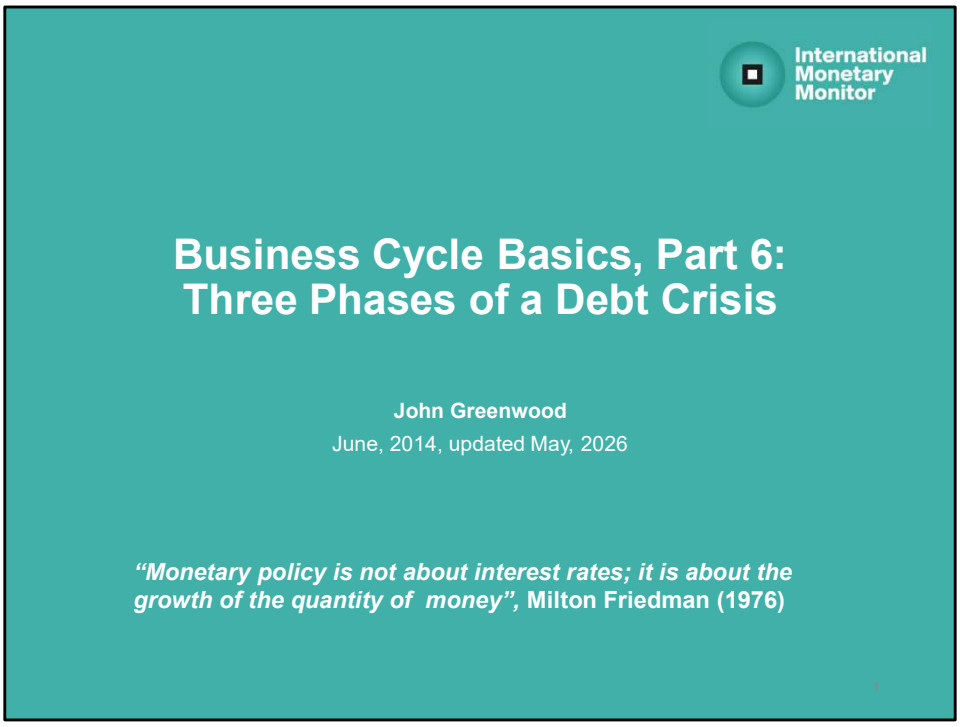
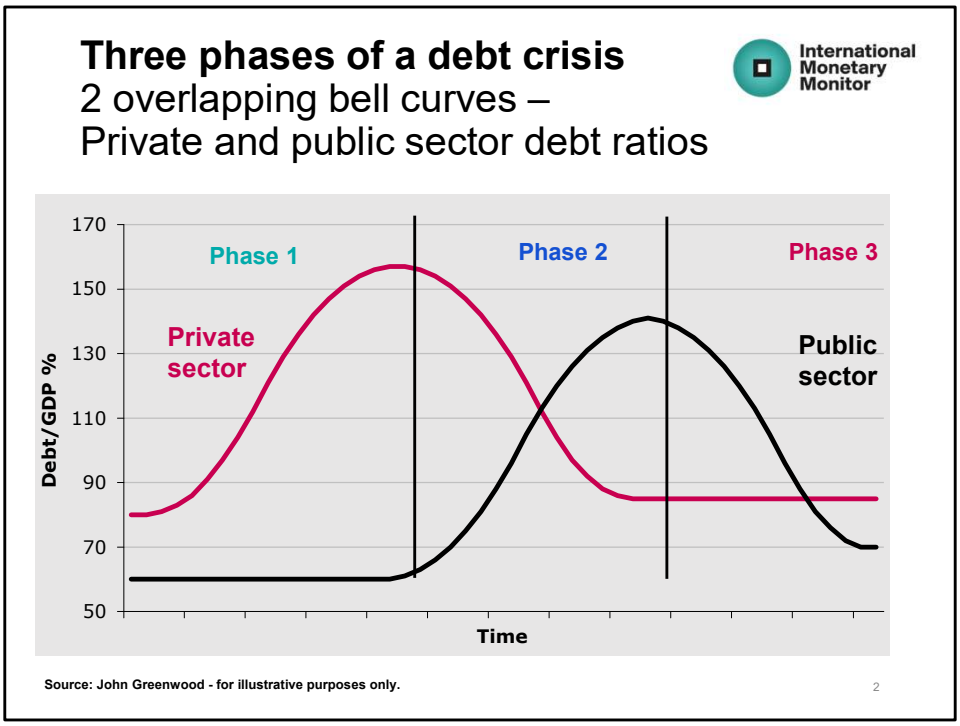


