

# The Debtwatch Manifesto

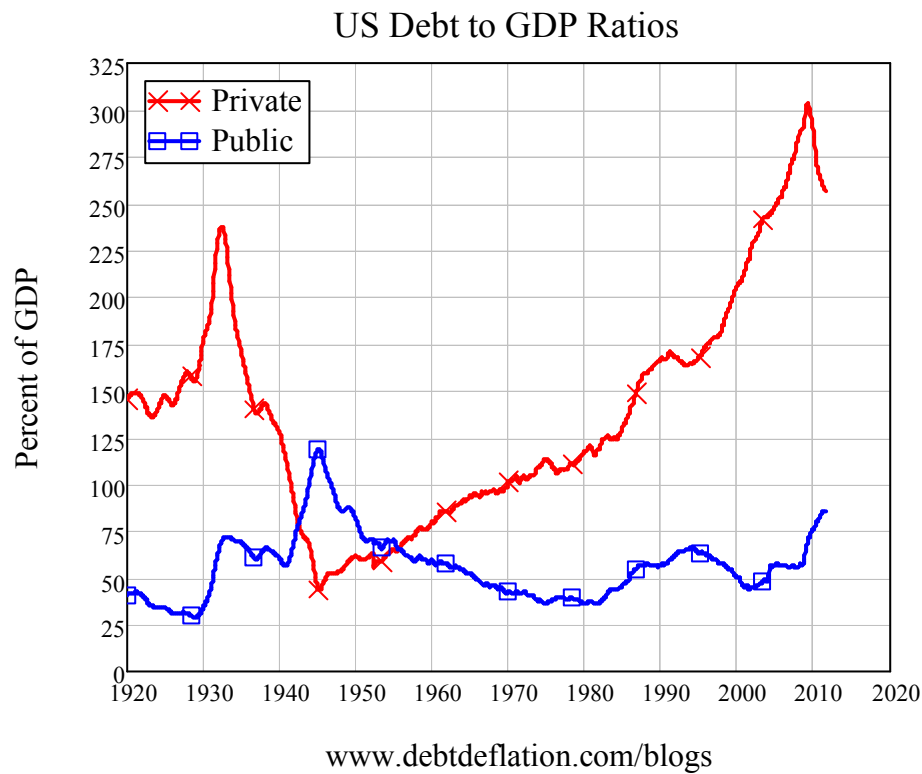
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## Preamble

The fundamental cause of the economic and financial crisis that began in late 2007 was lending by the finance sector that primarily financed speculation rather than investment. The private debt bubble this caused is unprecedented, probably in human history and certainly in the last century (see Figure 1). Its unwinding now is the primary cause of the sustained slump in economic growth. The recent growth in sovereign debt is a symptom of this underlying crisis, not the cause, and the current political obsession with reducing sovereign debt will exacerbate the root problem of private sector deleveraging.

Figure 1



US private debt clearly rose faster than GDP from the end of World War II (when the debt to GDP ratio was 43%) until 2009 (when it peaked at 303%), but there is no intrinsic reason why it (or the public sector debt to GDP ratio) has to rise over time. I give a theoretical explanation [elsewhere](#) (Keen 2010), but an empirical comparison will suffice here: 1945 till 1965 were the best years of the Australian economy—with unemployment averaging 2 percent—and during that time the private debt ratio remained relatively constant at 25% of GDP (see Figure 2).

Figure 2



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America’s minimum private debt ratio in 1945 may have been artificially low in the aftermath of both the Great Depression and World War II (and there are good reasons why the US economy should have a higher sustainable debt ratio than does Australia), but at some time between 1945 and America’s first post-WWII financial crisis in 1966 (Minsky 1982, p. xiii), it passed this level.

The explosion in speculative debt drove asset prices to all-time highs—relative to consumer prices—from which they are now inexorably collapsing (see Figure 3 and Figure 4).

Figure 3

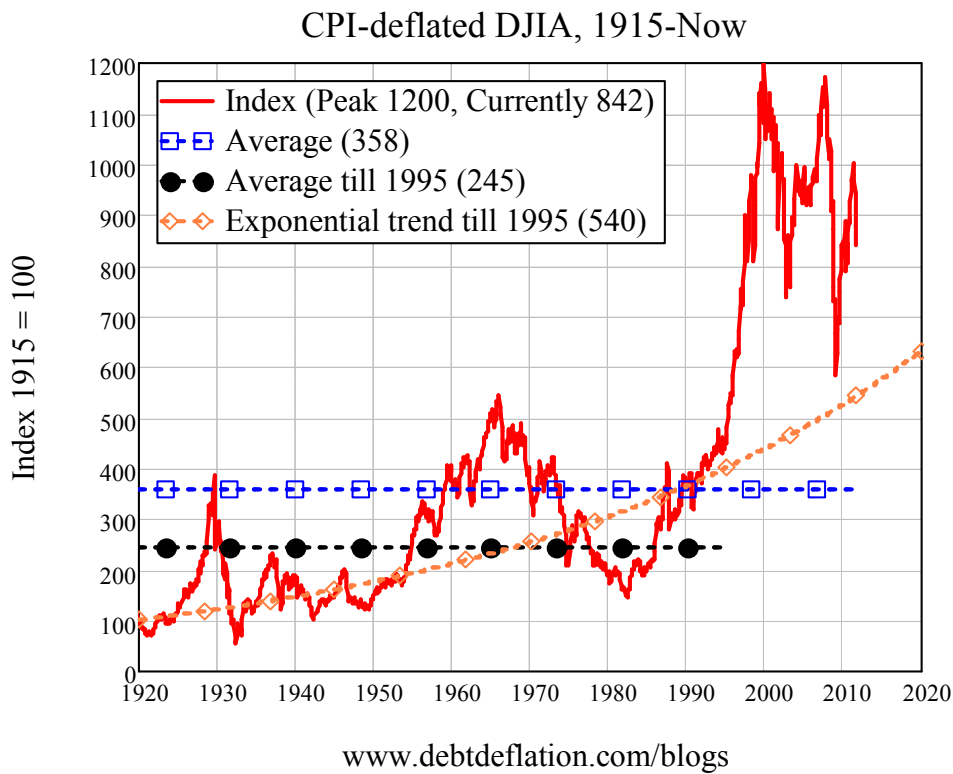
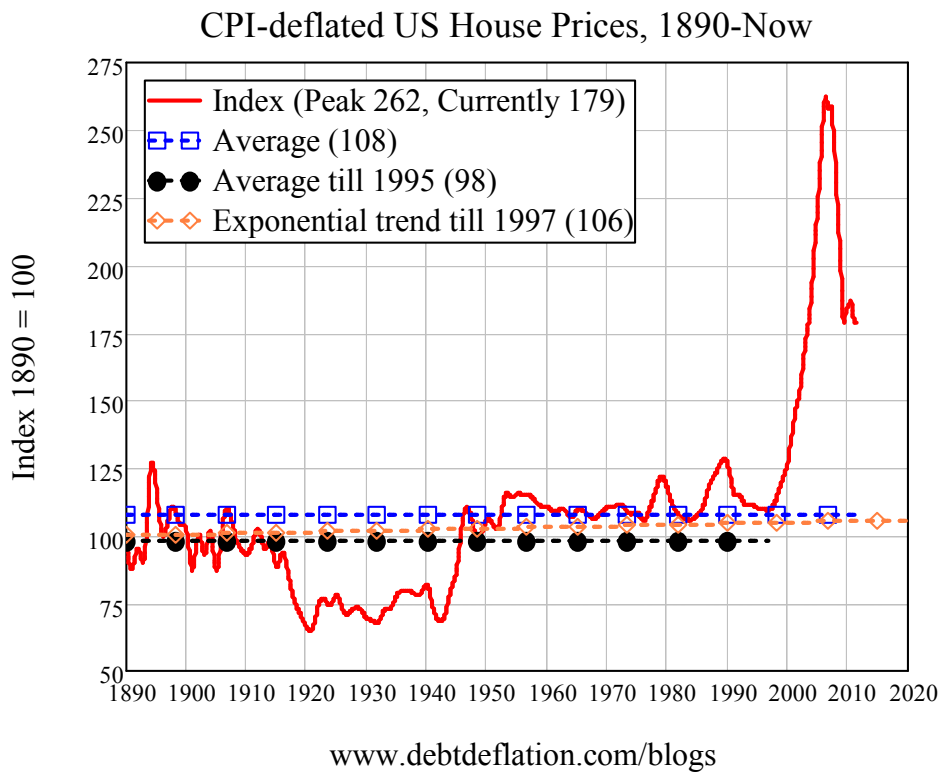


Figure 4



The debt and asset price bubbles were ignored by conventional “Neoclassical” economists on the basis of a set of *a priori* beliefs about the nature of a market economy that are spurious, but deeply

entrenched. Understanding how this crisis came about will require a new, dynamic, monetary approach to economic theory that contradicts the neat, plausible and false Neoclassical model that currently dominates academic economics and popular political debate.

Escaping from the debt trap we are now in will require either a “Lost Generation”, or policies that run counter to conventional economic thought and the short-term interests of the financial sector.

Preventing a future crisis will require a redefinition of financial claims upon the real economy which eliminates the appeal of leveraged speculation.

These three observations lead to the three primary objectives of Debtwatch:

1. To develop a realistic, empirically based, dynamic monetary approach to economic theory and policy;
2. To develop and promote a “modern Jubilee” by which private debt can be reduced while doing the minimum possible harm to aggregate demand and social equity; and
3. To develop and promote new definitions of shares and property ownership that will minimize the destructive instabilities of capitalism and promote its creative instabilities.

## A realistic economics

The economic and financial crisis has been caused by unenlightened self-interest and fraudulent behaviour on an unprecedented scale. But this behaviour could not have grown so large were it not for the cover given to this behaviour by the dominant theory of economics, which is known as “Neoclassical Economics”.

Though many commentators call this theory “Keynesian”, one of Keynes’s objectives in the 1930s was to overthrow this theory, but instead, as the memory of the Great Depression receded, academic economists gradually constructed an even more extreme version of Neoclassical economics than that against which Keynes had fought. This began with Hicks’s “IS-LM” model, which is still accepted as representing “Keynesian” economics today, but which was in fact *a Neoclassical model derived two years before the General Theory was published*:

The IS-LM diagram, which is widely, but not universally, accepted as a convenient synopsis of Keynesian theory, is a thing for which I cannot deny that I have some responsibility... “Mr. Keynes and the Classics” (Hicks 1937) was actually the fourth of the relevant papers which I wrote during those years... But there were two others that I had written before I saw *The General Theory*... “Wages and Interest: the Dynamic Problem” (Hicks 1935) was a first sketch of what was to become the “dynamic” model of Value and Capital (Hicks 1939). *It is important here, because it shows (I think quite conclusively) that that [IS-LM] model was already in my mind before I wrote even the first of my papers on Keynes.* (Hicks 1981, pp. 139-140; emphasis added; see also Keen 2011)

As it grew more virulent, neoclassical theory encouraged politicians to remove the barriers to fraud that were erected in the wake of the last great economic crisis, the Great Depression, in the naïve belief that a deregulated economy necessarily reaches a harmonious equilibrium:

'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)

Regulators in its thrall—such as Greenspan and Bernanke—rescued the financial sector from a series of crises, with each one leading to yet another until ultimately this one, from which no return to “business as usual” is possible.

