion with, he argued, no useful role for debt finance. Under his proposal, "*government expenditures would be financed entirely by tax revenues or the creation of money, that is, the use of non-interest bearing securities*" (EXHIBIT 1) (Friedman, 1948). And he believed that such a system of money financed deficits could provide a surer foundation for a low inflation regime than the complex procedures of debt finance and central bank open market operations which had by that time developed.

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<sup>2</sup> Clearly the real value of the money created is limited by the endogenous changes in prices which might be induced by changes in nominal amounts.

Friedman was not alone. Henry Simons, one of the founding fathers of the Chicago school of free market economics, argued in his seminal article “Rules and Authorities in Monetary Policy” that the price level should be controlled by “*expanding and contracting issues of actual money*” and that therefore “*the monetary rules should be implemented entirely by and in turn should largely determine fiscal policy*” (Simons 1936). Irving Fisher argued exactly the same (Fisher, 1936). And the idea that pure money finance is the ultimate answer to extreme deflationary dangers is a convergence point of economic thought at which there is total agreement between Friedman and Keynes. Friedman described the potential role of “helicopter money” picked up gratis from the ground (Friedman, 1969): Keynes, surprisingly, since he was not usually a puritan, wanted people to at least have to dig up the “*old bottles [filled] with bank notes*” (Keynes, 1936) (EXHIBIT 2). But the prescription was the same. And Ben Bernanke, current Chairman of the Federal Reserve, argued quite explicitly in 2003 that Japan should consider “*a tax cut ... in effect financed by money creation*” (Bernanke, 2003).

When economists of the calibre of Simons, Fisher, Friedman, Keynes and Bernanke have all explicitly argued for a potential role for overt money financed deficits, and done so while believing that the effective control of inflation is central to a well run market economy – we would be unwise to dismiss this policy option out of hand.

Rather, we should consider whether there are specific circumstances in which it could play a role and/or needs to play a role, and even if not, whether exploration of the theory of money and of debt helps us better understand the problems we face, problems that may be addressed by other policy tools.

In this lecture I will therefore address both appropriate targets and appropriate tools, and will consider the full range of possible tools. But I will also stress the need for us to integrate issues of financial stability and of macroeconomic policy far more effectively than mainstream economics did ahead of the crisis.

I set this argument out in eight sections.

1. First, a framework for thinking about the relationship between the objectives of price stability and real output growth, and the levers of macro demand management – fiscal, monetary and macro-prudential.
2. Second, Friedman’s 1948 proposals, and the crucial link between macroeconomic policy and issues relating to financial structure and stability.
3. Third, the crucial impact on financial and economic stability of the level of leverage and the processes of leveraging and deleveraging, balance sheet effects that were dangerously ignored before the crisis in the dominant schools of economic theory and policy.
4. Fourth, the question of targets: should we move away from inflation rate targets, and if so to what?
5. Fifth, why purely monetary policy levers such as interest rates or QE, or macro-prudential levers, may be inadequate to achieve desirable objectives and/or may have harmful adverse consequences.

6. Sixth, why purely fiscal policy levers may also either be ineffective or have harmful adverse consequences.
7. Overt money finance: why it may be appropriate and necessary in extreme circumstances: and, how its use could be placed within the discipline of rules and independent authorities which would be essential to prevent its potentially disastrous misuse.
8. Some possible implications of my conclusions for policy in Japan, the US, the Eurozone and the UK. Though I want to stress that my purpose in this lecture is primarily to consider general principles and to arrive at general conclusions, not to suggest specific short-term policy actions.

I will then summarise my conclusions and end with a reflection on Mephistopheles, Money and Debt.

## **1 POLICY LEVERS AND AGGREGATE DEMAND: PRICE AND OUTPUT EFFECTS**

EXHIBIT 3 sets out a framework for thinking about the relationship between macro-policy levers, aggregate nominal demand, prices and output.

On the left hand side we have policy levers that might (or might not) be effective in changing the level of aggregate nominal demand and thus the rate of growth of nominal GDP. These include

- Fiscal policy – running fiscal deficits or surpluses
- Monetary policy in both its conventional (interest rate) and unconventional (quantitative easing) forms. Here too we locate forward guidance that might influence expectations as to future interest rates.
- Central bank support for private credit creation, whether in the form of the Federal Reserve's "credit easing" or the Bank of England's Funding for Lending Scheme (FLS).
- And macro-prudential policy, for instance, the operation of counter cyclical bank capital or liquidity regulations.

This fourfold division is not definitive. In particular, we could categorise differently the range of policies which lie in the monetary policy, private credit support and macro-prudential boxes; and there are important interrelationships between these sets of policy. In Section 5 I will therefore deal jointly with those three boxes. But together these four categories cover the available spectrum, if we make one addition, overt permanent money finance of fiscal deficits (EXHIBIT 4) – which, as described in Section 7, is effectively a combination of fiscal and monetary policy.

All of these levers, to different degrees and in different circumstances might affect the rate of growth of nominal GDP, which in turn may result in either

- Increases in the price level and thus in the rate of inflation
- Increases in real output and thus in the rate of real growth

That division is shown on the right hand side of this framework.

The framework suggests two questions.

- How effective will each of the levers on the left hand side be, in different specific conditions, at stimulating aggregate nominal demand?
- And, for any given level of nominal demand (or increase in that level) what will be the division of impact as between price and output effects?

In assessing these questions, it is important to decide whether we believe that the choice of left hand side lever and the right hand side division of impact are independent. In this lecture I will initially assume independence but consider subsequently whether there are specific conditions (involving the use of specific levers) that might require us to relax that independence assumption.

By “independence” I mean the following (EXHIBITS 5 and 6).

- That the division of any given change in the level of aggregate nominal demand between  $\Delta$  prices and  $\Delta$  real output, is determined by real economy factors such as: (i) the degree of spare capacity in either labour markets or physical capital; and (ii) the degree of flexibility in price setting processes in labour or product markets.
- And that this division is independent of which policy lever was pulled in order to achieve the given increase in aggregate nominal demand.

Of course, it is possible that this independence assumption does not apply, and I will return later (in particular in Section 8’s observations on the UK) to the implications if it does not. In particular (EXHIBIT 7)

- It is possible that different policy levers on the left hand side could have different impacts on expectations of future policy, and that this (e.g. by de-anchoring inflationary expectations) might bias the right hand side division towards a price effect. This may, for political economy rather than technical reasons, be an important risk to be considered in relation to overt money finance.
- And it is possible that we might be clever enough to devise left hand side policy levers (perhaps in the fiscal or direct credit support space) which do not merely stimulate aggregate demand, but which also tend to increase supply capacity, potentially biasing the right hand division towards the real output element.

But while exceptions to the independence hypothesis are possible, we will only think straight if we proceed by first assuming independence and then considering quite explicitly whether exceptions exist. Much debate on macro-policy is bedevilled by a failure to be explicit about those two steps of the logic. As a result the same commentators will sometimes

- Assert that we need “ more credit to get the economy going” – making the assumption that this will achieve a predominantly real output rather than price effect

- But warn that stimulating GDP via other means (whether fiscal or monetary) will “drive up inflation” i.e. will have a price rather than output effect
- ... but without specifying why the different balance between a price or output effect will result from the different levers that effect aggregate nominal demand.

In Sections 5-7 of this lecture, I will therefore assume independence. This will enable us to focus on the question “if more nominal demand is needed, which policy levers will most effectively deliver it, and with what offsetting side-effects, disadvantages and risks”.

We must also of course be open to the possibility that more demand is not needed at all – that growth in a particular economy is supply (i.e. capacity) rather than demand constrained. But if that is true, that would be an argument against any action that might stimulate nominal demand and not just against the use of one particular lever.

## **2 MILTON FRIEDMAN, MONEY FINANCED DEFICITS, AND NARROW BANKING**

In 1948 Milton Friedman wrote an article entitled “A Monetary and Fiscal Framework for Economic Stability” (Friedman, 1948). As the title implies, one of his concerns was which fiscal and monetary arrangements were most likely to produce macroeconomic stability – meaning a low and predictable rate of inflation, and as steady as possible growth in real GDP. He was also concerned with financial stability, which he perceived as important per se and because of its effects on wider economic stability.

His conclusion was that the government should allow automatic fiscal stabilisers to operate so as “*to use automatic adjustments to the current income stream to offset at least in part, changes in other segments of aggregate demand*”, and that it should finance any resulting government deficits entirely with pure fiat money, conversely withdrawing such money from circulation when fiscal surpluses were required to constrain over buoyant demand.

Thus he argued that, “*the chief function of the monetary authority [would be] the creation of money to meet government deficits and the retirement of money when the government has a surplus*”. Friedman argued that such an arrangement – i.e. public deficits 100% financed by money whenever they arose – would be a better basis for stability than arrangements that combined the issuance of interest bearing debt by governments to fund fiscal deficits and open market operations by central banks to influence the price of money.

EXHIBIT 8 provides a simple mathematical illustration of what Friedman was in essence proposing.

- Suppose nominal GDP is 100 and the money supply 50. And suppose that it is sensible to aim to grow nominal GDP at 4% per annum allowing for, say, 2% inflation and 2% real growth.
- Then the equilibrium growth in money supply (assuming a roughly stable velocity of money circulation) might be 4%, or around 2 units in the first year.

- This growth could be achieved by running a fiscal deficit of 2% GDP, and financing it entirely with central bank or treasury created fiat money.

This illustration of course makes two simplifying assumptions, the second of which highlights a central element of Friedman's proposal.

- First, that there is a stable relationship between money supply and money GDP – so that if money velocity (GDP / Money Supply) is 2, and if we want nominal GDP to grow at 4%, then we know that we have to run a money financed deficit of 2% of GDP. Of course that is not necessarily the case – the velocity of circulation of money can and has varied<sup>3</sup>. But relaxing this assumption does not radically change the appropriateness of Friedman's proposal. It could still make a nominal GDP target sensible – and it could still be sensible to fund all government deficits with money. It would simply mean that the scale of money financed deficits would have to be judged and adjusted through time in the light of empirical observation of the evolving marginal velocity of money (i.e. the relationship between  $\Delta MS$  and  $\Delta NGDP$ ).
- Second, however, what both my illustration and Friedman's proposal assume is that all money is base money, i.e. that there is no private money creation (no "inside money" in Gurley and Shaw's terms) (Gurley and Shaw 1960). This in turn is because in Friedman's proposal there are no fractional reserve banks (EXHIBIT 9). In Friedman's proposal indeed, the absence of fractional reserve banks is not simply an assumption, but an essential element, with Friedman arguing for "*a reform of the monetary and banking system to eliminate both the private creation and destruction of money and discretionary control of the growth of money by the central bank*".

Friedman thus saw in 1948 an essential link between the optimal approach to macroeconomic policy (fiscal and monetary) and issues of financial structure and financial stability. In doing so he was drawing on the work of economists such as Henry Simons and Irving Fisher who, writing in the mid-1930s, had reflected on the causes of the 1929 financial crash and subsequent Great Depression, and concluded that the central problem lay in the excessive growth of private credit in the run up to 1929 and its collapse thereafter.

This excessive growth of credit, they noted, was made possible by the ability of fractional reserve banks simultaneously to create private credit and private money. And their conclusion was that fractional reserve banking was inherently unstable (EXHIBIT 10). As Simons put it "*in the very nature of the system, banks will flood the economy with money substitutes during booms and precipitate futile efforts at general liquidation afterwards*". He therefore argued that "*private institutions have been allowed too much freedom in determining the character of our financial structure and in directing changes in the quantity of money and money substitutes*".

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<sup>3</sup> It is of course possible that in Friedman's imagined world in which the only money is high powered money, the velocity of money circulation would be more stable than in a world with fractional reserve banks. Much of the variation in the velocity of money circulation actually observed (and in particular the large gradual decline in that velocity from the 1950s on) is precisely explained by the growth of private bank credit and money relative to GDP which the existence of fractional reserve banks makes possible. See Richard Werner 2005 for a detailed analysis of this effect.

