Monetary and Financial Stability:

Lessons from the Crisis and from classic economics texts

Adair Turner

Speech at South African Reserve Bank

2nd November 2012

It is a great pleasure to be speaking here at the South African Reserve Bank on my first ever visit to this country. Your conference focuses our attention on underlying issues of financial stability, and fundamental causes of instability, which are relevant in both developed and emerging economies. My remarks today will be focused primarily on features of the developed world's financial system which led to the crisis of 2008 and to the Great Recession that followed, from which we are only slowly and painfully emerging. But I will also draw some implications for optimal policy in emerging countries, posing the question: how should you foster the development of financial systems which serve the vital needs of your economy, while avoiding some of the mistakes which have wreaked such havoc in the developed world?

The crisis of 2008 was essentially a crisis of excessive leverage, the result of a steady build up of excessive debt contracts over several preceding decades. That excessive leverage led to bust. And after the bust, deleveraging creates deflationary pressures which we cannot offset by conventional monetary policy alone, since interest rates are at the zero bound.

So my purpose this evening is to explore both the drivers of financial instability which led to the crisis and, more briefly, the challenge of monetary and macro-prudential policy in the face of the deleveraging which has followed.

And I will argue:

- First, that we must recognise the dangers of a simplistically free market approach to finance, and regulate robustly to prevent a repeat.

- And second, that in the face of deleveraging we may need to consider innovative and unconventional combinations of policies to offset deflationary risks.

From that you might fear that I will propose a dangerously interventionist rejection of market economics. But before you leap to that conclusion, let me highlight an apparent paradox from the history of economic thought.

The Chicago School is rightly synonymous with the values of the free market, the benefits of competition, suspicion of excessive regulation. And the economist Henry Simons lies at the

very foundation of Chicago School economics. But Simons and other early free market theorists such as Irving Fisher believed that free markets in banking were such a special and dangerous case that we should so strictly regulate banks as to essentially abolish them.

In order to think straight in economics, we often need to go back to basics. And that sometimes means to some old economic texts. And in particular, I'd like go back to the basics of the role of credit and money in our economy, and to the inherent dangers of private credit creation, on which economists such as Fisher, Simons and Milton Friedman, but also Hyman Minsky, focused.[1] And I will argue three points in turn.

1. First, that optimal regulation of banks and shadow banking must reflect a recognition that the private financial system, left to itself, will tend to create excessive debt contracts, and excessive leverage.

2. Second, that if we mistakenly allow excessive debt and leverage to develop, and the inevitable bust follows as it did in 2008, the subsequent challenges of deleveraging are extremely difficult, and are likely to require in response innovative and unconventional policies, and innovative integration of different aspects of policy.

3. Third, that there are lessons here for emerging economies, which still have degrees of freedom to avoid the build up of excessive debt and leverage which has produced the developed world's Great Recession.

1. FUNDAMENTAL CAUSES OF THE CRISIS: DEBT, BANKS AND ASSET PRICE CYCLES

The financial crisis of 2007 to 2008 was caused by excessive credit creation, excessive leverage, and too much maturity transformation. The fact that these excesses caused such havoc, and that private incentives and market disciplines failed to check their development, reflects three facts which are fundamental to understanding financial system dynamics and risks (Exhibit 1).

(i) First, debt contracts create specific financial and economic stability risks; and those risks intensify as the proportion of all contracts which take a debt and in particular a short-term debt form increase.

(ii) Second, that the existence of banks as we know them today – fractional reserve banks – exacerbates these risks because banks can create credit and private money, and unless controlled, will tend to create sub-optimally large or sub-optimally unstable quantities of both credit and private money.

(iii) Third, that bank or shadow-bank lending secured against real assets which can change in value, can be even more volatile and pro-cyclical, resulting in credit and asset price cycles which end in crashes and subsequent recessions.

[1] 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.

As a result, the level of debt and leverage within the real economy, the dynamics of credit creation, and the links between credit creation and asset price cycles need to be recognised, as they were not before the crisis, as crucial macroeconomic variables and phenomena.

(i) Debt contracts, benefits and risks.

A modern market economy needs financial contracts. In theory these could all take equity form, and in theory if they did economies would suffer less macroeconomic instability. That point was well made in 1934 by the Italian economist Luigi Einaudi, in an elegant short article entitled simply 'Debts'[2]. But as Einaudi then went on to argue, in the real world fixed-debt contracts (and indeed fixed-wage contracts) have arisen to meet human desires for greater certainty over future income than would be delivered in a world where all contracts took an equity form.

Therefore we have debt contracts – both those through which individual savers finance productive investment by businesses, and those which achieve life-cycle consumption smoothing – some households saving and others borrowing, in particular in the form of mortgages to buy houses.

And the potential for such debt contracts, as well as equity contracts, was almost certainly important to the willingness of savers to commit funds and to the level of capital investment which helped drive the economic transformation of the last 200 years.