Neoclassical economics therefore played an important role in making this crisis as extreme as it became. It is time to succeed where Keynes failed, by both eliminating this theory and replacing it with a realistic alternative.

### Critiquing Neoclassical economics

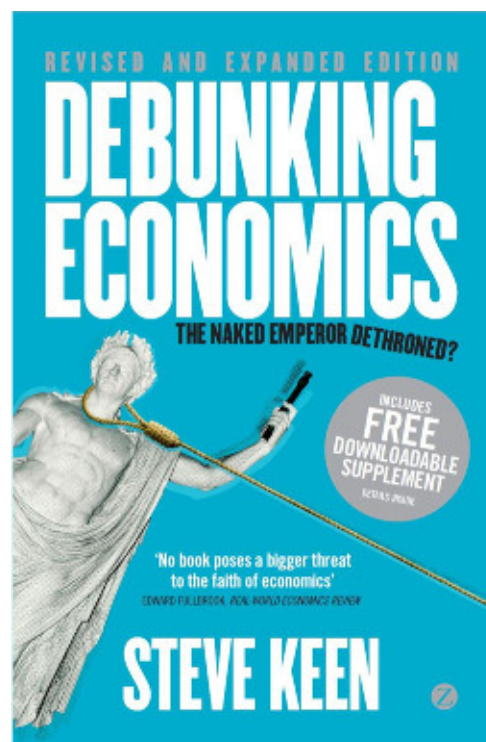
Keynes was scathing about what he called “Classical Economics”, and what we today call Neoclassical Economics, lambasting its treatment of time, expectations, uncertainty and money, and the stability or otherwise of capitalism:

I accuse the classical economic theory of being itself one of these pretty, polite techniques which tries to deal with the present by abstracting from the fact that we know very little about the future.... a classical economist ... has overlooked the precise nature of the difference which his abstraction makes between theory and practice ... particularly the case in his treatment of Money...

This that I offer is, therefore, a theory of why output and employment are so liable to fluctuation.

The orthodox theory assumes that we have a knowledge of the future of a kind quite different from that which we actually possess... The hypothesis of a calculable future leads to a wrong interpretation of the principles of behavior which the need for action compels us to adopt, and to an underestimation of the concealed factors of utter doubt, precariousness, hope and fear (Keynes 1937, pp. 215-222)

Keynes’s failure to overthrow Neoclassical economics led instead to its reconstruction after the Great Depression in an even more extreme form. This process culminated in “Rational Expectations” macroeconomics in which, rather than dealing with the present “by abstracting from the fact that we know very little about the future”, deals with it *by assuming we can accurately predict the future!*:



I should like to suggest that expectations, since they are informed predictions of future events, are essentially the same as the predictions of the relevant economic theory. (Muth 1961, p. 316)

In the preceding section, the hypothesis of adaptive expectations was rejected as a component of the natural rate hypothesis on the grounds that, under some policy [the gap between actual and expected inflation] is non-zero. If the impossibility of a non-zero value ... is taken as an essential feature of the natural rate theory, *one is led simply to adding the assumption that [the gap between actual and expected inflation] is zero as an additional axiom...* or to assume that expectations are *rational* in the sense of Muth. (Lucas 1972, p. 54; emphasis added)

I wrote [Debunking Economics](#) (Keen 2001; Keen 2011) to help prevent a Neoclassical revival recurring after our current crisis is over. Here I have the advantage of time over Keynes: when he wrote *The General Theory*, the flaws in neoclassical economics were only vaguely specified—and Keynes himself kept many of those concepts alive, such as the marginal productivity theory of income distribution:

For every value of [*total employment*] there is a corresponding marginal productivity of labour in the wage-goods industries; and it is this which determines the real wage. (Keynes 1936, p. 27)

Since then, the flaws have been fully detailed, by critics like Sraffa (Sraffa 1960) at one extreme to “own goals” like the Sonnenschein-Mantel-Debreu conditions at the other (Sonnenschein 1973; Shafer and Sonnenschein 1993). The ambition of *Debunking Economics* was to make the many flaws in neoclassical economics so well known that, should the economy ever experience another Great Depression, it would be that much harder for Neoclassical economics to survive (for more, see [Debunking Economics: the naked emperor dethroned?](#); or buy the book: [Amazon USA](#); [Amazon UK](#); [Kindle USA](#); [Kindle UK](#); [Abbey's Australia](#)).

I also provide critiques of conventional economic theory in my [lectures](#), which I make more broadly available via [Youtube videos](#).

## Developing an alternative

The seeds of an alternative, realistic theory were developed by Hyman Minsky in the [Financial Instability Hypothesis](#) (FIH), which itself reflected the wisdom of the great non-neoclassical economists Marx, Veblen, Schumpeter, Fisher and Keynes, and the historical record of capitalism that had included periodic Depressions (as well as the dramatic technological transformation of production). As Minsky argued, an economic theory could not claim to represent capitalism unless it could explain those periodic crises:

Can “It”—a Great Depression—happen again? And if “It” can happen, why didn’t “It” occur in the years since World War II? These are questions that naturally follow from both the historical record and the comparative success of the past thirty-five years. To answer these questions it is necessary to have an economic theory which makes great depressions one of the possible states in which our type of capitalist economy can find itself. (Minsky 1982, p. 5)

Minsky developed a coherent verbal model of his hypothesis, but his own attempt to develop a mathematical model in his PhD (Minsky 1957) was unsuccessful (Keen 2000), and he subsequently abandoned that endeavour.

Using insights from complexity theory, I developed models on the *FIH* that capture its fundamental proposition, that a market economy can experience a debt-deflation (Fisher 1933) after a series of debt-financed cycles (Keen 1995; Keen 1996; Keen 1997; Keen 2000). These models generated a period of declining volatility in employment and wages with a rising ratio of debt to GDP, followed by a period of rising volatility before an eventual debt-induced breakdown. They led me to caution that:

From the perspective of economic theory and policy, this vision of a capitalist economy with finance requires us to go beyond that habit of mind which Keynes described so well, the excessive reliance on the (stable) recent past as a guide to the future. *The chaotic dynamics explored in this paper should warn us against accepting a period of relative tranquility in a capitalist economy as anything other than a lull before the storm.* (Keen, 1995, p. 634; emphasis added)

The empirical data and the implications of these models led me to expect and warn of an impending serious economic crisis (Keen 2006; Keen 2007) at a time when Neoclassical economists were waxing lyrical about “The Great Moderation”(Bernanke 2004; Bernanke 2004; Summers 2005; Campbell 2007; Benati 2008; D’Agostino and Whelan 2008; Giannone, Lenza et al. 2008; Canova 2009; Gali and Gambetti 2009; Woodford 2009; Bean 2010).

The crisis itself emphatically makes the point that a new theory of economics is needed, in which capitalism is seen as a dynamic, monetary system with both creative and destructive instabilities, where those destructive instabilities emanate overwhelmingly from the financial sector.

## Specific projects

### The Center for Economic Stability Incorporated

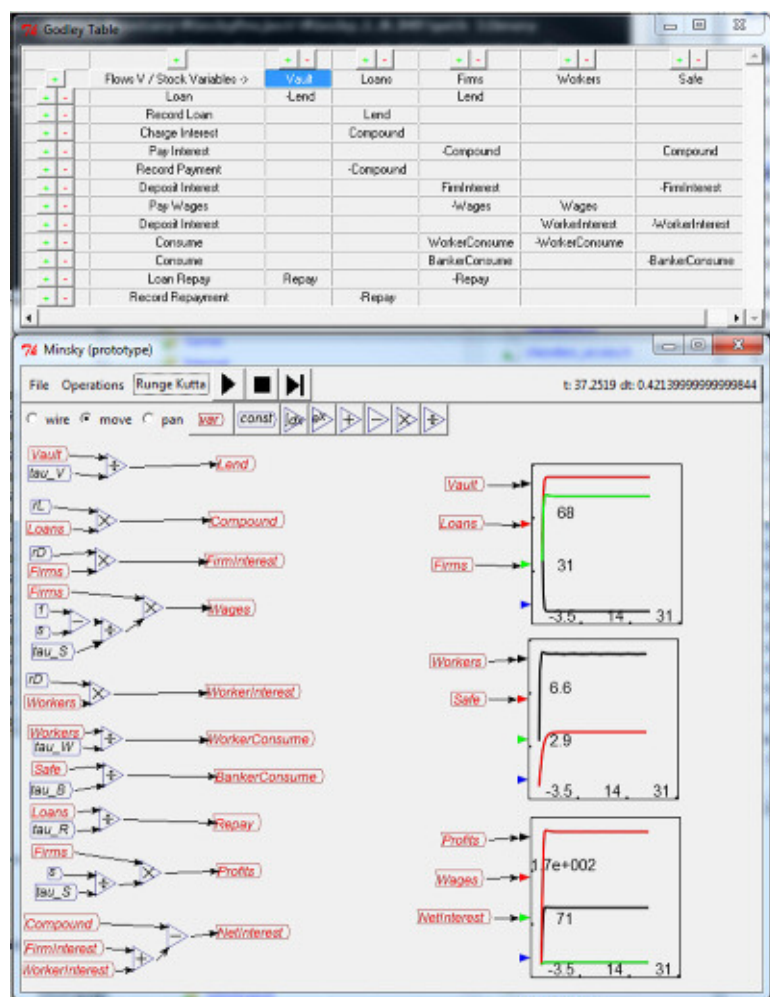
With the support of blog members, I have formed the [Center for Economic Stability Incorporated](#). Our objective is to develop *CfESI* into an empirically-oriented think-tank on economics that will develop realistic analysis of capitalism, and promote policies based upon that analysis. The success of CfESI is dependent upon raising sufficient funding to enable staff to be hired who can take over the administrative and web duties from me, and supplement my research efforts.

### “Minsky”

Named in honor of Hyman Minsky, this is a computer program that enables a complex monetary system to be modelled with relative ease. The program implements the tabular approach to modelling financial flows developed in (Keen 2008; Keen 2010; Keen 2011), and combines this with the “flowchart” paradigm developed by engineers to model physical processes, and implemented in numerous software programs (Simulink, Vissim, Vensim, Ithink, Stella, etc.). It will be both a pedagogic tool to make dynamic monetary modelling easy and attractive to new students, and a powerful research tool that will enable the construction of realistic, monetary models of capitalism.



Figure 5



- A first version of *Minsky* is already under development, with funding provided by a grant from the [Institute for New Economic Thinking](#). This version, to be completed in mid-2012, will enable the modelling of the economy as a monetary dynamic single commodity system. A prototype will be released in early 2012. A [Sourceforge page](#) is now operating, and we will shortly be opening it up for collaboration by Open Source developers.
- Version 2.0 will enable multi-commodity input-output dynamics to be modelled, as well as a disaggregated banking sector. A seeding grant to help develop version 2.0 has been recently been received from the [Institute for New Economic Thinking](#). This will be combined with grants from other private entities to make an application for support under the Australian Research Council's Linkage program for up to A\$500,000 p.a. of further funding. One Australian firm has already committed to be an Industry Partner in this application, and I welcome additional support from other firms, whether Australian or otherwise (a minimum contribution of A\$50,000 over 3 years is required to qualify as an Industry Partner under ARC rules).
- Version 3.0 will add the capability to model international trade and financial flows.

