

# Submission to the Senate Economics Committee Post-GFC Banking Inquiry

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This is a long submission, and I apologise in advance for its length and complexity. However these are complex times, and since my analysis and recommendations are well outside the mainstream of economic advice, I needed to cover them in detail.

## 1 Synopsis

The economic crisis occurred because of a failure of both economic theory and economic management. Economic theory is dominated by the “Neoclassical” school of thought, and this school’s understanding of banks, money and debt is seriously deficient. Attempts to control the macroeconomy have been based upon this theory, and have therefore failed. Policies to control the banking system need to be based on a realistic model of how it operates, and this is the model of endogenous money.

This model, which is strongly supported by empirical research, argues that bank lending (a) is not constrained by the Central Bank, (b) adds to aggregate demand—so that change in the level of private debt has important macroeconomic consequences, and (c) can cause asset bubbles and financial crises when that lending primarily finances speculation on asset prices rather than investment.

There are three indicators that a financial crisis could occur: the level, rate of change and rate of acceleration of private debt. The RBA must monitor these indicators as well as its current targets of the rate of inflation and the rate of unemployment.

Monetary and fiscal policy alone are unable to restrain the tendency that the banking sector has to move from responsible to irresponsible lending over time. The only effective way to prevent asset bubbles and financial crises in the future is to make levered speculation on asset prices less attractive to the public. I propose redefining shares in such a way that the secondary market in shares is greatly diminished while the primary market that actually raises capital for firms is enhanced (“Jubilee Shares”), and limiting leverage in property purchases on the basis of the anticipated income from the asset being purchased (“The PILL”).

## 2 Introduction: How did economists get it so wrong?

Perhaps the most striking feature of the Global Financial Crisis (GFC) was the confidence that all leading economists, official economic advisors and forecasters had in the state of both economic theory and the global economy immediately prior to the crisis.

The then President of the American Economic Association, Nobel Laureate Robert Lucas, was confident that the economy would never again suffer from a crisis like the Great Depression, because modern macroeconomic knowledge knew how to prevent such calamities:

‘Macroeconomics was born as a distinct field in the 1940’s, as a part of the intellectual response to the Great Depression. The term then referred to the body of knowledge and expertise that we hoped would prevent the recurrence of that economic disaster. My thesis in this lecture is that macroeconomics in this original sense has succeeded: *Its central problem of depression prevention has been solved, for all practical purposes, and has in fact been solved for many decades.*’ (Lucas 2003 , p. 1, emphasis added)

Writing a year *after* the crisis began, Olivier Blanchard, the Chief Economist of the IMF and the founding editor of the *American Economic Review: Macro*, asserted that macroeconomic theory was settled and well-grounded:

there has been enormous progress and substantial convergence... largely because facts have a way of not going away, a largely shared vision both of fluctuations and of methodology has emerged...*The state of macro is good.* (Blanchard 2009, p. 210; emphasis added).

Now Federal Reserve Governor Ben Bernanke was convinced that the reduction in economic volatility in the two decades prior to the crisis was an enduring feature of the economy, for which Central Bankers—those in charge of monetary policy—could take credit:

The sources of the Great Moderation remain somewhat controversial, but as I have argued elsewhere, there is evidence for the view that improved control of inflation has contributed in important measure to *this welcome change in the economy.* (Bernanke 2004, emphasis added).

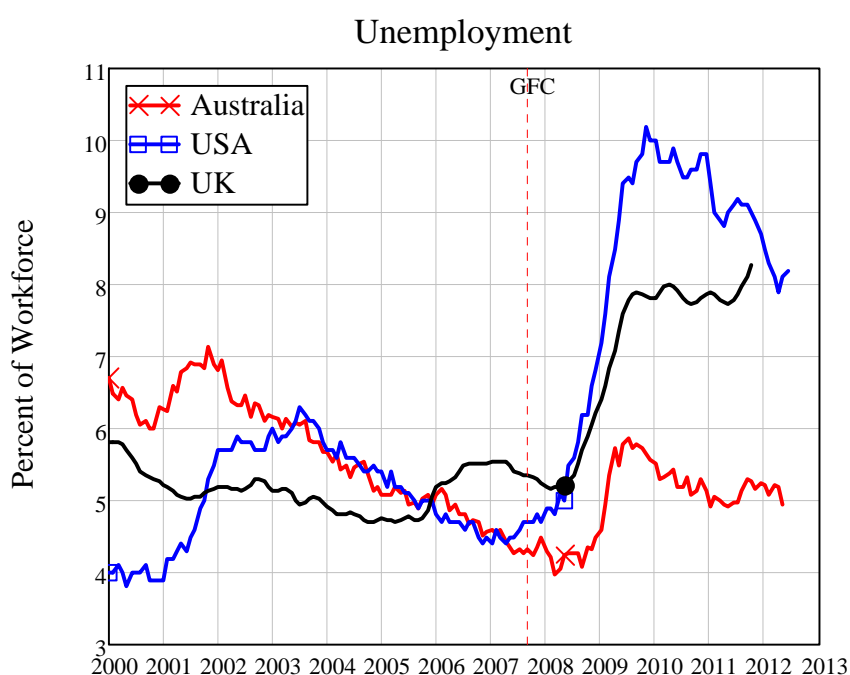
The OECD, the the world’s premiere economic forecasting organisation, forecast In June 2007 that the outlook for the global economy was “quite benign”:

Recent developments have broadly confirmed this prognosis. Indeed, *the current economic situation is in many ways better than what we have experienced in years.* Against that background, we have stuck to the rebalancing scenario. *Our central forecast remains indeed quite benign:* a soft landing in the United States, a

strong and sustained recovery in Europe, a solid trajectory in Japan and buoyant activity in China and India. In line with recent trends, sustained growth in OECD economies would be underpinned by strong job creation and falling unemployment. (Cotis 2007, p. 7, emphasis added)

On August 12, 2007, less than 2 months after this rosy forecast was published, the BNP shut down 3 of its funds that were heavily exposed to the US subprime mortgage market, and what Australians now call the GFC began. Two years later, US unemployment peaked at 10.2% of the workforce, which was only not a post-WWII record because of changes to the definition of unemployment after 1990.<sup>1</sup>

Figure 1: Unemployment rates before and after the GFC



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There are only 2 explanations for this huge divergence between the expectations and forecasts of leading economists and the actual outcome of the worst economic crisis since the Great Depression. Either (a) the crisis was a completely unpredictable, random event; or (b) there was something seriously at fault with the theories and models that official economic advisors and forecasters used to analyse the economy.

After the crisis, leading economists have defended option (a), thus rejecting the alternative explanation that the failure to anticipate such a huge event indicated that there was something wrong with their

<sup>1</sup> The USA publishes 6 unemployment rates, with the published one called "U-3". The definition of U-3 was altered in xxxx to exclude workers who had been unemployed for more than one year.

analysis. RBA Governor Glenn Stevens described the GFC as a “tail event”, and huge random shock which had enormous consequences but was inherently impossible to predict:

I do not know anyone who predicted this course of events. This should give us cause to reflect on how hard a job it is to make genuinely useful forecasts. What we have seen is truly a ‘tail’ outcome—the kind of outcome that the routine forecasting process never predicts. But it has occurred, it has implications, and so we must reflect on it. (Stevens 2008, p. 7)

Ben Bernanke asserted that economic theory itself was not at fault—only the implementation of it was to blame:

*Economic science* concerns itself primarily with theoretical and empirical generalizations about the behavior of individuals, institutions, markets, and national economies. Most academic research falls in this category. *Economic engineering* is about the design and analysis of frameworks for achieving specific economic objectives... With that taxonomy in hand, I would argue that the recent financial crisis was more a failure of economic engineering and economic management than of what I have called economic science. The economic engineering problems were reflected in a number of structural weaknesses in our financial system. In the private sector, these weaknesses included inadequate risk-measurement and risk-management systems at many financial firms as well as shortcomings in some firms’ business models, such as overreliance on unstable short-term funding and excessive leverage. In the public sector, gaps and blind spots in the financial regulatory structures of the United States and most other countries proved particularly damaging. (Bernanke 2010)

The implication is that the crisis was due to the failure of administrative and political institutions to fully implement the guidance given by economic theory, and therefore that a future crisis can be prevented simply by ensuring that the guidance of economic theory is more closely followed in the future.

Australia’s apparent immunity to this crisis is also taken as an indicator that our administrative and political institutions did a better job of implementing the conventional and correct wisdom than their counterparts in the North Atlantic.

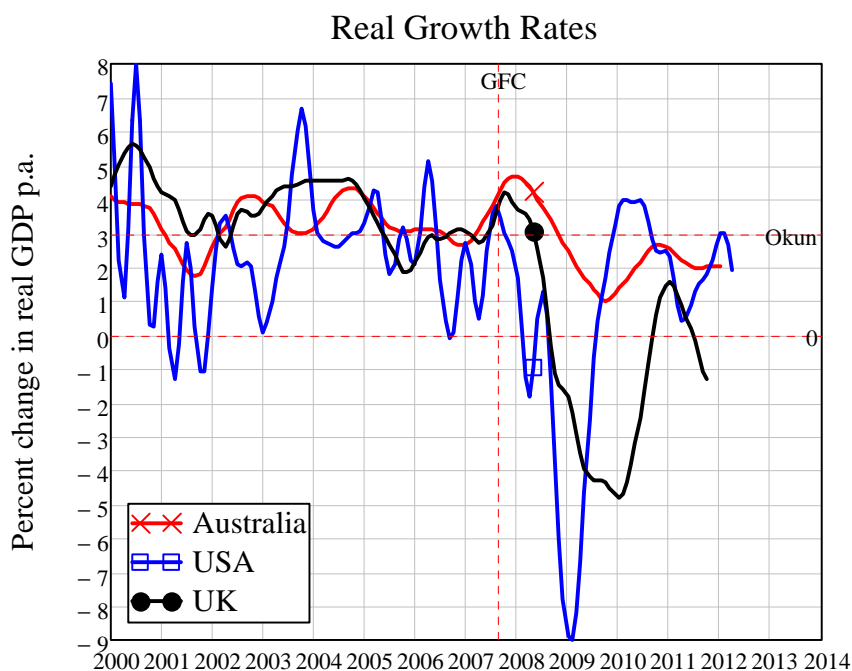
I completely reject this conventional wisdom.