As a result Simons reached a conclusion which gives us a second paradox from the history of economic thought. That the rigorously freemarket Henry Simons, one of the father figures of the Chicago School, believed that financial markets in general and fractional reserve banks in particular were such special cases that fractional reserve banking should not only be tightly regulated but effectively abolished.

So were Simons, Fisher and Friedman (in 1948) right? Should fractional reserve banking be abolished, removing the ability of private banks to create and destroy private credit and money? My answer is no. I think their stance too radical, failing to recognise the economically and socially valuable functions that private debt and fractional reserve banking perform.

- Simons argued not only for the abolition of fractional reserve banks, but ideally for severe restrictions on the use of any short-term debt instruments. He argued correctly that debt contracts introduce rigidities and potential vulnerabilities into economic relations, and that an economy in which all contracts were equity would adjust more smoothly to exogenous shocks. But he failed to recognise the extent to which debt contracts (as indeed fixed wage rather than profit share labour contracts) have naturally arisen to meet fundamental human desires for greater certainty of future income<sup>4</sup>.
- And while fractional reserve banks undoubtedly create risks, there is a good argument that they also perform a value creative function. Fractional reserve banks perform maturity transformation that enables households and businesses to hold shorter term financial assets than liabilities: and that may help support greater long term investment than would otherwise occur. As Walter Bagehot argued, the development of joint stock fractional reserve banks may well have played an important role in the development of the mid-nineteenth century British economy, giving it a capital mobilisation advantage over other economies where maturity transforming banking systems were less developed (Bagehot, 1873)<sup>5</sup>.

But even if we reject the radical policy prescriptions of Simons, Fisher and early Friedman, their reflections on the causes of the Great Depression should prompt us to consider whether our own analysis of the 2008 financial crisis and subsequent great recession has been sufficiently fundamental and our policy redesign sufficiently radical. Three implications in particular may follow.

- First, that while there is a good case in principle for the existence of fractional reserve banks, social optimality does not require the fraction (whether expressed in capital or reserve ratio terms) to be anything like as high as we allowed in the pre-crisis period, and still allow today<sup>6</sup>. As David Miles and

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<sup>4</sup> A point well made by his Italian contemporary Luigi Einaudi in an elegant essay entitled simply Debts (Debiti: Einaudi 1934)

<sup>5</sup> In Chapter 1 of Lombard Street, Bagehot argues that the development of the British banking system, by creating bank deposit money, made those resources 'borrowable' and thus investible, in a way which was less true of the cash held outside banks in France and Germany.

<sup>6</sup> Note that the ability of fractional reserve banks to create private credit and money can be limited by either (i) constraints on the ratio of deposit liabilities to required reserve holdings: Simons and Fisher thought in these terms, but central banks in developed countries gradually discarded this tool in the half century after World War II or (ii) through capital ratio requirements.

Martin Hellwig amongst others have shown, there are strong theoretical and empirical arguments for believing that if we were able to set capital ratios for a greenfield economy (abstracting from the problems of transition), the optimal ratios would likely be significantly higher even than those which we are establishing through the Basel III standard (Miles et al., 2011, Hellwig et al., 2010).

- Second, that issues of optimal macroeconomic policy and of optimal financial structure and regulation, are closely and necessarily linked. A fact obvious to Simons, Fisher and Friedman, but largely ignored by the pre-crisis economic orthodoxy. As Mervyn King put it in a recent lecture, the dominant new Keynesian model of monetary economics “*lacks an account of financial intermediation, so that money, credit and banking play no meaningful role*” (King, 2012). Or, as Olivier Blanchard has put it, “*we assumed we could ignore the details of the financial system*”<sup>7</sup>. That was a fatal mistake.
- And third, that in our design of both future financial regulation and of macroeconomic policy, it is vital that we understand the fundamental importance of leverage to financial stability risks, and of deleveraging to post-crisis macro-dynamics.

### **3 LEVERAGE AND FINANCIAL STABILITY: DELEVERAGING AND DEFLATION**

The fundamental cause of the financial crisis of 2007 to 2008 was the build up of excessive leverage in both the financial system (banks and shadow banks) and in the real economy. Increased leverage creates rigidities and financial stability risks. The detailed argument for that proposition has been made extensively elsewhere<sup>8</sup>. Here I will simply outline the essential points.

#### **Debt contracts and Rigidities**

Debt contracts play a valuable role in advanced economies, providing businesses and individuals with greater certainty over future income streams than would be delivered in a world where all contracts took an equity form. But the presence of debt contracts inevitably creates financial and stability risks. These derive from three inherent features of debt versus equity.

- First, the tendency of investors/lenders to suffer from “local thinking” or myopia, entering into contracts which, Gennaioli, Shleifer and Vishny put it “*owe their very existence to neglected risk*”. (Shleifer et al., 2010)
- Second, the rigidities and potential disruption of default and bankruptcy processes, which as Ben Bernanke has pointed out “*in a complete market world ... would never be observed*” (Bernanke, 2004), but which in the real world create fire sale and disruption risks.
- Third, the need for short and medium-term debt contracts to be continually rolled over, making the stability of new credit flows a key macroeconomic variable.

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<sup>7</sup> Comments at IMF press conference, October 2012

<sup>8</sup> See e.g. Bernanke 2004, Gennaioli, Shleifer and Vishny 2010, Schularick and Taylor 2009, Taylor 2012. Turner April 2012, and Turner November 2012 provide a more detailed account of these arguments than set out here.

## **Banks and Private Credit Creation**

These risks are inherent in debt contracts and would exist even if there were no banks i.e. even if all debt contracts directly linked end investors with end borrowers. But fractional reserve banks, simultaneously creating private credit and private money, can greatly swell the scale of debt contracts in an economy and introduce maturity transformation. And there is no naturally arising mechanism to ensure that the scale of such majority transformation is optimal<sup>9</sup>.

As a result banks can greatly increase the scale of financial and economic stability risks. They can also play an important autonomous role in the creation and destruction of spending power, i.e. of nominal demand, and as a result can generate booms and busts in overall economic activity.

## **Secured lending, credit and asset price cycles**

The danger of excessive and volatile bank credit creation is still further exacerbated when credit is extended to finance the purchase of assets – in particular real estate – whose value is itself dependent on the level of debt-financed demand. Unsustainable bank credit extension can therefore lead to credit and asset price cycles of the sort which Hyman Minsky described<sup>10</sup>: so too however, as we learnt before the crisis, can uncontrolled credit extension by chains of shadow-banking entities which in aggregate perform credit intermediation with leverage and maturity transformation (the defining characteristic of banks but outside the scope of bank regulation)<sup>11</sup>.

Together these inherent characteristics of debt contracts, banks and credit/asset price cycles make the level of leverage in both the financial system and the real economy, and the rate of change of leverage key drivers of financial instability risks. And over the last 50 years, as in the decade running up to the 1929 crisis, levels of leverage in both the real economy and in the financial system hugely increased (EXHIBIT 11). EXHIBITS 11-13 provide some indicators of that increase in private leverage for the UK and the US.

Ahead of the crisis, the predominant assumption of much economic theory and of macroeconomic policy was that such increasing leverage – since arising from private sector contracts between rational agents – could be either ignored or positively welcomed. Ignored because financial system developments were considered as neutral (or simply absent) in models of money demand, inflation and real output: or welcomed because financial deepening was axiomatically beneficial since it reflected market completion.

In retrospect those assumptions were part of a widespread intellectual delusion which left us ill-equipped to spot emerging financial stability risks. They are now being roundly challenged. An important recent Bank of International Settlements' paper by Steve Cecchetti and Enisse Kharroubi for instance, aims to reassess the

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<sup>9</sup> As Jeremy Stein has illustrated; given inherent market failures “unregulated private money creation can lead to an externality in which intermediaries issue too much short-term debt and leave the system extremely vulnerable to costly financial crisis” (Stein 2012)

<sup>10</sup> The links between Minsky's beliefs and those of some of the Chicago School economists are rarely noted but significant. See Charles J Whalen 'The Minsky-Simons Connection, A Neglected Thread in the History of Economic Thought', Journal of Economic Issues, Vol XXII, No 2, June 1988.

<sup>11</sup> See Turner April 2012 and FSB Report “Strengthening the Oversight and Regulation of Shadow Banking”.

impact of financial deepening on growth, and reaches the tentative conclusion that private credit to GDP ratios may be related to economic growth in an inverse U function, with a level beyond which further financial deepening has a negative impact (EXHIBIT 14) (Cechetti and Kharroubi 2012). Similar conclusions have been reached in recent papers by Moritz Schularick and Alan Taylor (Schularick and Taylor 2009; Taylor 2012).

This implies that financial stability authorities in future should monitor and respond to the absolute level of leverage in economies, the aggregate balance between debt and equity contracts. That may require a still wider role for macro-prudential levers than currently anticipated, focussing not solely on growth rates of credit relative to trend, but seeking also to constrain absolute levels of leverage i.e. debt to GDP<sup>12, 13</sup>.

But it also implies that we need to think about the relationship between macro demand management (the classic domain of monetary policy) and quantity effects relevant to financial stability. Central banks pursue policies aimed at achieving aggregate demand growth which will ensure price stability while being at least compatible with real growth: and until the crisis they appeared largely successful in this objective. But adequate nominal demand growth in the pre-crisis years was accompanied with increasing aggregate leverage, as nominal private debt grew fast than nominal GDP in many countries. And this increase in debt appeared to be essential to ensure that nominal demand grew at an adequate rate. But if that is indeed the case – if we have an economy in which adequate demand growth requires increasing leverage levels, then we have an unstable system and need to redesign it – if necessary with new policy tools – to make it more stable and sustainable.

The inherent links between macroeconomic and financial stability, largely ignored before the crisis, may therefore carry implications for optimal policy mix in “normal times” or in upswings of the credit cycle. But they do so even more clearly in the deflationary periods that tend to follow financial crisis.

## **Deleveraging and Deflation**

The financial crisis of 2007 to 2008 occurred because we failed to contain the financial system’s creation of private credit and money; we failed to prevent

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<sup>12</sup> This implies that the Basel III guideline for the application of the countercyclical buffer (CCB), if applied to mechanistically, could be inappropriate. This guideline proposes that there should be a presumption in favour of an increase in the CCB when credit growth is running above past trend. This implies however that a continually rising level of credit as a % of GDP would be acceptable as long as the growth rate was steady, i.e., in line with trend even if continually above nominal GDP growth.

<sup>13</sup> In some sense this may appear to support the Bundesbank’s long held belief, reflected in the monetary pillar of the ECB policy framework, that central banks should not focus solely on the current and medium term prospective rate of inflation, but on ‘money’ aggregates. While however the size and growth rates of bank balance sheets clearly matters, it is arguably more fruitful to focus on credit creation as the motive force, and to see money creation as the dependent result, agreeing with Benjamin Friedman that *‘in retrospect the economics profession’s focus on money – meaning various sub-sets of instruments on the liability side of the banking system’s balance sheet in contrast to bank assets... turns out to have been a half century long diversion which did not serve our profession well’*. See Benjamin Friedman, ‘Monetary Policy, Fiscal Policy, and the Efficiency of our Financial System: Lessons from the Financial Crisis’, International Journal of Central Banking, January 2012. See also Adair Turner, ‘Debt and Deleveraging: Long Term and Short Term Challenges’, Presidential Lecture, Centre for Financial Studies, Frankfurt, November 2011.

excessive leverage. The fundamental macroeconomic challenge today arises from the deflationary effect of private sector deleveraging.

In the wake of the crisis, private credit creation collapsed. EXHIBITS 15 and 16 illustrate that collapse in the UK, in both the corporate and household sectors.