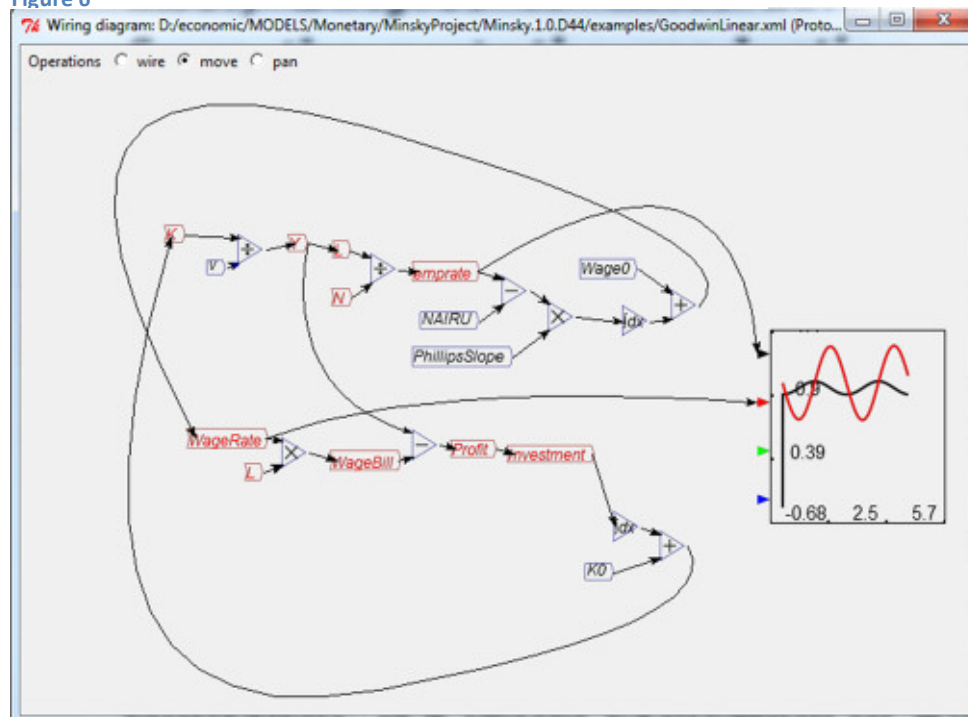
The program will be platform independent, and freely available under the GPL licence.

## Integrating Minsky with biophysical data

Minsky as it stands is purely a simulation tool. However, as part of a [United Nations Environment Program project](#) “[Resource Efficiency: Economics and Outlook for Asia-Pacific](#)”, a precursor to Minsky has been linked to a biophysical database known as ASFF (for “Australian Stocks and Flows Foundation”) developed by the [CSIRO](#) (Turner, Hoffman et al. 2011). Our long term ambition is to combine the two systems seamlessly, so that the physical parameters of Minsky will be derived directly from empirical data (which can be derived for any national economy) and so that Minsky’s fit to empirical data can be tested.

The second stage of this process is part of the proposal for which I have just received further funding from [INET](#).

Figure 6



## Finance and Economic Breakdown

This will be a book-length treatment of the Financial Instability Hypothesis that I hope will form one of the foundations of a post-Neoclassical macroeconomics. Writing a book like this takes time and isolation, two things I have had very little of in the past six years since I first started warning of an impending economic crisis (Keen 2005). I have delayed the writing of this “magnum opus” for over a decade; in 2012-13 I intend devoting as much time as I can to writing it, which necessitates minimising time spent on other activities such as the maintenance of this blog.

## KeenData

Currently I pull in data from over 1500 different sources into a [Mathcad](#) worksheet on my PC. Mathcad, with a little help from my programming, does a wonderful job of analysing and displaying the data. But the naming conventions in my pseudo-database are ... a joke, there are none. Consequently, only someone intimately acquainted with the data can use my system, and at the moment that’s just me. I also have to manually download files when they are updated. Thanks to Mathcad’s visible equations, auditing the data is certainly easier than with a spreadsheet, but it is still difficult compared to a well-structured relational database.

A supporter has developed an online system, currently called Econodata, to overcome these limitations:

- The data is stored in a “Ruby on Rails” relational database;
- The system automatically updates data when it is altered by providers;
- The relational database system and a 4GL for derived data series makes auditing straightforward, and the system generates a tinyURL so that a complex data series or chart can be easily replicated by anyone; and
- It will be easily accessible and usable by subscribers to Debtwatch and CfESI.

Econodata is currently unavailable since it is being ported to a new server, and the database is relatively unpopulated. The database will also support my book *Finance and Economic Breakdown*, by making it possible for readers to verify any empirical charts for themselves simply by typing its TinyURL into a browser.

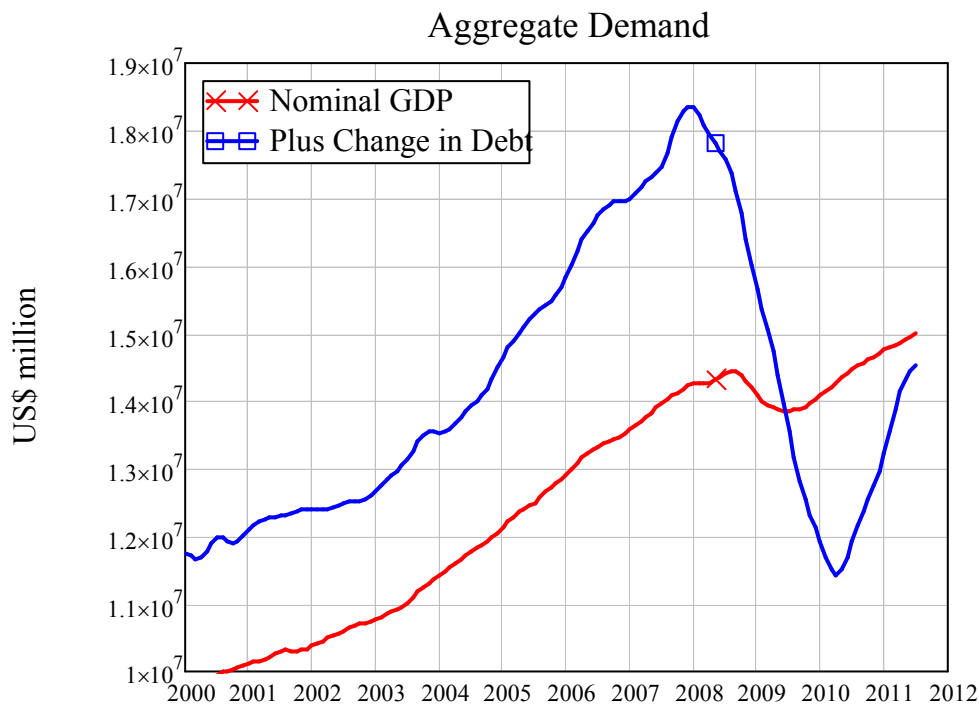
### Credit-aware Economic Indicators

My debt-aware perspective on economics makes it easy to explain what [Bernanke has admitted is still inexplicable to him](#): where the crisis came from, and why it is persisting:

“Part of the slowdown is temporary, and part of it may be longer-lasting. We do believe that growth is going to pick up going into 2012 but at a somewhat slower pace than we had anticipated in April. We don't have a precise read on why this slower pace of growth is persisting... “His admission of ignorance reflects genuine puzzlement with the economy’s failure to reach what he likes to call escape velocity. (G.I. 2011)

In a nutshell, the change in total private debt is a key determinant of aggregate demand, and the turnaround from increasing debt boosting demand from incomes alone by 28% in 2008 to reducing demand below this level by 20 percent in early 2010 was **the** cause of the crisis.

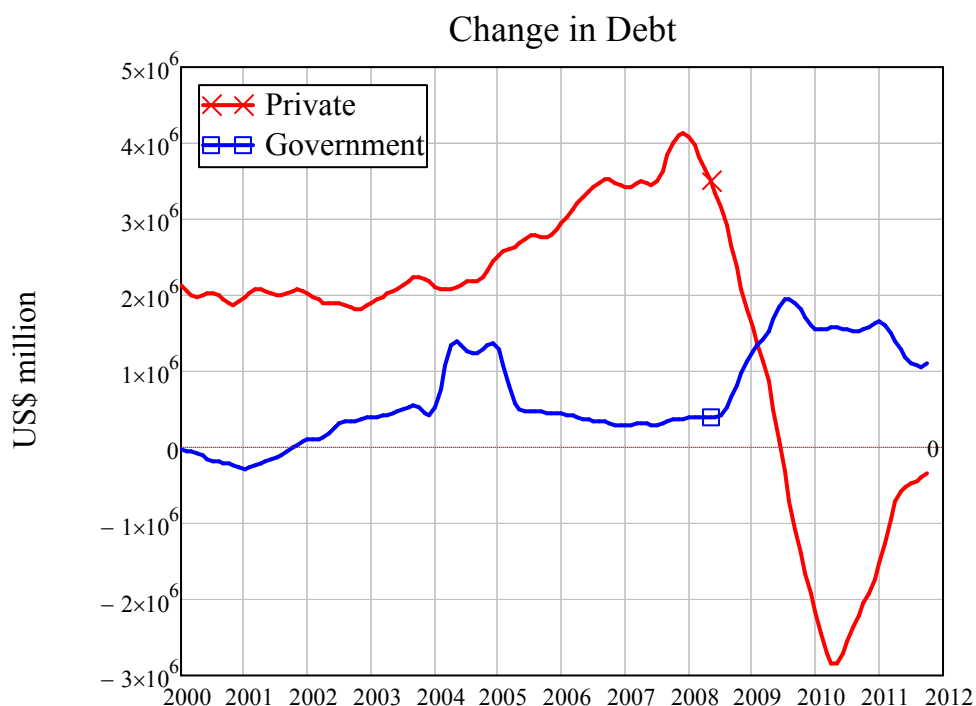
Figure 7



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Similarly, the slowdown in the rate of decline of debt from its maximum rate of decline of almost US\$3 trillion p.a. to a mere \$340 billion p.a. is—along with the growth in government debt—the main reason why the crisis has attenuated slightly, rather than plunging into Great Depression depths of unemployment.

