

Steve Keen's DebtWatch No 25 August 2008

How much worse can "It" get?

Last month closed with some far from comforting news about the state of the US housing market (sales and prices still falling), US financial institutions (Fannie Mae and Freddie Mac in need of rescue), Australian banks (NAB's 90% write-down of its US CDO portfolio). Then ABS figures showed that retail sales had fallen "unexpectedly" by one percent in June. The recent rally in stock markets came to a sudden end, and after a brief period of renewed confidence, the question "how much worse can "It" get?" is once again doing the rounds.

My answer is: a lot worse. The empirical grounds for this assessment are:

- The ratio of asset prices to consumer prices--or the inflation-adjusted asset price index;
- The ratio of private debt to GDP; and
- Japan

In short, global asset markets have a lot further to fall, and a serious recession--the worst we have experienced since the Great Depression--is inevitable. Let's first look at what the recent drop in retail sales implies for the economy.

An "unexpected" fall in retail sales

Retail sales fell sharply in June, taking most economic commentators by surprise. Even perennial optimists, such as Shane Oliver, were forced to consider that the odds of a recession were "at least 40 percent".

In reality, the fall in retail sales was inevitable. Spending in Australia has been driven by the biggest debt bubble in our history, and when that bubble peaked, spending had to fall. Since households had taken on a far larger share of debt than business during this bubble, the impact was bound to be seen first in retail sales, rather than investment spending, as I pointed out in November 2006:

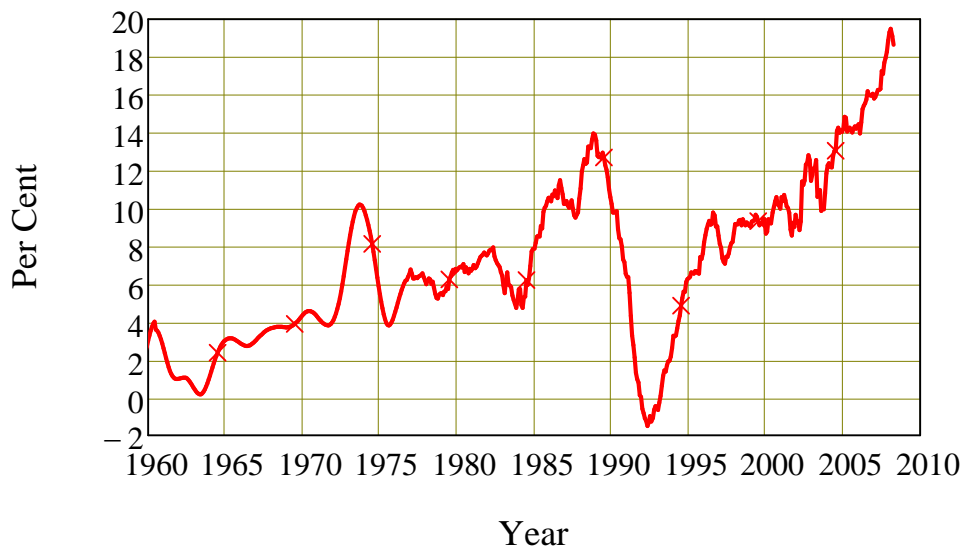
"If households reduce their debt levels smoothly, they will have less disposable income to spend and retail sales will slump. If bankruptcies become widespread, the sales downturn will be overlaid with a financial crisis." (Debtwatch, November 2006, p. 18; see <http://www.debtdeflation.com/blogs/pre-blog-debtwatch-reports/>)

The suddenness of the turnaround is also no surprise, when you look at the data from a financial point of view. Just as your personal spending each year is the sum of your net income plus the **change** in your debt, aggregate spending for the economy is the sum of GDP plus the **change** in debt. As debt rises, the contribution made to spending by any change in debt also rises. Private debt--and household debt in particular--has risen so much in Australia that, at its peak, the change in debt was responsible for almost 20 percent of aggregate demand.



Figure 1

Contribution of Change in Debt to Demand



As is obvious in Figure 1, debt's contribution peaked at the end of 2007, and it has been falling ever since. The monthly figures make this even more obvious (Figure 1 records change in debt over a whole year). The monthly increase in total private debt peaked at \$30 billion in mid-2007, and trended up to \$27 billion by the end of 2007. It has since fallen to a mere \$5 billion in the month of June (see Table 1 and Figure 2).

At some point, it will turn negative, and change in debt will therefore subtract from aggregate demand rather than adding to it. Given that at its peak, debt financed almost 20 percent of demand, even stabilising debt at its current level--\$1.85 trillion, compared to a GDP of \$1.1 trillion--would result in a 20 percent fall in aggregate demand.

Table 1

	0	1	2
0	"Date"	"Monthly change in debt"	"Annual change in debt"
1	2007	14374	188242
2	2007.08	18013	190659
3	2007.17	20068	194781
4	2007.25	19228	198617
5	2007.33	19104	200135
6	2007.42	18436	202299
7	2007.5	30523	217820
8	2007.58	17534	217053
$T_1 =$ 9	2007.67	24777	227675
10	2007.75	19759	233180
11	2007.83	21271	239694
12	2007.92	27702	250789
13	2008	23468	259883
14	2008.08	22489	264359
15	2008.17	15075	259366
16	2008.25	12045	252102

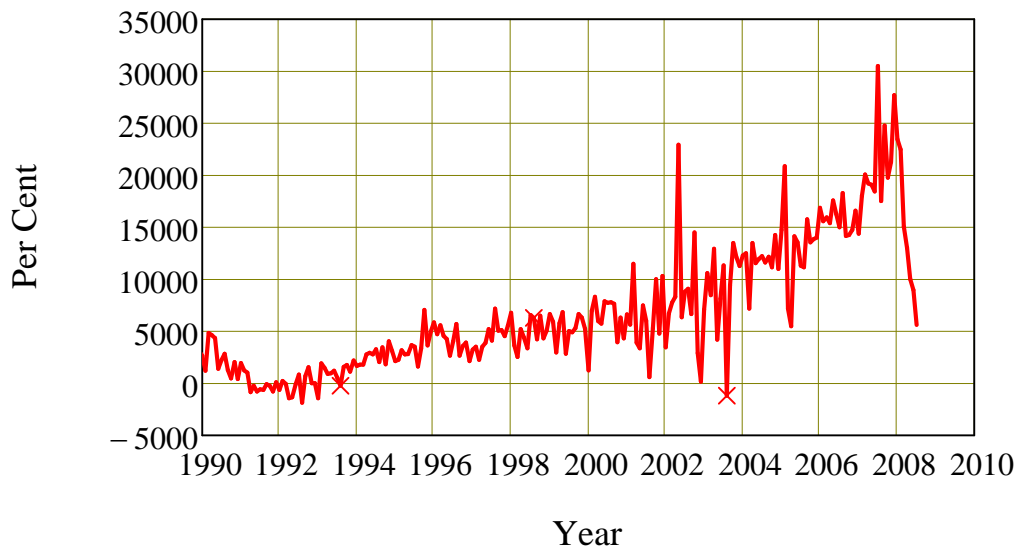
10	2006.23	13043	233103
17	2008.33	10004	244083
18	2008.42	8975	234622
19	2008.5	5617	209716

This hit will be felt by both asset and commodity markets: asset prices will fall, as will output and employment. The government's attempts to counter this--by running a deficit rather than a surplus--will initially be swamped by the sheer scale of the turnaround in debt-financed spending. Even if the government runs a deficit of A\$20 billion--the same scale as this year's intended surplus--it will make up for less than a tenth of the fall in debt-financed spending.



Figure 2

Monthly Change in Debt



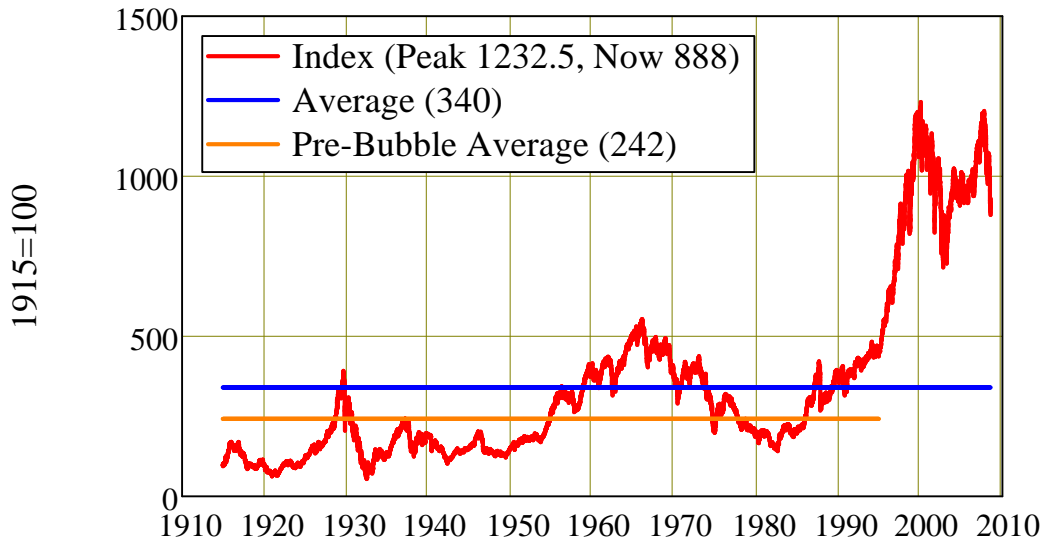
The current "credit crunch" is, therefore, only the first act in a long-drawn out process of reducing debt levels. The second act will be "the recession we can't avoid". That recession--which will affect most of the OECD, since all major OECD nations bar France have suffered a similar blowout in private debt levels--will only add to the current decline in asset prices.

The USA: Double Bubble

While the Dow has fallen substantially in the last year, its inflation-adjusted value is still **three times** its long-term average, and more than 4 times its average prior to the start of this bubble. Even if the index falls merely to its long term average, it still has another 62% to go (in real terms) from its current level. If it reverts to its pre-bubble average, it has another 73% to go.

Figure 3

CPI Adjusted Dow Jones Index

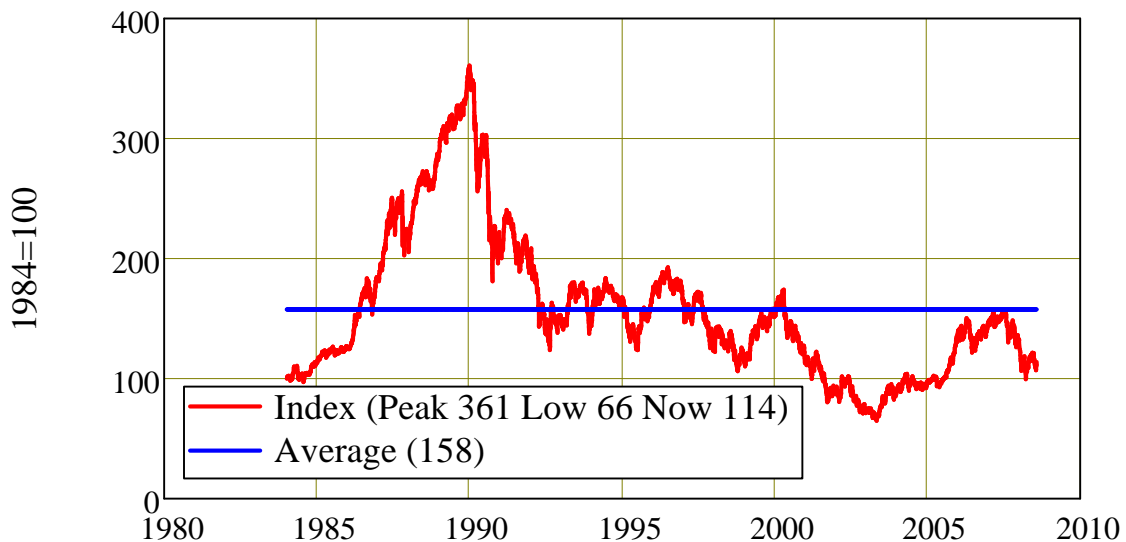


If those figures seem ludicrously pessimistic and unrealistic to you, take a look below at the CPI-adjusted Nikkei--which fell **82%** from its peak at the end of 1989 to its low in 2003. At the time, most commentators blamed Japan's Bubble Economy and subsequent financial crisis on the opaque and anti-competitive nature of its financial system. We were assured that nothing so ridiculous could happen in the transparent, competitive and well-regulated US financial system.

