

Measuring the rate of profit; profit cycles and the next recession

By Michael Roberts

Marx's law of profitability suggests a cyclical and a secular process combined.¹ Cyclical movement in the rate of profit in the major capitalist economies is clearly discernible – and in the case of the US economy, the cycle of profitability appears to be about 32 years from trough to peak to trough². There is also a secular process where the rate of profit is on a falling trend over the life of modern industrial capitalism.

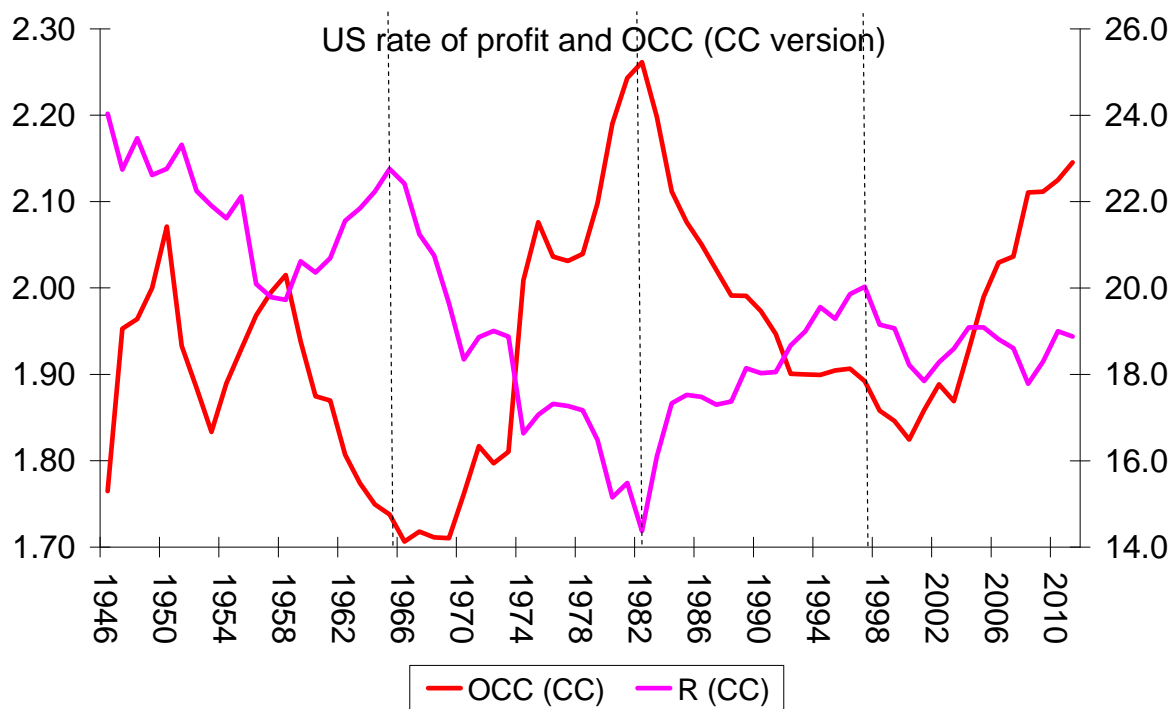
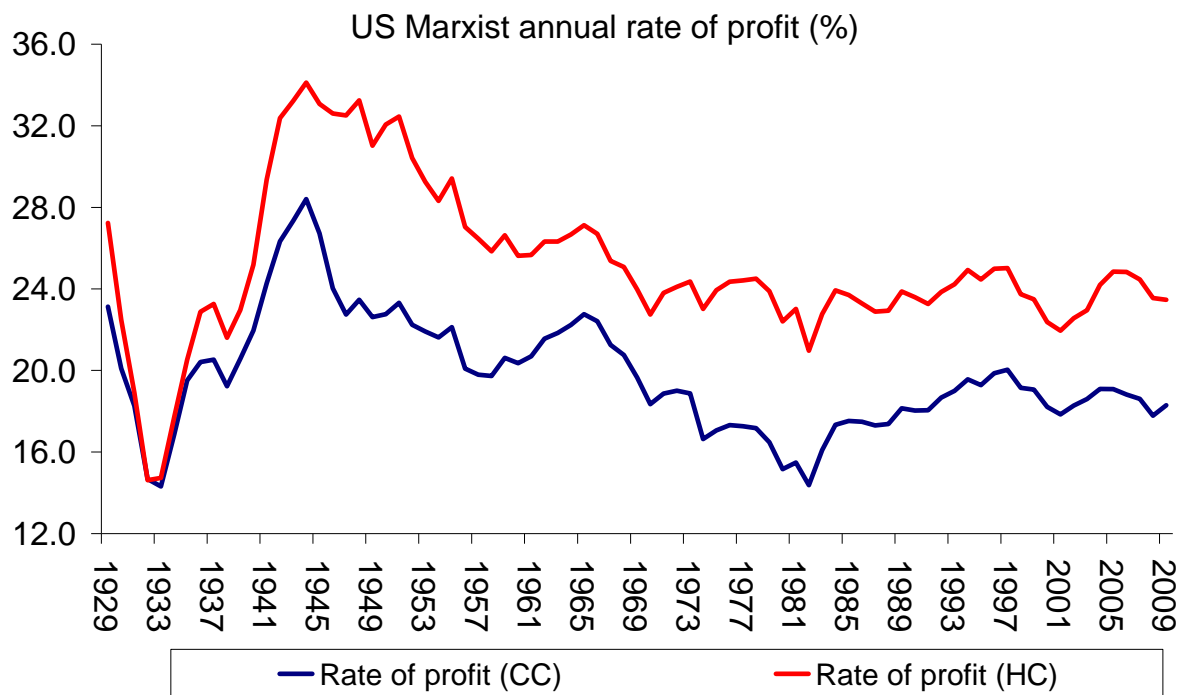
The causes of both the cyclical and secular movements in profitability are broadly two-fold. The first is driven by the change in the organic composition of capital (or capital productivity). This change is brought about through crisis and the destruction of the value of accumulated capital.