Three Phases of a Debt Crisis is a part of a broader presentation, "The Monetary Theory of Asset Prices".*

In the Monetary Theory of Asset Prices, I show how asset prices, mainly equities, house prices, commercial property prices and commodity prices are typically among the first sets of assets to respond to easier monetary conditions (viewed as faster growth of broad money) before the effects of easy money broaden out to impact economic activity, employment, and goods and service prices. What happens to asset prices – i.e. equities, bonds, real estate, commodities, etc. – is simply part of the overall business cycle driven by (sustained and substantial) changes in the rate of growth of broad money.

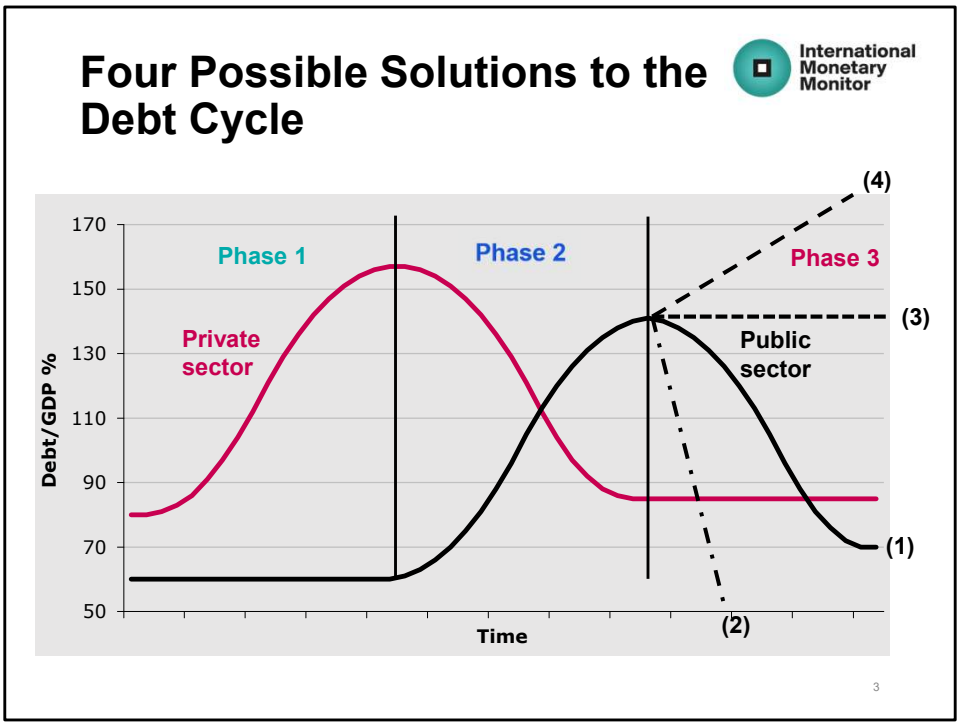
Three Phases of a Debt Crisis addresses the problem of leverage and its resolution in a modern economy. I first outline a template or overall theory of how leverage builds up in the private and public sectors and then peaks before balance sheets are repaired. My pedagogic device is two overlapping bell curves. Next, I turn to concrete examples from the US, the UK, Japan and the Eurozone to see how well the actual data conforms to my template.

