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Australia

Finance

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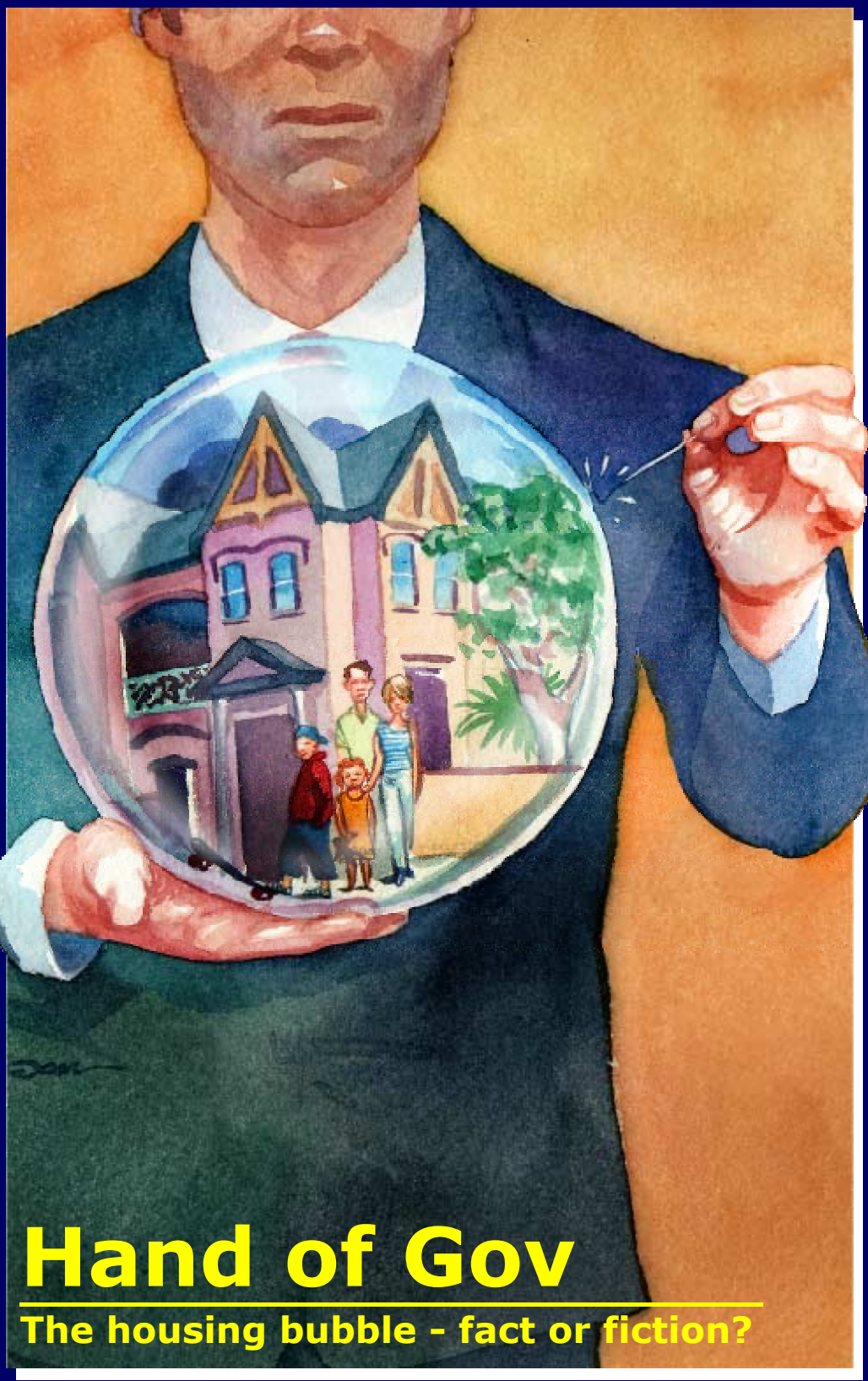

Hand of Gov

The housing bubble - fact or fiction?

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Professor Steve Keen

Steve Keen was one of the handful of economists to realise that a serious economic crisis was coming our way, and to publicly warn of it from as early as December 2005. This, and his pioneering work on modelling debt-deflation, resulted in him winning the Revere Award from the *Real World Economics Review* for being the economist whose work is most likely to prevent a future financial crisis. He maintains a highly influential blog on economics (www.debtdeflation.com/blogs) and his book *Debunking Economics: The naked emperor of the social sciences*, is a classic exposition of why conventional economic theory is not only wrong, but more of a threat to the survival of capitalism than any number of left-wing revolutionaries.

Foreword

The 2007 Global Financial Crisis (GFC) fundamentally changed the world. Easily available cheap debt and an increased gearing tolerance fuelled an extended cycle of appreciating asset values. This inevitably attracted leveraged speculators and the creation of excess capacity sowed the seeds of a catastrophic asset-value collapse. Around the world, this increased gearing tolerance was not just a corporate phenomenon. Households willingly participated in the frenzy, leading to a house-price boom. In fact, government initiatives seemed universally directed to increasing debt-funded home ownership regardless of borrowers' ability to service substantial repayment burdens. Conversely, the initial debt-market disruption wrought by the GFC, and its still-lingering effects, has lead to a significant decline in housing values everywhere except Australia.

The apparent resilience of housing prices here is a major issue for Australian bank investors. Housing loans dominate bank balance sheets, accounting for over 50% of gross loans. More to the point, the lesson from the US subprime crisis is that housing is a highly correlated asset class and that the "wealth effect" of a strong housing market is a major driver of the general economy. Our 15 July 2010 note, *Australian housing bubble?*, made the case for a housing bubble, noting however that the major catalyst for a price correction would be interest rates, not necessarily unemployment, as often cited.

The investor reaction to our report was extremely polarised, with absolutely no middle ground! Generally, domestic investors - many of whom own houses in Australia - are "Australian housing bulls", citing the supply shortage, the low historical loss rates and existence of Lenders Mortgage Insurance. On the other hand, international investors - more likely to be dispassionate - are "Australian housing bears", citing the apparent extreme overvaluation of housing prices and deteriorating credit-underwriting standards.

The reality is that immediately after the onset of the GFC the sudden paucity of available incremental funding saw Australian banks move to ration credit with the tightening of underwriting standards triggering a roughly 11% decline in Australian housing prices between December 2007 and March 2009. At the time it looked like house prices were set to fall further, but for the intervention of the government and the Reserve Bank of Australia - cash rate cut from 7.25% to 3.00%; government guarantee bank funding; First Home Buyers Grant increased from A$7,000 to A$21,000; Reserve Bank Australia increased repo flexibility - that triggered a rebound of 22% to a national average price of A$500,000. Author Professor Steve Keen has neatly coined the term the "hand of government" to explain this phenomenon.

So, who is right, the "housing bulls' or the "housing bears"? In order to provide a detailed response to this question we have commissioned this report from a self-proclaimed "bear" Professor Steve Keen to detail exactly why he believes there is an Australian housing bubble, and why Australian house prices have thus far remained resilient.

Brian Johnson
Australian Banks Research

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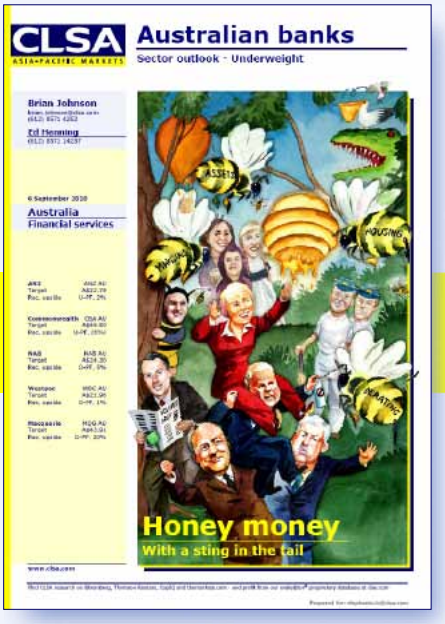
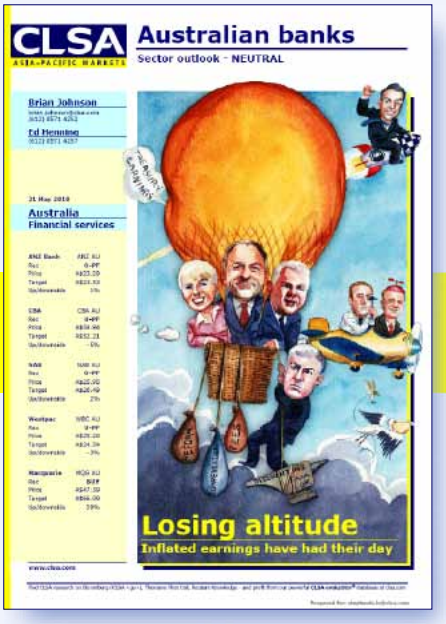
CLSA's Australian banking research





Hand of Gov

Australia is different but not unique: unconstrained lending has driven the bubble here, just as it has in the rest of the OECD

The Australian housing bubble, while different, is not unique. It is simply one of the last "unpopped" asset bubbles caused by a finance sector that aims to create as much debt as it can persuade borrowers to take on, combined with asset markets that reward leveraged speculation on asset prices. Australia's hand of government manipulations - its First Home Owners' Schemes - were important catalysts in this process. A trend reversal will hurt the banks, where mortgages account for a larger share of loan books than in the US.

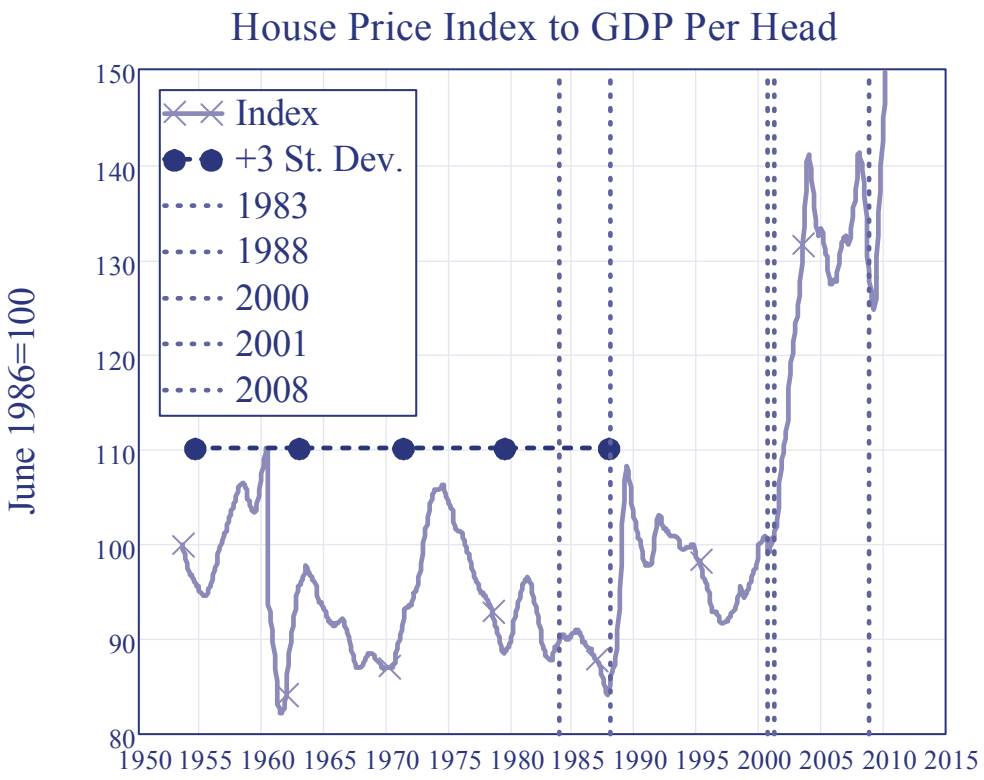
The bubble began in 1988, when the stock-market crash of 1987 and the second of five First Home Owners' Schemes encouraged Australians to switch from share-market to property-market speculation. The bubble has been maintained since then by a fivefold increase in mortgage debt (relative to GDP) in the two decades over 1990-2010, and three more "Hand of Gov" manipulations of the market via the First Home Owners' Schemes in 2000, 2001 and 2008. Australia now has a mortgage-debt-to-GDP ratio several percentage points above the maximum ever seen in the USA.

House prices are between 43% and 47% above long-term trends

On three metrics - the ratio of house prices to per-capita disposable income; house prices to per-capita GDP, and the market value of housing stock to GDP - corrections of 45%, 43% and 47% respectively, are needed to return prices to pre-bubble levels. On a fourth metric, the ratio of house prices to consumer prices (which the US Case-Shiller and Dutch Herengracht indices imply has no long-term trend), a 63% correction is needed.

The most telling indicator of the bubble

Ratio of house prices to GDP and the five First Home Owners' Schemes



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Australia's role as a raw-materials exporter to China and its population growth don't correlate with the movements in Australian house prices

Australia's unusual position (along with Canada) of being a raw-material-exporting OECD nation has indeed enabled it to benefit from the Chinese economy (and its huge government stimulus in 2008-09), and its very high rate of population growth does put volume (but not necessarily price) pressure on the demand for housing. However, for all but the years 2007-2010, dwelling growth has exceeded population growth, and there is no statistical correlation between population growth and house prices.

Similarly, while Chinese demand has propelled the Australian economy since 2010, the growth that enabled it to avoid a recession in 2008-09 came from government stimuli - especially the First Home Owners' Boost - not from trade. The non-mining state of Victoria accounted for over 60% of the increase in employment from the trough of the downturn till May 2010, and the biggest employment growth was in non-tradable industries such as accommodation and food, education, health and real estate.

The hand of government via the First Home Buyers' Scheme has been an essential catalyst of the house-price bubble

A major factor in starting the bubble was the Australian invention of the First Home Owners' Scheme. This scheme has caused three of the great short-term bubbles in the long-term bubble: 1988-89, 2000-2004 and 2009-2010. The very success of this scheme in the past in inflating house prices makes it unlikely that a sixth play of this card could succeed in inflating the market once more: the last such scheme under then Prime Minister Rudd increased median prices by more than two year's worth of median income, making future entry prohibitively expensive for first home buyers.

Household lending is key determinant of prices

Finance was undoubtedly the driving force behind rising house prices (with the government's First Home Owners' Scheme acting as a catalyst).

Household debt now exceeds that in USA; debt-servicing burden is 50% higher in Australia

Changes in house prices are strongly correlated with the ratio of new lending to GDP. This supplier-driven growth in housing debt, plus higher interest rates in Australia, now means that the financial burden on households is one-and-a-half-times as severe as that in America. Recent declines in owner-occupier loans have been only partially offset by a rise in investor loans, so that the rising trend for new-housing loans (from 5% to 25% of GDP between 1990 and 2008) has been reversed.

The trend of rising mortgage debt has reversed and will affect Australian banks

With lending for housing now declining relative to GDP, the main force that had driven house prices up is now working in reverse: falling leverage and decreasing numbers of loans equate to falling actual demand for housing in both volume and price terms. The implications of this will be just as severe for Australian banks as the same process was for their American peers, since real-estate loans are a larger proportion of Australian bank assets than they were of American bank assets when the US bubble burst.

Just the facts, Ma'am

How high are Australian house prices?

When challenged on his opinion that Australian housing is a bubble ripe for bursting, Jeremy Grantham quipped that 'Bubbles have quite a few things in common but housing bubbles have a spectacular thing in common, and that is every one of them is considered unique and different.' (Jimenez 2010)

That is so true of Australian housing, where every conceivable reason has been advanced as to why house prices Down Under are not in a bubble: Australia's role as a raw-materials supplier to China, its immigration-driven population growth, an alleged shortage of housing supply, even the fact that Australians prefer to live near the sea.

Likewise, those who are adamant that Australian house prices are in a bubble advance myriad reasons as to why: the ratio of median house prices to median incomes, the rental yield versus the return on bonds, etc.

The only definitive proof of whether Australian house prices are justified by fundamentals or inflated in a bubble that will one day deflate, will come with time; but investors who wish to make portfolio decisions now can't wait. I am firmly in the bubble camp, as will become obvious; but here I'll detail the statistical evidence provided by both bear and bull camps on whether Australian house prices reflect a bubble, or peculiar Australian economic fundamentals.

First, the facts: just how high are Australian house prices?

House prices have risen by 605% since June 1986, while consumer prices have risen 227%

Australian house prices have risen by a factor of six in nominal terms since the Australian Bureau of Statistics (ABS) began collecting reliable data on median house prices in July 1986, while consumer prices have risen by a factor of 2.25-times in the same period (see Figure 1).[1] Most of this rise occurred in two spurts: a 50% increase in 1.5 years between July 1987 and March 1989 (from 105.6 to 160.8), and a 225% increase over the 13.5 years between 1997 and June 2010 (from 186.5 to 605.9). These two spurts over 15 years (with the latter including periods of hiatus and re-acceleration that I discuss later in Section 3) accounted for five-sixths of the overall growth in nominal house prices over the past 24 years.

Inflation-adjusted house prices rose 2.65x over 24 years; two big rises in 87-89 and 97-10

Real House prices doubled between 2000 and 2010

When adjusted for inflation, Australian house prices are 2.6-times higher in real terms in mid-2010 than they were in mid-1986 (see Figure 2). The two price growth spurts stand out more clearly now: the first increased real house prices by 37% in 1.5 years, while the second (which included three periods of falling real prices that I discuss later) increased them by 127% in 13.5 years. Together these two spurts increased real house prices by a factor of 3.1 - with the remaining nine years of the series (June 1986-July 87 and April 1989-December 1986) recording falling real house prices.

[1] The relevant ABS data sets are Excel files 641601 and 614603 from its catalog 6416.0 House Price Indexes: Eight Capital Cities. The ABS changed its methodology and base year in 2005; the index used here is a composite of the two indices with the base set to 100 in June 1986.

Figure 1

House prices and the CPI

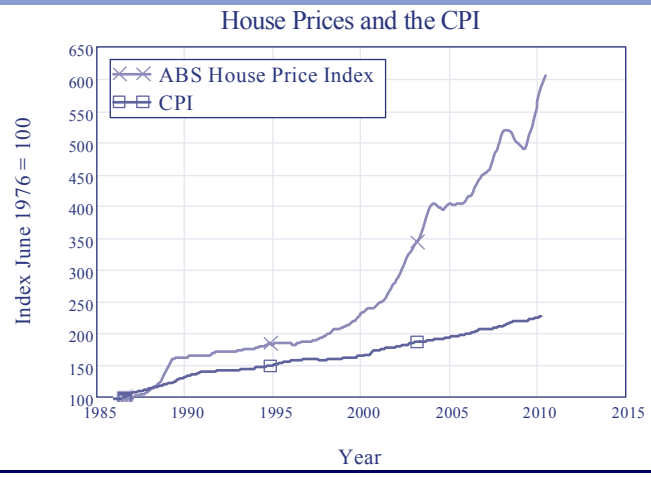


Figure 2

Inflation-adjusted house prices

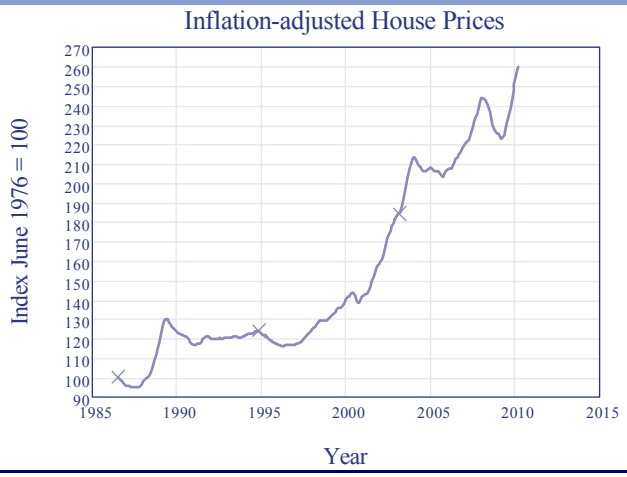


Figure 3

Real house prices: An international comparison

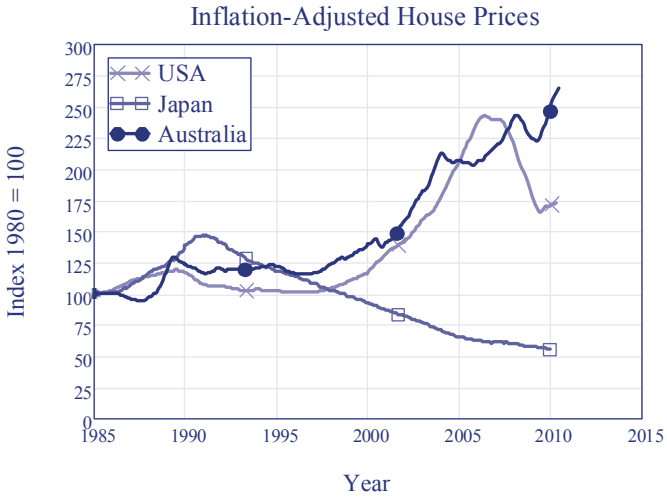


Figure 4

Inflation-adjusted house prices

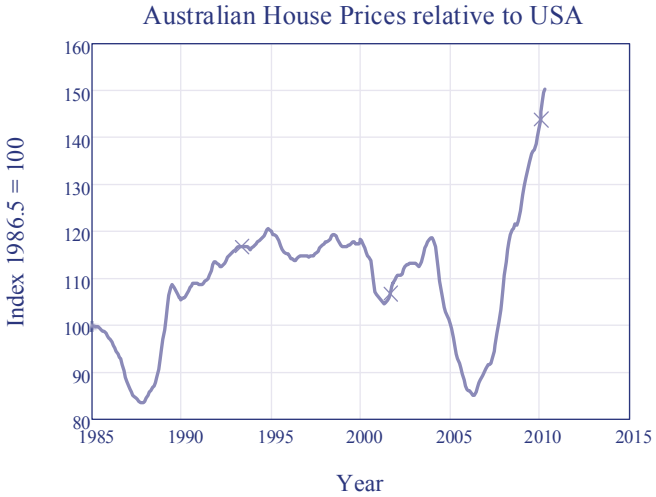


Figure 5

Stock market indices

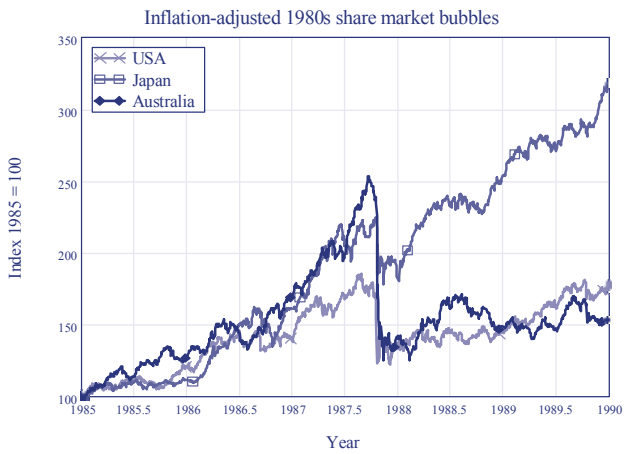
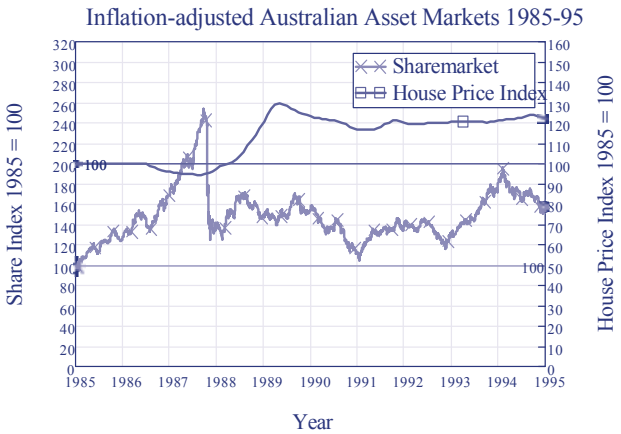


Figure 6

Japan inflation-adjusted asset markets



Source: econonodata.presentselect.com

Japan and America's bubbles have clearly burst while Australia's prices continue rising

Australian real house prices stand out in international comparisons for two reasons: their relative expense, and their trend. Australian real house prices roughly tracked US prices with a 10-20% premium from 1990 till 2005; then, remarkably, Australian prices began to fall in real terms in 2004, *before* the US bubble popped in mid-2006. However, the decline in Australian real house prices stopped in late 2005, and prices took off once more in 2006 just as the American bubble peaked. By mid-2007, parity was achieved - courtesy of falling prices in the USA and rising prices in Australia - while by the end of 2007, the 1990-2005 relativity with US prices had been effectively restored (see Figure 4).

Australian house prices began falling in early 2008

This price rise stopped abruptly in early-2008, when the financial crisis really hit. A house-price plunge began - though this was nowhere near as steep as America's - and as a result the premium between Australian and US house prices continued to rise.

Fall was arrested by government intervention in the form of the "First Home Owners' Boost"

The downward trend then came to another abrupt end in early 2009 courtesy of a "hand of government" manoeuvre - the so-called "First Home Owners' Boost" that doubled and in some cases trebled the national government grant given to first home buyers.[2] By mid-2010, Australian real house prices were 50% higher than in the USA.

Housing cannot be considered in isolation from the other major asset class, shares

House prices cannot be considered in isolation from the other great asset class, shares. Now that the empirical reality of the financial crisis has shown beyond doubt that the Efficient Markets Hypothesis is delusional, asset prices in general can be regarded as largely driven by debt-financed speculative behaviour, and recent history has shown that a bubble in housing may develop in response to a government rescue of the financial system after a bust in the share market. This was clearly the case for Australian house prices in the 1980s.

Australia's stock-market bubble in 1980-87 was much larger than the USA's or Japan's

The first spike in Australian house prices in 1987-89 was an Antipodean companion to bubbles in US and Japanese share and house prices at the time of the 80s speculative bubble and crash (see Figure 5).[3] Australia was a Johnny-come-lately to the housing side of this bubble, but arguably only because beforehand, it was indulging in its first-ever love affair with the stock market, with an enthusiasm that made both Wall Street and Tokyo look reserved. The US stock market rose by 75% in real terms between 1985 and Black Monday; the Japanese market rose by a factor of 2.25; and the Australian market rose by a factor of 2.5.

Australian stock-market crash of 1987 dwarfed the US and Japanese crashes

Having risen faster, Australian shares duly fell harder than their US and Japanese counterparts. Australia's Black Tuesday saw shares fall 25%, 4.5ppt more than Wall Street's fall the previous day.

Japan's speculative bubble was the first to definitively burst

Japan's tragic advance towards its "Lost Decade" - which should now be called its "Lost Two Decades" - then began. Japanese shares fell only slightly during the 1987 panic, and continued on after it to more than

[2] This is discussed in more detail in Section 3.
[3] US Data comes from the Case-Shillier Index (http://www.standardandpoors.com/indices/sp-case-shiller-home-price-indices/en/us/?indexId=spusa-cashpidff - p-us - -);
Japanese data is from the Real Estate Institute of Japan
(http://warp.ndl.go.jp/info:ndljp/pid/235321/www.stat.go.jp/data/nenkan/zuhyou/y1712000.xls)

double in real terms over the period from October 1987 till December 1999, bringing the real increase to over 300% between 1985 and 1990. But then the expanding Japanese domestic debt bubble - which had seen Japanese banks come to occupy nine of the top ten slots by capitalisation worldwide - reached its apogee. The debt-fuelled speculative growth of the previous decade stopped, leaving only the accumulated debt and grossly overpriced assets.