The second is driven by the change in the share of unproductive to productive labour and a long term tendency for the organic composition of capital to rise. A rising organic composition of capital will eventually lead to a fall in the rate of profit and vice versa. A rising share of unproductive to productive labour will lead to a fall in the rate of profit and vice versa³.

The evidence of the post-war period (at least in the US) shows that profitability can be divided into four periods of 16-18 years, making up two full cycles. The first period from 1946-65 was one of rising or high profitability (the so-called Golden Age). The second period from 1965-82 was one of falling profitability (a crisis period). The third period of 1982-97 was one of rising profitability (now called the era of neo-liberalism). The fourth period of 1997-2014? is again one of falling profitability. As for the secular trend: each trough or peak in profitability has been lower than the previous one throughout 1946-2011.

This is displayed by the following graphics, measured by both current and historic costs. In the first graphic, the secular decline in profitability is exposed, whichever way you measure it. The cyclical movement in profitability is revealed clearly in the second graphic (measured by replacement or

current costs) and its inverse relationship with the organic composition of capital.



There has been much debate about the causes of the Great Recession of 2008-9 and, for that matter, previous economic slumps in capitalist production. Some have argued that each crisis of capitalism can have a different cause⁴. But as Guglielmo Carchedi has pointed out⁵ “*some Marxist authors reject what they see as “mono-causal” explanations, especially that of the tendential fall in the rate of profit. Instead, they argue, there is no single explanation valid for all crises, except that they are all a “property” of capitalism and that crises manifest in different forms in different periods and contexts. However, if this elusive and mysterious*

‘property’ becomes manifest as different causes of different crises, while itself remaining unknowable, if we do not know where all these different causes come from, then we have no crisis theory”.

Carchedi comments further *“if crises are recurrent and if they have all different causes, these different causes can explain the different crises, but not their recurrence. If they are recurrent, they must have a common cause that manifests itself recurrently as different causes of different crises. There is no way around the “monocausality” of crises.*⁶

Measurement matters

The cause of a crisis like the Great Recession must lie with the key laws of motion of capitalism. The most important law of motion of capitalism, Marx argued, was the law of the tendency of the rate of profit to fall. So it must be relevant to a Marxist explanation.⁷

Marx was clear on what his definition of the rate of profit (ROP) was – the general or overall rate of profit in an economy was the surplus value generated by the labour force divided by the cost of employing that labour force and the cost of physical or tangible assets and raw materials that are employed in production. His famous formula followed: $P = s/c+v$, where P is the rate of profit; s is surplus value; c is constant capital (means of production) and v is the cost of the labour power.

Marx is clear that the ROP applies to the whole economy. It is a general rate of profit derived from the total surplus value produced in an economy as a ratio to the total costs of capitalist production. All that surplus is produced by the labour power of workers employed in the ‘productive’ capitalist sectors of production. But some of that value is also transferred to unproductive sectors in the form of wages and profits and to non-capitalist sectors in the form of wages and taxes.

So the rate of profit is the total surplus value divided by total value of labour in all sectors and the cost of fixed and circulating assets in the capitalist sector. That means the fixed and circulating capital in the non-capitalist sector are not counted in the denominator for calculating the ROP. But the wages are.

Profit as a category applies to the capitalist sector of the economy. Wages as a category applies to the non-capitalist sector too. The value measured in the non-capitalist sector has been transferred from the capitalist sector through taxation, sales of non-capitalist production to the capitalist sector and through the raising of debt.

There are many ways of measuring a rate of profit *a la Marx*⁸ says Dumenil and Levy. Take constant capital. This is fixed assets of capitalist production plus raw materials used in the production process (circulating capital). In measuring the rate of profit, we must therefore exclude the residential assets (homes) of households and the assets of government and other non-profit activities.

A capitalist economy can be divided between a productive and unproductive sector. The productive sector (goods producing, transport and communications) creates all the value and surplus value. The unproductive sector (commercial trading, real estate, financial services) appropriates some of that value.

Then you could just look at the business sector of the capitalist economy for all parts of Marx’s ROP formula and exclude the wages of public sector workers. You could narrow it further and exclude

the wages of unproductive workers within the productive sector (supervisors, marketing staff etc). You can measure constant capital in current costs or in historic costs⁹. And you can measure profit before or after tax.

In my view, the simplest is the best. My graphic for the US economy follows a simple formula. S = net national product (that's GDP less depreciation) less v (employee compensation); c = net fixed assets (either on an historic or current cost basis); and v = employee compensation ie wages plus benefits. My measure of value is for the whole economy and not just for the corporate sector (which would exclude employee costs or the product appropriated by government from the private sector through taxation). It also includes the value and profits appropriated by the financial sector, even though it is not productive in the Marxist sense. My measure of constant capital is for the capitalist sector only and so excludes household investment in homes and government investment.

Do these different measures matter? Yes and no

In one way, it does not seem to matter how you measure the Marxist rate of profit. All measures show that for the US economy, the largest capitalist economy with 25% of annual world GDP and twice as large as the next largest capitalist economy, there has been a secular trend downwards in the rate of profit for any period in which we have data. And this is correlated with a trend upwards in the organic composition of capital, suggesting that Marx's most important law of motion of capitalism, namely the tendency of the rate of profit to fall as the organic composition capital rises, is confirmed by the evidence.

Dumenil and Levy find that "The profit rate in 2000 is still only half of its value in 1948. Finally, we show that the decline of the productivity of capital was the main factor of the fall of the profit rate, though the decline of the share of profits also contributed to this evolution."¹⁰

But it may matter when it comes to applying Marx's law to the causes of capitalist crisis. Most of those who have provided measures of the rate of profit *a la Marx*, have found that the ROP peaked in 1997 after the rise from the trough of 1982 and was not surpassed even in the boom of 2002-07.

