

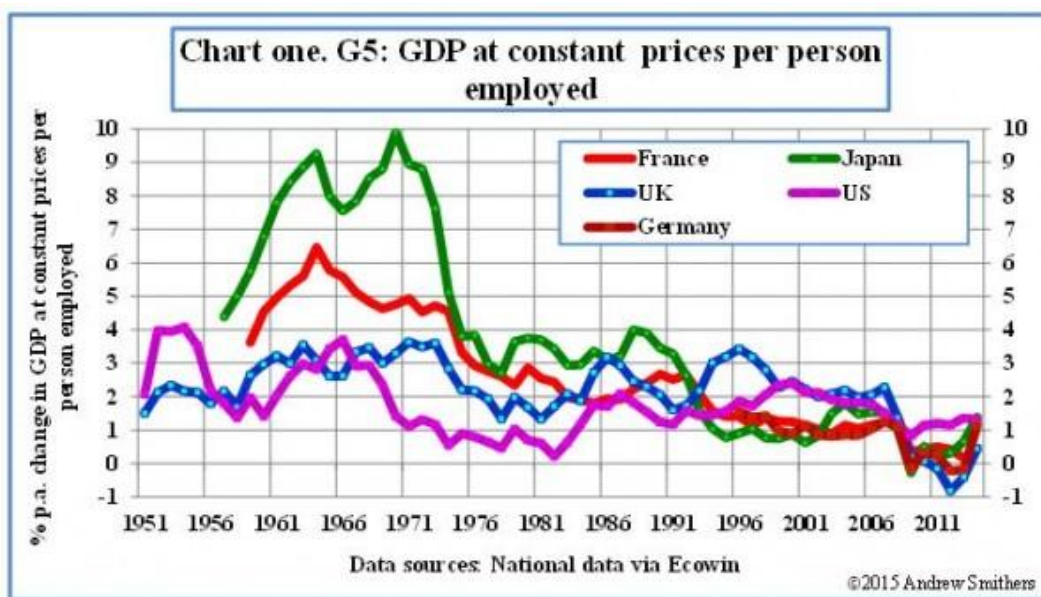
Productivity and the decline in capital efficiency

Andrew Smithers, *Financial Times*, June 24 2015

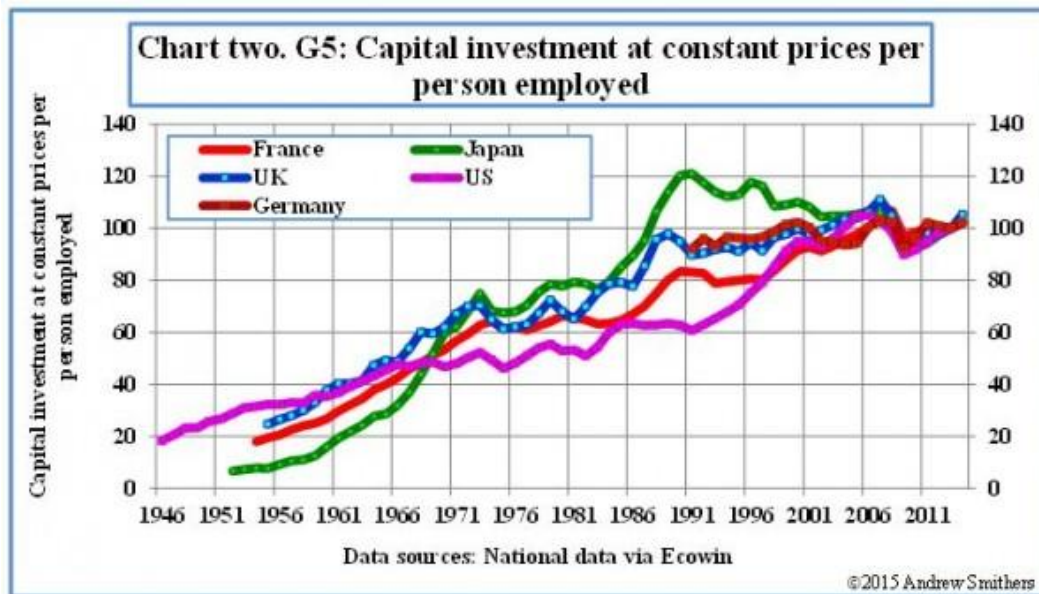
There has been a steady decline in the efficiency of capital over the long-term in developed economies, and this deterioration has continued over the postwar period. We have also had a large fall in investment over the past 30 years. Unless there is a sharp reversal in these two adverse trends, the sustainable rate of growth will be much slower than it has been in the past.