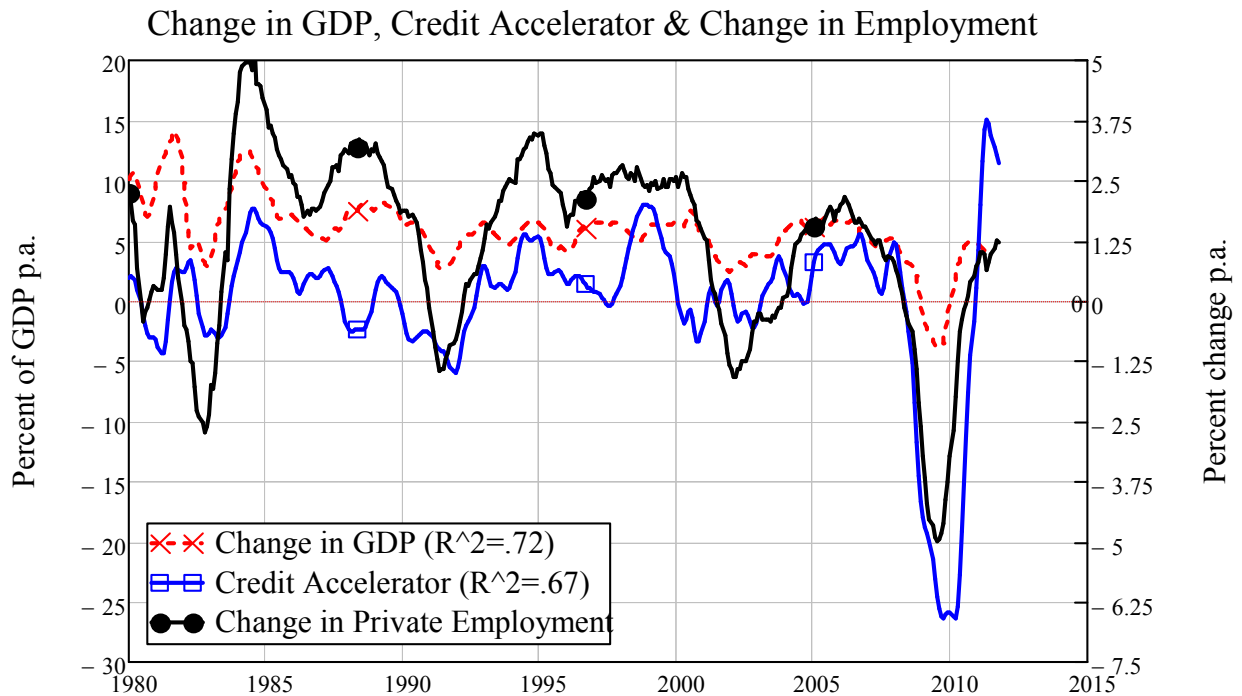
Figure 8



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One indicator that has arisen out of my work—building on original work by Biggs, Mayer and Pick (Biggs and Mayer 2010; Biggs, Mayer et al. 2010)—is the [“Credit Accelerator”](#) (Keen 2011, pp. 160-165), which was first called the “Credit Impulse”. Both the change in income and the acceleration of credit determine the rate of change of economic activity, and these are correlated with each other (the  $R^2$  since 1980 is 0.56), but the economics collapse in late 2007 was clearly driven primarily by the rapid and unprecedented deceleration of debt.

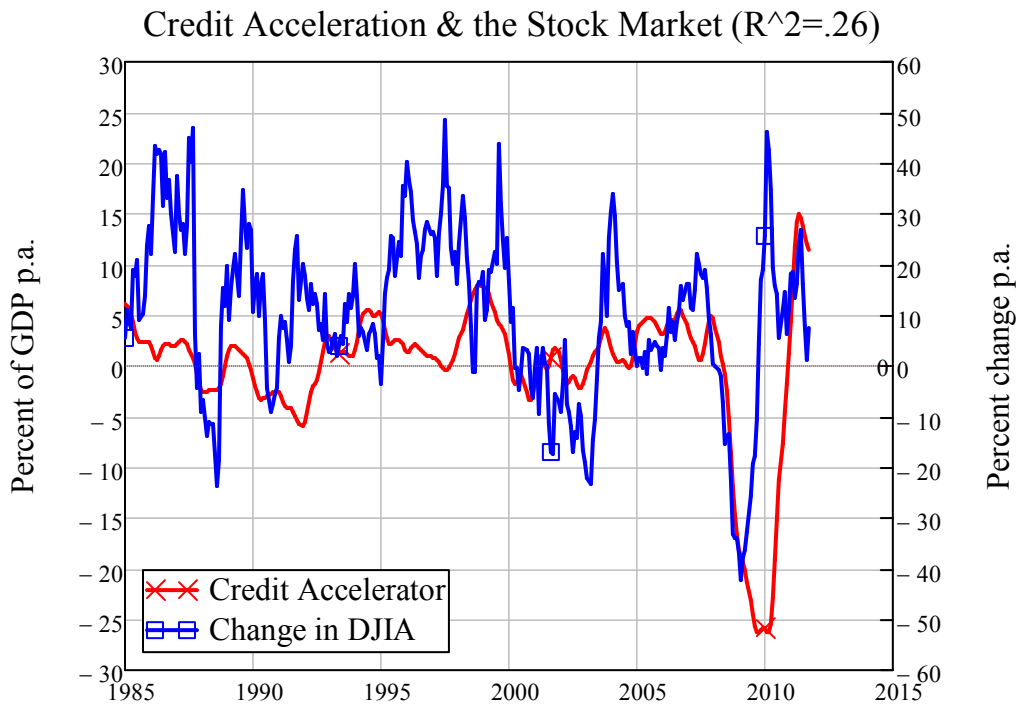
Figure 9



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Debt acceleration is the main factor in determining asset prices. Asset bubbles therefore have to burst, because debt acceleration cannot remain positive forever.

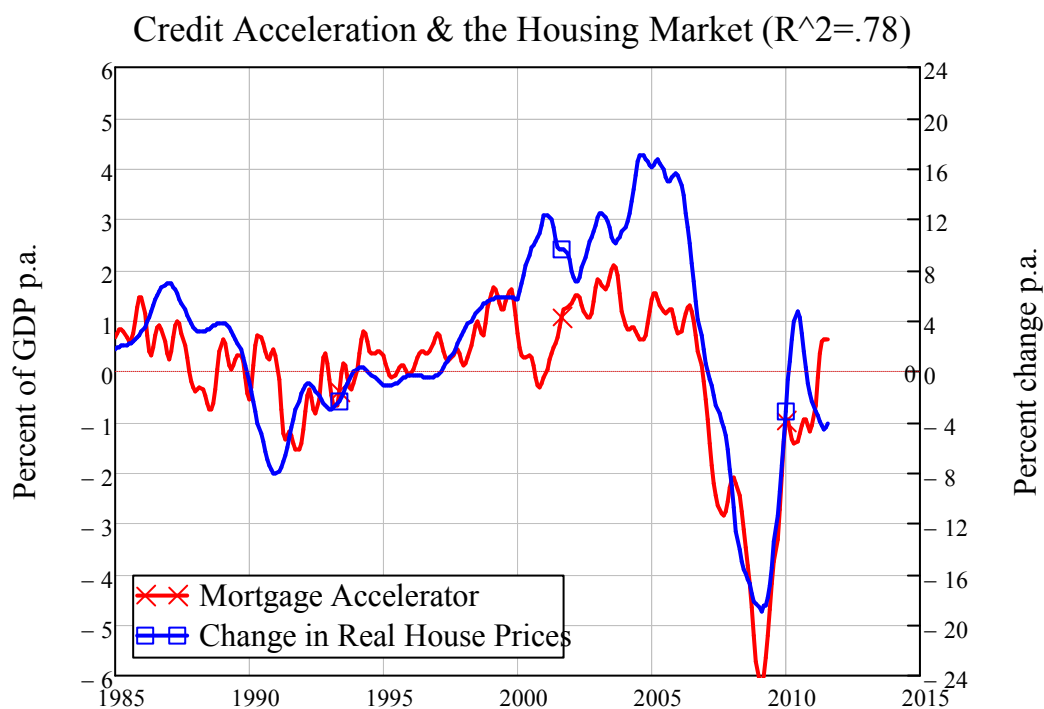
Figure 10



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This causal relationship is much more obvious with mortgage debt and change in house prices (see Figure 11).

Figure 11



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Further development of this indicator is therefore highly warranted—both as an indicator of what trends can be expected in asset prices now, and as a means to identify whether a bubble is developing in future. At present, the Credit Accelerator’s definition is quite simple—the change in change in debt over a time period, divided by GDP at the midpoint of that period—and the noisiness of financial data makes it difficult to use short time periods, which would obviously be superior for forecasting. A sophisticated filtering process and forward indicators for credit would make the Credit Accelerator a much more powerful tool.

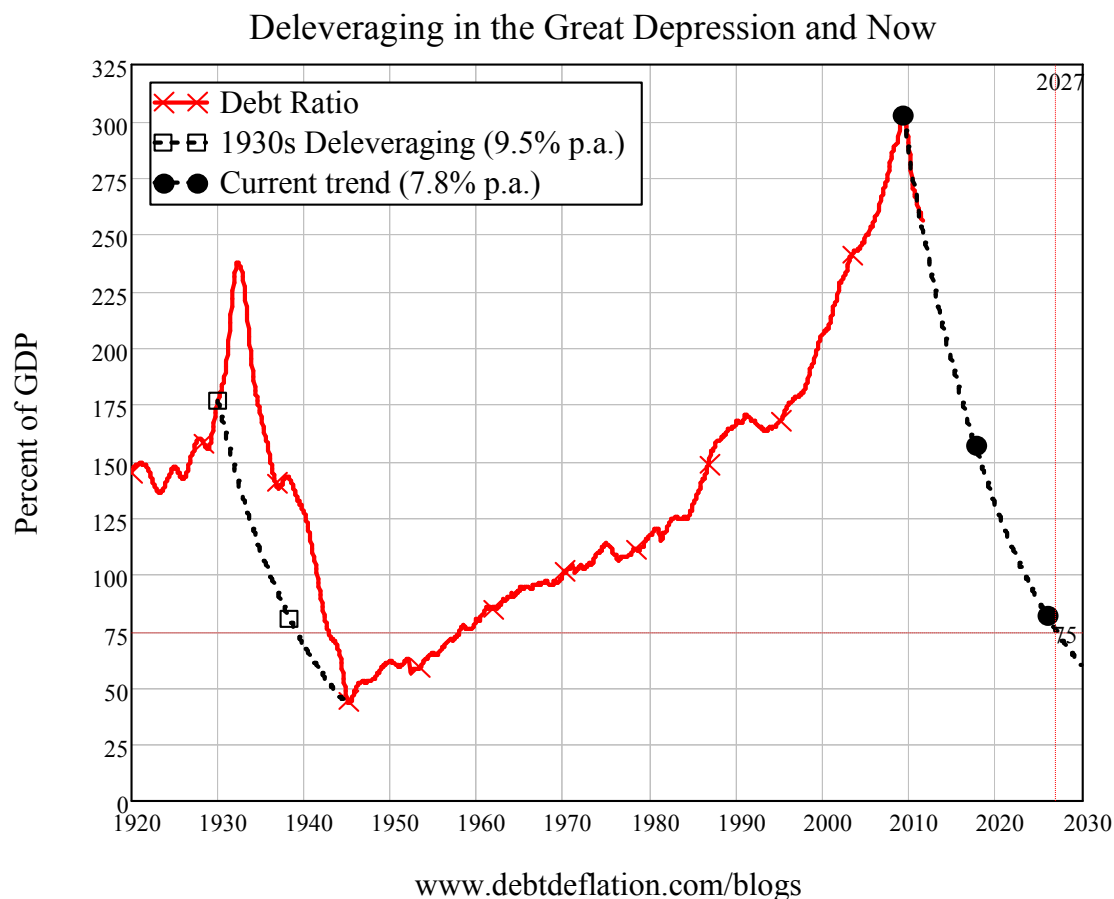
## A Modern Jubilee

Michael Hudson’s simple phrase that “Debts that can’t be repaid, can’t be repaid” sums up the economic dilemma of our times. This does not involve sanctioning “moral hazard”, since the real moral hazard was in the behaviour of the finance sector in creating this debt in the first place. Most of this debt should never have been created, since all it did was fund disguised Ponzi Schemes that inflated asset values without adding to society’s productivity. Here the irresponsibility—and Moral Hazard—clearly lay with the lenders rather than the borrowers.