Simon Mohun spells out his thesis in a recent paper¹¹ "*that US capitalism is characterised by long secular periods of falling profitability and long secular periods of rising profitability and crises are associated with major turning points*". Mohun's turning points seem to be a 1946 trough in profitability, a 1965 peak, a 1982 trough and a 1997 peak – similar to mine

Li Minqi, Fenq Xiao and Andong Zu¹² looked at the movement of the profit rate and related variables in the UK, the US, Japan, and the Euro-zone. According to them, since the mid-19th century there have been four long waves in the movement of the average profit rate and rate of accumulation. They find a peak at 1997 in the ROP for the US.

David M Kotz¹³ uses an after-tax rate of profit measure of the nonfinancial corporate business sector as a percentage of net worth. Kotz finds that the US ROP rose rapidly to 1997. Then it peaked and fell sharply thereafter.

Anwar Shaikh¹⁴, using another measure of ROP as profits of enterprise, which excludes rent, interest and taxes, finds that that the US ROP peaked in 1997.

George Economakis, Alexis Anastasiadis and Maria Markaki¹⁵ measure the Marxist rate of profit by the net product less employee compensation divided by net fixed capital of US non-financial corporates, which is very close to my broader measure. They find that the ROP rose from 10.6% in 1946 to a peak of 19% in 1966, falling back to 9.6% in 1983 and then rising to a peak of 18.2 % in 1997 before dropping back again remaining under the peak of 1997 thereafter. They also find that adding the financial sector into the equation makes no difference to the turning points or trend of the ROP.

And Erdogan Bakir and Al Campbell find that US after-tax profit rate peaked in 1997 at about 7.5% before falling back and the next peak in 2006 was still below that of 1997.¹⁶

All these studies not only confirm the secular decline in the US ROP since 1946 but also agree that there was a cyclical movement in the ROP, with turning points of a peak in 1965-6, a trough at 1982 and then a peak in 1997, not surpassed since.

But there are three recent measures that disagree with this. Guglielmo Carchedi shows that the US ROP has a secular decline and has cyclical changes too¹⁷. But the ROP did not peak until 2006 and the onset of the Great Recession.

But Carchedi looks only at the productive, goods producing sector. He wants to isolate the causal effect of Marx's TRPF law, where a rising OCC leads to a falling ROP unless counteracting influences intervene. This works well to show the secular decline in ROP, but not for the cyclical movements of the ROP.

Michel Husson¹⁸ finds that the US ROP did not peak in 1997 but went higher afterwards. He correctly includes the unproductive sector and financial sector in his measurement of the ROP: *"This can be understood: the share of profit taken by the financial companies represents a growing fraction of the profits realised by the private sector as a whole."* But Husson applies a very odd way of measuring the US rate of profit. He uses the net operating surplus of the private sector and then deducts rental income. If he added back rental income to the his measure of surplus value, then his measure of ROP would have peaked in 1997 too.

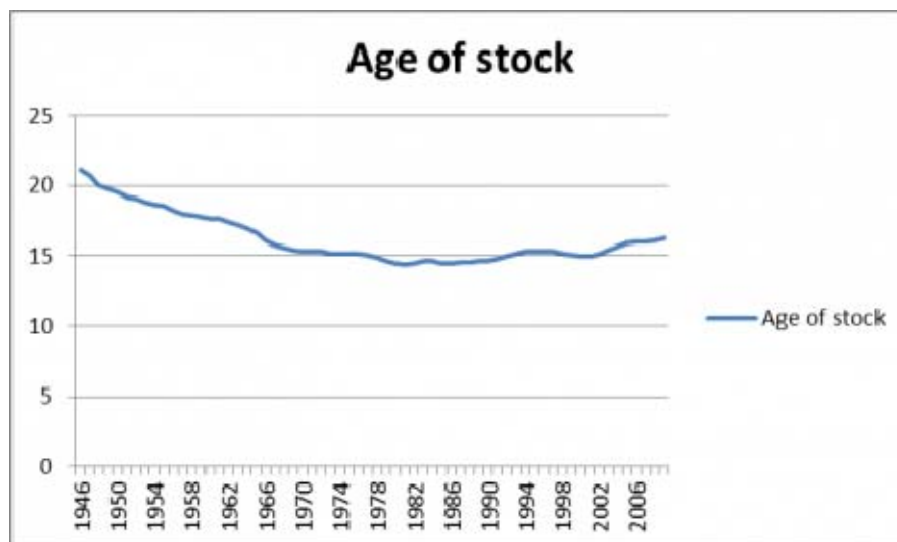
Andrew Kliman¹⁹ has several measures of US ROP. He includes the financial sector in his measures. But his favoured one of 'property income' measured against the historic cost of net fixed assets has shown no cyclical turning points but just a 'persistent' fall in the ROP. Kliman argues that the rise in ROP since 1982 as shown by others is because they measure the ROP against current costs and not historic costs, as Marx would. But both Carchedi's and my measure use historic costs and they both still show a rise in ROP after 1982.

Cycles of profitability

The body of evidence from a range of sources on measuring the US ROP since 1946 shows that there has been a secular fall in profitability since 1946 but that it has been interspersed with a cycle of up and down phases. There is mostly agreement that the first up phase was from 1946 to 1965, the next down phase was from 1965 to 1982 and then there was an up phase from 1982 to 1997 followed by a down phase afterwards. So there is a cycle of profitability, as well as a secular decline.

Carchedi provides a very good explanation of why there is a cyclical process, namely the working of Marx's law of TRPF. This law of a rising organic compositions of capital operates with counteracting influences of cheapening constant capital from new technology; a move into sectors with a lower organic composition of capital and increases in the rate of exploitation.