But alongside these advantages, the presence of debt contracts creates specific risks which derived from three inherent features of debt versus equity contracts (Exhibit 2)

- Debt contracts can create rigidities, myopia, and contagion dangers. These derive essentially from the different actual and observed probability distributions of payouts for debt instruments compared with those for equity instruments (Exhibit 3). Returns on equity can vary significantly above and below the modal expectation and that fact is transparent to the investor on a continual basis. Equity markets can certainly suffer from irrational exuberance, but the fact that equity returns are potentially variable is always transparently clear. The return on debt contracts by contrast has a skewed probability distribution. In most states of the world the return is positive but capped: but there is a small percentage probability of highly negative returns. This has two consequences:

    - First, potential myopia, since as Gennaioli, Shleifer and Vishny (2010) have argued, investors in debt contracts may suffer from 'local thinking' – the assumption that the favourable distribution of payouts which is observed in the good times is the full probability distribution, an assumption which then adjusts rapidly and disruptively at the first sign of bad news, as 'neglected risks' are suddenly brought into consciousness.[3] As a result Gennaioli, Shleifer and Vishny argue, the existence of many credit contracts and securities may 'owe their very existence to neglected risk'. And as a result, investors/savers in debt

[2] Luigi Einaudi, *Debts*, in Luigi Einaudi, Selected Economic Essays, Palgrave Macmillan 2006. First published as *'Debiti'*, La Reforma Sociale XLI, volume XLV No 1, January 1934.
[3] Nicola Gennaioli, Andrew Shleifer and Robert Vishny, 2010, *Neglected Risks, Financial Innovation and Financial Fragility*, FEEM Working Paper No 111, September 2010.

instruments may themselves take on liabilities and commitments which only appear sustainable on the basis of incomplete assessments of the risks involved.

- Second, potential rigidities in default. Equity losses are typically suffered in a smooth and controlled fashion: the equity price falls, and the investor is as a result poorer, but in many cases without a disruptive event. Debt losses by contrast occur via disruptive processes of default and bankruptcy. As Ben Bernanke has pointed out 'in a complete markets world, bankruptcy would never be observed'.[4] But in the real world, bankruptcy and default processes induce fire sales and non-smooth changes in apparent wealth, and if they occur on a large scale simultaneously across the economy, can produce harmful economic shocks.

- In addition, debt contracts need to be continually rolled over: as a result new credit supply is vitally important to the economy. Equity instruments are typically permanent; they do not need to be continually replenished each year: as a result an economy could function for a period with new equity issue markets completely closed. Debt contracts in contrast have finite terms. Without continual refinancing, many otherwise solvent firms would go bankrupt. Oscillations in new debt supply are therefore potentially far more harmful than oscillations in new equity supply.

[4] Ben Bernanke, *Non-Monetary Effects of the Financial Crisis*, in Essays on the Great Depression, Princeton University Press, 2004.

(ii) Banks, credit and private money

The risks inherent in debt contracts would be present even if there were no banks, i.e. if all debt contracts directly linked end-investors with end-borrowers (for instance as when a household directly owns a corporate bond). But fractional reserve banks can both greatly swell the scale of debt contracts in an economy, and introduce maturity transformation between short-term depositors and long-term borrowers. As a result, they can greatly increase the financial and economic stability risks, and can play an important autonomous role in the creation or destruction of spending power, i.e. of nominal demand.

They can do this because they create credit and, as a result, private money. A process best understood by stepping through the stages by which goldsmiths became bankers.[5]

- We begin (Exhibit 4) with someone who has, let us say, 100 pieces of gold, but who does not like the insecurity and inconvenience of carrying gold around, and so deposits it at the goldsmith in return for a receipt. If that receipt is transferrable and becomes accepted by others as a means of payment, then it is itself money. But at this stage we have not created any new money, just turned money into a new form.

- But then (Exhibit 5) the goldsmith realises that since not all depositors demand their gold back simultaneously, he can lend some of it to person B. So that we now have person B holding 50 pieces of gold money, and person A still holding a receipt for 100 pieces of gold while the goldsmith holds 50 of gold and 50 of loans.

- But the goldsmith then realises that the loan which he extends does not need to be the actual gold, that it too could be a receipt for gold, so he lends person B 100 of gold receipts rather than 50 of gold coins and now we have 200 of paper money in circulation. And person B as well as person A is able to spend that money, as long as he is confident that he can generate future resources to pay back the loan when due (Exhibit 6).

The banking system can thus create credit and create spending power – a reality not well captured by many apparently common sense descriptions of the functions which banks perform. Banks it is often said take deposits from savers (for instance households) and lend it to borrowers (for instance businesses). But in fact they don't just allocate pre-existing savings; collectively they create both credit and the deposit money which appears to finance that credit.

Thus banks can create credit and private money. And as a result they introduce three potential sources of risk:

- They increase leverage within the economy, enabling larger aggregate debt contracts relative to household or corporate income or to GDP. And increased real economy leverage in itself increases potential economic instability.

---

[5] See Richard Werner, *'New Paradigm in Macro-economics'*,2005. Werner is one among few modern economists who have focused on describing and thinking through the implications of the fundamentals of bank money creation, in the same fashion as did earlier economists such as Irving Fisher or Henry Simons. See also Adair Turner, *'Credit Creation and Social Optimality'*, Southampton University, September 2011

- And they introduce leverage within the financial system itself – extending credit on the basis of small equity buffers, an inherently risky activity.

- And they introduce maturity transformation, with the paper money they issue, or these days the electronic deposits, creating instantaneous or at least short-term available spending power, even when the loans are long-term in nature. And with such maturity transformation, inevitably comes risks of deposit runs, contagion and instability.

The impact of fractional reserve banks is thus to make the financial system and the overall economy inherently more vulnerable to instability, creating risks which have to be balanced against the economic advantages which can arise from the risk pooling and maturity transformation which banks perform.

(iii) Secured lending, credit and asset price cycles

The danger of excessive or volatile bank credit creation is still further increased when credit is extended to finance the purchase of real assets – in particular real estate – whose value is itself dependent on the level of debt-financed demand. Uncontrolled bank credit extension can therefore lead to credit and asset price cycles of the sort which Hyman Minsky described.[6]

- In the upswing (Exhibit 7) increased credit drives:

    - Increased asset prices which drive increased expectations of further asset price increases and further borrower demand for credit;

    - But also drives low short-term credit losses, high bank profits and increased capital bases;

    - These in turn reinforce favourable assessments of credit risks and support increased supply of credit;

    - Which in turn drives further asset/price increases.