The only real question we face is not whether we should or should not repay this debt, but how are we going to go about **not** repaying it?

The standard means of reducing debt—personal and corporate bankruptcies for some, slow repayment of debt in depressed economic conditions for others—could have us mired in deleveraging for one and a half decades, given its current rate (see Figure 12).

Figure 12



That fate would in turn mean one and a half decades where the boost to demand that rising debt *should* provide—when it finances investment rather than speculation—will not be there. The economy will tend to grow more slowly than is needed to absorb new entrants into the workforce, innovation will slow down, and justified political unrest will rise—with potentially unjustified social consequences.

We don't need to speculate about the economic and social damage such a future history will cause—all we have to do is remember the last time.

We should, therefore, find a means to reduce the private debt burden now, and reduce the length of time we spend in this damaging process of deleveraging. Pre-capitalist societies instituted the practice of the Jubilee to escape from similar traps (Hudson 2000; Hudson 2004), and debt defaults have been a regular experience in the history of capitalism too (Reinhart and Rogoff 2008). So a *prima facie* alternative to 15 years of deleveraging would be an old-fashioned debt [Jubilee](#).

But a Jubilee in our modern capitalist system faces two dilemmas. Firstly, in any capitalist system, a debt Jubilee would paralyse the financial sector by destroying bank assets. Secondly, in our era of securitized finance, the ownership of debt permeates society in the form of [asset based securities](#)



(ABS) that generate income streams on which a multitude of non-bank recipients depend, from individuals to councils to pension funds.

Debt abolition would inevitably also destroy both the assets and the income streams of owners of ABSs, most of whom are innocent bystanders to the delusion and fraud that gave us the Subprime Crisis, and the myriad fiascos that Wall Street has perpetrated in the 2 decades since the 1987 Stock Market Crash.

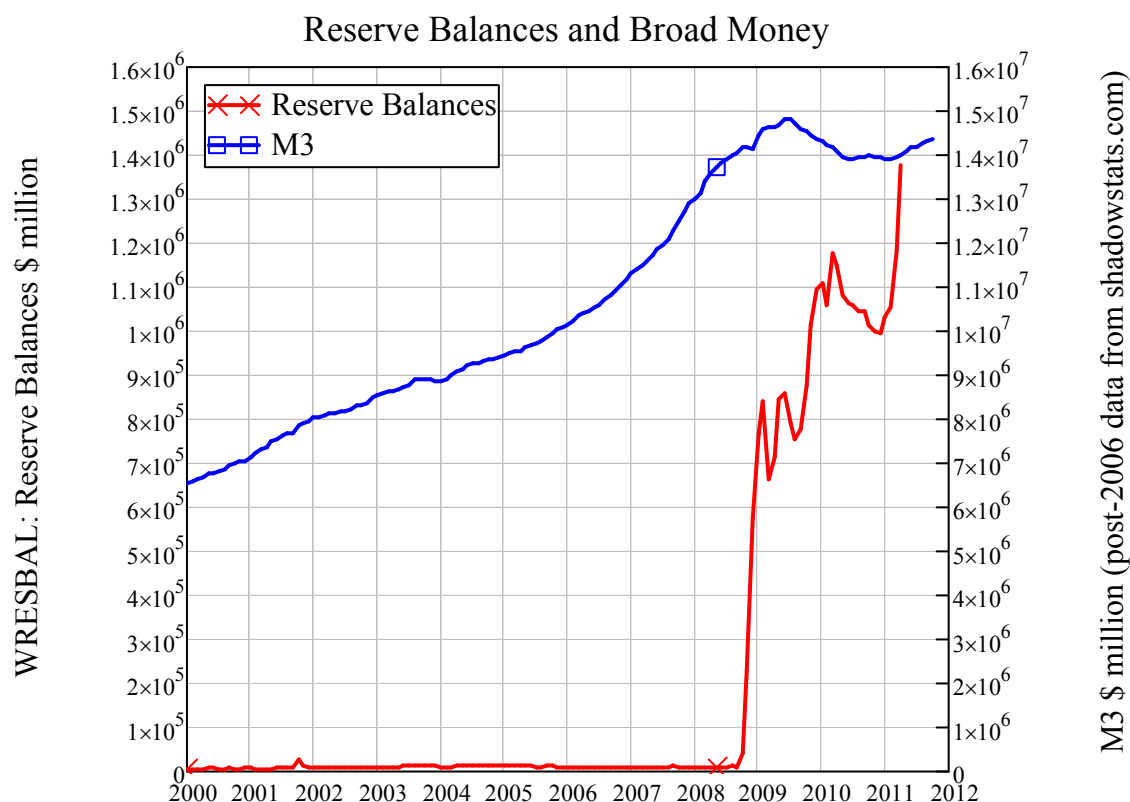
We therefore need a way to short-circuit the process of debt-deleveraging, while not destroying the assets of both the banking sector and the members of the non-banking public who purchased ABSs. One feasible means to do this is a “Modern Jubilee”, which could also be described as “Quantitative Easing for the public”.

Quantitative Easing was undertaken in the false belief that this would “kick start” the economy by spurring bank lending.

And although there are a lot of Americans who understandably think that government money would be better spent going directly to families and businesses instead of banks – “where’s our bailout?,” they ask – the truth is that a dollar of capital in a bank can actually result in eight or ten dollars of loans to families and businesses, *a multiplier effect* that can ultimately lead to a faster pace of economic growth. (Obama 2009, p. 3; emphasis added)

Instead, its main effect was to dramatically increase the idle reserves of the banking sector while the broad money supply stagnated or fell, (see Figure 13), for the obvious reasons that *there is already too much private sector debt, and neither lenders nor the public want to take on more debt.*

Figure 13



A Modern Jubilee would create fiat money in the same way as with Quantitative Easing, but would direct that money to the bank accounts of the public *with the requirement that the first use of this money would be to reduce debt*. Debtors whose debt exceeded their injection would have their debt reduced but not eliminated, while at the other extreme, recipients with no debt would receive a cash injection into their deposit accounts.

The broad effects of a Modern Jubilee would be:

1. Debtors would have their debt level reduced;
2. Non-debtors would receive a cash injection;
3. The value of bank assets would remain constant, but the distribution would alter with debt-instruments declining in value and cash assets rising;
4. Bank income would fall, since debt is an income-earning asset for a bank while cash reserves are not;
5. The income flows to asset-backed securities would fall, since a substantial proportion of the debt backing such securities would be paid off; and
6. Members of the public (both individuals and corporations) who owned asset-backed securities would have increased cash holdings out of which they could spend in lieu of the income stream from ABS's on which they were previously dependent.

Clearly there are numerous complex issues to be considered in such a policy: the scale of money creation needed to have a significant positive impact (without excessive negative effects—there will

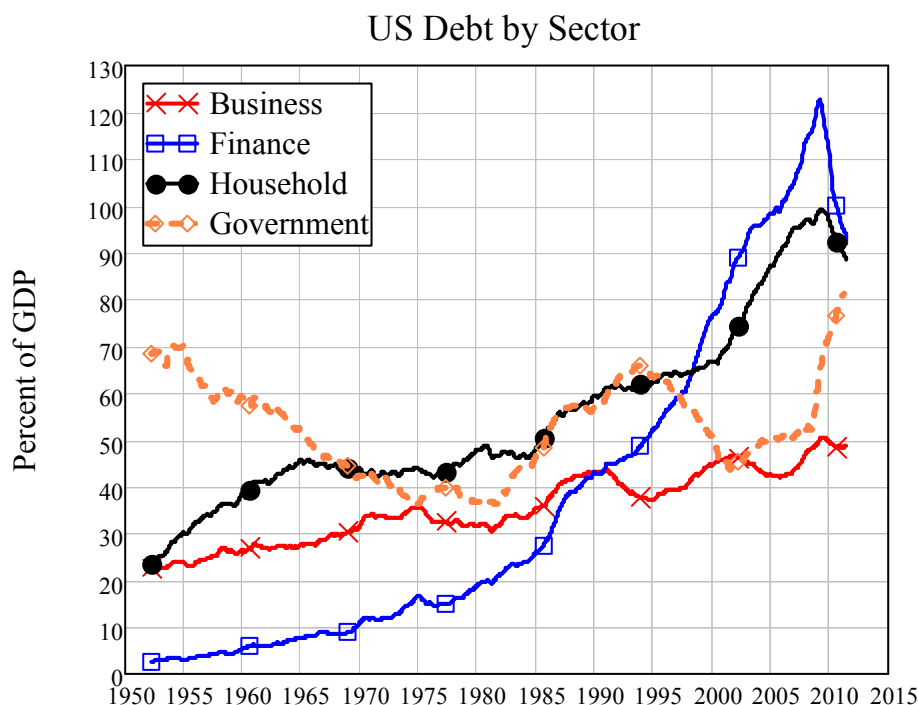
obviously be such effects, but their importance should be judged against the alternative of continued deleveraging); the mechanics of the money creation process itself (which could replicate those of Quantitative Easing, but may also require changes to the legal prohibition of Reserve Banks from buying government bonds directly from the Treasury); the basis on which the funds would be distributed to the public; managing bank liquidity problems (since though banks would not be made insolvent by such a policy, they would suffer significant drops in their income streams); and ensuring that the program did not simply start another asset bubble.

### Taming the Finance Sector

Finance performs genuine, essential services in a capitalist economy when it limits itself to (a) providing working capital to non-financial corporations; (b) funding investment and entrepreneurial activity, whether directly or indirectly; (c) funding housing purchase for strictly residential purposes, whether to owner-occupiers for purchase or to investors for the provision of rental properties; and (d) providing finance to households for large expenditures such as automobiles, home renovations, etc.

It is a destructive force in capitalism when it promotes leveraged speculation on asset or commodity prices, and funds activities (like levered buyouts) that drive debt levels up and rely upon rising asset prices for their success. Such activities are the overwhelming focus of the non-bank financial sector today, and are the primary reason why financial sector debt has risen from trivial levels of below 10 percent of GDP before the 1970s to the peak of over 120 percent in early 2009.

Figure 14

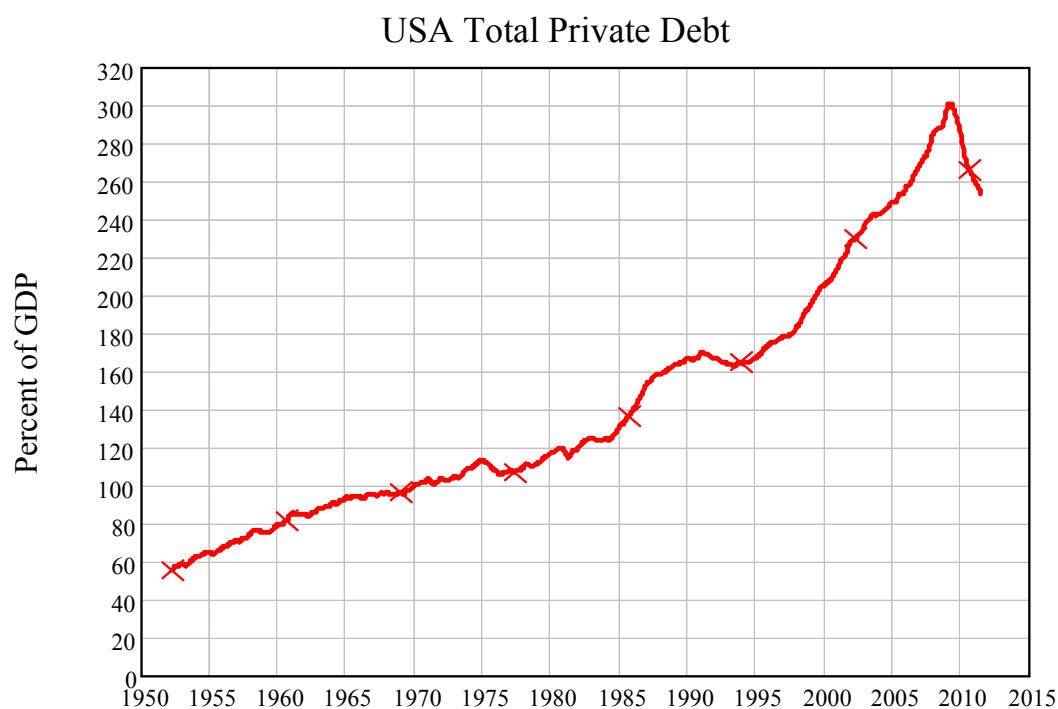


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Returning capitalism to a financially robust state must involve a dramatic fall in the level of private debt—and the size of the financial sector— as well as policies that return the financial sector to a service role to the real economy.