That collapse in credit reflects in part necessary deleveraging in the financial system – the reduction in bank leverage from excessively high and risky levels. Such financial sector deleveraging potentially depresses the supply of credit. But it also reflects a fall in demand for credit, as corporates and households seek to increase balance sheet strength in the face of both lower asset prices and reduced expectations of future income<sup>14</sup>.

Collapsed credit growth in turn depresses both asset prices and nominal private demand, threatening economic activity and income, and making it more difficult for firms and individuals actually to achieve desired deleveraging.

Such an attempted deleveraging was as Irving Fisher argued (Fisher, 1933) fundamental to the process by which the financial crisis of 1929 turned into the Great Depression. And as Richard Koo has argued, it is core to understanding the drivers of Japan's low real growth and gradual price deflation over the past two decades (Koo 2009).

In Koo's persuasive account, Japan from 1990 suffered a "balance sheet recession" in which the dominant driver of depressed demand and activity was private sector (and specifically corporate sector) attempts to repair balance sheets left over-leveraged by the credit boom of the 1980s. In such "balance sheet recessions" Koo argues, the reduction of interest rates to the zero bound (achieved in Japan by around 1996) (EXHIBIT 17) has very limited ability to stimulate credit demand since firms' financing decisions are driven by balance sheet considerations. As a result, Koo argues, economies in a deleveraging cycle will face deep recessions unless governments are willing to run large fiscal deficits, deficits that in any case tend naturally to arise as depressed demand and economic activity reduces tax revenue and increases some categories of government expenditure.

Large Japanese government deficits in the 1990s were therefore, in Koo's analysis, the necessary and useful offset to a corporate sector determined to delever whatever the interest rate on new loans (EXHIBIT 18). And Koo argues persuasively that Japan's economic performance would have been still worse, the economy facing a real 1930s-style Great Depression, if these deficits had not been accepted.

But the inevitable consequence of such large fiscal deficits is that aggregate economy-wide leverage does not actually reduce, but simply shifts from the private to the public sector. A pattern observed in Japan from 1990 to today (EXHIBIT 19) and in Spain, the UK, the US and many other countries in the wake of the 2007 to 2008 crisis (EXHIBIT 20). Beyond some level however, rising public debt levels may themselves become unsustainable, necessitating fiscal consolidation.

Post-crisis deleveraging, while essential for long-term financial stability, thus creates an immensely challenging macroeconomic environment.

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<sup>14</sup> The inherent difficulty of distinguishing supply and demand factors in the determination of credit growth. Is discussed in the Bank of England's Financial Stability Review June 2012 Box 3.

- Monetary policy acting through short or long term interest rates loses stimulative power.
- Fiscal policy offsets may be constrained by long-term debt sustainability concerns.
- And slow growth in nominal GDP makes it more difficult to achieve attempted deleveraging in the private sector, or to limit the growth of public debt as a % of GDP.

The danger in this environment is that other countries could suffer not just a few years of slow growth, but the sustained decades of slow growth and rising public debt burdens which Japan has suffered. It is in this environment that we have to consider the two questions posed earlier.

- What are the appropriate targets of macroeconomic policy?
- And what policy tools should we use to achieve them?

#### **4 TARGETS: SHOULD WE MOVE AWAY FROM CURRENT INFLATION RATE TARGETS?**

The increasingly dominant assumption of the last 30 years has been that central banks should have independent mandates to pursue inflation rate targets. The specifics vary by country, but orthodoxy and practice has tended to set price stability as the objective and to define price stability as low but positive inflation, for instance around 2%. Central banks typically pursue that objective looking forward over medium-term timeframes e.g. over two to three years.

That orthodoxy is now extensively challenged, and a plethora of alternative possible rules have either been already applied or are now proposed (EXHIBIT 21). Blanchard et al questioned in 2010 whether a period of somewhat higher inflation might be required to cope with the challenges of high debt levels and attempted deleveraging (Blanchard et al., 2010). The Federal Reserve has adopted a policy of state contingent future commitment, with a clearly stated intent to keep interest rates close to the zero bound and to continue quantitative easing until and unless employment falls below 6.5% or inflation goes above 2.5%. Mark Carney has suggested that a range of possible options, including a focus on nominal GDP, should at least be considered. And Michael Woodford, author of a canonical statement of pre-crisis monetary theory (Woodford, 2003) has proposed that central banks should conduct policy so as to deliver a return to the trend level of nominal GDP, which would have resulted from the continuation of pre-crisis NGDP growth (Woodford, 2012).

This questioning of pre-crisis orthodoxy reflects the challenges created by excessive debt levels and attempted post-crisis deleveraging. Those challenges may make it appropriate to diverge from medium-term inflation rate targeting: but any such diversion needs to maintain the anchor of commitment to long-term price stability.

One possible change, illustrated by UK experience, would not be fundamental - amounting simply to greater flexibility in the interpretation of the inflation rate mandate to reflect the impact of exceptional or transient impacts on current inflation. Over the last three years, the UK inflation rate has run continually and significantly

above the Bank of England's 2% CPI target (EXHIBIT 22). This has in part reflected effects that could be interpreted as exceptional or one-off, in the sense that they produce an unavoidable (and indeed necessary) fall in real incomes, but without resulting in any de-anchoring of inflationary expectations or any increase in, for instance, the rate of increase in average earnings. These effects include the depreciation of sterling in 2008 to 2009, large increases in energy costs, VAT increases and increases in student fees.

If such increases truly are one-off and transient in effect, it is reasonable even for an inflation targeting central bank to look through them to the medium-term trend. That is indeed what the Bank of England post facto has done, maintaining Bank Rate at 0.5% despite inflation significantly above target. Arguably therefore no adjustment to the UK inflation target is required to ensure appropriate policy, but simply what we have actually seen – an intelligent and flexible interpretation of mandate by the MPC.

But it is also notable that this MPC flexibility has only been exercised in an environment where Bank of England forecasts of inflation failed to anticipate the above target levels which de facto occurred. An interesting question therefore is whether the MPC would have maintained a 0.5% Bank Rate if the forecasts produced in 2009 or 2010 had accurately anticipated subsequent inflation. The answer may be yes: but if it is no, and if we believe (as I do) that maintaining the 0.5% Bank Rate in the face of above trend inflation was the post facto appropriate policy, then we face the ironic and unsettling fact that we have only had appropriate interest rate policy because of unavoidable imperfections in forecasting. This might argue for a redefinition of the inflation target explicitly to exclude some exceptional one-off items.

The appropriate treatment of one-off or exceptional inflation rate effects is not however, fundamental. The crucial issue is whether we should move from the objective of a medium-term (say two to three year) inflation rate of around 2%, to some variant that either:

- seeks to target real growth as well as price stability effects;
- and/or which accepts the possibility of a period of higher inflation either as an acceptable by-product of a focus on real growth, or as an end desirable in itself.

The variants could include a higher inflation rate target, a focus on price levels rather than inflation rates, or a focus on either nominal GDP (NGDP) growth rates or levels.

Three arguments for such variants could be put forward: the third provides the strongest case for a change in formal target.

- (i) High potential for non-inflationary real growth. Increases in nominal GDP can result in/reflect either price or real output increases. Real output effects are likely to dominate if economies are operating with significant spare capacity and if firms and individuals have low expectations of future inflation. If both conditions apply there may be a wide range of potential growth rates of nominal GDP across which the impact on the inflation rate up or down is very small. It may therefore be possible for a central bank, motivated by a nominal GDP target, to stimulate aggregate nominal

demand with high confidence that this will produce a primarily real output rather than price effect. Strictly, however, such a central bank response does not require setting an NGDP target, but simply an objective function of the form “*promote growth and employment subject to the constraint of a clear inflation target*”. The Federal Reserve’s statutory objective is already close to this: and most central banks are de facto interested in non-inflationary growth even if their mandate does not formally commit them to it. The fact that in several countries there may exist significant potential for nominal demand stimulation which has a predominantly real output effect, cannot therefore be a sufficient basis for a change in the definition of the formal target.

- (ii) Erosion of excess debt levels (public or private) via higher inflation. As Section 3 argued, the most fundamental challenge we face is accumulated levels of debt (initially private and now public) above optimal levels. Reducing these leverage levels without reasonable growth rates of nominal GDP will be extremely difficult. Countries such as the UK and the US, which achieved public sector deleveraging after the Second World War, were only able to do so with growth rates of nominal GDP far above current rates (EXHIBITS 23 to 25). Both rapid real growth rates and inflation rates in excess of interest rates (achieved via effective “financial repression”) were essential to the deleveraging process.

These observations could be used to support a temporary increase in inflation rate targets (see e.g. Blanchard et al., 2010). But the potential disadvantages of such an approach need to be clearly faced. A higher rate of inflation can only erode the real value of long-term fixed rate debt not short-term variable debt (see Bootle and Jessop, 2011). And temporary higher inflation targets would clearly entail the risk that expectations of higher inflation would become permanently embedded.

The risks involved in any move to a temporarily higher inflation target – and the potential limits to its effectiveness in eroding past debt burdens – would therefore require very careful assessment. But what the historic experience of past deleveraging clearly implies is that it is essential at least to set and achieve a positive inflation target (such as 2%) and that when countries fail to do this (e.g. Japan over the last 20 years) aggregate deleveraging (as against a mere shift of leverage from the private to public sectors) becomes close to impossible.

- (iii) Forward commitment to future accommodative policy. As Michael Woodford in particular has pointed out, the impact of movements in central bank policy rates on nominal demand may depend only to a small extent on immediate changes in market interest rates, and to a large extent on expectations of future nominal and real interest rates looking forward over several years<sup>15</sup>. Individuals or firms entering into debt contracts today, do so in the light of expectations as to the real interest burden arising from

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<sup>15</sup> Charles Goodhart has however pointed out that in economies where there are debt contracts explicitly linked to the policy rate (e.g. in the UK Bank Rate linked mortgages) the direct importance of changes to the policy rate should not be entirely discounted (Goodhart 2013)

these contracts over time, and of the nominal and real income flows likely to be available to support debt servicing.

But the ability of central banks to generate appropriate expectations of medium-term real interest rates may be seriously undermined in conditions where interest rates are already close to the zero bound and when deleveraging creates deflationary headwinds. Negative real interest rates may be required over a number of years to ensure a path of real growth consistent with medium-term inflation at a low but positive level, but expectations of future real interest rates may be driven up if firms or individuals anticipate that the central bank – pursuing a forward-looking inflation rate target at any point in time – will respond to any pickup in inflation by immediately raising interest rates.

One response to this difficulty is to provide forward guidance that interest rates will remain low for a sustained period of time. But as Woodford has pointed out, if agents interpret such guidance as indicating central bank pessimism about future prospects, it could potentially have a contractionary rather than a stimulative effect. (Woodford, 2012)

Alternative targets may therefore be required, at least for a period of time, to achieve escape from deflationary traps. As Mark Carney has put it, “a central bank may need to commit credibly to maintain highly accommodative policy even after the economy and, potentially, inflation picks up”, and to make that commitment credible, it may need to “tie its hands”. This might then justify a range of pre-commitment devices ranging from (i) precise numerical thresholds for inflation and unemployment; (ii) commitments to achieve a particular level of prices; and (iii) commitment to either particular growth rates of NGDP or to a particular level of NGDP, even if the inflation rate for a period of time goes above target.

Together the three arguments above establish a strong case for serious consideration of alternative central bank targets. But there are also strong arguments for making any such shift temporary and for focussing strongly on how to achieve exit from a temporary regime, reverting to an inflation rate target when appropriate.