### 3 Unpredictable shock?

The longevity of this crisis is already wearing the thin the argument that the GFC was caused by a large, unpredictable negative exogenous shock. If it were, the economy should be now have returned to trend growth—and it should also have rebounded as the negative shocks were followed by positive ones. Instead, the reductions in unemployment since the peak of the GFC have been tenuous, with the rate of

economic growth has in general been below the 3 percent level that the rule of thumb known as “Okun’s Law” indicates is needed to balance rising population and labour productivity. This is true even for Australia. Despite its apparent avoidance of the worst of the GFC, and the minerals export boom, growth has consistently been below 3 per cent (see Figure 2).

Figure 2: Real growth post-GFC has rarely exceeded level needed to reduce unemployment

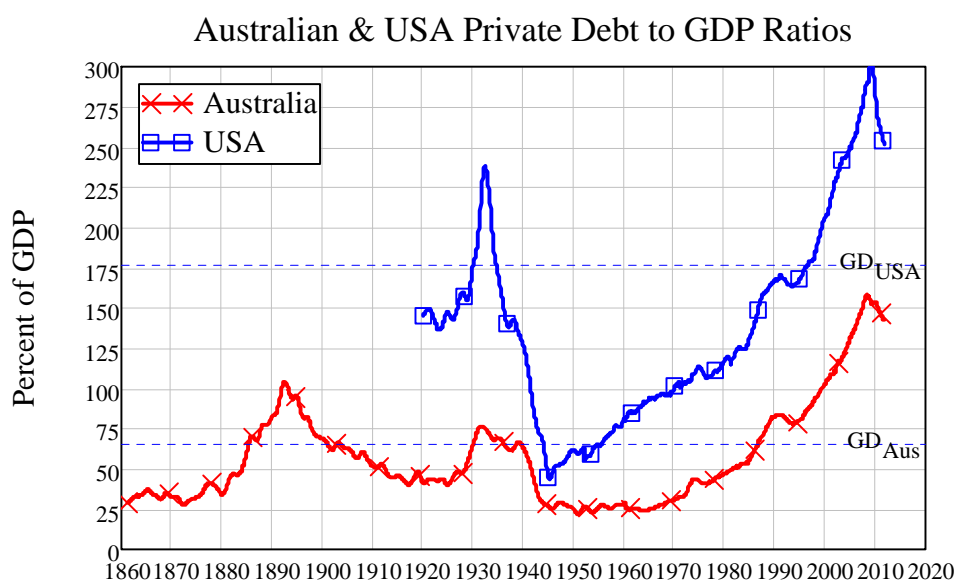


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#### 4 “Economic Science” is not OK

“Economic science”, as Bernanke describes it, allowed the cause of this crisis—the excessive growth of private debt—to go on for decades before the crisis erupted in 2008. To any lay observer, the fact that debt peaks and then rapid declines have coincided with two past Depressions and our current crisis is strong evidence that private debt bubbles cause economic crises—the sort of evidence one would expect professional economists to investigate (see Figure 1). Yet instead Nobel Prize winning economists and Australian regulators dismiss the importance of this data on purely theoretical grounds.

Figure 3: Private debt to GDP ratios from 1860 till today



In his most recent book *End This Depression Now!*, Nobel Laureate Paul Krugman asserts that “debt is money we owe to ourselves”, and therefore the absolute level of debt is unimportant—all that matters is its distribution:

It’s true that people like me believe that the depression we’re in was in large part caused by the buildup of household debt, which set the stage for a Minsky moment in which highly indebted households were forced to slash their spending. How, then, can even more debt be part of the appropriate policy response?

The key point is that this argument against deficit spending assumes, implicitly, that debt is debt—that it doesn’t matter who owes the money. Yet that can’t be right; if it were, we wouldn’t have a problem in the first place.... Ignoring the foreign component, or looking at the world as a whole, we see that the overall level of debt makes no difference to aggregate net worth—one person’s liability is another person’s asset.

It follows that the level of debt matters only if the distribution of net worth matters, if highly indebted players face different constraints from players with low debt. And this means that all debt isn’t created equal, which is why borrowing by some actors now can help cure problems created by excess borrowing by other actors in the past.

Think of it this way: when debt is rising, it’s not the economy as a whole borrowing more money. It is, rather, a case of less

patient people—people who for whatever reason want to spend sooner rather than later—borrowing from more patient people. The main limit on this kind of borrowing is the concern of those patient lenders about whether they will be repaid, which sets some kind of ceiling on each individual's ability to borrow.

What happened in 2008 was a sudden downward revision of those ceilings... (Krugman 2012, pp. 146-147)

The Head of the RBA's Financial Stability Department, Luci Ellis, dismissed the idea of regulating debt ratios:

In Australia, households in aggregate used to have very little debt against their homes, relative to the value of those homes, back when the financial sector was highly regulated and inflation eroded that debt quickly (Graph 6). Obviously this measure of leverage has risen since then. It would not be desirable for this ratio to approach that in the United States. However, we do not think the most effective way to prevent that would be to impose a cap just for new borrowers.

Nor do we think it is sensible to rely on simple rules like a ratio of loan amount to income; nowadays many Australian lenders sensibly take borrowers' other obligations and expenses into account when determining how much debt can be serviced, and thus how much they will lend. (Ellis 2012, pp. 7-8)

The theoretician thus tells us that the level of debt or its growth has no significant macroeconomic implications. The practitioner tells us that we should leave determining the optimal ratio of private debt to income to the lenders. Both these well-intentioned arguments are profoundly wrong.

## 5 The real world of endogenous money

Krugman's error—which is common to all mainstream "Neoclassical" economists—is to ignore the role of banks in the economy, and treat lending money as analogous to one neighbour lending a lawnmower to another. The loan of course makes no difference to the amount of grass that can be cut on a given weekend: the borrower's capacity to mow rises but the lender's capacity falls.

In fact, banks in a market economy are more analogous to lawnmower factories than to neighbours: just as lawnmower factories make lawnmowers, and an increase in lawnmower sales does increase the amount of grass that can be mowed, banks produce money by creating debt, and an increase in the production of debt increases aggregate economic activity.

The fact that mainstream economists ignore this debt-and-money-creation role of banks is why they did not see this crisis coming. Bizarre as it may sound, all accepted economic models today ignore the existence of banks. I know this claim sounds ludicrous to non-economists, so I have to thank Paul

Krugman for confirming this for me in a recent debate between us. In reaction to a conference paper in which I claimed that banks play an essential role in macroeconomics, he stated

In particular, [Keen] asserts that putting banks in the story is essential. Now, I'm all for including the banking sector in stories where it's relevant; but why is it so crucial to a story about debt and leverage?

The reason that banks are crucial is because a bank loan creates additional spending power for the borrower without reducing the spending power of existing savers. However Krugman's model of lending—which is common to Neoclassical economics—ignores lending by banks to instead model lending as occurring between non-bank individuals. The patient lender can consume less because of the loan, the impatient borrower can consume more, so that in the aggregate there can only be a trivial change to aggregate demand:

Keen then goes on to assert that lending is, by definition (at least as I understand it), an addition to aggregate demand. I guess I don't get that at all. If I decide to cut back on my spending and stash the funds in a bank, which lends them out to someone else, this doesn't have to represent a net increase in demand. Yes, in some (many) cases lending is associated with higher demand, because resources are being transferred to people with a higher propensity to spend; but Keen seems to be saying something else, and I'm not sure what. I think it has something to do with the notion that creating money = creating demand, but again that isn't right in any model I understand. (Krugman 2012)

Table 1 gives an example of this view of lending, in which banks can be ignored (because lending is just “a case of less patient people—people who for whatever reason want to spend sooner rather than later—borrowing from more patient people” (Krugman 2012, p. 146)), following the accounting convention that an increase to a liability is shown with a negative sign and an increase to an asset is shown with a positive sign.

**Table 1: Neoclassical vision of lending**

Row	Operation	“Bank Assets”			“Liabilities”				Sum
		Not Relevant			Personal Balance Sheets				
					Impatient		Patient		
A	L	A	L						
0	Initial Value				20	0	80	0	100
1	Lend				-Loan		+Loan		0
2	Record					+Loan		-Loan	0
	Sum	0	0	0	20-Loan	+Loan	80+Loan	-Loan	100

In this Neoclassical vision of lending, the economy starts with a given stock of money (100 in this example), and lending redistributes this between agents but does not increase it. Banks are just intermediaries in this process, and can be ignored—as they are in *all* mainstream economic models.



In reality, and in the alternative macroeconomic theory that I and other non-Neoclassical economists are constructing, banks play a crucial role which the Neoclassical “Loanable Funds” view ignores. This is, to quote Schumpeter, “the creation of new purchasing power out of nothing...”:

‘It is always a question, not of transforming purchasing power which already exists in someone's possession, but of the creation of new purchasing power out of nothing...’ (Schumpeter 1934, p. 73)

The statement that banks can create new purchasing capacity “out of nothing” is partly allegorical. It should be taken as in contrast to a commodity, which requires other commodities as inputs in order to be produced—and if you want more output, you have to have additional inputs. In contrast, money is not produced by means of other commodities, and there is no strict relationship between the physical resources a bank employs and the amount of money produced.<sup>2</sup> Unlike a manufacturing firm which must have a physical factory to produce output, the key asset that a bank needs in order to be able to create money is an intangible one: a banking licence. This alone enables it to create the primary asset from which it earns an income: loans. It necessarily also gives banks the capacity to create money by the process of double-entry bookkeeping.

They can't create currency of course, and their capacity to create money is dependent on profitability and finding willing borrowers, but this is otherwise a “licence to print money” which is not effectively constrained by the reserve operations of Central Banks.

A bank's capacity to create money can easily be illustrated using double-entry bookkeeping. A bank's assets and liabilities always sum to zero by the rules of double-entry bookkeeping, so when a bank commences operations—say with a licence worth \$100 million—this asset is balanced by liabilities (deposits) which initially it owns, and which are recorded as a negative sum on its balance sheet.

Making a loan to the non-bank public involves three steps:

1. The bank loans from the liabilities it currently owns to a member of the public: this is shown as a positive entry on its “Vault”—since it reduces the negative sum currently recorded there—and a negative entry on the deposit account of the borrower, since it increases this bank liability;
2. The increase in its loan assets is recorded as an addition to the positive sum of loans outstanding and a corresponding fall in the residual value of its goodwill;
3. It can then restore its intangible goodwill asset to the original value, and increase the liabilities it currently owns by the same amount.

