

Economic growth, asset markets and the credit accelerator

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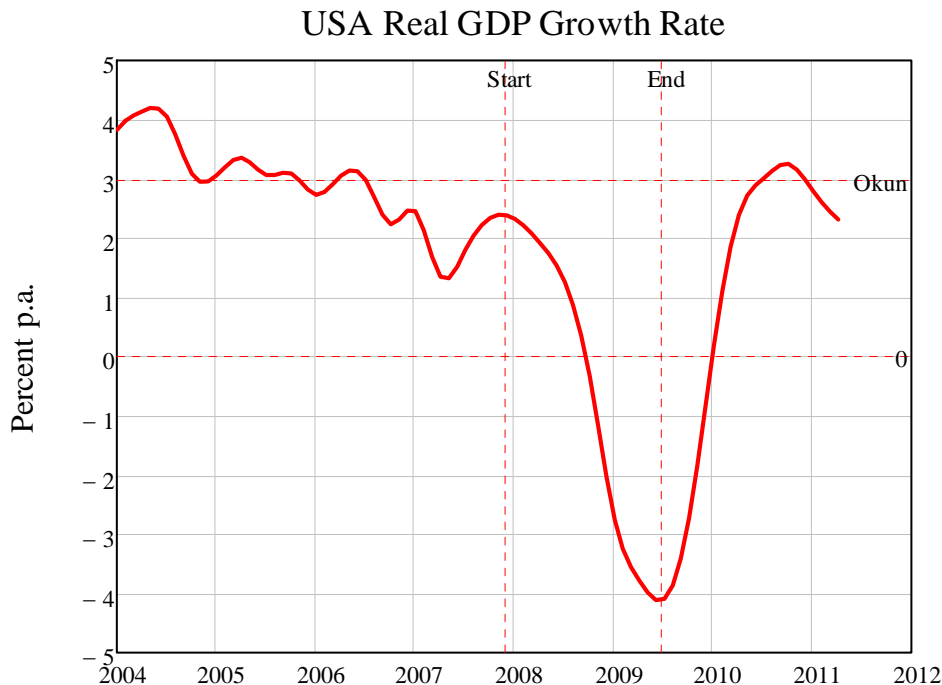
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According to the U.S. National Bureau of Economic Research, the “Great Recession” is now two years behind us, but the recovery that normally follows a recession has not occurred. While growth did rise for a while, it has been anaemic compared to the norm after a recession, and it is already trending down. Growth needs to exceed 3 per cent per annum to reduce unemployment—the rule of thumb known as Okun’s Law¹—and it needs to be substantially higher than this to make serious inroads into it. Instead, growth barely peeped its head above Okun’s level. It is now below it again, and trending down. Unemployment is therefore rising once more, and with it, Obama’s chances of re-election are rapidly fading.

Figure 1



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Obama was assured by his advisors that this wouldn’t happen. Right from the first “Economic Report of the President”² that he received from Bush’s outgoing Chairman of the Council of Economic Advisers Ed Lazear in January 2009³, he was assured that “the deeper the downturn, the stronger the recovery”. On the basis of the regression shown in Chart 1-9 of that report (on page 54), I am sure that Obama was told that real growth would probably exceed 5 per cent per annum—because this is what Ed Lazear told me after my session at the Australian Conference of Economists in September 2009.