Table one. Labour productivity % p.a. change in GDP at constant prices per hour worked. (Data Sources: Latest available national data US from BLS & NIPA 1.1.6, Germany, Japan and UK via Ecwin).				
	3 years	4 years	5 years	Q1 1995 to Q4 2007
Germany (to Q4 2014)	1.00	-0.05	0.24	1.79
Japan (to Q4 2014)	0.36	0.39	0.73	1.36
UK (to Q4 2014)	-0.34	1.79	0.18	2.16
US (to Q1 2015)	0.21	0.28	0.22	1.95

As table one shows, there has also been a sharp fall in productivity and it seems likely that this has been largely because of the combined impact of the falls in the amount and efficiency of capital.



The improvement in labour productivity has been slowing or at best flat since 1970s or even earlier, as I illustrate in chart one. (In table one I only show the data for four G5 countries as I have been unable to find hours worked data for France. I have, however, found data for numbers employed for chart one.)



As chart two shows, investment per person rose strongly in the postwar period until the 21st century and has since flattened. As productivity, even viewed through rose-tinted spectacles, has failed to improve, it appears that rising investment per person is needed to prevent productivity from falling. Unless this trend changes, productivity, in the absence of a rise in investment, will remain poor.

As the current level of investment per employee is well below the level that it would have been had the postwar trend continued, the gap between it and the level of investment needed to maintain productivity has widened and, at current levels of investment, will continue to widen. Simply extrapolating from the past trend for investment per person, the current level of investment is insufficient to prevent productivity from deteriorating further.

I think it would be overly pessimistic to assume that we will see even worse data on productivity. This would, for example, assume that it will continue to decline as it has over the past three years in the UK. One reason for taking a relatively optimistic view is that the decline in productivity is likely to be accompanied by a fall in real wages.

Depreciation and the rate at which capital is scrapped are significantly dependent on the rate of change of real wages. As the gross level of investment (which is measured before capital consumption) falls, the growth of real wages is likely to slow; so the decline in net additions to the capital stock will probably not be as sharp as the decline in gross investment.

But some capital consumption is likely even if real wages stagnate. Oil wells, for example, have a limited life and international competition may cause shifts in the contributions of different industries to UK gross domestic product and shifts from high to low productive output will depress the average.

I do not include economic forecasts among my follies, but it seems sadly likely that the trend growth of G5 countries will remain slow and can be attributed either to a combination of low investment and low capital efficiency or to one of low growth in numbers employed and a slow improvement in labour productivity.

This does not seem to me to be likely to have a direct impact on the probable returns from financial assets. The long-term return on equity appears to be stable and independent of individual or even world growth rates. As I wrote recently, there is equally no historic connection between real interest rates and world growth, and not even a theoretical connection between real interest rates and the growth of individual countries. The apparent