The size of the financial sector is directly related to the level of private debt, which in America peaked at 303% of GDP in early 2009 (see Figure 15). Using history as our guide, America will only return to being a financially robust society when this ratio falls back to below 100% of GDP. Most other OECD countries likewise need to drastically reduce their levels of private debt.

Figure 15



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The percentage of total wages and profits earned by the FIRE sector (as defined in the NIPA tables) gives another guide. America's period of robust economic growth coincided with FIRE sector profits being between 10 and 20 percent of total profits, and wages in the FIRE sector being below 5 percent of total wages. Finance sector profits peaked at over 50% of total profits in 2001, while wages in the FIRE sector peaked at over 9 percent of total wages.

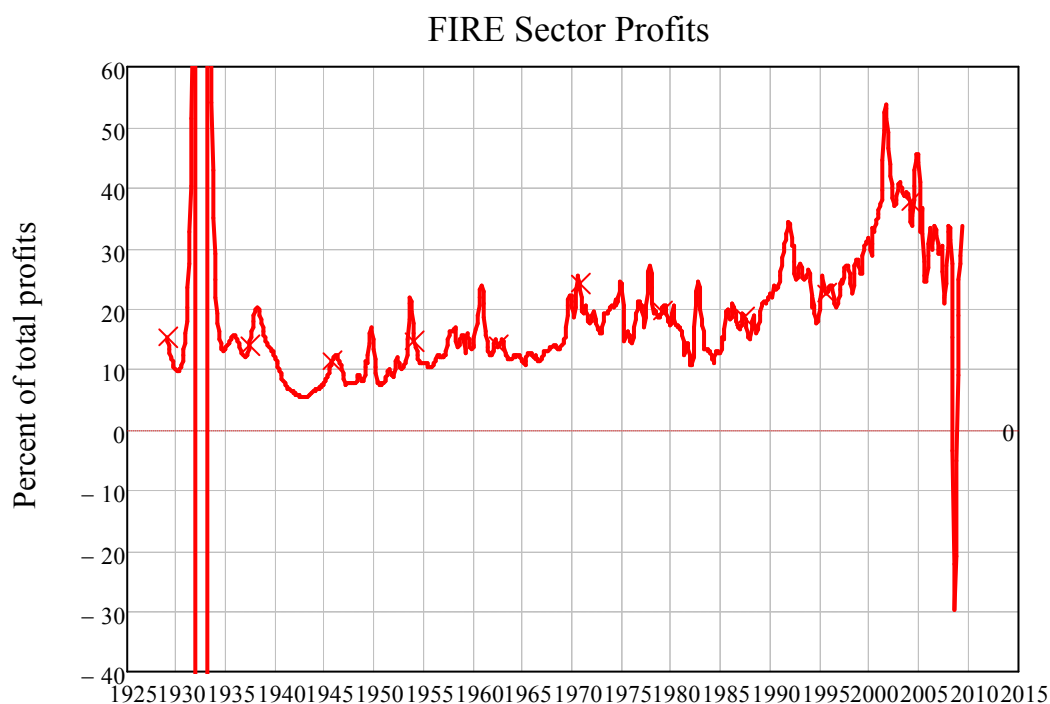
Figure 16



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Since finance sector profits are primarily a function of the level of private debt, this implies that the level of debt needs to shrink by a factor of 3-4, while employment in the finance sector needs to roughly halve. At the maximum, the finance sector should be no more than 50% of its current size.

Figure 17



Such a large contraction in the size of the sector means that the majority of those who currently work there will need to find gainful employment elsewhere. Individuals who can actually evaluate investment proposals—generally speaking, engineers rather than financial engineers—will need to be hired in their place. Many of the standard practices of that sector today will have to be eliminated or drastically curtailed, while many practices that have been largely abandoned will have to be reinstated.

### Taming the Credit Accelerator

Capitalism's crises have always been a product of the financial sector funding speculation on asset prices rather than funding business and innovation. This allows financial sector profits to grow far larger than is warranted, on the foundation of a far larger level of private debt than society can support. This lending causes a positive feedback loop between accelerating debt and rising asset prices, leading to both a debt and asset price bubble. The asset price bubble must burst—because it relies upon accelerating debt for its maintenance—but once it bursts, society is still left with the debt.

The underlying cause is the relationship between debt and asset prices in a credit-based economy. As I explain in numerous places ([“A much more nebulous conception”](#), [“Debunking](#)

[Macroeconomics”](#)), aggregate demand is the sum of income ( $Y$ ) plus the change in debt  $\left(\frac{d}{dt}D\right)$ ,

and this is expended on both newly produced goods ( $GDP$ ) and services and buying financial claims on existing assets—which I call “Net Asset Turnover” ( $NAT$ ). At a very general level, this implies the following relationship:

$$Y + \frac{d}{dt}D = GDP + NAT$$

Net Asset Turnover can be broken down into the price index for assets ( $P_A$ ), times their quantity ( $Q_A$ ), times the turnover ( $T_A$ )—expressed as a fraction of the number of assets ( $T_A \ll 1$ )

$$NAT = P_A \cdot Q_A \cdot T_A$$

It therefore follows that there is a relationship between the acceleration of debt and change in asset prices.

$$\frac{d}{dt}Y + \frac{d^2}{dt^2}D = \frac{d}{dt}GDP + \frac{d}{dt}(P_A \cdot Q_A \cdot T_A)$$

Some acceleration of debt is vital for a growing economy. As good empirical work by Fama and French has confirmed (Fama and French 1999; Fama and French 2002), change in debt is the main source of funds for investment, and as Schumpeter explains (Schumpeter 1934, pp. 95-107), the interplay between investment and the endogenous creation of spending power by the banking system ensures that this will be a cyclical process. Debt acceleration during a boom and deceleration during a slump are thus essential aspects of capitalism.

However this relation also implies that the acceleration of debt is a factor in the rate of change of asset prices (along with the change in income) and that when asset prices grow faster than incomes and consumer prices, the motive force behind it will be the acceleration of debt. At the same time, the growth in asset prices is the major incentive to accelerating debt: this is the positive feedback loop on which all asset bubbles are based, and it is why they must ultimately burst (see Figure 10 and Figure 11). This is the foundation of Ponzi Finance (Minsky 1982, p. 29), and it is this aspect of finance that has to be tamed to reduce the destructive impact of finance on capitalism.

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

- 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.
- 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 2, showing the debt to GDP graph 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. There are proposals for the former, which I'll discuss later, but (for reasons I'll discuss now) my preference is to address the latter by reducing the appeal of leveraged speculation on asset prices.

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.

This can easily be illustrated using disaggregated borrowing data for Australia. At first glance, though personal debt appears quite volatile, and strongly related to the business cycle—rising during booms and falling during slumps—there is clearly no trend across business cycles (see Figure 18; “R90” refers to the start of the 1990s recession, and “GFC” to the start of the current economic crisis for which Australians use the acronym “GFC”—or “Global Financial Crisis”).

Figure 18

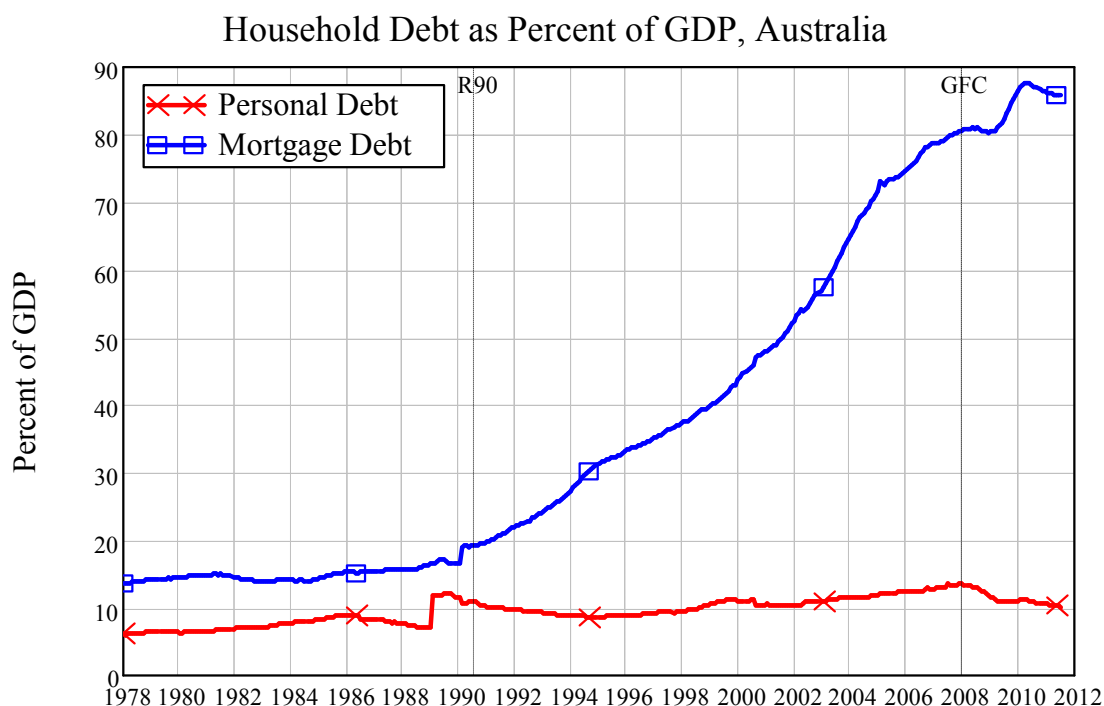


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However there clearly is a trend in mortgage debt across business cycles, and when rescaled by this trend, the volatility of personal debt is a non-event (see Figure 19).



Figure 19



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The difference between the two series is obvious. Regardless of the endless inducements from the finance sector to enter into personal debt, commitments by the public to personal debt are generally related to and regulated by income. Commitments to debt for the purchase of assets, on the other hand, are related not to income, but to expectations of leveraged profits on rising asset prices—when the factor most responsible for causing growth in asset prices is accelerating debt.