- In particular, while the case for permanent nominal GDP targeting has some theoretical attractions, it could also suffer from major disadvantages. As Charles Goodhart has pointed out, defining the appropriate % rate of increase would require a point of view on the sustainable medium-term growth rate of the economy, about which there is considerable uncertainty. And under some circumstances, pursuing an NGDP target could result in greater volatility of inflation, making it more difficult to ensure reasonably stable inflationary expectations. [Goodhart, 2013]
- And while a period of above target inflation might be required to ensure strong recovery and be compatible with steady medium-term inflationary expectations, the longer the period over which inflation remains above target the greater the danger that expectations of high future inflation are generated. Woodford’s proposal of a commitment to achieve in future a level of GDP in line with the continuation of the pre-crisis trend, might therefore, if the stimulus

turned out to produce a predominantly price rather than real output effect, result in sustained inflation at too high a level.

Given the severity of the challenge created by post-crisis deleveraging, all the alternative options should now be carefully considered. But the considerations above suggest that the most attractive are likely to be

- Pre-commitments to maintain stimulus until and unless numerical thresholds for unemployment or inflation are met (i.e. the Federal Reserve's current approach).
- Commitments to achieve some defined level of increase in NGDP over a number of years, but without the open-ended commitment to return to the pre-crisis trend in NGDP level which Woodford has proposed.

While this debate is important, however, I will argue in the rest of this paper that it is less important than the issue of the tools by which we should seek to achieve whatever is the chosen objective. The mere setting of a more accommodative target will not ensure that it is met. And some of the tools we could use to achieve the objective might be ineffective or have seriously adverse side-effects.

The next three sections consider those tools, looking first at pure monetary instruments, then at pure fiscal, and then at the combination - overt money finance of fiscal deficits.

## **5 ACHIEVING THE CHOSEN TARGET: MONETARY AND MACROPRUDENTIAL LEVERS**

Suppose that, whatever the formal target we wish to pursue, we want nominal demand to grow faster than it otherwise would. Can we achieve that with levers which fall within the monetary policy, credit stimulus or macro-prudential boxes on the left hand side of the framework exhibit? (EXHIBIT 3) And if we could, would there be harmful side effects?

The classic instrument of monetary policy is the interest rate. All four central major central banks reduced policy rates close to the zero bound in 2009 (EXHIBIT 26). In some cases further small reductions could be made, but their direct impact on market interest rates for savings and lending products and thus their likely stimulative effect would clearly be small.

Even when the zero bound is reached, however, central banks have multiple policy levers available, especially if they are also macro-prudential authorities. These tools include:

- Forward guidance that policy interest rates will stay at low levels into the future, potentially underpinned by the pre-commitment devices (state contingent, price level or nominal GDP related) considered in Section 4.
- Quantitative easing in its standard form i.e. central bank purchases of government debt. This will affect nominal demand through at least three (closely related) transmission channels (see Bank of England 2011).

- A reduction in long-term risk-free interest rates, which will induce holders of government bonds (or sellers who now hold cash) to seek new opportunities to deploy cash into higher yield instruments.
- An increase in the value of government bonds and of the other assets into which investors move, which by increasing wealth, may generate additional consumption or investment expenditures.
- A decline in the exchange rate.
- QE focused on purchases of assets other than government bonds. Such assets could include, as Ben Bernanke described in 2000, (Bernanke in Mikitani and Posen, 2000) credit securities, equities, property assets and foreign exchange. Transmission mechanisms would include increased asset price/wealth effects, a decline in the exchange rate, or a reduction in credit risk premia, reinforcing the impact on market interest rates of the reductions in the risk free rate induced by standard QE.
- Liquidity support to commercial banks at favourable rates such as provided through the European Central Bank's Long-Term Refinancing Operation (LTRO).
- Direct subsidy/support for commercial bank credit supply, such as provided via by the Bank of England's Funding for Lending Scheme (FLS).
- Macro-prudential policies e.g. relaxing either capital or liquidity requirements, either on a standalone basis or, as agreed by the UK Financial Policy Committee in summer 2012, as part of a package of measures which also included the FLS and enhanced central bank liquidity support.

Clearly therefore central banks do not “run out of ammunition” when the interest rate zero bound is reached: and all four major central banks have dramatically increased the scale of their balance sheets relative to GDP since the start of the crisis (EXHIBIT 27). Analysis suggests moreover, that such policies can be effective in raising nominal GDP: the Bank of England's best estimates of the impact of QE up until summer 2011 suggest that it might have resulted in both an  $\frac{3}{4}$  -  $1\frac{1}{2}$ % increase in the price level and a  $1\frac{1}{2}$  - 2% increase in the real output level, relative to the no QE counter-factual. (Bank of England 2011)

That favourable assessment of initial effect could, however, be compatible with two concerns:

- First that there may be important limits to the effectiveness of monetary, credit support, and macro-prudential levers.
- Second, that they may have adverse side-effects.

### **Limits to effectiveness?**

All of the policy levers considered in this section – if deployed on their own - work through interest rate, credit and asset price channels. In different ways they induce agents to change behaviour – by substituting money for bonds: by reducing medium and long-term interest rates and stimulating a search for yield: by directly or indirectly

reducing the cost of credit supply: or by enabling banks to supply a higher quantity of credit as a result of lower capital or liquidity ratios.

But the effectiveness of each of these transmission channels may be constrained if post-crisis deleveraging produces the “balance sheet recession” behaviours described by Richard Koo in Japan.

- Real economy borrowers seeking to restore balance sheets may be highly inelastic in their response to any conceivable fall in interest rates. Forward guidance, QE induced effects on long-term interest rates, and direct central bank credit subsidy may all therefore end up “pushing on a string”.
- And the closer long-term yields, as well as short, fall toward zero levels (EXHIBITS 28) the more that risk-free bonds and money become perfect substitutes, the economy entering a liquidity trap in which replacing investor holdings of bonds with central bank money has minimal effects on behaviour.

Whether and to what extent such limit conditions have been reached is an empirical issue. Koo’s analysis and the extremely low level of yields on long-term Japanese Government Bonds, suggest that they may apply in Japan. In Britain, a crucial question is whether slow credit growth in the household sector and negative in the business sector, reflects supply constraints or a deficiency of demand (at almost any price) driven by the desire to reduce leverage levels and by depressed expectations of future activity and income levels. Interpretation of past evidence is ambivalent: the impact of the FLS will be a key test. So far the evidence seems to suggest a limited impact on mortgage volumes, but little or no impact on business borrowing behaviour (EXHIBITS 29, 30).

### **Potential adverse side effects**

The second concern is that monetary, credit support, or macro-prudential policy levers, whether or not effective in stimulating nominal demand, may have adverse side effects. In particular, as economists such as William White have warned (White 2012):

- Low interest rates sustained over many years (and perhaps, on the experience of Japan, decades), could have harmful long-term effects.
  - Incentives will be created for complex carry trade and asset speculation activities, creating financial stability risks that macro-prudential authorities have only imperfect capacity to spot. And low interest credit may flow into such activities far more readily than it flows into real economy investment projects, as household and corporates attempt deleveraging to restore balance sheet strength.
  - And sustained low interest rates, accompanied by extensive loan forbearance, may enable inherently unsustainable companies to (just) survive in a low productivity, low growth state, stymieing the processes of capital allocation required to drive long-term improvements in supply capacity.

- The success of monetary policy, credit subsidy, and macro-prudential policies depend in large part on the stimulus to private credit and money creation, persuading households to increase mortgage debt or businesses to borrow more money. In some circumstances such stimulus might be compatible with required long-term deleveraging, as the nominal GDP stimulus outweighs the growth in nominal debt. But it is also possible that monetary, credit subsidy and macro-prudential levers will only work by stimulating increases in leverage which reinforce our vulnerability to financial and economic instability. We got into this mess because of excessive creation of private credit and money: we should be concerned if our only escape route implies building up a future excess.
- That concern should be particularly strong when we use macro-prudential levers to facilitate greater bank credit supply, given that such levers work via the relaxation of leverage constraints. Excessive leverage and maturity transformation in the banking system was central to the 2007 to 2008 crisis. And as argued in Section 2, there are strong arguments that optimal bank capital ratios would be well above even the new Basel III Standards. Any weakening of capital or liquidity standards in order to support increased lending capacity, however justifiable as a necessary stimulus to short-term nominal demand, inevitably involves an increase in financial stability risks.
- Finally, if the transmission mechanism of QE works via the Exchange Rate, national QE policies can have important and potentially harmful spill-over effects, with other countries (whether developed or emerging) having to cope with the consequences of rising exchange rates, potentially reinforced by speculative and volatile capital inflows.

An exclusive reliance on monetary, credit subsidy, and macro-prudential policy levers to stimulate nominal demand thus carries significant long-term risks – a danger that, in seeking to escape from the deleveraging trap created by past excesses, we may build up future vulnerabilities.

But let me be clear that that does not mean I disagree with recent policy measures in the UK. If I had been on the UK Monetary Policy Committee I would have voted for Bank Rate to be reduced to and then maintained at 0.5%, and for QE at the current level. And on the Financial Policy Committee I strongly supported the macro-prudential relaxations that we introduced last summer, and agreed with the support we expressed for the Bank's introduction of the Funding Lending Scheme. These policies are all better than no action. But we should, I believe, recognise both that their effectiveness may have limits, and that, they carry long-term risks.

We therefore need to ask whether there are other policies that could more effectively stimulate aggregate nominal demand with fewer harmful side-effects.

## 6 FISCAL POLICY STIMULUS

Monetary, credit support, and macro-prudential policy levers stimulate demand via the indirect transmission mechanisms of private credit creation, portfolio rebalance and asset price/wealth effects. The argument for fiscal stimulus is that it operates in a more direct fashion, cutting taxes or increasing public expenditure, putting spending power directly into the hands of individuals or businesses. In Friedman's terms, the money directly enters "the income stream". But in "normal times" (and in particular when interest rates are not close to the zero bound) the direct effects on nominal demand of a funded fiscal stimulus can be partially or fully offset by three factors<sup>16</sup>

- An increase in interest rates that generates a "crowding out" effect, reducing private consumption or investment and thus offsetting the direct impact of the fiscal stimulus. This effect will be most likely, indeed hard-wired into the policy framework, if the central bank has a mandate to contain inflation, and if that central bank has already set interest rates at the level it considers compatible with low inflation growth<sup>17</sup>
- A "Ricardian equivalence" effect, with individuals and businesses saving rather than spending the money they receive, since they are aware that they will in future have to meet (through increased taxes or reduced public expenditure receipts) the cost of servicing the increased public debt
- And a variant of that effect, in which the potential increase in future public debt level is so high that it generates concerns about debt sustainability, and thus increases in the interest rate which the government has to pay on public debt, further increasing future debt servicing burdens

Given these factors, the dominant conventional wisdom of the last 30 years has been that fiscal policy is not an effective lever for macro demand management (let alone an effective lever for increasing long-term real growth rates, as some 1950s and 1960s policy makers erroneously believed).

In a recent paper, however, Brad DeLong and Larry Summers have argued that these normally compelling arguments do not apply in the current circumstances (DeLong and Summers 2012). They accept that "*in normal times central banks offset the effects of fiscal policy*", and that "*this keeps the policy-relevant multiplier near zero*". This in turn "*leaves no scope for expansionary fiscal policy as a stabilization policy tool*". But they argue that in current conditions:

- There will be no offsetting increase in interest rates, and therefore no "crowding out" effect. Policy rates are close to the zero bound (and already higher in real terms than policymakers would ideally seek): the Federal Reserve is committed to keeping the policy rate low into the foreseeable

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<sup>16</sup> Note that we assume here, as in Section 5, that an increase in nominal demand is desirable, with some of that increase likely to result in a real output, rather than solely price effect. If the economy is at full capacity of course, fiscal policy stimulus would be inappropriate even if it could stimulate nominal demand, since only a price inflation effect would result. But in those circumstances any monetary policy stimulus would also be inappropriate

<sup>17</sup> See Thomas Sargent and Neil Wallace, *Some Unpleasant Monetarist Arithmetic*, 1981, for the mathematical relationship between fiscal and monetary policy actions.

future: and it is committed to substantial (and now potentially limitless) quantitative easing, buying government bonds in whatever quantity is required to keep long-term interest rates low<sup>18</sup>. In these circumstances a funded fiscal stimulus will be effective in stimulating nominal demand.