Yeah, right.

Figure 4

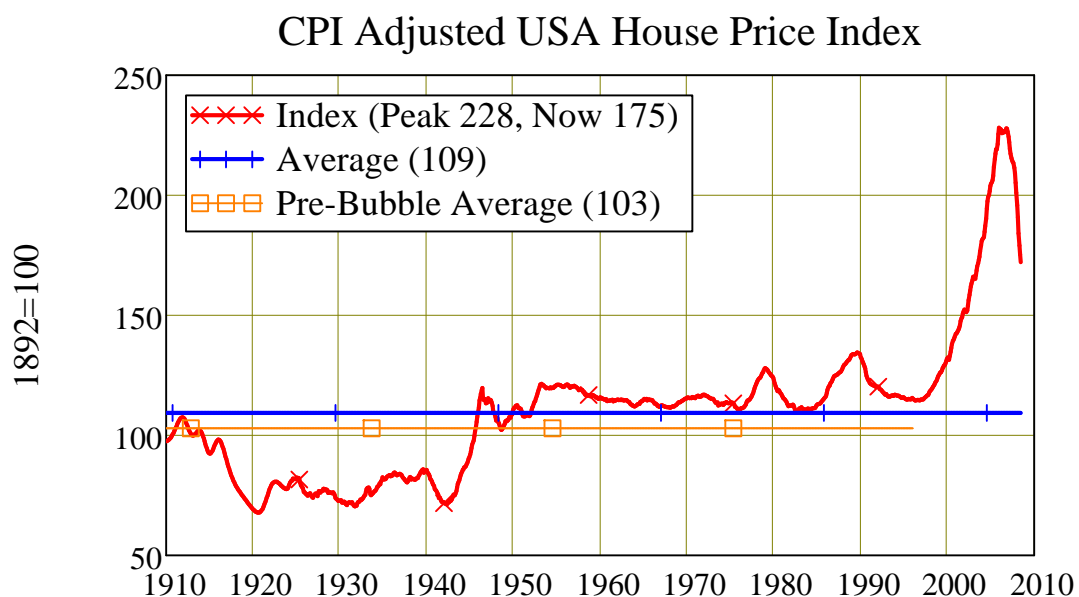
CPI-Adjusted Nikkei



The story for the US housing market is little better. The index has already fallen 23% from its peak in 2006. A reversion to the long term mean implies a further 38% fall in the average house price in America; while reversion to the pre-Bubble mean implies a further 41% fall.

Writedowns by US financial institutions certainly haven't yet factored in that degree of possible fall in housing values, and as Wilson Sy, the chief economist at APRA, pointed out recently in two brilliant research papers (see <http://www.apra.gov.au/RePEc/Home.cfm?ArrayProcessed=True&FileItemID=wp2008-03&SeriesName=Working%20Papers> and <http://www.apra.gov.au/RePEc/Home.cfm?ArrayProcessed=True&FileItemID=wp2007-01&SeriesName=Working%20Papers>), the banks' "stress test" modelling greatly underemphasises the impact of such asset price falls on their financial viability. House price falls in the USA are far from over, and likewise "unexpected" writedowns by US financial institutions.

Figure 5



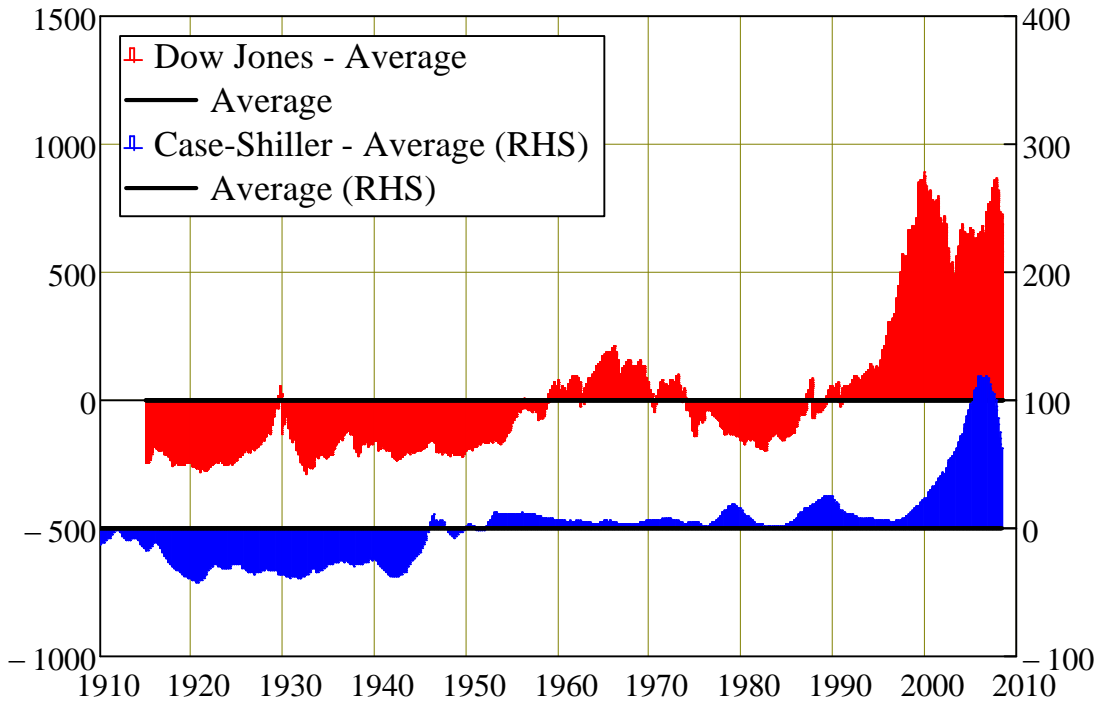
Overall, if US markets fall back to their pre-Bubble levels, the stock market will plunge about 80% from its peak (much the same degree of fall as applied in Japan) and the housing market will fall 55% (rather more than happened in Japan, where average house prices fell 44%--but less than Tokyo, where they fell 75%).

The unique feature of this US asset bubble is that it affects both stocks and houses. There have been three Stock Market Bubbles in the USA in the last century: the "usual suspects" of the 1920s and 1980's, but also one that doesn't normally rate a mention: a '60s Bubble that peaked in 1966, and was followed by a slump that only ended in mid-1982 (see Figure 6).

As Figure 6 indicates, this dual bubble has no precedent. Not only is it a bubble in both asset markets, both bubbles dwarf anything previously experienced. Even the great Roaring Twenties stock market bubble barely pokes its head above the long term average, compared to the 2000s Stock Market bubble--and in the 1920s, as Figure 6 shows, the housing market was relatively undervalued. The overvaluation of today's housing market far exceeds the now comparatively minor bubble when Keating (Charles, not Paul) was on the loose in the USA.

Figure 6

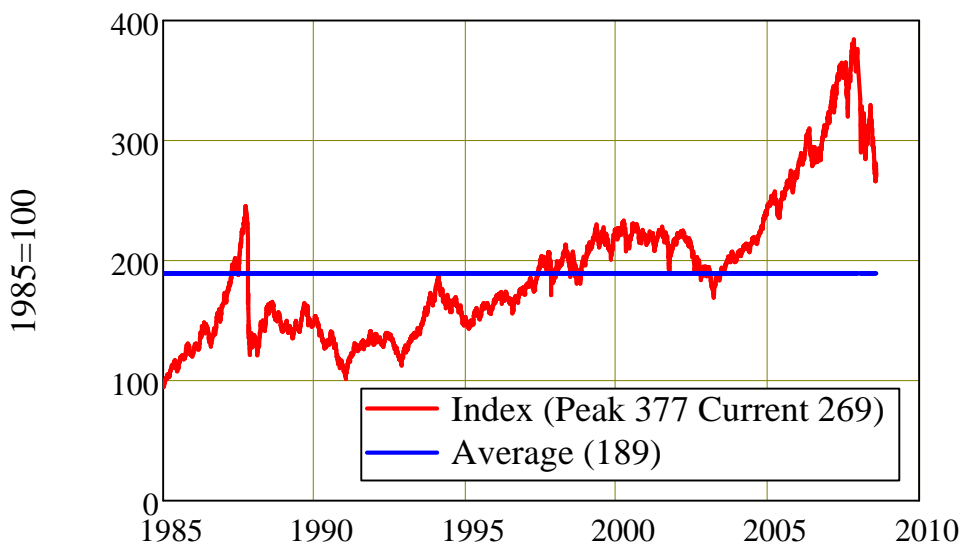
CPI-Adjusted US Asset Market Indices



While the Australian Stock Market is not as severely overvalued as the American, it is still substantially over its long term trend. Even after the recent falls, the inflation-adjusted All Ordinaries Index exceeds its level **before** Black Tuesday in 1987. It has another 30% to go before it will have reverted to the mean of the last 25 years (see Figure 7).

Figure 7

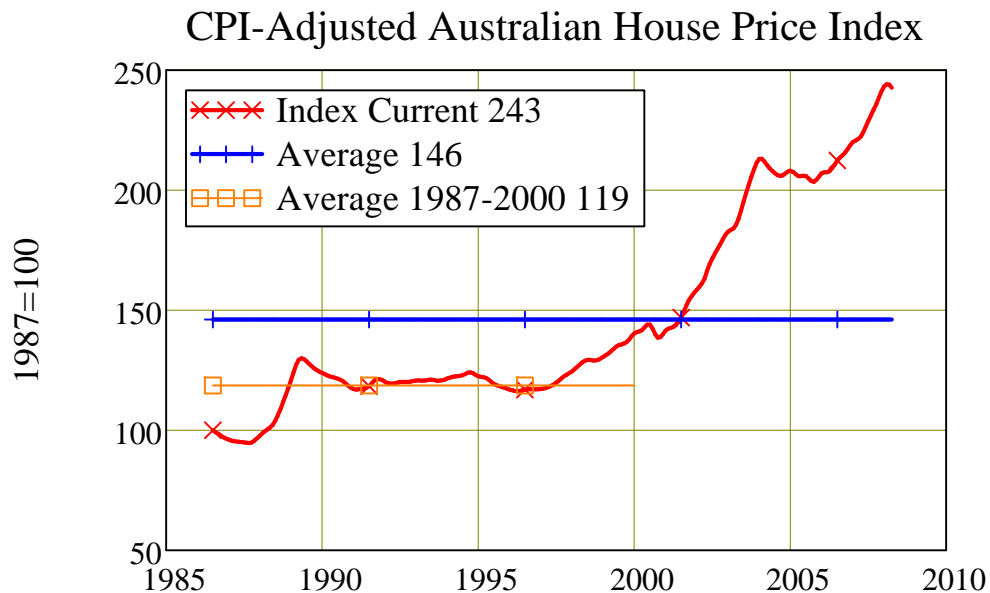
CPI-Adjusted All Ordinaries



The prognosis for the Australian housing market is substantially worse. Even on short term data--covering only the last 22 years--the market could fall 40% if it reverted to the mean, and 50% if

it reverted to the pre-bubble mean. Nigel Stapledon's research into long term house prices in Australia--which is not shown here--implies an even greater potential for a fall in house prices.

Figure 8



Of course, such talk can seem nonsensical and alarmist. Especially if you ignore what happened in Japan.

Japan: the world's most recent debt-deflation

Japan clearly underwent a debt-deflation after its "Bubble Economy" spectacularly burst in 1990. In its aftermath, house prices across Japan fell on average by 42%, and by over 70% in Tokyo (though they have since recovered slightly). What has happened there can happen in Australia, the USA, and the rest of the OECD--especially since our Bubbles, while smaller than the Tokyo bubble, are larger than that for Japan as a whole (see Figure 11).