¹ http://en.wikipedia.org/wiki/Okun's_law

² <http://www.gpoaccess.gov/eop/download.html>

³ http://www.gpoaccess.gov/eop/2009/2009_erp.pdf

Figure 2



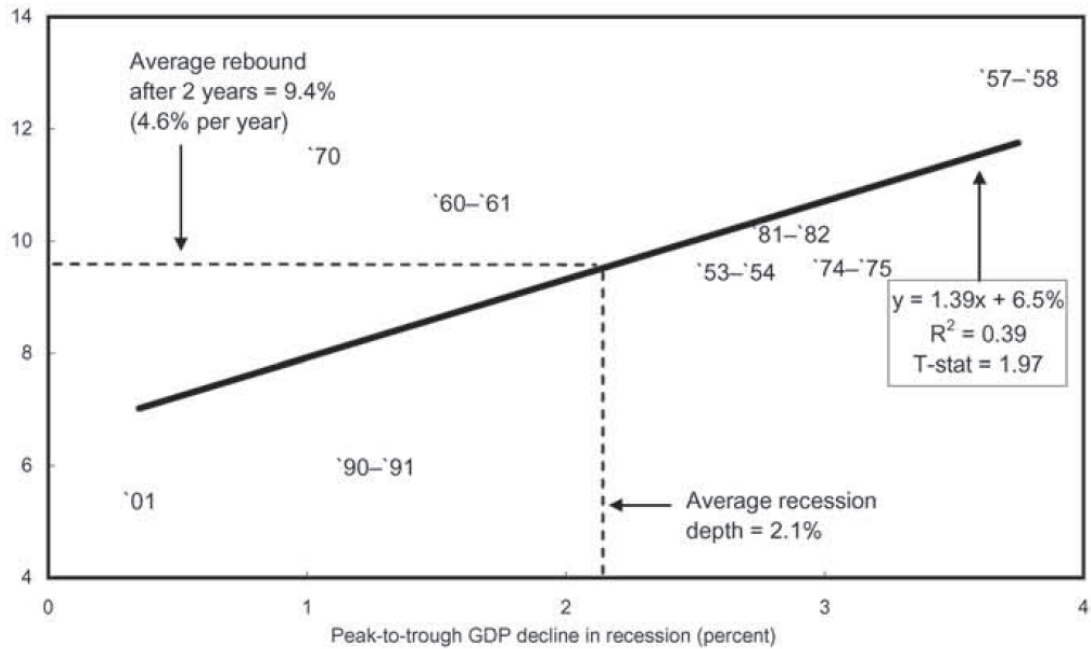
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Figure 3

Chart 1-9 Recessions and Recession Recoveries

GDP growth over the eight quarters following a recession tends to be higher after more severe recessions.

Growth over the eight quarters subsequent to GDP trough (percent)