Japan's house-price bubble burst a year after the stock market bubble

Share prices collapsed abruptly, while the housing bubble continued growing for one year before it too burst. Since then, both have declined inexorably. Japanese share prices are now over 75% below their peak, and house prices are over 60% below theirs.

A too-successful rescue ignited a property-market bubble and set the stage for a bigger recession

In the USA and Australia on the other hand, the too-successful Greenspan Put of 1987 (and its equivalent in Australia) did what Hyman Minsky warned that it could do: 'If lender-of-last-resort interactions are not accompanied by regulations and reforms that restrict financial-market practices, then the intervention sets the stage for the financing of an inflationary expansion, once the "animal spirits" of business people and bankers have recovered from the transitory shock of the crisis that forced the lender-of-last-resort activities in the first place' (Minsky 1980, p. 35).

In both countries, but most notably in Australia, the successful rescue after the stock-market crash merely transferred the focus of speculation from one market (shares) to another (housing), until those bubbles themselves burst several years later and ushered in the recession of the 1990s.

The 1987 stock-market crash was much more devastating for Australian investors than Americans, while the Australian housing market generated positive real returns, despite its boom and crash in 1989-92

Figure 7 emphasises just how much bigger the Australian asset bubbles were in the 1980s than those in America. But several other features of the two bubbles stand out: by 1995, the US housing market had returned to its 1985 level, while the Australian market - even though it had a more obvious boom and bust - remained 20% above its 1985 level; and the US stock market still doubled across of decade, while the Australian market finished only 50% higher, and well below the peak reached before Black Tuesday. Many Australians had been bitten by the stock market, and were more likely to shy away from it for the apparently more stable odds in the property market.

Australians avoided the internet mania, but indulged with gusto in the post-2003 bubble, when the only games in town were property, property development, and finance

Unsurprisingly, Australian investors didn't participate in the telecommunications/internet bubble (and burst of 2000) - the memory of 1987 took a long time to dissipate. But they indulged with gusto in the post-2003 real-estate-oriented bubble. Since the 2003 bubble began, the Australian stock market has been a clone of the US, whereas between 1987 and 2003 it showed an independent and much more cautious streak - not until 2005 did the Australian market exceed its 1987 high, whereas the US market broke that barrier in 1992. But between the 2003 low and the 2007 high, Australian shares rose 125% while US shares rose only 75%.

Just as the USA was possessed by not one speculative bubble but two, so too was the Australian economy.

Australia's share market bubble has burst, but not its housing market bubble

The key difference with the US is that while both its asset price bubbles have burst, in Australia only the share market has come unstuck. Though there was a downturn in 2008, this was rapidly reversed by government intervention so that the Australian housing market is now more than twice as expensive as it was in 1995.

Property market has yielded a higher return with lower volatility than share market

Even more remarkably, whereas shares have yielded higher returns in America than property over the medium term, in Australia property has given a higher return with lower volatility. This may well play a factor in the widespread belief amongst Australian investors that Australian housing could never experience a price collapse similar to that which has occurred in many other countries.

Two serious share-market corrections have made Australians aware that shares don't always rise

While Australian shares have followed a superficially more stable path than US shares, over the past quarter century Australians have experienced two serious share-price corrections. Aggregate returns have also been lower than for US shares. On the other hand, property investment has returned a similar yield to share investment in terms of capital growth,[4] with far less volatility. It is little wonder that Australians have been led to believe that an investment in bricks and mortar is "as safe as houses" (see Figures 12 and 13).

The Herengracht Index shows that there is no long-term trend to real house prices

Another method to gauge whether Australian house prices are overvalued is the consider the trend in real house prices - especially if, as the Herengracht Index implies, there is no trend (Eichholtz 1997).[5] This index of house prices in Amsterdam's most exclusive canal starts in 1628 (just before the Tulip Mania), and displays no trend over almost 350 years (see Figure 14). It also shows that there were some periods of more than 60 years when the general trend was for prices to fall, and others of the same length where the general trend was for prices to rise. It would be quite possible to have lived in one of those periods and to die confident in the belief that real house prices always fell, or always rose.

The Case-Shiller Index, going back till 1890, confirms the Herengracht conjecture that real house prices have no long-term trend

The long-term US Case-Shiller Index (see Figure 15) supports the implication that real house prices are generally constant. The index ranged between 65 and 125 for 100 years, before the Subprime Bubble drove it to a peak of 262 in mid-2006. That the Subprime Bubble was a bubble stands out like the proverbial sore thumb in this chart, in stark contrast to the views of once bubble-deniers like Alan Greenspan that bubbles can only be discerned after they have burst. It also implies that the unwinding of US house prices still has a long way to go.

[4] Aggregate returns are affected by dividend yields and rental returns, and the preferential treatment of losses on property under Australia's peculiar "negative gearing" tax rebate scheme; however generally rents have yielded less than dividends over this period.
[5] The working paper can be downloaded from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=598

Figure 7

Australian asset markets, 1985-1995

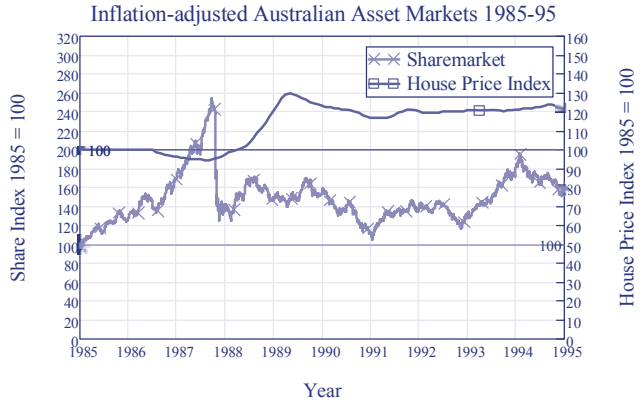


Figure 8

US asset markets, 1985-1995

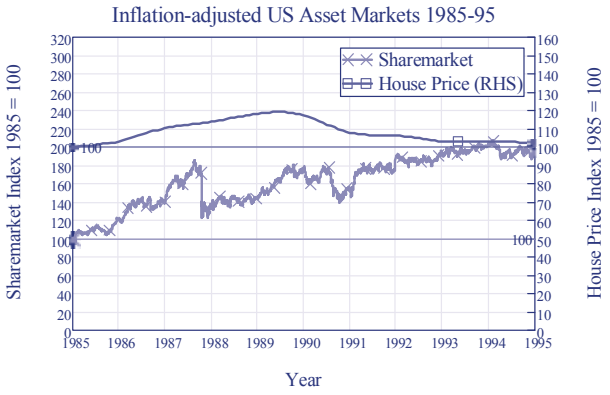


Figure 9

Stock market indices, 1985-2010

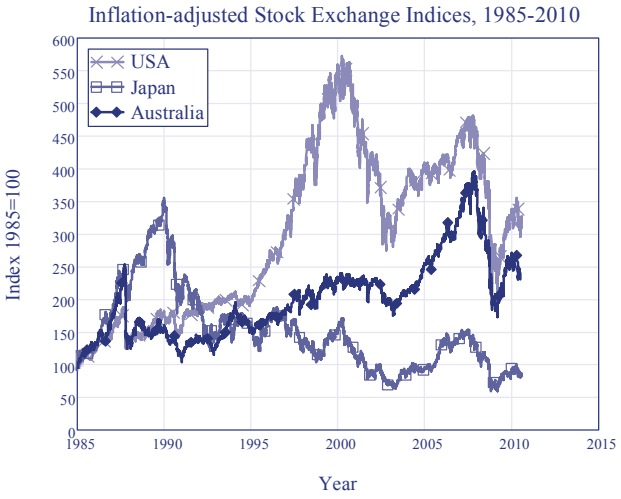


Figure 10

US asset markets, 1995-2010

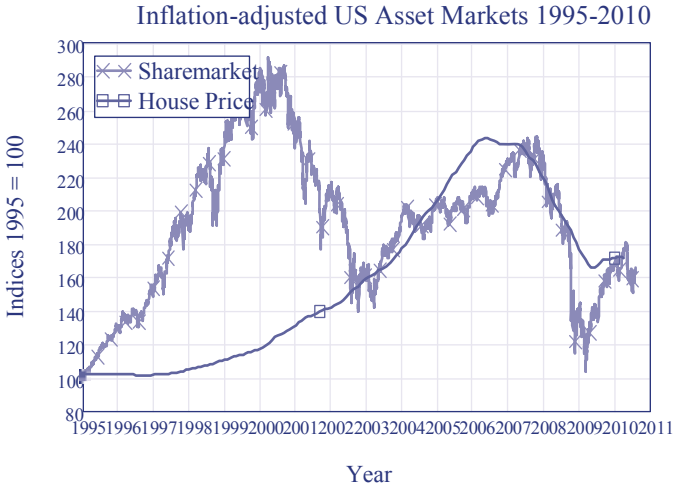


Figure 11

Australian asset markets, 1995-2010

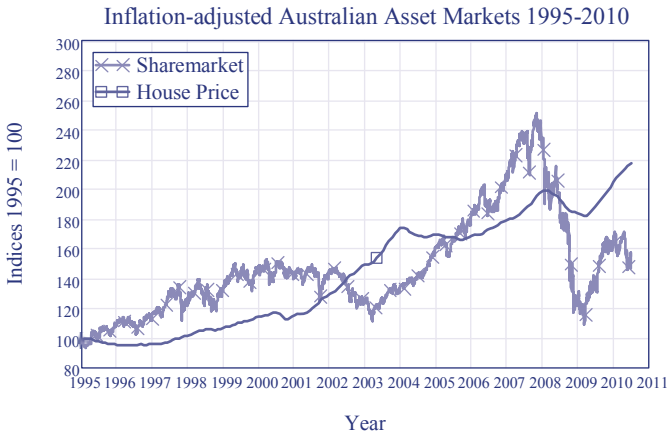
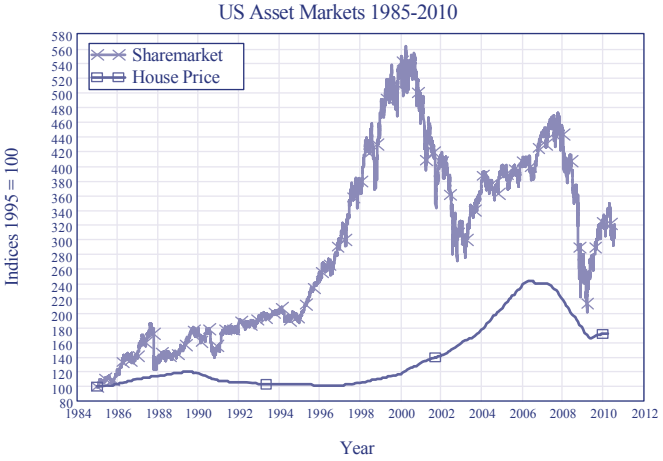


Figure 12

US asset markets - The medium-term view, 1985-2010



Source: econonodata.presentselect.com

Figure 13

Australian asset markets - Mid-term view, 1985-2010

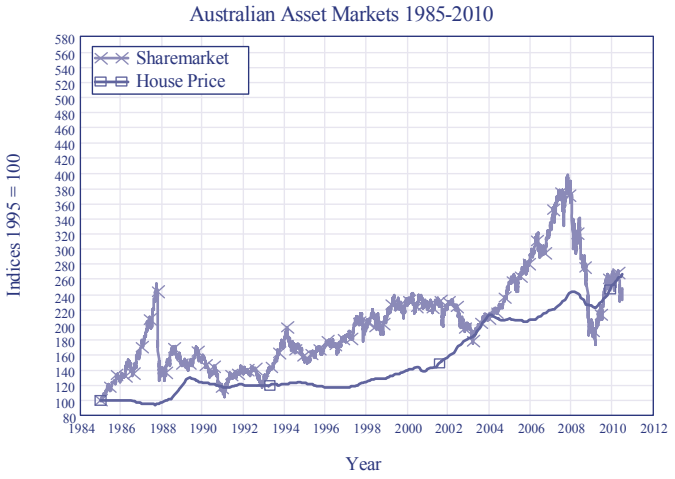


Figure 14

Real prices are stable: Herengracht Canal, Amsterdam

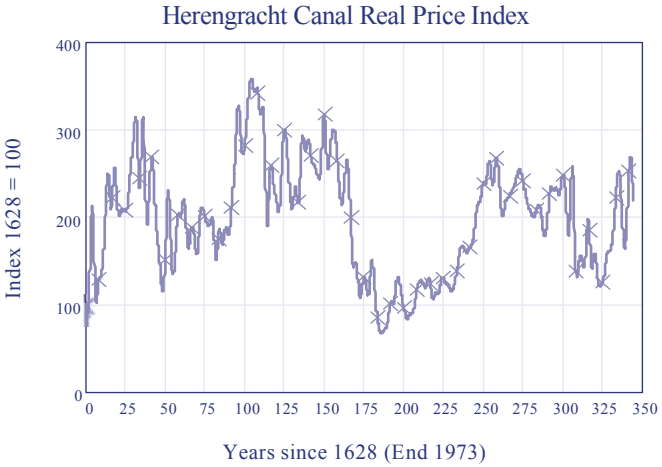


Figure 15

Real house prices stable: Case-Shiller Index for the USA

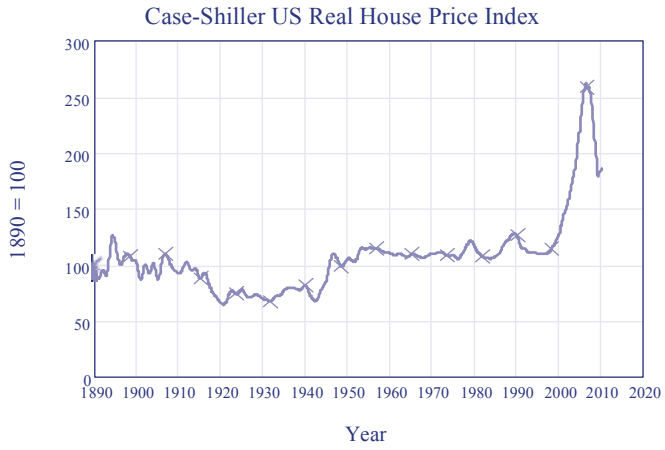


Figure 16

Once stable: Stapledon's long-term index for Australia

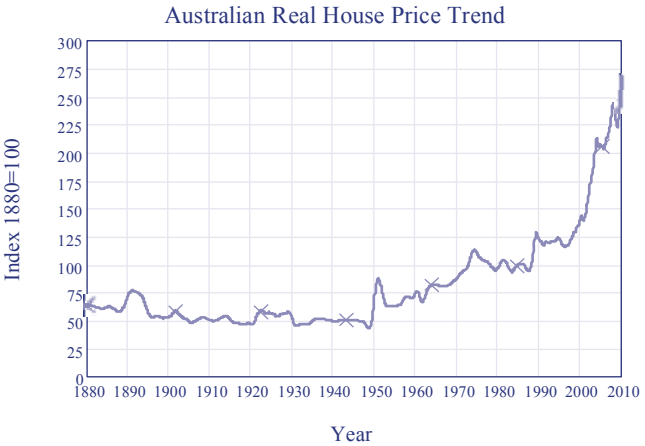


Figure 17

Deviation from long-term average real house prices

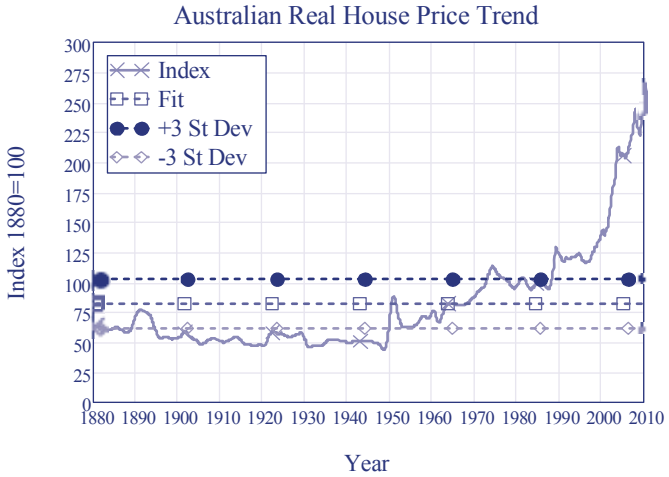
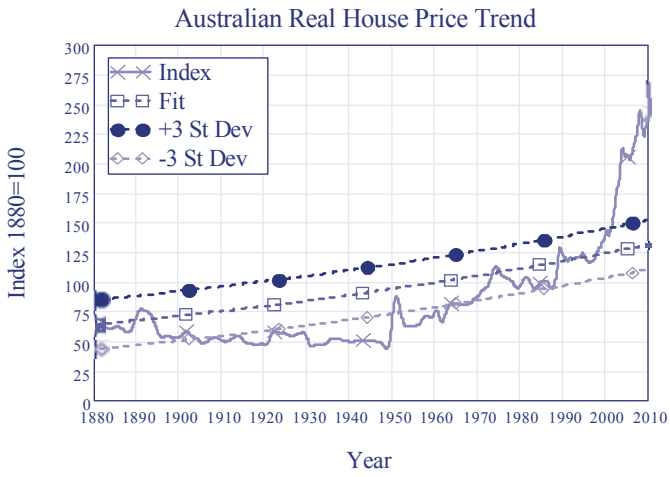


Figure 18

Exponential trend to Australian house prices from 1880



Source: econonodata.presentselect.com

Stapledon's index reaches the same conclusion for Australia - until 1960s

The first 80 years of Australia's real house price index supports the conclusion that real house prices do not rise: the Stapledon Index (Stapledon 2007) had a median value of 50 and ranged between 44 and 88 (the rapid rise in 1950 was due to the removal of long-standing government controls on rents) (see Figure 16). But from 1960 on, the trend in Australian real house prices has been upwards, and that trend has accelerated dramatically in recent years.

If there is no long-term trend, then current level is 26 standard deviations above the mean

This suggests several ways to assess the size of the current house price bubble: to see it as a deviation from a long-run constant; and to measure it against the general upward trend in prices since 1960. The value of the index in June 2010 was 266; its average from 1880 till 2010 was 82, and the average from 1955 on - after the change to rental regulations in 1950 had been fully absorbed - was 82. Over the entire 130 years of the index, the mean annual price movement was 1.45%, with a standard deviation of 6.9%.

On that basis, the current value is more than 26 standard deviations above the mean (see Figure 17). This might seem a ridiculous value - sufficient to rule out the argument that the long-term trend is flat - but values of this magnitude are easily generated by nonlinear, chaotic processes that typify asset markets (the Stock Market Crash of 1987, for example, involved a daily movement of over 20 standard deviations).

If the briefer period from 1955 till now is considered - thus leaving out the change in rental regulations in 1950 as well as the preceding 70 years of data - the current value is more than 17 standard deviations above the mean of 117.

Currently 19 standard deviations above a long-run exponential trend

If instead it really is true that "Australia is different", and real house prices do rise with time, then an exponential fit is a better guide to what the current value should be; but this fit also depends on when you start. If we consider the whole period, then Australian real house prices grow at 0.5% pa, the trend value of the Australian real house price index in mid-2010 was 132 - and the current value is 19 standard deviations above this (see Figure 18).

It is 7 standard deviations above an exponential trend from 1955

Using the alternate starting point of 1955 (see Figure 19) the annual growth rate is a substantial 2%, the trend value in mid-2010 was 203, and the current index value is still 7.3 standard deviations above the trend.

It is 2.4 standard deviations above the trend from 1986

Finally, if we restrict ourselves to the period during which the ABS has been maintaining a house price index, the trend rate of growth is 3.6% pa, the trend value in mid-2010 was 238, and the actual value is a less remarkable but still substantial 2.4 standard deviations above the mean (see Figure 20). The index would need to remain constant for the next three years simply to return to trend.

House prices are anywhere between 12% and 225% above trend

Summarising the above, on every feasible metric of the change in real house prices over time, the mid-2010 long-term real price index of 266 is well above trend (see Figure 21).

House prices have also risen against incomes

Proponents of the "this is not a bubble" school often argue that the house prices should be compared not to consumer prices but to incomes, since real incomes rise over time and (they argue) housing prices should rise in line with incomes. Unfortunately, even that argument isn't enough to deny there is a bubble: the only way out is to assert that housing should consume a rising share of income over time.

House prices are 84% more expensive relative to incomes than in 1986

Measured against household disposable income per head, houses are now 84% more expensive than they were in June 1986, when the ABS house price series began (see Figure 22). The current level is 40% above the 1986-2010 average, and 33% above the average since 1993, which for some reason is the time range chosen by the RBA to defend the proposition that house prices were not overvalued in March of 2009 (Richards 2009).[6]

No trend in ratio of house prices to disposable income ratio 1960 until 1988

When the Stapledon data on nominal house prices is used, we can take the comparison back to 1960, when the ABS series for household disposable income began (see Figure 23). That makes a minor difference to the implied level of overvaluation - it rises from 84% to 92%. More importantly, it shows that from 1960 till 1998, there was no trend in the ratio of house prices to disposable income. Only since 1988 - the year in which Australian house prices bubbled after the 1987 Stock Market Crash - has there been any evidence of an upward trend.

The level of overvaluation today when compared to the average also rises substantially: the average value of the index is 120, and the current value is 60% above this level.

Even with an exponential trend, prices are 26% above trend from 1960

If a trend rate of growth of this index is assumed (see Figure 24), we are still left with a bubble: since 1960, the ratio has grown at 0.8% per year, and the current value is 26% above trend.

Summarising this (Figure 25), on all possible interpretations of the house price to disposable income ratio, the current price level is in bubble territory.

On price-to-income grounds, house prices are 7-60% above trend

The final indicator that can be gleaned from the price-to-disposable-income indicator is the rate at which the ratio is growing compared to the long-term average growth rate (see Figure 26). Superficially, the 13% annual rate of growth at the end of 2010 was less remarkable than two previous periods in 2003 and 1989 - though it still involved a rate of growth of the ratio that was 2.25 standard deviations above the mean. However this ratio was artificially depressed by the extraordinary impact of government intervention on disposable incomes in Australia in 2009.

The combination of a substantial fiscal stimulus - which was equivalent to 2.5% of GDP, and included a cash handout of just under A$1,000 to every Australian taxpayer with an income below A$100,000 a year - and the 4% cut in official interest rates (which was passed on in lower mortgage rates to the 90% of Australian borrowers with variable interest rate mortgages) boosted household disposable incomes by over 10% in 2009. When this hand of government intervention is factored out, the most recent increase in the price to disposable income ratio exceeds even that of the late 1980s bubble.

[6] Anthony Richards , "Conditions and Prospects in the Housing Sector", http://www.rba.gov.au/speeches/2009/sp-so-260309.html

Figure 19

Exponential trend from 1955 and the deviation from it

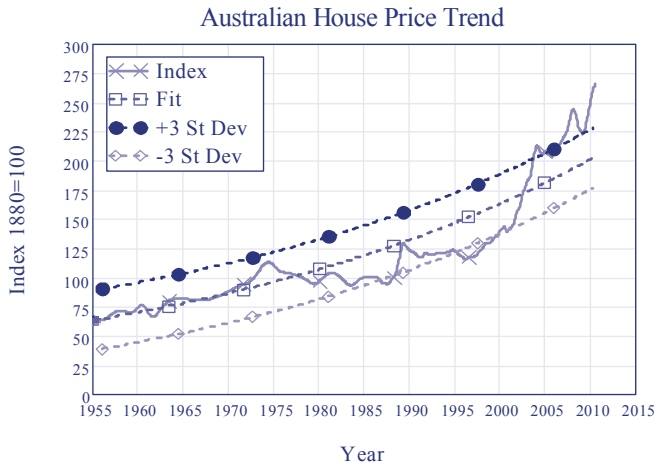


Figure 20

Exponential trend from 1986 and the deviation from it

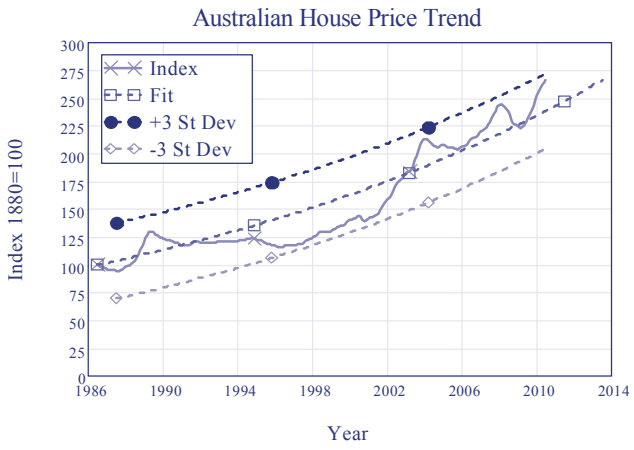


Figure 21

Ratio of house prices to disposable income per head

Trend	Start of time period	Trend value	Growth rate (%)	St. dev. above trend	Percent above trend (%)
None	1880	82	0	26.5	224
None	1955	117	0	17.5	127
Exponential	1880	131	0.55	19.4	101
Exponential	1955	203.5	2.1	7.4	30
Exponential	1986	238	3.6	2.45	11.5

Figure 22

House price index vs HDI per head, 1986-2010

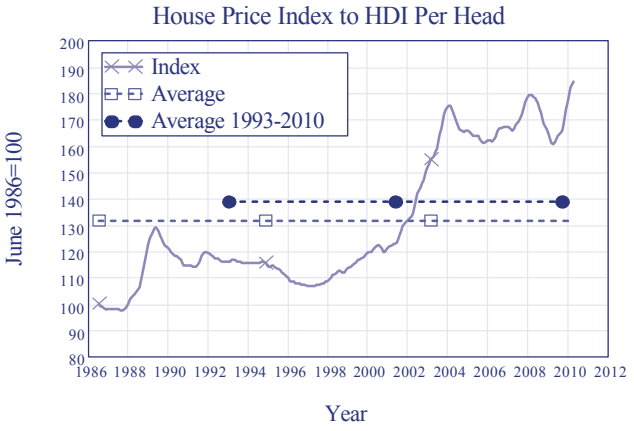


Figure 23

House price index vs DHI per head, 1960-2010

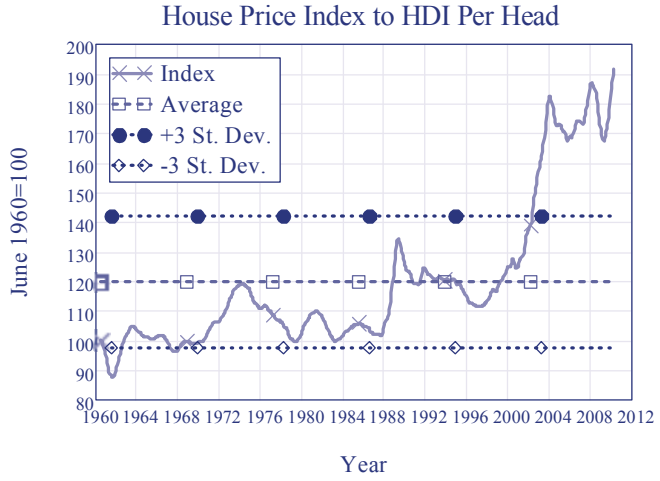
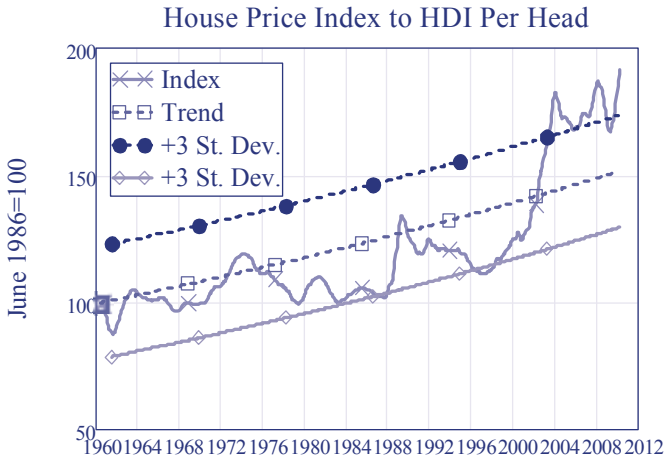


Figure 24

House price index vs HDI per head with trend



Source: econonodata.presentselect.com

The house-price-to-GDP ratio shows no trend till 2000, and is now 49% above long-term average

The equivocation needed in all the above illustrations by the possible appearance of an exponential trend in the indicator can be dispensed with for the next measure: the ratio of house prices to GDP per capita (see Figure 27). There is no trend at all between 1953 and 2000, and then suddenly the ratio goes through the proverbial roof. More than any other indicator, this screams "Bubble". The current value of this index is 49% above the long-term average of 101, and it is 7.7 standard deviations above the mean. As I will explain in Section 3, government intervention in the market was one of the key determinants of this bubble.