Figure 9

Japan House Price Indices

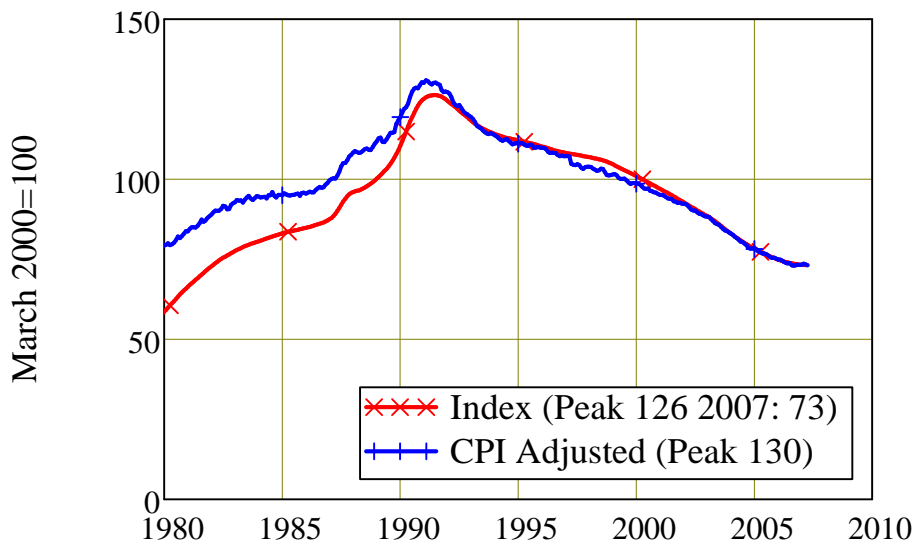


Figure 10

Tokyo House Price Indices

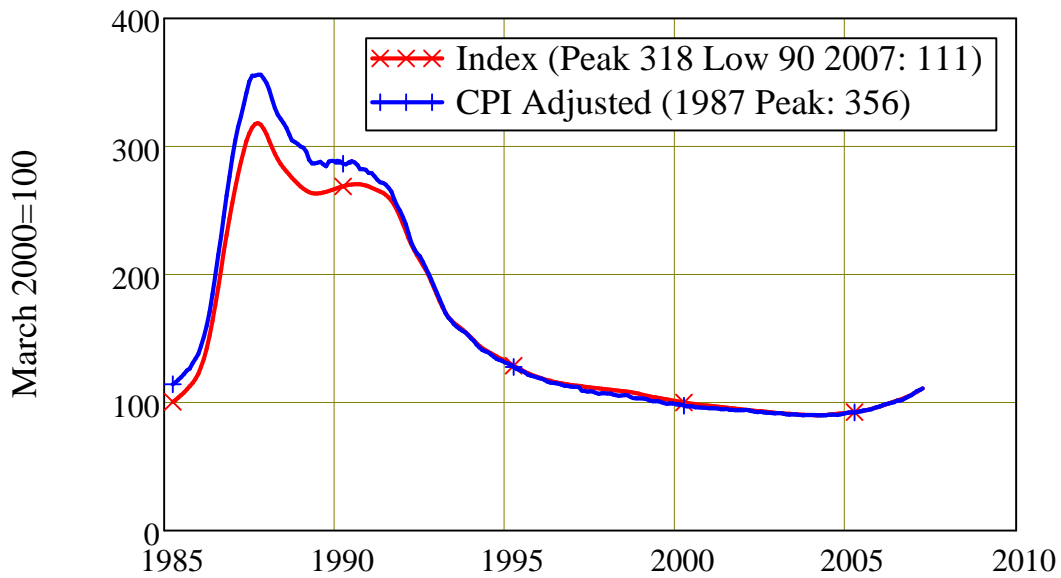
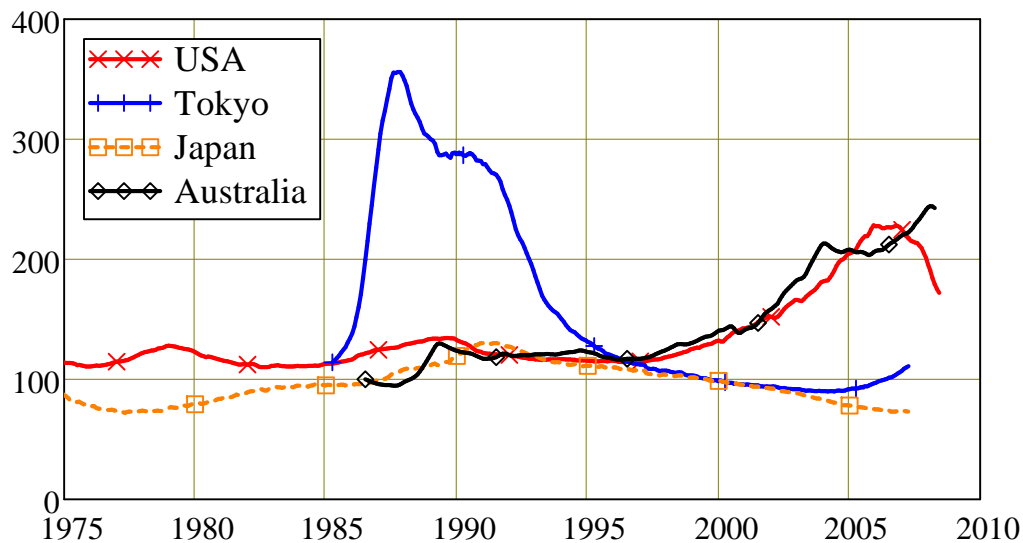


Figure 11

Comparing Housing Bubbles



The killer behind the Bubble: Debt

The level of overvaluation of asset markets reflects the unprecedented scale of private debt, both here and in America--since the vast bulk of that debt was undertaken to finance "Ponzi" speculation on shares and housing. This is the reason that this recession will be so severe--as will the asset market bust.

Every "recovery" from a debt-induced recession since 1970 has involved resumption in the tendency for debt to grow faster than GDP (see Figure 12, where the once seemingly major debt crisis of the late 80s is now just a pimple on the upward trend of the debt ratio to its current unprecedented level).

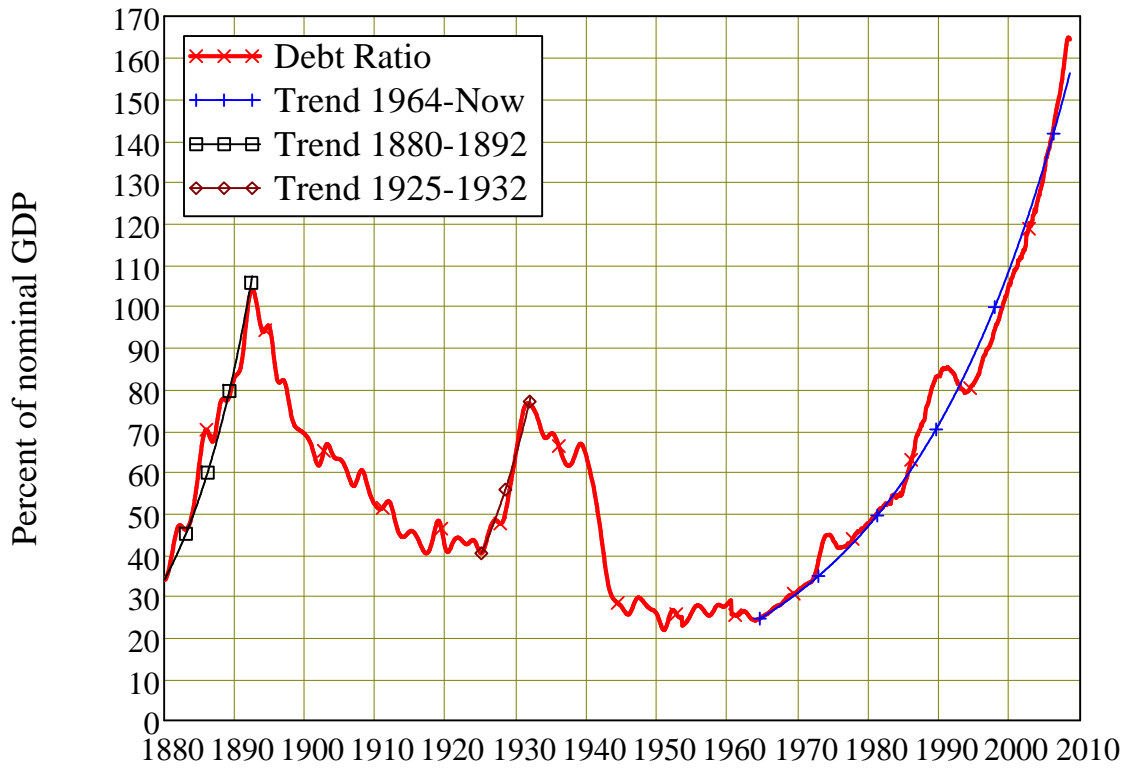
Yet today the debt to GDP ratio is more than twice that of the Great Depression. It is simply cannot go any higher. Who else, after all, can banks lend to, now that they have exhausted the "subprime" market?

The only way for the debt to GDP ratio now is down (unless we're unlucky enough to experience deflation, in which case the ratio will rise further, as in the Great Depression), and as it heads down, so will output and employment. A serious recession is inevitable.

Welcome to "the recession we can't avoid".