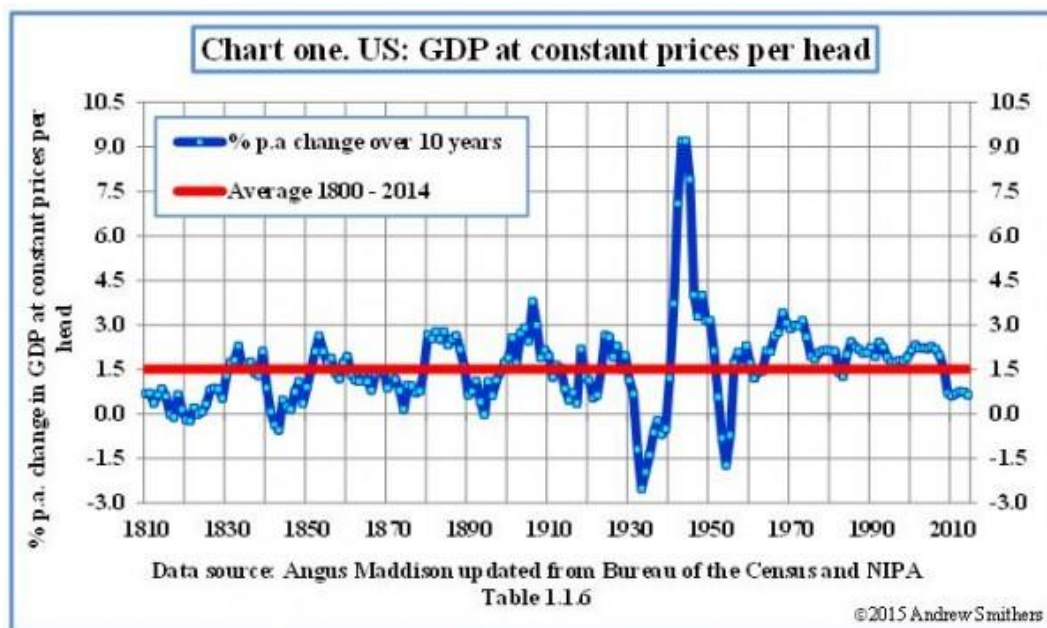
reluctance of central bankers and the conventionally wise to accept the evidence means that the most important impact of a decline in the trend growth rate of developed economies is the increased risk of errors in monetary policy.

Even here the latest news looks a trifle encouraging. The recent improvement in US labour participation rates shown in Q1 2015 seems to have continued; there was a useful increase in both employment and unemployment in May. Such data are volatile and liable to revision, but good figures are nonetheless welcome.

Efficiency of capital in developed economies shows long-term decline

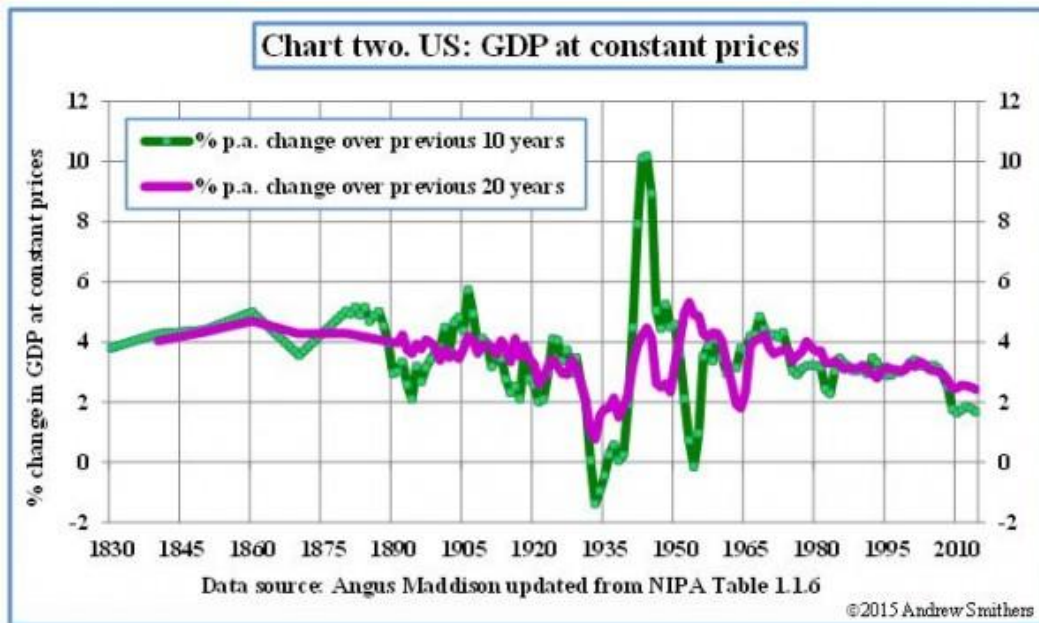
Andrew Smithers, *Financial Times*, June 17, 2015

In the US, real gross domestic product per head has grown at a stable rate over the long-term, with glitches such as the one caused by the Depression being made up by subsequent recoveries.