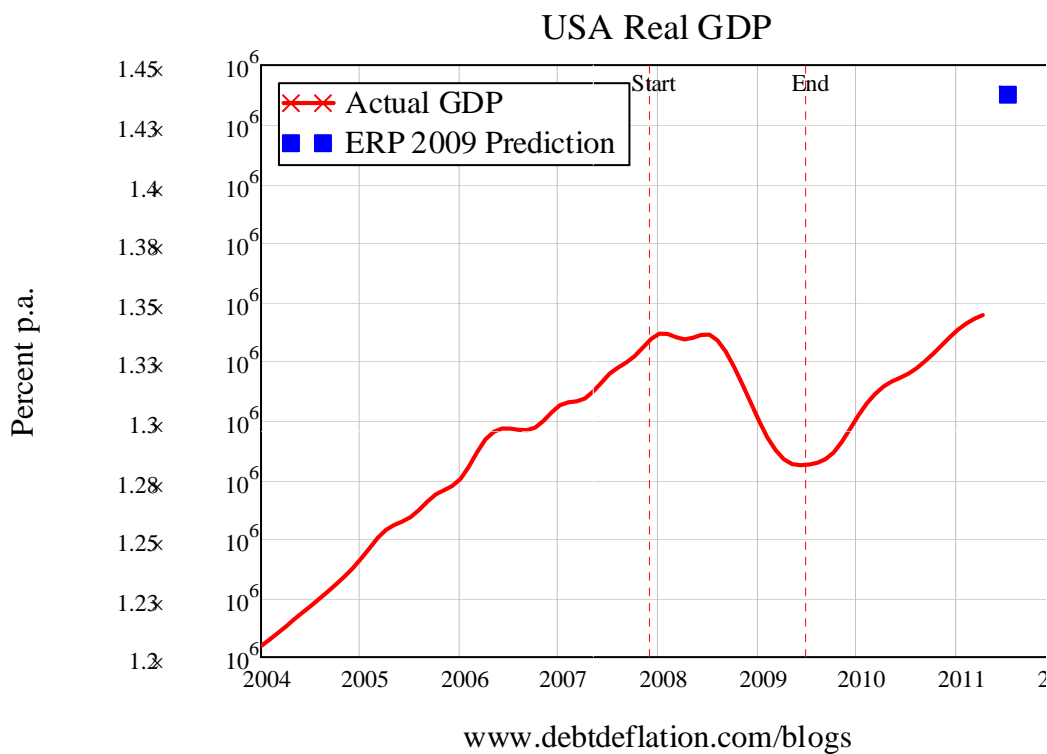


Note: Datapoint labels indicate year of recession. The depth of recession is measured from the peak GDP quarter to the minimum GDP quarter. The recovery is the eight-quarter growth from that minimum-GDP quarter. Source: Department of Commerce (Bureau of Economic Analysis).

I disputed this analysis then (see “In the Dark on Cause and Effect, Debtwatch October 2009”⁴), and events have certainly borne out my analysis rather than the conventional wisdom. To give an idea of how wrong this guidance was, the peak to trough decline in the Great Recession—the x-axis in Lazear’s Chart—was over 6 percent. His regression equation therefore predicted that GDP growth in the 2 years after the recession ended would have been over 12 percent. If this equation had born fruit, US Real GDP would be \$14.37 trillion in June 2011, versus the recorded \$13.44 trillion in March 2011.

So why has the conventional wisdom been so wrong? Largely because it has ignored the role of private debt.

Figure 4



Economic growth, asset markets and the credit accelerator

Neoclassical economists ignore the level of private debt, on the basis of the *a priori* argument that “one man’s liability is another man’s asset”, so that the aggregate level of debt has no macroeconomic impact. They reason that the increase in the debtor’s spending power is offset by the fall in the lender’s spending power, and there is therefore no change to aggregate demand.

Lest it be said that I’m parodying neoclassical economics, or relying on what lesser lights believe when the leaders of the profession know better, here are two apposite quotes from Ben Bernanke and Paul Krugman.

⁴ <http://www.debtdeflation.com/blogs/2009/10/04/debtwatch-no-39-october-2009-in-the-dark-on-cause-and-effect/>

Bernanke in his *Essays on the Great Depression*, explains why neoclassical economists didn't take Fisher's paper "Debt Deflation Theory of Great Depressions"⁵ seriously:

Fisher's idea was less influential in academic circles, though, because of the counterargument that debt-deflation represented no more than a redistribution from one group (debtors) to another (creditors). Absent implausibly large differences in marginal spending propensities among the groups, it was suggested, pure redistributions should have no significant macro-economic effects...⁶

Paul Krugman in his most recent draft academic paper⁷ on the crisis and co-author Gauti B. Eggertsson write:

Given both the prominence of debt in popular discussion of our current economic difficulties and the long tradition of invoking debt as a key factor in major economic contractions, one might have expected debt to be at the heart of most mainstream macroeconomic models—especially the analysis of monetary and fiscal policy. Perhaps somewhat surprisingly, however, it is quite common to abstract altogether from this feature of the economy. Even economists trying to analyze the problems of monetary and fiscal policy at the zero lower bound—and yes, that includes the authors—have often adopted representative-agent models in which everyone is alike, and in which the shock that pushes the economy into a situation in which even a zero interest rate isn't low enough takes the form of a shift in everyone's preferences...

And:

Ignoring the foreign component, or looking at the world as a whole, the overall level of debt makes no difference to aggregate net worth -- one person's liability is another person's asset.⁸

They are profoundly wrong on this point because neoclassical economists do not understand how money is created by the private banking system—despite decades of empirical research to the contrary, they continue to cling to the textbook vision of banks as mere intermediaries between savers and borrowers.