Figure 12

Debt to GDP: The Long Term View



END OF COMMENTARY

Chart One

The Debt Bubble

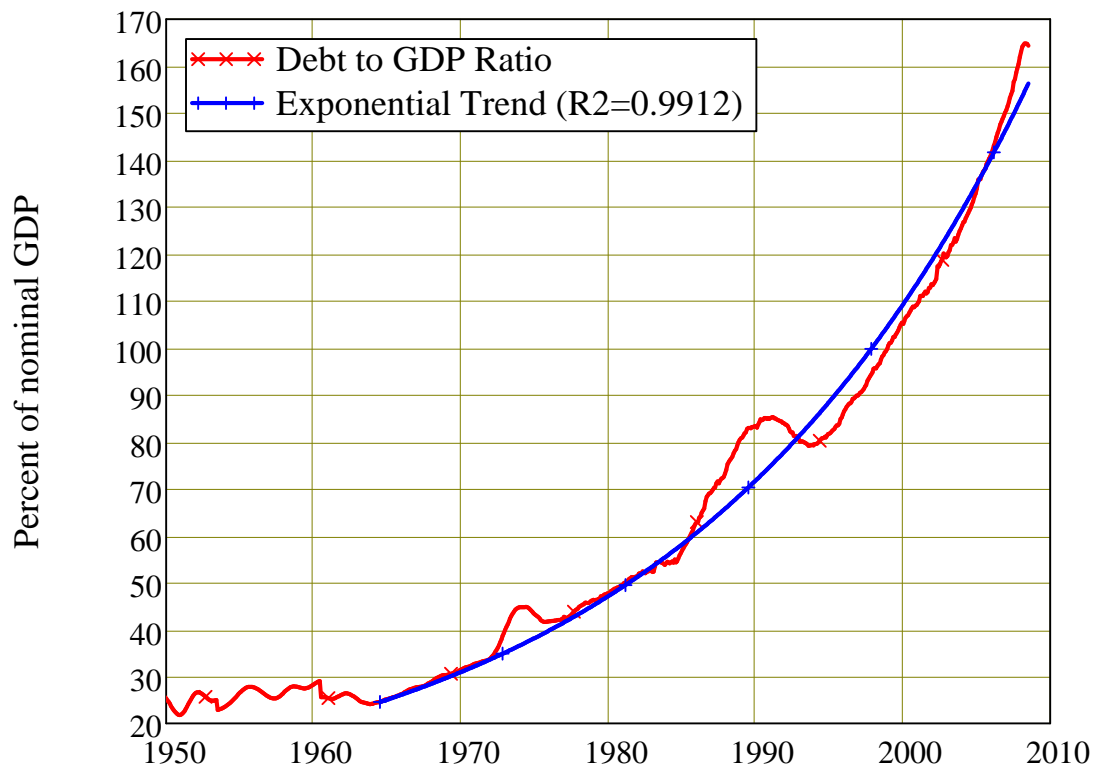


Chart Two

Long Term

Debt to GDP: The Long Term View

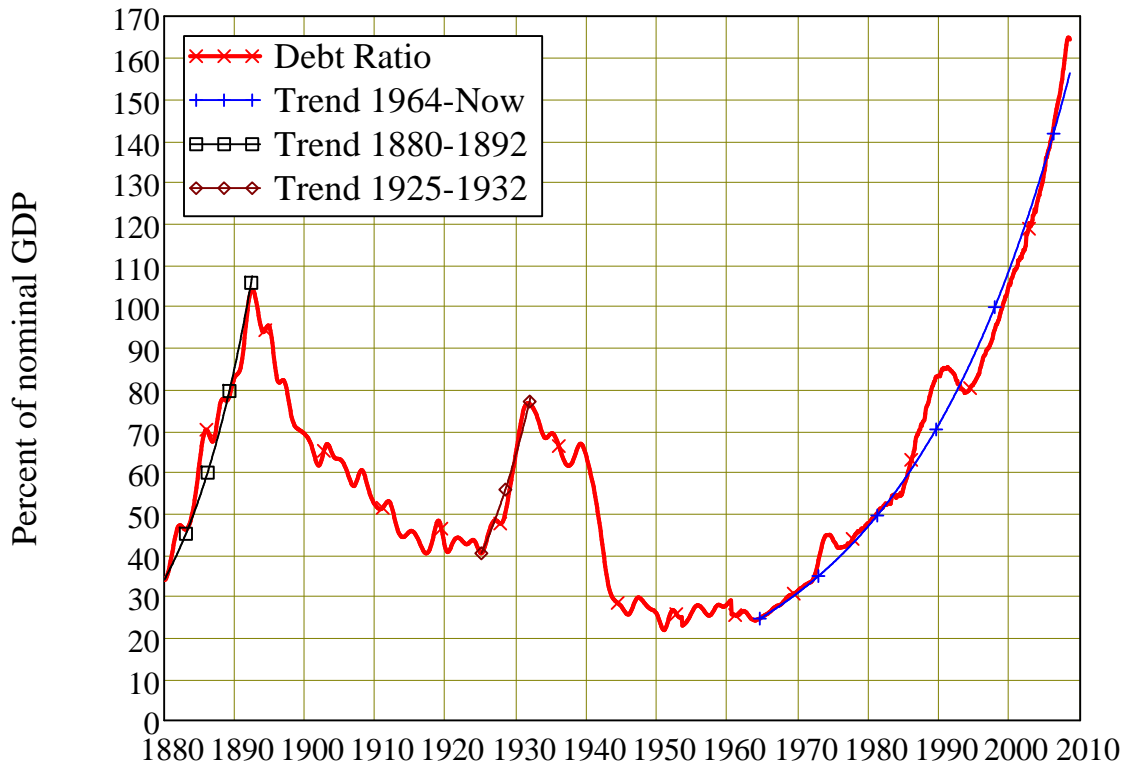


Table One: Aggregated Debt Summary

Table One

	0	1	2
0	"Summary"	"Total Private Debt"	"Nominal GDP"
1	"Date (levels)"	2008.5	2008.25
2	"Levels (\$m)"	1845796	1104983
3	"Change Month \$m"	5617	6218.14
4	"Change Month %"	0.31	0.57
5	"Change Year \$m"	209716	81470
6	"Change Year %"	12.82	7.96
7	"Since 1990"	8.82	5.47
8	"Since 1980"	12.01	7.9
9	"Since 1964"	13.47	9.36
10	"Date (% GDP)"	2008.5	"N/A"
11	"As % of GDP"	164.34	100
12	"Change Month"	-0.23	"N/A"
13	"Change Year"	4.92	"N/A"
14	"Since 1990"	3.06	"N/A"
15	"Since 1980"	4.14	"N/A"
16	"Since 1964"	4.19	"N/A"

Table Two: Disaggregated Debt Summary

Table Two

	0	1	2	3	
0	"Detail"	"Business"	"Mortgage"	"Personal"	
1	"Levels (\$m)"	731877	960636	156511	
2	"Change Mth \$m"	-26	9655.35	1270	
3	"Change Mth %"	-0	1.02	0.82	
4	"Change Yr \$m"	114587	87565.08	7725	
5	"Change Yr %"	18.56	10.03	5.19	
$D_2 =$	6	"Since 1990"	5.34	12.43	5.72
	7	"Since 1980"	10.68	12.5	10.45
	8	"Since 1976"	11.19	13.67	11.21
	9	"As % of GDP"	65.19	58.53	13.94
	10	"Change month"	-0.52	0.04	0.3
	11	"Change year"	10.3	2.88	-2.14
	12	"Since 1990"	-0.55	6.82	-0.21
	13	"Since 1980"	3.03	4.45	2.63
	14	"Since 1976"	3.1	4.44	3

Debt to Income Ratios

▣ Debt to GDP (D02 & G12)