- Factors which then in the downswing work powerfully in reverse (Exhibit 8).

That was what we saw in housing and commercial real estate markets before the 2008 crisis in the US, Spain, Ireland and the UK, followed by today's deleveraging and recession. That is what we saw in Japanese commercial real estate in the 1980s, followed by deflation in the 1990s; in Sweden in the late 1980s followed by the banking crisis of 1992. Indeed with depressing predictability, at the core of almost every major banking crisis of the last 50 years, has been this cycle – with private incentives and foresight providing no guard against repetition, because for each individual banker or bank, it seems rational to keep dancing until the music stops.

Banks which can create credit and money to finance asset price booms are thus inherently dangerous institutions. But what the latest crisis taught us is that not just banks but also

[6] Hyman Minsky, *'Stabilising an Unstable Economy'*, Yale University Press, 1986.

shadow-banking systems can also create such cycles. A bank achieves maturity transformation between instant access or short-term deposits and long-term loans extended to borrowers. But so too can a multi-step chain of shadow-banking institutions and activities – an investor holding an instant access investment in a money market fund, which funds a broker dealer, which in turn funds a hedge fund or a special purpose conduit, which buys long-term debt securities (Exhibit 9). And private risk-management incentives make it sensible to seek to make each link in the chain 'safe' by securing the funding against assets collateral, marked-to-market daily and with margin called (Exhibit 10) – risk mitigations which at the total system level, however, can hardwire the procyclicality potentially present in the formal banking system, both in the upswing (Exhibit 11) and in the downswing (Exhibit 12). A dynamic seen powerfully at work in the US repo market in 2007/8. (Exhibit 13).

Increasing debt: increasing leverage and increased financialisation

So debt brings with it specific risks not present with equity contracts: fractional reserve banks increase risks still further; and the practice of lending against asset security intensifies yet more the risks of potentially destructive credit and asset price cycles.

The level and growth of real economy leverage, the pace of credit and money creation by banks and shadow banks; and the potential for credit and asset price cycles therefore need to be recognised as parameters and phenomena of crucial relevance to monetary, financial and overall macro-economic stability.

And if we look at the growth of developed economy banking systems over the last half century, it is striking quite how radically the parameters have changed.[7]

- In the UK, credit to household has grown from 15% of GDP in 1964 to about 90% today, with, as a partially matching consequence, household deposits (private money) rising from 40% to 70%.[8] (Exhibit 14).

- While UK loans to corporates have risen from 15% to 35%, and deposits from 8% to 17%, and with a dramatic increase in the proportion of these loans extended to the commercial real estate sector. (Exhibit 15& 16).

- In both the UK and the US meanwhile, significant growth in real economy leverage (the debt to GDP of household and corporates) has been accompanied by a dramatic increase in the relative size of the financial sector, as measured by intra-financial assets relative to GDP (Exhibit 17). This reflects the fact that intermediation processes have become increasingly complex and multi-step in nature.

- In addition, in the US in particular, while there has been a significant increase in the scale of the banking system, there has been an even more dramatic increase – until the

[7] See Adair Turner *What Do Banks Do? Why Do Credit Booms Occur? What Can Public Policy Do About It?* (2011) for further detail on the radically changed nature and size of bank balance sheets.

[8] At the level of the whole global economy, covering all sectors (household, corporate and public) and once account is taken of forms of shadow bank 'money equivalent' creation (e.g., accounts at money market funds (MMFs) which in turn fund the banking system) the amount of bank credit and money creation must be equal. In the UK's case and in particular in the 10 years before the crisis, credit growth in the UK was significantly matched by sources of funds from overseas.

shock of 2008, in the multiple complex activities we label shadow banking (Exhibit 18).

Our developed economies have thus become more debt intensive; more banking system intensive; with lending more concentrated on real estate finance; and served by an ever more complex financial system, which links banks and shadow banks together in complex networks.

Neutrality, financial deepening and increased nominal demand: pre-crisis errors

In the years running up to the crisis, the financial and monetary authorities of the world – finance ministries, central banks, regulators and international authorities such as the IMF, largely failed to identify the dangers inherent in these trends. Indeed the dominant wisdom at the time was that developments in financial markets, and increases in financial intensity and leverage, whether within the real economy or inside the financial system, could either be ignored or positively welcomed.

Four constituent elements of a dangerous pre-crisis intellectual delusion can now be discerned.

- The first was that, as the IMF Chief Economist, Olivier Blanchard commented two weeks ago 'We assumed we could ignore the details of the financial system'. As Mervyn King put it in a recent lecture at the LSE, the dominant New Keynesian model of monetary economics, 'lacks an account of financial intermediation, so that money, credit and banking play no meaningful role'.[9] It was explicitly assumed that optimal monetary policy could be defined without a deep theoretical and empirical understanding of the financial intermediation system by which monetary policy is actually transmitted to the real economy. And it was implicitly assumed that current monetary stability – low and stable inflation – was sufficient to ensure financial and macro economic stability, with the development of credit and money aggregates not in themselves important. In retrospect these were dangerous mistakes.