But why about 16-18 years of up and down? Well, if you look at the data provided by the US Bureau of Economic Analysis, on which we all rely for our profitability figures, the aging structure of fixed assets (plant, equipment, technology) for the capitalist production sector of the economy seems to have an average life of about 16-18 years! This seems to confirm Marx's tentative explanation for the length of the cycles of capitalist production being dependent on a renewing of fixed capital, although he suggested the cycle was about ten years in length²⁰. The cycle of up and down in profitability and the turning points relate to when capitalists (on average) need to renew capital stock in a big way in order to restore profitability. See the chart below on the US stock of fixed capital.



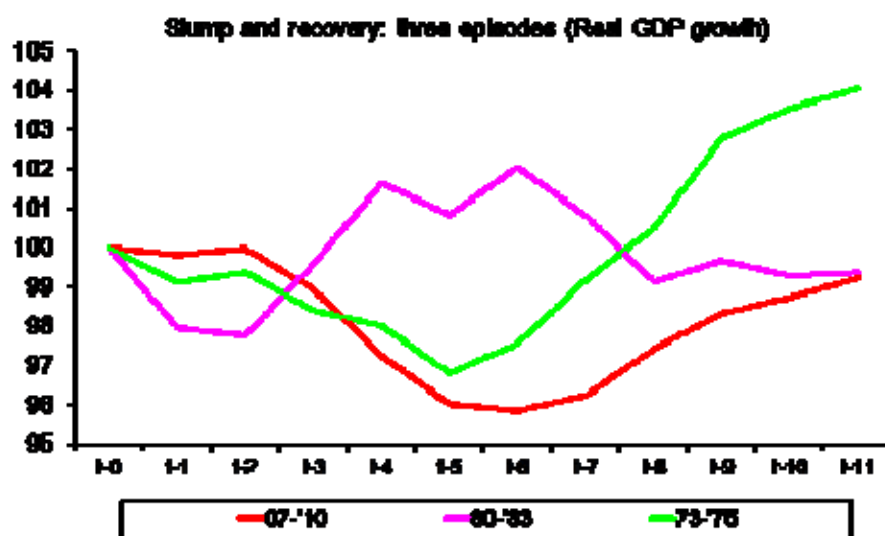
But what is happening to US profitability at the moment? We are currently still in a down phase for profitability from the last peak in 1997. From 1997, there was a fall to 2001, followed by a recovery (in the credit boom) up to 2005-6. On my Marxist measure, the peak of 1997 was not surpassed in 2005-6. After that, profitability fell back to reach a new trough in 2009 during the depth of the Great Recession.

Since mid-2009, there has been another recovery in profitability as weaker capitalist companies have been bankrupted and others have written off large swathes of redundant and unprofitable assets. This has laid the basis for a short-term recovery in profits that could last until 2012-13. But these shorter-length profit cycles are really the product of the running down the stock of working capital (called the Kitchin cycle, named after that economist) and not a decisive 'turning-point' in profitability. If the 16-18 year cycle holds, then the current profitability will not last beyond 2013 or so and then we'll enter a new downturn in the ROP to reach a new trough by 2014-15. That will instigate a new economic slump as capitalists try to remove the last vestiges of dead capital still in the system that is holding back a sustainable up phase in profitability.

Interestingly, this prediction of 2014-15 for the next recession matches the evidence of the current length of cycles of boom and slump registered by the National Bureau of Economic

Research. The NBER reckons the cycle since 1945 has averaged 57 months, or pretty much equivalent to the Kitchin cycle. With the last trough in mid-2009, that suggests the next one will be around early 2014.

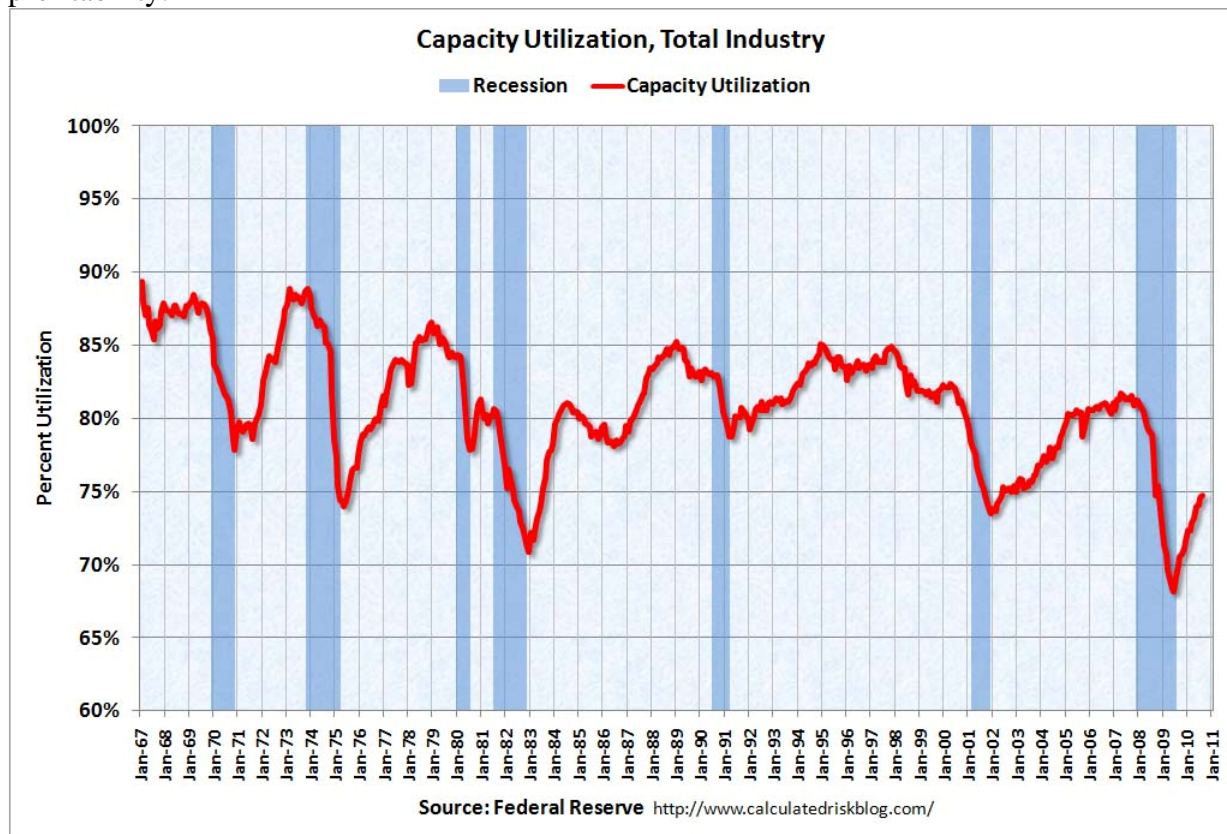
But what is significant about the current economy recovery is that it is very weak, much weaker than previous recoveries after 1974-5, 1980-2 or 1991. Look at this graphic that shows the rate and amount of recovery in real GDP in the US after the point of the trough in the slump. In the 1974-5 recession, it took eight quarters before the previous peak in national output was reached. In the 1980-82 recession, the previous peak was reached within six quarters, although then there was a drop back in a 'double-dip'. In 1990-1 (not shown) the slump was pretty shallow and the previous peak was reached within five quarters. But in the Great Recession, the previous peak in US national output had still not been reached after eleven quarters.