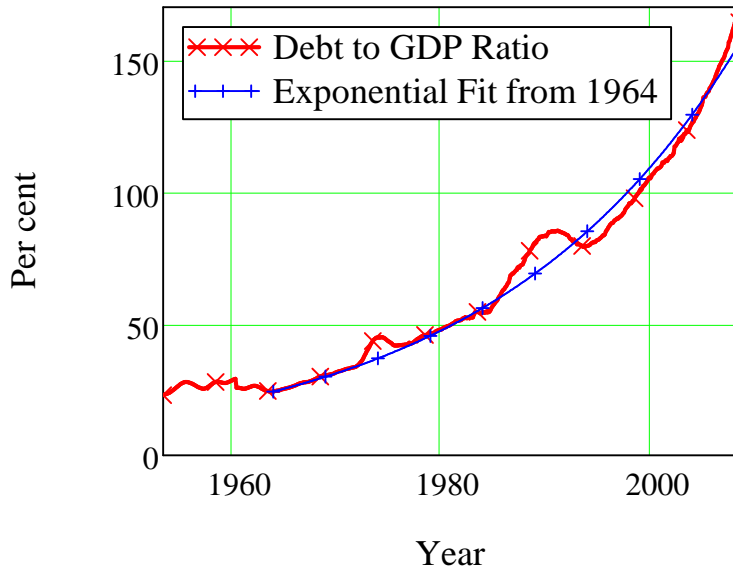
Figure 1



▣ Debt to GDP Regression

Figure 2

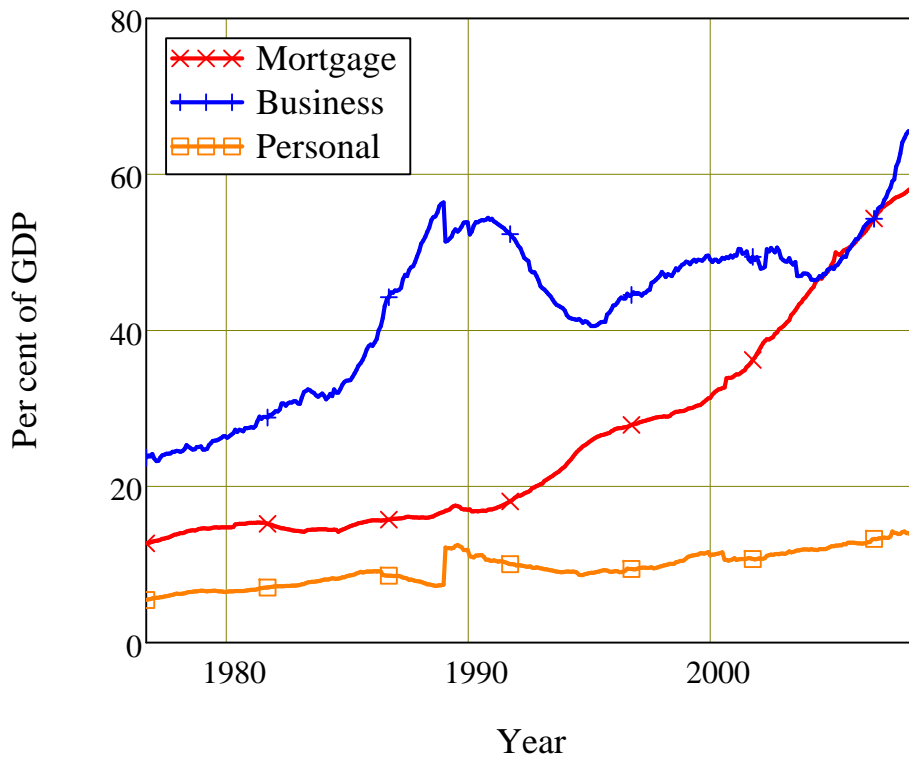
Australian Private Debt to GDP



▢ Debt Components to GDP

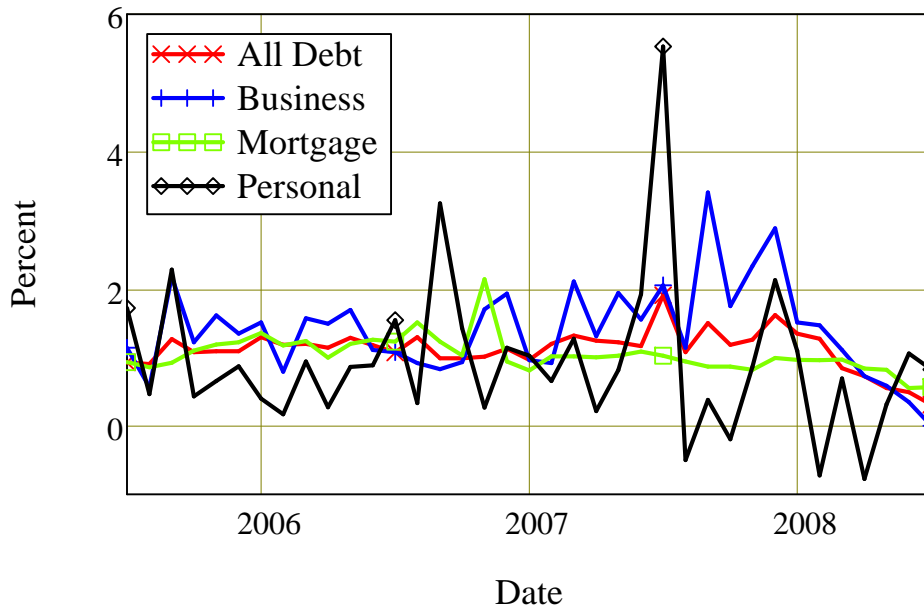
Figure 3

Components of Australian Debt



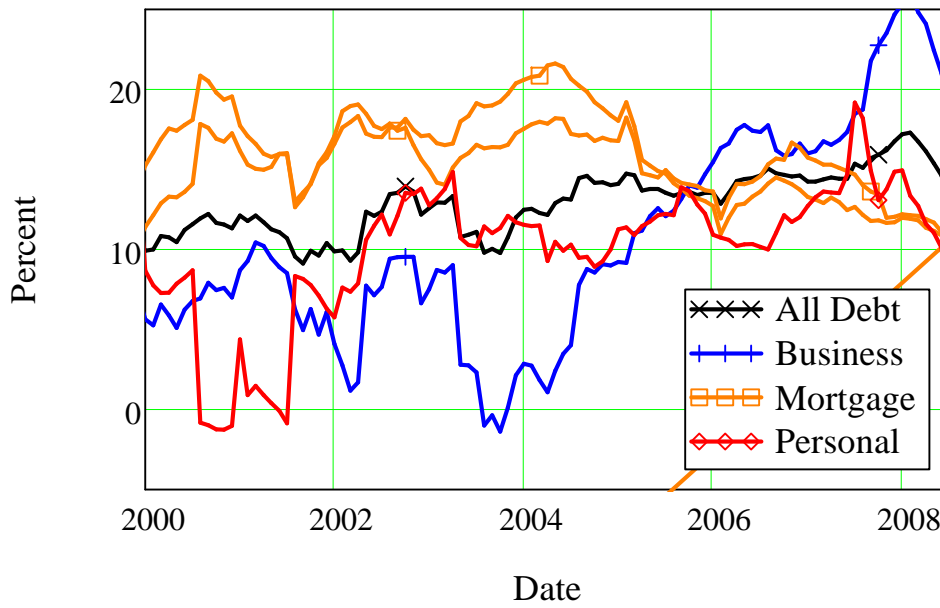
▢ Monthly Growth Rates

Debt Monthly Growth Rates



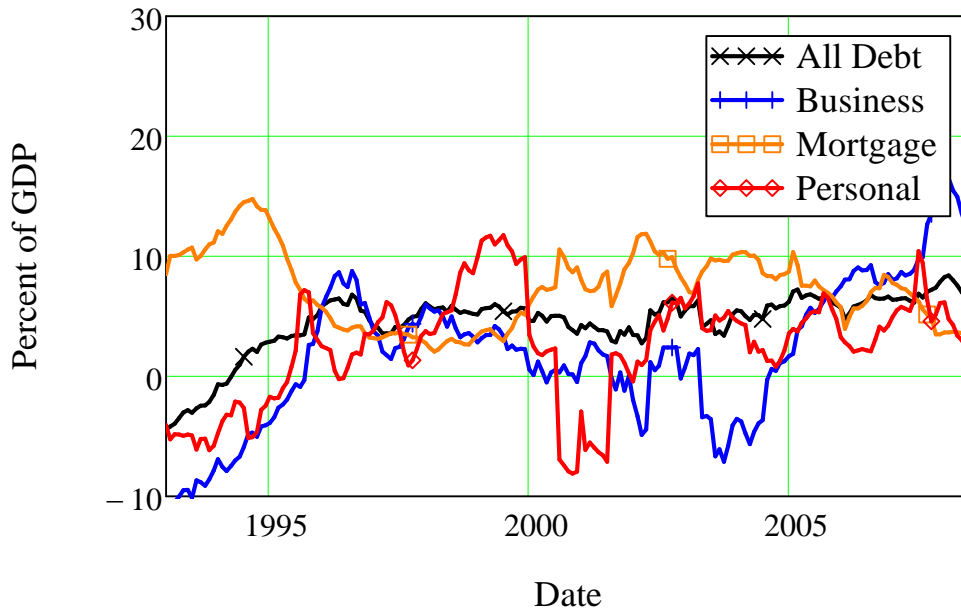
▾ Yearly Growth Rates

Debt Yearly Growth Rates



▾ Ratios Yearly Growth Rates

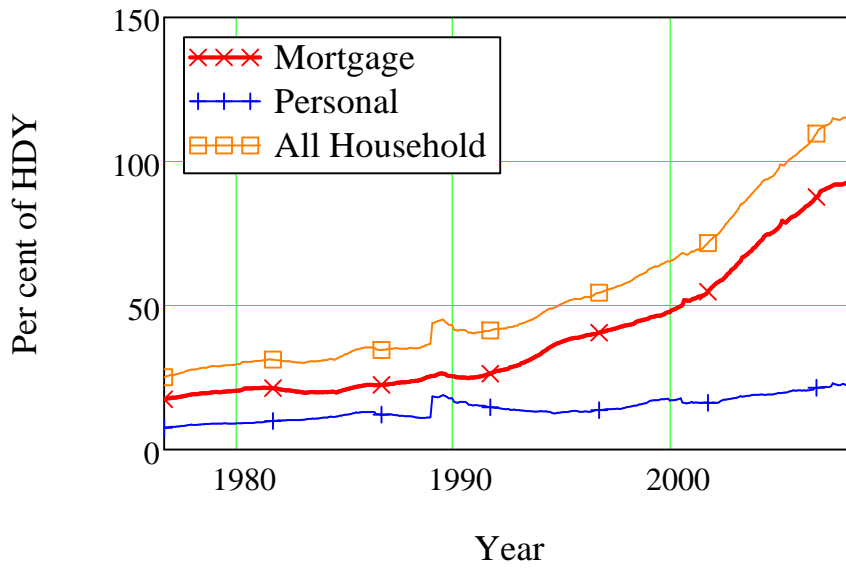
Debt Ratios Yearly Growth Rates



▢ Debt to Household Disposable Income

Figure 4

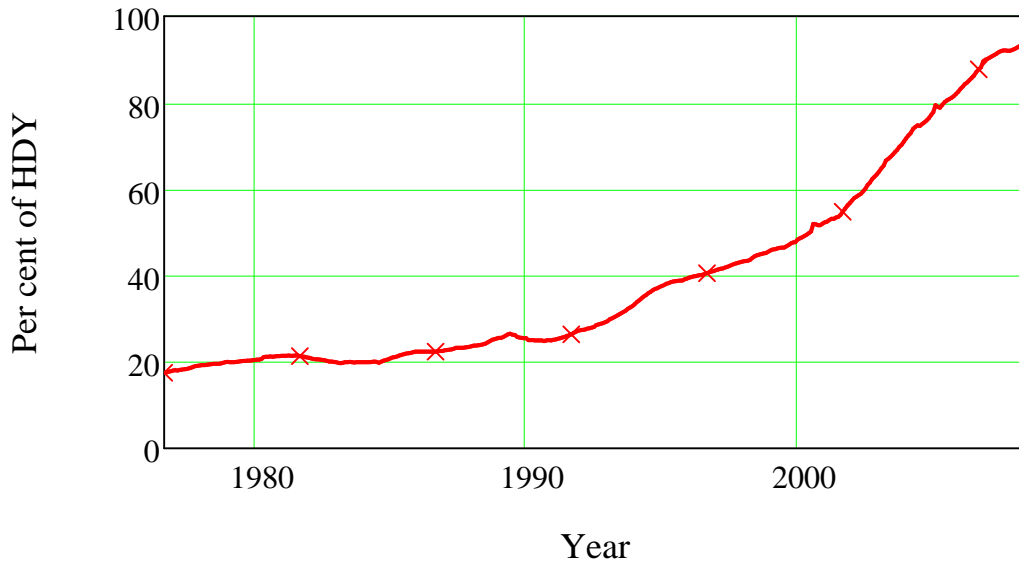
Household Debt to Disposable Income



▢ Mortgage Debt to Household Disposable Income

Figure 5

Mortgage Debt to Household Disposable Income

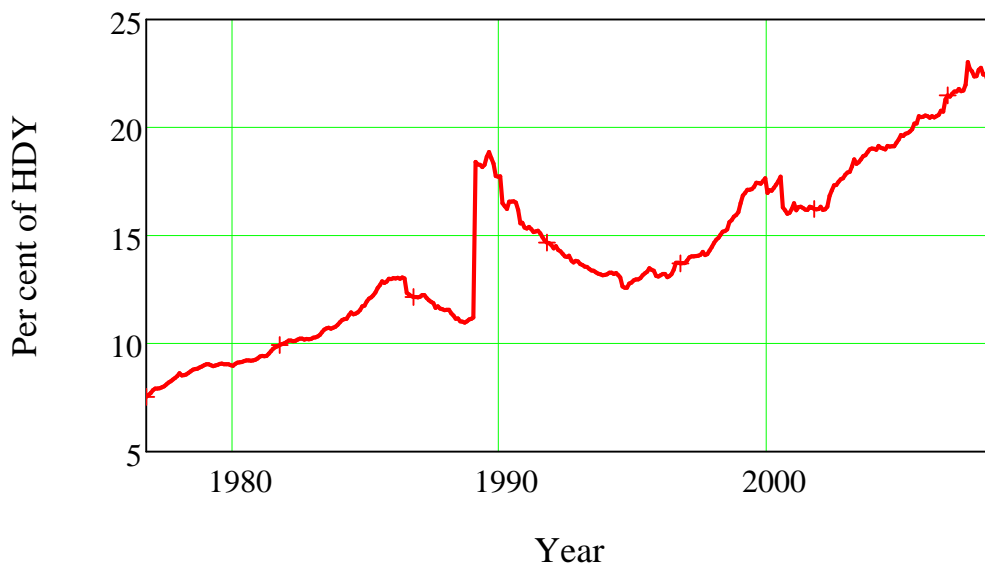


▢ Debt to Household Disposable Income

(the big jump in personal and fall in business debt in 1989 was due to a change in bank classifications of debt types that caused a proportion of business debt to be reclassified as personal).

Figure 6

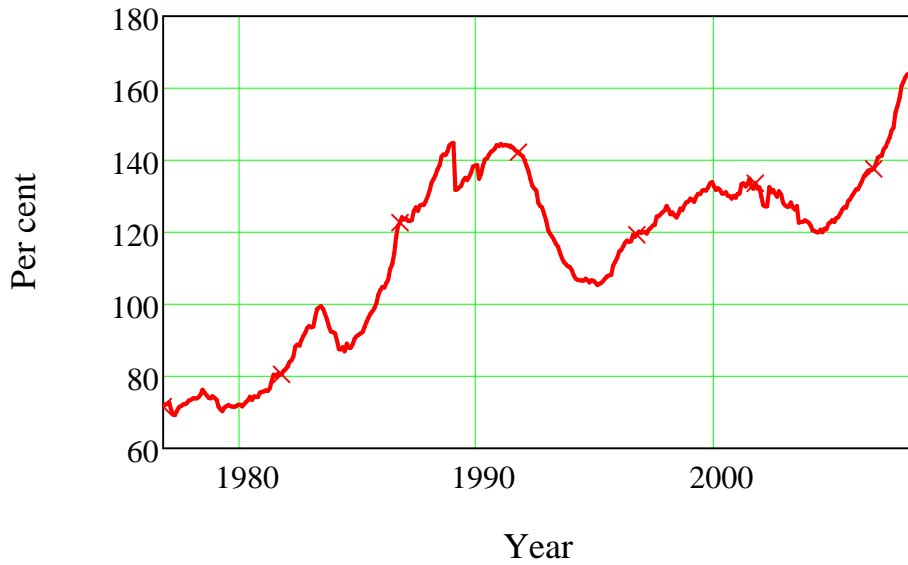
Personal Debt to Household Disposable Income