- The second was a strong tendency to believe that if the free market financial system generated new activity, new products and increased complexity, this must axiomatically be beneficial, since produced by free competition between rational agents. Thus for instance, the IMF in April 2006 positively welcomed the proliferation of credit derivative and structured credit products, and their distribution through complex multi-chain distribution channels. (Exhibit 19). Such developments it was confidently believed, improved allocative efficiency and risk management via better 'price discovery': and improved system resilience through dispersion of risks to those best placed to absorb it. Such confidence, however, rested on assumptions of rational behaviour and efficient markets which proved dangerously mistaken. Once more realistic assumptions are introduced, it is clear that the financial sector – to a far greater extent than other sectors of the economy – has the potential and the incentives to create forms and volumes of activity which are optimal for the private agents involved, but sub-optimal at the social level.[10] In particular, as Jeremy Stein has

[9] Mervyn King, *'Twenty Years of Inflation Targeting*', The Stamp Memorial Lecture, London School of Economics, October 2012.
[10] See Adair Turner, *"'Economics after the Crisis: Objectives and Means'*, MIT Press, Chapter 2 for a detailed account of this argument.

argued, there is no certain market mechanism which ensures that the bank or shadow bank systems will create optimal quantities of credit and money: indeed 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 excessively vulnerable to costly financial crises'.[11]

- The third error, which followed from the axiomatic assumption of rationality and efficient markets, was to assume that increasing financial intensity – a rising share of GDP devoted to financial services or increasing financial assets as a percent of GDP – 'financial deepening' as it is often labeled – was always and limitlessly a good thing. Clearly this would follow – though only in an intellectually trite sense – from an assumption that market are always perfect and behaviours rational, since if they are, whatever happens is for the good. But clearly also some 'financial deepening' is beneficial. Both economic history and good theory make it close to certain that we could not have achieved the economic transformations of the last 200 years without the development of modern financial systems. Equity and capital markets and banking systems which link savers to investment opportunities are essential to the processes of capital formation and allocation. And there are many countries in the world today – South Africa perhaps one – where further financial deepening, for instance through the extension of basic banking services to all social groups, still has an important role to play in the economic development process. But the fact that 'financial deepening', is beneficial across some range of increasing financial intensity, does not mean that it is limitlessly good. And for many measures of increasing financial intensity – increased debt or bank assets to GDP, increased levels of trading activity or degrees of inter-financial system complexity and interconnectedness – there are reasons for believing that the social and economic benefits could increase up to some point, but then reach a maximum and decline. In particular, the inherent characteristics of debt contracts make it highly likely that beyond some point, further growth in debt to GDP is likely to have net harmful effects.

  It is therefore essential that we reject the pre-crisis assumption that further financial deepening, further financialisation of our economies, is by definition beneficial, and consider far more rigorously the question of optimal financial system size and its relationship to the development process. An important recent paper by Stephen Cecchetti and Enisse Kharroubi for the Bank of International Settlements (BIS) aims at such a reassessment of the impact of finance on growth.[12] It reaches the tentative conclusion (Exhibit 20) that private credit to GDP may be related to economic growth in an inverse U function, with a level of debt beyond which further measures in financial deepening have a negative impact on growth. And looking more generally at the size of the financial sector, as measured by share of total employment, (Exhibit 21) they suggest a positive correlation with growth up to an optimal level, but with

[11] Jeremy Stein, *'Monetary Policy as Financial Stability Regulation'*, Quarterly Journal of Economics, (2012) 127, p57-95.
[12] Stephen G Cecchetti and Enisse Kharroubi, *'Reassessing the Impact of Finance on Growth'*, Working Paper, No 381, BIS.

further financialisation beyond that point harmful to economic growth.[13] Other recent studies have reached similar conclusions, suggesting that when the ratio of private sector credit to GDP goes above around 80-100% further growth in that ratio can have a negative impact on growth. In most advanced economies the actual current level is significantly higher. As Andrew Haldane of the Bank of England said in a speech earlier this week "taken at face value this evidence suggests that, at its current scale, banking could be acting as a headwind to medium-term growth."[14]

- The fourth error was the belief that we must not restrict the supply of credit, because increased credit was required to stimulate short-term growth. At first sight this seems closely related to the belief that increased financial intensity is axiomatically beneficial, but in fact it is distinct. Errors two and three rest on the assumption that increased financial intensity will deliver improved allocative efficiency because it completes more markets. The fourth error rests on the more simple beliefs that: (i) more credit will ensure higher nominal demand; and (ii) that nominal demand – whether in the form of consumption or investment – would otherwise be insufficient to ensure maximum attainable growth. Such a proposition was asserted as justification by many industry lobbyists arguing ahead of the crisis for light regulation, and received a far more favourable hearing than it deserved.[15] There can of course be circumstances in which additional nominal demand might indeed bring economic activity closer to full capacity levels (closing an output gap) and in which easier private credit and money growth could help stimulate nominal demand. But any proposition that increased nominal demand growth is generally desirable is nonsense: its desirability must depend on the conjuncture, the output gap, and present and prospective inflation. And if at some conjunctures additional demand is indeed required, we should be very wary of accepting that as justification for more private credit creation, given the long-term instability risks which additional leverage will bring. If we really have constructed an economic system in which adequate nominal demand growth is only attainable with a continual upward creep in the level of debt to GDP, we have created a dangerous system and should seek to identify less risky ways ensure that demand is adequate.[16]

---

[13] A similar conclusion was reached in a recent paper by Moritz Schularick and Alan Taylor which analyzed the growth of leverage and credit over the last 140 years, but found little empirical support for the proposition that financial deepening had led to a corresponding increase in trend growth rates for the countries in their sample, '*Credit booms gone bust: Monetary policy , leverage cycles and financial crises 1870-2008'*, NBER Working Paper No15512, November 2009.

