Zombies and Creative Destruction.

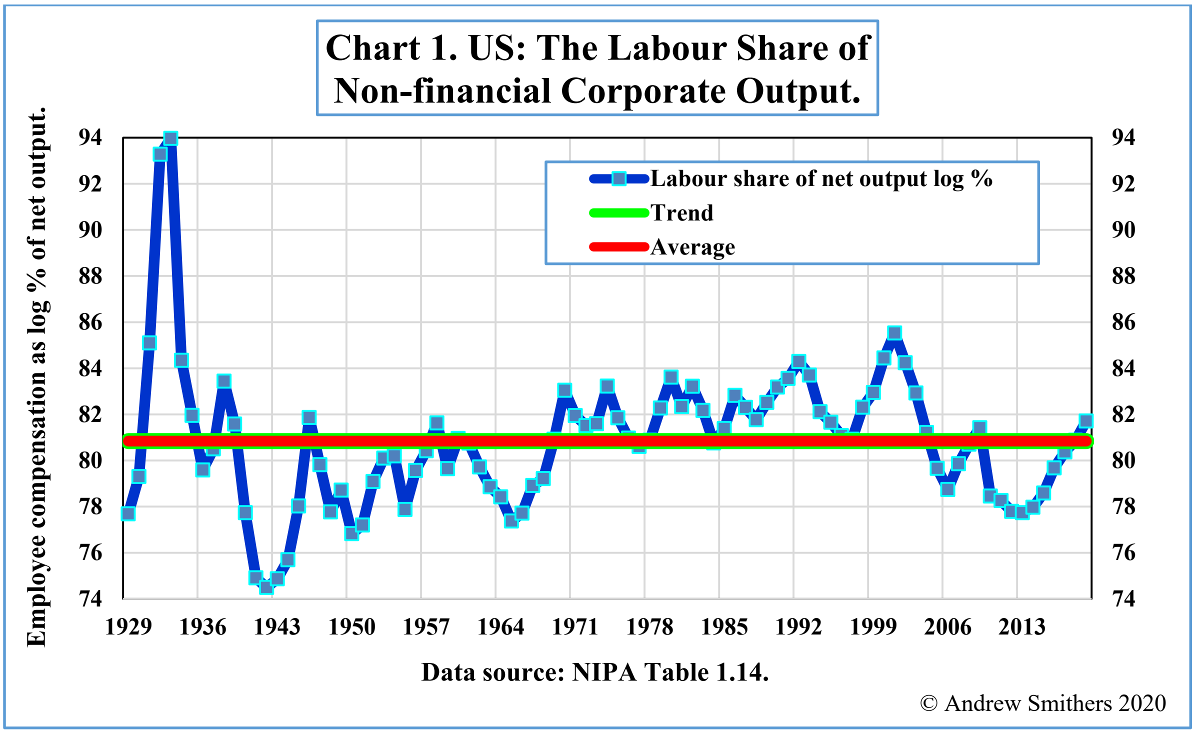
Low interest rates have allowed companies to survive which would otherwise have become bankrupt. This truth has fathered a popular fallacy[1] which claims that it has a damaging impact on productivity, because these weak survivors, termed zombies, do not invest and as their numbers rise this depresses the level of total investment. Statistics showing that the importance of these zombies has risen while business investment has fallen are assumed to be evidence which support the claim. This is, however, a fallacy arising from confusion over three issues: those between companies and their underlying businesses, between cause and correlation, and between the benefits of creative destruction under conditions of full employment and the damage arising from closing businesses in recessions.

Companies become bankrupt if their profits are insufficient to pay interest on their debts. If, however, the income from their sales is sufficient to cover the costs of the labour, materials and services necessary for their output, the bankruptcy of the company will not result in the business being shut down, as it will continue to operate after financial reconstruction. If profits are insufficient to cover the cost of depreciation then the value of the assets can be written down, equity swapped for debt, and the charge for depreciation reduced. The business will then continue provided that the capital value of its profits is greater than the breakup value of its assets. After reconstruction, companies may be entirely financed by equity, which creditors receive in exchange for the debts owed to them, or they may continue to be partly financed with debt. This will depend partly on the most advantageous arrangement for limiting the amount of tax payable. Most companies will have tax allowances based on the historic cost of their equipment, rather than its new written down value, and may also have tax losses that can be carried forward. The tax advantages of debt will then be small and leverage after reconstruction will usually be low.

The scrap value of businesses depends largely on the make-up of their assets and those most readily broken up will be those whose assets have a considerable value when employed for other activities. These are typically those of real estate and working capital employed in trade credit and inventories. Businesses whose assets are mainly in equipment will often have little value when their production is shut down and will thus be more likely to continue to operate after financial reconstruction. Surviving businesses with heavily written down assets can, as a result, make a satisfactory return on their reconstructed equity even though they were not

[1] See for example the leading article *Reasons to fear the march of the zombie companies* in the Financial Times of 25th June, 2020.