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<sup>2</sup> The recent case of a New Zealand petrol station owner who absconded after Westpac inadvertently gave him a \$10 million overdraft when he had applied for a \$100,000 one is instructive here. The extra \$9.9 million of potential money created by that mistake required one *less* keystroke than creating the correct amount would have done: some hapless employee neglected to press the “.” key and thus created 100 times as much potential money with slightly less physical effort than it would have taken to produce the correct amount. See <http://www.smh.com.au/business/10m-westpac-blunder-accused-found-out-about-error-on-tv-court-hears-20120517-1ysnp.html>

All these operations are shown in Table 2, with an example in which the bank has already made a single loan to a “patient” agent, and thereafter lends to the “impatient” agent.

**Table 2: Endogenous money vision of lending**

Row	Operation	Assets		Liabilities			Sums	
		Goodwill	Loans	Vault	Deposits		Assets & Liabilities	Deposits
					“Impatient”	“Patient”		
0	Initial Value	90	10	-90	0	-10	0	-10
1	Lend			+Loan	-Loan		0	-Loan
2	Record	-Loan	+Loan				0	0
3	Restore Goodwill	+Loan		-Loan			0	0
	Sum	90	10+Loan	-90	-Loan	-10	0	-10-Loan

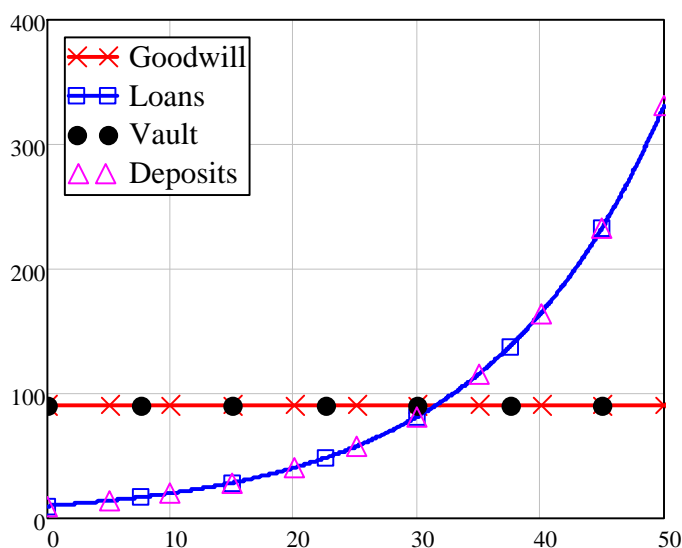
Thus though lending is a “zero sum game” as Krugman points out (“one person’s liability is another person’s asset”), it has macroeconomic consequences because the amount of money in circulation is equivalent to the banking sector’s liabilities to the non-bank public, which are the non-bank public’s deposits at banks.<sup>3</sup> This sum has been increased by the loan, and hence it has added to aggregate demand (see the final column in Table 2).

Both the loan itself and restoring the value of its intangible asset are at the bank’s discretion, but if it exercises this discretion then the level of both bank assets and liabilities rise by the amount of the loan. This means that a bank can use an intangible asset of constant value to create, over time, an essentially limitless amount of money (see Figure 4, which simulates a dynamic model derived from Table 2; there are of course many other operations that a bank executes, but none of them cancel out this effect).<sup>4</sup>

<sup>3</sup> The modern banking system complicates this base case enormously, but the fundamental principle remains that lending increases the amount of money in circulation.

<sup>4</sup> Loan repayment, which might be thought to negate this process, actually increases the value of the bank’s Goodwill and Vault—though it does slow down the rate of growth of money. I have not had time to include an Appendix with these models in this paper, but I will make one available to the Committee shortly.

Figure 4: Fixed intangible asset (banking licence) can support growing loans &amp; deposits over time



In and of itself, this is no bad thing. The qualitative as well as quantitative development than production has undergone since capitalism became the planet's dominant social system in the 18<sup>th</sup> century has depended on this generation of new spending power, which as Schumpeter argued long ago, is the major source of funding for true entrepreneurs. Unlike conventional Neoclassical economists, whose use of assumptions is best summarized by the old "[Let's assume we have a can opener](#)" joke,<sup>5</sup> Schumpeter explained the growth of capitalism by assuming that entrepreneurs did not, in general, come from existing funds with retained earnings, but were essentially penniless. Essentially, this makes it harder to explain how innovation occurs. Schumpeter then reasoned that, to be able to put their ideas into action, entrepreneurs had to borrow money:

the entrepreneur ... can only become an entrepreneur by previously becoming a debtor... his becoming a debtor... his becoming a debtor arises from the necessity of the case and is not something abnormal, an accidental event to be explained by particular circumstances. What he first wants is credit. Before he requires any goods whatever, he requires purchasing power. He is the typical debtor in capitalist society.' (Schumpeter 1934, p. 102)

In turn, Schumpeter reasoned that if lending simply was transferring existing spending power from "patient" to "impatient" agents, the resulting drop in demand from savers would counter some of the impetus to invest in the first place. If that was the only way for entrepreneurs to get money, then the process would be somewhat self-defeating, and progress in capitalism would be very slow. But he knew

<sup>5</sup> A physicist, a chemist and an economist are shipwrecked on a desert island along with a broken container full of cans of baked beans. The chemist says that he can start a fire using the island's palm trees, so that they can explode the cans. The physicist says that he can calculate where the beans will land after the explosion. The economist, who has been listening to this conversation disdainfully, remarks "Hang on guys; you're making it much too complicated. Instead, let's assume we have a can opener."

that the conventional belief that banks simply act as intermediaries between savers and borrowers was false, because it ignored the capacity for banks to endogenously create new spending power:

‘Even though the conventional answer to our question is not obviously absurd, yet there is another method of obtaining money for this purpose, which ... does not presuppose the existence of accumulated results of previous development, and hence may be considered as the only one which is available in strict logic. This method of obtaining money is the creation of purchasing power by banks... It is always a question, not of transforming purchasing power which already exists in someone's possession, but of the creation of new purchasing power out of nothing... (Schumpeter 1934, p. 73)

This theoretical argument received empirical support from research by Fama and French. Using the Compustat database of company reports from publicly-traded US non-financial corporations between 1951 & 1996, Fama and French calculated aggregate non-financial corporate investment, and correlated it with equity issue, retained earnings, and new debt (see Figure 5).

Figure 5: Correlations of investment to new equity, retained earnings and new debt (Fama & French 1999, p. 1954)

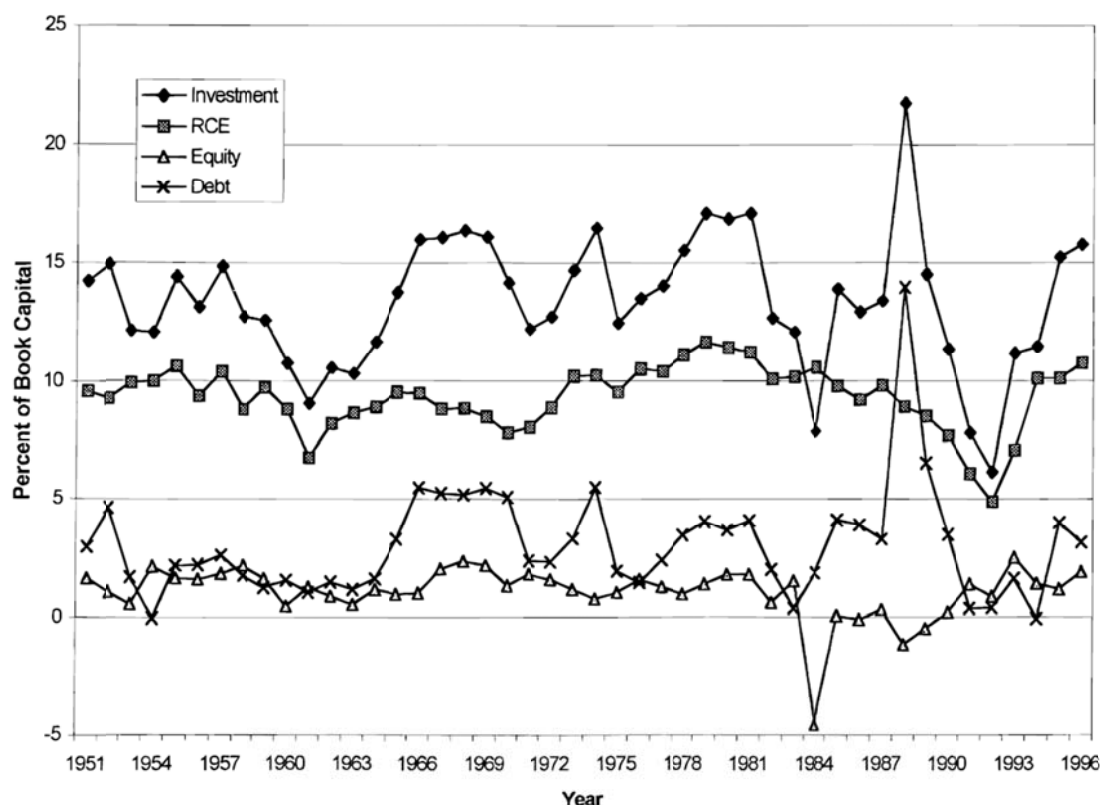


Figure 3. Investment and its financing.

They concluded that “the source of financing most correlated with investment is long-term debt”:

Figure 3 shows investment and its financing year by year. The figure suggests that new net issues of stock do not move closely with investment. In fact, when the variables are measured relative to book capital ... the correlation of investment,  $I_t$ , and new net issues of stock,  $dSt$ , is only 0.19... retained cash earnings move more closely with investment. The correlation between  $I_t$  and  $RCE_t$  is indeed higher, 0.56, but far from perfect. The source of financing most correlated with investment is long-term debt. The correlation between  $I_t$  and  $dLTD_t$  is 0.79. The correlation between  $I_t$  and new short-term debt is lower, 0.60, but nontrivial. These correlations confirm the impression from Figure 3 that debt plays a key role in accommodating year-by-year variation in investment. (Fama and French 1999, p. 1954)

These are the positive aspects of endogenous money creation by banks, but as we are painfully learning all over again, there are also negative aspects of this capacity.