This is bizarre, since as long as 4 decades ago, the actual situation was put very simply by the then Senior Vice President, Federal Reserve Bank of New York, Alan Holmes. Holmes explained why the then faddish Monetarist policy of controlling inflation by controlling the growth of Base Money had failed, saying that it suffered from "a naive assumption" that:

the banking system only expands loans after the [Federal Reserve] System (or market factors) have put reserves in the banking system. *In the real world, banks*

⁵ Fisher, Irving. 1933. "The Debt-Deflation Theory of Great Depressions." *Econometrica*, 1(4), 337-57.

⁶ Bernanke, Ben S. 2000. *Essays on the Great Depression*. Princeton: Princeton University Press, p. 24.

⁷ Krugman, Paul and Gauti B. Eggertsson. 2010. "Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach [2nd Draft 2/14/2011]," New York: Federal Reserve Bank of New York & Princeton University, p. 2, http://www.princeton.edu/~pkrugman/debt_deleveraging_ge_pk.pdf

⁸ *Ibid*, p. 3.

extend credit, creating deposits in the process, and look for the reserves later. The question then becomes one of whether and how the Federal Reserve will accommodate the demand for reserves. In the very short run, the Federal Reserve has little or no choice about accommodating that demand; over time, its influence can obviously be felt.⁹ (emphasis added)

The empirical fact that “loans create deposits” means that the change in the level of private debt is matched by a change in the level of money, which boosts aggregate demand. The level of private debt therefore cannot be ignored—and the fact that neoclassical economists did ignore it (and, with the likes of Greenspan running the Fed, actively promoted its growth) is why this is no “garden variety” downturn.

In all the post-WWII recessions on which Lazear’s regression was based, the downturn ended when the growth of private debt turned positive again and boosted aggregate demand. This of itself is not a bad thing: as Schumpeter argued decades ago, in a well-functioning capitalist system, the main recipients of credit are entrepreneurs who have an idea, but not the money needed to put it into action:

“[I]n so far as credit cannot be given out of the results of past enterprise ... it can only consist of credit means of payment created ad hoc, which can be backed neither by money in the strict sense nor by products already in existence...

It provides us with the connection between lending and credit means of payment, and leads us to what I regard as the nature of the credit phenomenon... credit is essentially the creation of purchasing power for the purpose of transferring it to the entrepreneur, but not simply the transfer of existing purchasing power.”¹⁰

It becomes a bad thing when this additional credit goes, not to entrepreneurs, but to Ponzi merchants in the finance sector, who use it not to innovate or add to productive capacity, but to gamble on asset prices. This adds to debt levels without adding to the economy’s capacity to service them, leading to a blowout in the ratio of private debt to GDP. Ultimately, this process leads to a crisis like the one we are now in, where so much debt has been taken on that the growth of debt comes to an end. The economy then enters not a recession, but a Depression.

For a while though, it looked like a recovery was afoot: growth did rebound from the depths of the Great Recession, and very quickly compared to the Great Depression (though slowly when compared to Post-WWII recessions).

Clearly the scale of government spending, and the enormous increase in Base Money by Bernanke, had some impact—but nowhere near as much as they were hoping for. However the main factor that caused the brief recovery—and will also cause the dreaded “double dip”—is the Credit Accelerator.

⁹ Holmes, Alan R. 1969. "Operational Constraints on the Stabilization of Money Supply Growth," F. E. Morris, *Controlling Monetary Aggregates*. Nantucket Island: The Federal Reserve Bank of Boston, 65-77.

¹⁰ Schumpeter, Joseph Alois. 1934. *The Theory of Economic Development : An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*. Cambridge, Massachusetts: Harvard University Press.

I've previously called this the "Credit Impulse" (sing the name bestowed by Michael Biggs et al., 2010)¹¹, but I think "Credit Accelerator" is both more evocative and more accurate. The Credit Accelerator at any point in time is the change in the change in debt over previous year, divided by the GDP figure for that point in time. From first principles, here is why it matters.