The value of housing stock to GSP ratio is more than double its 1955-1970 level

This message is amplified by another GDP-based metric: the ratio of the value of the stock of houses to GDP (see Figure 28). Having flatlined for the first 15 years, this then jumped by 25% during the early-70s boom; flatlined for another 13 years until the late-80s boom pushed it a further 25% higher; and then it doubled again during the 2000 boom to its now record level of 227.

The First Home Owners' Boost lifted house prices by far more than the Boost

Recent median house-price data emphasises the impact of the Rudd Government's intervention in the market with its First Home Owners' Boost (which I tagged the "First Home Vendors Boost" for the simple reason that the real beneficiaries were not the buyers, but the vendors). Prior to the intervention, median prices in all major cities were falling; after it prices rocketed across the country. The price effect was particularly marked in Sydney, where median prices had been stagnant since 2004 (see Figures 29 and 30).

Prices went from falling at 13% pa to rising by 27% pa

The change from prices falling at an annual rate of 13% to rising at a rate of 27% was amongst the most blatant signs of the way in which The hand of Government has manipulated the Australian housing market - an issue I return to in more detail in Section 3.

Sales volume began dropping before the First Home Vendors Boost expired

Volumes also rose initially, but in a potentially ominous sign for prices in 2010, the volume of sales of existing properties began to fall prior to the removal of the Boost at the end of 2010.

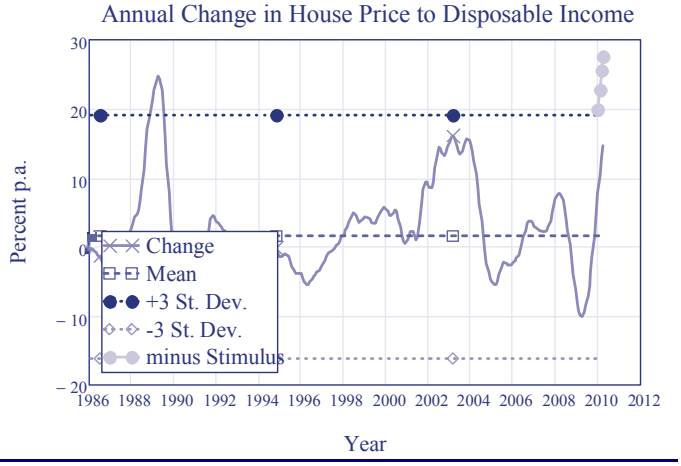
Figure 25

Summary: House prices versus disposable income

Trend	Start of time period	Trend value	Growth rate (%)	St. dev. above trend	Above trend (%)
None	1960	120	0	9.7	60
None	1986	132	0	5.8	40
None	1993	138	0	5	33
Exponential	1960	152	0.8	4.5	26.5
Exponential	1986	172.5	2.3	1.3	7

Figure 26

Change in price-income ratio: 2009 bubble biggest ever



Source: econonodata.presentselect.com

Figure 27

House price index to GDP per capita

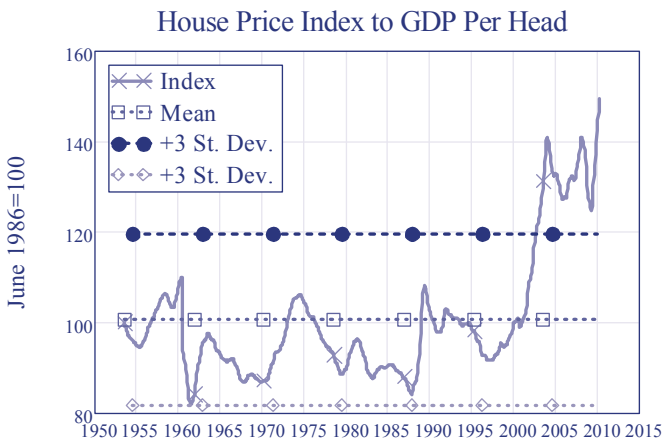


Figure 28

Value of housing stock to GDP

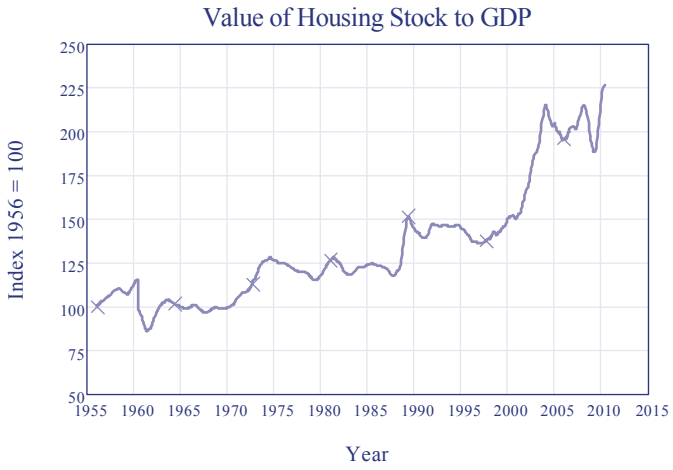


Figure 29

Median prices in the capital cities

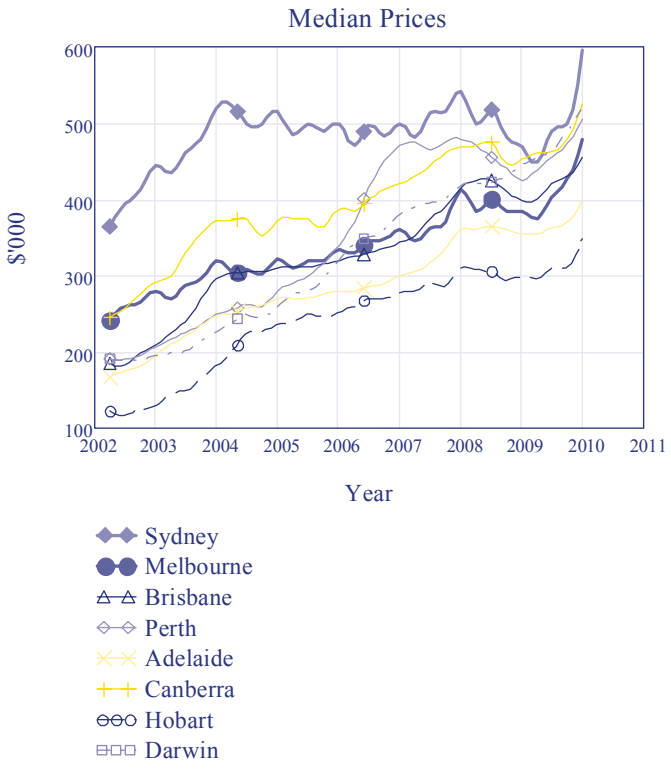
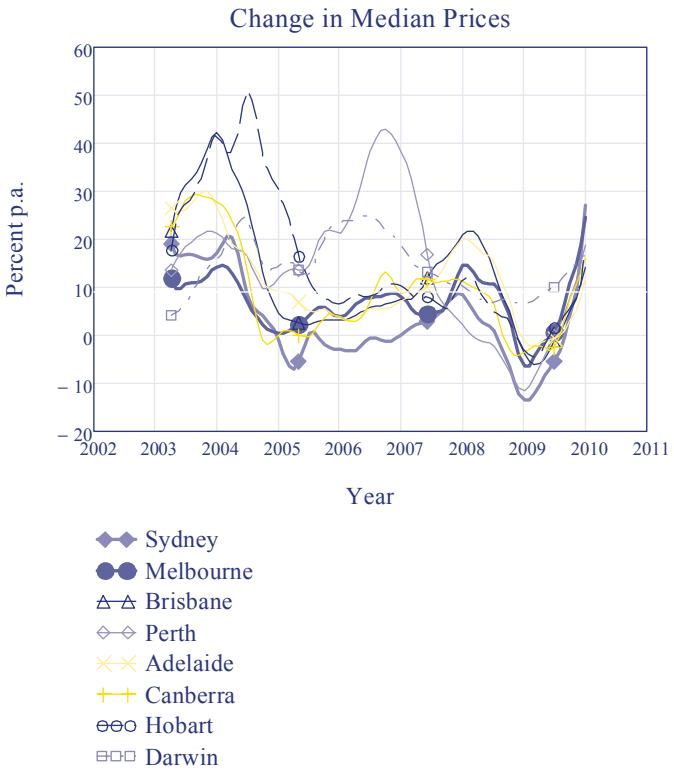


Figure 30

Change in median prices in the capital cities



Source: econonodata.presentselect.com

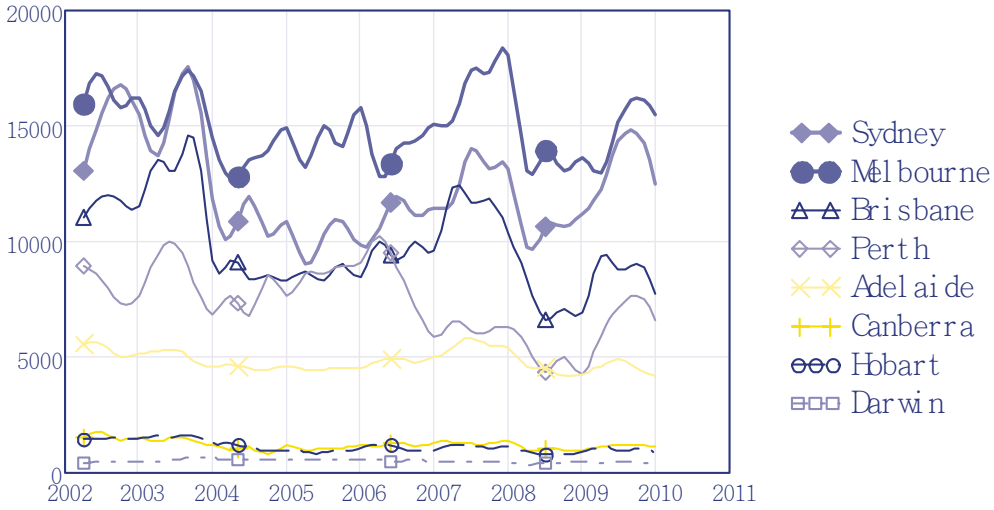
The bubble began in 1988

On the evidence reviewed here, I would date the Australian house price bubble from 1998 - with the factors that ignited it being a combination of the Stock Market Crash and a too-successful government rescue which merely relocated speculative activity from the stock market to the housing market, and the second of the five "First Home Owners" interventions since 1983. This implies an enormous downside to Australian house prices, according to the metrics outlined in Figure 32.

Trending down before the FHOB expired

Figure 31

Sales volume for established houses -



Enormous downside implied

Figure 32

Percent overvalued against value in 1988

Measure	Overvaluation (%)	Correction needed (%)
Inflation adjusted House Prices	172	63
House Price Index to per capita Household Disposable Income	83	45
House Price Index to per capita GDP	75	43
Value of Housing Stock to per capita GDP	90	47

Source: econonodata.presentselect.com

Is Australia different?

The previous section makes the case that Australian house prices are in a bubble. The question still remains: is the bubble nonetheless justified by "fundamentals"?

Can supply and demand and China justify the house price bubble?

The key fundamental is the assertion that prices have been driven higher by a mismatch between supply and demand. The secondary argument is that Australia, as a minerals exporter, has entered a New Era courtesy of its special relationship with China, and this justifies its uncharacteristically high house prices.

Population has risen 141% since 1955; housing stock has expanded 254%

The population argument is normally made in terms of hypothetical future increases in population and an implied imbalance between projected future demand and future supply as a source of future price rises. I'll first review the historical evidence on the extent to which past imbalances between population growth (as a source of demand) and the supply of new dwellings has driven past price change. Over the past five decades, Australia's population has risen from 9.3 million (in 1956) to an estimated 22.4 million in mid-2010; over the same period, the stock of dwellings has risen from 2.4 million to 8.5 million.

Australia has grown by about 200,000 people and 110,000 dwellings per year since 1955

With two exceptions, population growth each year has been slightly above 200,000 people per annum, with net immigration contributing about 75,000 persons per annum - the two exceptions being the jump in Australia's recorded population when Aborigines were included in the census for the first time in 1971, and the recent surge in immigration under the skilled migrants and temporary work visa programmes established by the Howard Liberal Government and continued by the Rudd Labor Government. Over the same period, the stock of dwellings has risen by about 110,000 per annum.

Housing stock growing faster than population

In percentage terms, population has grown by an average of 1.6% per annum, while housing stock has grown at 2.3%.

Figure 33

Population and the housing stock

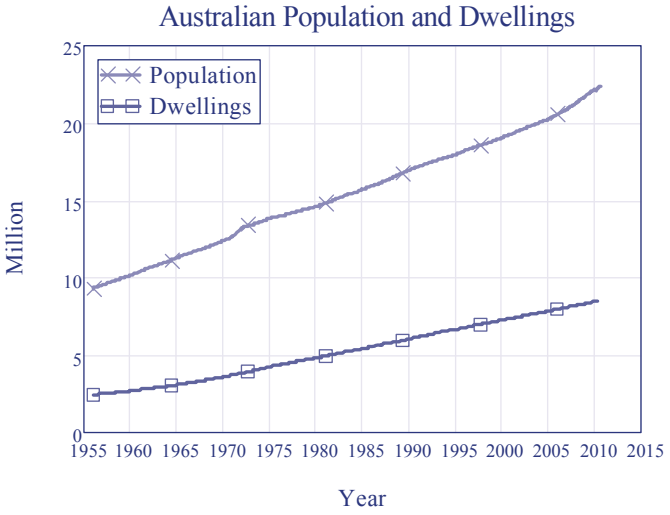
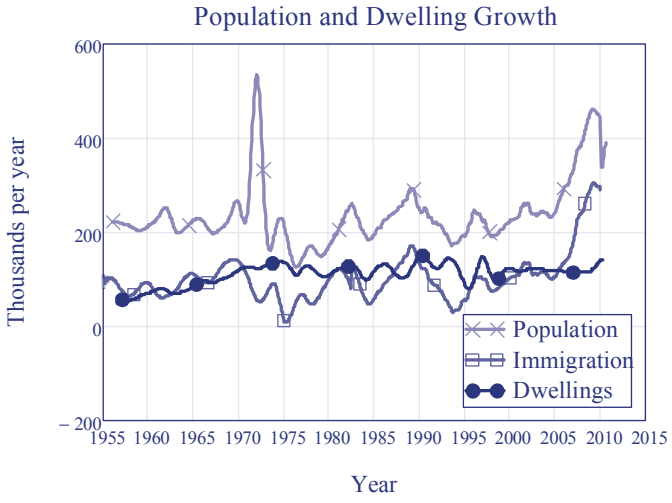


Figure 34

Growth rates of population, migration and housing



Source: econonodata.presentselect.com

Population-to-dwelling ratio has fallen from 3.75 to 2.5 since 1955

This more rapid growth of the housing stock has driven the average occupancy ratio down from over 3.75 persons per household to just over 2.5 persons over the past five decades. This in turn has reflected changing social practices, with smaller family sizes and more single-person households. Until the past few years, both the rate of population growth and the rate of construction of new dwellings were slowing down, and tapering towards the same range of between 1% and 1.5%.

Dwelling construction has outpaced population growth while house prices have risen

However, with the sole exception of the period from 2007 till early 2010, dwelling construction has outpaced population growth (see Figure 35). It is therefore impossible to sustain the argument that past price increases were driven by an excess of population-growth-driven demand over dwelling supply; the only feasible argument would be that the rate of growth of dwellings did not keep pace with changing social norms in the occupancy ratio. However, this also seems unlikely since the rate of construction of new dwellings was sufficient to drop the average occupancy ratio substantially over the past five decades (see Figure 36).

The correlation between population growth and house prices is surprising

Though it isn't possible to work out whether the difference between actual and desired occupancy ratios could have been the source of a demand-supply imbalance, if the population argument had any relevance to house prices then there should be at least some correlation between changes in this ratio and house prices. The correlation that does emerge is surprising at first.

A rise in the population-to-dwelling ratio appears to make house prices fall, not rise

The causal argument in the "population pressure" argument for rising house prices is that a shortfall in the growth of houses relative to the growth of population places upward pressure on house prices. Were this argument true, it should mean that there is a positive correlation between the population-to-dwellings ratio and house prices. There is, at first glance, a slight positive correlation between changes in the population/dwellings ratio and real house prices; but then this is undercut by the *negative* correlation between the ratio and nominal house prices! This is a paradox - it implies that a rise in the population/dwellings ratio is associated with rising real house prices, but falling nominal prices!

The resolution of the paradox is that it is a product of a spurious correlation between the change in the number of dwellings - the denominator in the population/dwellings ratio - and the CPI. Both changes in dwellings growth and in the CPI have been trending down for the past three decades, and the correlation between the two series is 0.65. Thus, far from explaining movements in nominal house prices, changes in the population-to-dwelling ratio are negatively correlated with changes in house prices - and this applies even when the rate of change of the population/dwellings ratio is compared to the rate of change of house prices.

The period 2005-10 contains a strongly positive correlation between population growth and house price change - and a strongly negative correlation too

Of course, it's always possible that "this time is different" - this time being the past five years, where in general the immigration-driven rate of growth of population has exceeded the rate of growth in the number of dwellings. However, even a cursory examination of the data shows that it isn't so. There is a brief period between 2005 and 2008 when house prices and population growth rose in apparent lock-step (Figure 40), but immediately after this - during the financial crisis and during the period of the First Home Vendors Boost - they moved in opposite directions. The correlation over 2005-08 is an impressive 0.93; unfortunately the correlation between 2008 and mid-2010 is an equally impressive minus 0.88.

Figure 35

Dwelling growth outpaces population except 2007-10

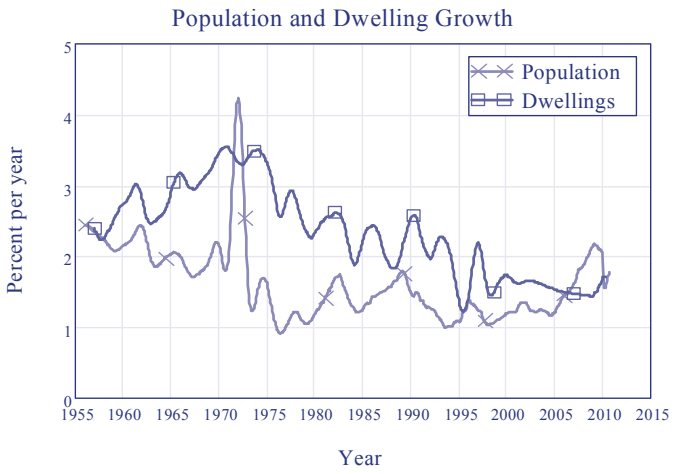


Figure 36

Ratio of population to dwellings

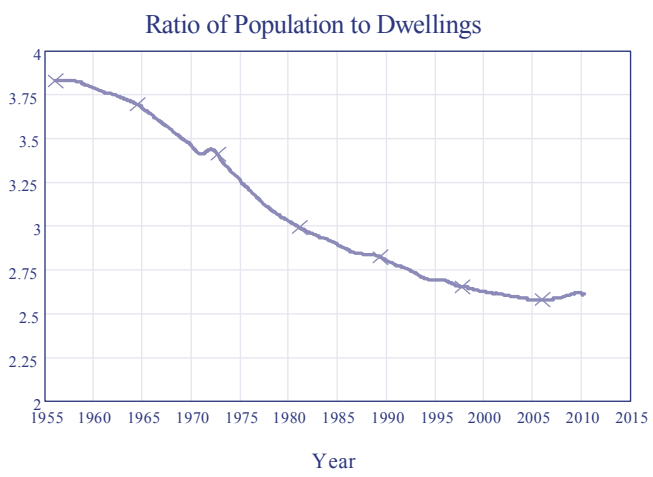


Figure 37

Change in population vs change in dwelling stock

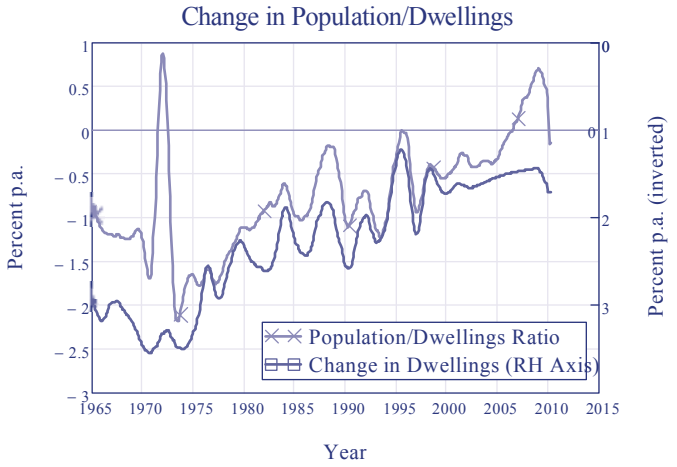


Figure 38

Population vs real and nominal house prices and the CPI

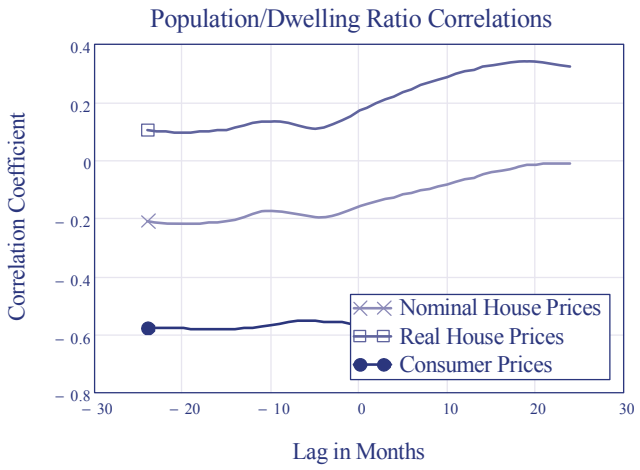


Figure 39

Population/dwelling ratio and nominal, real prices

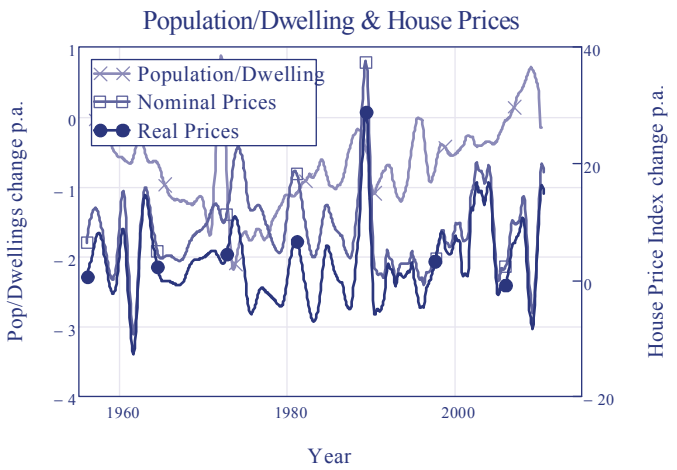
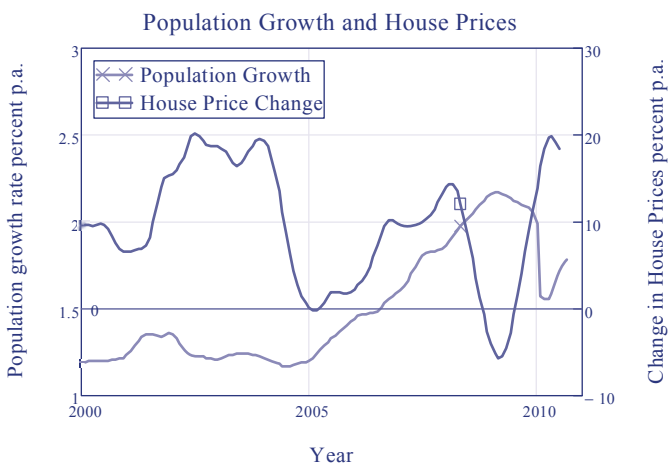


Figure 40

Population growth and nominal house price change



Source: econonodata.presentselect.com

Projections of a huge excess of demand for housing over supply are based on demographics and need rather than capacity to pay

That leaves the popular argument that projected future population growth outstrips projected supply. The most influential empirically based document for this argument is the National Housing Supply Council State of Supply Report,[7] the second of which was published in April 2010. While this is a worthy document, its basis is primarily on the need for housing, rather than the market demand for housing. This can be seen in its explanation of its calculations to estimate the gap between demand and supply in 2008:

> 2008 gap size = additional private rental dwellings required in 2008 to increase the number of vacant private rental dwellings to 3% of the total private rental stock + *dwellings required to accommodate people who are homeless and sleeping rough* or staying with friends and relatives + *dwellings required to house marginal residents of caravan parks*. (National Housing Supply Council 2010, p. 66)

Homeless people need housing, but do not exert upward pressure on house prices

Though homeless people clearly need housing, one reason they are homeless is that they cannot afford it. A similar observation applies to 'marginal residents of caravan parks'. While it is legitimate to use this document to point out inadequacies in housing in Australia, it is not legitimate to use its numerical projections to indicate a demand and supply imbalance in the market that could drive prices upwards.