## 6 Macroeconomics of endogenous money

The key conclusions from the Neoclassical vision of lending is that the level of private debt and its rate of change have no major macroeconomic consequences. This explains why Neoclassical economists not only ignore private debt, but also ignore explanations of economic crises in which change in the level of debt play a crucial role. This is why Bernanke dismissed Fisher's "Debt-Deflation Theory of Great Depressions" (Fisher 1933) (though Bernanke did devise a limited way that changes in debt could affect macroeconomics in what he termed the financial accelerator (Bernanke, Gertler et al. 1996)):

The idea of debt-deflation goes back to Irving Fisher (1933). Fisher envisioned a dynamic process in which falling asset and commodity prices created pressure on nominal debtors, forcing them into distress sales of assets, which in turn led to further price declines and financial difficulties. His diagnosis led him to urge President Roosevelt to subordinate exchange-rate considerations to the need for reflation, advice that (ultimately) FDR followed.

'Fisher's idea was less influential in academic circles, though, because of the counterargument that debt-deflation represented no more than a redistribution from one group (debtors) to another (creditors). Absent implausibly large differences in marginal spending propensities among the groups, it was suggested, pure redistributions should have no significant macro-economic effects...' (Bernanke 2000, p. 24)

As I have shown, this Neoclassical theory of lending is wrong, and bank creation of money adds to aggregate demand. Schumpeter put this case when explaining how this creation of money funds entrepreneurial activity:

The entrepreneurial function is not, in principle, connected with

the possession of wealth ... even though the accidental fact of the possession of wealth constitutes a practical advantage....the entrepreneur may mortgage goods, which he acquires with the borrowed purchasing power [but] The granting of credit comes first and collateral must be dispensed with, at least in principle, for however short an interval. From this case the conception of putting existing assets into circulation receives still less support than from the first. On the contrary it is perfectly clear that purchasing power is created to which in the first case no new goods correspond.

From this it follows, therefore, that in real life total credit must be greater than it could be if there were only fully covered credit. The credit structure projects not only beyond the existing gold basis, but also beyond the existing commodity basis. (Schumpeter 1934, p. 101)

As Schumpeter explains, this leads to cycles—but not to the kind of crisis we are experiencing today. These his student Hyman Minsky explained as being largely due to bank credit financing not just productive investment but also unproductive Ponzi speculation.

Minsky began from the same perspective as did Schumpeter, that the endogenous creation of spending power by banks means that aggregate demand is greater than demand from income alone:

If income is to grow, the financial markets, where the various plans to save and invest are reconciled, must generate an aggregate demand that, aside from brief intervals, is ever rising. For real aggregate demand to be increasing, . . . it is necessary that current spending plans, summed over all sectors, be greater than current received income and that some market technique exist by which aggregate spending in excess of aggregate anticipated income can be financed. *It follows that over a period during which economic growth takes place, at least some sectors finance a part of their spending by emitting debt or selling assets.* (Minsky 1963; Minsky 1982, p. 6; emphasis added)

He then pointed out that, as well as funding investment and entrepreneurs, banks also fund Ponzi Financiers: individuals whose cash flow from assets they own is less than their debt servicing costs, but who can profit by selling assets on a rising market. Since they are actually insolvent between asset sales, they have an insatiable demand for more debt:

A Ponzi finance unit is a speculative financing unit for which the income component of the near term cash flows falls short of the near term interest payments on debt so that for some time in the future the outstanding debt will grow due to interest on existing debt... Ponzi units can fulfill their payment commitments on debts only by borrowing (or disposing of assets)... a Ponzi unit must increase its outstanding debts.' (Minsky 1982, p. 24)

These insights—that the change in debt funds investment and speculation—mean that macroeconomics is far more complex than the simple Neoclassical model implies. Banks, debt and money—three aspects of reality that the Neoclassical model ignores—must therefore be considered if we are truly to understand how the economy operates.

Putting Schumpeter's and Minsky's arguments more formally, a starting point of this new macroeconomics is that aggregate demand equals income *plus the change in private debt*, and aggregate supply equals net expenditure on goods and services *and on financial assets*. This means that the change in debt has a strong impact upon both the level of economic activity and the level of asset prices.

When we consider change in economic activity, the picture becomes more complex still. The change in aggregate demand is the sum of change in income *plus the acceleration of debt*, and this will drive both change in economic output and change in asset prices.

These relationships between changes in private debt and the macroeconomy and finance are easily illustrated using data that Central Banks routinely collect, but also routinely ignore.

As Figure 5 shows, the change in private debt is strongly correlated with the level of employment: a rise in the rate of growth of debt causes a fall in unemployment. The relatively mild increase in unemployment that Australia experienced during the GFC, when compared the US experience, is largely explained by the fact that the change in debt did not go negative in Australia during the GFC, whereas it did go negative America.

Figure 6: Correlation of change in debt and unemployment (Corr = -0.64)



Similarly, Australia’s record during the 1990s recession was worse than the USA’s, since the change in debt did turn negative in Australia during the 1990s recession, but it did not do so in the USA.

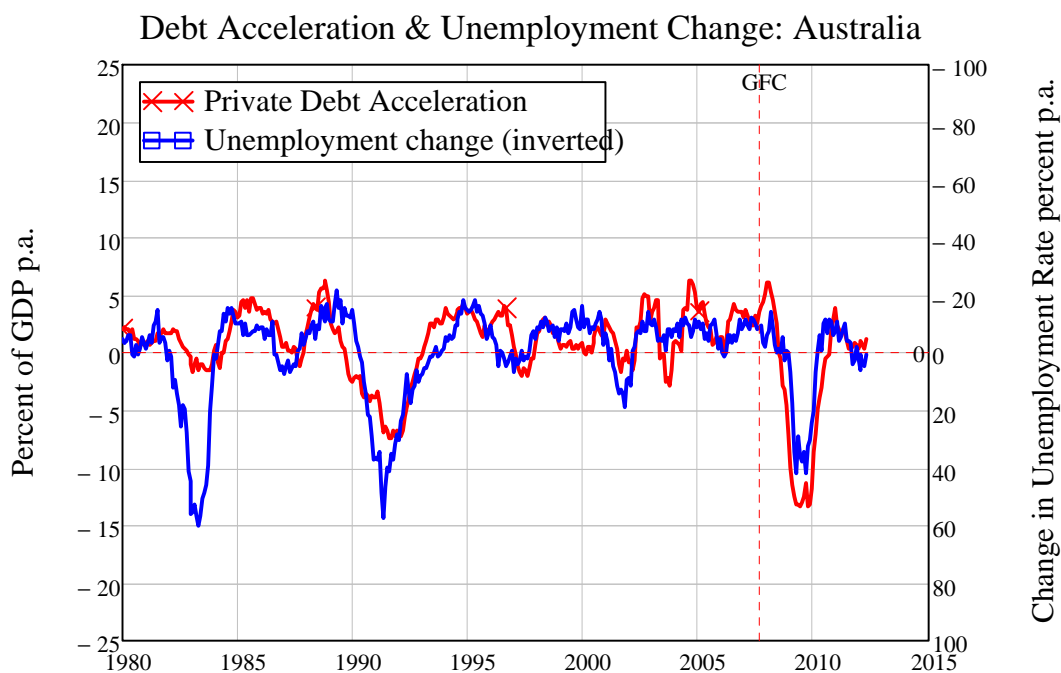


Figure 7: Correlation of change in debt and unemployment (Corr = -0.75)



Figure 8 and Figure 9 show the relationship between the acceleration of debt and change in the level of unemployment in Australia and the USA. This indicator—which Neoclassical economists would have us ignore—clearly explains the severity of the GFC, with the deceleration of debt at that time being the sharpest in post-WWII history (and in America, the sharpest ever recorded).

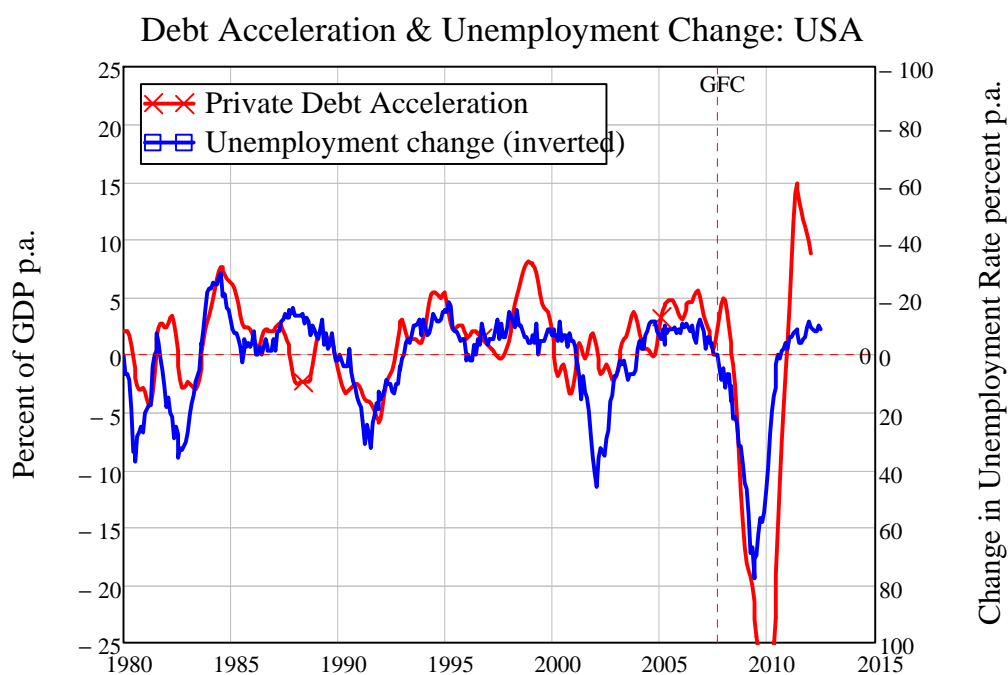
Figure 8: Correlation of debt acceleration with change in unemployment in Australia (Corr = -0.65)



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The difference between the two economies is largely a result of the deceleration of debt in Australia being much lower than it was for the USA. However the Australian data also indicates that the boost our economy received from accelerating debt after the GFC is now petering out. The same trend is also evident in the USA after its huge swing from decelerating to accelerating debt after the GFC (even though the change in debt is still negative in the USA, debt is falling more slowly which translates as an acceleration of debt).