The reason for the relative weakness in the recovery is two-fold. First, as explained above, the trough in the down phase in the US profitability cycle still has to be reached and the current recovery in profits is not strong enough to suggest a new up phase. There is still too much dead capital in the system as the level of capacity utilisation in US industry reveals. In the period of the falling rate of profit from 1964-82, capacity utilisation fell (excluding the effects of the business cycle and recessions). In other words, capacity built up relative to profit or US capitalists 'overinvested' (i.e. the organic composition of capital rose).

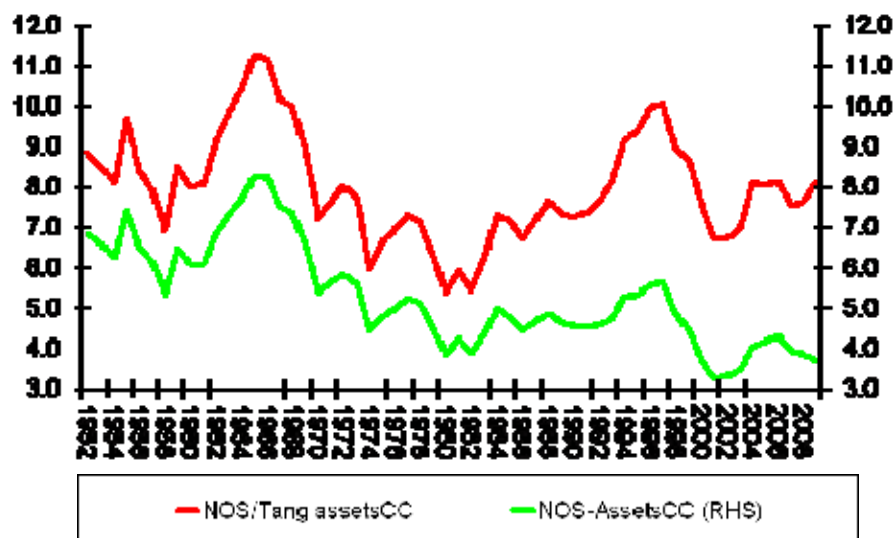
In the period of rising profitability from 1982-97, capacity utilisation was stable or rising slightly, suggesting cutbacks in the organic composition of capital or underinvestment. Since 1998, profitability has been falling and so has capacity utilisation. And there is a secular trend down in capacity utilisation, as there has been in

profitability.



And that leads to the second reason. The huge build-up of fictitious capital during the great credit boom of 2002-7 has left a mountain of debt both in the private sector and the public sector (as governments borrowed hugely to finance the bailout of the collapsing banking system).

Indeed, we can measure the downward pressure on profitability caused by the expansion of this fictitious capital over the last 60 years in the US²¹. The graphic below shows the movement of US corporate profits (measured as net operating surplus – NOS) against tangible fixed assets (plant and equipment – *red line*) and then against real and fictitious capital (debt) added together (*green line*). Both lines exhibit the cyclical effect in profitability, but this is much more pronounced for the profitability of tangible fixed assets than for the wider measure of capital. Indeed, the profit rates between the two measures widen significantly after 1982 as capitalism ploughed more resources into the financial sector and into financial speculation to try to restore profitability. The gap reaches a peak from 1997 onwards during the great credit boom that went bust in 2007. And now, while profitability for tangible assets improved slightly in 2009, it was still falling for the wider measure. That shows the downward pressure on profitability from the mountain of financial debt still in the system.