▢ Business Debt to GOS

Figure 7

Business Debt to Gross Operating Surplus

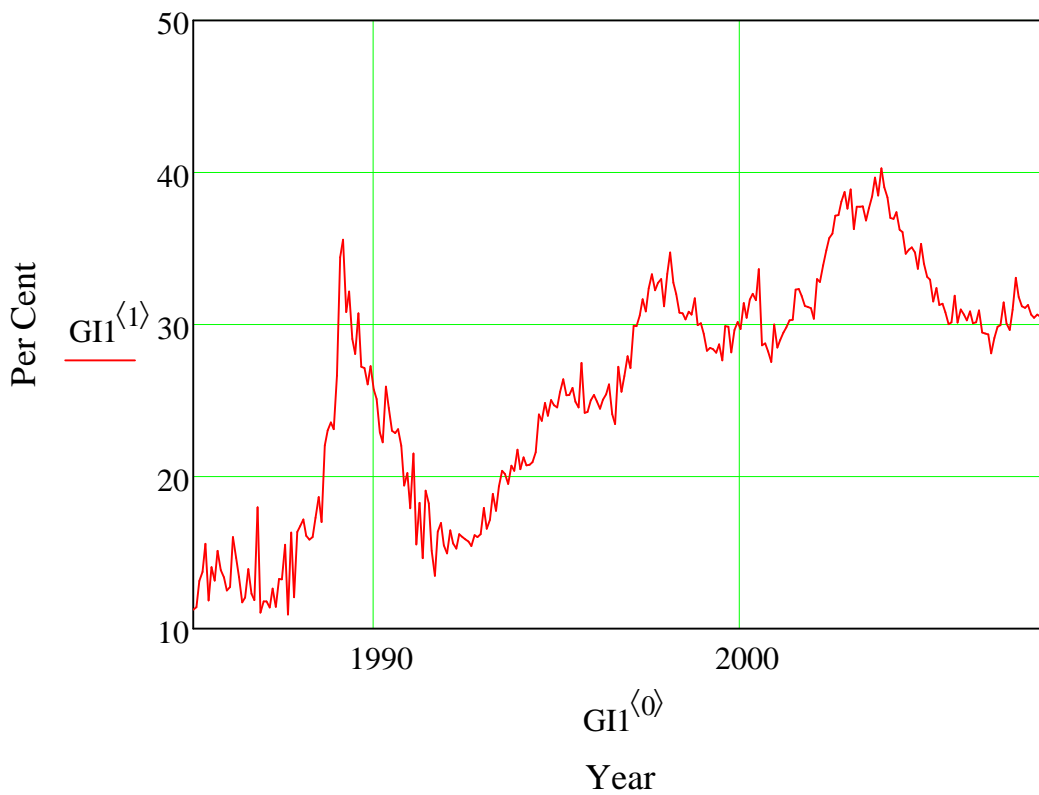


Housing Finance Analysis

▶ Investment Percent Total Housing Lending

Figure 8

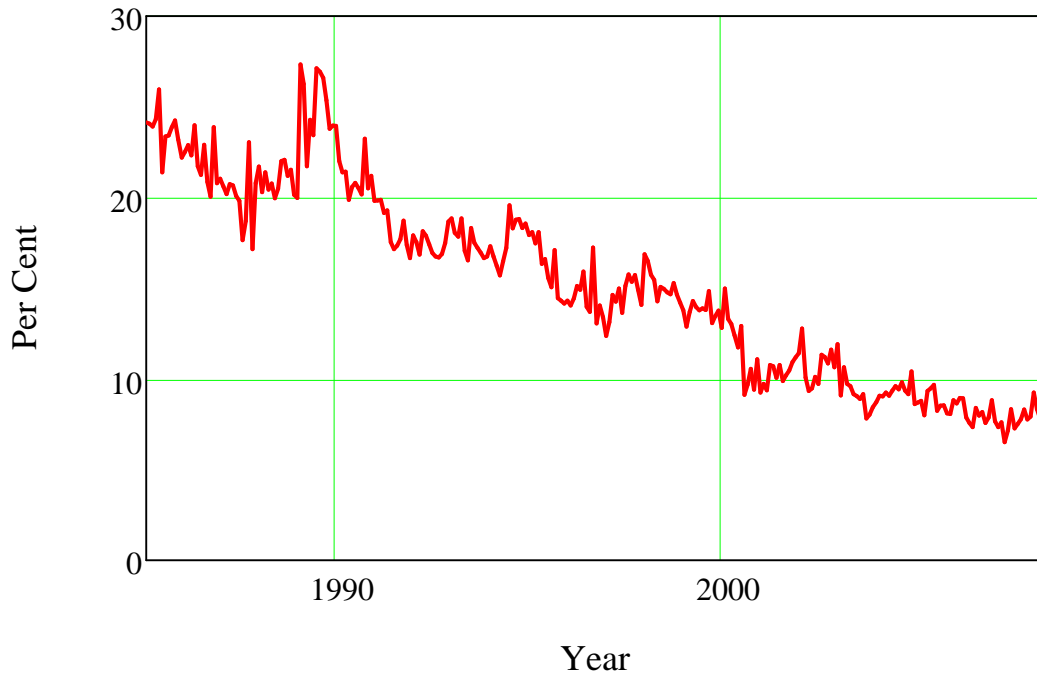
"Investor" Percentage of Total Housing Lending



▶ Construction Percent Total Housing Lending

Figure 9

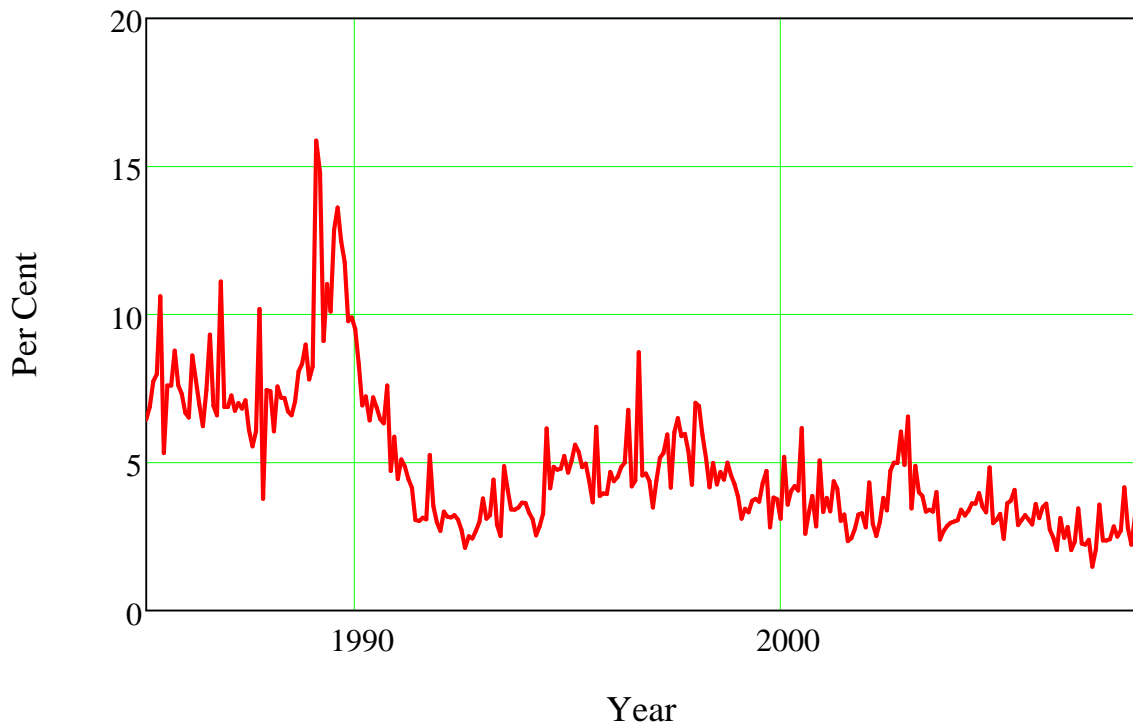
Construction Percentage of Total Housing Lending



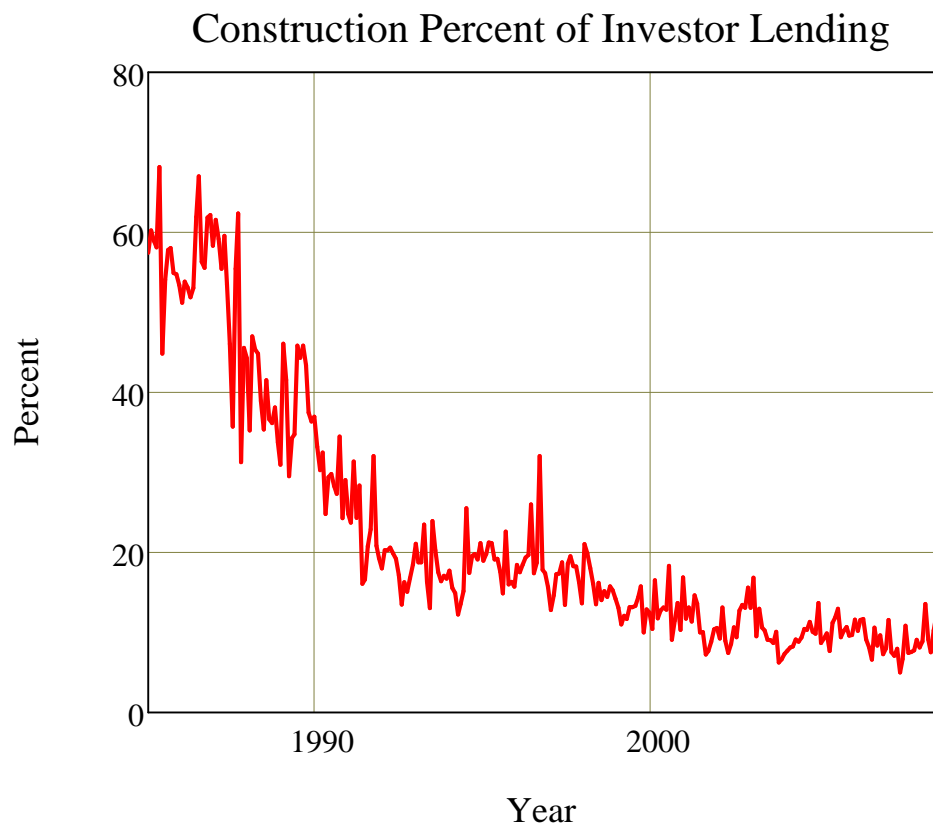
▣ Investment Construction Percent Total Housing Lending