Figure 9: Correlation of debt acceleration with change in unemployment in the USA (Corr = -0.68)



The acceleration of private debt also plays a key role in driving asset prices—and this relationship underpins my recommendations for a post-GFC approach monetary policy.

An economic theory which ignores these factors will be a dangerously misleading guide as to how the economy actually operates. Unfortunately, this theory not only dominates academic economics, it is also the basis on which economic agencies like the Treasury and the RBA devise policies to manage the economy. This is why they did not see the crisis coming, why their initial confidence that the crisis was behind us was misplaced, why their advice about how to get out of it now is wrong, and why their recommendations about how banking should be managed in the future should be ignored.

## 7 Rely on bank prudence?

As noted earlier, the Head of the RBA's Financial Stability Department, Luci Ellis, recently recommended against the idea that debt to income ratios should be either monitored or regulated. Ellis's error—which again is representative of mainstream economic thinking—is to believe that well-managed banks can be relied upon to ensure that the aggregate level of debt is not a problem. This belief is a consequence of the Neoclassical theory that dominates RBA advice to government—advice that was and still is ignorant of (a) the capacity of banks to create additional aggregate demand by lending, (b) the perverse incentives that banks face which encourage them to wish to create as much debt as they can persuade the non-bank public to take on. It also ignore (c) that lending can be not just for productive investment or immediate consumption, but also for asset speculation, and (d) that asset-based lending creates a

positive feedback between change in debt and the level of asset prices which leads to crises like the one we are now in.

The fact that banks can add to aggregate demand by new lending—contrary to conventional theory—in turn leads to the danger that unregulated banks will succumb to the perverse incentives this generates and create too much debt by financing asset price speculation rather than productive investment.

### 7.1 Perverse Incentives

The perverse incentives that banks face are easily illustrated by a simple endogenous money model in which banks have 3 ways to increase their income: by turning over the current stock of money more rapidly; by persuading borrowers to repay debt more slowly; and by creating new debt by new lending.

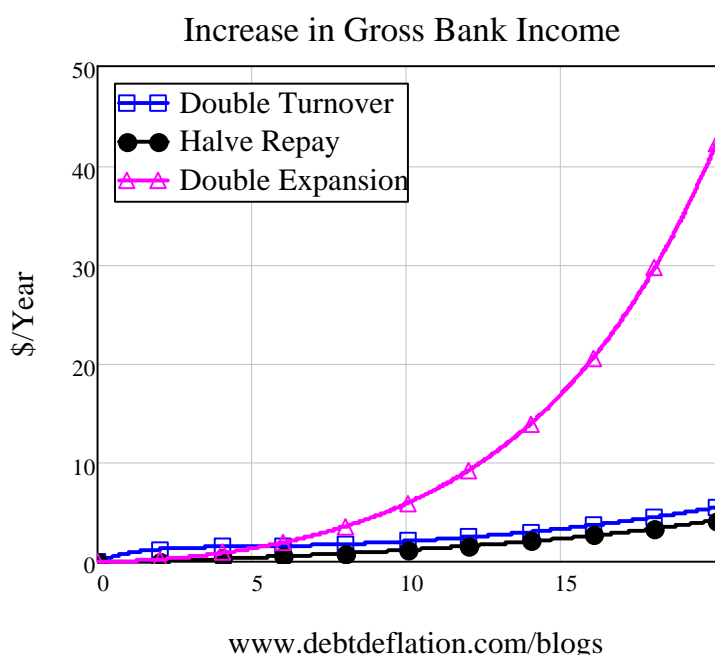
This simple model is derived from Table 3.

**Table 3: Simple model to consider ways banks can increase their incomes**

	Assets		Liabilities				Equity
			Bank	Deposits			
Account	Goodwill	Loan	Vault	Firm	Worker	Shareholder	Safe
Working Capital			WC	-WC			
Record Loan	-WC	WC					
Charge Interest			Int				-Int
Record Interest	-Int	Int					
Pay Interest			-Int	Int			
Record Payment	Int	-Int					
Wages				Wage	-Wage		
Dividends				Div		-Div	
Consume				-ConsW	ConsW		
				-ConsS		ConsS	
				-ConsB			ConsB
Repay Loans			-Repay	Repay			
Record Repay	Repay	-Repay					
Investment Loan			Invest	-Invest			
Record Loan	-Invest	Invest					
Restore Goodwill	Invest		-Invest				

The impacts of doubling turnover, doubling how long loans take to be repaid, and doubling the rate of creation of new debt, are shown in Figure 10. Clearly, by far the best way to increase bank income is to create more debt.

Figure 10: Ways to increase bank income



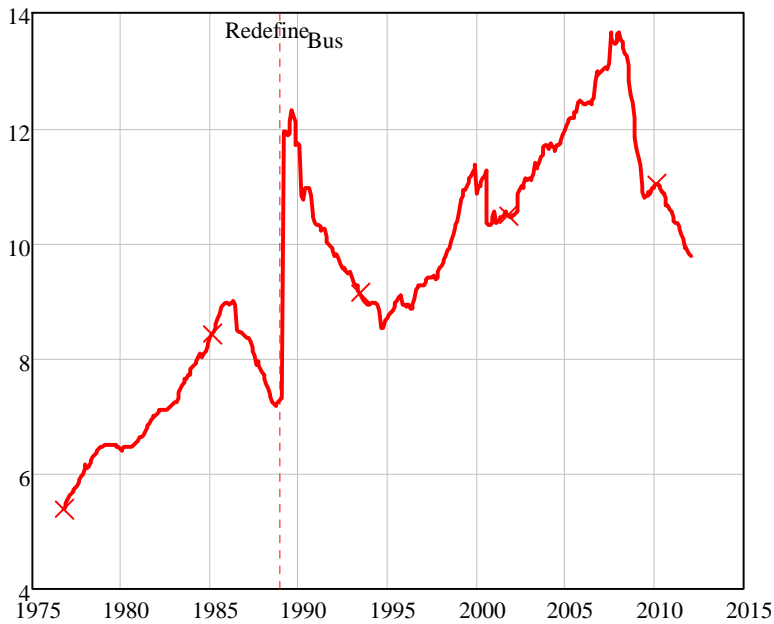
The difficulty for banks in achieving this objective lies in finding willing borrowers. Here is the second, great perverse incentive that leads to financial crises: the best way to encourage the public to take on more debt is to fund asset price speculation.

## 7.2 Funding Asset Speculation

When debt is taken on specifically to finance either immediate consumption or genuine investment, then in general the public can be relied upon to limit the debt it takes on according to its capacity to pay. This control is far from perfect, since borrowing relies upon expectations about the future which will almost certainly not be realised. But this “Schumpeterian” use of debt is likely to lead to cycles rather than a Depression.

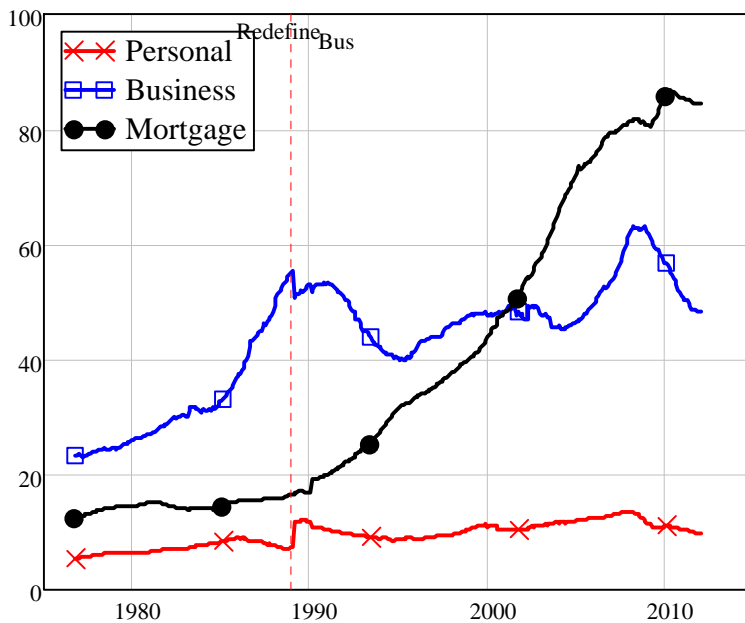
This is most easily indicated by comparing borrowing by households for personal consumption to household borrowing for asset purchases. Considered on its own, personal debt appears to have a strong upward trend, and to be highly volatile—see Figure 11.

Figure 11: Unsecured personal debt to GDP (with redefinition of some business debt in 1989)



However, when seen in the context of both mortgage and business debt, personal debt has been relatively stable—see Figure 12.

Figure 12: Personal, mortgage and business debt to GDP ratios



Households were willing to take on more mortgage debt relative to income over time because they believed they were riding a property bubble towards prosperity. But in fact the main force driving house prices higher was the acceleration of mortgage debt.

### 7.3 The feedback trap between rising debt and asset prices

As explained in section 6, since the change in debt is a component of aggregate demand, and aggregate demand is expended on asset purchases as well as goods and services, then the acceleration of debt is a component of the change in aggregate demand, and this will play a role in determining the direction in which asset prices move.

This generates what engineers call a positive feedback loop between change in debt and asset prices—“positive” not because it is a good thing, but because a change in the first factor causes a change in the second in the same direction, which thus causes a change in the first. Positive feedback loops inevitably lead to a breakdown of the system in which they occur—whether this is an electric circuit, a bridge, or an economy—and much of engineering is directed at identifying positive feedback loops in equipment and eliminating them via intelligent design.

The main factor which has driven house price bubbles around the world is the positive feedback between change in mortgage debt and house prices. Rising mortgage debt caused house prices to rise, and the rise in house prices encouraged more households to take on more mortgage debt.

The process had to break down—and thus turn house price bubbles into house price busts—because nothing can accelerate forever: for mortgage debt to continue accelerating indefinitely, then ultimately the ratio of mortgage debt to income would be infinite. Long before this point is reached, mortgage acceleration will slow down: the increasing costs of entry deter new entrants, or the pool of available entrant shrinks too much because of past price rises.