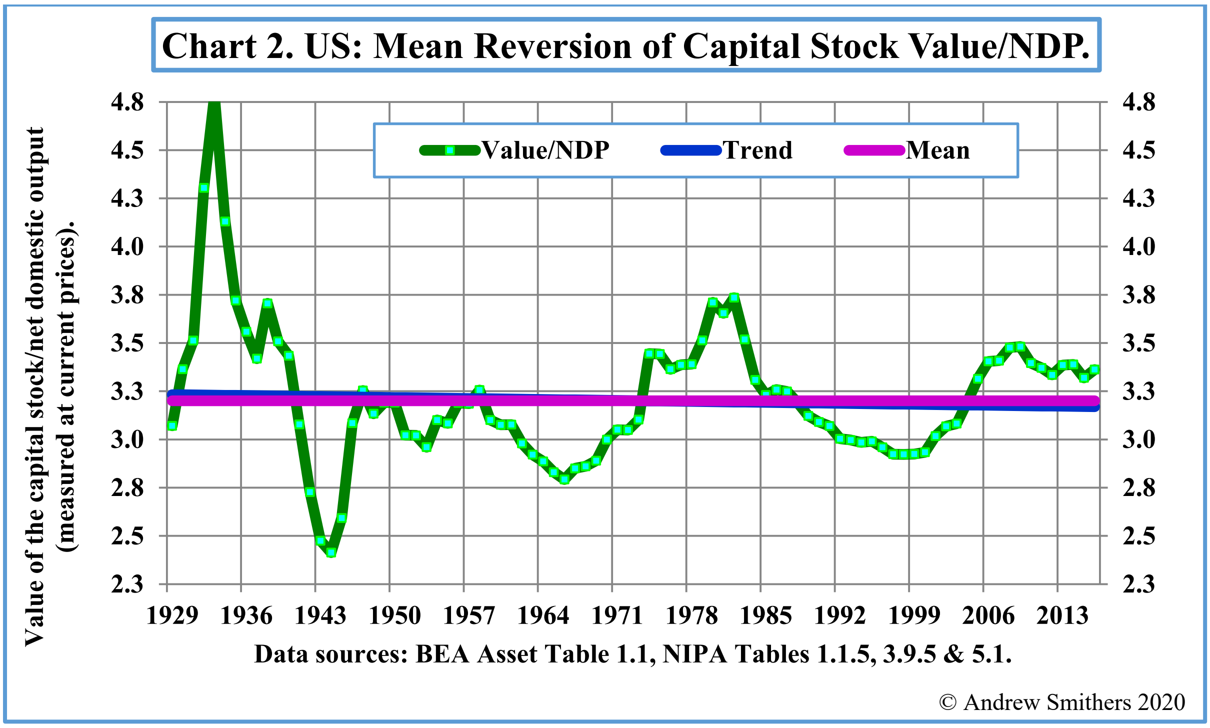
able to do so before their assets were written down, but they will seldom be ones where a viable return can be obtained on new plant and equipment. The return on new equipment will depend on its cost, whereas that on old equipment depends on its revised value.



Companies which cannot afford to invest in new equipment are unable to improve their productivity by the introduction of new equipment; their output per person employed will thus be stable and profits will therefore fall as real wages rise. I show in Chart 1[2] that the labour share of output is stationary, it varies around a stable mean with fluctuations in demand, which is demonstrated by the trend and the mean being the same. The rate of depreciation depends on the growth of real wages[3] which change in line with labour productivity if the profit and labour shares of output are stationary.

[2] As the chart uses log % the rises and falls in the labour share have the same proportionate value e.g. a fall of log 50% followed by the same rise brings the average back to its former level. US data are used rather than UK data, which are only available since 1997, which is too short a period to check for stationarity. It is, however, unlikely that if UK data were available for a long period, they would show a different pattern.

[3] As explained in *Neoclassical Growth with Fixed Factor Proportions* by R.M. Solow, J. Tobin, C.C. Weizsacker & M. Yaari The Review of Economic Studies Vol 33 No 2.



Under conditions of full employment the rate at which companies go bust varies with the speed at which labour productivity improves. As the ratio of output to the value of the produced capital stock is also stationary, as shown in Chart 2, real wages grow in line with the growth in capital, which depends on the level of net investment. If conditions of full employment always applied then the businesses which went bust would be those which invested little and showed the slowest improvement in productivity and, by definition, the labour freed by these closures would be employed by companies which achieved faster growth in productivity. This process which Joseph Schumpeter labelled creative destruction does not, however, apply when demand is weak. Businesses then fail through falling sales causing them to be unprofitable and their demise is destructive, as the resulting rise in unemployment depresses demand even further and those who lose their jobs cannot readily fine new ones.

The readiness with which the myth that zombie companies damage the economy has been accepted has probably been encouraged by a misunderstanding of creative destruction. For example Deutsche Bank AG chief economist Torsten Slok is quoted as remarking that "The Fed and the government are interfering in the process of creative destruction. The consequence is that we are at risk the longer this persists –- companies being kept alive that would otherwise have gone out of business -- that it will begin to weigh on the overall potential for growth of the economy and on productivity." [4]

When demand is not buoyant, however, bankruptcies are destructive as they cause unemployment to rise and make demand even weaker. The supply of skilled accountants and bankers needed for financial construction is limited, so bankruptcies can cause solvent businesses to be shut if many occur at one time. One way that low interest rates can aid the economy is by avoiding such a flood.