*The Monetary Theory of Asset Prices is part of the course "Practical History of Financial Markets" organised by Russell Napier: https://www.libraryofmistakes.com/course/



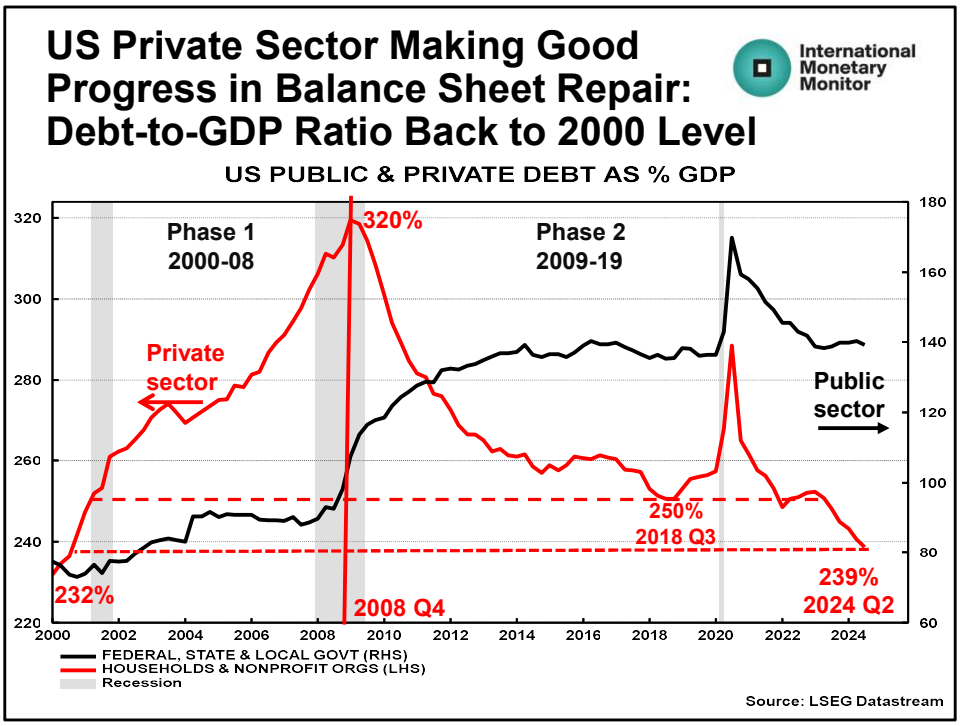
The emergence of a credit bubble and its aftermath or the process of "bubble and bust" may be visualised as two overlapping bell curves (as shown in the chart above), where each curve measures leverage as a ratio of debt to income. The first bell curve represents the leveraging up of the private sector as it increases its ratio of debt to income (or GDP) during the bubble phase, followed by the de-leveraging phase. The second bell curve represents the ratio of government debt to GDP which also follows the same pattern, though does not necessarily reach the same levels.

When the bubble bursts, the private sector typically tries to de-leverage rapidly, reducing spending and repaying debt. But the onset of recession causes government revenues to decline abruptly, government budget deficits emerge, and the ratio of government debt to GDP increases. In addition, as the recession intensifies the government may commit to additional fiscal stimulus measures, further expanding the public sector's deficits and debt ratio. This explains why – in a modern economy – the government's debt ratio typically starts to rise steeply at exactly the moment when the private sector begins to de-leverage. Since this process of government rescue and stabilisation in the aftermath of debt or banking crises has occurred many times in many countries, there are numerous case studies which show how the debt problems have been resolved. Before discussing some actual case histories, it is worthwhile to explore a number of possible scenarios that could occur based on this template. We will then proceed to compare this stylised template with actual recent history in the US, UK, Japan and the Eurozone.