Figure 10

Investor Construction Percent of Total Housing Lending



▣ Construction Percent of Investor Lending

Figure 11

$GG_{02} := \text{Multiply}(rMort, DebtMort)$

$GG_{01} := \text{RentalIncome}$

$GG_{03} := \text{Subtract}(GG_{01}, GG_{02})$

Imputed Rent vs Mortgage Interest

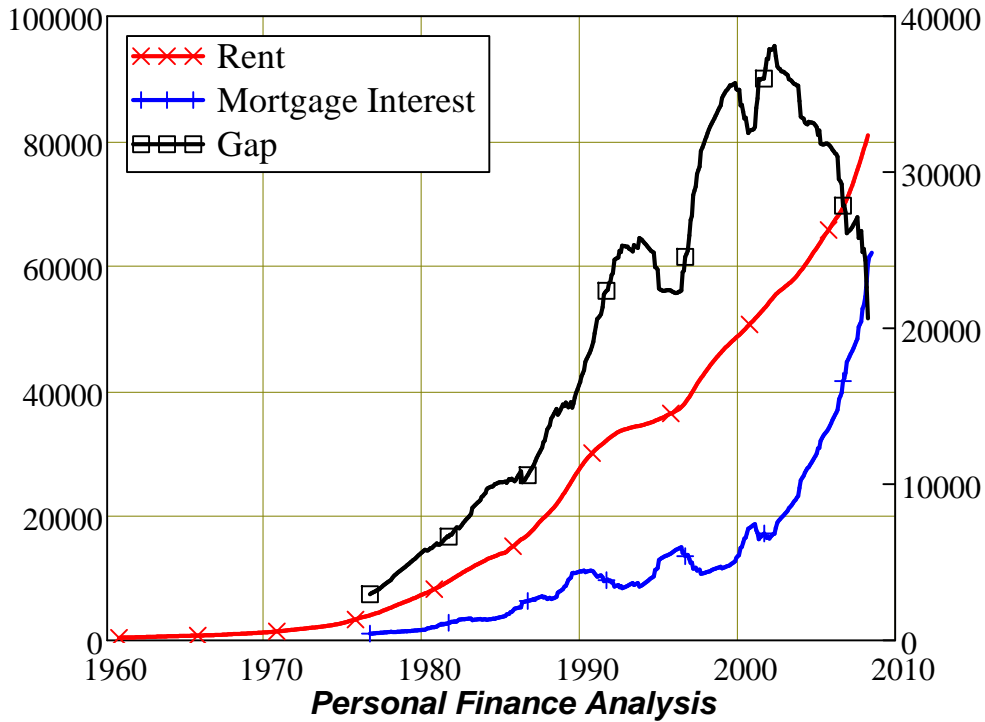


Figure 12

▶ Credit Card Data

Credit Cards To GDP

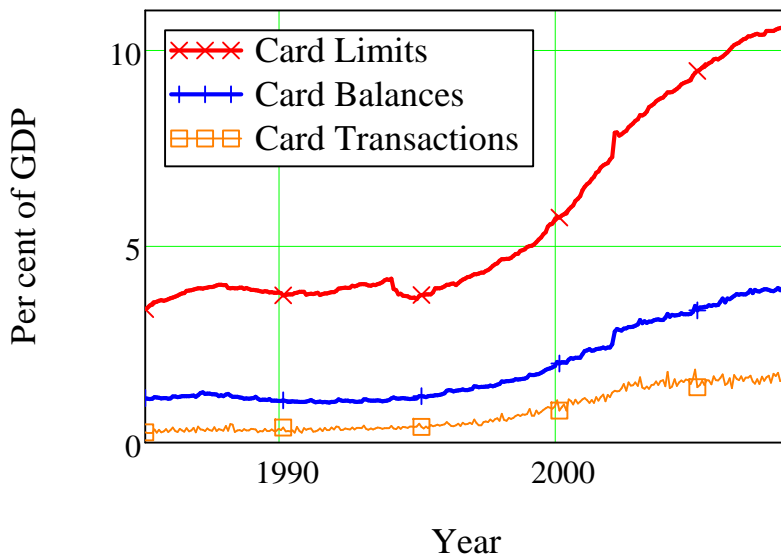


Figure 13

▶ Credit Card Data

Credit Cards Usage

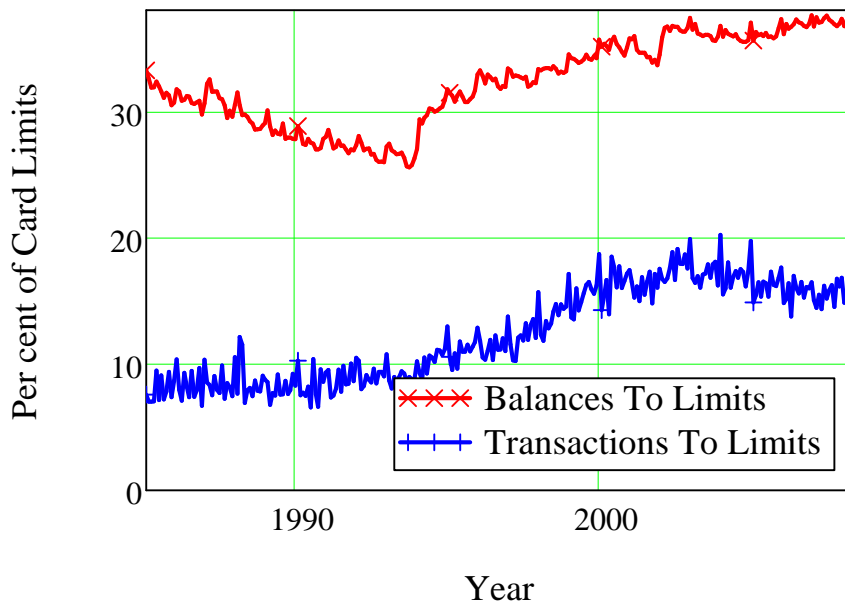
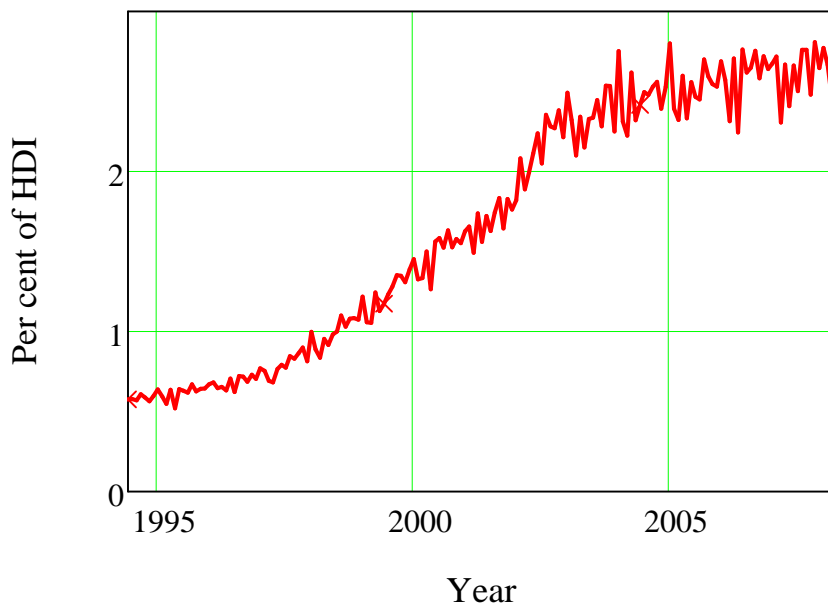


Figure 14

▢ Credit Card Repayments

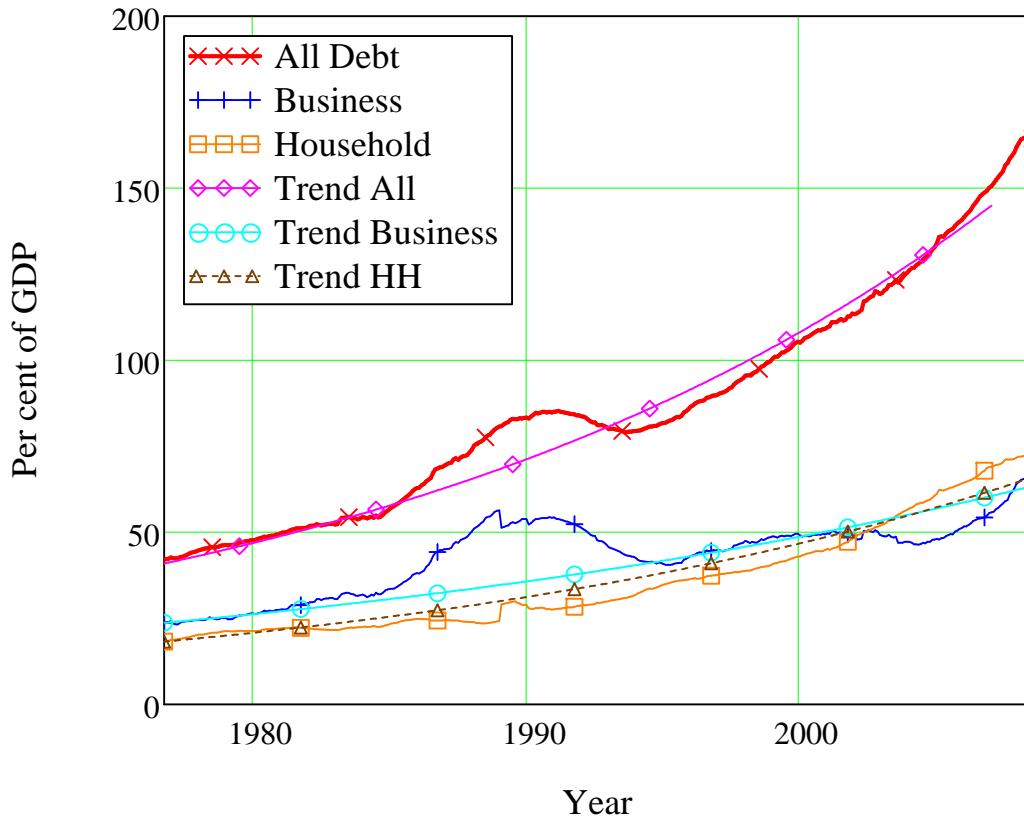
Credit Card Repayments



▢ Debt components to Income

Figure 14

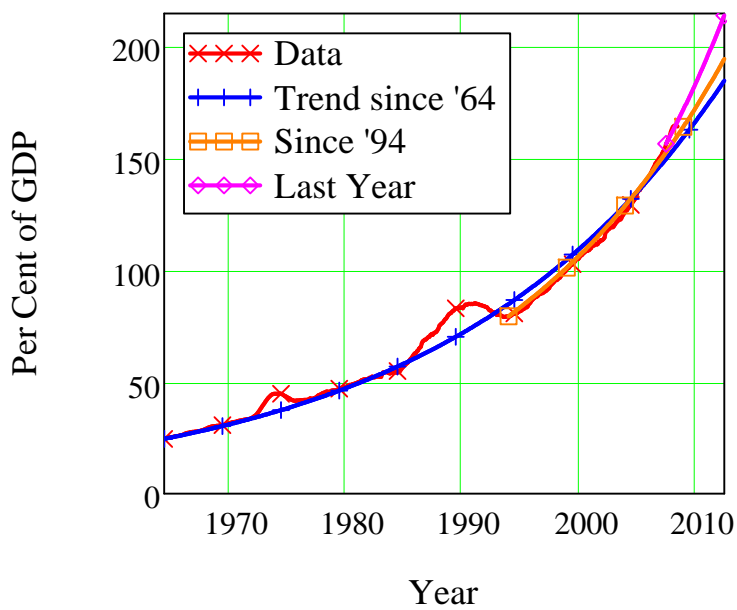
Trends in Private Debt



▢ Debt to GDP Trends

Figure 15

Debt to GDP Ratio and Trends



▶ Debt to GDP Exponential Growth Correlation Ratios

These tables show the approximate exponential rate of growth of debt from various starting dates, and the correlation coefficient between this exponential approximation and the data. The correlation is staggeringly high, especially for a data series which, from an equilibrium point of view, should have no trend, or at worst should move in the opposite direction to changes in the official rate of interest--thus keeping the debt repayment burden constant.

Table Three: Exponential Growth Rates & Correlations since 1964 & 1977

	0	1	2	3	4	5
Corr77 =	"Debt ratios"	"All"	"All"	"Business"	"Household"	"Mortgage"
1	"Start Date"	"mid-1964"	1977	1977	1977	1977
2	"Growth rate"	4.18	4.05	3.1	3.95	4.44
3	"Correlation"	99.12	98.45	73.34	97.71	97.35
4						

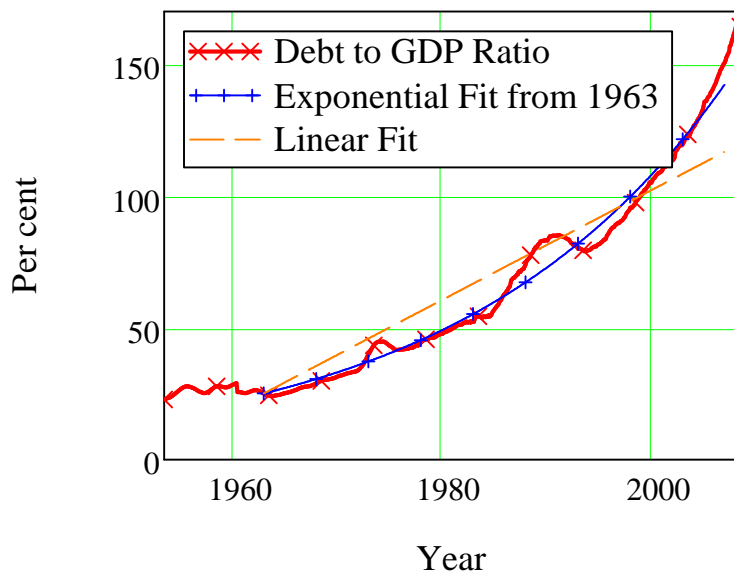
Table Four: Exponential Growth Rates & Correlations since 1990

	0	1	2	3	4
Corr90 =	"Debt ratios"	"All"	"Business"	"Household"	"Mortgage"
1	"Start Date"	1990	1990	1990	1990
2	"Growth rate"	2.81	-0.98	4.65	6.83
3	"Correlation"	96.48	-16.93	99.15	99.42