Firstly, and contrary to the neoclassical model, a capitalist economy is characterized by excess supply at virtually all times: there is normally excess labor and excess productive capacity, even during booms. This is not per se a bad thing but merely an inherent characteristic of capitalism—and it is one of the reasons that capitalist economies generate a much higher rate of innovation than did socialist economies¹². The main constraint facing capitalist economies is therefore not supply, but demand.

Secondly, all demand is monetary, and there are two sources of money: incomes, *and the change in debt*. The second factor is ignored by neoclassical economics, but is vital to understanding a capitalist economy. Aggregate demand is therefore equal to Aggregate Supply *plus the change in debt*.

Thirdly, this Aggregate Demand is expended not merely on new goods and services, but also on net sales of existing assets. Walras' Law, that mainstay of neoclassical economics, is thus false in a credit-based economy—which happens to be the type of economy in which we live. Its replacement is the following expression, where the left hand is monetary demand and the right hand is the monetary value of production and asset sales:

$$\text{Income} + \text{Change in Debt} = \text{Output} + \text{Net Asset Sales};$$

In symbols (where I'm using an arrow to indicate the direction of causation rather than an equals sign), this is:

$$Y + \frac{d}{dt}D \rightarrow GDP + NAS$$

This means that it is impossible to separate the study of "Finance"—largely, the behaviour of asset markets—from the study of macroeconomics. Income and new credit are expended on both newly produced goods and services, and the two are as entwined as a scrambled egg.

Net Asset Sales can be broken down into three components:

- The asset price Level; times
- The fraction of assets sold; times
- The quantity of assets

Putting this in symbols:

$$NAS = P_A \cdot \sigma_A \cdot Q_A$$

¹¹ Biggs, Michael; Thomas Mayer and Andreas Pick. 2010. "Credit and Economic Recovery: Demystifying Phoenix Miracles." *SSRN eLibrary*.

¹² Kornai, Janos. 1980. "'Hard' and 'Soft' Budget Constraint." *Acta Oeconomica*, 25(3-4), 231-45.

That covers the levels of aggregate demand, aggregate supply and net asset sales. To consider economic growth—and asset price change—we have to look at the rate of change. That leads to the expression:

$$\frac{d}{dt}Y + \frac{d^2}{dt^2}D \rightarrow \frac{d}{dt}GDP + \frac{d}{dt}NAS$$

Therefore the rate of change of asset prices is related to the **acceleration** of debt. It's not the only factor obviously—change in incomes is also a factor, and as Schumpeter argued, there will be a link between accelerating debt and rising income **if** that debt is used to finance entrepreneurial activity. Our great misfortune is that accelerating debt hasn't been primarily used for that purpose, but has instead financed asset price bubbles.

There isn't a one-to-one link between accelerating debt and asset price rises: some of the borrowed money drives up production (think SUVs during the boom), consumer prices, the fraction of existing assets sold, and the production of new assets (think McMansions during the boom). But the more the economy becomes a disguised Ponzi Scheme, the more the acceleration of debt turns up in rising asset prices.

As Schumpeter's analysis shows, accelerating debt should lead change in output in a well-functioning economy; we unfortunately live in a Ponzi economy where accelerating debt leads to asset price bubbles.

In a well-functioning economy, periods of acceleration of debt would be followed by periods of deceleration, so that the ratio of debt to GDP cycled but did not rise over time. In a Ponzi economy, the acceleration of debt remains positive most of the time, leading not merely to cycles in the debt to GDP ratio, but a secular trend towards rising debt. When that trend exhausts itself, a Depression ensues—which is where we are now. Deleveraging replaces rising debt, the debt to GDP ratio falls, and debt starts to reduce aggregate demand rather than increase it as happens during a boom.