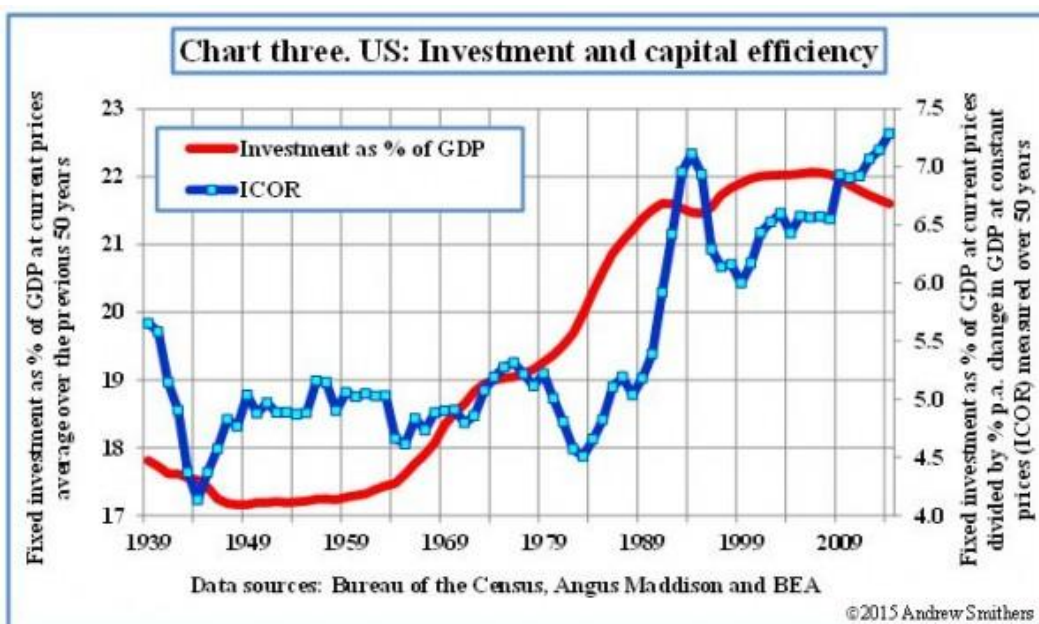
It seems generally assumed that the recent slowdown is just another and, by historic standards, very weak glitch and that the long-term trend for living standards to rise at around 1.5 per cent per annum will soon be back on track.

This may turn out to be correct, but a disturbing picture emerges if attention is paid not just to total growth, but also to the way in which it has been achieved.



The long-term growth of the US, measured in terms of total GDP rather than per head, has shown a marked slowing trend, as I illustrate in chart two. Combined with a slower growth in population, this has allowed GDP per head to have the stable growth trend shown in chart one.

The decline in growth has occurred despite a large rise in the proportion of GDP that has been invested. The combination of rising investment and slowing growth shows that it takes an increasing amount of investment to produce a given amount of growth. Capital has become less efficient. I show both the rise in investment and the fall in capital efficiency in chart three. Efficiency is being measured by the incremental capital output ratio (ICOR), which is calculated by dividing the proportion of GDP invested by the growth rate of the economy in real terms. It has required an increasing proportion of GDP to be invested in order to produce an increase of, say, 1 per cent per annum in GDP.