▶ Debt to GDP Linear vs Exponential Regressions

Figure 16

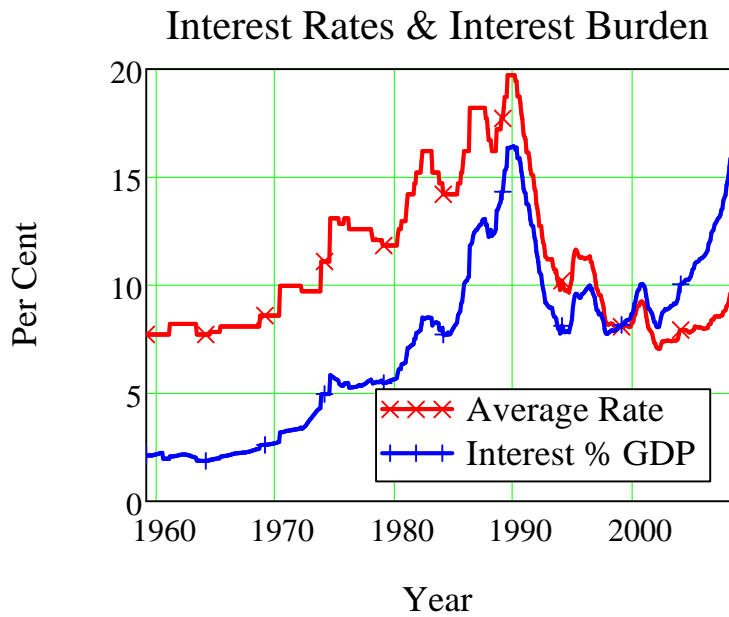
Australian Private Debt to GDP



Debt Servicing Burden

▶ Interest Rates & Payments

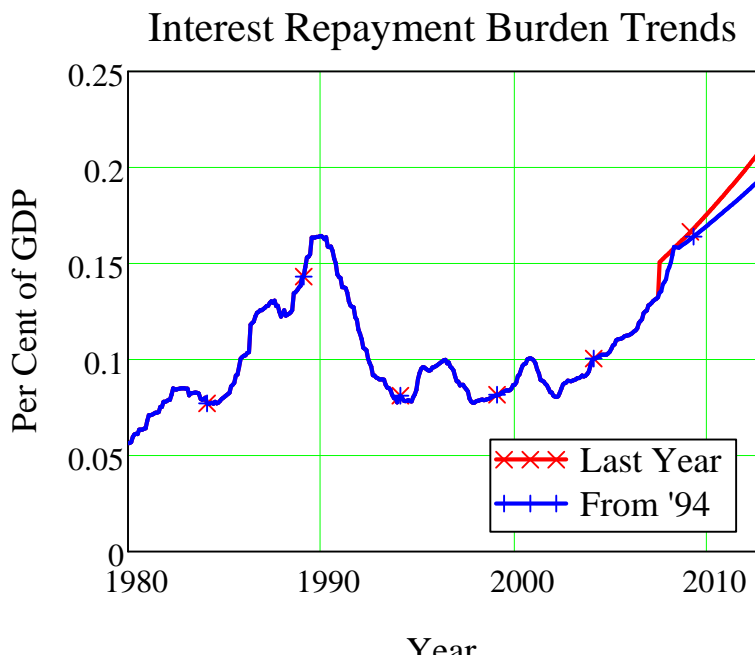
Figure 17



▶ Interest Payment Trends

If trends in debt growth continue, then even without any increases in official interest rates, the interest repayment burden on the economy will exceed that of 1990 sometime between September 2008 and September 2009.

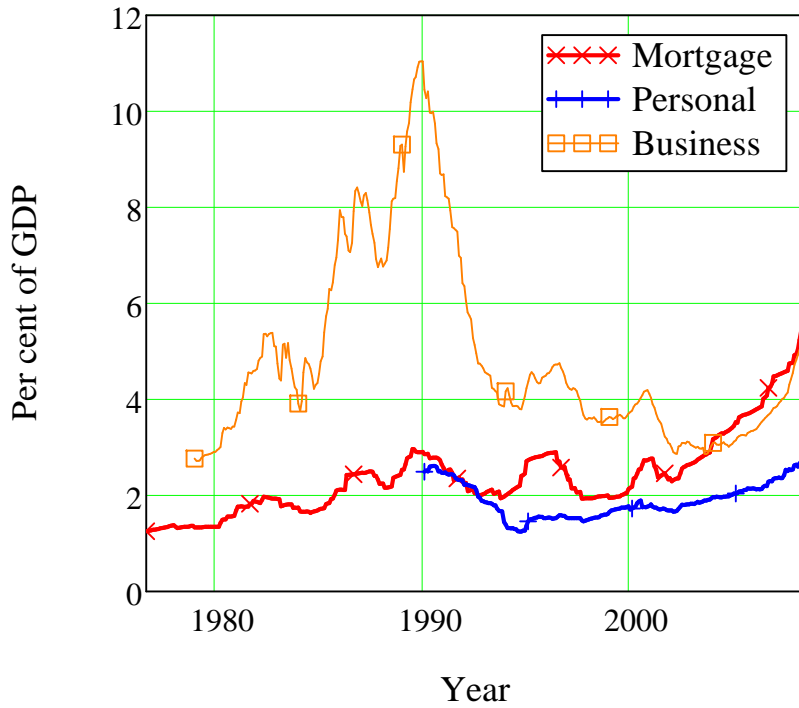
Figure 18



▶ Debt Servicing by Loan Type

Figure 19

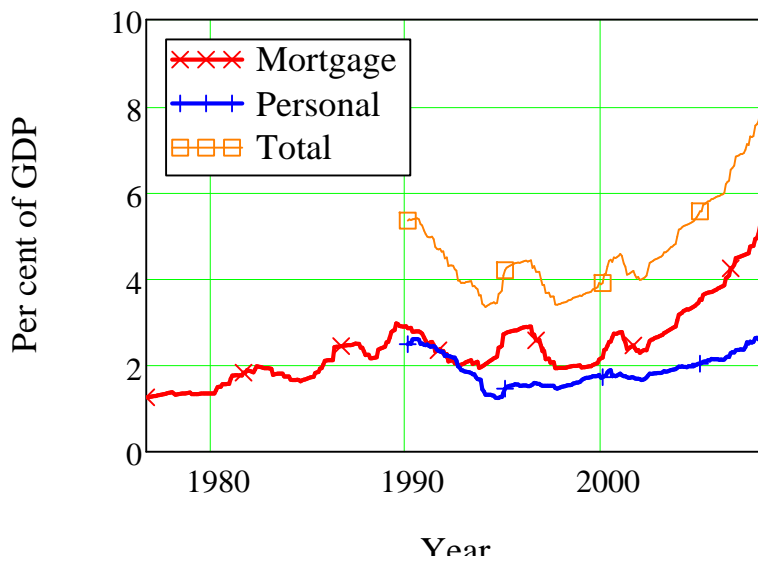
Debt Servicing Burden



▶ Household Debt Servicing

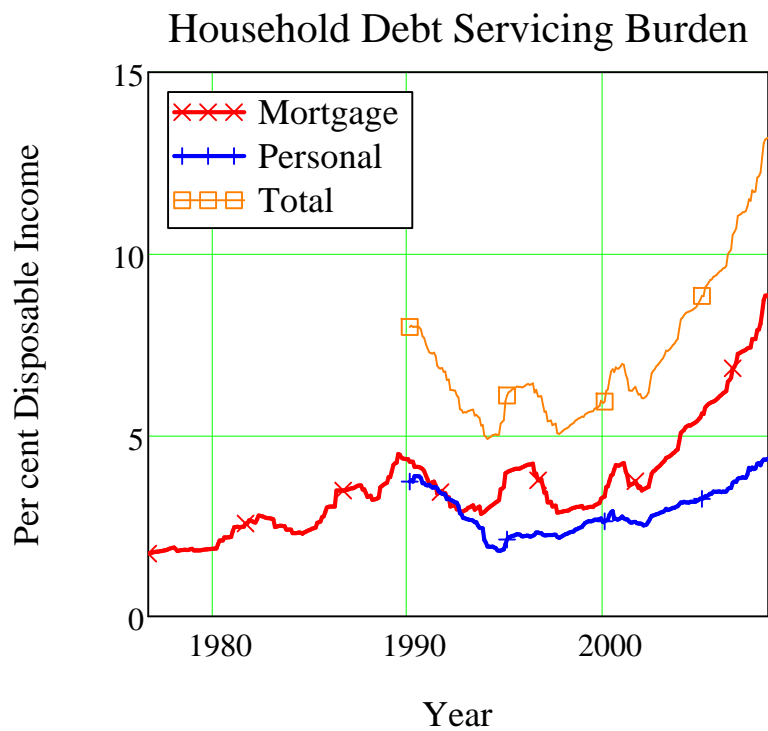
Figure 20

Household Debt Servicing Burden



▶

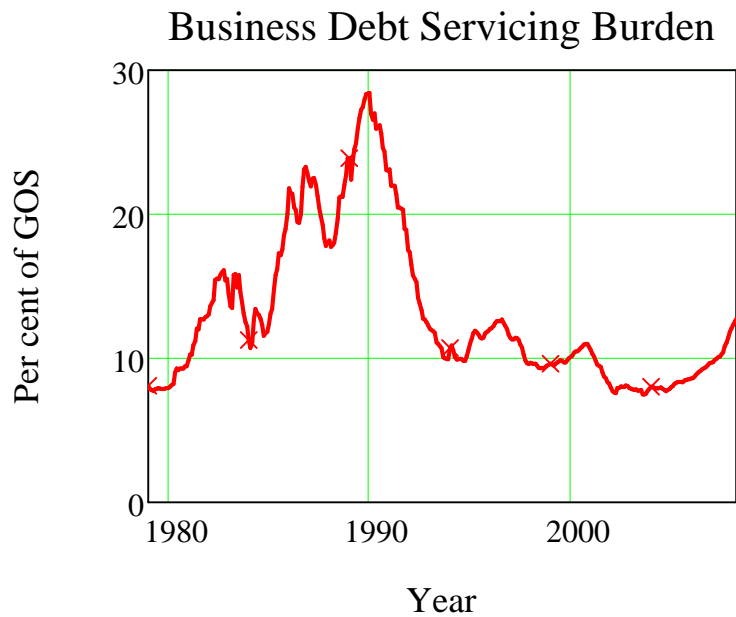
Figure 21



It's obvious why high interest rates prior to 1990 brought the economy to a standstill when one sees the following graph: the interest servicing charge on business loans peaked at almost 30 per cent of Gross Operating Surplus. Even though business debt has recently started to rise as a proportion of GDP, the debt servicing burden remains in the range that applied in the early 1980s.

Figure 22





The debt repayment burden is affected by both the rate of interest, and the level of debt. This chart shows the percentage of GDP that is required to pay the interest on outstanding debt, as a function of average interest rates (the vertical axis) and the debt to GDP ratio (horizontal axis). We are approaching the pain threshold that applied back in 1990, when debt servicing consumed 16.7% of GDP. The dramatic rise in household debt in the last thirteen years has almost negated the impact of falling average interest rates.



Figure 23

Interest Payment Burden

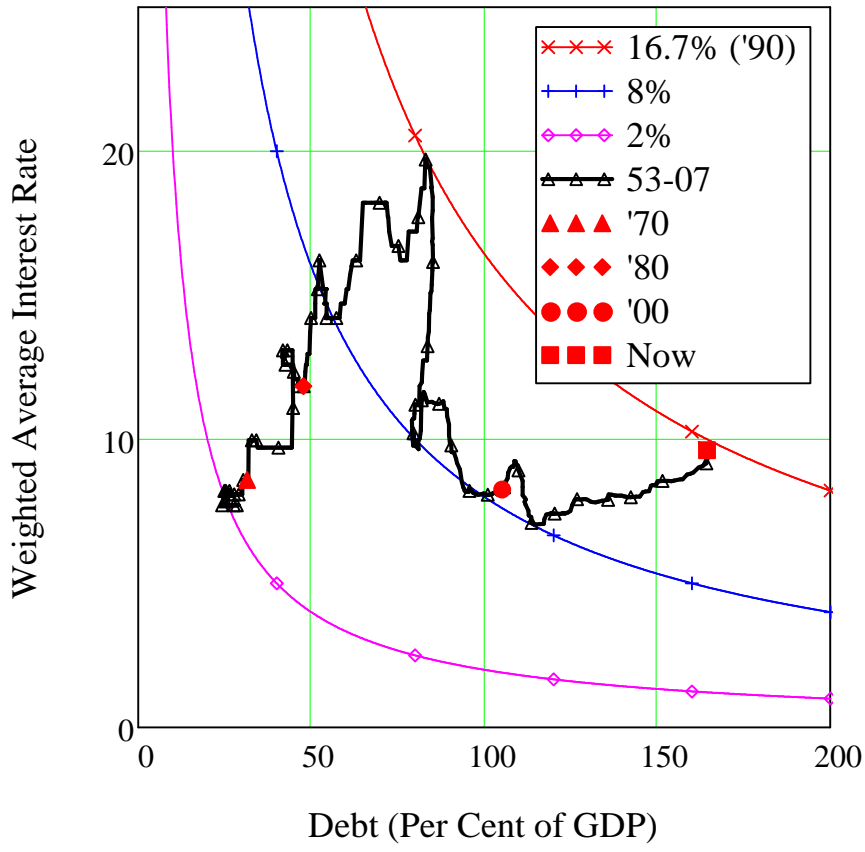


Figure 23

Inflation-Adjusted Interest Payment Burden