Even in that situation, however, the acceleration of debt can still give the economy a temporary boost—as Biggs, Meyer and Pick pointed out. A slowdown in the rate of decline of debt means that debt is accelerating: therefore even when aggregate private debt is falling—as it has since 2009—a slowdown in that rate of decline can give the economy a boost.

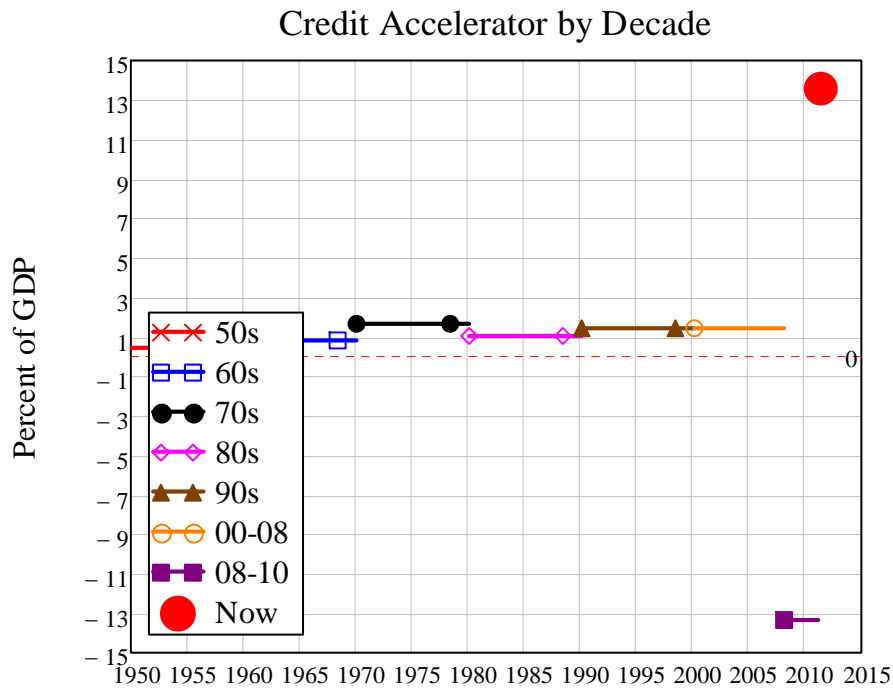
That's the major factor that generated the apparent recovery from the Great Recession: a slowdown in the rate of decline of private debt gave the economy a temporary boost. The same force caused the apparent boom of the Great Moderation: it wasn't "improved monetary policy" that caused the Great Moderation, as Bernanke once argued¹³, but bad monetary policy that wrongly ignored the impact of rising private debt upon the economy.

The factor that makes the recent recovery phase different to all previous ones—save the Great Depression itself—is that this strong boost from the Credit Accelerator has occurred

¹³ Bernanke, Ben S. 2004. "The Great Moderation: Remarks by Governor Ben S. Bernanke at the Meetings of the Eastern Economic Association, Washington, Dc February 20, 2004," *Eastern Economic Association*. Washington, DC: Federal Reserve Board.

while the *change in private debt* is still massively negative. I return to this point later when considering why the recovery is now petering out.