The same positive feedback process then works in reverse: falling house prices encourage current mortgagees to attempt to reduce their debt, and the decline in mortgage debt causes house prices to fall. The unwinding process, however, is not symmetric: while a huge rise in debt occurs in the upswing, a huge fall in prices can result from only a modest fall in debt levels. Society is then stuck in a Depression, with debt-servicing and continuing debt-deleveraging depressing aggregate demand as asset prices fall well below the level at which the bubble began.

This process is now clearly evident in US data, and is also becoming manifest in Australia’s data. In both countries, the relationship between mortgage acceleration and change in house prices is clear. The correlation between mortgage acceleration and house price change in Australia since 1992 is 0.59 (see Figure 13),<sup>6</sup> while the correlation in the USA from 1990 is 0.78 (see Figure 14).

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<sup>6</sup> A redefinition of mortgage debt in 1990 causes a discontinuity in the debt acceleration data in 1992, distorting the correlation around this date.

Figure 13: Correlation of mortgage acceleration and house price change in Australia (Correlation = 0.59)

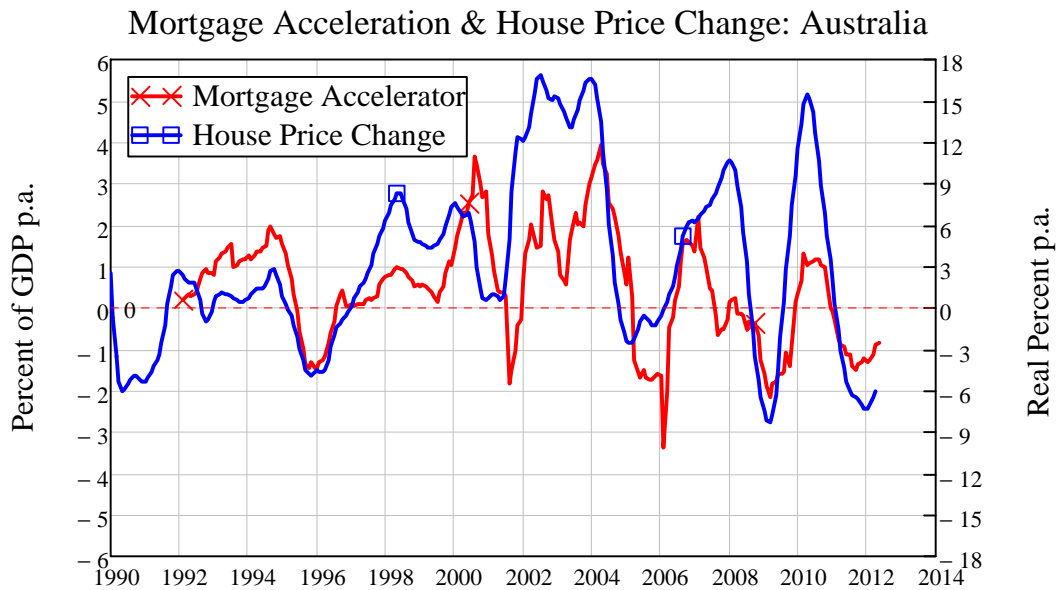
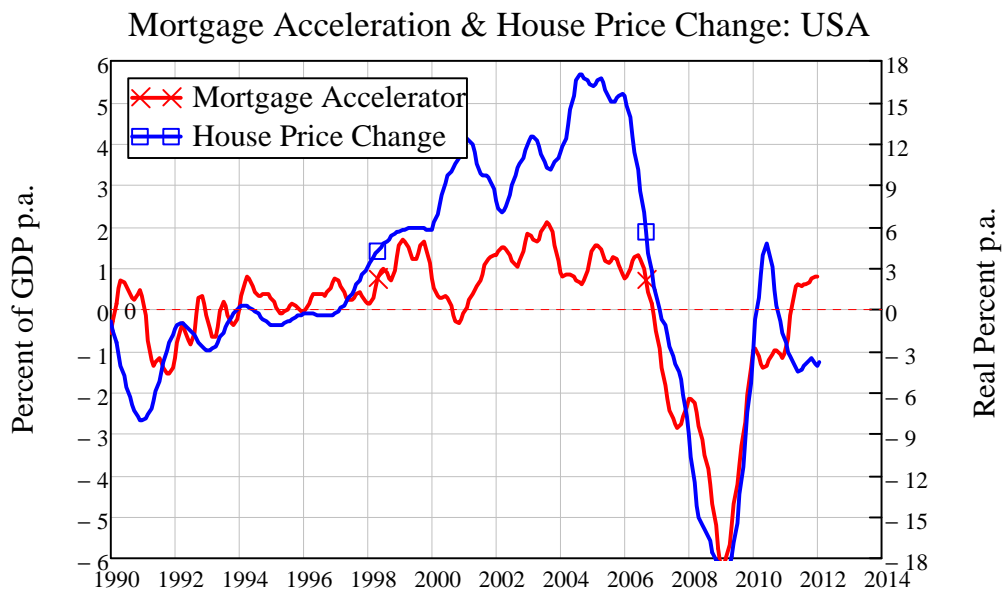


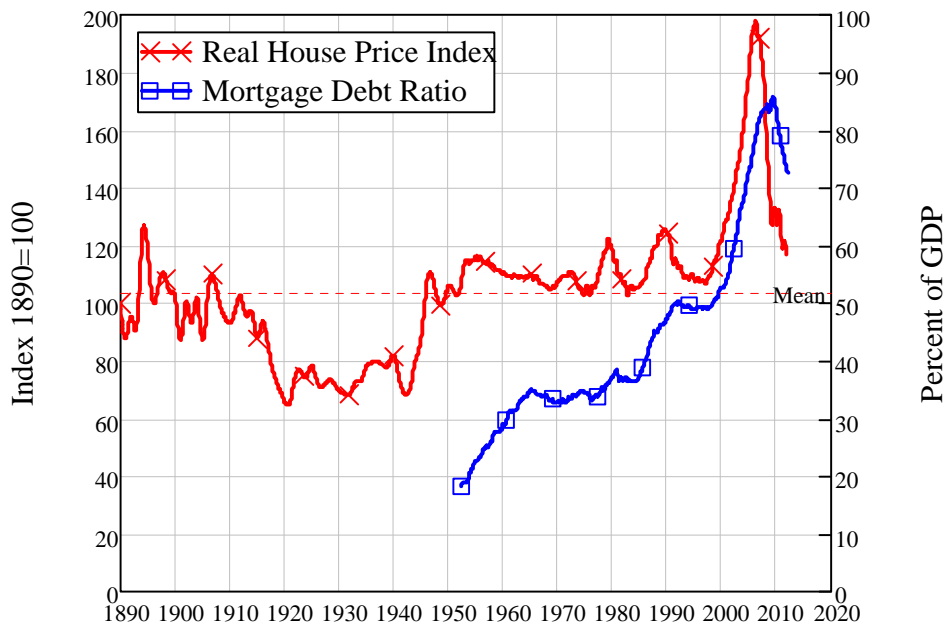
Figure 14: Correlation of mortgage acceleration and house price change in the USA (Correlation = 0.78)



The bubble in American house prices has clearly burst, and prices have now fallen to only 15 percent above the long term average. But with the mortgage debt overhang as big as it is, the odds are that the fall in prices will take them well below the mean value of 103 (see Figure 15).



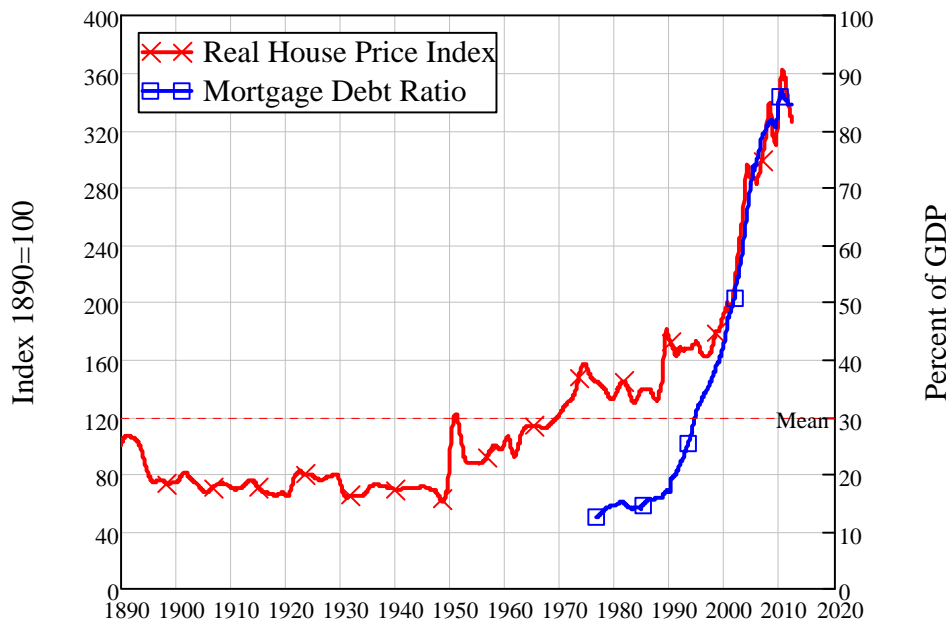
Figure 15: Real house prices and mortgage debt: USA



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The USA is now six years into the bursting of its house price bubble. Australian house prices peaked in June 2010, and were 10 per cent below the peak by March 2012. We clearly have a long way to go.

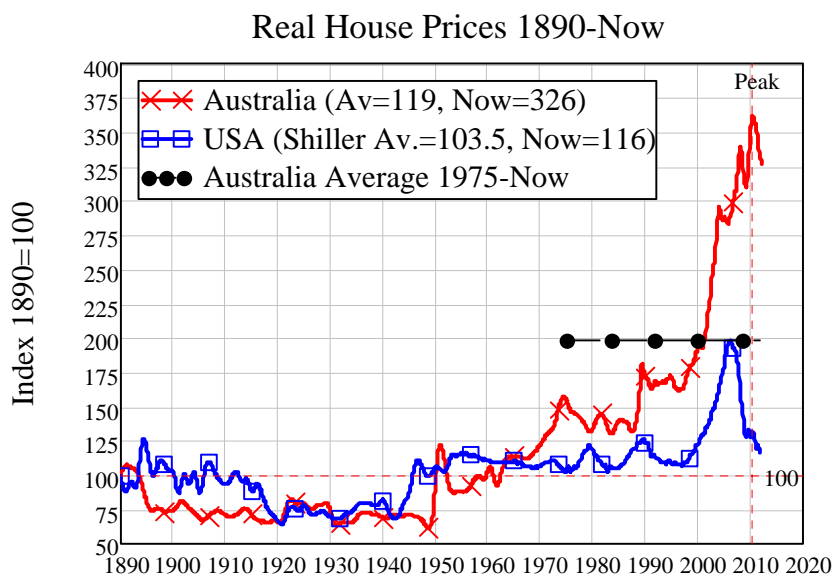
Figure 16: Real house prices and mortgage debt: Australia



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There are historical reasons why the full period from 1880 till now is not a good guide to the long term average real house price for Australia (Stapledon 2007), but even a comparison of current prices to the average since 1975 implies that the fall in Australian house prices—under the impetus of decelerating mortgage debt—has a long way to go.