The State of Supply Report has no relevance to the likely trend in house prices

This document in effect tracks the notional demand for housing - the number of people expected to need accommodation - as opposed to the effective demand - the number of people able to make a bid on housing within an appreciable margin of the current price. The notional demand for housing has as little impact upon the price of housing as the notional demand for Ferraris has on the price of exotic sports cars. While this document should form part of the demographic debate in Australia, its relevance to the house-price debate is negligible.

Did the bubble remain inflated because of China, and can China always keep our bubble up?

There is no doubt that Australia is a major beneficiary of China's growth. Equally there is no doubt that Australia performed better during 2009 than any other OECD nation - with the smallest increase in unemployment during the crisis, and the fastest recovery: Australia did not even experience the two quarters of falling output that is the colloquial definition of a recession. So are the two factors linked: did Australia avoid a recession because of its unique relationship with China? And could China therefore be the real reason that Australia's house prices have continued to rise?

The biggest growth in employment during Australia's recovery was in Victoria

If trade with China were the driving force in Australia's relative success in 2009, you would expect that the resource states - Western Australia and Queensland - would have been the two that led Australia out of recession. They did not. In fact, Australia's rapid turnaround from falling to rising employment was almost entirely due to... Victoria. Only in March 2010 did any of the other states (Queensland) add more employees than Victoria. During the peak of the downturn, in March 2009, the resource-state Western Australia lost almost as many employees (18,000) as the much larger state of New South Wales (25,000).

The resource states underperformed while Victoria outperformed

On an annual basis, the resource states recorded the biggest increases in unemployment, while the smallest increases in the unemployment rate were recorded by South Australia, New South Wales and Victoria (Figure 42). Victoria was also the only state to keep its unemployment rate below the national average for the entire period.

[7] Available at http://www.fahcsia.gov.au/sa/housing/pubs/housing/national_housing_supply/Pages/default.aspx.

A breakdown of Victorian growth by industry showed that non-tradable industries did best

Since Victoria was the state that kept Australia from experiencing a recession, the industries that fared best in Victoria during 2009 are a good guide to the factors that actually gave Australia its standout performance in 2009. Victoria's turnaround in employment began in March 2009, and its aggregate increase in employment (on an annual basis) peaked in December 2009. The industry-by-industry breakdown of Victoria's performance over that nine-month period is shown in Figure 43.

Figure 41

Change in employment by state, 2008-10

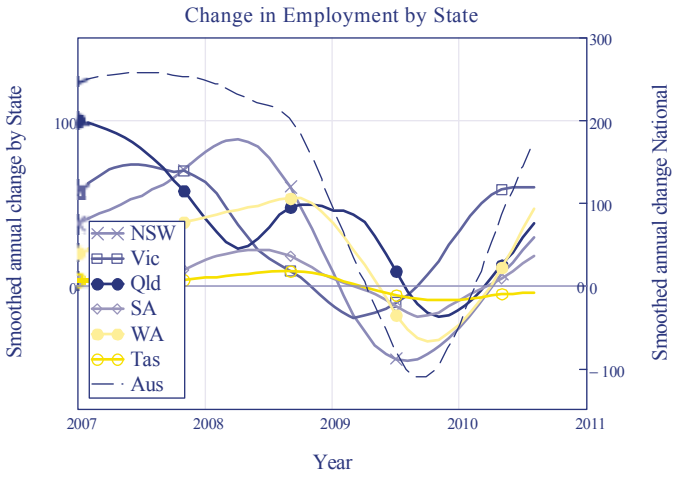


Figure 42

Change in the unemployment rate by state

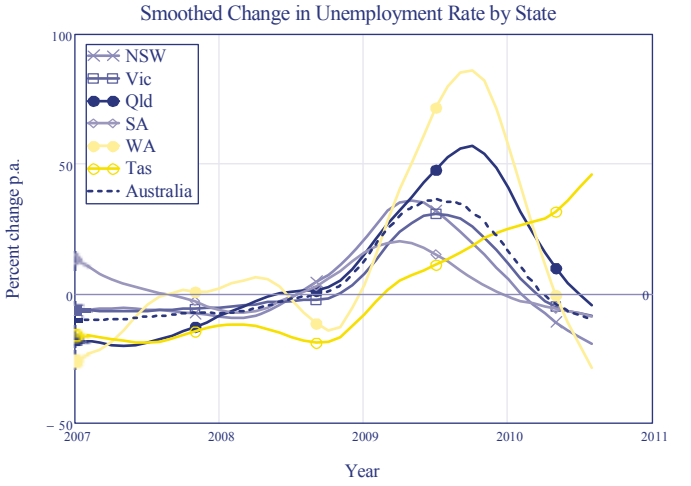


Figure 43

Victorian employment growth, March-December 2009

Industry	Growth	Growth (%)
Agriculture	8,026	9.8
Mining	978	9.4
Electricity	(5,953)	(16.9)
Construction	(8,366)	(3.7)
Wholesale	5,029	4.4
Retail	22,724	7.8
Accommodation & food	996	0.6
Transport	(6,782)	(4.7)
Information technology	(1,236)	(1.9)
Finance	21,275	22.4
Real estate	(1,631)	(4.6)
Professional	24,157	12.2
Administration	7,456	8.5
Education	14,673	7.4
Health	13,718	4.8
Arts	(2,276)	(3.6)
Other services	(704)	(0.7)
Total Victoria	70,005	2.6
Total Australia	62,953	0.8

Figure 44

Change in the unemployment rate by state

Industry	Growth	Growth (%)
Agriculture	20,503	5.7
Mining	20,659	13.0
Electricity	(7,923)	(5.5)
Construction	29,935	3.0
Wholesale	11,759	3.0
Retail	(32,859)	(2.7)
Accommodation & food	49,279	6.9
Transport	(2,513)	(0.4)
Information technology	(7,753)	(3.5)
Finance	(1,982)	(0.5)
Real estate	23,287	13.4
Professional	78,640	10.4
Administration	15,609	4.4
Education	28,853	3.6
Health	47,060	4.0
Arts	(13,156)	(6.2)
Other services	17,641	4.0
Total Victoria	109,894	4.1
Total Australia	158,710	2.1

Source: econonodata.presentselect.com

Victoria was responsible for 150% of Australia's employment growth in the early recovery

The standout performers were retail trade, finance, professional services, education and health, each of which added over 10,000 employees in that nine-month period. Their collective contributions accounted for 94,000 new jobs: more than 100% of Victoria's total increase in employment over that period, and indeed over 150% of the total increase in employment in Australia during that period.

Finance grew 25%

In percentage terms, the standout performers were finance (where employment increased by almost 25% over that nine-month period), and professional services (which grew by one-eighth).

Government stimulus and not Chinese trade propelled Australia out of the crisis

It is drawing a long bow to associate these changes in employment with improved trade with China. A far more likely cause of this pattern of growth is the hand of government, ie, the combination of the Federal Government's very effective fiscal stimulus and the RBA's rate reductions and their impact on consumer spending.

Over the full period from the depths of the downturn to the latest available industry-specific data (May 2010), the following pattern emerges for Victoria.

China matters, but only after Australia had apparently sidestepped the crisis

Over this whole period, the pattern changes, but still not in a way that supports the China Syndrome argument. The top-six industries for the increase in employment are now construction, accommodation and food services, professional services, education, with administration and retail neck and neck. So finance drops out, and construction and accommodation & food pop in. But the most illuminating development is that real estate, which had recorded a fall up until December 2010, was by May 2010 the largest gainer in percentage terms.

Real estate was the standout industry nationwide

Real estate was both the outstanding growth industry in Victoria, the outstanding industry countrywide, and Victoria's performance in this industry also exceeded the national average. This highlights an issue explored further in Section 3: the outperformance of real estate was driven by the First Home Vendors Boost, and Victoria had the most generous supplemental state scheme, with an additional payment of up to A$19,500 for a new home purchased in a regional area.[8]

Our recovery was primarily real estate-led, not China-led

For Australia as a whole from the depths of the recession until June 2010, the pattern changes to reflect the greater importance of agriculture and mining to the rest of the country and the belated boost from China. However, the message from the Victorian data remains strong: the majority of the increase in employment came from activities affected by government policy and domestic factors rather than trade. The largest single numerical increase (79,000 in professional employment) is affected by both domestic and international forces, but the next five (accommodation and food services 49,000; health 47,000; construction 30,000; education 29,000; real estate 23,000) are clearly driven by the government stimulus package - including the First Home Vendors Boost. The export-oriented mining and agriculture sectors share an effective seventh place in the expansion at 20,500 each. As with the Victorian data, the largest percentage increase in employment occurred in real estate, reflecting the macroeconomic impact of the First Home Vendors Boost.

China turbo-powered Australia's economy after the crisis had passed

This is not to underplay the importance of flow-through effects from one sector to another, nor the importance of government deficit spending during a recession, nor the importance of China to the Australian economy. However, it is apparent that Australia avoided a technical recession mainly because of the impact of government policy rather than China; the main impact of exports to China was felt after the recession had already been avoided in 2010, by which time the real estate market was already cooling.

[8] See http://www.sro.vic.gov.au/sro/SROnav.nsf/childdocs/-6BF180369BCB3975CA2575A1004420CF-65A02CC2EEDDD527CA2575A1004420E8-BBB89806303008C1CA2575CB00011AD5

Financial factors in Australian housing

So, if population-growth-driven demand exceeding supply and booming trade with China do not explain why Australian house prices have continued rising, what does?

The answer is, in a word, finance. The willingness of financial institutions to lend for housing, and the willingness of Australian property borrowers to take that debt on, is the overwhelmingly important private-sector factor behind Australia's house-price bubble.

The correlation between new lending and change in house prices is 0.55

Correlations that were non-existent, transient or even the wrong sign between population growth and house prices, are significant and long-lasting between the volume and value of new lending for housing and house prices (Figure 45). The correlation between new lending for housing (as a percentage of GDP) and the change in house prices between 1990 and June 2010 is 0.51, and it increases to 0.55 when the new lending data is lagged by three months - which makes sense, since there is a time lag between new loans being taken out and a house-price sale being closed.

The correlation works both ways

However, the relationship is not as simple as a one-way causation between new finance and house prices, since an essential element of a financial bubble is that the rising asset price itself entices new borrowers into the market. It is also obvious that price rises have been driven by the increasing value of new loans compared to GDP (Figure 46). After having shown no trend whatsoever between 1976 and 1990, this ratio then rose from 6% in the early 1980s to a peak of 28% in mid-2007.

Subtracting the exponential trend in new lending to GDP increases the correlation to 0.62

When the exponential trends in new lending and house prices since 1991 are subtracted from the data, the correlation of the residuals rises to 0.62 (with lending lagged four months).

The finance sector, and not the household sector, drove the increase in lending for housing

The growth in the ratio of new lending to GDP from 1990 highlights another crucial fact in the evolution of the housing bubble: it was driven by a financial system that by 1988 had exhausted the possibility of lending to the corporate sector, and turned to exploiting the perceived borrowing capacity of the household sector.

Figure 45

New lending and change in house prices

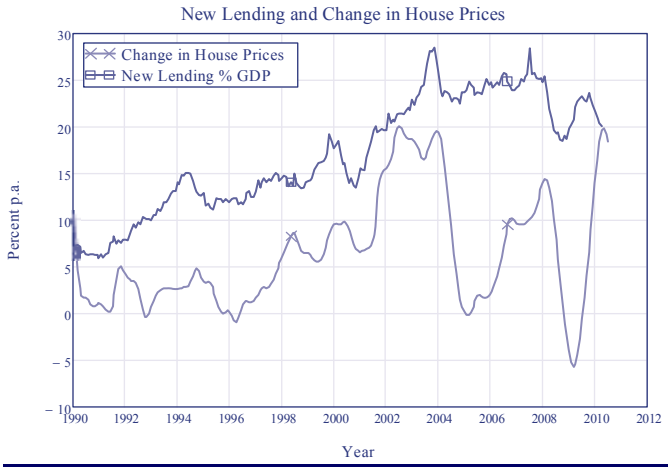
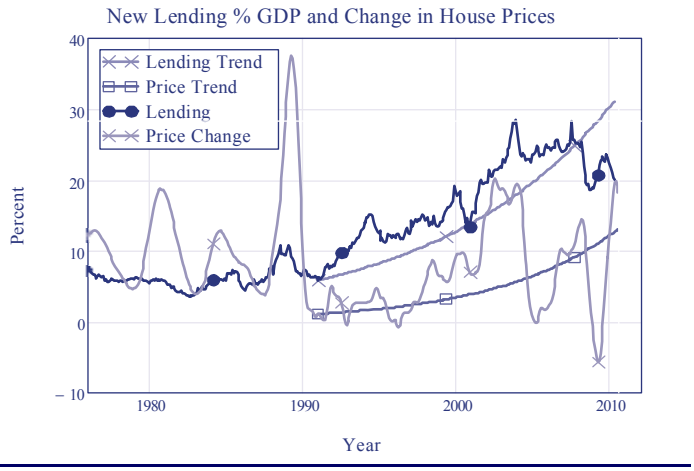


Figure 46

New lending/GDP and change in house prices



Source: econonodata.presentselect.com

Ratio of mortgage debt to GDP rose fourfold in 18 years

The rising trend of lending for housing relative to GDP drove the mortgage-debt-to-GDP ratio from under 20% in 1990 to over 80% in 2008 - a more than fourfold rise in less than two decades (see Figure 48).

Australia's finance sector has been even more Ponzi-like than America's

There are several reasons why I attribute this growth in the household-debt ratio to the lenders rather than the borrowers, and all of these reasons mark the Australian banking sector as even more Ponzi-like in its behaviour than the US system.

Household debt grew three-times as quickly in Australia as in America

Firstly, though America is widely criticised for irresponsible lending to the household sector while Australia is praised for responsible lending, household debt grew three times more rapidly in Australia between 1990 and 2008. The Australian household-debt-to-GDP ratio went from being half the American ratio to equal to it in less than two decades (Figure 49).

American lending to households had some correlation with economic conditions

Secondly, there is at least some correlation between the state of the economy and the rate of growth of lending to the household sector in the American economy - the growth rate of lending slowed when the unemployment rate rose during the 1990s recession, and then accelerated when unemployment had fallen substantially by the early 2000s (Figure 50).

Lending to households in Australia was uncorrelated with economic conditions

Despite the fact that the 1990s recession was much more severe for Australia than for America, lending to households took off as that recession commenced and the rate of unemployment exploded from under 6% to almost 11%. Growth in household debt bore no correlation to economic conditions - it was simply exponential from 1990 till 2008 (see Figure 51).

Even more so than in America, lending to households in Australia was driven by successful marketing rather than consumer demand

It is difficult to argue that households were actively seeking increased mortgage debt as 'the recession we had to have' started to bite - it is far more likely that households would have wanted to reduce debt levels. The only explanation for the paradoxical outcome of rising unemployment and sharply rising mortgage debt is the financial sector's successful marketing of debt to the household sector after the business sector began to actively delever.

Aggregate debt growth is almost purely exponential

Finally, if lending were more borrower-driven than lender-driven, disaggregated data would give a clearer picture of trends than aggregate data. Conversely, if marketing by lenders was more significant than demand from borrowers, then the aggregate data would give a clearer picture of the trend. The latter is emphatically the case: not only is the trend in aggregate lending stronger than for the disaggregated, but it is apparent over a longer time period (disaggregated data are only available from 1977) (Figure 47).

The growth in the private-debt-to-GDP ratio in Australia was almost purely exponential from 1965 until March 2008.

The aggregate private debt to GDP ratio grew at 4.2% pa for 43 years

Figure 47

Debt-to-GDP ratios

	Range of data	Growth rate (%)	Correlation with exponential trend
Business	1977-2010.25	3.05	0.762
Household	1977-2010.25	5.10	0.985
All private	1965.5-2010.25	4.20	0.992

Source: econonodata.presentselect.com

Figure 48

Residuals in new lending and change in house prices

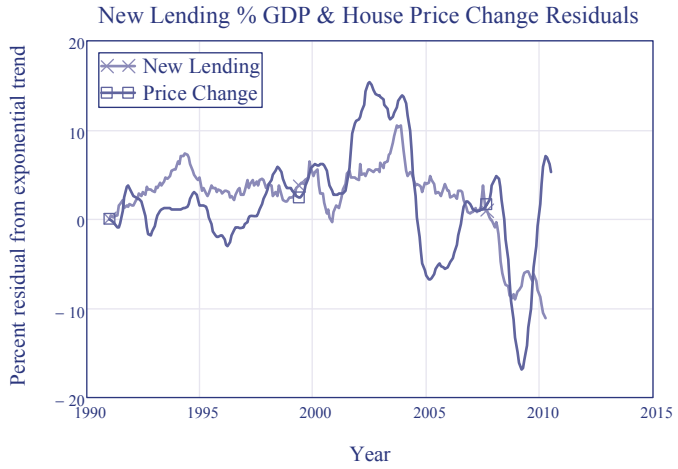


Figure 49

Australia's debt-to-GDP ratios by sector

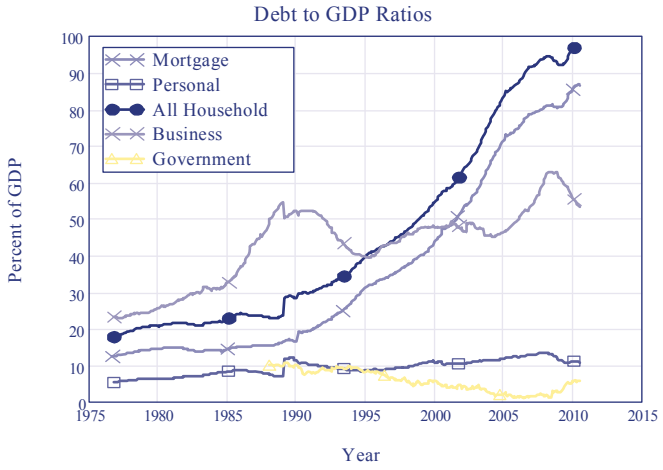


Figure 50

Household-debt-to-GDP ratios in Australia and the USA

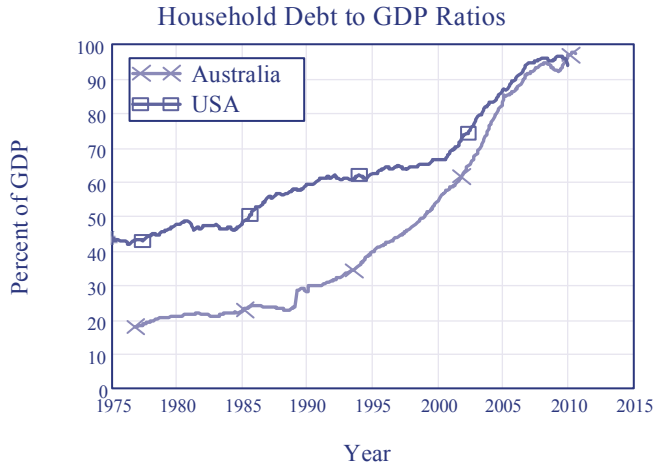


Figure 51

Household-debt-to-GDP and unemployment in America

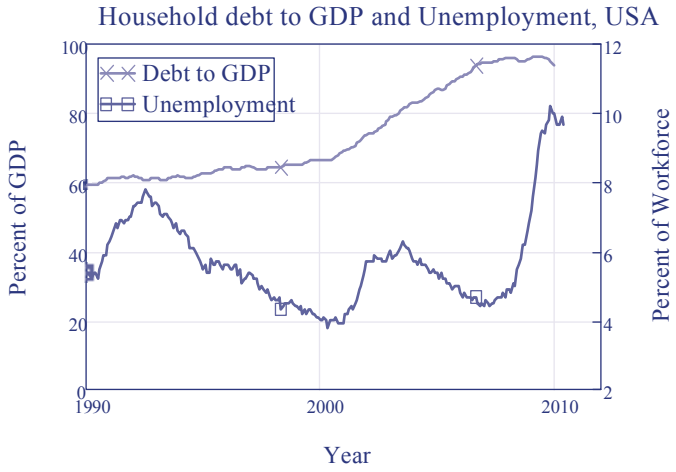


Figure 52

Household-debt-to-GDP and unemployment in Australia

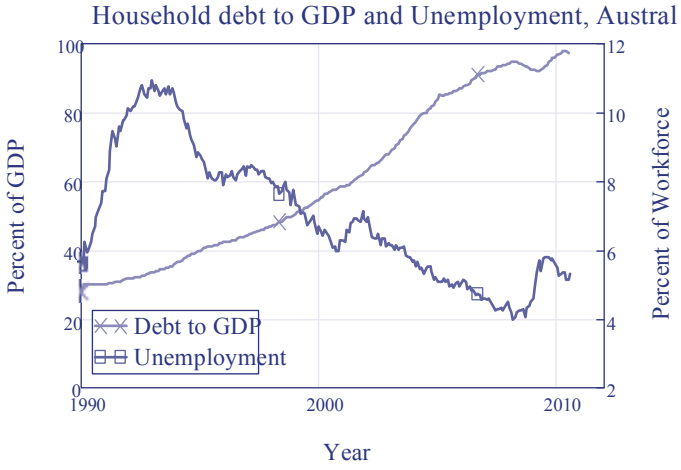
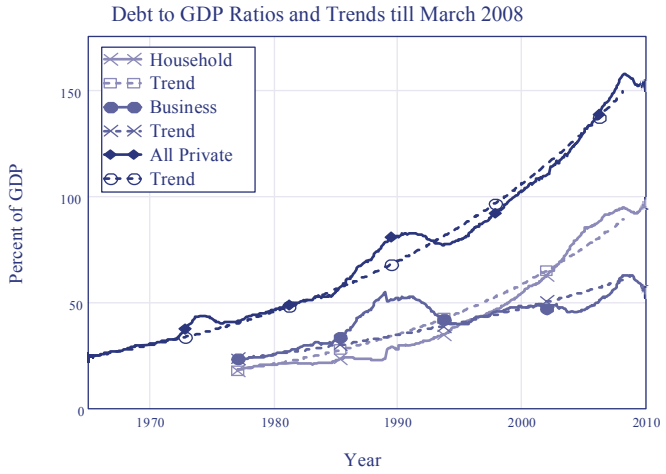


Figure 53

Aggregate and disaggregated private-debt-to-GDP



Source: econonodata.presentselect.com

Australian interest payments are 1.5-times higher than American levels as a percentage of GDP

The confidence that is sometimes placed in the superior risk-management standards of Australian banks may therefore be misplaced. While it is true that there was far less lending to borrowers who had no real capacity to repay in Australia than in the USA, conversely Australian banks have been more successful at marketing debt to a broader spectrum of households. Since Australian household debt levels are now higher than those in America, and Australian mortgage rates are also higher, spending by Australian consumers is even more debt-constrained than spending by US consumers. Interest payments on mortgages are 1.5-times larger in Australia than in America (relative to GDP) (see Figure 54). This is in stark contrast to the situation in the 1980s when Australian interest payments on mortgages were less than half the level of the USA.

Australian rates would need to fall by 3ppt to reduce Australia's mortgage interest burden to the US level

This imbalance partly reflects the fact that Australian mortgage rates are now substantially higher than those in the USA, and it could partly be addressed by cuts in official interest rates, since Australian mortgages are overwhelmingly floating rate. However, it would take a 3ppt cut in official interest rates in Australia to reduce the interest payment burden to the same level as in America.

Household debt will be more of a drag on the economy in Australia than in the USA

This implies that the macroeconomic impact of household-sector deleveraging in Australia is likely to be even greater than it has been in the USA, where the failure of consumer spending to recover is a major cause of continued poor economic performance. Thus the outperformance of the Australian economy - and hence the Australian real-estate market - may diminish in the near future.

Mortgage lending is now set to decline

Given the relationship between mortgage finance and house prices, the obvious question is in what direction is mortgage finance currently headed? For obvious reasons, the clear answer is down. The first indicator here also shows why population per se is a poor indicator of actual demand for housing: because the proportion of the population taking out a home loan can vary, and it has risen dramatically over time. Between 1975 and 1990, on average one in every 600 Australians took out a new home loan each month; between 1990 and 2010, the average was closer to one in every 400.

The ratio of new home loans to population is back to early 1990s levels

That ratio was falling sharply in 2008 as the financial crisis hit, but was rapidly reversed by the First Home Vendors Boost. Now that the Boost has expired however, the number of new home loans per head of population is falling rapidly. The number of new home loans per head of population is already below the level reached in 2008, when house prices fell 13% (see Figure 55).

The market is much more dependent on investors than it was 25 years ago

The change in the composition of home purchasers is also notable (Figure 56). Before the bubble took off in the late-1980s, loans to investors made up barely one eighth of the value of new loans. Within twelve years that had risen to a peak of 40%.

Investor loans went up with the First Home Owners' Boost

While the revival in the total value of new home loans engendered by the First Home Vendors Boost predictably increased the proportion of owner-occupiers, once a price bubble had been spiked by the Boost, an absolute growth in investor loans also took off, and this was sustained after the Boost's expiry at the same time as owner-occupier borrowing plummeted.

The increased role of investors makes the market more susceptible to a sudden reversal

This increase in speculative borrowing helped drive prices higher still, and put a floor under the market as owner-occupier loans began to evaporate in late 2009. But it also makes the market much more vulnerable to a sudden erosion of demand if the rate of growth of prices falls or turns negative. This could mirror the events of 1988-90, when a dramatic growth in investor purchases helped fuel the biggest-ever short-term bubble in house prices, and then the collapse of investor purchases from that peak accelerated the ultimate correction.

Ratio of mortgage debt to GDP higher in Australia than USA

Having propelled house prices higher, the financial engine now appears to be running out of steam - as it did in the USA. Mortgage-debt-to-GDP first peaked in 2008, and the only reason it rose to a new peak - exceeding US peak levels in the process - is because the First Home Vendors Boost reignited the engine (see Figure 59).

But the ratio is now falling as new lending slows down

Now that the "Boost" has expired, and despite the continued growth of investor borrowing, the mortgage-debt-to-GDP ratio has started to fall. It is highly unlikely that this reversal can be stopped this time, and with the reversal will come falling house prices.

Falling number of home loans putting downward pressure on house prices

Since the flow of new loans per month largely determines the value of housing that will be sold, the reduction in both the value and number of new loans is putting strong downward pressure on house prices now.

The trend in the value of new loans has been negative for the nine months to June 2010

Since September 2009, the trend in new housing loans (Figure 61) has been negative (except for investor loans), and in the most recent figures for June 2010, even investor loans started to decline.

Rismark index showed a 0.7% fall in June

As always in a housing market, this first manifests itself as a growth in the outstanding stock of unsold houses. The Rismark data for June 2010, which showed a 0.7% decline across the country, confirms that the financial pressure on house prices is now negative rather than positive. One of the two forces that maintained the Australian housing bubble is now spent. This raises the question, can the other major force that has driven the bubble keep it alive any longer?