- And that there is sufficient potential slack in the economy that a significant proportion of such stimulus will have a real output rather than purely price effect, and not only in the short-term, but also because of avoided “hysteresis” effects, with a faster pace of medium growth enhancing long-term supply capacity above the counterfactual level .

Allowing for these considerations, DeLong and Summers argue that policy relevant fiscal multipliers are far higher today than in “normal times” and that as a result under *“plausible assumptions, temporary expansionary fiscal policies may well reduce long-run debt financing burdens”*.

DeLong and Summers establish a strong case for believing that a conventional funded fiscal stimulus could be appropriate in some circumstances and that those circumstances may exist in the US today. In addition it could be argued ( though this is not part of the DeLong and Summers argument) that there may be circumstances in which Ricardian equivalence effects are unlikely to be important. In general, the power of Ricardian equivalence effects must surely be circumstance dependent, reflecting factors which include (i) the degree of public awareness of future debt burdens; (ii) the existing level of public debt relative to GDP and thus the rationality of any concerns about future debt sustainability; and (iii) the income level of the beneficiaries of fiscal stimulus and thus their capacity to save even if they were worried about future debt levels<sup>19</sup>. It seems unlikely for instance, that a desperate US worker in the midst of the Great Depression would have responded to a fiscally induced increase in real income by deciding “better not spend this, because of the future taxes I am bound to face”, particularly given that US Federal debt to GDP was around only 20% at the onset of the Great Depression.

Richard Koo’s argument that conditions existed in which Roosevelt’s fiscal expenditures could be effective in stimulating demand is therefore convincing<sup>20</sup>.

But it also seems highly likely that there are other circumstances in which Ricardian equivalence effects will be powerful. If public debt has already reached (as in Japan) 200% of GDP: and if there is extensive public discussion about the need for future

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<sup>18</sup> At the time of publication of DeLong and Summers’ article, the Federal Reserve was providing time specific forward guidance, underpinned with predefined amounts of QE. Since then it has moved to a circumstance contingent framework, underpinned by QE with no predefined limit. The power of DeLong and Summers’ argument has therefore increased further since publication

<sup>19</sup> This raises a more general issue as to the accurate specification of the role of expectations in determining the impact of current policy measures ( or indeed of guidance intended to influence such expectations ) The rational expectations model assumes that economic agents are both fully informed and rational in their processing of information. In reality expectations are influenced by factors such as the extent to which issues (e.g. future debt sustainability) are discussed in the media; and expectations are developed by processes part rational and part not. This issue is relevant also to the formation of expectations relating to the future possible reversal of current policies, whether QE or OMF, which is discussed in Section 7(i)

<sup>20</sup> Note on the issues relating to whether Roosevelt’s policy was fiscally stimulative or not, and the disconnect between Roosevelt’s election rhetoric of fiscal orthodoxy and subsequent policy

taxes to reduce fiscal deficits and debt levels (as is also the case in Japan, which plans to introduce a significant sales tax); then, in these circumstances the stimulative effect of fiscal deficits may well be offset.

Thus, while Koo argues persuasively that Japan would have grown even more slowly than it did but for the very large fiscal deficits run over the last twenty years, he has no persuasive explanation of how Japan will ever contain or reduce the growth of its public debt burden relative to GDP. In Section 8 I will suggest that it never will, except via monetisation or debt restructuring/repudiation. And he fails to address the depressive effect on consumer and business confidence, and thus on demand, which rising public debt burdens beyond some level must induce.

Thus while funded fiscal policy as described by DeLong and Summers may be effective in some circumstances, which may pertain in the US today, there are others when it might not work, or only work temporarily by storing up intractable problems for the future.

If that is the case, and if pure monetary policies face the limits to effectiveness and/or create the adverse side effects considered in Section 5, we need to consider whether any other tools of demand stimulation are available.

The potentially available tool is overt money finance of fiscal deficits.

## **7 OVERT MONEY FINANCE: ADVANTAGES, DANGERS AND REQUIRED CONSTRAINTS**

I will argue in this section that the option of overt money finance of fiscal deficits (OMF) should not be a taboo subject, and that

- OMF could in some circumstances be essential and in some others be less harmful than alternative policy tools
- And, that it is possible and essential to design institutional constraints and rules that would guard against the misuse of this powerful medicine which, taken into large quantities, would undoubtedly become a poison

This argument is set out in five subsections

- (i) OMF and its relationship to QE.
- (ii) OMF's non-inflationary potential: the undoubted technical possibility
- (iii) OMF, fiat money and political economy risks
- (iv) Constraining OMF with central bank independence
- (v) OMF as a policy option for debate

### **(i) Overt money finance and QE.**

Bernanke's 2003 speech, "Some thoughts on monetary policy in Japan", set out a clear description of how OMF would work and why it would stimulate nominal demand.

- He proposed “a tax cut for households and businesses that is explicitly coupled with incremental BoJ purchases of government debt, so that the tax cut is in effect financed by money creation”
- He suggested that it should be made clear “that much or all of the increase in the money stock is viewed as permanent”
- He argued that consumers and businesses would likely be willing to spend their tax cut receipts since “no current or future debt service burden has been created to imply future taxes” (i.e. that there would be no rational Ricardian equivalence affects)<sup>21, 22</sup>
- And he argued that the policy would likely produce a fall in the Japanese government debt to GDP ratio, since the nominal debt burden would remain unchanged while “nominal GDP would rise owing to increased nominal spending”
- And while his main illustrative proposal was for a tax cut, he noted that the same principle of a money financed fiscal stimulus “could also support spending programs, to facilitate industrial restructuring, for instance”

Bernanke’s description of a money financed deficit thus makes clear its potential advantages over either pure monetary policy or pure funded fiscal deficits as a means of stimulating nominal demand:

- Compared with the monetary policy options considered in Section 5 it is more direct and certain in its first order effect. Monetary, credit support, and macro-prudential policy levers work through the indirect mechanism of stimulating changes in private sector borrower and investor behaviours, and may therefore be ineffective if behaviour is driven by deleveraging during a “balance sheet recession”. OMF, because it finances an increased fiscal deficit, results in a direct input to what Friedman labelled “the income stream”. As Bernanke notes, this means “that the health of the banking sector is

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<sup>21</sup> Bernanke assumes here, as do most accounts of central bank money creation and resulting seignorage, that base money is non-interest bearing whether or not it takes the form of notes and coins or of central bank reserves. In fact in the UK the current practice is that commercial bank reserves at the Bank of England are remunerated at Bank Rate. As a result if the Bank of England financed an increased deficit with created reserves, and if it continued to remunerate all of those reserves, there would be a “debt service” cost for the combined government/central bank equal to the rate of interest on reserves, which would increase when and if the Bank Rate rose. The practice of paying Bank Rate on all reserves at the Bank of England can however be changed, and such a change would be natural complement to an OMF operation.

<sup>22</sup> Note that the seignorage benefit of the ability to create pure fiat money can arise in (at least) two specific accounting forms. Thus either (i) the government can issue interest bearing debt, and the central bank can buy and hold this in perpetuity (rolling over into new government debt if the existing debt on its balance sheet reaches maturity). In this case the government will face a debt interest servicing cost: but the central bank will make an exactly matching profit from the difference between the interest rate it receives on its debt and the zero cost of its money liabilities: and the central bank would then return this profit to the government or (ii) it would be possible to structure a permanent money finance operation, while still making the central bank’s balance sheet balance in accounting terms, by having the central bank “buy” a government security which was explicitly non-interest bearing and never redeemable. In terms of the fundamentals of money creation and government finance, the choice of these two routes makes no difference. It might however have signalling or political economy implications.

irrelevant to this means of transmitting the expansionary effects”, making concerns about “broken channels of monetary transmission” irrelevant.

- But unlike the funded fiscal policy stimulus considered in Section 6, the stimulative effect of a money financed increase in fiscal deficit will not be offset by crowding out or Ricardian equivalence effects, since no new interest bearing debt needs to be publicly issued, and no increased debt burden has to be serviced in future.

As a result, OMF is bound to be at least or more stimulative than an increase in funded fiscal deficits. As Friedman put it in 1948 *“the reason given for using interest bearing securities [i.e. for running a funded fiscal deficit] is that in a period of unemployment it is less deflationary to issue securities than to raise taxes. That is true. But it is still less deflationary to issue money”*

Essentially therefore OMF is a combination of fiscal and monetary policy levers (EXHIBIT 4)<sup>23</sup>; and the fiscal aspect of its character seems to make it quite distinct from QE which is unaccompanied by increased fiscal deficits and is intended to be reversed at some future date.

The distinction between standard QE and OMF is, however, less absolute than first appears, and resides only in the expectations which exist as to future policy. Thus:

QE may turn out post facto to be permanent (though perhaps not overt) money finance. Conventional QE involves the purchase of government bonds by the central bank which pays with central bank reserves i.e. with base money. The stated intent in such operations is that at some future time the QE will be reversed, the central bank selling back bonds and withdrawing reserves<sup>24</sup>. In fact, however, it is neither necessary nor certain that that will occur:

- There is no necessity of “exit”, since the central bank balance sheet might stay permanently bigger in nominal terms. And the central bank should decide whether or not to exit in future, not on the basis of some non-existent necessity, but on the basis of whether exit (i.e. sale of bonds and withdrawal of reserves) is required at each future date to achieve the central bank’s inflation rate (or other) targets<sup>25</sup>.
- As a result, there is no certainty that exit will actually occur, and a possibility that QE will turn out post facto to have amounted to permanent money finance

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<sup>23</sup> In a speech in October 2012 Mervyn King commented that *“the advocates of helicopter money and related ideas are really talking about a relaxation of fiscal policy. It would be better to be open about that”*. He was quite right to insist that OMF is a variant of fiscal policy stimulus. But it is importantly different in its likely effects, and in particular in its possible implications for long-term public debt sustainability, than funded fiscal stimulus

<sup>24</sup> Note that even when QE operations are actually reversed they may result in a (relatively small but still material) element of permanent money finance of the fiscal deficit, since seignorage profits may be earned during the period in which government bonds are held, and will be subsequently remitted to the government. The recent transfer from the Bank of England to the UK Treasury of cash balances accrued in the course of the Bank’s QE operations may turn out to be an example of this effect.

<sup>25</sup> If the bonds held by the central bank reach maturity during the course of a QE operation, the central bank of course needs to reinvest the money received from the government in the purchase of other government bonds to maintain an unchanged policy stance.

of a part of fiscal deficits. From the early 1940s to 1951, the US Federal Reserve conducted open market operations designed to ensure that the long-term interest rate remained at 2.5% whatever the size of the fiscal deficit. As a result the monetary base increased (EXHIBIT 31). Following the 1951 Federal Reserve-Treasury accord, this policy ceased. But there was no “exit”, no reversal: the monetary base ceased rising in nominal terms but it did not reduce and such stabilisation rather reduction proved compatible with a return to low inflation. Post facto, a significant proportion of US fiscal deficits from the early 1940s to 1951 was money financed: formally at the time, they were financed with interest bearing debt which the Federal Reserve bought in what we would now call QE operations.

All QE operations therefore carry within them the contingent possibility that they will turn out post facto to have been (in part or whole) permanent monetisation: and that this may be an appropriate policy. The gross debts of the government of Japan, after netting out holdings by the Japanese government amount to 200% of GDP: of this 200%, around a sixth (i.e. 31% of GDP) is held by the Bank of Japan (EXHIBIT 32). Whether this debt exists in any meaningful economic sense, or whether an element of Japan’s past fiscal deficits has been de facto money financed, is a moot point. (See Section 8 for further discussion of this issue.)