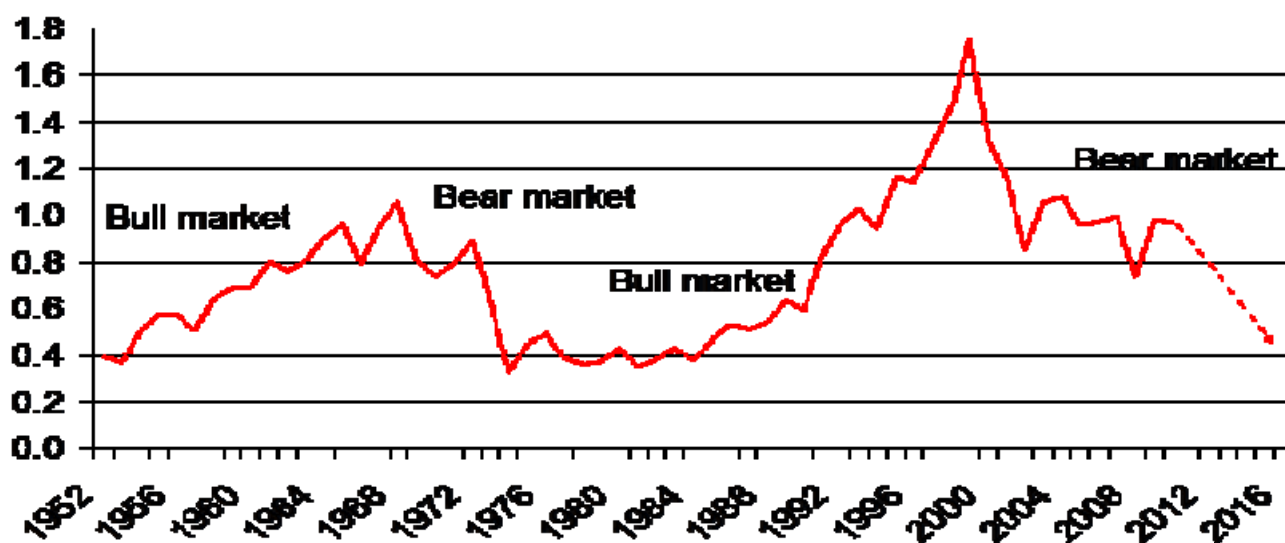
The writing-off of this money debt (called deleveraging) along with the writing down of the value of tangible fixed assets is going to take a long time. Recent historical studies by McKinsey and Rogoff and Reinhart²² show that deleveraging can take between four and seven years to complete before capitalists are prepared to borrow funds again to invest or households are prepared to borrow more to buy 'big ticket' items like houses or cars.

There has been unprecedented deleveraging since the Great Recession began to bite. The financial sector has sharply reduced its debts (by write-offs and bankruptcies). In the household sector too, debts have been reduced in absolute terms and relative income for the first time since the Great Depression of the 1930s. This deleveraging has been under way for about two years now. But at the same time, leverage in the public sector has rocketed, putting an extra burden on the capitalist sector to finance the cost of this new debt in higher taxes and/or higher interest rates to borrow to invest. And deleveraging through so-called 'fiscal austerity' programmes in Europe and the US has only just begun.

Until the level of debt in both the private and public sectors gets back to pre-credit boom levels, say where they were at the peak of the last profit up phase (1997), profitability will struggle to recover much and will eventually fall back again. Completing the write-off of capital (both real and fictitious) is likely to take another economic slump – thus 2014-5 again.

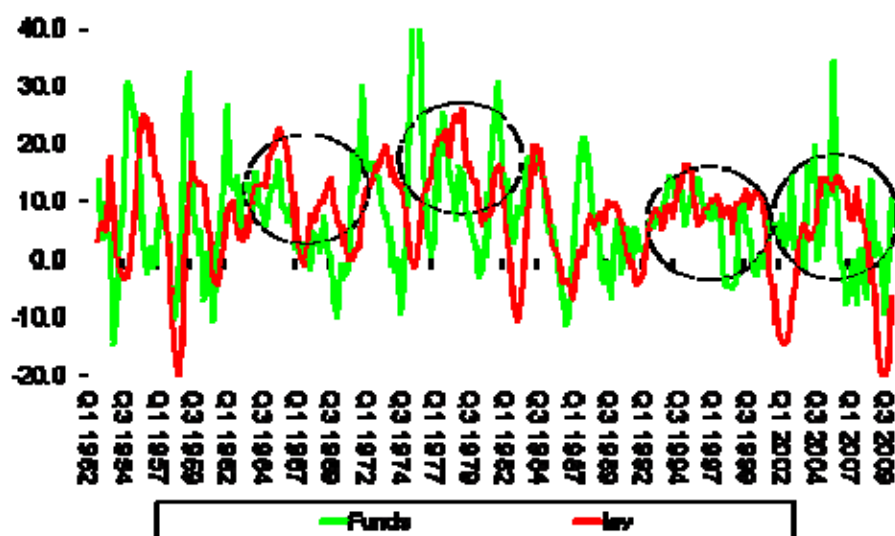
That there is still much fictitious capital in the system is revealed by the value of the stock market relative to a measure of the real value of the companies the stock prices represent. James Tobin, the leftist economist, developed a measure to tell if the stock market was overvalued or not and whether it would be heading down. It is called Tobin's Q, measuring the stock market's value against the replacement value of all the assets of the companies in a stock market index – in other words, the real value of the accumulated corporate assets. Tobin's Q for the US S&P-500 stock index (the top 500 companies by market value in the US) currently looks like this.

Tobin's Q ratio



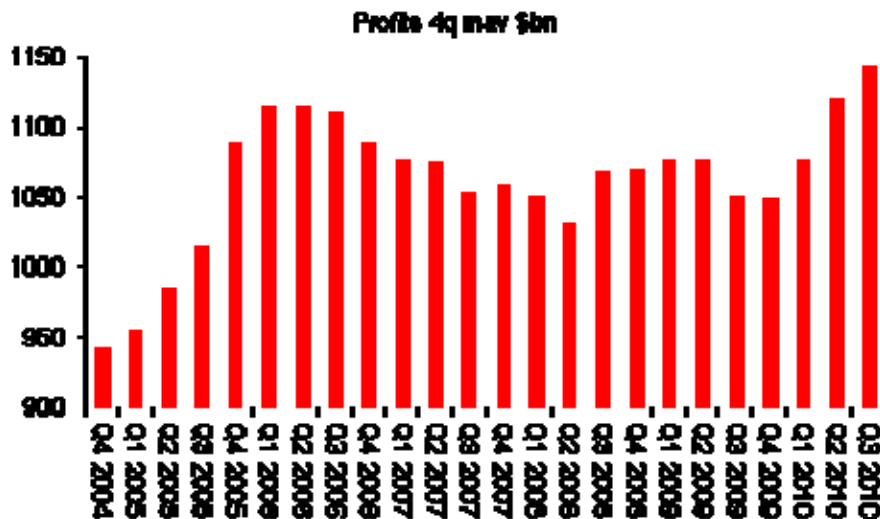
The ratio is still relatively high and not near the trough reached in 1982 which created the conditions for a bull market rally. You can see that the value of the stock market follows closely the movement of the Marxist rate of profit with a lag of about three years. For example, when the rate of profit peaked in 1997 and started to contract, the US stock market went on rising until 2000 before entering its current period of contraction, or 'bear market' as it is called. It still has some way to go before reaching a trough, probably about 2016-18.