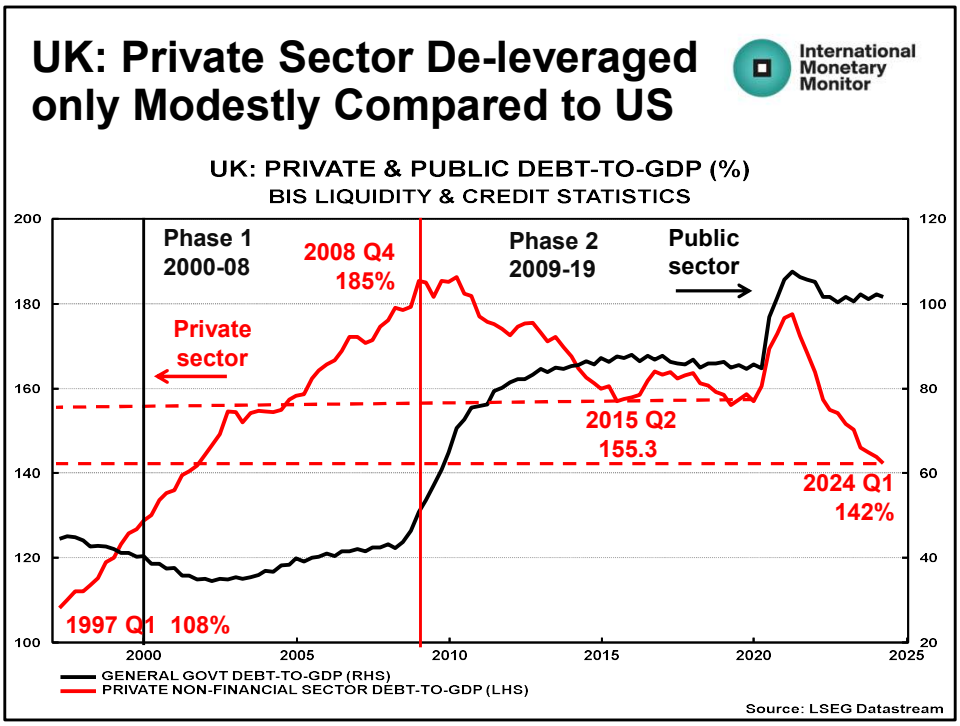
Three Phases: In Phase 1 credit conditions typically ease and the private sector starts to increase leverage as asset prices rise. Here there is sometimes a feedback mechanism whereby growing asset values encourage private sector firms and households to borrow even more, contributing to the bubble. During this phase, government debt-to-GDP is normally stable since revenues are buoyant. At some point, however, the bubble is pricked (e.g. by rising interest rates or by the realisation that returns are falling) and we enter Phase 2. Here the private sector is de-leveraging (cutting spending and repaying debt), pushing the economy into recession. Simultaneously, government deficits start to emerge due to declines in revenue and increased spending (on unemployment benefits or fiscal stimulus programmes). The private sector continues to de-leverage until balance sheets have returned to normal. In Phase 3, the private sector has stabilised its debt ratio and the government is reducing its debt ratio.

Four Archetypal Solutions: (1) This is the optimal scenario in which the private sector restores its balance sheets to good health and government debt is reduced to pre-crisis levels. In **(2)** the government defaults and becomes unable to borrow more. It is forced to cut spending drastically. In **(3)** the government is unable to cut spending or increase taxes, resulting in a sustained high level of government debt. This problem here is that the government will be unable to deal with any unforeseen crisis by increased spending. Finally, **(4)** is the case in which government debt continues to rise, but this is only possible with very low interest rates. The four cases are not exclusive; intermediate cases are possible.



The US housing and securities bubble between 2000 and 2008 featured a huge build-up of leverage thanks to the easy money conditions that prevailed following the collapse of the TMT or "tech" bubble of the late 1990s. The debt of the household and corporate sectors (inc. the financial sector) increased from 232% of GDP in 2000 to 320% of GDP in 2008 Q4, or 88 percentage points (red line). By this time the housing market had peaked (in 2007), the stock market had crashed, and several investment banks and prominent shadow banks (such as Lehman Brothers, AIG, etc) had failed. Although the Fed lowered interest rates abruptly, spreads widened drastically for private sector borrowers. A credit crunch ensued. At this point, private sector entities focused almost exclusively on reducing leverage, cutting spending and repairing balance sheets. This drove the economy into recession. The deleveraging was at first rapid, then more gradual, continuing until 2018, by which time the ratio of private debt to GDP had fallen to 250%, the same level as in 2001. Subsequently there has been another upward spike in the private sector debt ratio due to the Covid pandemic, and further deleveraging to 239%, the same level as in 2000.