Conversely, apparently permanent OMF could if necessary be reversed or offset by other means. Indeed, Friedman (and Simons) explicitly envisaged that at times it would be, with fiscal surpluses resulting in the withdrawal of base money, just as fiscal deficits result in its issuance. And while this would be the only way to offset too rapid growth of nominal demand in the 100% reserve banking world which Friedman and Simons envisaged, in a world of fractional reserve banks the potentially inflationary effect of too much OMF could be offset with new (or rather old ) macro-prudential policy tools. In such a world there are risks that the initial direct impetus to nominal demand induced by a tax cut of the sort which Bernanke described, might be multiplied in future if banks with increased holdings of central bank reserves subsequently created additional private debt and money<sup>26</sup>. But if the central bank/macro-prudential authorities were equipped with tools such as minimum reserve requirements<sup>27</sup>, that danger could be offset when it arose. As Carmen Reinhart and Kenneth Rogoff have argued in a recent paper (Reinhart and Rogoff, 2013) and as Jeremy Stein has also proposed (Stein, 2012) effective macro demand policies may well require us to revive tools focused directly on the quantity of private debt and money creation which were rejected in the pre-crisis orthodoxy.

Thus it is possible that QE described as temporary will turn out to be permanent, and that OMF described as permanent, can be made temporary or offset by other policy tools.

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<sup>26</sup> This of course means that the empirical estimation of the nominal demand impact of any OMF is much more complex in a world with fractional reserve banks than in the illustration of Friedman’s proposal presented in Section 2

<sup>27</sup> As discussed in Footnote 6, variations in capital requirements can also be used to constrain bank creation of private debt and money. The precise impact of these will depend on the extent to which banks are able to raise or earn new equity capital to offset increased required ratios. There could therefore be strong arguments, for considering also the use of quantitative reserve requirements, which more directly control the quantity of potential private debt and money creation.

The differences between QE and OMF are not therefore as absolute as first appears, but reside in two factors:

- OMF is accompanied with an overt increase in the fiscal deficit, while QE is not
- OMF is accompanied with a statement of current intent that it should be permanent: QE with a statement of intent that it should be temporary. Given the role that expectations of future policy action may play, such statements of current intent are likely important even if neither can absolutely bind future policy actions.

### **(ii) OMF stimulus without harmful inflation: clearly technically possible**

OMF is the most certain means by which to stimulate nominal demand. As Willem Buiter puts it “*the issue of irredeemable fiat base money, the proper combination of monetary and fiscal policies, can almost always... boost aggregate demand*”. (The circumstance that requires the addition of the condition “almost” is the possibility of “*perverse future policies of (future reversals of current expansionary monetary policies)*”) (Buiter 2004)

It might also be in some circumstances be the only policy capable of stimulating aggregate nominal demand, since there could exist circumstances in which both

- Purely monetary policy options are made powerless by liquidity trap and balance sheet recession effects. This would most likely be the case in the face of deleveraging after a build-up of excessive private debt levels
- Funded fiscal stimuli are made powerless by crowding out and Ricardian equivalence effects. This would most likely arise when government debt levels are already high relative to GDP.

There is, moreover, no inherent technical reason (as against political economy reason) to believe that OMF will be more inflationary than any other policy stimulus, or that it will produce hyperinflation

- It is no more inflationary than other policy levers provided the “independence” hypothesis holds (EXHIBITS 5 and 6). If spare capacity exists and if price and wage formation process are flexible, the impetus to nominal demand induced by OMF will have a real output as well as a price effect, and in the same proportion as if nominal demand were stimulated by other policy levers. Conversely if these conditions do not apply, the additional nominal stimulus will produce solely a price effect whether it is stimulated by OMF or by any other policy lever.
- And the impacts on nominal demand and thus potentially on inflation will depend on the scale of the operation: a “helicopter drop” of £1bn would have a trivial effect on nominal GDP: a drop of £100bn a very significant effect and as a result create greater danger of inflation. And if the stimulative effect of OMF subsequently proved greater than anticipated or desired, it could be offset by future policy tightening, whether in the extreme form of Friedman’s

“money withdrawing fiscal surpluses” or through the tightening of bank capital or reserve requirements.

The idea that OMF is inherently any more inflationary than the other policy levers by which we might attempt to stimulate demand is therefore without any technical foundation.

### **(iii) OMF, fiat money and political economy risks**

But while the use of OMF is clearly technically compatible with sustained low inflation, there are strong political economy reasons for treating OMF as a potential poison, as Friedman recognised in his 1948 article.

*“The proposal has of course its dangers. Explicit control of the quantity of money by government and the explicit creation of money to support actual government deficits may establish a climate favourable to irresponsible government action and to inflation”.*

Thus while OMF can be valuable and beneficial when used in contained quantities, there is a danger that once politicians and electorates understand that it is possible, they will want to use it in excessive amounts and in the many circumstances when it is not justified as well as the specific circumstances where it is.

Governments respond to popular demands and seek to win elections. If they feel free to run money financed fiscal deficits and face inflationary consequences later, the temptation to do so will be huge. The history of fiat money is replete with examples of that temptation leading to hyper-inflation – from John Law’s money printing in early eighteenth century France, to the hyper inflation of Weimar Germany and of Zimbabwe in recent years.

It is for fear of such consequences, that the prohibition of money financed deficits has gained within our political economy the status of a taboo, a policy characterised not merely as in many circumstances and on balance undesirable, but as something we should not even think about let alone propose.

This taboo is buttressed by assertions that OMF is in some sense “impossible” as well as undesirable, and by a coy unwillingness to mention OMF overtly, even when economists are de facto proposing a variant of it.

- Thus arguments are sometimes advanced that OMF operations are impossible since they would result in a threat to central bank solvency. In fact such threats are more likely to come from reversible and reversed QE operations than from overtly permanent money finance.<sup>28</sup>

But, more fundamentally, such arguments fail to recognise that central banks, as Bernanke said, “*cannot go bankrupt in the sense that a private bank can*” and that “*the usual reasons that a commercial bank holds capital ... do not*

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<sup>28</sup> When a central bank conducts and then reverses a QE operation, it may suffer an accounting loss due to movements in the price of the bonds held between purchase and sale period if an OMF operation is structured in the fashion described by option (ii) within Footnote 22, no such capital loss can result.

*directly apply to the BoJ*” (or any other central bank) (Bernanke 2003). As Willem Buiter has pointed out it would be technically possible for a central bank to run quite effectively with negative accounting equity (Buiter 2012). Central banks’ solvency constraints are not absolute technical limits but political economy “commitment devices” designed to place the creation of fiat money within tight limits. That does not make them any less important: while a central bank could in fact run on permanently negative equity it is very useful for us to pretend that it cannot. But we need to recognise this constraint for what it is.

- And policy proposals which are de facto close to or fully equivalent to OMF, often avoid making that clear. Thus
  - DeLong and Summers argue that fiscal multipliers are now high because we can assume that the Federal Reserve will maintain close to zero interest rates and QE purchases in the face of whatever deficit the government runs. This is very close to an argument for money finance of a fiscal deficit. But the possibility that it will amount to OMF post facto (the Federal Reserve balance sheet staying permanently higher) is never explicitly recognised in their paper.
  - And while Woodford’s 2012 paper ends with something very close to an argument for OMF, the language stops just short of explicitness. Woodford is concerned by the potential ineffectiveness of the sort of monetary or macro-prudential levers described in Section 4 which work indirectly through, for instance, portfolio rebalancing (“preferred habitat”) effects. He therefore argues for “*policy actions that should stimulate spending immediately without relying too much on expectational channels*”. He argues that “*the most obvious source of a boost to aggregate demand that would not depend solely on expectational channels is fiscal stimulus*”: and he discusses the need to be clear that some part of “*the increase in base money is intended to be permanent*”. But he never quite says that he is essentially repeating Bernanke’s call for an overt money financed increase in the fiscal deficit.

Even when it is effectively proposed, overt money finance is the policy that dare not speak its name.

OMF therefore maintains its taboo status – and there are good political economy reasons for why that is so. But if it is also the case that

- there exists some circumstances in which OMF is the only effective way to stimulate nominal demand
- and other circumstances in which it might stimulate nominal demand with less adverse side-effects than alternative available policies (purely monetary or purely fiscal)
- ... then it could be harmful to make the taboo too absolute.

The challenge is therefore to take the possibility of OMF out of the taboo box, to consider whether and under what circumstances it can play an appropriate role, but to ensure that we have in place the rules and institutional authorities which would constrain its misuse. In a paper prepared for the Norges Bank centenary project, Stefano Ugolini argued that “*monetisation should not necessarily be seen as an evil, but rather than as an option to be subject to benefit cost analysis*”. It must also be subject to clearly defined disciplines to guard against political economy risks.

#### **(iv) Containing OMF through rules and central bank independence**

Central bank independence is perceived to be under threat. Stephen King, Chief Economist of HSBC, wrote recently in the Financial Times that “the era of central bank independence is coming to an end”. And in Japan, the new government of Shinzō Abe has not only imposed on the Bank of Japan an explicit inflation target (which in itself would still be fully compatible with central bank operational independence) but demanded BoJ commitment to specific actions in pursuit of that target which come very close to monetisation of government debt.

Central bank independence, and the commitment device constraints (such as positive accounting solvency) that limit central bank action, are often perceived as absolutes fixed permanently over time. But as Paul McCulley and Zoltan Pozsar point out in a recent paper (McCulley and Pozsar 2013) the extent of central bank independence and the tools that they routinely use have changed over time. In particular they argue compellingly that both the appropriate role of central banks and the role that they will inevitably play changes between leveraging and de-leveraging periods (EXHIBIT 33)<sup>29</sup>.

From 1919 to 1929 private leverage levels in the US soared. This was followed by a 15 year period of falling leverage, and then in turn by a long upswing in private sector leverage from the late 1940s to 2008, with an acceleration in the final few decades before the crisis. We are now in an era of attempted private deleveraging (EXHIBIT 34).

During the long upswing of leverage, potential private credit demand creates circumstances in which that demand is, at least to a degree, elastic in response to changes in the interest rate. The “pull” of interest rate rises could therefore be used, at least to a degree, to contain demand and the release of that pull tended to increase it.

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<sup>29</sup> An interesting account of a changed approach within the career of one central banker is provided in a recent paper by Thorvald Moe, which considers the themes and policy actions of Marriner Eccles, Federal Reserve Board Chairman for 1934-48. Eccles is sometimes seen as inconsistent in being a believer in fiscal/monetary coordination, and in encouraging the fiscal deficits and the easy monetary policy which amounted to de facto monetisation in the 1930s and the early stages of WWII, but having subsequently being a key mover in the arguments for Federal Reserve independence which led to the Accord of March 1951. But as Moe persuasively argues, Eccles was not inconsistent at all, but appropriately reflecting different circumstances, including in particular the emergence post-1945 of rapid private credit growth. Like Simons, Fisher and Friedman indeed, Eccles believed that an understanding of the dynamics of banks’ abilities to create credit (rather than simply to intermediate existing money into loans) was fundamental to an understanding of macro economics and to the appropriate policy response, and that “laissez faire in banking and the attainment of business stability are incompatible”. (Moe 2012)

In this environment the relationship between central banks and governments evolved to a particular pattern of institutional independence, target definition and policy tools used.

- Gradually over time it became clear that control over inflation required monetary discipline, and that a determined and independent monetary authority could in turn indirectly impose discipline on fiscal policy, since otherwise increased deficits would simply translate into increased real interest rates. Key steps in this process in the US were the 1951 Federal Reserve-Treasury Accord, and Paul Volcker's early 1980s willingness to take interest rates to whatever level was required to contain inflation.
- Increasingly over time central banks were given formal mandates to achieve "price stability" and in many cases to pursue defined low, positive and symmetric inflation targets.
- And increasingly central banks relied exclusively on the use of short-term policy interest rates to manage nominal demand, eschewing the use of quantity focused levers (e.g. reserve requirements or direct credit controls) which had been common in previous years.