Figure 54

Mortgage int payments/GDP, Australia and the USA

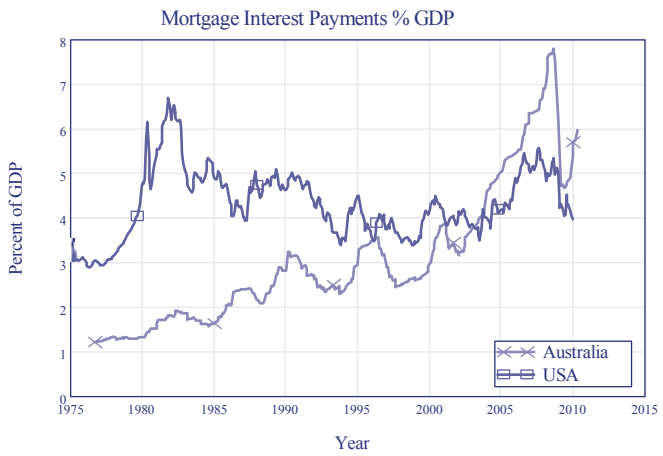


Figure 55

Mortgage interest rates in Australia and the USA

Source: econonodata.presentselect.com

Figure 56

New home loans per head of population

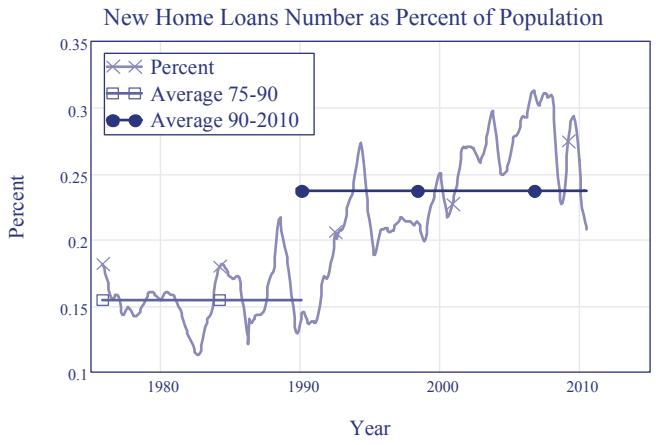


Figure 57

Home loans by owner-occupiers and investors

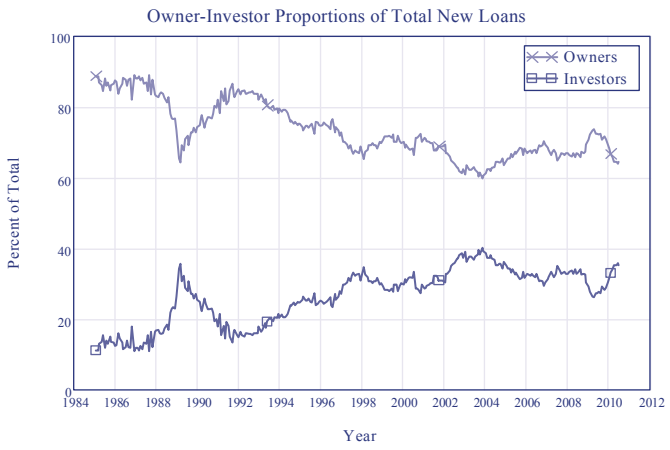


Figure 58

New housing loans/GDP

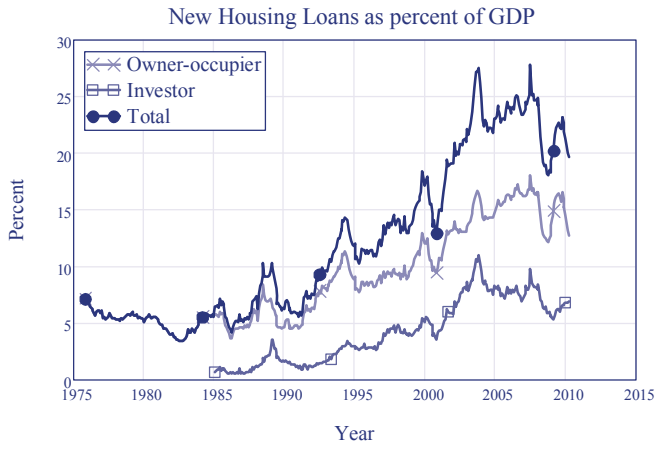


Figure 59

Mortgage debt/GDP in Australia and the USA

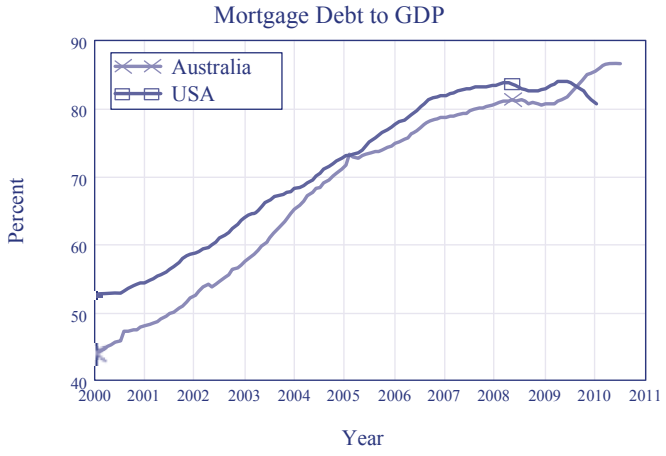


Figure 60

Change in new lending/GDP, mortgage debt/GDP ratio

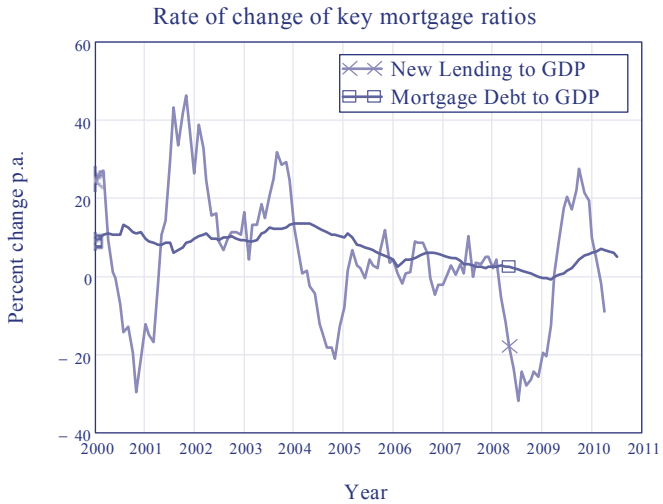
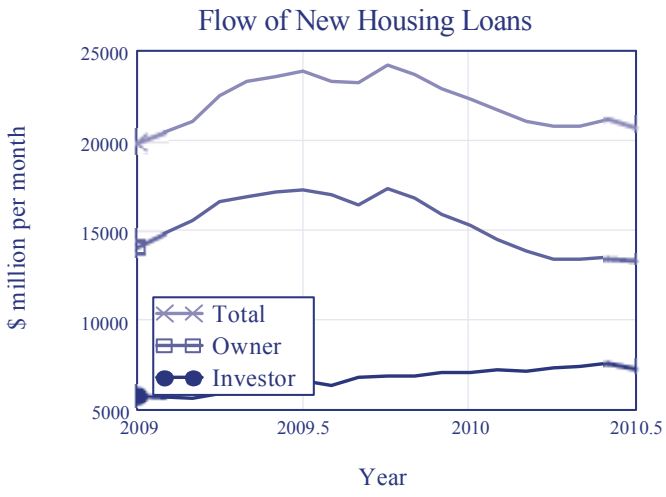


Figure 61

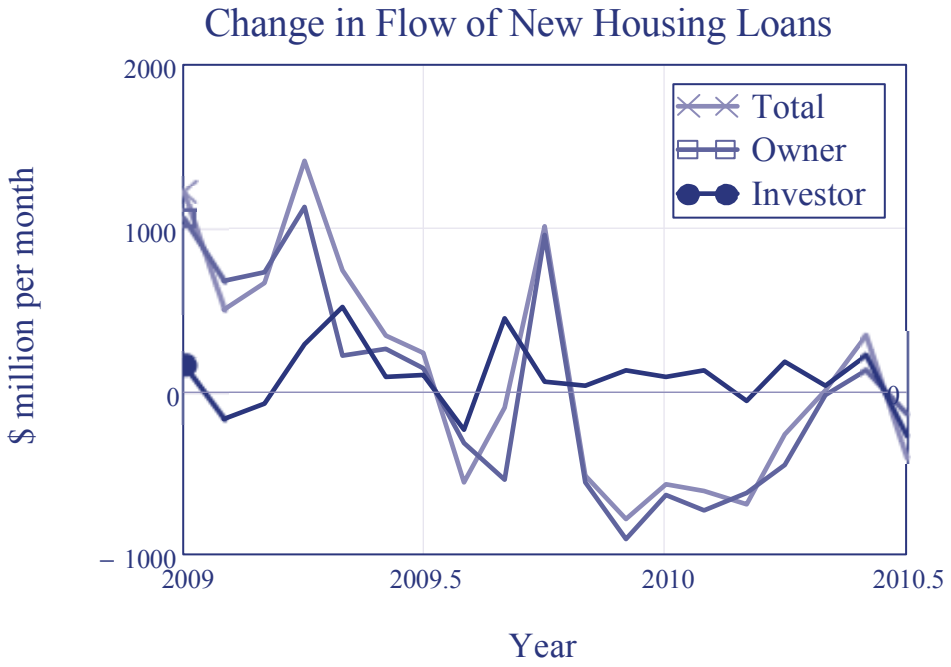
Flow of new housing loans



Source: econonodata.presentselect.com

Figure 62

New owner and investor housing loans



Source: econonodata.presentselect.com

The hand of government

The role of government policy in Australian house prices

It is one of the most infamous moments in sport: in the 1986 World Cup match between Argentina and England, Diego Maradona handballed a goal out of sight of the referee. A game that could otherwise have been drawn went to Argentina. Maradona later admitted the fraud, but glorified it with the moniker "The Hand of God".[9]

Figure 63

Maradona's Hand of God

Source: http://upload.wikimedia.org/wikipedia/en/f/f7/Hand_of_God_goal.jpg

Government intervention in the housing market is common worldwide

Government intervention in the Australian housing market takes many forms - eg, the exemption of the family home from capital gains tax, setting the capital gains tax rate at half the income tax rate, negative gearing. From an international perspective, manipulation of the housing market by the government is not unusual, and it would be very difficult to prove that, for example, Australia's negative-gearing regime has been more or less effect than the American practice of allowing interest payments on the family home to be deducted from tax.

However, Australia's First Home Owners' Scheme (FHOS) was a unique Antipodean ploy

However, the Australian Government qualifies as the Diego Maradona of the housing market with its hand of government, the First Home Owners' Scheme. Whenever the government felt the need for a short, sharp boost to the economy, a variant of the scheme has been whipped into action. Because of its introduction, removal, doubling and trebling at different times over the last 30 years, its impact on the Australian market itself can be quantified.

The FHOS has always been used as a tool of macroeconomic policy

The Scheme was first introduced in October 1983 by the newly elected Hawke Labor Government, with the express object of stimulating the economy during the recession of the early 1980s. The then Minister for Social Security introduced the Bill for the Scheme with the following words:

> FIRST HOME OWNERS BILL 1983
>
> This Government was elected . . . with a commitment to boost the nation's economy . . . Our housing policies are an essential element of our national recovery strategy . . . Our program is designed to achieve the dual objectives of ensuring that housing plays a key role in our economic recovery and ensuring that Australian families can gain access to adequate housing at a price they can afford. The main elements of our program are . . . a new more effective scheme to assist low income home buyers-the first home owners' scheme . . . to get the housing industry moving without delay we removed the savings requirement from the existing home deposit assistance scheme… (Australian Parliament 1983)

There have been five instances where the FHOS has been used

The first Scheme provided up to A$3,500 for first home buyers; this was then cut progressively as the economy recovered into the boom of the late 1980s, only to be expanded and increased once more in response to the 1987 Stock-Market Crash; then removed, reintroduced (at a level of A$7,000) in 2000 as

[9] It should be noted that Maradona's legitimate goal in the same match was voted "the goal of the century" (see http://en.wikipedia.org/wiki/Goal_of_the_Century#The_Goal_of_the_Century).

a temporary measure to attenuate the impact of the introduction of the GST on the building industry (but was subsequently made a permanent measure); doubled to A$14,000 in response to the anticipated 2001 recession; and finally doubled (and trebled for new houses) in late 2008.

Figure 64

First Home Owners' Scheme

	Purpose	Amount	Party	Start	End
Introduced	Stimulus	3,500	Labor	October 1983	1986 (approx.)
Reintroduced	Stimulus	3,500 (approx.)	Labor	1988	1990 (approx.)
Reintroduced	GST	7,000	Liberal	July 2000	Never
Doubled	Stimulus	14,000	Liberal	March 2001	December 2001
Doubled/trebled	Stimulus	14,000-21,000	Labor	October 2008	December 2009

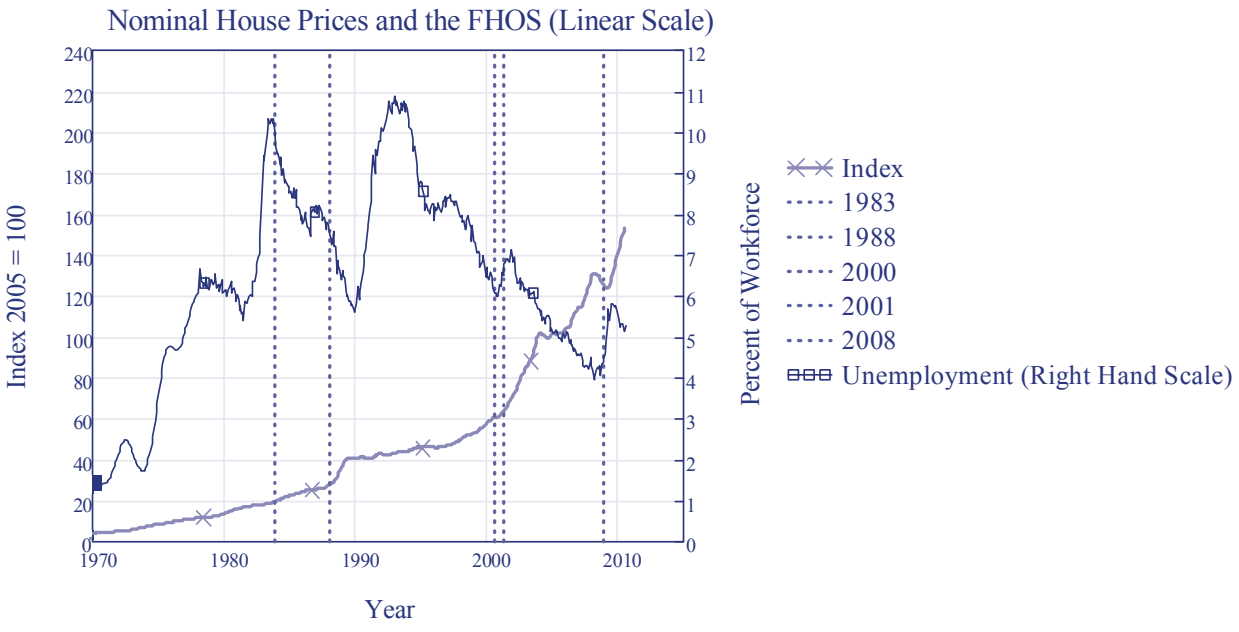
Source: econonodata.presentselect.com

It worked every time but at the price of making housing less affordable rather than more

The scheme has certainly been successful in its stated aim: in all five occasions unemployment was either reduced, or a downward trend in unemployment was maintained in the face of fears of a recession (as in 1998). And it has also clearly impacted on house prices - but in a manner that has over time destroyed affordability rather than improving it, as was the scheme's express aim.

Figure 65

Nominal house prices, the FHOS, and unemployment



Source: econonodata.presentselect.com

Impact of the FHOS as a jump in slope on log plot

The impact on house prices is more apparent in Figure 66, with the impact of the FHOS appearing as an increase in the slope of the price index.

Figure 66

Log plot of the house price index and the FHOS

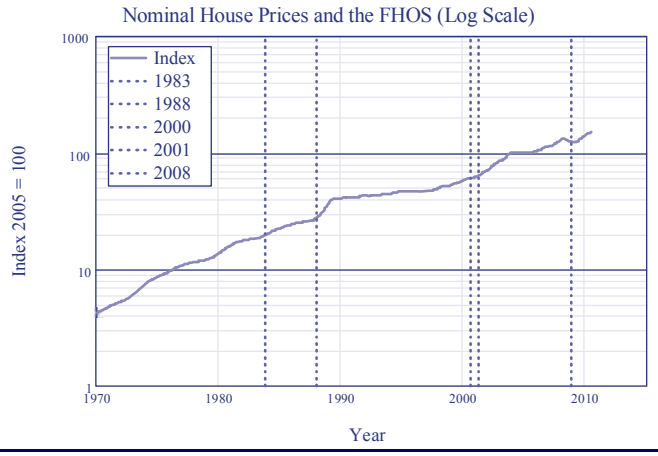


Figure 67

Change in house prices, unemployment and the FHOS

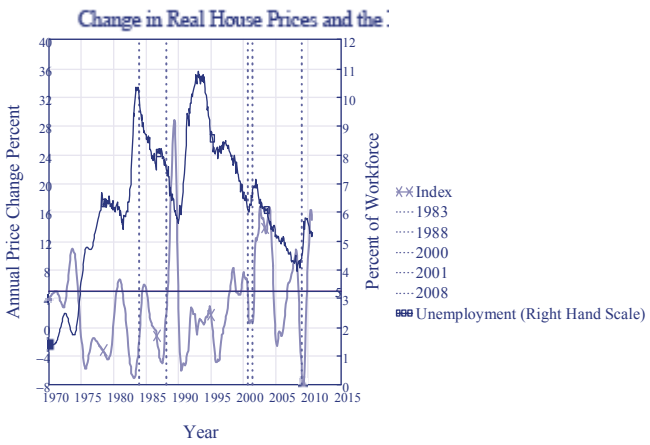


Figure 68

Real house prices and the FHOS

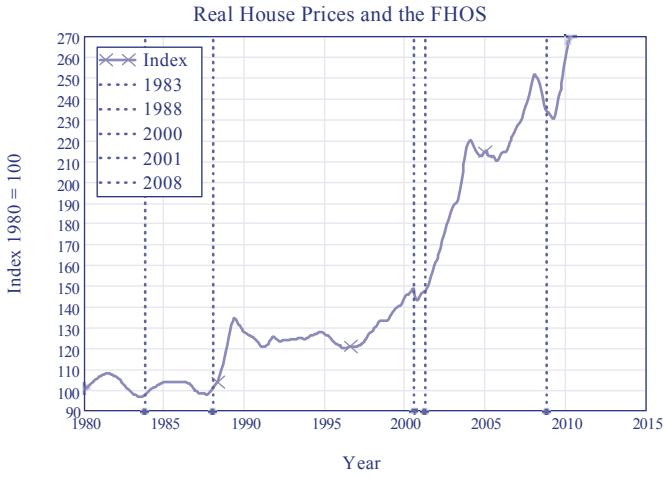


Figure 69

House prices/disposable income per head and the FHOS

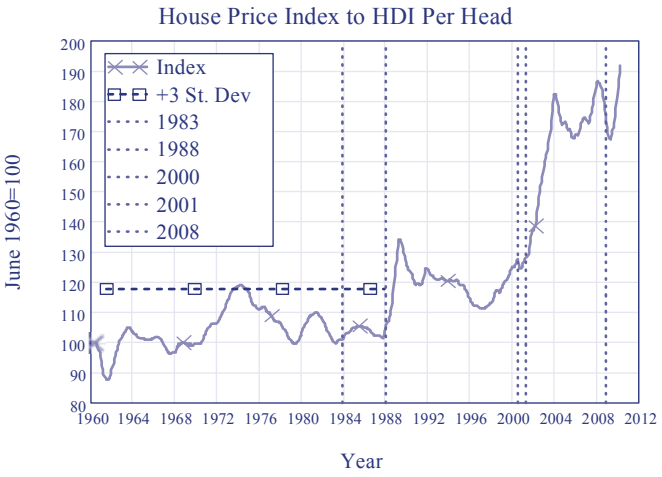


Figure 70

House price index to GDP per capita

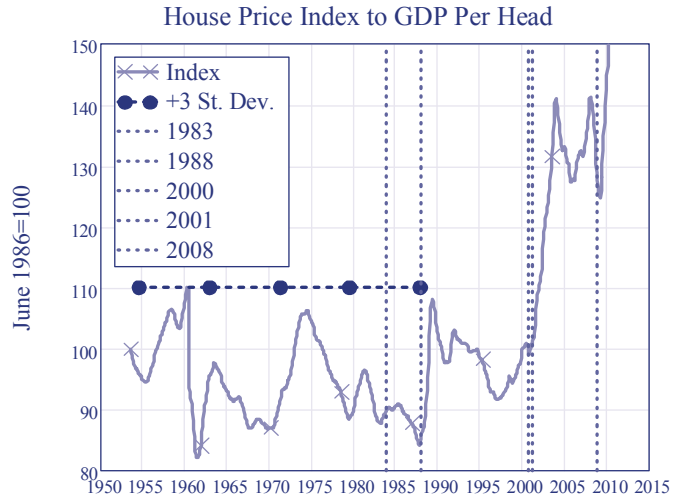
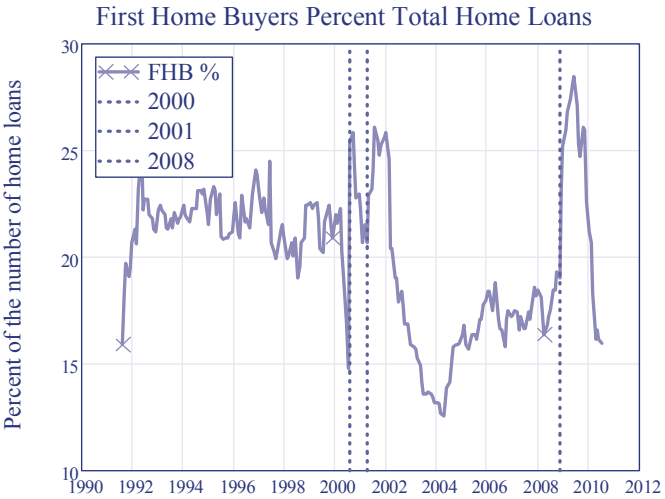


Figure 71

First home buyers/total home loans



Source: econonodata.presentselect.com

Four out of the six Australian mini-bubbles in house prices occurred because of a FHOS

House-price bubbles occasionally occurred in Australia prior to the invention of the FHOS - notably in 1973 when the bursting of a house-price bubble in Sydney coincided with the end of the long post-War boom (when unemployment averaged under 2%) - but they have been endemic since. Real house prices have risen at a rate of 5% or above for an extended period on six occasions since 1983 - 1984-85, 1988-89, 1997-2000, 2001-04, 2006-08 and 2009-10. Only two of those bubbles were not preceded by a FHOS boost - 1998-2000 and 2006-08.

Major inflection points on earlier graphs are now somewhat easier to understand - consider for example the inflation-adjusted house price index.

The FHOS drove the increases in the ratio of house prices to incomes

The impact of the FHOS on the ratio of house prices to disposable income per head is also stark (Figure 69). Prior to the FHOS, variations in this ratio stayed within three standard deviations of the 1960-88 mean of 104 - only the 1973 bubble was an exception. The role of the FHOS in triggering bubbles is again apparent: as with the real price change indicator, all but two of the periods of growth in this ratio - 1997-2000 and 2006-08 - were preceded by a FHOS hand of government manoeuvre.

FHOS drove the increase in the house price to GDP per capita ratio

A similar pattern is evident in my preferred measure of house prices to GDP: again the only two periods of explosive growth in this ratio that are not triggered by the FHOS are 1997-2000 and 2006-08 (see Figure 70).

Can the FHOS manoeuvre be pulled again?

The role of the FHOS in triggering bubbles is therefore obvious, and raises three further questions with respect to future movements in Australian house prices: how does it work, and can the manoeuvre be pulled again?

Manoeuvre relies upon increased leverage to work

Clearly the cash grant to first home borrowers on its own isn't sufficient to cause the spike in house prices: for instance the "Vendors Boost" in October 2008 to December 2009 gave First Home Buyers an additional A$7,000 for the purchase of an established house, and yet the median price in Sydney rose by A$127,000 over the calendar year 2009 (and by A$147,000 between the trough in March 2009 and December).

The FHOS also entices potential future purchasers to bring their purchases forward in time

Instead the process involves a feedback between the government grant, the financial sector, and the housing market. The grant entices first home buyers into the market who would otherwise have been purchasers at some future date (or not at all).

Increased deposit is levered up by the home loan

The grant then increases the deposit they can offer to a financial institution for a home loan, and the loan they receive is (in the limit) increased by the grant divided by one minus the loan-to-valuation ratio (LVR). With an LVR of 90% (a middle-of-the-road estimate, since many First Home Buyers were given loans with LVRs of 95%), this turned the A$7,000 government boost into a A$70,000 larger bid price (see Figure 72).

The vendor receives the increased debt of the First Home Buyer as cash

The increase in the number of buyers, and their maximum bid price, drives up the price of housing offered in the lower price range, and the vendor receives the inflated sales price as unemcumbered cash. This then enables the vendor to repeat the process: go to their lender with a larger deposit, have this amplified by the LVR, and drive up the market price of houses in the next market bracket. The FHOS thus works like a two-stage rocket: purchases by First Home Buyers in the first stage gets the bottom of the market moving; then purchases by First Home Vendors blast the upper-market prices into orbit.