[14] Andrew Haldane *'On being the right size'*, the 2012 Beesley Lectures, London, October 2012. Haldane references two recent relevant analyses: Arcand , Berkes and Panizza , IMF Working Paper 12/161 (2012); and Easterley , Islam and Stiglitz , World Bank Conference on Development Economics (2000). The latter suggests that when credit to GDP ratios exceed 100 per cent output volatility tends to increase.

[15] Thus for instance, arguments against regulation of the Credit Default Swap (CDS) market were frequently based on assertions of the sort that CDS contracts 'facilitated credit creation and thus growth'. And in the design of the Basel II standard, the regulatory community erroneously accepted the argument that 'economising on the use of scarce bank capital' (i.e. allowing higher levels of leverage on the basis of 'sophisticated' IRB capital models) would deliver social rather than simply private benefits.

[16] One possible thesis is that increasing inequality could make it more difficult to maintain adequate nominal demand without credit and leverage growth, given the higher marginal propensity to save of higher income groups and the reliance of lower income groups on credit to maintain adequate consumption. See Michael Kumhof and Romain Ranciere, *'Inequality, Leverage and Crises'*, IMF Working Paper WP/10/268 (2010). A related but somewhat different argument is that presented by Raghuram Rajan in *'Faultlines'* - (2010) that rising inequality in the US produced a political response of support for rapid credit extension to lower income groups, which contributed to the sub-prime crisis.

Controlling financial risks: radical schemes and implications for practical policies

The financial crisis of 2007/08 revealed how deeply flawed were the assumptions of the pre crisis conventional wisdom. Free market finance left to itself will create huge instability – too much leverage in the real economy and within the financial system, too volatile a new credit supply, too much complexity and dangerous interconnectedness. Increased financial intensity is not limitlessly beneficial.

In response we need to regulate finance, and in particular banks and shadow banks – those elements of the financial system which can perform maturity transformation, and which can create credit and private money. The question is: how radical should that regulation be?

The answer the early Chicago's theorists gave us was 'very radical'– so radical indeed as effectively to abolish leveraged maturity transforming, fractional reserve banks.

Their beliefs of course were formed by the experience of increased financialisation in the 1920s and the crash of the early 1930s – an explosion and then collapse of leverage, particularly in the corporate sector as we can see on the left hand side of Exhibit 22. Their conclusion was that debt was inherently dangerous, and that fractional reserve banks even more so. As a result Henry Simons had a very clear order of preference for how we should ideally respond.[17] (Exhibit 23)

- Ideally, he argued (though he recognised this as an unattainable ideal), there should only be equity contracts with no debt allowed. Simons in 1936 thus exactly echoing Einaudi in 1934

- A bit more pragmatically, he hankered after an economy in which short term debt contracts – the ones that need to be continually rolled over – would be banned, with only long term debt contracts (he thought of 50 years or so) allowed.

- But the concrete policy he supported – in the Chicago Plan presented to President Roosevelt – was one which accepted the existence of non bank debt contracts, but required banks to play no role in private credit extension, becoming simply payment system providers, with all bank money 100% backed by central bank reserves or government debt. Thus in the Chicago Plan and other variants of 100% money banks (Exhibit 24) no private money is created since no private credit it is extended, but instead all money in circulation derives from public debt or money issuance.[18] All money is thus absolute fiat money, "outside money" in Gurley and Shaw's terms, or "high powered money" in Friedman and Schwartz's. [19] [20]

Essentially this would mean that banks which provided money services would face a 100% liquid assets requirement: while any institutions which made loans would face a 100% capital requirement, and could hold no deposits a set of prudential requirements which certainly makes Basel 3 look a pretty weak package.

---

[17] Henry Simons, *'Rules Versus Authorities in Monetary Policy'*, The Journal of Political Economy, Vol 44, No1, p1-30, February 1936.
[18] Irving Fisher, *100% Money and the Public Debt'*, Economic Forum, Spring Number, 1936, p406-420
[19] John Gurley and Edward Shaw, *'Money in a Theory of Finance'*, Brookings Institution 1960.
[20] Friedman and Schwartz, *'A Monetary History of the United States 1867-1960'*, Princeton University Press, Paper 1971.

But extreme though it is, there are modern economists who believe that the Chicago Plan is a feasible model for real world policy.[21] Indeed in an IMF working paper published in august this year, 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.[22]

What should we make of these radical plans? Do most policy makers instinctively reject them only because we are trapped by an institutional and intellectual path dependency – accepting as given the past suboptimal development of an over-leveraged fractional reserve banking system? Could we ever practically move away from factional reserve banks, and if we did, would it be desirable to do so?

Well my answer is still no. I do not think that the radicalism of the Chicago Plan and of Benes and Kumhof is practical, or even in principle ideal. But I do think we should take their ideas – rooted as they are in theoretical clarity about the origins of financial instability – as a spur to radicalism in our response to the financial crisis.

There are I suggest two reasons for rejecting the extreme radicalism of the Chicago Plan not just on the basis of practicality given today's starting point, but even in ideal terms.

- The first is that some private credit and money creation may be essential to the effective mobilisation of savings and that this requires a role for fractional reserve banks. Banks perform risk pooling, enabling the funds of multiple savers indirectly to finance multiple borrowers: in theory at least this function could be performed by non-bank loan funds, but how truly practical that is, particularly in SME sectors, remains unclear.[23] But more fundamentally, banks perform maturity transformation, enabling households and businesses to hold shorter term financial assets than liabilities. And that is likely to enable greater long term investment than would otherwise be supported. As Walter Bagehot argued persuasively, 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 an advantage over other economies where maturity transforming banking systems were less developed.[24]

- The second is that quite apart from mobilising savings and allocating them to alternative investment projects, the creation of credit and private money can support life cycle consumption smoothing (with e.g. mortgage debt and matching deposit savings lent to and borrowed from people at different points in their life cycles), and

[21] A recent proposal for requiring all lending to be funded by loan funds, not banks, and for banks to be solely deposit takers not lenders, was put forward by Laurence Kotlikoff, *'Jimmy Stewart is Dead: Ending the World's Ongoing Financial Plague with Limited Purpose Banking'*, Wiley 2010.