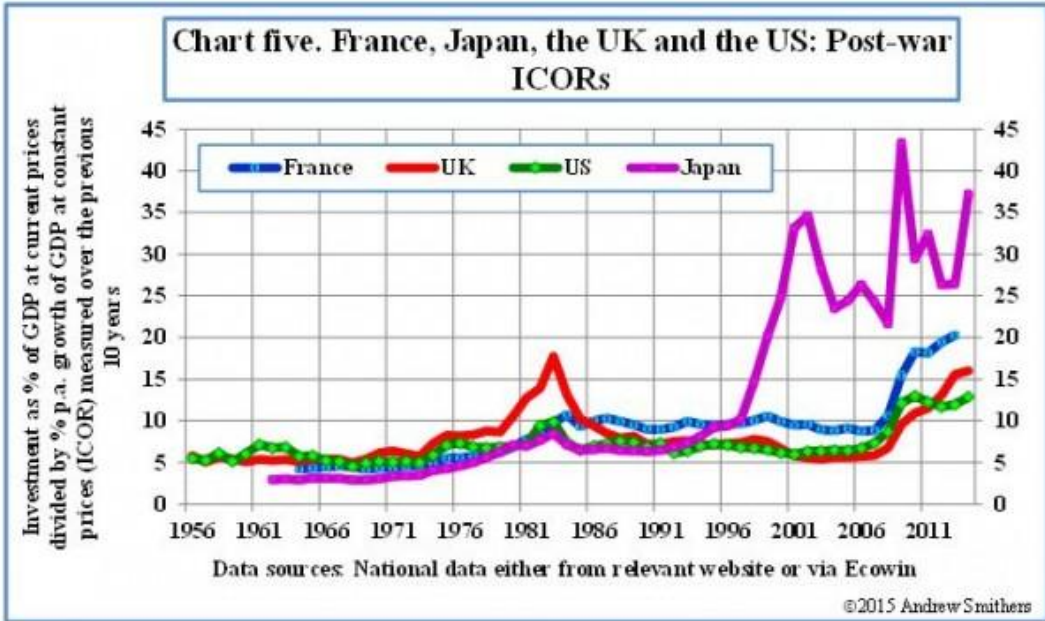


This long-term deterioration in capital efficiency is not unique to the US, but has been a general problem for the developed world. I illustrate this in chart four for the UK where, as in the US, we have long-term data stretching back into the middle of the 19th century.