Figure 72

Average loan size for First Home Buyers

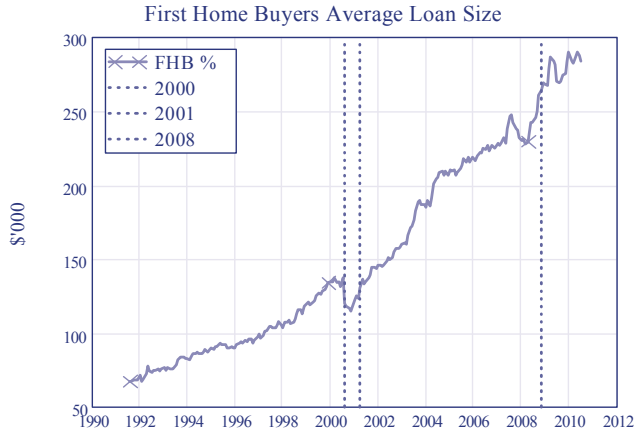


Figure 73

Effect of FHOS

Normal Stats	Before FHOS	After FHOS	All Data	During FHOS	Between FHOS periods	When FHOS doubled
Mean (%)	0.07	0.98	0.49	2.17	0.25	3.10
Min (%)	(5.5)	(3.7)	(5.5)	(2.3)	(2.3)	(0.9)
Max (%)	3.9	7.9	7.9	7.9	3.0	4.9
Std. Dev (%)	1.7	2.2	2.0	2.7	1.3	1.8
Kurtosis	1.60	0.96	1.92	(0.21)	(0.52)	3.18
Skew	(0.85)	0.74	0.28	0.62	0.13	(1.58)
Count	131	107	239	25	51	7

Figure 74

Shift in house price movements caused by the FHOS

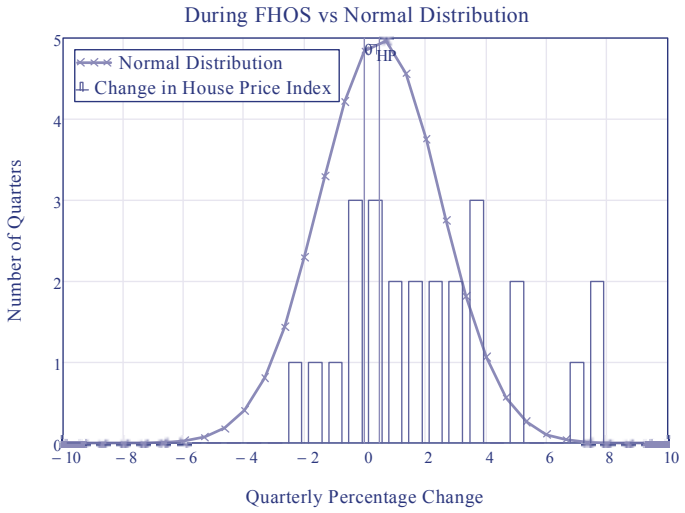


Figure 75

Average incomes versus the average First Home Loan

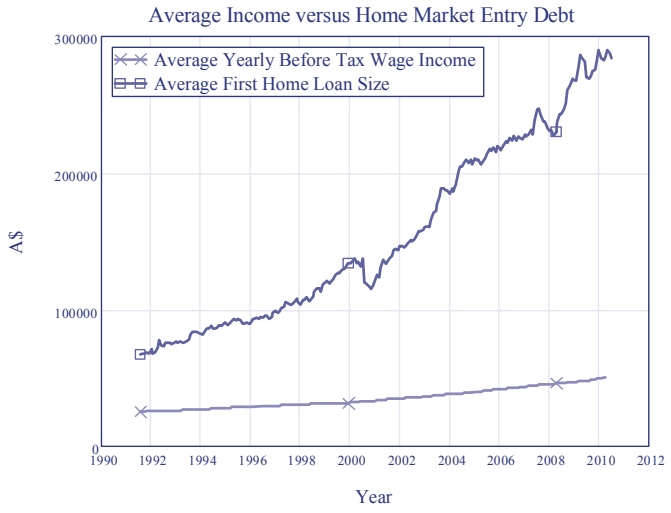


Figure 76

Ratio of avg First Home Loan to avg wage income

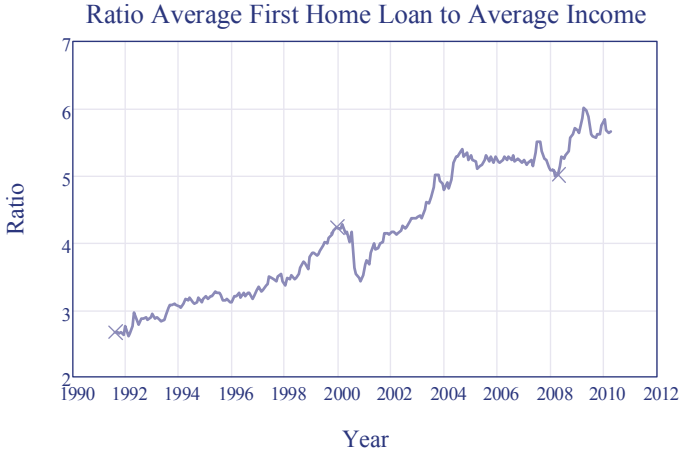
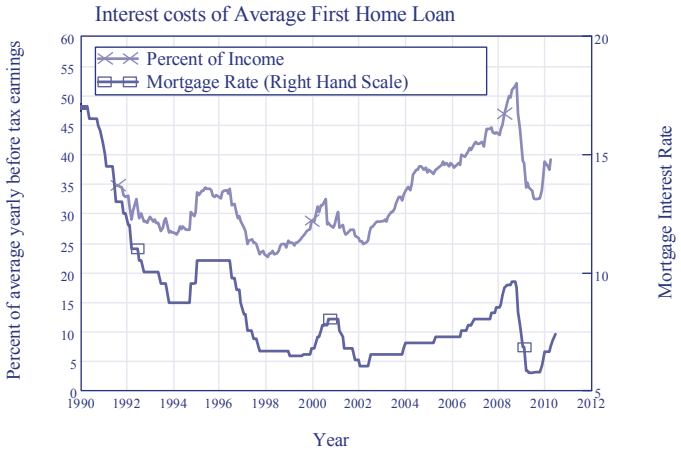


Figure 77

Int costs of avg First Home Loan and mortgage rates



Source: econonodata.presentselect.com

Not all of the increased leverage needs to be transmitted to boost house prices

The whole of the leverage-driven price rise doesn't have to be transmitted through the market for this process to blow prices skyward. If, say, half the boost to the First Home Buyer's bid price was passed on to the vendor, then house prices in the bottom segment of the market would have risen by A$35,000. First Home Vendors would then have had a A$350,000 increase in their maximum bid price - assuming an LVR of 90% - which could in turn have boosted prices in the second-home purchase segment of the market by A$175,000.

FHOS was not only factor driving prices higher

Other factors are also at work driving up prices during a FHOS-inspired bubble - the standard dynamics of the market, investors buying in due to the bubble, other house buyers facing increased buyer competition, changes in LVRs as lenders compete for market share, and so on - so the increase across an FHOS period cannot be entirely attributed to the FHOS itself. But its role as a catalyst is undeniable, and it can be quantified by comparing the rate of growth of prices during a FHOS manoeuvre to the rate of growth at other times.

Before the FHOS, real house prices were effectively constant

The statistics are telling: from 1951 until the introduction of the FHOS in 1983, real house prices rose by 0.07% per quarter, with a far higher standard deviation of 1.7% - in other words, real house prices were effectively constant. After its introduction in 1983, real prices rose by 1% per quarter on average - apparent evidence of a trend.

That "market trend" is clearly in large part a creation of the FHOS. After the Scheme was first introduced, but when it was not in operation, the average quarterly rate of growth of prices was 0.25%; when it was in operation, the growth rate was 2.17%; and in the few quarters when the grant was doubled (for existing homes), the average rate of growth was 3.1% per quarter.

FHOS also made house market more unstable

Shifts in the other statistics are also instructive. Prior to the FHOS, house-price falls were more frequent than rises. After it, the distribution became highly skewed towards price increases. The FHOS has also made the data far less "normal" than it was already by nature: there are far more extreme movements than a normal distribution would predict, though to date these are biased towards the positive side (see Figure 73). Figure 74 shows the impact of the FHOS when in operation versus an imputed normal distribution for house price movements since 1951.

The past success of the FHOS has made future success less likely

There is thus no doubt that the FHOS has worked to drive Australian house prices higher in the past. The question remains whether it could work again in the future, were house prices to fall and the government wanted to stop the process. This is extremely unlikely - at least prior to a substantial initial fall in prices - for the simple reason that the FHOS has worked so well in the past. The price of entry into the market as a First Home Buyer is now prohibitive, since incomes have risen by far less than house prices in the last two decades (Figure 75).

First Home Loan has risen from 3-times average earnings to 6-times in 18 years

The average First Home Loan has risen from under three-times the average before tax weekly income in 1992, to a peak of six-times in 2009 (see Figure 76). Since First Home Owners would in general earn below the average wage, the burden on them of entry into the market is even higher.

Clearly First Home Buyers' consumption is also strongly limited by the servicing costs of loans of this magnitude.

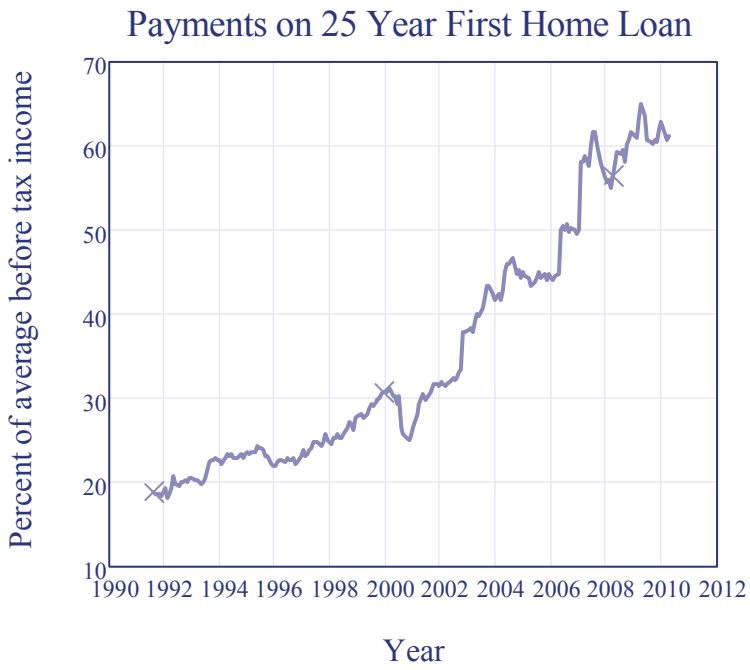
Including principal service, average First Home Loan needs 60% of average wage before tax

Australian borrowers benefit from having, in the main, floating-interest-rate mortgages, so that the pressure of debt can be relieved fairly immediately by official interest rate cuts in a manner that is not possible in the USA - hence the sharp fall in the interest-payment cost of mortgages in 2008 once the RBA reversed its anti-inflation rate-rise policy. However, the total servicing costs are less susceptible to policy manipulation because of the nonlinear impact that loan principal size has on repayments in the standard fixed-repayment scheme of Australian home loans. For this reason the reductions in rates during 2009 had far less impact on the cost of both servicing and repaying a 25-year First Home loan, which has remained at a historical high of 60% of the average before-tax income (Figure 78).

Increasing burden

Figure 78

Payments on a 25 year First Home Loan versus average income before tax



Source: econonodata.presentselect.com

A rerun of the FHOS couldn't prevent a house price crash; may arrest the fall some time later

I therefore regard it as highly unlikely that a re-run of the First Home Owners' Boost would be successful in arresting an initial decline (it may however temporarily stop a decline after prices have fallen substantially, as has been the case with the recently terminated US scheme). That raises the question of whether any other group of buyers can be enticed in to sustain the bubble.

Investors or speculators?

Upgraders and investors constitute the remainder of the market

With First Home Buyers exiting the market for the simple reason that they can't afford to enter it, this leaves two other major sources of demand: owner-occupier upgraders moving from their n^{th} property to their n^{th} plus one, and investors.

Upgraders depend on a growing supply of First Home Buyers and investors to sell at profit

An individual owner-occupier upgrader has a zero net effect on the volume of properties demanded: she is selling in order to buy. To do so in the context of an expanding market, owner-occupier purchasers are dependent on the flow of new First Home Buyers (purchasing the bottom rung of properties) and investors (purchasing a wider range of properties).

FHOS has attracted investors as well as it has First Home Buyers

The flow of investors into the market has grown with the recent FHOS-inspired bubble, as it has on every other occasion when the FHOS has been activated. The fact that investors, who do not receive the First Home Owners Grant, are enticed into the market by the FHOS underlines the obvious point that investors in the Australian market are seeking capital gains rather than rental income on their properties. Purchasing a property for the rental return makes no sense when the imputed rental yield on housing is well below the rate of return on bank deposits - let alone that on mortgages.

Net rental returns are well below zero: the only source of investor profit is capital gain

Net income from rental properties (after mortgage payments and operating costs) is now substantially below zero (it was last positive in 2000-2001), and loss-making landlords are concentrated in the A$30,000-75,000 net annual income range. Though the definition of net income may involve some creative accounting, an average declared loss of A$9,000 per taxpayer in this bracket emphasises the extent to which investor returns are dependent on rising house prices.

Figure 79

Individuals' net rental income, by taxable income, 2007–08 income year

Taxable income	Net rental income less than $0		Net rental income greater than or equal to $0		Total	
(A$)	No.	A$m	No.	A$m	No.	A$m
6,000 or less	117000	(1,525)	41177	162	158177	(1,363)
6,001–30,000	243967	(2,215)	172906	1136	416873	(1,079)
30,001–75,000	556393	(5,109)	207195	1518	763588	(3,591)
75,001–150,000	220138	(2,566)	80394	784	300532	(1,782)
150,001 or more	61001	(1,339)	26274	526	87275	(813)
Total	1198499	(12,754)	527946	4125	1726445	(8,628)

Source: Australian Taxation Office 2010, Table 2.5, p. 15

Investors don't even build these days

The majority of so-called investors in property are therefore fundamentally speculators rather than true landlords, since they neither make a profit from the income stream generated by their investment, nor do they in fact finance the construction of new dwellings. Some 25 years ago, before the Australian housing bubble formed, about 60% of investor borrowing financed the construction of new dwellings, compared to 20% of borrowing by owner-occupiers. Today, just over 5% of investor borrowing finances new dwelling construction - an even lower level than that financed by owner-occupiers (Figure 82).

Figure 80

New loans/GDP and the FHOS

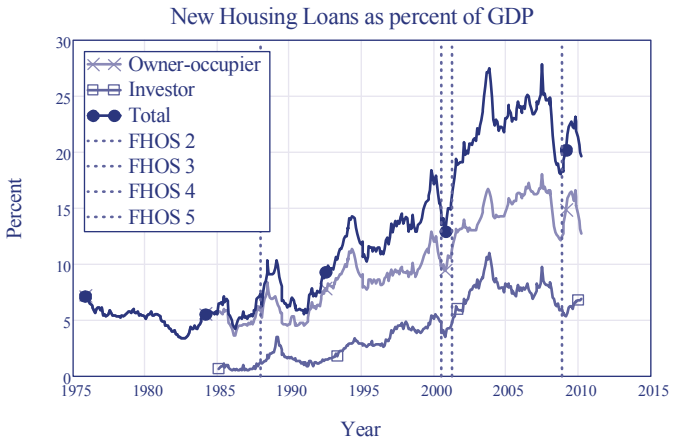


Figure 81

Imputed rental return vs the 6-month term deposit rate

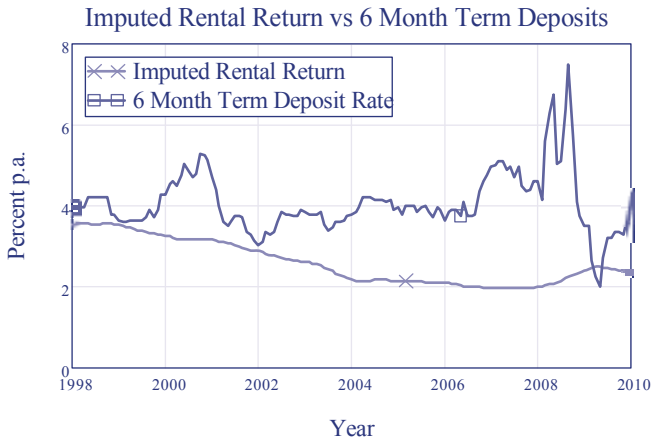


Figure 82

Percentage of borrowing that finances construction

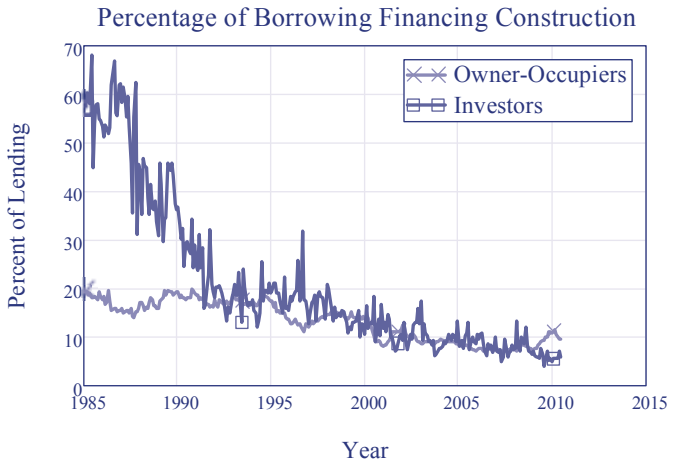


Figure 83

Debt/dwelling vs real house prices and real GDP/head

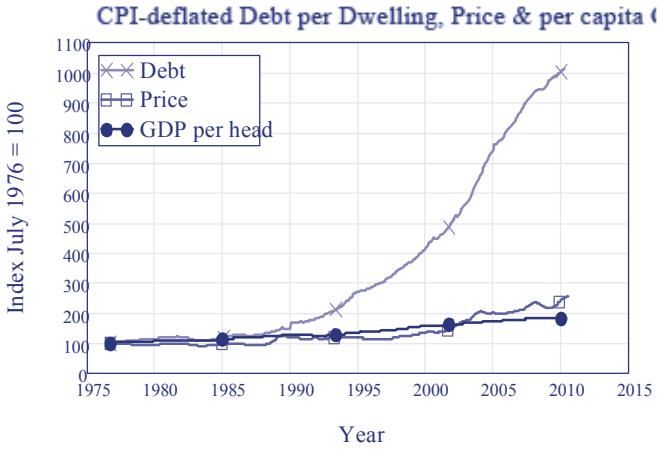


Figure 84

Mtg debt/dwelling to real prices and real GDP/ capita

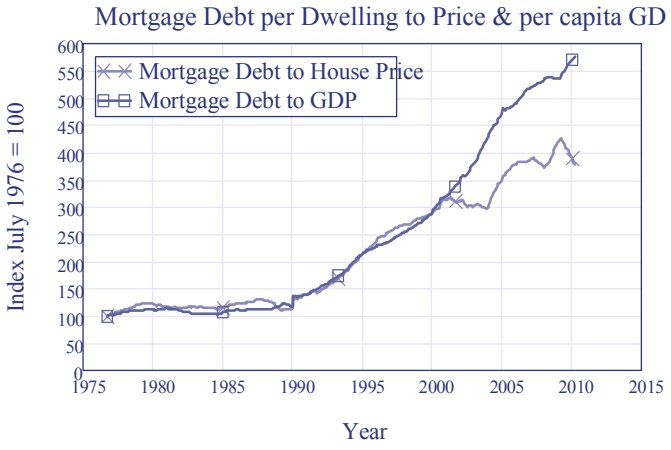
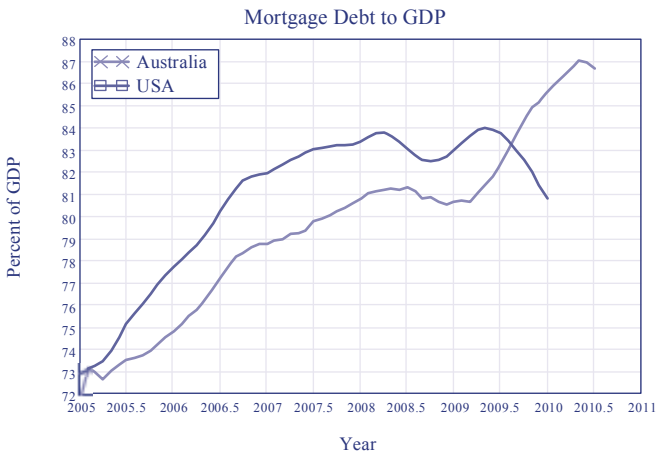


Figure 85

Mortgage debt to GDP in Australia and the USA



Source: econonodata.presentselect.com

New investor loans have kept the market up in 2010 as First Home Buyers have exited

The growth in investor borrowing has sustained the market recently, with new investor loans rising by 1.5% of GDP between early 2009 and March 2010 (from 5.4% to 6.9%) (Figure 80). Though this has cushioned the blow from the much larger fall in owner-occupier loans of 3.3% of GDP across the same period (owner-occupier loans rose from 12.2% of GDP to 16% under the influence of the FHOS, but have now fallen back to 12.7%), this leaves the market dependent on continued investment by loss-making landlords whose only real motivation for investment is continued capital gain.

Investors make the market more volatile

Investors - especially loss-making ones - are a far more volatile set of house purchasers than owner-occupiers. Owner-occupiers who fail to get their reservation price in a sale will normally simply cease being sellers - or wait for prices to recover. On the other hand, investors who perceive falling prices - and who are already losing money on their investments - are capable of switching from the buy side to the sell side in order to lock-in the paper profits they may already have made.

Investors able to change from buyers to sellers than are owner-occupiers

Therefore, far from putting a floor under house prices as First Home Buyers are priced out of the market and owner-occupier turnover diminishes, the greater preponderance of investors in the market today is more likely to add to its volatility as house prices start to decline.

The Australian house price bubble has had two witches brewing it: the government and the finance sector

The Australian house-price bubble has thus been generated by an unconscious and unwitting alliance between a finance sector that has willingly lent to finance asset-price speculation, and a government sector that has used manipulation of house prices as a tool of macroeconomic policy. This alliance has only worked because debt levels have risen more rapidly than both house prices and incomes, and this in turn generates the macroeconomic outcomes discussed in the next chapter (Figures 83 and 84).

The real source of investor trading profit has been rising debt

One way to understand the essential role of rising debt in generating an asset bubble is to consider housing investment from the point of view of the investor, who is hoping to make a profit simply from holding and then selling an asset. This is a trading gain, not an earned income gain. The two sources of unearned income are other people's income, and debt. While isolated individuals can make a gain from strategic trading, a general gain in unearned income can only result from rising debt: new buyers must take out more debt relative to income than previous buyers for the increase in unearned income to exceed the increase in earned income. This dynamic is readily apparent in the Australian data: though real house prices have risen by 250% since 1976, debt per dwelling has risen by over 1,000% in real terms.

Debt per dwelling has risen far faster than house prices

This blowout in the ratio of mortgage debt per dwelling to house prices began in 1990, confirming once again that the Australian house price bubble began in 1988 (with its first two years being driven by transfer of share market profits to real estate after the Crash of 1987, and the second incarnation of the FHOS).

The Australian market is about to turn American

As discussed in the previous section, this process has reached its end point: now that the artificial stimulus of FHOS 5 has ended, demand for home loans has evaporated amongst First Home Buyers and owner occupiers, with only investors bucking the trend. The household-sector deleveraging process that FHOS 5 interrupted is therefore likely to resume in the near future. When it does, economic and housing market conditions in Australia will start to resemble those in the USA, where private-sector deleveraging is determining the performance, not just of the share and house markets, but the macroeconomy in general.

The macroeconomics of deleveraging

Finance and economics have to be jointly understood to appreciate our current economic predicament

The only period of financial history that resembles the past two decades is the 1920s to the 1940s, when the Roaring Twenties gave way to the Great Depression. Then, as is the case now, leveraged speculation caused a boom that was followed not merely by a recession, but by a deleveraging-driven economic collapse. Unfortunately, the macroeconomics of this process is, to put it mildly, poorly understood. This chapter provides that analysis, in which asset markets and macroeconomics have to be considered jointly. Since Australian data on 1920-40s is less complete than US data, I will set the scene by comparing US data from the 1920s and today first, and then move to Australian data.

Private debt in the USA is 300% of GDP today versus 175% when the Great Depression began

The first striking fact about today's situation when compared to the 1920s-1940s is that private debt is substantially *higher* today than it was then. Private debt was 175% of GDP when the Stock Market Crash of 1929 occurred; it is just below 300% of GDP today.

Both housing and the share market are still above long-term means

The second is that the debt bubble of the 1920s drove the share market into a bubble, but left the housing market relatively flat, whereas in 2000-06, both asset markets reached historically unprecedented levels. One bubble wasn't enough to absorb the speculative excesses of the past two decades, and if reversion to the mean has any significance in economics, America's two asset-price bubbles still have some way to go before their bursting will be over.

Debt caused both the boom of the Roaring Twenties and the bust of the Great Depression

Both the boom of the 1920s, and the slump of the 1930s were caused by the same process: rising levels of debt caused the boom, and falling levels of debt caused the slump. Despite the abject failure of mainstream economic theory to consider the role of credit in a market economy, [10] in essence it is so simple that an arithmetic example can suffice to explain it.

A simple numerical example illustrates the process

Consider an economy with a nominal GDP of $1,000bn which is growing at 10% a year, due to an inflation rate of 5% and a real growth rate of 5%, and in which private debt is $1,250bn and is growing at 20% a year.

Aggregate private-sector demand in this economy - expenditure on all markets, including asset markets - is therefore $1,500bn: $1,000bn from expenditure from income (GDP) and $250bn from the change in debt. At the end of the year, private debt will be $1,500bn. Expenditure is thus 20% above the level that could be financed by income alone.

Now imagine that the following year, the rate of growth of GDP continues at 10%, but the rate of growth of debt slows from 20% to 10%. GDP will have grown to $1,100bn, while the increase in private debt this year will be $150bn - 10% of the initial $1,500bn total and therefore $100bn *less* than the $250bn increase the year before.

[10] A search of the academic economic indexing service Econlit found only two articles prior to 2008 that had the word 'deleveraging' in the title, abstract or article text, in a total of only 31 articles. Hyman Minsky, whose Financial Instability Hypothesis is now acknowledged as a far more accurate explanation of the role of finance in a market economy than the delusional "Efficient Markets Hypothesis", was not referred to by any paper in the *American Economic Review* apart from two that Minsky himself wrote - the last of which was published in 1971.

Aggregate private sector demand in this economy will therefore be $1,250bn, consisting of $1,100bn from GDP and $150bn from rising debt - exactly the same as the year before. But since inflation has been running at 5%, aggregate demand will be 5% *lower* than the year before in real terms. So simply stabilising the debt-to-GDP ratio results in a fall in demand in real terms, and some markets - commodities and/or assets - must take a hit.

That hypothetical process - in both boom and bust - can be seen clearly in the US data in the 1920s-1940s. Firstly, debt rose rapidly in the 1920s, only to collapse in the 1930s - as did nominal and real GDP.

Rising debt boosted demand by up to 8% during the Roaring Twenties

Rising debt added substantially to demand in the 1920s, creating an apparent - but fundamentally false - boom that became known as "The Roaring Twenties". Adding the change in debt-to-GDP shows just how much rising debt boosted demand in that decade - only to be followed by another decade of falling debt as the same people who danced The Charleston in the 1920s were lining up for soup kitchens in the 1930s.

Growing private debt is not necessarily a bad thing

A growing economy needs a growing level of debt - something that Hyman Minsky, the first economist to seriously consider the dynamics of a credit-driven economy, readily acknowledged: '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 1982, p.7).

Debt growing much faster than GDP is normally a sign of an impending crisis

However, it is not necessary for debt to grow faster than GDP - a rate of growth equivalent to GDP growth, which therefore means a constant ratio of debt to GDP, is all that is required. When however debt grows faster than GDP for an extended period, and that growth in debt finances not productive investment but speculation on asset prices, an economy can become so debt-dependent that rising debt becomes the main cause of changes in economic activity. That was the case for Roaring Twenties America.

When debt substantially exceeds GDP, growth in debt can become the main determinant of economic activity

In such a debt-driven economy, changes in debt become the main determinant of the level of economic activity. This can be seen by considering the correlation between the change in debt and unemployment across both the boom of the Roaring Twenties and the bust of the Great Depression - from 1922 until 1942. It is -0.93: when the debt-financed proportion of aggregate demand rises, unemployment falls - and vice-versa.[11]

[11] The debt data is lagged one year since this is year-end annual data.