There cannot be a closer connection in the capitalist system of production and exchange than that between profits and investment. The rise and fall in profits and profitability drives the rise and fall in investment. In the graphic below, the green line shows the year on year change in US corporate profits (or internally-generated revenues) against the year-on-year movement in private fixed investment (red line). Profits clearly lead investment in booms and slumps. And profits are recovering now, allowing investment to come back.



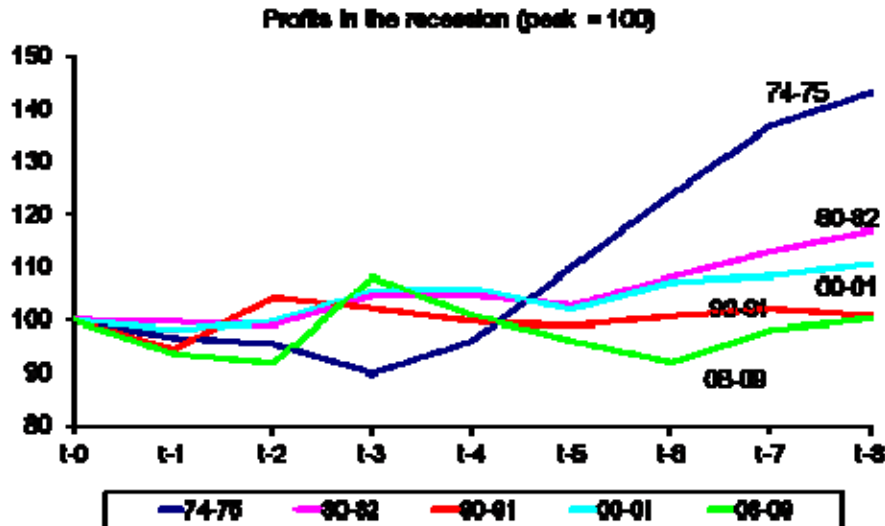
Let's take this argument a little further by looking more closely at the current economic recovery, as usual by using US data that include Q3'10. The evidence on profits is clear. US

corporate profits peaked in early 2006 – that’s the absolute amount, not the rate of profit, which I have shown elsewhere peaked earlier in 2005. From its peak in early 2006, the mass of profits fell until mid-2008, made a limited recovery in early 2009 and then fell to a new low in mid-2009. After that, the recovery in profits began and previous peak in dollars of early 2006 was surpassed in mid-2010.

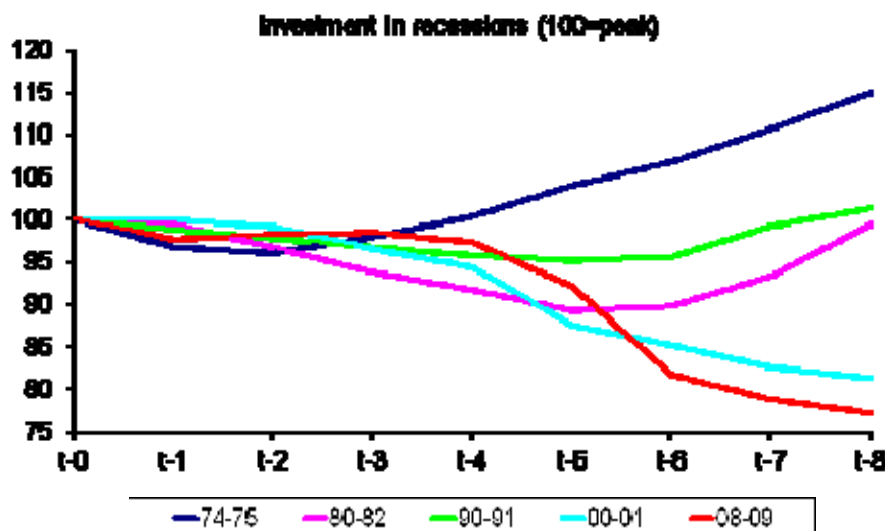


What was the reaction of investment to this movement in US profits? When US corporate profit growth started to slow in mid-2005 and then fell in absolute terms in 2006, corporate investment went on growing for a while as companies used up reserves or increased borrowing in the hope that profits would be restored. But when that did not materialise, investment growth slowed during 2007 and then fell absolutely in 2008, at one point falling at a near 20% yoy rate. Profits started to recover at the end of 2009 and two quarters later, so did investment.

It’s what you would expect. It tells you that profits were falling well before the credit crunch began. So, the crisis was not really financial in origin but did indeed follow a classic Marxist crisis of profitability even if the eventual trigger for the slump was in the financial sector. Second, the movement of profits leads the movement of investment, not vice versa (as many Keynesians would argue).



And the investment recovery this time still has some way to go. After the 1980s and 1990s recessions, it took eight quarters to restore investment to its previous nominal peak and only four quarters in 1974-5. But in the Great Recession, investment has only started to recovery 12 quarters after its peak in Q3'07 and is still 19% below that peak. This is a very weak recovery.