This relationship between debt acceleration and change in asset prices is especially apparent for mortgage debt. The  $R^2$  between mortgage debt acceleration and change in real house prices is 0.78 in the USA over 25 years, and 0.6 in Australia over 30 years (see Figure 11 and Figure 22). Though debt acceleration can enable increased construction  $\left(\frac{d}{dt}Q_A\right)$  or turnover  $\left(\frac{d}{dt}T_A\right)$ , the far greater flexibility of prices, and the treatment of housing as a vehicle for speculation rather than accommodation, means that the brunt of the acceleration drives house price appreciation. The same effect applies in the far more volatile share market: accelerating debt leads to rising asset prices, which encourages more debt acceleration.

Figure 20

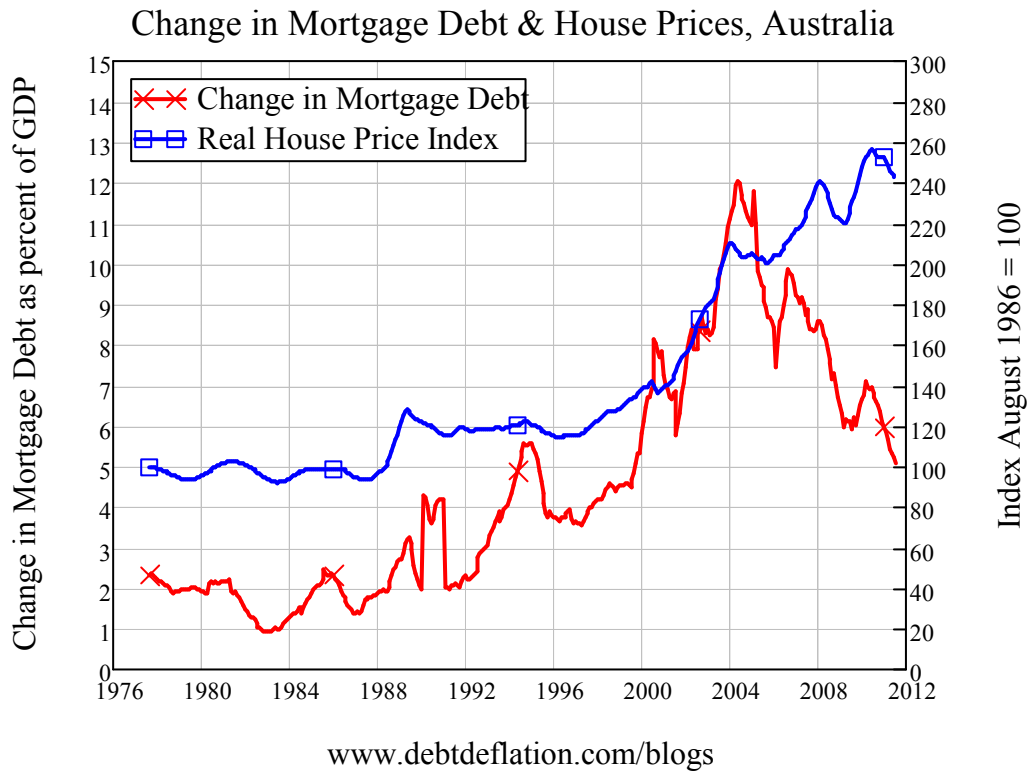
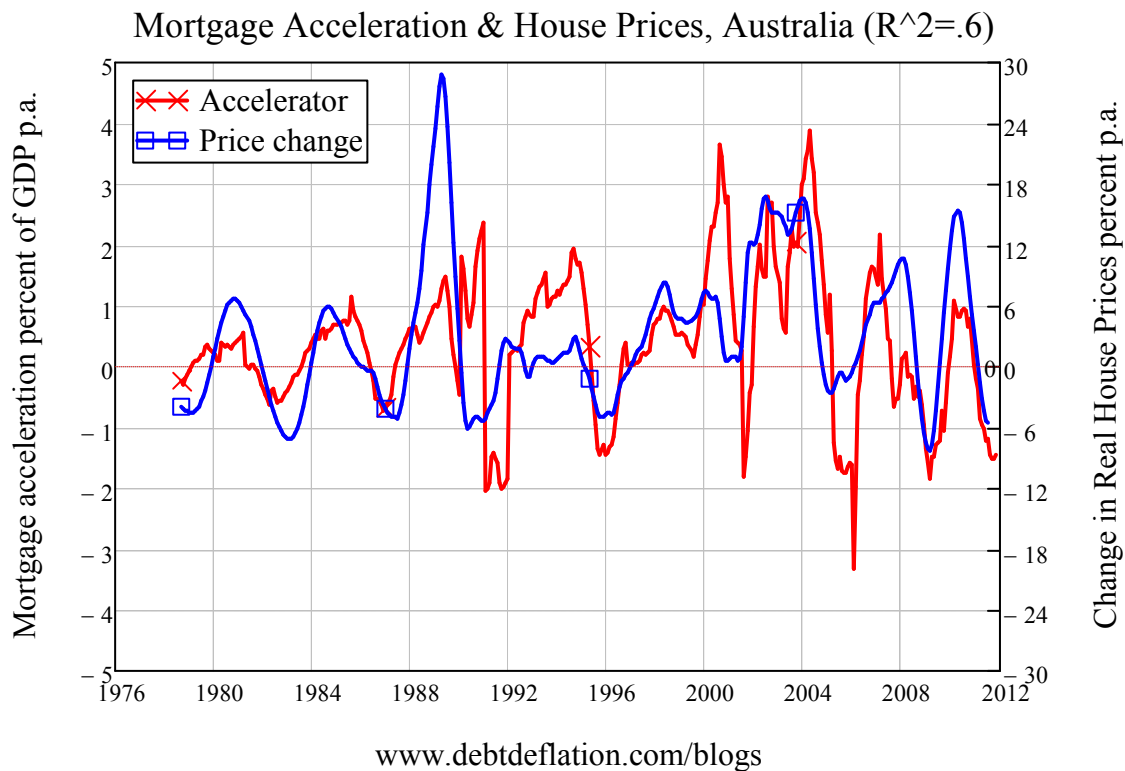


Figure 21



The link between accelerating debt levels and rising asset prices is therefore the basis of capitalism’s tendency to experience financial crises. That link has to be broken if financial crises are to be made

less likely—if not avoided entirely. This requires a redefinition of financial assets in such a way that the temptations of Ponzi Finance can be eliminated.

## 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 (see Figure 22).

Figure 22



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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 once 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

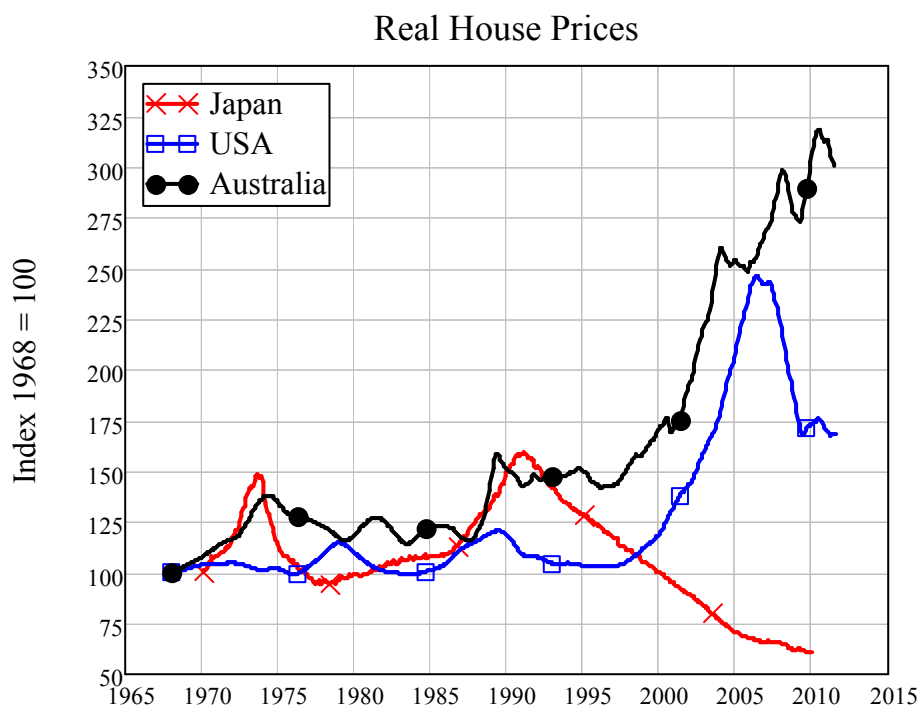
secondary market before the Jubilee effect applied could be more than one. But the basic idea has to be to make borrowing money to gamble on the prices of existing shares a very unattractive proposition.

### “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.

Figure 23



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The buildup of mortgage debt therefore also goes on for much longer (see Figure 24 and Figure 25).