Figure 17: Comparing Australian and US real house prices



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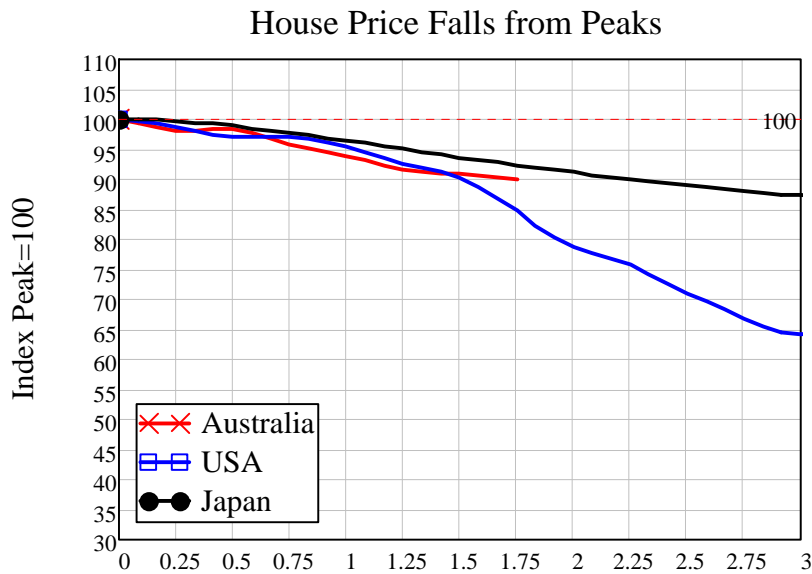
The Committee should not take any comfort in the “Australia is different” that Australia doesn’t have a house price bubble, nor that the price declines will not have serious macroeconomic consequences. Similar assurances were accepted by the US Congress when proffered by US Federal Reserve Chairman Alan Greenspan in August of 2005:<sup>7</sup>

Although a "bubble" in home prices for the nation as a whole does not appear likely, there do appear to be, at a minimum, signs of froth in some local markets where home prices seem to have risen to unsustainable levels... Although we certainly cannot rule out home price declines, especially in some local markets, these declines, were they to occur, likely would not have substantial macroeconomic implications. (Greenspan 2005)

Two years later, America entered its deepest downturn since the Great Depression. Australian house prices are also falling at much the same rate as US prices did in the early years of their decline.

<sup>7</sup> See <http://federalreserve.gov/boarddocs/testimony/2005/200506092/default.htm>.

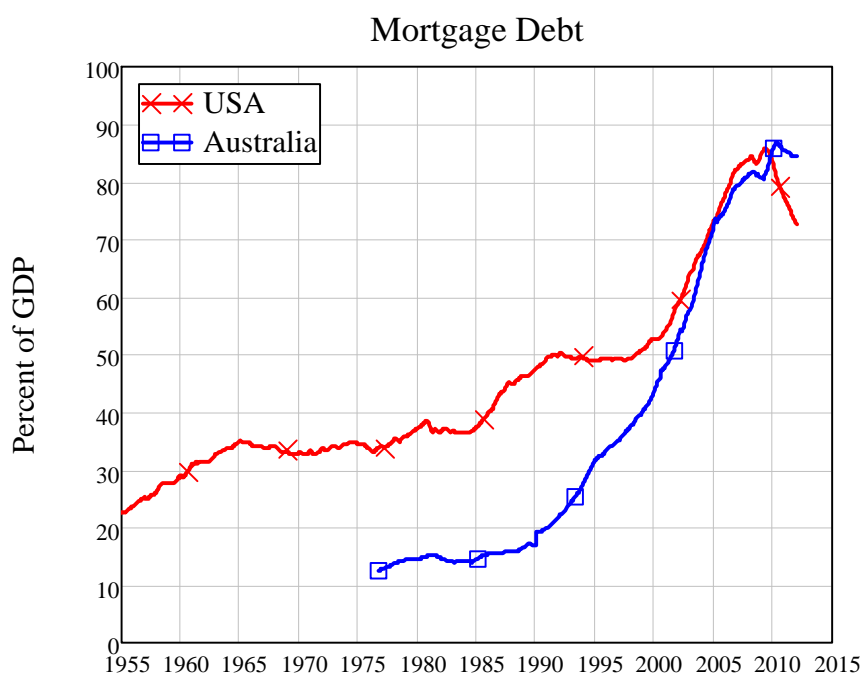
Figure 18: Comparing house price declines from peaks



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As an aside, I also find Ms Ellis’s comment that “It would not be desirable for this ratio [debt ..., relative to the value of those homes] to approach that in the United States” rather disingenuous, since this ratio ignores the role that rising debt has played in increasing house prices. The American ratio was also quite low prior to the crisis, and for the same reason: house prices had not yet crashed. Once they did, this ratio increased dramatically, as I expect it will also in Australia. A far better indicator of how our leverage compares to the USA’s is a comparison of our mortgage debt to GDP ratio to theirs, and on that basis, Australians are even more leveraged than Americans were at the peak of their bubble, and took on that leverage much more quickly than did Americans (see Figure 19).

Figure 19: Mortgage debt to GDP in Australia and the USA



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## 8 Rely on Central Bank control?

The preceding sections establish that the private banking system cannot be relied upon to constrain lending to levels that are consistent with good macroeconomic outcomes. Is it then possible that the Central Bank itself can control this lending, and keep it within sensible bounds?

Economics textbooks answer this question in the affirmative, as they teach the “money multiplier” model of money creation, in which bank loans can only be made after the government has injected reserves into the system. Yet almost 50 years ago, the then Vice President of the New York Federal Reserve described the view that bank lending was constrained by the activities of Federal Reserve as “naïve”. Speaking in opposition to proposals put forward by Monetarists, Holmes stated that:

The idea of a regular injection of reserves ... also suffers from a naïve assumption that the banking system only expands loans after the System (or market factors) have put reserves in the banking system. In the real world, banks extend credit, creating deposits in the process, and look for the reserves later... the reserves required to be maintained by the banking system are predetermined by the level of deposits existing two weeks earlier. (Holmes 1969, p. 73)

The relationship of loans and deposits leading and reserves lagging is more pronounced today, with the reserve lag now being 30 days (O'Brien 2007, Table 12, p. 52). The European Central Bank has also

recently confirmed that the Post Keynesian position that “loans create deposits, and determine reserves with a lag” accurately describes private and Central Bank procedures:

In fact, the ECB’s reserve requirements are backward-looking, i.e. they depend on the stock of deposits (and other liabilities of credit institutions) subject to reserve requirements as it stood in the previous period, and thus after banks have extended the credit demanded by their customers. (ECB 2012, p. 21)

Conventional Central Bank mechanisms to limit private money creation have therefore long been known to be ineffective, and Australia is one of many OECD nations that no longer has a reserve ratio (O'Brien 2007). But despite this, Neoclassical economists still tend to believe that the Central Bank can control private bank lending. Krugman recently argued in his debate with me that private bank lending was constrained by the cash printed by the Federal Reserve:

Yes, a loan normally gets deposited in another bank — but the recipient of the loan can and sometimes does quickly withdraw the funds, not as a check, but in currency. And currency is in limited supply — with the limit set by Fed decisions. So there is in fact no automatic process by which an increase in bank loans produces a sufficient rise in deposits to back those loans, and a key limiting factor in the size of bank balance sheets is the amount of monetary base the Fed creates — even if banks hold no reserves. (Krugman 2012)

I leave it to the Committee to imagine the public’s reaction if cash in ATMs suddenly ran out. The Central Bank’s reaction would be obvious: notes would be printed in a gale and rapidly delivered to ATMs. There is thus no way that bank loan officers would even consider the amount of bank notes currently in the system as a constraint on their lending. Krugman’s bizarre argument here shows how far Neoclassical economics is removed from reality.

We therefore cannot rely upon private banks to limit their lending to responsible levels, nor can we rely upon the current or past control mechanisms of the Central Bank. Clearly, a new approach to banking regulation is needed.

## 9 Recommendations

The endogenous money perspective on macroeconomics leads to very different advice on how to manage the banking system than mainstream Neoclassical theory. Firstly, banks cannot be relied upon to choose a prudent level of debt: they will always want to create as much debt as they can persuade the public to take on. There is nothing irrational in this behaviour: it is merely a rational response to the perverse incentives they face emanating from their capacity to produce debt and money.

The objectives of post-GFC banking regulation should therefore include, in addition to the current objectives of price stability and full employment, qualitative and quantitative monitoring of private debt,

and the development of mechanisms which limit or terminate the dangerous positive feedback links between growth in private debt and asset prices.

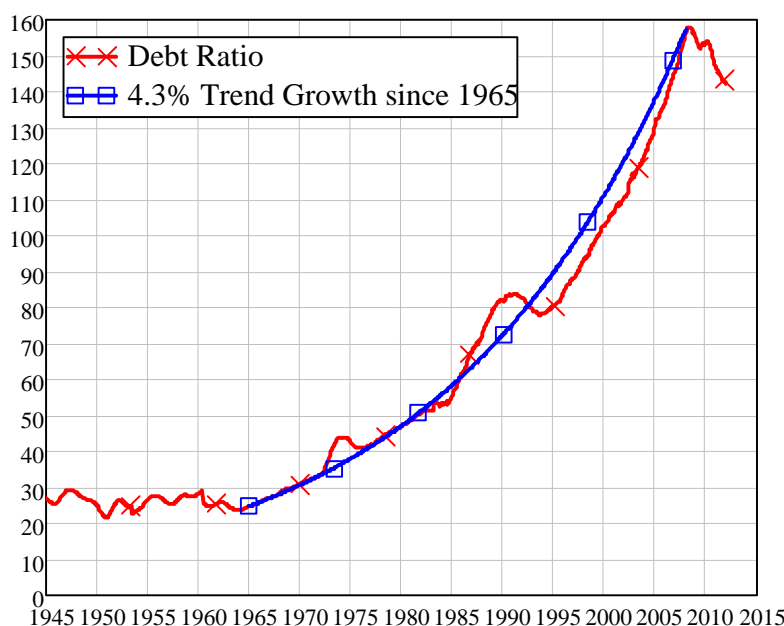
### 9.1 Monitoring of private debt

The RBA should monitor the level, rate of change and rate of acceleration of private debt, and react with both qualitative and quantitative controls when these indicators generate warning signals.