Dumenil and Levy would disagree with this explanation of capitalist crisis. Indeed, profitability is not always and not even often the cause of these ‘structural crises’, argues Dumenil. Dumenil had “no idea why there were structural crises every 30-40 years”, but each structural crisis laid the basis for a change in the prevailing social order²³. Those who argue that falling profitability is the cause of capitalist crises forget that Marx did not raise this cause in the *Communist Manifesto*, but on the contrary referred to the cause of crisis in the credit system. The crisis of neoliberalism was caused when capitalists “lost control” of the credit system.

It was this imbalance of financialisation and globalisation that caused the structural crisis of 2008-9. It was not falling profitability. In his recent paper²⁴, Dumenil produces a graphic showing that the rate of profit for the US non-financial corporate sector peaked in 1965, fell

back to 1982, then rose to 1997, fell again to 2002 and then rose again to peak in 2006. For Dumenil, the crisis of 2008-9 could not be caused by falling profitability because it rose from 1982 to 2006. This was especially the case if you looked at after-tax profitability and not overall profitability. The trigger, but not the cause, of the crisis was the residential subprime loans market and the securitisation of those loans around the world,

It seems that, for Dumenil, every crisis is different –see Carchedi’s comments above on this. But that’s surely true in its immediate or proximate causes – in the latest crisis, it was the collapse of the US residential homes market that spread to bank assets and various ‘financial weapons of mass destruction’, as Dumenil says. In the 1970s, it was the oil price spike that triggered the first simultaneous post-war capitalist recession in 1974-5. In 1929, it was the Wall Street stock market crash that set off the Great Depression.

But these proximate causes do not reveal the underlying or ultimate cause of capitalist crisis. I would argue that Dumenil makes no clear distinction between proximate and ultimate cause, but merely cherry-picks his causal explanation as it seems to fit.

As I mentioned before, Dumenil’s data produces pretty much the same results on the movement of the US rate of profit that I and others in the ‘profitability camp’ have done. Namely, the US rate of profit peaked in 1965, then fell back to a low in 1982, then in the era of so-called neoliberalism, it rose to peak in 1997. That 1997 peak, according to Dumenil and my own data was not surpassed in 2006 at the peak of the credit boom. And the 1965 peak was also higher than the 1997 peak.

That suggests, as I argue in my book, *The Great Recession* and in my paper to last year’s AHE conference²⁵, that Marx’s law of profitability is the ultimate cause of capitalist crisis. Indeed, based on that view, in early 2006, I predicted the Great Recession would take place in 2009-10. I was wrong – it came a year earlier²⁶.

US profitability will soon resume its downward path (after its current recovery from the recession low of 2009), according to my interpretation of the data. It will reach a new low with a new recession in three to five years time. If that’s right, we can then judge better whether capitalist crises are a product of capitalists “losing control of credit” or the result of the inexorable tendency for the rate of profit to fall.

¹ Henryk Grossman (see *The law of accumulation and the breakdown of the capitalist system*) saw Marx’s law of profitability as one of breakdown. But Marx did not suggest that the law as such would lead to some permanent demise. On the contrary, he connected it more to a cycle of capitalist accumulation but with a downward tendency.

² See my book, *The Great Recession*, chapter 6.

³ See *The Great Recession*, chapter 7.

⁴ See G Dumenil and D Levy, *The crisis of neoliberalism*, 2011.

⁵ International Socialism issue 125

⁶ Personal email to me

⁷ Capital Vol III, Part III, Chapter 13

⁸ Dumenil and Levy, The crisis of the 21st century, a critical review of alternative interpretations, 2011

⁹ This is a major debate between Andrew Kliman, Michel Husson and Fred Moseley, See Dumenil and Levy's comments op cit.

¹⁰ Dumenil and Levy op cit

¹¹ Simon Mohun, The present crisis in historical perspective, November 2010, Historical Materialism conference.

¹² Li Minqi, Feng Xiao, Andong Zhu, Long waves, institutional changes and historical trends: a study of the long-term movement of the rate of profit in the capitalist world economy, 2007, Journal of World Systems Research

¹³ David M Kotz, Accumulation and crisis in the contemporary US economy, June 2007, Review of Radical Political Economics

¹⁴ Anwar Shaikh, The first great depression of the 21st century, Socialist Register 2011

¹⁵ Economakis, Anastasiadis and Markaki, An empirical investigation on the US economic performance from 1929 to 2008, Critique 2010

¹⁶ Erdogan Bakir and Al Campbell, Neoliberalism, the rate of profit and the rate of accumulation, Science and Society July 2010.

¹⁷ G Carchedi, Behind the crisis, 2010

¹⁸ M Husson, Taux de profit 2009, the debate on the rate of profit, July 2010

¹⁹ A Kliman, The persistent fall in profitability underlying the crisis, March 2010

²⁰ Marx regarded "the average period for the replacement of machinery is *one* important factor in explaining the multi-year cycle which had been a feature of industrial development ever since the consolidation of big industry' (02.03.58, CW40, 278). In discussion with Engels, Marx commented 'The figure of 13 years corresponds closely enough to the theory, since it establishes a *unit* for one epoch of industrial reproduction which *plus ou moins* coincides with the period in which major crises recur; needless to say their course is also determined by factors of a quite different kind, depending on their period of reproduction. For me the important thing is to discover, in the immediate material postulates of big industry, *one* factor that determines cycles' (05.03.58, CW40, 282).

²¹ This idea was first presented to me in relation to the UK economy by Alan Freeman

²² C Reinhart and K Rogoff, This time is different, 2009

²³ G Dumenil speaking at a presentation of his book, The crisis of neoliberalism, SOAS, London March 2011

²⁴ Dumenil and Levy op cit

²⁵ M Roberts, The causes of the Great Recession, July 2010

²⁶ The Great Recession, op cit