Figure 86

USA private-debt-to-GDP ratio

Figure 87

US asset markets

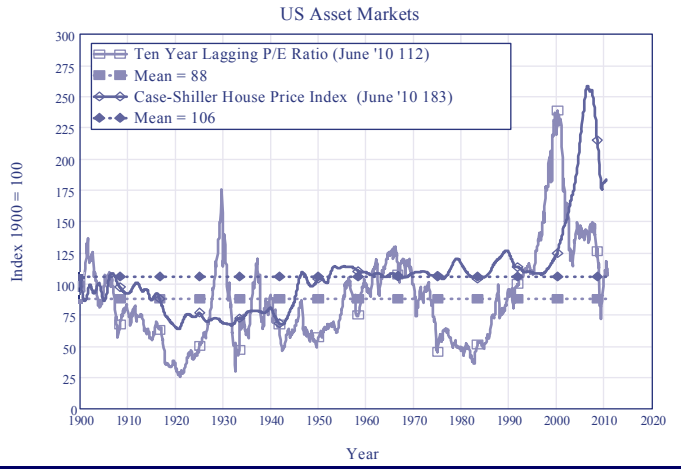


Figure 88

Hypothetical situation

Variable/year	Year 1	Year 2
Nominal GDP	1,000	1,100
Growth rate of nominal GDP (%)	10	10
Real growth rate (%)	5	5
Inflation rate (%)	5	5
Private debt	1,250	1,500
Growth rate of private debt (%)	20	10
Change in private debt	250	150
Nominal aggregate demand (GDP + change in debt)	1,250	1,250

Figure 89

US private debt and nominal GDP 1921-1942

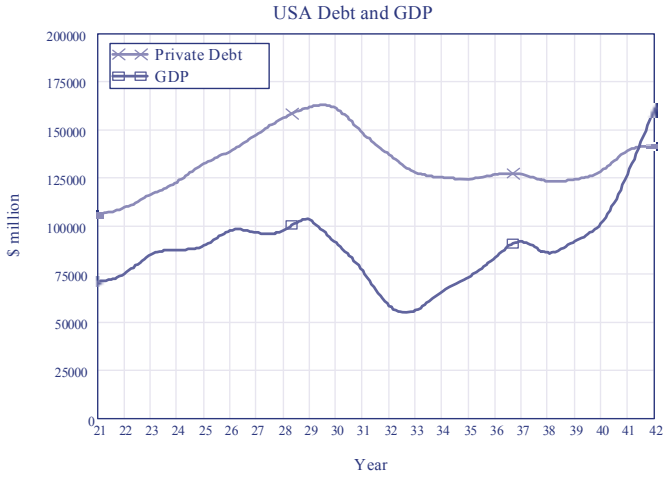


Figure 90

GDP and the change in private debt, 1921-1942

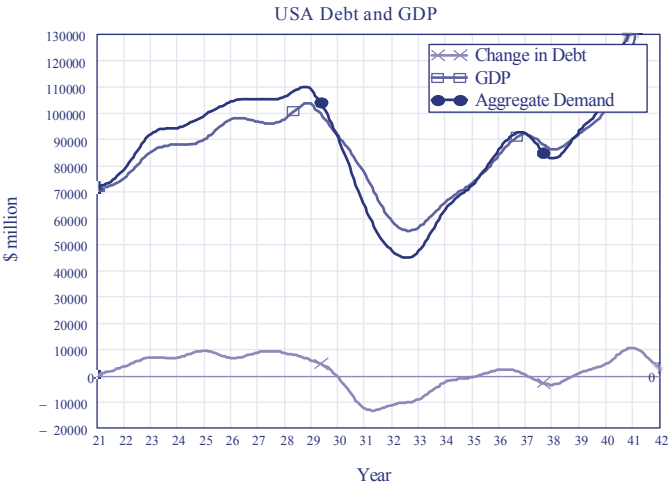
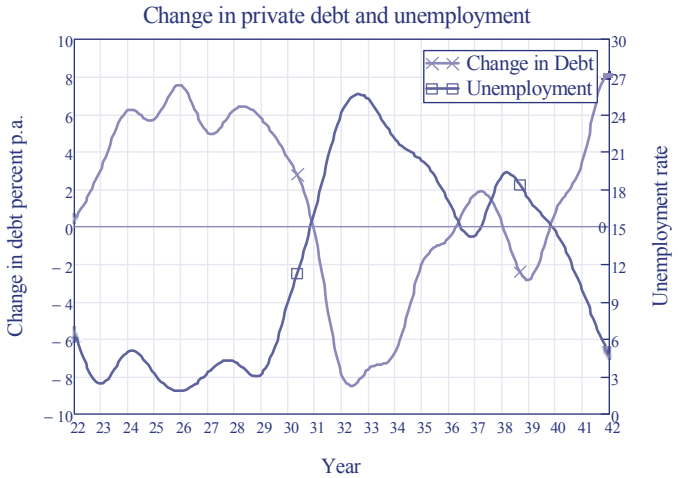


Figure 91

Change in private debt and unemployment, 1922-42



Source: econonodata.presentselect.com

Figure 92

US private debt and nominal GDP, 1990-2010

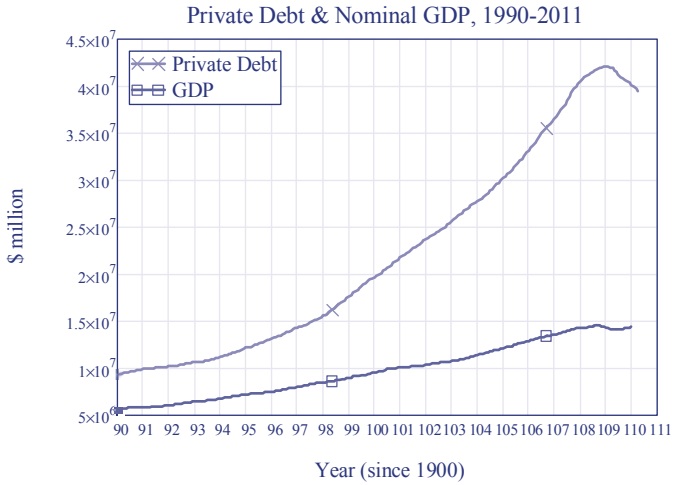
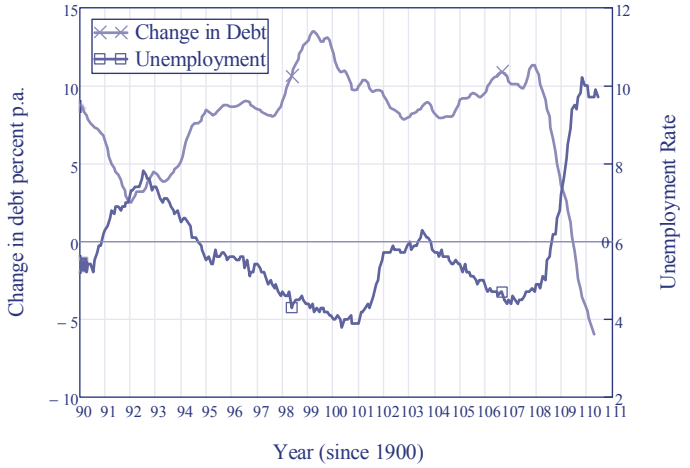


Figure 93

Change in private debt and unemployment, 1990-2010



Source: econonodata.presentselect.com

Deleveraging has only just begun today

Repeating the same exercise for the past 20 years makes two things apparent: debt is far larger (relative to GDP) now than then; and the deleveraging process that defined the 1930s has only just begun today.

The correlation of change in debt with unemployment is -0.95

At -0.95, the correlation between a change in debt and unemployment (Figure 93) is even stronger over the past 20 years than it was in 1922-1942: now, as then, a rising level of debt means falling unemployment, and vice-versa.[12]

Private-sector deleveraging is primary cause of America's continuing recession

Private-sector deleveraging is the dominant economic force in the USA, and the primary explanation for its economic predicament. Conversely, avoidance of deleveraging to date is the primary reason that Australia has not experienced a serious economic downturn - so far. However it is likely to experience one when, as is already happening in the USA, the household sector starts to delever.

Slowdown in the growth of debt in 2009 caused aggregate demand to fall

The deleveraging dynamic illustrated in the numerical example is playing out forcefully in the USA today. Aggregate private-sector demand peaked in 2008 at US$18.8tn - with GDP contributing US$14.4tn, rising private debt US$4tn, and rising government debt a further US$0.4tn. The next year, aggregate private sector demand fell to US$15.8tn - *even though both nominal GDP and private debt continued to expand*.

Debt doesn't need to fall to cause a recession, just grow more slowly

This is because, in our credit-driven economic system, aggregate demand is the sum of GDP plus the *change* in debt.[13] As a result, aggregate demand can fall simply if the rate of change of debt falls. This is the built-in trigger that guarantees that all speculative bubbles will ultimately end: they depend not merely on rising debt, but on the rate of that rise remaining constant or increasing. Consequently, a debt-financed economic bubble can pop simply when the rate of growth of debt slows down, and that will inevitably happen since the alternative is that, at some stage, debt servicing will exceed 100% of GDP. Well before that point of course, borrowers' willingness to take on debt evaporates, or lenders' willingness to extend it.

[12] The quarterly debt data here are unlagged.
[13] This definition of aggregate demand is one I have developed in my extensions of Hyman Minsky's Financial Instability Hypothesis. You won't find this in macroeconomic textbooks, which are worse than useless as a guide to how a market economy actually functions.

Aggregate private sector demand in 2010 was US$6tn lower than 2008

GDP grew by US$10bn (an admittedly pitiful sum in a US$14tn economy) and private debt grew by US$1.5tn (a large sum, but far less than the US$4tn increase of the year before), so that the sum of GDP plus the change in debt fell by US$2.5tn. Government debt expanded by US$1.3tn, far more than it expanded the year before (roughly US$0.5tn), but nowhere near enough to counter the slowdown in the rate of growth of private debt. As a result, aggregate demand in America fell by 9% that year - from US$18.8 to US$17.1tn - and both commodity and asset markets plunged (Figure 94).

The year after (till the end of calendar year 2010) is instructive for the future Australia will face when mortgage debt stops rising: aggregate demand fell another 17% - from US$17.1 to US$14.2tn - because private-sector debt was not merely rising more slowly, but actually falling. Total private-sector debt fell by US$1.9tn and mortgage debt fell by US$0.2tn. The rise in government debt, of US$1.5tn, was nowhere near enough to counter the private sector's deleveraging. Aggregate demand fell a further US$2.8tn.

Figure 94

US debt and aggregate demand, 2006-2010

(US$bn)	2006	2007	2008	2009	2010
GDP	12,915,600	13,611,500	14,337,900	14,347,300	14,453,800
Change in nominal GDP (%)	6.3	5.4	5.3	0.1	0.7
Change in real GDP (%)	2.7	2.4	2.5	(1.9)	0.1
Inflation rate (%)	4.0	2.1	4.3	0.0	2.6
Private debt	33,196,817	36,553,385	40,596,586	42,045,481	40,185,976
Debt growth rate (%)	9.6	10.1	11.1	3.6	(4.4)
Change in debt	2,914,187	3,356,568	4,043,201	1,448,895	(1,859,505)
GDP + change in private debt	15,829,787	16,968,068	18,381,101	15,796,195	12,594,295
Change in private aggregate demand (%)	0.0	7.2	8.3	(14.1)	(20.3)
Government debt	6,556,391.0	6,893,467.0	7,321,592.0	8,615,051.0	10,167,585.0
Change in government debt	478,851.0	337,076.0	428,125.0	1,293,459.0	1,552,534.0
GDP + change in total debt	16,308,638.0	17,305,144.0	18,809,226.0	17,089,654.0	14,146,829.0
Change in total aggregate demand (%)	0.0	6.1	8.7	(9.1)	(17.2)
Mortgage debt	10,042,429	11,157,757	11,954,054	11,903,391	11,683,114
Change in mortgage debt	1,179,274	1,115,328	796,297	(50,663)	(220,277)

Source: econonodata.presentselect.com

Australia avoided a crisis mainly by recreating the conditions that led to it in the first place

Applying the same analysis to Australia shows that its 1993-2007 boom, like that in the USA, was driven primarily by an expanding debt bubble (though in contrast to the USA, other factors also played a part). It has avoided a serious economic downturn thus far not only for the usual valid reasons given (a more effective fiscal stimulus, a regime of floating mortgage rates - so that cuts to official interest rates directly reduce debt-servicing costs and boost household income - and its role as a raw-materials supplier to China) but also because it has simply delayed the process of deleveraging.

Aus private debt level is just over half the USA's

Australia's private-debt-to-GDP ratio is significantly lower than the USA's - it peaked at 157% in mid-2008, slightly more than half the USA's peak of 295% in early 2009 (see Figure 85). However, this is 2.5-times the level of private debt that Australia had when the Great Depression began in 1930, and twice the peak debt level in 1931 when, as they did in the USA, deflation and falling output drove the debt ratio higher even as the absolute level of debt was falling.

Figure 95

Australia's private-debt-to-GDP ratio from 1860

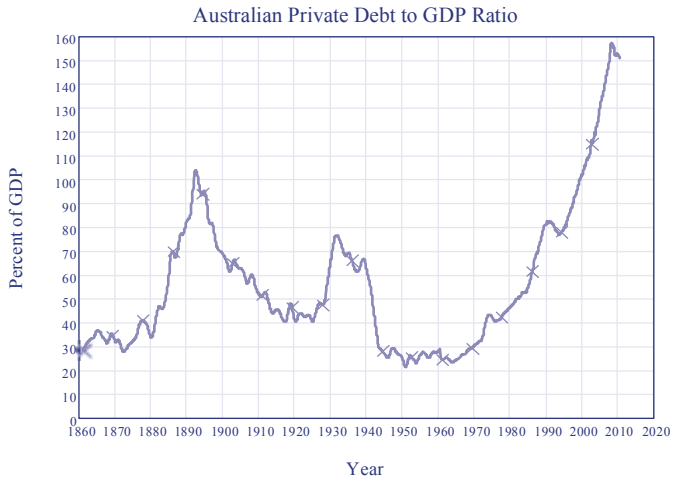
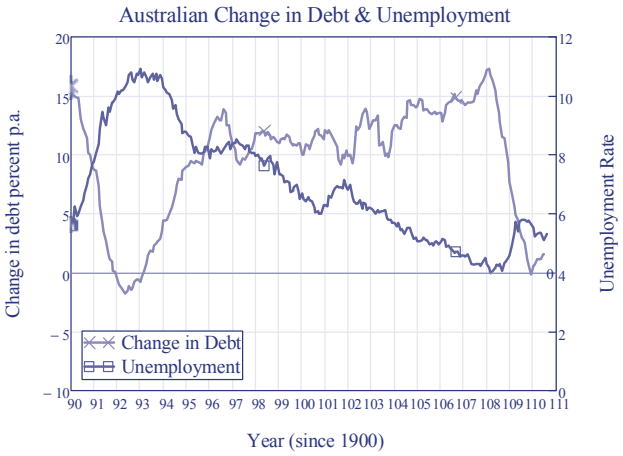


Figure 96

Change in private debt and unemployment in Australia



Source: econonodata.presentselect.com

The correlation of change in private debt to unemployment is -0.67 for the period 1990-2010

The change in private debt correlates strongly with the level of unemployment, though not as strongly as for the USA (see Figure 96) - the correlation coefficient between the change in debt and unemployment is -0.67.[14]

Figure 97

Australian debt and aggregate demand, 2006-2010

(A$bn)	2006	2007	2008	2009	2010
GDP	966,032	1,039,953	1,134,431	1,237,884	1,257,016
Change in nominal GDP (%)	8.1	7.7	9.1	9.1	1.5
Change in real GDP (%)	3.2	2.6	4.8	2.3	1.3
Inflation rate (%)	2.8	3.3	3.0	3.7	2.1
Private debt	1,321,900	1,510,600	1,770,149	1,904,640	1,915,384
Debt growth rate (%)	13.5	14.3	17.2	7.6	0.6
Change in debt	157,420	188,700	259,549	134,491	10,744
GDP + change in private Debt	1,123,452	1,228,653	1,393,980	1,372,375	1,267,760
Change in private aggregate demand (%)	0.0	9.4	13.5	(1.5)	(7.6)
Government debt	14,973	17,174	20,871	32,140	69,749
Change in government debt	(5,553)	2,201	3,697	11,269	37,609
GDP + change in total debt	1,117,899	1,230,854	1,397,677	1,383,644	1,305,369
Change in total aggregate demand (%)	0.0	10.1	13.6	(1.0)	(5.7)
Mortgage debt	722,844	819,095	916,897	998,628	1,076,425
Change in mortgage debt	81,618	96,251	97,802	81,731	77,797

Source: econonodata.presentselect.com

[14] Its magnitude increases to -0.73 when the change in debt is lagged 6 months, which may reflect Australia's rather more worker-oriented labour market.

Figure 98

Actual and trend change in mortgage debt since 2005

Figure 99

Actual and trend change in private debt by sector

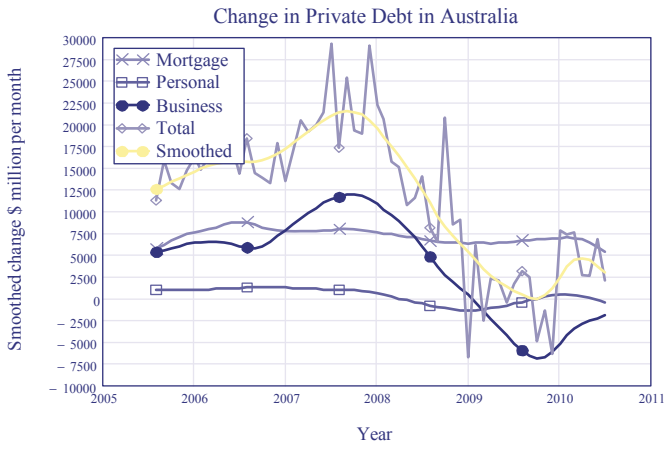


Figure 100

Volume and value of established dwelling sales

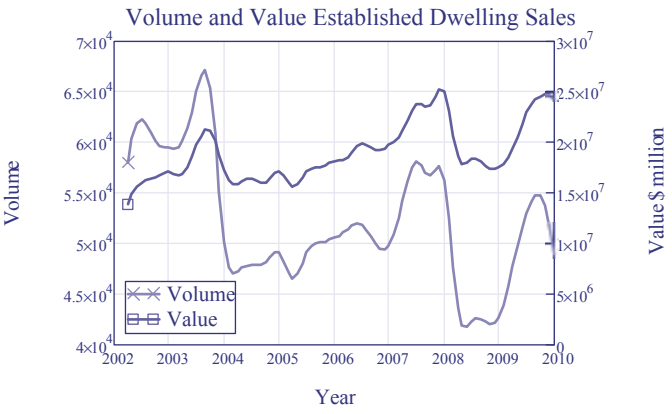


Figure 101

Actual and trend flow of No. new loans to home buyers

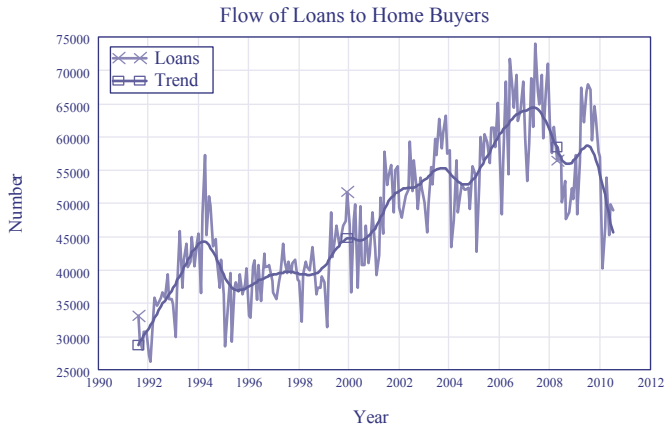
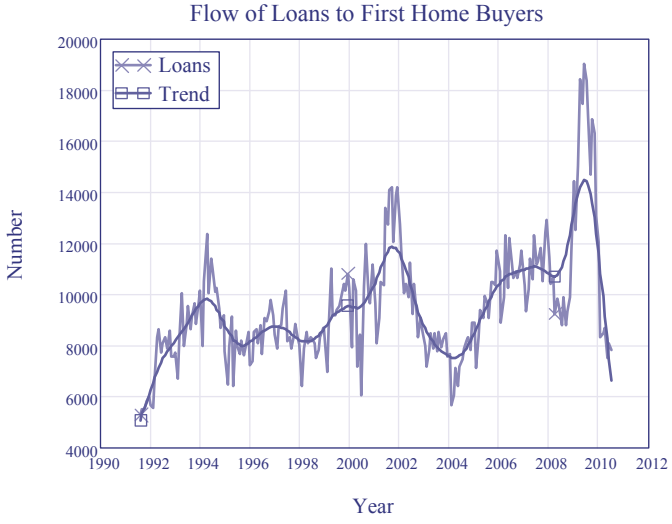


Figure 102

Actual and trend, No. of new loans to First Home Buyers



Source: econonodata.presentselect.com

By March 2010 private debt in the USA was falling at rate of 6% pa

As with the USA, the economic crisis in Australia began with a sudden reversal in the rate of growth of private debt, commencing in January 2008 - two months after the turnaround began in the USA. However, while the reduction in debt in the USA continued unabated, so that by March 2010 it was falling at a rate of 6% pa, in Australia the reduction in private debt ceased abruptly in December 2009, after which debt began to rise once more.

Aggregate demand has fallen in Australia, but by much less than in the USA

For the same reason illustrated by the numerical example and America's data - that aggregate demand depends upon the *rate of change* of debt - aggregate demand in Australia has fallen (Figure 97). But this fall has been substantially less than in America: a 1% fall in 2008-09 and 5.7% in 2009-10, compared to 9.1% and 17.2% respectively in the USA.

The expansion in mortgage debt was the sole reason that Australia avoided deleveraging

The expansion of government debt - and the impact of other stimulatory measures such as the RBA's rate cuts - reduced the impact of the fall in private-aggregate demand, as it did in America. But the sole reason why the change in debt went from reducing demand to increasing it once more was the increase in mortgage debt inspired by the FHOS.

Private debt is now rising less rapidly than GDP

Business debt has been falling since the beginning of 2009, and private debt only increased in 2009 because of the rise in mortgage debt (see Figure 98). The impact of this FHOS-inspired increase in mortgage debt was to turn the change in debt from negative, which substracts from aggregate demand, to positive, which adds to it. However the trend in total private debt went into reverse in April-June 2010, and the change in debt is now once more reducing aggregate demand. Since the only component of Australian private debt that was rising in the past two years was mortgage debt (Figure 99), that was in turn driven by the FHOS, and the trend in mortgage debt is now negative, it is only a matter of time before the rate of growth of private debt in Australia not only slows--which is sufficient to cause a downturn-but turns negative.

Falling debt will ultimately impact on the economy and the housing market

If so, then the reduction in demand will both directly impact on the housing market via a fall in borrowing, and indirectly via the impact of declining aggregate demand on employment. Though this impact will be less in Australia than in America (given its lower ratio of debt to GDP) it will still bring about the end of the Australian house-price bubble - since the bubble can only be sustained if debt levels rise faster than incomes.

Volume of house sales started falling in late 2009, before the FHOS expired

The first manifestation of a bursting house-price bubble is not falling prices, but declining sales volumes (Figure 100). ABS data on sales volumes lags price data by six months, so the latest publicly available data on sales volumes is for December 2009. This indicates that the volume of sales peaked in July 2009, and has been trending down sharply since then.

New loans have continued to fall in 2010

Since almost all house purchases involve a loan, the number of loans issued to homebuyers gives a more timely indicator that the plunge in sales volume has continued.

This trend has been accelerated by an unintended but inevitable consequence of the First Home Vendors Boost: by succeeding in enticing many more than the average number of First Home Buyers into the market in 2009, it has white-anted demand from them in 2010 - both by stealing buyers from the future, and pricing many would-be buyers out of the market. The peak of 19,000 new First Home Buyers a month during the FHOS-inspired boom of 2009 was roughly twice the mean for the preceding decade (Figure 102).

For whom the bubble pops?

The likelihood that the Australian house-price bubble has begun to burst, and that it has a downside of at least 40%, raises the question of the possible consequences of this for the banking sector.

Housing loans at 37% of Australian bank assets versus 35% of US bank assets at the peak of the Subrime Bubble

Australian banks are no less exposed to the risks of a house-price crash than were their counterparts in the USA. Again, in contrast to the oft-repeated assurance that Australian banks are safe because real-estate lending has been far more responsible than in the USA, real-estate loans constitute a *higher* proportion of the on-balance-sheet assets of Australian banks (see Figure 103). Australian real-estate loans also grew more rapidly, as a proportion of total on-balance sheet bank assets, and without regard to the overall financial viability of the household sector. Bizarrely, lending to Australian households rose most rapidly as the economy fall into the deep recession of 1990-94, when unemployment rose from 6% to 10.5%.

Bank lending for real estate also responded to the FHOS

It wasn't just the First Home Buyers who were enticed into debt by the hand of government: the banking sector also willingly went along with the manoeuvre, with bank lending for real estate reversing its falling trend almost on the day that the FHOS was introduced. The continued rise in real-estate lending compensated for stagnant lending to other sectors.

The empirical evidence shows that Australian banks are just as exposed to problems in real estate as were American banks

From a strictly empirical perspective then, the Australian financial system is as exposed to a house-price crash as was the American system. The advantages for the Australian banks over their American counterparts are the lower level of private debt - so that private-sector deleveraging cannot be as significant a force for depressing economic output - and the legal context of Australian mortgages.

One comparative positive is that the fall in debt-financed demand must be smaller in Australian

There is some cold comfort in the empirical point. The correlation between the debt-driven share of aggregate demand[15] and unemployment is as strong in Australia as it is in America (the correlations between 1990 and 2010 are -0.84 and -0.89 respectively); but the magnitude of the fall in debt-financed demand is far greater in the USA than in Australia (Figure 106).

Australia is still leveraging up while the USA is deleveraging

However, this measure also emphasises the point that a major reason why Australia has suffered only a minor increase in unemployment during the crisis, which rose from 4% to 5.8% between February 2008 and June 2009, before falling to a low of 5.1% in June 2010: government policy in the form of the FHOS reversed the process of deleveraging that had begun in 2008, while rising government debt added to the stimulatory effect of releveraging by the household sector. Now that the FHOS has run its course, household-sector deleveraging should resume, and unemployment should rise once more.

[15] Defined as the ratio of the change in debt to the sum of GDP plus the change in debt.