Figure 24

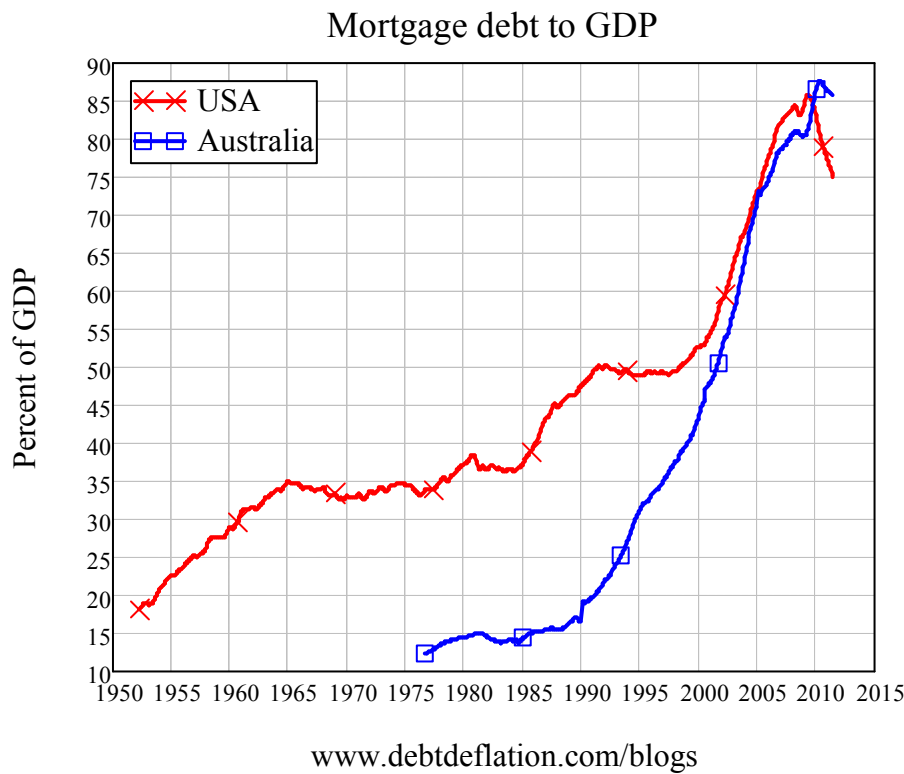


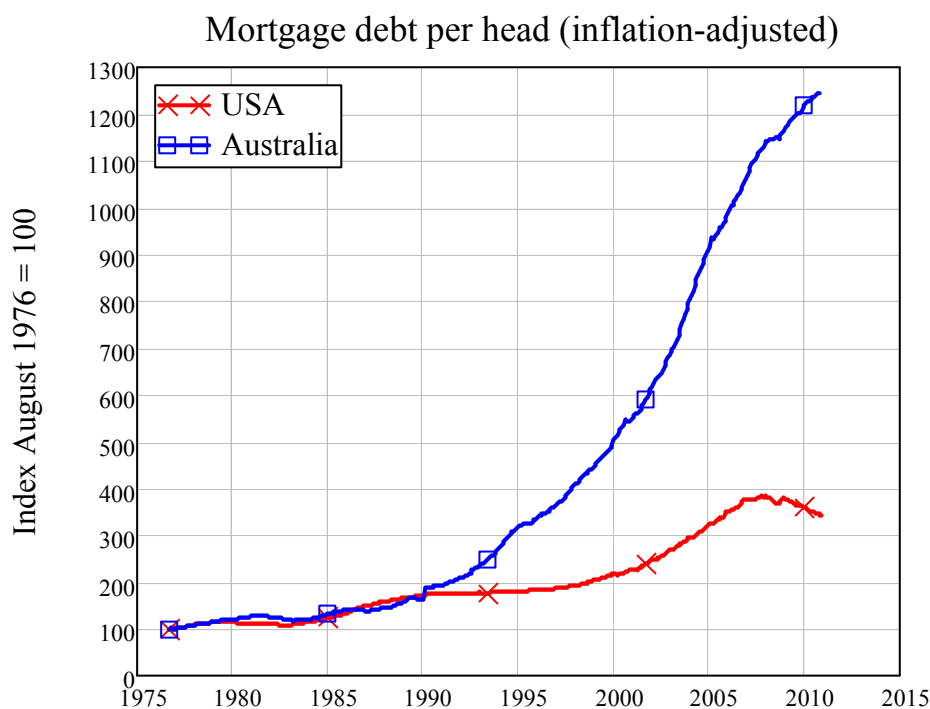
Figure 25



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.

Figure 26



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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).

There are many other proposals for reforming finance, most of which focus on changing the nature of the monetary system itself. The best of these focus on instituting a system that removes the capacity of the banking system to create money via “Full Reserve Banking”.

## Full Reserve Banking

The former could be done by removing the capacity of the private banking system to create money. This is the substance of the [American Monetary Institute's](#) proposals, which are now embodied in the [National Emergency Employment Defense Act of 2011 \(HR 2990\)](#), a Bill which was submitted to Congress by [Congressman Dennis Kucinich](#) on September 21<sup>st</sup> 2011. This bill would remove the capacity of the banking sector to create money, along the lines of the 100% reserve proposals first championed by Irving Fisher during the Great Depression (Fisher 1936), and vest the capacity for money creation in the government alone.

A similar system is proposed by the UK's [New Economic Foundation](#) with its [Positive Money](#) proposal.

Technically, both these proposals would work. I won't go into great detail on them here, other than to note my reservation about them, which is that I don't see the banking system's capacity to create money as the *causa causans* of crises, so much as the uses to which that money is put. As Schumpeter explains so well, the endogenous creation of money by the banking sector gives entrepreneurs spending power that exceeds that coming out of "the circular flow" alone. When the money created is put to Schumpeterian uses, it is an integral part of the inherent dynamic of capitalism. The problem comes when that money is created instead for Ponzi Finance reasons, and inflates asset prices rather than enabling the creation of new assets.

My caution with respect to full reserve banking systems is that this endogenous expansion of spending power would become the responsibility of the State alone. Here, though I am a proponent of government counter-cyclical spending, I am sceptical about the capacity of government agencies to get the creation of money right at all times. This is not to say that the private sector has done a better job—far from it! But the private banking system will always be there—even if changed in nature—ready to exploit any slipups in government behaviour that can be used to justify a return to the system we are currently in. Slipups will surely occur, especially if the new system still enables speculation on asset prices to occur.

Since in the real world, people forget and die, the memory of the chaos we are living through now won't be part of the mindset when those slipups occur, especially if the end of the Age of Deleveraging ushers in a period of economic tranquillity like the 1950s. We could well have 100% money reforms "reformed" out of existence once more.

Schumpeterian banking also inherently includes the capacity to make mistakes: to fund a venture that doesn't succeed, and yet to be willing to take that risk again in the hope of funding one that succeeds spectacularly. I am wary of the capacity of that mindset to co-exist with the bureaucratic one that dominates government.

So though I am not opposed to the 100% Reserve Banking proposal, I am not enthusiastic either. I believe they need curbs on the capacity to finance asset price speculation like Jubilee Shares and The Pill, and if they have them, these alone might achieve most of what monetary reformers hope to achieve with far more extensive change to the financial system.

## Other issues

As [Douglas Adams once brilliantly remarked](#), most of our solutions to human problems involve movements of small green pieces of paper, and my solutions clearly fall into that camp:

This planet has—or rather had—a problem, which was this: most of the people living on it were unhappy for pretty much of the time. Many solutions were suggested for this problem, but most of these were largely concerned with the movements of small green pieces of paper, which is odd because on the whole it wasn't the small green pieces of paper that were unhappy. (Adams 1988)

I have said nothing here about [Global Warming](#) and [Peak Oil](#). Clearly these factors will shape the post-Great Contraction world far more powerfully than would my reforms. The reasons for not mentioning them include specialisation—I am an economist after all, not a specialist on the climate or energy—and the fact that these issues will ultimately make the financial crisis look trivial by comparison. Discussing them while discussing the financial crisis would have swamped the latter topic almost entirely.

Ending the dominance of the FIRE sector will also expose the extent to which America and the UK in particular have been de-industrialised in the last 30 years. Though the relocation of production from the Western OECD to developing nations could have occurred independently of the growth of Ponzi Finance, Ponzi Finance enabled this trend to go on for much longer than it could have otherwise done. It is highly likely that reforms to end Ponzi Finance will be blamed for causing the crisis in unemployment that has in fact existed for decades, and would merely be exposed by suddenly reducing the size of the FIRE sector.

## On the bright side

All of the above makes for bleak reading. I certainly do expect a bleak future history for humankind in most of the rest of this century, which I believe will bear out the predictions first made by the “Limits to Growth” report in 1972 (Meadows, Randers et al. 1972; Meadows, Meadows et al. 2005; Turner 2008).



Figure 27: From Turner 2008. 2 solid circle series represent upper and lower bound estimates respectively

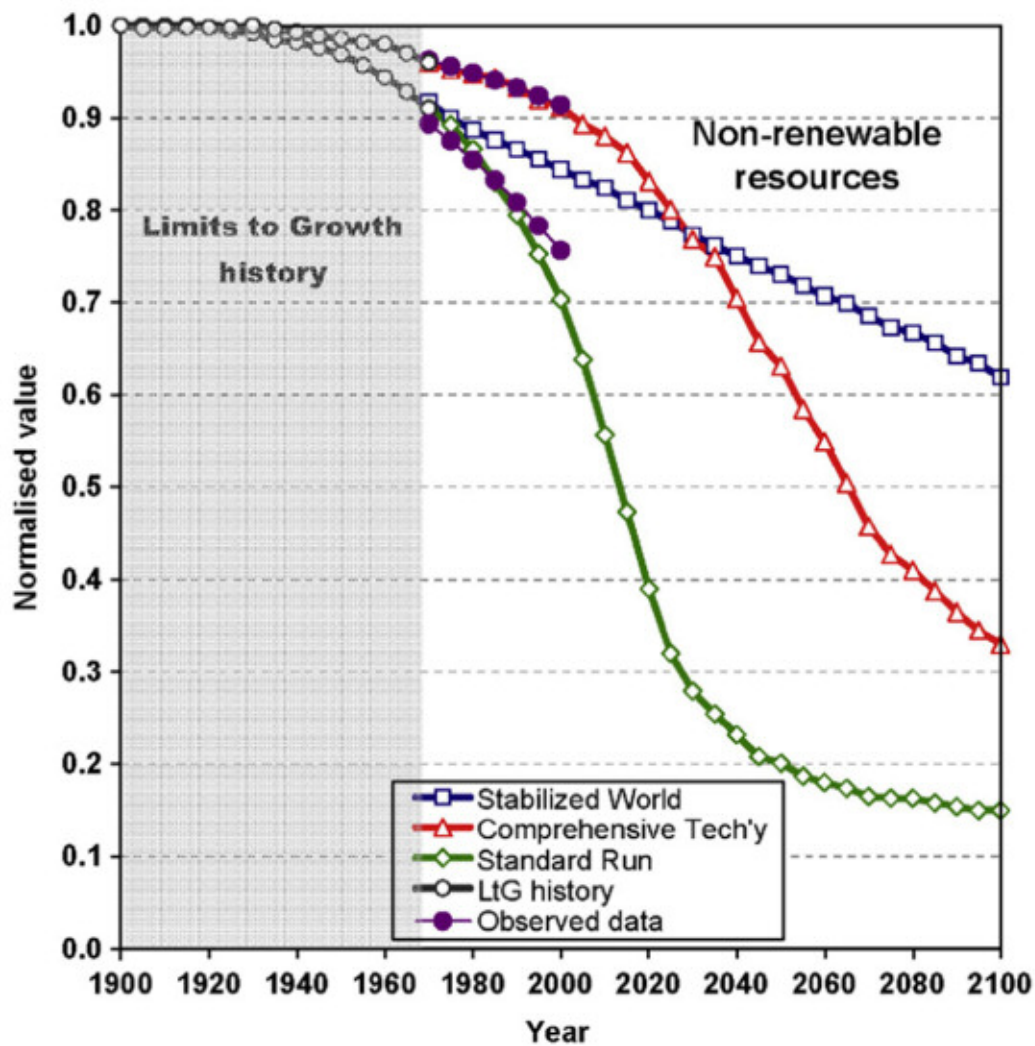


Fig. 9. Comparison of observed data (solid circles ●) for non-renewable resources remaining with the LtG model output for each scenario (“standard run” with open diamonds ◇, “comprehensive technology” with open triangles △, and “stabilized world” with open squares □). The calibrated model output over 1900–1970 is shown with open circles ○.

Despite this, I am a long term optimist for humanity. We have a depressing tendency to learn about the unsustainability of cumulative processes only after a crisis (Diamond 2005), but we also have an extraordinary intelligence, and a species nature that values empathy—along with our equally obvious tendency to let hierarchy and personal gain take the ascendancy in human affairs. Ultimately I believe we’ll work out a means to live sustainably on this planet and, in the very distant future, to live beyond it as well. But to do so, we have to understand our current situation properly. There is no chance to move towards a better future if we misunderstand the situation we are currently in. That’s why I keep on going.

In this work, I find myself following the lead of the physicist and applied mathematician [Professor John Blatt](#)—a fellow Australian (a Sydneysider even!) whom I never met, but whose writings were the foundation of my first forays into economic dynamics and complexity:

We close this introduction with a philosophical point. Karl Marx said: "The philosophers hitherto have only interpreted the world in various ways; the thing, however, is to change it." There have been many changes in the world since this was written... But only the foolhardy could claim that these changes have all, or even mostly, been for the better.

It is *not* the task of this book to change the world. Let us try to understand just a small part of it, namely the dynamics of competitive capitalism. It is by no means certain that the human race has a future at all. But if it does, that future can not be harmed, and may even be aided, by an honest attempt to understand our past. (Blatt 1983, p. 15)

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