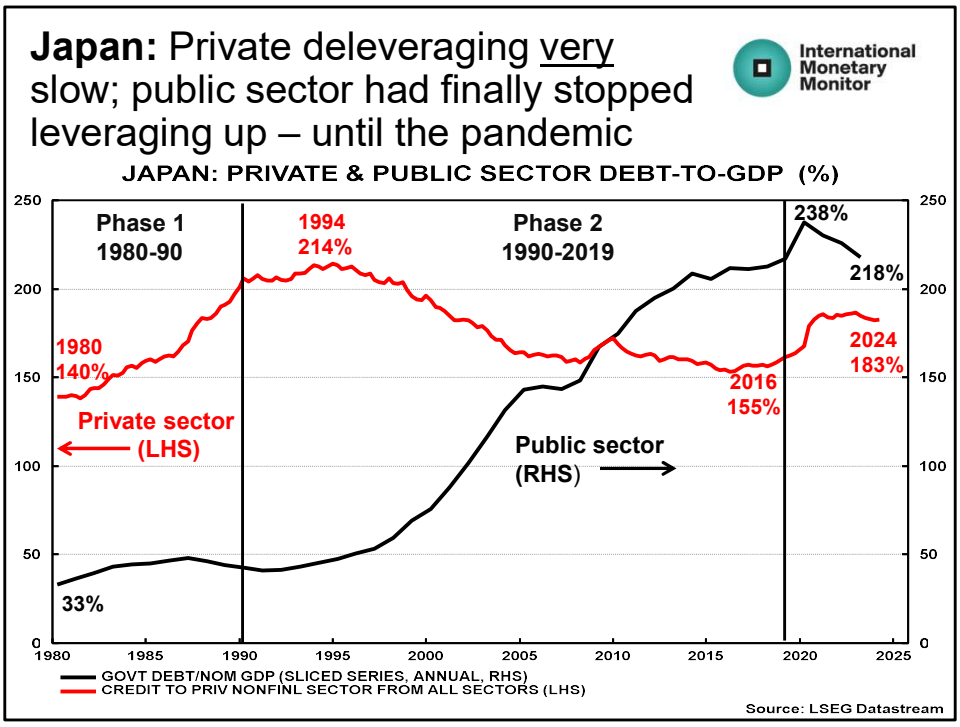
Turning to the public sector (federal, state and local levels), the first big increases in the ratio of government debt to GDP occurred in the aftermath of the GFC, but instead of being unwound after 2014, public sector debt levels remained broadly unchanged until the Covid crisis when they spiked upwards again. Fortunately, the ratio has returned to pre-Covid levels, but there is no sign of a sustained decline.



In the UK the build-up of private sector debt between 1997 and 2008 Q4 was similar in magnitude to that seen in the US, from 108% of GDP to 185%, an increase of 77 percentage points. (This time, due to the very large UK financial sector, I have used private non-financial sector debt as the measure of leverage.) As in the US, the GFC and the credit crunch prompted widespread de-leveraging, though not as much as in the US. The private sector debt ratio fell to 155.3 by 2015 Q2, taking balance sheets back to where they had been in 2005. Once again, Covid produced another upward spike, and as in the US, a further period of deleveraging after the pandemic, taking the private sector debt to GDP ratio down to 142% in 2024 Q1, similar to its level in 2001.

Turning to the public sector debt-to-GDP ratio, sustained large deficits during the GFC and afterwards generated a huge increase from around 40% of GDP to around 85% of GDP. This level remained roughly stable until the onset of Covid, whereupon there was another huge increase to 106% in 2021 Q1, falling back to around 100% in 2024. Like the US, the UK ratio of public sector debt to GDP shows little sign of declining.