Figure 103

Real estate loans/bank assets, Australia and USA

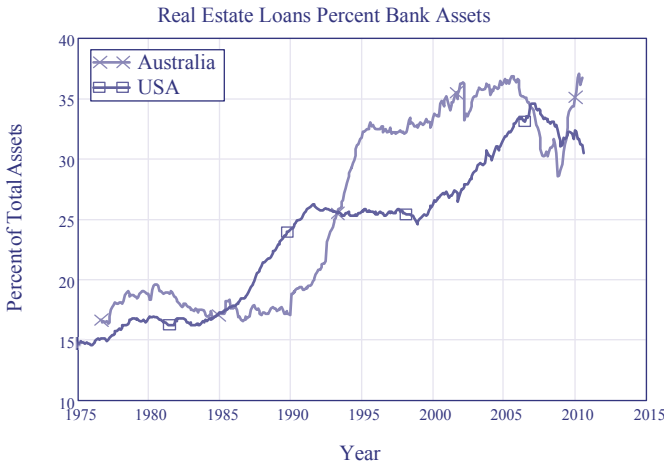


Figure 104

Australian bank assets

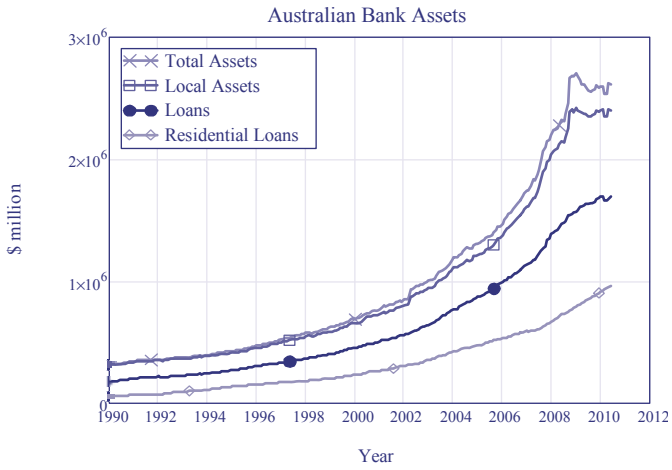


Figure 105

Correlation: Private debt-financed dmd, unemp, USA

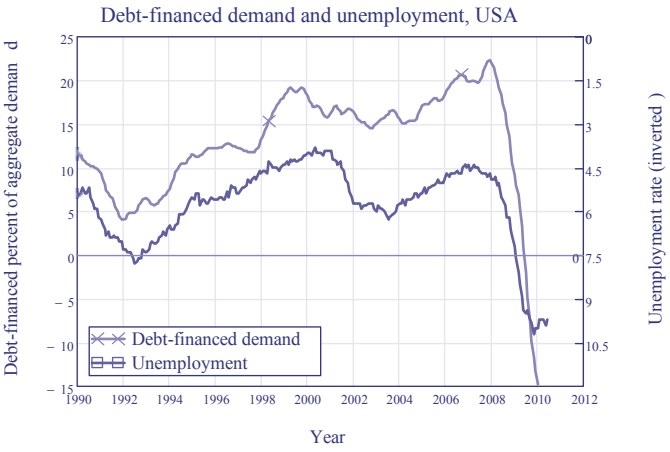


Figure 106

Correlation: Private debt-financed dmd, unemp, Aus

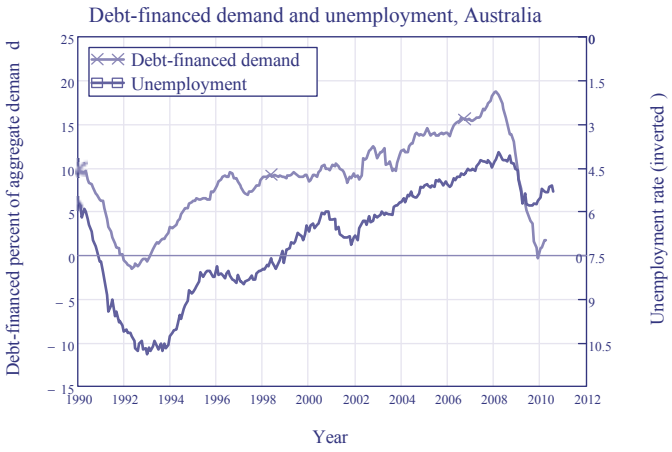


Figure 107

Total debt-financed demand and unemployment

Source: econonodata.presentselect.com

Absence of jingle mail in Australia will mean that consumer spending is more constrained than in the USA

The much-touted fact that Australian mortgages are full recourse is also to some extent a double-edged sword. The absence of "jingle-mail" here means that mortgagors will try much harder to pay their mortgages than their equivalents in the USA. But to do so, with a slightly higher ratio of mortgage debt to disposable incomes, and interest rates that are at present 2% higher than in the USA, Australian mortgagors will have to cut back on consumption even more than those in the USA.

Macroeconomic performance will be constrained as a result

Given that mortgage interest payments alone are 50% higher as a percentage of GDP in Australia than in America (6% versus 4%), this will be a significant factor constraining future household consumption expenditure that will in turn limit economic growth and lead to rising unemployment.

China provides substantial external demand, but raises the possibility of a "virtuous circle" that could reverse

The positive effects of mineral exports to China and booming local investment in mining to provide those minerals give Australia a countervailing positive not available to the rest of the OECD, which could in turn reduce the rise in unemployment from deleveraging and rescue the banks' balance sheets. However, as Michael Pettis recently cautioned, this reliance upon commodity exports exposes Australia to the potential downside of a "virtuous circle", where processes that work to its advantage in good times go into reverse in bad times:

> Countries with a lot of short-term debt, external debt, and asset-lending-based banks, especially large amounts of real estate lending, are far more vulnerable than they might at first seem because the debt burden is likely to soar at the worst time possible – just when everything else is going wrong. (Michael Pettis, 'Do sovereign debt ratios matter?', *China Financial Markets*, July 20th 2010; http://mpettis.com/2010/07/do-sovereign-debt-ratios-matter/)

In conclusion, though the Australian financial sector is unlikely to suffer the same catastrophic collapse as the American system did when its house-price bubble burst, nor is it likely to be immune from an Antipodean house-price collapse.

The roving cavaliers of credit

Why does the banking sector fund bubbles in the first place, when they must inevitably pop? The answer is in one sense very simple: banks make money by creating debt, and for that they need customers who are willing to borrow money.

Banks make money by creating debt

Unfortunately for banks, both investment and consumption have built-in limits. Though Prodigal Sons exist, most consumers limit their debt-financed borrowing to levels that are easily serviced out of income; and though investors with unrealistic expectations also abound, even their willingness to take on debt to finance genuine investment will be limited by expectations of future sales. To generate potentially unbounded income from debt, bankers must find a way to cut the Gordian knot that links borrowers' willingness to borrow to their incomes.

Demand for asset-based lending enables banks to lend more than income-based lending

The knot is sliced by asset-based lending, because speculation on asset prices breaks the link between indebtedness and income. Borrowers who anticipate rising asset prices are willing to take on more debt that they can service out of their incomes because they believe that they can sell the assets for a profit on a rising market. The seductive lure of unearned income from leveraged speculation is the base on which every speculative bubble is built, and the inevitability that debt will expand faster than income is the prick that ultimately must burst the bubble.

There are no built-in market limits to the amount of debt that banks can create

Economic theory falsely fantasised that there were inbuilt limits to the amount of debt that banks would issue, with the fantasies ranging from the delusional Capital Assets Pricing Model through to the mundane "money multiplier" model of credit money creation. The former was disowned because of its abject empirical failure by two of its main champions (Fama and French 2004),[16] though it is still taught by academic economists. The latter is still believed by academic economists, regulators and market participants, even though it was found to be empirically false decades ago (Moore 1979; Kydland and Prescott 1990), and the pre-requisite for it - a Central Bank that enforces a "Reserve Requirement" on banks - no longer exists in at least six OECD countries, including Australia.

The money multiplier theory of credit creation is empirically false

There is now ample evidence that bank lending is not constrained by Reserve Requirements even in countries where they still exist (Moore 1979; Kydland and Prescott 1990). Instead, 'In the real world banks extend credit, creating deposits in the process, and look for the reserves later' (see O'Brien 2007, p. 11 for a list of countries that still apply a reserve requirement). What this means is that, as Disyatat put it succinctly, 'loans drive deposits rather than the other way around' (Holmes 1969, p. 73; Moore 1979, p. 539). In the real world, lenders issue loans and simultaneously create deposits at the same time, in a manner that is largely unconstrained by the formal apparatus managed by Central Banks. The level of credit money creation, and hence of debt creation, is a decision left in the hands of the banks - and so long as they can find willing customers for debt, banks have an implicit bias towards issuing as much debt as they can.

[16] 'The attraction of the CAPM is that it offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk. Unfortunately, the empirical record of the model is poor - poor enough to invalidate the way it is used in applications.' (Fama & French 2004, p. 25)

Money and credit creation can easily be modelled by considering financial flows

The process of credit money and debt creation - and the enticement banks feel to issue more debt - can easily be understood by considering a stylised bank that lends from its reserves to finance the business activities of firms, and endogenously creates new money by the operation of extending a new loan (operations 12 and 13 in the following list).[17] The financial operations in this stylised banking system are:

1. The bank lends to firms from its existing reserves;
2. The bank records the loans on its debt ledger;
3. The bank charges interest on the loans;
4. The firms pay the bank interest on the loans;
5. The bank records the payment of interest on loans
6. The bank pays firms interest on their deposits;
7. The firms pay wages to households;
8. The bank pays households interest on their deposits;
9. The bank and households pay firms in return for goods;
10. The firms repay their loans;
11. The bank records the repayment of loans;
12. The bank creates new money by crediting the firms deposit accounts; and
13. The bank records the creation of new credit money as an increase in the debt levels of the firms.

Figure 108

The process of credit money and debt creation

Row	Operation\account	Bank reserve account	Bank transaction account	Firms loan account	Firms deposit account	Household deposit account
1	Lend from reserves	-A			A	
2	Record loan			A		
3	Charge interest on loans			B		
4	Pay interest on loan		B		-B	
5	Record payment of interest			-B		
6	Pay interest on deposit		-C		C	
7	Pay wages				-D	D
8	Pay interest on deposit		-E			E
9	Consume		-F		F+G	-G
10	Repay loan	H			-H	
11	Record repayment			-H		
12	Create new money				I	
13	Record new debt			I		

Source: econonodata.presentselect.com

The processes are recorded in Figure 108, with the non-bolded rows representing actual transfers of money or its creation, and the bolded rows representing ledger entries that do not involve monetary transfers (or creation), but rather operations that affect the outstanding level of debt.

[17] This model is not intended to model actual institutional or regulatory arrangements today, partly to simplify exposition and partly because, on the evidence, these arrangements have little impact on bank behaviour in any case.

A pure private credit economy is not inherently unstable

This describes a self-sustaining financial system that could grow stably over time if its key parameters - the rate at which the bank lends from reserves, the rate at which firms repay loans, and the rate at which new money is created - remained constant. There is no innate reason why it should break down.

Breakdown arises from the banking sector's desire to grow its income by increasing debt

However, if the bank can manage to alter those three parameters - increasing the rate at which it lends from reserves, reducing the rate at which firms repay debt, and increasing the rate at which new money is created - then the bank's income rises. Figure 109 shows the impact on the bank's net income if these three parameters are doubled, halved and doubled respectively (by far the most important variable is doubling the rate of creation of new money).

This temptation to make more money by increasing the level of indebtedness of society is the primary reason why the financial sector cannot be trusted to self-regulate. But equally, this is why attempts to control this tendency via regulation are ultimately futile: the incentives to circumvent the regulations are just too compelling, and over time bankers will find ways to get around them.

Market economies therefore tend to go through finance-driven boom and bust cycles

As a result, market economies with sophisticated financial systems and secondary asset markets tend to go from a boom - like the Roaring Twenties - to a bust - like the Great Depression - to a period of highly regulated conservatism, which is gradually eroded over time by the very stability that it causes, leading to another boom, another crisis, and so on ad infinitum.

The boom and bust process can be modelled

Using Minsky's Financial Instability Hypothesis as a guide, I have modelled the process from boom to bust with an extended version of this model in which the rates of lending, debt repayment and so on vary with the rate of profit (Keen 2010).[18] The model generates the same process of apparent stability followed by a sudden breakdown (Figure 112) that we have seen in the actual economy (though it exaggerates the scale of the downturn since the model doesn't yet include the impact of bankruptcy or government rescues).

A period of tranquillity in a market economy is normally just the calm before the storm

As I commented in a earlier paper on a simpler model, '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 tranquillity in a capitalist economy as anything other than a lull before the storm' (Keen 1995, p. 634).

[18] See http://www.debtdeflation.com/blogs/2010/07/03/are-we-it-yet/.

Figure 109

Bank accounts in a hypothetical pure credit economy

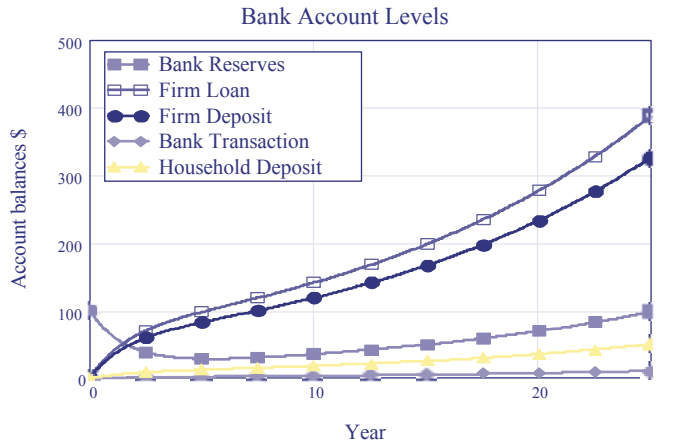


Figure 110

Bank income as function of lending and debt repayment

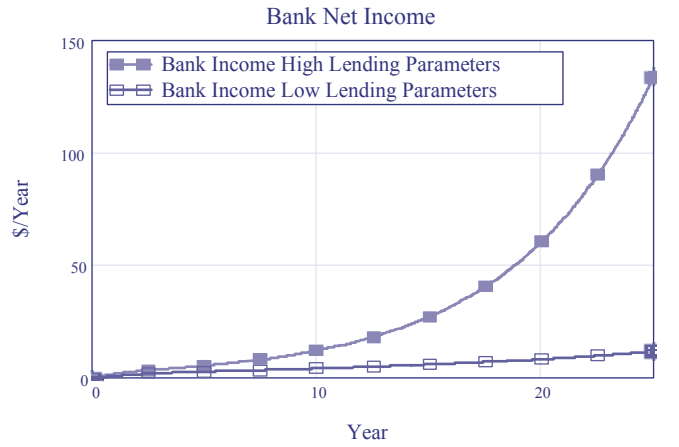


Figure 111

Stability gives way to breakdown in mid-2008 in USA

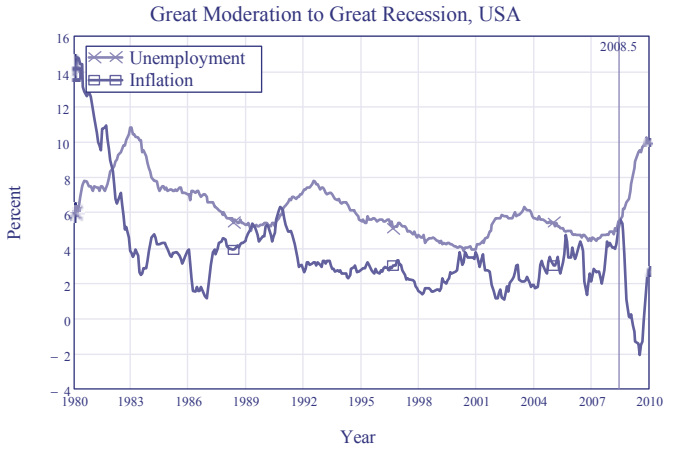


Figure 112

Apparent stability gives way to breakdown in the model

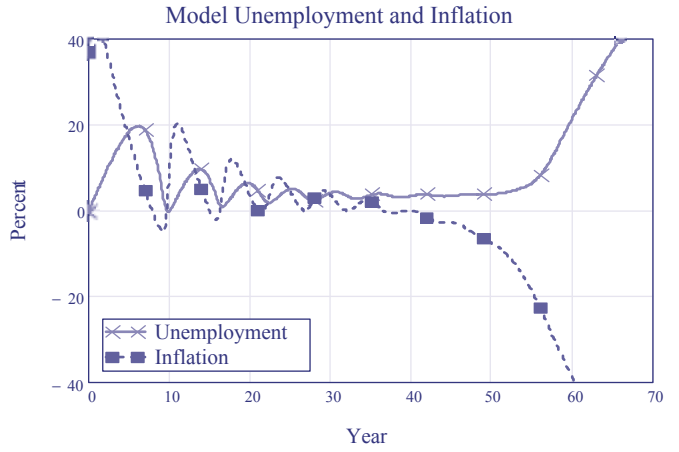


Figure 113

Debt-to-GDP and inflation in the USA, 1920-2010

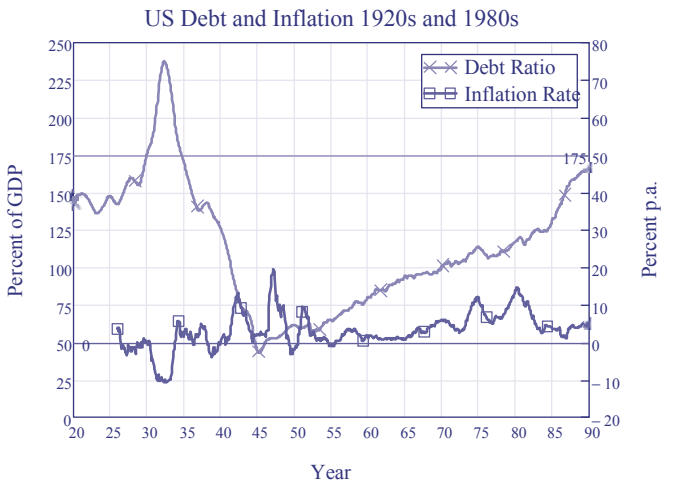
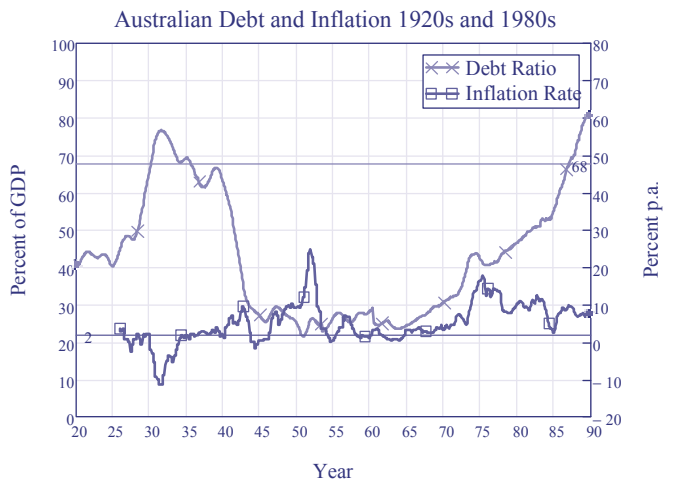


Figure 114

Debt-to-GDP and inflation in Australia, 1920-2010



Source: econonodata.presentselect.com

Neither self-regulation nor government regulation works in constraining bank lending

The great tragedy of this most recent crisis is that, far from seeing the economy as unstable, economic theory convinced regulators that it was inherently stable, that finance was self-regulating, and a host of other abject untruths that they nonetheless put into practice. The fact that these theories were false meant that, rather than exhibiting stability, the system became progressively more unstable - but the regulators had a vested interest in ensuring that this instability did not become terminal on their watch.

The problem began in 1987 with Greenspan's rescue after the Stock Market Crash

The regulators therefore combined naivety about the inherent instability of finance with a desire to rescue the financial system from each of its follies - and thus the age of bailouts was born, starting with the first Big One at the time of the Stock Market Crash of 1987.

Had that rescue not happened, a mild Depression would probably have occurred

Had Greenspan let the financial system suffer the full consequences of its self-inflicted crash at that time, we would probably have experienced a mild Depression at the time: mild because inflation was higher at that time than it had been in 1930, so that deflation would not have taken hold, and government sector was also much larger, so that the change in its fiscal balance would have cushioned the macroeconomic impact of private sector deleveraging at the time. Some now "Too Big To Fail" institutions may have failed at this time when they were not "Too Big To Fail" (though the record of the 1930s, when none of the major merchant banks failed, implies that they could have survived intact, if diminished in size).

The same situation applied across much of the OECD - including Australia. The fact that central banks reacted in the same way to the crisis meant that the finance sector's inherent desire to extend debt was saved from its normal fate of causing a serious financial crisis that would both significantly debt levels and - for a while - return the finance sector to prudent behaviour. Instead, speculative excess was rewarded around the planet.

An unavoidable crisis ensued when the finance sector ran out of potential markets for new debt

Having reached the business sector's borrowing capacity during the speculative bubble of the 1980s, the finance sector moved on to an as-yet relatively unexploited avenue for borrowing: the household sector. After numerous financial fiascos - the DotCom boom and bust, Long-Term Capital Management, the Asian Crisis, the Russian Crisis, and so on - we finally arrived at the Subprime Bubble. Once it burst, every avenue for new debt had finally been exhausted.

No US post-WW2 recovery has occurred without rising levels of private debt to GDP

Deleveraging could no longer be avoided - though the Australian government has postponed the experience for two years - and the global economy slipped into what is rightly regarded as the worst economic crisis since the Great Depression. Though the scale of the government response to this was enormous, ultimately it is becoming apparent that it will not enable a return to "growth as usual".

No Australian recovery has occurred without rising levels of private debt to GDP since the mid-1960s

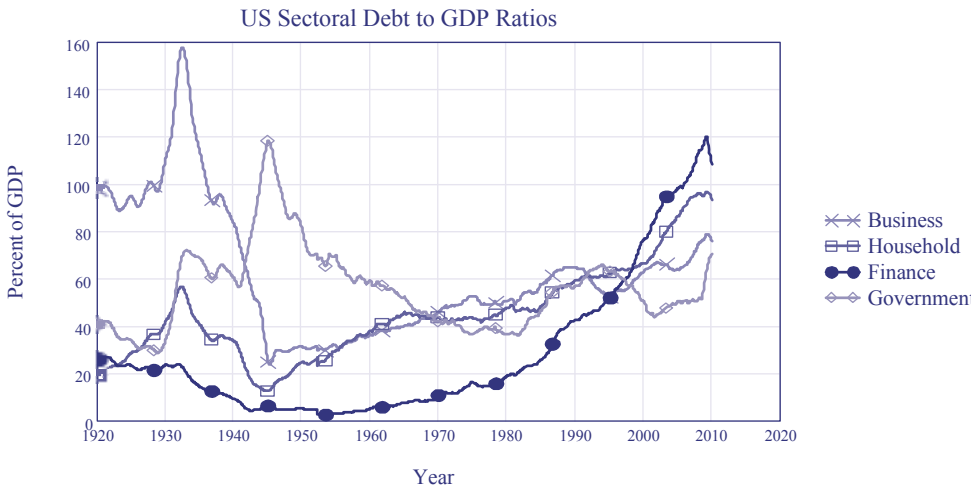
The reason for this is simple: growth as usual, especially in two decades since the Stock Market Crash of 1987, has been based upon expanding private debt financing a series of inevitably failed speculations. There has not been a post-World War 2 recovery for America that did not involve a rising level of private debt to GDP, and the same is true of Australia since the mid-1960s.

With releveraging now impossible, the choices are either long-term stagnation or a shorter-term Depression

With all sectors of society (save the government itself) carrying levels of debt near or far above historical norms, a releveraging recovery is impossible. The only choices therefore are either "Turning Japanese" - a period of prolonged stagnation as government deficit spending weakly counteracts the impact of private sector deleveraging - or a deleveraging-driven Depression.

Figure 115

Sectoral debt to GDP ratios in the USA



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House prices are merely collateral damage in this process

House prices in Australia and elsewhere are merely collateral damage in this process. In essence, asset prices reflect the capitalised value of accumulated debt, but are dependent on rising levels of debt to be sustained. When debt stops rising then asset prices start to fall, and the liquidation process normally means that, as with the post-Great Depression experience, prices undershoot the mean: a simple reversion to the mean would be an optimistic outcome.

Leaving the Hotel California

The finance sector's tendency to cause crises can be tamed

The fact that regulation will ultimately fail to constrain the financial sector's tendency to pump out too much debt does not mean that "resistance is futile". It means instead that we have to tackle the problem from another perspective.

Debt of itself is not bad

In itself, debt is not necessarily bad. Debt can be a sensible way to provide the finance needed for a new venture, be it the invention of a new product, or the opening up of a new market, or the development of a cheaper way to produce an existing product. Even debt to bring forward the consumption of a consumer product is not necessarily bad, so long as the debt is easily repaid by the income of the borrower.

Debt is dangerous when it is used to finance speculation rather than investment or limited consumption

The problem arises when debt is unrelated to either increasing the economy's productivity, or enabling the earlier purchase of some consumer item than income alone would allow. The dangerous use of debt occurs when it is used to neither invest nor consume, but to gamble on the prices of financial assets on secondary markets.

Asset-based lending lets the banking sector break the nexus between debt and income

Then the banking sector can succeed in breaking the nexus between debt and income, since potential borrowers can envisage profiting from leveraged speculation on asset prices to such a degree that their borrowing becomes based not on their incomes, but on their expectations of capital gain. At a systemic level, the initial success of this process is due to a positive feedback process between the level of debt and asset prices, a process that ultimately leads to the crisis we now find ourselves in.

The way out

The way out of the Hotel California is therefore to redefine asset markets in such a way that leveraged speculation on asset prices is no longer easily perceived as profitable.

Limit the life of shares on the secondary market and base property leverage on the property's income, not just the borrower's

I propose two reforms:

1. To redefine shares so that they last indefinitely if purchased from the issuing company, but have a defined term (say 30 years) once they are sold by the initial purchaser;
2. To limit the debt that can be secured against a property to ten times the annual rental income of that property.

Shares could still be bought and sold, but their terminal value would be zero

The object of the first reform is to remove the attractiveness of borrowing to buy shares on the secondary share market. Any such share would yield dividends and give voting rights for the remainder of its lifetime, and could be bought or sold at a price that would be based on expected discounted future cash flow, but it would have a terminal price of zero.

We need a negative feedback loop between house prices and leverage

The object of the second reform is to establish a negative feedback loop between leverage and property values. Buyers competing over the same property would no longer be distinguished by the amount of money they had borrowed, since the borrowing ceiling would be the same for everyone, but by the amount of primary cash they were willing to devote to buying a property. A rise in the price of a property due to competitive bidding would then result in a fall in the loan-to-valuation ratio, rather than a rise.

In near term, more likely to introduce cumbersome regulations and institutions rather than undertake simple but profound reforms

In the circumstances of today, these are at once simple and extreme reforms. We are far more likely to see proposals for new regulatory regimes, and new regulatory bodies, than anything as simple but as fundamental as these two steps. Our forebears in the 1930s made the same mistake, so that seventy years later we could confidently abolish their regulations - like Glass-Steagall - because the stability those regulations engendered fooled us into believing that the system was inherently stable.

If we join Japan in the Lost Decade, real reform may one day be possible

I hope that the intractability of the financial dilemma in which we find ourselves will mean that significant reforms that stop asset bubbles forming in the first place are ultimately enacted.

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