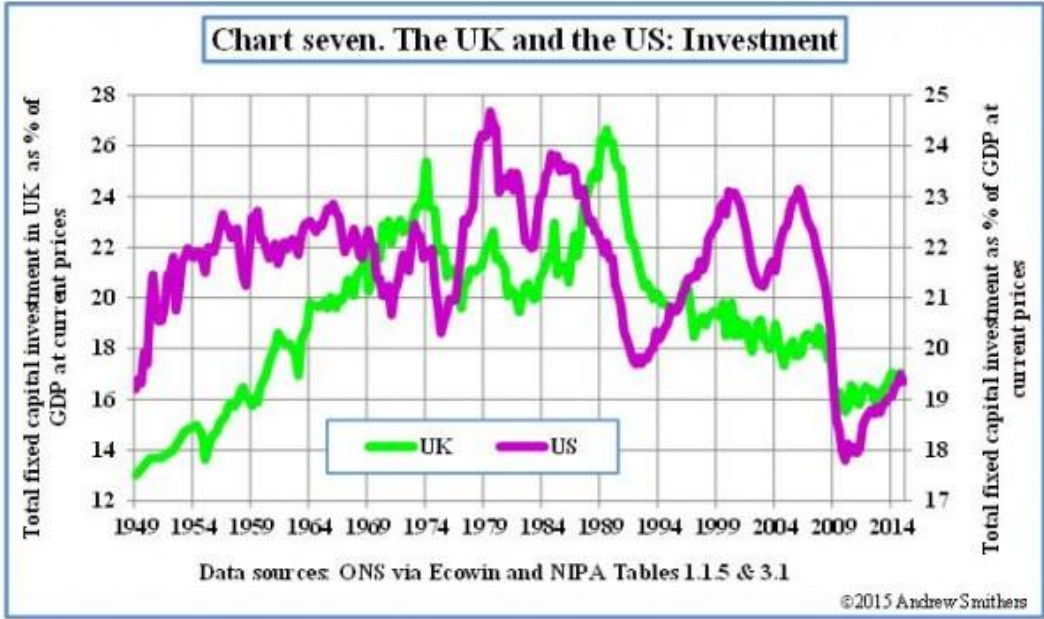
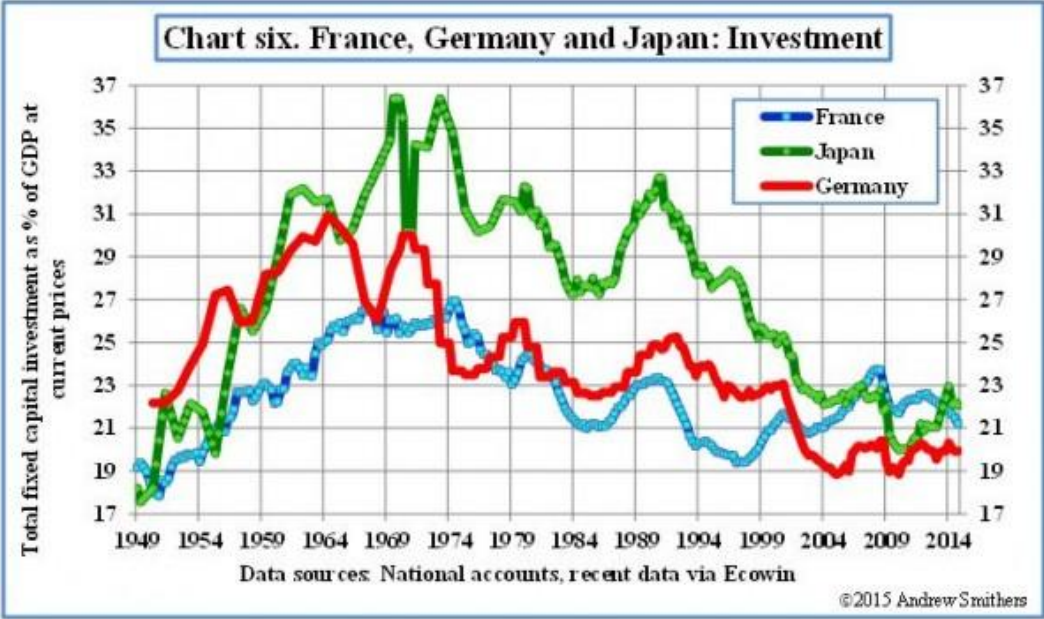


ICORs use gross investment as a measure of the available capital stock. This is a reasonable assumption for the US and also for the UK, though perhaps to a lesser extent, but it is not for other major developed economies which have suffered periods of big capital destruction in one or both world wars.

It is, however, possible to measure ICORs in the post-war world for France and Japan as well as for the UK and US, although not for Germany, due to reunification. The UK suffered some significant losses of capital in the world wars, but not on the scale seen in France and Japan. Because we have had only 70 years since the end of the second world war, ICORs cannot be measured over 50 years, as I have in charts three and four. This renders the ICORs more volatile. Fortunately, the relative stability of GDP in the post-war period means that the trend can still be distinguished using data measured over only 10 years.



As chart five shows, ICORs have been on a rising trend post-war. Growth could still have been maintained had investment continued to rise but, as charts six and seven show, the long-term trend for investment to rise as a proportion of GDP has stopped and reversed. In recent years investment has been low by post-war standards.



The impact of investment on GDP probably takes time to be fully felt. It is likely that new equipment is not immediately utilised to its full extent, as increases in capacity come in lumps and it takes time for demand to catch up. There will probably be a period when those using new equipment are learning to make the most of its full potential. But the decline in the level of investment in G5 countries has now been going on for some time.

Low investment combined with low efficiency presents a discouraging picture. It is possible that the fall in capital efficiency will be reversed and investment will rise but, if this does not happen, the trend growth of GDP looks low enough to reduce the rate at which living standards rise.