This combination of roles, targets and tools appeared to work well. In fact in one crucial sense it did not: it failed to recognise that leverage was itself a key financial and macro stability variable: it allowed the steady buildup of real economy and financial sector leverage which culminated in the crisis of 2007 to 2008. This lack of any macro-prudential focus was a fatal flaw.

But at least in respect to the relationship between fiscal and monetary authorities, the arrangements fitted the context well, and underpinned the achievement, after the stagflation years of the 1970s, of sustained low and stable inflation compatible with reasonable steady growth.

But as McCulley and Pozsar suggest, the circumstances created by balance sheet recessions and deleveraging – in the 1930s, in Japan in the 1990s and in much of the developed world today, create a quite different context. Reductions in short-term policy rates to the zero bound are ineffective in stimulating demand of credit: they become attempts to "push on a string". QE operations combined with commitments to future reversal may also be subject to declining marginal impact. In these circumstances, McCulley and Pozsar argue, appropriate policy will need to migrate towards the quadrant of their map marked "helicopter money" i.e. overt permanent money finance (EXHIBIT 35). And they argue that not only will central banks do so but that they should do so, since without such a stimulus depression will result.

As a statement of what has occurred historically and will occur this is convincing. And arguably it is a compelling statement of what should occur. Appropriate policies and institutional roles should be contingent on the circumstances; and the circumstances of a long deleveraging phase are quite different from those of the leveraging upswing. Monetisation is not inherently evil, but a potentially necessary tool in these circumstances.

As Bernanke said in 2003. *"It is important to recognise that the role of an independent central bank is different in inflationary and deflationary environments."*

*In the face of inflation, which is often associated with excessive monetisation of government debt, the virtue of an independent central bank is its ability to say “no” to the government. [In a liquidity trap], however, excessive money creation is unlikely to be the problem, and a more cooperative stand on the part of the central bank may be called for. Under [some circumstances] greater cooperation for a time between the central bank and the fiscal authorities is in no way inconsistent with the independence of the central bank.”*

But that still leaves the question: how exactly should this coordination work: what rules should constrain central banks and governments in this new environment? If we accept that fiscal and monetary policy coordination is required, and that the absolute taboo against overt permanent monetisation should be set aside, how do we ensure discipline against too much money creation?

Past examples of de facto monetisation – such as the USA in the 1940s – were indisciplined. The government ran whatever deficit was required to pay for war expenditure, and the Federal Reserve was required to buy whatever volume of bonds was required to keep interest rates at a continually low level. Acceptable as war time necessity, such indiscipline cannot be the basis for a peace time policy regime.

Any use of the extreme option of OMF should therefore be placed within the same constraints of central bank independence and clear rules that constrain the use of existing monetary tools. As Mervyn King has said *“it is important to distinguish between “good” and “bad” money creation. “Good” money creation is where an independent central bank creates enough money in the economy to achieve price stability. “Bad” money creation is where the government chooses the amount of money that is created in order to finance its expenditure”* (King 2012).

This principle, applicable to the decisions about temporary monetisation – i.e. QE – can as well be applied to overt and permanent money finance.

- Thus it would be possible and desirable to give to an independent central bank the sole ultimate authority to determine what level of OMF (i.e. of increased fiscal deficit financed by money) it considered compatible with the pursuit of whatever target (inflation or, temporarily, NGDP) it was mandated to achieve.
- And it would be possible, as Samuel Brittan has suggested, to buttress this with a rule that the amount should not exceed that element of the fiscal deficit which is cyclical, as determined by a wholly independent body (such as in Britain the Office of Budget Responsibility).

An alternative approach, would be to limit the allowable use of OMF to operations which of their nature are clearly one-off and which are focused not on immediate nominal demand stimulus, but on the creation of a sounder and significantly less leveraged banking system. Such an approach could entail a requirement by the macro-prudential authority that capital ratios must be significantly increased. This would be combined with a fiscal backstop of government recapitalisation in the event that private equity was not forthcoming, but with that specific slice of fiscal expenditure financed not by newly issued interest bearing debt, but by permanent

central bank money. Such a plan would bear some similarities to the Chicago plan presented by Simons and others to Roosevelt in 1934<sup>30</sup>.

Let me stress however that my aim in this lecture is not to propose any one specific scheme for the use of OMF, but to stress the importance of debating the options. For the danger if we do not debate how to place the use of overt money finance within defined rules and authorities, is that we may end up deploying it in response to short-term political pressures, and not subject to the rules and independent authorities which will constrain its excessive use.

We need to debate how to use this potentially powerful medicine and how to discipline and constrain its use, in order to make it less likely that it will end up being used in poisonous quantities.

#### **(v) OMF as a policy option**

OMF, as Buiter has said, is the tool that will almost always stimulate nominal demand. Governments and central banks together never run out of ammunition to stimulate nominal demand. And in some extreme circumstances – those in which there is a simultaneous and significant fall in both the price level and real output – it is unambiguously clear that OMF would be the best policy, and in some circumstances may be the only policy available to prevent continual deflation.

- If Herbert Hoover had known in 1931 that OMF was possible, the US Great Depression would have been less severe.
- If Germany's Chancellor Brüning had known then that it was possible the history of Germany and of Europe in the 1930s might have been less awful. Hitler's electoral breakthroughs from a 2.6% vote in the elections of May 1928 to 37.4% in the election of July 1932 were achieved against a backdrop of rapid price falls not inflation.
- And while Japan's deflationary experience of the last 20 years has been far less severe than that of the 1930s, (as a result, Koo argues, of fiscal deficits that were effective despite being funded) there is a very strong case that Bernanke was right and that if Japan had deployed OMF 10 or 15 years ago, it would be in a much better position today, with a higher price level, a higher level of real GDP, and a lower government debt burden as a % of GDP, but with inflation still at low though positive levels. And it is possible that there are no other policy levers that could have achieved this.

In other circumstances the case for deploying OMF is less clear and the other policy options may be sufficient to escape deflationary traps. Pure funded fiscal policy may be effective, particularly if the government debt to GDP level is initially low. Monetary policy, credit support and macro-prudential levers of the sort described in Section 5 may be effective, particularly if long-term interest rates have not yet reached the

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<sup>30</sup> The Chicago Plan aimed indeed at a one off transition to the 100% reserve model which Simons and others preferred. In a recent IMF Working Paper issued in August 2012, entitled 'The Chicago Plan Revisited' Jaromir Benes and Michael Kumhof have argued that a transition to a 100% money banking system is both desirable and possible, and that it could and should be accompanied by a dramatic write-down of existing household debts, removing in one fell swoop the vulnerability to financial and macroeconomic instability created by high levels of household leverage

extremely low levels reached in Japan and if the economy does not face absolute price deflation.

In such circumstances an argument could be made for excluding OMF options from consideration, given the political economy risks which the use of OMF entails. OMF might be technically attractive but too politically risky to use if not essential.

Even in circumstances where non-OMF tools might be sufficient to drive eventual recovery from recession however, excluding the option of OMF may carry serious disadvantages, given the potential long-term adverse side-effects of alternative approaches. There is therefore I believe a good case for debating explicitly the pros and cons of all alternative policies.

Consider, for instance, the two alternative policy options illustrated in EXHIBIT 36.

- The first option involves large volumes of quantitative easing, let us say in the many £100bns range, together with a Funding for Lending Scheme and a relaxation of bank liquidity and capital standards. It aims to work through the indirect channels of stimulated credit growth (operating on both supply and demand levers) and through portfolio rebalancing and wealth effects which depend on asset price increases. It probably commits us to many years of very low interest rates. It carries within it the contingent possibility that some of the QE will never be reversed, but the sheer scale of the QE makes it likely that a significant part will have to be reversed (or mopped up by other mechanisms such as increased reserve requirements) to prevent future excess inflation<sup>31</sup>. The stated intention is full reversal.
- The second option is OMF. It seeks to stimulate demand directly by putting money into individuals' or firms' pockets, whether by tax cuts or by increased public expenditure. In quantity it would be far smaller – perhaps several £10bns rather than £100bns. But the clearly stated intent would be that this increase in the monetary base would be permanent and never reversed. Mopping up would be possible, however, through the use of bank reserve requirements, if such a permanent stimulus proved too great. If successful, it might well have a more immediate effect than option 1, and might speed the return to more normal interest rates. But if it generated the fear that OMF once deployed would be repeated and increased, it might generate expectations of high inflation which would bias the impact of nominal demand increase towards an inflationary effect.

Which of these two policies would be most likely to stimulate demand without either excessive medium-term inflation or adverse long-term side-effects on financial stability? The answer should be based on detailed analysis using best available models to estimate first and second order effects. I do not know what the answer

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<sup>31</sup> Michael Woodford discusses the problem that can be created by QE operations of this size. He suggests that a commitment permanently to increase the monetary base may be essential to communicate future central bank intent, “*but that the kinds of large increases in the monetary base associated with Quantitative Easing in Japan or with the Fed’s recent programmes do not suggest particular expectations about future policy in the same way: the expansions have been too large for any plausible suggestion that they are intended to be permanent, nor is the size of the expansion tied in any obvious way to any aspect of the central banks’ future targets that one might be trying to signal*”. (Woodford 2013)

would be. And it would depend on specific circumstances varying between countries and across time. But I think we should at least ask the question.

## **8 POSSIBLE IMPLICATIONS BY COUNTRY: SOME INITIAL THOUGHTS**

My main purpose in this lecture is not to propose policies relevant to today's circumstances in specific countries, but to explore theoretical points relevant to policy in an era of deleveraging and potentially depressed private demand. But let me very briefly suggest some possible implications or some considerations that need to be taken into account. These are

- Japan: Bernanke was right.
- US: The current policy mix is reasonably successful and may post facto amount to OMF, but admitting so openly may simply make the politics more difficult.
- Eurozone: Optimal policy is blocked by an incomplete currency union: fiscal and monetary policy coordination requires some fiscal federalism.
- UK: OMF, but also other demand stimulative policies, may be least applicable in this economy, given apparent supply restraints.

### **(i) Japan: Bernanke was right**

Bernanke was right. Japan should have done some OMF over the last 20 years, and if it had done so, it would now have a higher nominal GDP, some combination of a higher price level and a higher real output level, and a lower debt to GDP ratio.

This would have placed Japan in a much better position than it now finds itself. Koo may be right that, absent such a policy, Japan's large funded fiscal deficits were essential to avoid still greater deflation and outright depression. But these deficits have led to a level of government debt as a % of GDP which is unsustainable.

Japan's real growth rates will inevitably be slow – because of demographics and because it is already at the technological frontier. Given this slow growth, and given continuing fiscal deficits, debt of 200% of GDP is not repayable. The IMF Fiscal Monitor of October 2012 set out scenarios for the fiscal consolidation required in different countries to meet, by 2030, benchmarks of fiscal sustainability. For Japan it set a lower benchmark (80% debt to GDP) versus 60% for other countries, and it focused on net debt not gross (EXHIBIT 37). Even with these less stretching assumptions, the scenario is simply not credible – it would require Japan to move from an 8% primary deficit today to a 13% primary surplus by 2020. This will not occur: and if attempted would drive the Japanese economy back into deep recession. Japan's government debt will eventually be either monetised or re-structured: it will not be repaid in the normal sense of the word.

One possible optimistic counter to this argument is to recognise that in some senses the debt may already have been monetised. Japanese net debt to GDP after government and social security holdings is 200% (EXHIBIT 32). But of that around a sixth (31%) is owned by the Bank of Japan, which in turn is owned by the government. And a further 46% is owned by the Post Bank, which is also owned by

the government. In some senses this part of the debt has been de facto financed by the non-interest bearing money accounts which Japanese customers hold at the Post Bank (EXHIBIT 38). Japan therefore has the potential to perform accounting exercises that simply recognise the already existing reality that some of its fiscal deficits have been monetised, without changing the cash asset which Japanese individuals hold.