[22] Jaromir Benes and Michael Kumhof, '*The Chicago Plan, Revisited'*, IMF Working Paper, WP/12/202, August 2012.

[23] Banks which develop relationships with companies through the provision of payment services may be inherently better placed than non-bank loan funds to assess the credit prospects of small and medium-sized companies.

[24] In Chapter 1 of Lombard Street, Bagehot urges 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.

that this can be welfare enhancing even if it has no necessary impact on growth rates. Such a benefit, it should be noted, would not show up in analysis of the sort conducted by Cecchetti and Kharroubi or Schularick and Taylor which focuses solely on the impact on GDP growth. Appreciation of the potentially welfare-enhancing role of household credit is indeed largely missing both from the writings of Simons, Fisher, and other early 100% Money advocates, and from Benes and Kumhof's paper.

I am therefore not convinced that the Chicago Plan or its modern variants would be socially optimal even in an ideal world; we should I believe accept the existence of fractional reserve banks as a given fact of modern economies. But the analysis of risks which motivated these plans is highly perceptive and should guide the design of a real world financial regulation.

Three implications in particular follow from recognition of the inherent nature and risks of debts, banks and secured financing contracts:

- First, that the level as well as the growth rate of credit and leverage in the real economy is an important economic variable. Leverage beyond some level – measured by debt to borrower income or to GDP, and whether in the household, corporate and public sectors, is likely to create suboptimal vulnerability to financial and macroeconomic instability. What that level is, is unclear: that should be a key area for future analysis. But the arguments for believing that free unregulated markets will generate leverage above the optimal level are compelling, particularly if fiscal authorities introduce yet further bias through tax favouritism for debt. Macro-prudential authorities cannot therefore avoid a point of view on whether levels as well as growth rates of credit and leverage are optimal;[25] and may need directly to constrain debt growth, both via banking system capital and liquidity requirements, and via direct borrower constraints such as loan-to-income or loan-to-value limits.

- Second, that while there is a social welfare case for the existence of fractional reserve banks (i.e. of banks which are somewhat leveraged and which perform some majority transformation) there is no reason to believe that the levels of bank leverage and extent of maturity transformation which developed over the several decades running up to the crisis were even remotely close to optimal levels. It is striking that past banking systems managed to perform their necessary economic functions, with liquidity and capital ratios many times even current Basel 3 plans, let alone the extremely low levels which we allowed before the crisis (Exhibit 25). And as David Miles and Martin Hellweg and others have argued, there are good theoretical and empirical reasons for believing that if we are now able to choose bank capital ratios for a greenfield economy (ignoring any transition challenges) we should choose levels significantly above the Basel 3 standards.[26] [27] Unlike the Chicago school theorists I do not agree that we made a total mistake in allowing the very existence of fractional

[25] 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.

[26] David Miles, Jing Yang and Gilberto Marcheggiano *'Optimal Bank Capital'*, Bank of England External MPC Unit, Discussion Paper No 31, January 2011

[27] Anat Admati, Peter Demarzo, Martin Hellwig and Paul Pfleiderer, *'Fallacies, Irrelevant Facts and Myths in the Discussion of Capital Regulation, Why Bank Equity is Not Expensive'*, Max Planck Society, 2010.

reserve banks: but as today's regulators we are inheritors of a half century long policy error, in which we have allowed banks to operate with capital and liquidity ratios far below socially optimal levels.

- Third, that we need to recognise credit and asset price cycles as crucial economic phenomena, relevant to financial and macroeconomic stability, even when they appear to have no implications for short to medium-term inflation prospects.[28] Such credit and asset price cycles cannot however be controlled entirely or even primarily by the operation of the classic monetary policy lever of interest rates. Powerful macro prudential levers, such as countercyclical capital requirements, are therefore essential to contain potential financial and macroeconomic instability, and need to be applicable both at whole-bank level or in respect to specific sectors – such as commercial or residential real estate – where the danger of self-reinforcing credit and asset price cycles is greatest. In addition, and crucially, our macro-prudential toolkit must enable us to contain pro-cyclicality risks arising in shadow banking as well as the formal banking sector, through for instance the regulation of money market funds, and the application of minimum haircuts to secured financing transactions. The package of policy measures to contain shadow-banking risks which the FSB will present to the G20 next week, is therefore as important as the Basel 3 reforms to which we are already committed.[29]

2. THE CHALLENGES OF DELEVERAGING: MONETARY AND MACRO-PRUDENTIAL POLICY IN DEFLATIONARY TIMES

The financial crisis of 2007/08 occurred because we failed to constrain the private financial system's creation of private credit and money. In future we must do better – constraining by regulation both the absolute level of leverage in the real economy and financial system and the growth rate of leverage, leaning against credit and asset price cycles, taking away the punch bowl before the party gets out of hand.

But our problem in developed economies today is not an out of control party, but a severe hangover, a Great Recession induced by the deleveraging which follows a financial bust. In all the major economies of the developed world – in the U.S., Japan, the Eurozone and the UK – recovery from recession has been far slower than most commentators and all official

[28] 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 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.