There is as yet no guidance as to what is an appropriate ratio of private debt to GDP. Some private debt is absolutely essential, as noted earlier, and the level of debt will necessarily fluctuate in response to waves of innovation, as Schumpeter eloquently explains (Schumpeter 1934, Chapter 6). Therefore some variation in the level, rate of change and acceleration of debt are to be expected even in a healthy economy. Judgment is required, and this is something that politicians should expect their advisors to be able to develop and deliver.

Clearly, the RBA has failed in this task in the past half century—for the simple reason that, by following Neoclassical economic theory, they ignored the role of private debt completely. Had they taken account of it, they might well have reacted to the trend for debt to rise that began in 1965, after 20 years of relative stability at between 20 and 30 percent of GDP.

Figure 20: Australia's aggregate private debt to GDP ratio since 1945



It is thus little wonder that today's RBA staff—such as Ms Ellis—deny the relevance of measures like the debt to GDP ratio, since to do otherwise would be to admit that the RBA has been derelict of its custodial responsibilities to date.

This understandable defence of past failures cannot be allowed to let failure continue into the future. The RBA should do the hard work needed to develop a sensible monitoring of debt to GDP levels. This

should include not only the level of debt, but the purposes to which that debt is put. Lending for investment should be both encouraged and largely left to its own devices. Lending for asset purchases—some of which will always be necessary since assets like houses cannot be purchased from income alone—should be closely monitored for signs that it may be fuelling an asset price bubble. A key factor here must be monitoring the acceleration of credit. In addition to my arguments on this topic here, the Committee should consult Schularick & Taylor 2009: they concluded that the acceleration of debt was the most important warning of an approaching financial crisis (Schularick and Taylor 2009).

Of course for the foreseeable future, the Treasury and RBA will have to manage the tendency for the level of debt to decline, with the negative implications that has for economic growth. Given that deleveraging after the Great Depression took 15 years (including the Second World War), this process will dominate the RBA's and the Treasury's activities for as much as a generation—and if you think that is an extreme statement that is easily discounted, ask yourself: what would you have said if, in 1985, I had predicted that economic growth in Japan would cease in the near future, and remain stagnant for two decades?

As much as monetary and fiscal policy must now prepare to deal with the consequences of past failures, we should also consider how to redesign the financial system so that, once this crisis is truly behind us, a future crisis can be prevented.

I do not believe that regulation alone will achieve this aim, for two reasons.

Firstly, Minsky's proposition that "stability is destabilizing" applies to regulators as well as to markets. If regulations actually succeed in enforcing responsible finance, the relative tranquillity that results from that will lead to the belief that such tranquillity is the norm, and the regulations will ultimately be abolished. After all, this is what happened after the last Great Depression.

Secondly, banks profit by creating debt, and they are always going to want to create more debt. This is simply the nature of banking. Regulations are always going to be attempting to restrain this tendency, and in this struggle between an "immovably object" and an "irresistible force", I have no doubt that the force will ultimately win.

If we rely on regulation alone to tame the financial sector, then it will be tamed while the memory of the crisis it caused persists, only to be overthrown by a resurgent financial sector some decades hence (sceptics on this point should take a close look at Figure 3, which shows the debt to GDP data for Australia from 1860 till today).

There are thus only two options to limit capitalism's tendencies to financial crises: to change the nature of either lenders or borrowers in a fundamental way. My preference is to address the latter by reducing the appeal of leveraged speculation on asset prices.

## 9.2 Redefining financial assets

There are, I believe, no prospects for fundamentally altering the behaviour of the financial sector because, as already noted, the key determinant of profits in the finance sector is the level of debt it can

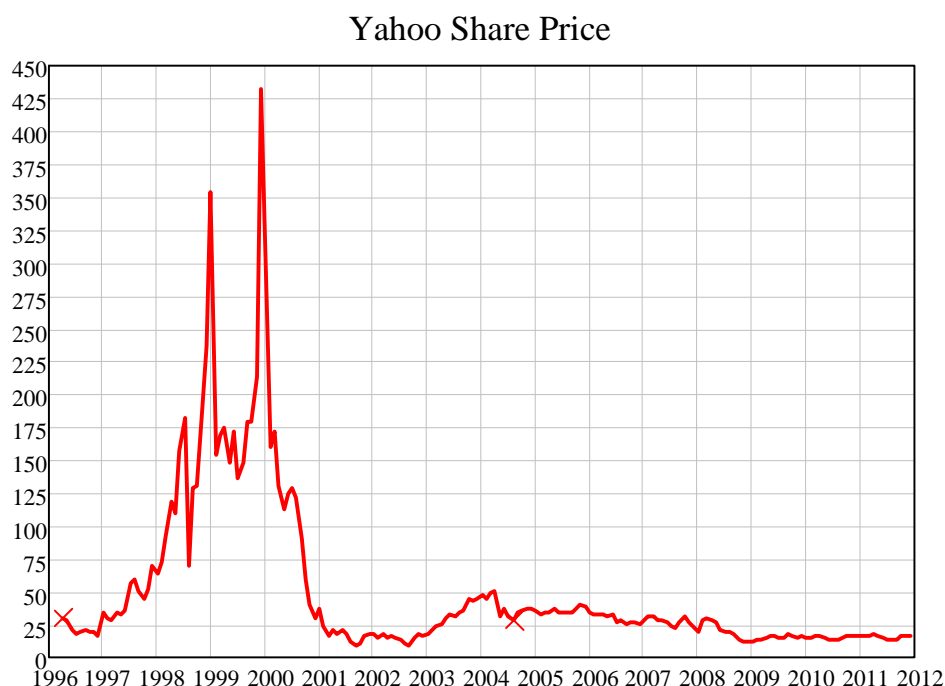
generate. However it is organised and whatever limits are put upon its behaviour, it will want to create more debt.

There are prospects for altering the behaviour of the non-financial sector towards debt because, fundamentally, debt is a bad thing for the borrower: the spending power of debt now is an enticement, but with it comes the drawback of servicing debt in the future. For that reason, when either investment or consumption is the reason for taking on debt, borrowers will be restrained in how much they will accept. Only when they succumb to the enticement of leveraged speculation will borrowers take on a level of debt that can become systemically dangerous.

### 9.2.1 Jubilee Shares

The key factor that allows Ponzi Schemes to work in asset markets is the “Greater Fool” promise that a share bought today for \$1 can be sold tomorrow for \$10. No interest rate, no regulation, can hold against the charge to insanity that such a feasible promise ferments, and on such a foundation the now almost forgotten folly of the DotCom Bubble was built. Both the promise and the folly are well illustrated in Yahoo’s share price

Figure 21: Yahoo Share Price



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I propose the redefinition of shares in such a way that the enticement of limitless price appreciation can be removed, and the primary market can take precedence over the secondary market. A share bought in an IPO or rights offer would last forever (for as long as the company exists) as now with all the rights it currently confers. It could be sold several times (say, seven times) onto the secondary market with all



the same privileges. But on its next sale it would have a life span of 50 years, at which point it would terminate.

The objective of this proposal is to eliminate the appeal of using debt to buy existing shares, while still making it attractive to fund innovative firms or startups via the primary market, and still making purchase of the share of an established company on the secondary market attractive to those seeking an annuity income.

I can envisage ways in which this basic proposal might be refined, while still maintaining the primary objective of making leveraged speculation on the price of existing share unattractive. The termination date could be made a function of how long a share was held; the number of sales on the secondary market before the Jubilee effect applied could be more other than seven. But the basic idea has to be to make borrowing money to gamble on the prices of existing shares a very unattractive proposition.

### 9.2.2 “The Pill”

At present, if two individuals with the same savings and income are competing for a property, then the one who can secure a larger loan wins. This reality gives borrowers an incentive to want to have the loan to valuation ratio increased, which underpins the finance sector’s ability to expand debt for property purchases.

Since the acceleration of debt drives the rise in house prices, we get both the bubble and the bust. But since houses turn over much more slowly than do shares, this process can go on for a lot longer.

Limits on bank lending for mortgage finance are obviously necessary, but while those controls focus on the income of the borrower, both the lender and the borrower have an incentive to relax those limits over time. This relaxation is in turn the factor that enables a house price bubble to form while driving up the level of mortgage debt per head.

I instead propose basing the maximum debt that can be used to purchase a property on the income (actual or imputed) of the property itself. Lenders would only be able to lend up to a fixed multiple of the income-earning capacity of the property being purchased—regardless of the income of the borrower. A useful multiple would be 10, so that if a property rented for \$30,000 p.a., the maximum amount of money that could be borrowed to purchase it would be \$300,000.

Under this regime, if two parties were vying for the same property, the one that raised more money via savings would win. There would therefore be a negative feedback relationship between leverage and house prices: an general increase in house prices would mean a general fall in leverage.

I call this proposal The Pill, for “Property Income Limited Leverage”. This proposal is a lot simpler than Jubilee Shares, and I think less in need of tinkering before it could be finalized. Its real problem is in the implementation phase, since if it were introduced in a country where the property bubble had not fully burst, it could cause a sharp fall in prices. It would therefore need to be phased in slowly over time—except in a country like Japan where the house price bubble is well and truly over (even though house prices are still falling).

## 10 Conclusion

This is a well-timed inquiry. Recent events in Europe and the USA have confirmed that the GFC is still very much with us, and Australia's only moderate economic performance even with the benefit of the China boom has emphasised that we are, like the rest of the OECD, affected by the dilemma of too much debt. I look forward to discussing these issues with the Committee if and when a public hearing is arranged.

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