But even after allowing for these effects, Japan's non-money financed debt burden is also relentlessly rising, and will continue to do so unless the government achieves its 2% inflation target and a faster rate of nominal GDP growth. To achieve that may require overt money finance. But the danger is that the level of OMF now required to reduce debt to GDP ratios may be so high that it would result in unacceptably high inflation.

Japan therefore illustrates three points

- There exists some circumstances in which OMF is essential to adequately stimulate nominal demand.
- The issue of new tools is as important as new targets. If Japan had simply set 15 years ago a positive and symmetric inflation target, and used all available tools to achieve it, it would be in a better position. No shift to a less conventional target, such as nominal GDP, was required.
- And if there are conditions in which OMF will eventually be required, it would be better to deploy it early and in small amounts, than to allow fiscal debt as a % of GDP to accumulate to unsustainable levels.

## **(ii) The US: Already doing OMF?**

The US has been the most successful of the four major economies over the last four years. It has the highest rate of nominal GDP growth (EXHIBIT 39) and it has had by far the strongest recovery in real GDP (EXHIBIT 40)

Its policy mix has entailed (at least until now) a combination of large fiscal deficits combined with a monetary policy stance which, as per DeLong and Summers' analysis, offsets any dangers of crowding out effects and which thus increases the policy-relevant multiplier.

And it may turn out post facto that the QE monetisation is permanent, with the Federal Reserve balance sheet (as after 1951) falling as a % of GDP but simply stabilising (rather than falling) in nominal terms. If that does occur, some or all of QE will turn out post facto to have entailed money finance of fiscal deficits.

But while to point that out might add intellectual clarity, it might also complicate already fraught political debates. In which case, continuing with a policy that dare not speak its name may be the most sensible approach.

## **(iii) Eurozone: Optimal policy blocked by incomplete currency union.**

The Eurozone has performed much less well than the US since the 2009 trough. It has had a much lower real growth rate and significantly lower nominal GDP growth. With nominal GDP growing at only around 2% per annum there is a prima facie case

that more rapid growth in aggregate nominal demand could be beneficial, even if long-term structural supply side impediments to growth are also important in some countries.

But the ability to conduct even classical QE (let alone to consider overt money finance) is hugely complicated by the Eurozone's peculiar character – a single currency zone in which almost all fiscal decisions and all fiscal debt resides at what Charles Goodhart has labelled “subsidiary sovereign” (i.e. national) level (Goodhart 2011). As a result

- Any QE operation by the ECB raises distributional and incentive issues not present in a unitary fiscal/monetary system. ECB purchases of Spanish and Italian government, for instance, would be equivalent to Federal Reserve purchases of say Illinois or California debt
- And while it would be possible to find ways around this challenge (e.g. the purchase by ECB of the debts of all Eurozone members in line with some agreed proportion system) decisions about the appropriate proportion (e.g. relative to size of GDP or to debt outstanding) would be difficult to depoliticise.

In addition the ECB is constrained by particularly tight legal restrictions on its ability to conduct monetary finance, whether temporary or permanent

- In practice there is flexibility around these constraints. The distinction between a central bank buying bonds direct from governments (primary market finance) and buying existing bonds in secondary markets is not fundamental in economic terms. And the sterilisation actions which the ECB insists it takes if and when it conducts bond purchases, may well have less implications than first appears. As Paul McCulley has pointed out *“to be sure, the ECB stresses that it is sterilising the creation of reserves, quickly pulling those reserves out of the system in exchange for term deposits on itself. Thus, technically, the monetary base is left unchanged. But as a practical matter, reserves and term deposits are both newly created ECB liabilities that are very close substitutes”* (McCulley 2010).
- But even if that is true, the ECBs political freedom/willingness to use its full capabilities is constrained by concerns about the political economy consequences. In a complex multi-state polity, and with divergent economic interest between the different subsidiary sovereign states, the difficulty of ensuring that OMF is placed within the necessary tight disciplines discussed in Section 7(iv) would be extreme. Within the Eurozone political construct, the case for keeping OMF in the taboo box remains strong.

The danger remains, however, that the constraints created by the existing structure will induce a severe deflationary bias to policy, with attempted public deleveraging in high deficit / high debt states depressing nominal GDP to an extent that makes deleveraging in effect impossible. DeLong and Summers' argument that policy relevant fiscal multipliers are high in an environment where the central bank policy is an exogenous given, applies still more forcefully in the context of subsidiary sovereign states which cannot set their own monetary policy.

The attainment of optimal policy is therefore severely constrained by structural deficiencies within the Eurozone project. The required first steps in resolving these deficiencies, difficult enough in themselves, entail the achievement of not only of a banking union, but of some degree of limited fiscal federalism, with some small but still significant revenues/expenditures at federal level and the creation of some variant of Eurobonds.

#### **(iv) UK: Supply constrained as much as demand?**

And finally the UK. Here I suggest two reasons for considerable caution about using unconventional measures to stimulate nominal demand.

- The first is that since the UK is both the smallest of these four economies, and therefore inevitably the most open (i.e. the highest level of exports and imports as a % of GDP) it is both:
  - the one where extreme policy levers ought to be least necessary given that it has the greatest potential to adjust via external exchange rate movements
  - and the one where there is the greatest danger that an expectational channel (see EXHIBIT 6), would bias the division of  $\Delta$  NGDP towards a price rather than real output effect. If OMF today were perceived as unleashing a political risk of excessive OMF in future, an exchange rate/inflation cycle might be created.
- The second is that the UK is the economy where it is least certain that the fundamental problem is one of demand (deficient nominal GDP growth) rather than supply. EXHIBIT 41 shows for the US, the Eurozone and the UK the division of nominal GDP growth since the depth of the 2009 recession, between the price effect (the GDP deflator) and real GDP. EXHIBIT 42 then illustrates the share of  $\Delta$  NDGP accounted for by the price effect and by the real output effect in the three zones. The UK division is the least favourable – with more of the impetus of increased nominal GDP turning simply into higher prices rather than real output.

It may still be a reasonable judgement that the UK suffers from deficient nominal demand. But EXHIBIT 42 suggests the need to focus on supply factors as well. So too does the only small beneficial impact which the sterling depreciation of 2009 appears to have had on the UK's net export performance.

The explanation for this phenomenon may be that the sectoral imbalances induced by the UK's over reliance on financial sector growth, has left non-financial traded sectors (in particular manufacturing) so weak that the economy cannot now respond strongly to nominal demand stimulus. That could suggest that in choosing policy levers which stimulate nominal demand, we should also focus on their potential impact on supply capacity (EXHIBIT 7). Achieving success in such focus is however notoriously difficult.

## **9 CONCLUSIONS**

Section 8 set out some tentative thoughts on the implications of my analysis for policy in specific countries. But as I stated earlier, my key concern in this lecture is

not to comment on specific current policy issues, but to arrive at general conclusions about the required relationship between financial stability and macro-demand oriented policies, and in particular about the implications for appropriate macro-demand policies arising from the deleveraging which follows a financial crisis.

I suggest nine key conclusions.

1. Leverage and the credit cycle matter a lot.
  - The level of leverage in both the real economy and the financial system are crucial variables which we dangerously ignored pre-crisis.
  - ... future macro-prudential policy should reflect a judgment on maximum desirable levels of cross economy leverage, as well as on desirable growth rates of credit. A wide range of policy levers may be required to contain leverage.
2. Banks are different: the arguments for free markets – strong in other sectors of the economy – do not apply: private credit and money creation are fundamental drivers of both financial and macroeconomic instability and need to be tightly regulated.
3. Financial crises that result from excess leverage are followed by long periods of deleveraging which depress nominal demand, and which change fundamentally the context within which appropriate macro-demand policy must be designed and implemented.
4. In that context there is a good case for a temporary shift away from a pure inflation rate target: state contingent policy rules such as currently applied by the Federal Reserve, or a policy target which for a period of time takes account of nominal GDP growth rates or levels have attractions.

.... but simply changing the targets without also changing policy tools, may in some circumstances be insufficient to ensure optimal policy.
5. In a deleveraging cycle, monetary policy levers alone – whether conventional or unconventional – may be insufficiently powerful and / or have adverse long-term side effects for financial stability. If we got into this mess through excess private leverage we should be wary of escape strategies that depend on creating more private debt.
6. Fiscal multipliers are likely to be higher when interest rates are at the zero bound, and when monetary authorities are pre-committed to accommodative policy in future.

... but long term debt sustainability must be recognised as a significant constraint.
7. Governments and central banks together never run out of ammunition to create nominal demand: overt permanent money finance (OPMF) can always achieve that and is the only policy lever certain to do so.

... and in some circumstances OPMF may have fewer adverse side effects than the use of pure monetary policy levers (conventional or unconventional)

... and in technical terms OPMF carries no more inflationary risks than other policy levers.

8. But the political economy risks of OPMF are very great.

... strong disciplines and rules are therefore essential to ensure that excessive use does not turn OPMF from a useful medicine to a dangerous poison.

... but such disciplines and rules, based on independent central bank judgement and clear inflation or other targets, can be designed.

9. We should therefore cease treating overt money finance as a taboo subject.

... and if we continue to do so, we increase the danger that overt money finance may be deployed too late to be effective or safe, or deployed in an undisciplined fashion, increasing the long term risks to financial and macro-stability.

## 10 MEPHISTOPHELES, MONEY AND DEBT

So finally then, what should we conclude about Mephistopheles, Money and Debt? For Jens Weidmann, the implication of Faust Part 2 is clear. After a pleasing but passing upswing of rising consumer demand and falling state debt *“all this activity degenerates into inflation, destroying the monetary system because the money rapidly loses its value”*.

But Weidmann’s stress on the negative consequence of Mephistopheles’s monetary experiment has been challenged, and by someone who speaks with considerable authority. Professor Harold James of Princeton University is one of the world’s pre-eminent economic historians and a leading expert on inter-war German economic history (James 1986). He is also a man steeped in knowledge of German history and literature. And in a short article entitled “Germany should re-read Goethe’s Faust Part 2” (James 2012) his take on the consequences is a bit more positive (EXHIBIT 43).

*“Everything in the empire improves as a consequence of the introduction of paper money. The generals are pleased because the soldiers are paid once more, the treasurer finds that he can pay off all the debts, tailors are busily making new clothes, ladies become more willing to embark on well paid romantic adventures”*.

So that while there are undoubtedly subsequent consequences which, in the wake of our own crisis, we would recognise as warning signs – *“the property market booms and simpletons can buy big houses”* – the potential benefits of paper money creation should not be ignored.

So who is right: Weidmann or James? Well in reality the differences in their interpretation are slighter than first appear: both refer to the beneficial effects of modest money creation, both to the dangers of inflation when money is created in excess. Leading us clearly to James’s conclusion *“a well managed paper currency could offer greater price stability than gold or silver based currencies”*, while also serving better the needs of a potentially expanding economy. Money – in its pure fiat

irredeemable base money form - is a powerful economic medicine if used within tight constraints and a potential poison if used to excess.

As for debt contracts between private sector agents and in particular bank loans that create matching quantities of bank credit and bank money, they are not mentioned in Goethe's Faust. But as great economists of the 1930s such as Irving Fisher and Henry Simons correctly pointed out, uncontrolled creation of bank credit and money can be a major driver of financial instability and subsequent economic harm, even when the creation of irredeemable fiat money is tightly controlled, with fiscal deficits small or non-existent and inflation low.

This suggests two conclusions:

- First, that in the deflationary, deleveraging downswing of the economic cycle, we may need to be a little bit more relaxed about the creation, within disciplined limits, of additional irredeemable fiat base money.
- But second, that in the upswing of the cycle we should have been massively more worried than we were pre-crisis about the excessive creation of private debt and private money; and, that we should be wary of relying on a resurgence of private debt and leverage as our means of escape from the mess into which excessive debt creation landed us.

## CASS LECTURE

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