[29] The final FSB recommendations will be published in mid-November. A progress report was given in April 2012 *'Strengthening the Oversight and Regulation of Shadow Banking'.* See also Adair Turner, *'Securitisation, Shadow Banking and the Value of the Financial Innovation'*, Rostov Lecture, School of Advanced International Studies, Washington, 19 April 2012.

forecasts anticipated in 2009. That reflects our pre- crisis failure to understand just how harmful excess leverage booms can be: and our only slow recognition of just how difficult is the challenge of deleveraging.

In the aftermath of financial crisis, attempts to delever – to restore corporate or household balance sheets, to pay down mortgages, to avoid new debt commitments – themselves depress spending and economic activity. Credit growth collapses in both the corporate and household sectors (Exhibits 26 and 27) but depressed nominal demand growth makes it difficult to achieve more than very slow reductions in private leverage. And post crisis recessions play havoc with public finances, increasing fiscal deficits, so that for many years after the crisis, overall economy leverage doesn't reduce it all, but simply shifts from the private to public sector. That's the pattern we saw in Japan after the credit boom of the 1980s turned to bust in 1990. And that's what we've seen over the last four years in the U.S., Spain and the UK (Exhibit 28), with each percentage point reduction in private leverage more than offset by an increase in public.

In this environment our ability to offset deflationary forces via conventional monetary policy is limited because interest rates are close to the zero bound, and because the transmission of low policy rates to the real economy is hampered by banking system fragility and deleveraging, undermining credit supply. In addition the freedom to use fiscal stimulus is limited by the need to get rising public debt burdens under control.

Post crisis deleveraging is very, very difficult to manage: that's what Japan from 1992 today demonstrates – and that's what we have increasingly learned in the last three years. And if we do not carefully design the policy response, the deflationary impact on economic growth could extend for many years ahead. As the IMF noted in its latest World Economic Outlook, 'the risks of recession in the advanced economies are alarmingly high'.

The question is what policy levers can be used to maintain nominal demand, and how to achieve that without building up future vulnerabilities. As Mervyn King said in a speech last week the essence of the problem is that – for a combination of borrower demand and lender supply reasons – 'banks aren't creating enough money'. As a result 'we have to do it for them', so that 'As private sector balance sheets contract, public sector (government and central bank) balance sheets have to take the strain'.[30] Public intervention in other words has to create new credit and money to compensate for the private financial system's sudden unwillingness to do so.

Clearly therefore, the policy response has to include unconventional monetary policy – quantitative easing – which as best we can tell has produced a path of real output growth and inflation slightly higher than would otherwise have occurred.[31]

But quantitative easing alone may be subject to declining marginal impact, the economy facing a liquidity trap in which replacing private sector holdings of bonds with private sector holdings of money has little impact on behaviour and thus on demand. So we must be willing to employ still more unconventional policies, and to combine multiple policy levers – monetary policy, central bank liquidity and credit provision and prudential regulation – which we used to consider quite separately or in some cases avoid entirely.

[30] Mervyn King, speech to the South Wales Chamber of Commerce, Cardiff, 23 October 2012.
[31] See Michael Joyce, Matthew Tong and Robert Woods, *'The United Kingdom's Quantitative Easing Policy: Design, Operation and Impact'*, Bank of England, Quarterly Bulletin, Q3 2011.

That integrated approach lay behind the package of measures which the UK authorities recommended this June, a package which combines:

- The Bank of England providing greater liquidity insurance through the activation of the Extended Collateral Term Repo Facility, and the FSA adjusting our bank liquidity guidance to reflect greater central bank insurance and to make it easier for banks to use their liquidity buffers when needed.

- And the Bank of England launching the Funding for Lending Scheme (FLS) to support new bank lending to the UK economy, while the FSA made adjustments to our capital regime to allow additional FLS lending with no incremental capital requirement – removing a potential impediment to use of the scheme.

This is an innovative combination of policies, and one which lies far outside past orthodoxy. And if these measures prove insufficient we may have to consider further policy innovations, and further integration of different aspects of policy, to overcome the powerful economic headwinds created by deleveraging across the developed world economies.

But as we do so, we also need to be aware of long-term risks. Ahead of the crisis we allowed the private sector financial system to perform too much maturity transformation, creating too much private credit and money. Their sudden post-crisis conversion to risk aversion and deleveraging now threatens sustained deflation. The public authorities have therefore stepped in to stimulate credit and money creation. But even if this succeeds in offsetting deflation, it will tend to create new debt contracts which create future vulnerabilities. The challenge of policy design is to support demand stimulus without creating future risks. When our starting point is one of excessive leverage created by pre-crisis policy errors, that is a very difficult combination to achieve.

3. LESSONS FOR EMERGING ECONOMIES

I have spoken so far entirely about the developed economies – since that is where the latest financial crisis arose – the emerging economies suffering side effects because of the policy errors we have made. But what if any of the lessons of what I have said for the emerging economies – such as South Africa? The answer is simply to be cautious of the intellectual errors we made and to be cautious of industry lobbyists peddling too simple a story of finances limitless benefits.

Clearly a vibrant financial system is crucial to a modern market economy. Efficient capital allocation requires debt and equity markets and, I would argue contrary to the Chicago theorists – well managed lending banks. Mortgage lending was thought both investment in housing infrastructure – a key need in South Africa as in many emerging economies – and lifecycle consumption smoothing. Insurance services help corporates and individuals to manage risks. Basic banking services, payments and deposits and SME lending, can be essential both to economic development and social inclusion. The argument that 'financial deepening' is beneficial across a range of values and up to a point is a sound one. Cecchetti and Kharroubi's analysis (Exhibits X and Y) suggests and upward sloping part of the curve.