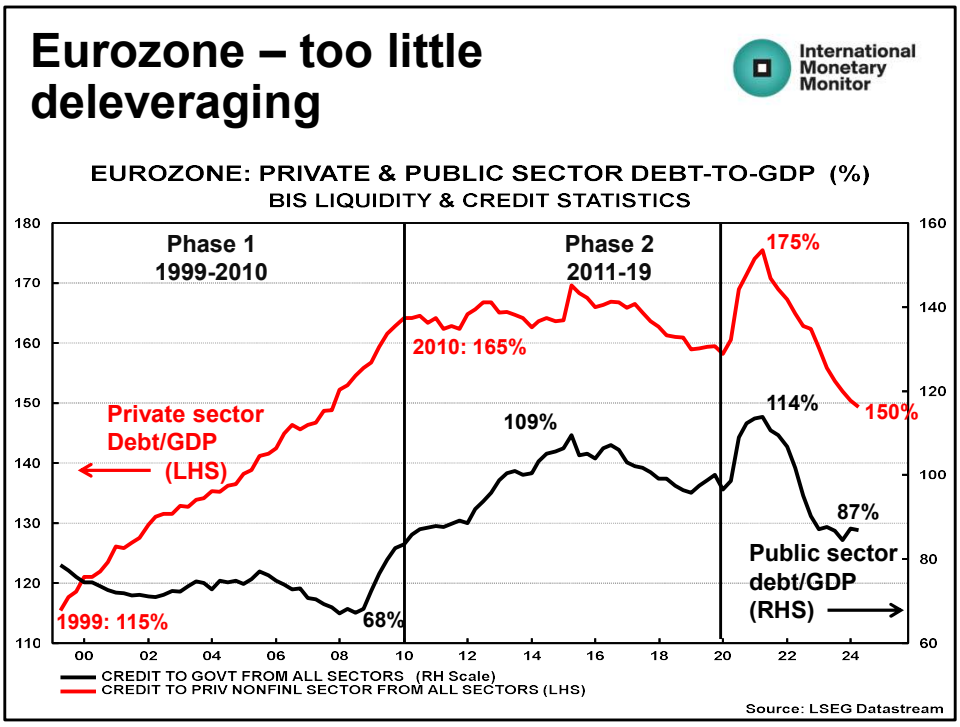
Since governments seldom repay debt and are reluctant to cut spending, the only feasible way to reduce the debt-to-GDP ratio will be for growth of nominal GDP (in the denominator) to exceed growth of the amount of debt (in the numerator) for an extended period. This is turn will require government deficits (as a percentage of GDP) to be less than the growth of nominal GDP over a prolonged period.



Japan's bubble and bust was in the 1980s and early 1990s. During the bubble phase the private sector debt-to-GDP ratio climbed from 140% in 1980 to a peak of 214% in 1994, an increase of 74 percentage points, similar to the UK ahead of the GFC. (Here private debt is measured as all credit to the non-financial private sector from all sectors.) The deleveraging process in Japan appears to have been much slower than in the US or UK, with the debt-to-GDP ratio only falling back to 155% in 2016.

In other words, the ratio declined by 59 percentage points over a 22 years compared with 70 percentage points of deleveraging over 10 years in the United States (refer to p.3 above). This means Japan deleveraged at less than 3 percentage points per year only compared with 7 percentage points per year in the US. Probably there are sociological explanations for Japan's slower deleveraging, such as Japanese banks' reluctance to force clients into bankruptcy. As in the US and UK, Covid produced another upswing in Japan's private sector debt–to-GDP.

Japan's public sector experience is also very striking. From 1995 onwards, public sector debt-to-GDP increased from around 50% to a brief plateau of 205%-210% in 2014-19, before rising again under the impact of Covid to 238% in 2020. These ratios are much higher than almost all other developed economies, and have only been possible because, until 2024, interest rates in Japan – and hence the government's debt service costs – had remained so low.



During the first decade of its existence the Eurozone witnessed a rapid build-up of leverage as firms and individuals in the periphery were able to borrow at rates that had previously only been available to German borrowers. Private sector debt soared from 115% of GDP in 1999 to 165% by 2010, an increase of 50 percentage points. (Here I am using credit to the private non-financial sector from all sectors as the measure of debt.) However, in marked contrast to what happened in the US or the UK, the Eurozone private sector debt ratio did not deleverage in the aftermath of the GFC, remaining broadly unchanged until the start of the Covid pandemic.

In my personal view, there were two contributing factors. First, Europeans regarded subprime as "an American problem", and therefore they did not need to deleverage. Also, the EU authorities made the mistake of emphasising the need for public sector deficits and debt ratios to be brought quickly under control. But this is contrary to the optimum strategy. It is best to ensure the private sector recovers first, which will then enable the economy to grow normally and generate the tax revenues needed to ensure debt and deficit reduction in the public sector.

Thus, between 2009 and 2015 public sector debt grew from 68% to 109%, an increase of 41 percentage points, and then declined to 96% on the eve of Covid. Subsequently, after surging in 2020-21 to 114% the public sector debt ratio has declined to 86% in 2025. Although private sector debt-to-GDP is now declining, I believe Eurozone recovery would have been stronger if the public sector had taken more of the strain.