When investment is low labour productivity grows slowly and with real wages stagnating fewer weak businesses become insolvent. The rate at which new businesses are started is unlikely to accelerate when growth is poor and so low investment is accompanied by an increase in the proportion of weak companies with poor returns on equity, which has not been written down in value. These are the zombies, being those with low levels of new investment and poor levels of productivity. The importance of zombies therefore rises when there is a decline in the rate at which labour productivity improves. Low investment causes labour productivity to grow slowly and increases the number of zombies that survive, the correlation between the two does not therefore indicate a causal relationship and the confusion between cause and correlation has been added to the acceptance of the myth that zombies hurt the economy.

If there was no investment there would be no improvement in productivity and no depreciation. All companies would survive, none would invest and all would be zombies. The lower the rate of investment, the slower labour productivity improves, and the greater the proportion of zombies.

When new investment and growth slow, net investment is weak both because of the low level of new additions to the stock of capital, and because the increase in the survival of zombies reduces the rate at which old capital is scrapped. The result is a rise in the average life of the capital stock, as I show in Chart 3. As old capital is less productive than new this a feature of the slowdown in the rate at which labour productivity improves.

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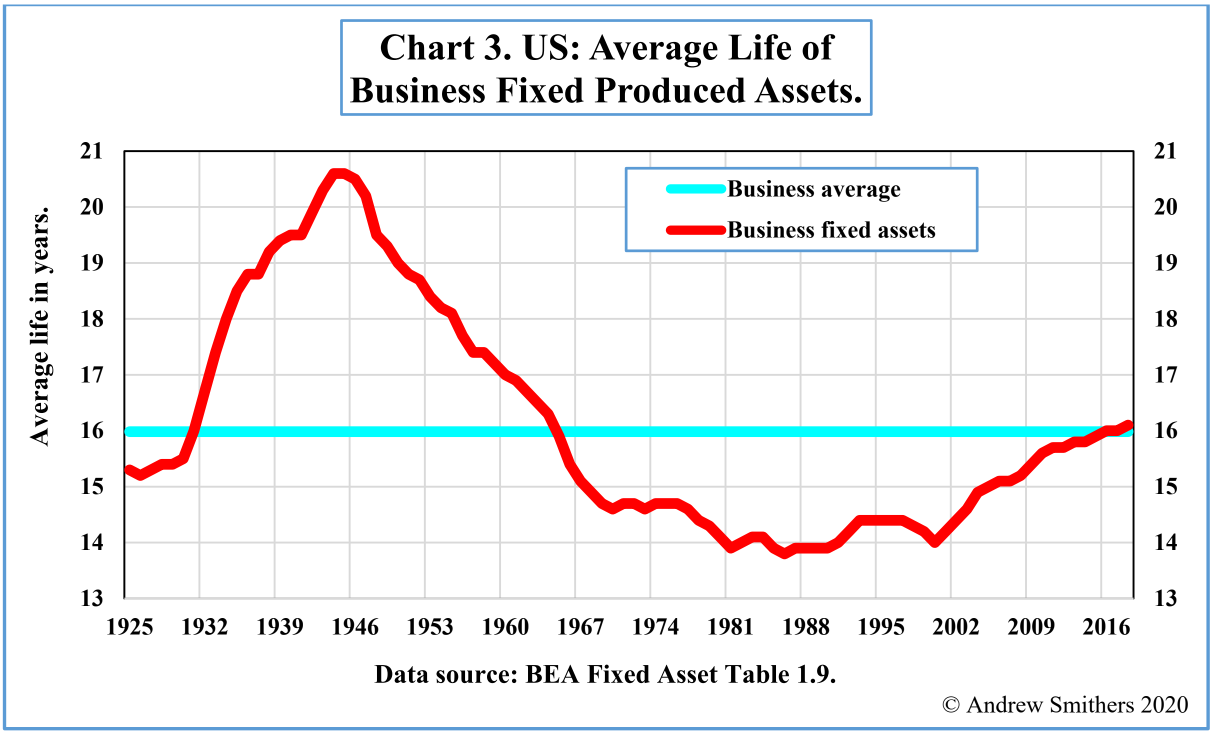
[4] *America's Zombie Companies Are Multiplying and Fueling New Risks* by Lisa Lee and Michelle F. Davis Bloomberg 19th May, 2020



Summary.

It is correct to claim that low interest rates lead to the survival of companies that would otherwise be bankrupt, but the assumption that this hurts the economy is a myth. Behind this myth are three sources of confusion.

(i) Business do not fail because the companies that own them cannot meet their debt payments.

(ii) The benefits of creative destruction apply only under conditions of full employment.

(iii) The correlation between low productivity and a high proportion of zombies among companies does not indicate a causal connection as both have a common cause which is the low level of investment.

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