But good economics also tells us that financial service activity, if unregulated, well beyond its socially optimal size, and that the market disciplines which in other sectors align private incentives and socially optimal results work much less certainly in finance. Financial deepening is not limitlessly beneficial and not all forms of financial deepening are equally valuable.

And good economics also tells us that the specific element of finance most likely to run to excess is the creation of debt instruments through maturity transformation, and in particular of debt contracts secured against assets whose value can rise precisely because of more secured credit extended. Secured credit and asset price cycles are endemic to rebanking or shadow banking markets, and it is a depressing not until now close to iron law of banking – that every ten years or so, somewhere in the world, credit and asset price cycles, usually focused on residential or commercial real estate, end in financial crisis and economic recession. That's what happened in Japan and Scandinavia in the early 1990s, in several of the emerging Asian countries in 1997, and in Europe and the US in 2007/08.

Across many emerging economies, as the latest IMF Global Financial Stability Review set out, private credit to GDP is now high and on a rising trend (Exhibit 29). Across many house prices are also rising rapidly (Exhibit 30). As the developed world economies struggle with deleveraging and potential deflation, emerging markets need to watch carefully to ensure that they do not allow the build up of excessive leverage, creating the conditions for future crises.

South Africa Speech References

Anat Admati, Peter Demarzo, Martin Hellwig and Paul Pfleiderer, *'Fallacies, Irrelevant Facts and Myths in the Discussion of Capital Regulation, Why Bank Equity is Not Expensive'*, Max Planck Society, 2010.

Walter Bagehot, *'Lombard Street'*, originally published in 1873.

Jaromir Benes and Michael Kumhof, *,The Chicago Plan, Revisited'*, IMF Working Paper, WP/12/202, August 2012.

Ben Bernanke, *Non-Monetary Effects of the Financial Crisis*, in Essays on the Great Depression, Princeton University Press, 2004.

Stephen G Cecchetti and Enisse Kharroubi, *'Reassessing the Impact of Finance on Growth'*, Working Paper, No 381, BIS, July 2012.

Luigi Einaudi, *Debts*, in Luigi Einaudi, Selected Economic Essays, Palgrave Macmillan 2006. First published as *"Debiti"*, La Reforma Sociale XLI, volume XLV No 1, January 1934.

Irving Fisher, *'100% Money and the Public Debt'*, Economic Forum, Spring Number, 1936, p406-420.

Benjamin Friedman, *'Monetary Policy, Fiscal Policy and the Efficiency of our Financial System: Lessons from the Financial Crisis'*, International Journal of Central Banking, Volume 8 No 51, January 2012.

Milton Friedman and Anna Schwartz, *'A Monetary History of the United States 1867-1960'*, Princeton University Press, 1971.

Nicola Gennaioli, Andrew Shleifer and Robert Vishny, 2010, *Neglected Risks, Financial Innovation and Financial Fragility*, FEEM Working Paper No 111, September 2010.

John Gurley and Edward Shaw, *'Money in a Theory of Finance'*, Brookings Institution 1960.

Andrew Haldane, *'On being the right size'*, the 2012 Beesley Lectures, London, October 2012

Michael Joyce, Matthew Tong and Robert Woods, *'The United Kingdom's Quantitative Easing Policy: Design, Operation and Impact'*, Bank of England Quarterly Bulletin, Q3 2011.

Mervyn King

- Speech to the South Wales Chamber of Commerce, Cardiff, 23rd October 2012.

- *'Twenty Years of Inflation Targeting'*, The Stamp Memorial Lecture, London School of Economics, October 2012.

Laurence Kotlikoff, *'Jimmy Stewart is Dead: Ending the World's Ongoing Financial Plague with Limited Purpose Banking'*, Wiley 2010.

Michael Kumhof and Romain Ranciere, *'Inequality, Leverage and Crises'*, IMF Working Paper WP/10/268 (2010).

David Miles, Jing Yang and Gilberto Marcheggiano, *'Optimal Bank Capital'*, Bank of England, External MPC Unit, Discussion Paper No 31, January 2011.

Hyman Minsky, *'Stabilising an Unstable Economy'*, Yale University Press, 1986.

Raghuram Rajan, *'Faultlines, How Hidden Fractures Still Threaten the World Economy'*, Princeton 2010.

Moritz Schularick and Alan Taylor, *'Credit booms gone bust: Monetary policy , leverage cycles and financial crises 1870-2008'*, NBER Working Paper No15512, November 2009.

Henry Simons, *'Rules Versus Authorities in Monetary Policy'*, The Journal of Political Economy, Vol 44, No1, p1-30, February 1936.

Jeremy Stein, *'Monetary Policy as Financial Stability Regulation'*, Quarterly Journal of Economics, (2012) 127, p57-95.

Adair Turner

- '*Economics after the Crisis: Objectives and Means'*, MIT Press, 2012
- *'Credit Creation and Social Optimality'*, Southampton University, 29 September 2011.
- *'Debt and Deleveraging: Long Term and Short Term Challenges'*, Presidential Lecture, Centre for Financial Studies, Frankfurt, 21 November 2011.
- *'Securitisation, Shadow Banking and the Value of the Financial Innovation'*, Rostov Lecture, School of Advanced International Studies, Washington, 19 April 2012.
- *'What Do Banks Do? Why Do Credit Booms and Busts Occur? What Can Public Policy Do About It?'* The Future of Finance: The LSE Report, Chapter 1, LSE, London, March 2011.

Richard Werner, *'New Paradigm in Macro-economics: Solving the riddle of Japanese Macro-economic Performance',* Palgrave Macmillan, 2005.

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.