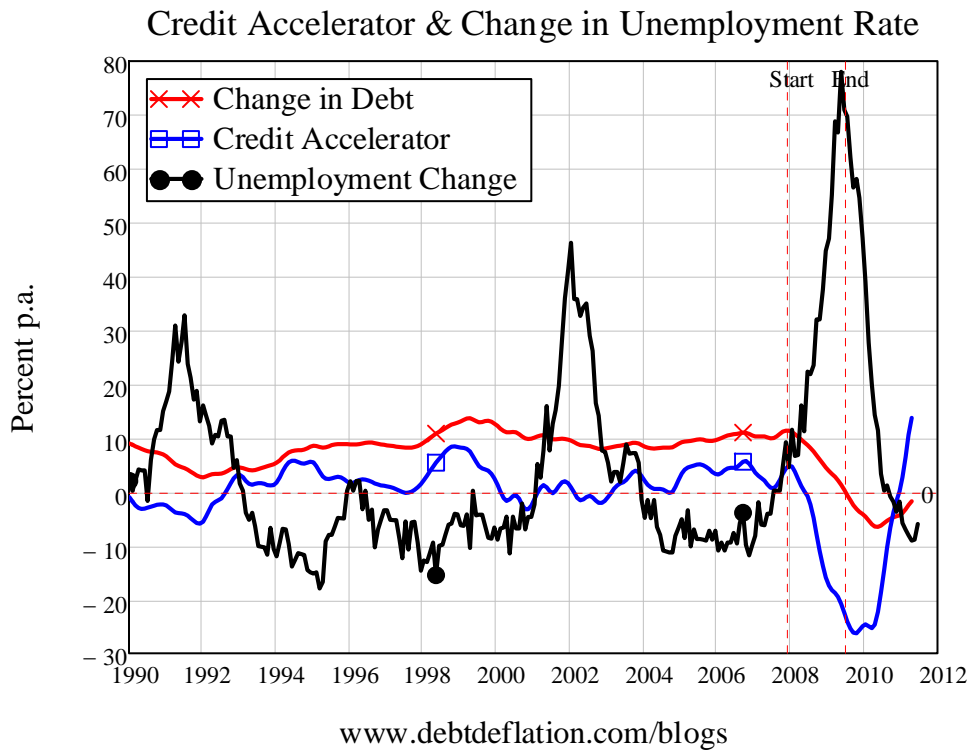
Figure 5



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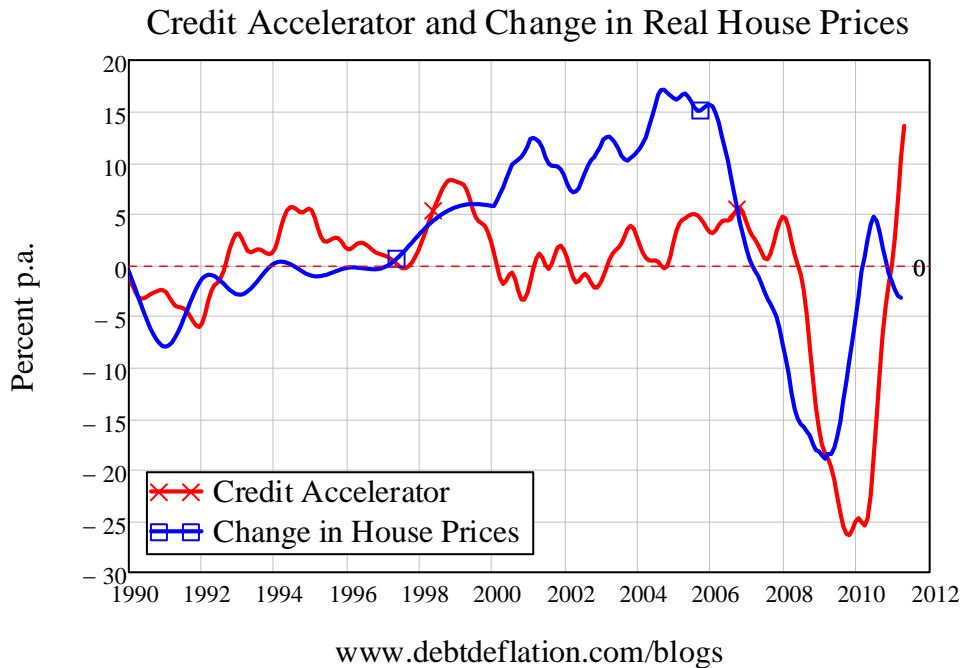
The last 20 years of economic data shows the impact that the Credit Accelerator has on the economy. The recent recovery in unemployment was largely caused by the dramatic reversal of the Credit Accelerator—from strongly negative to strongly positive—since late 2009:

Figure 6



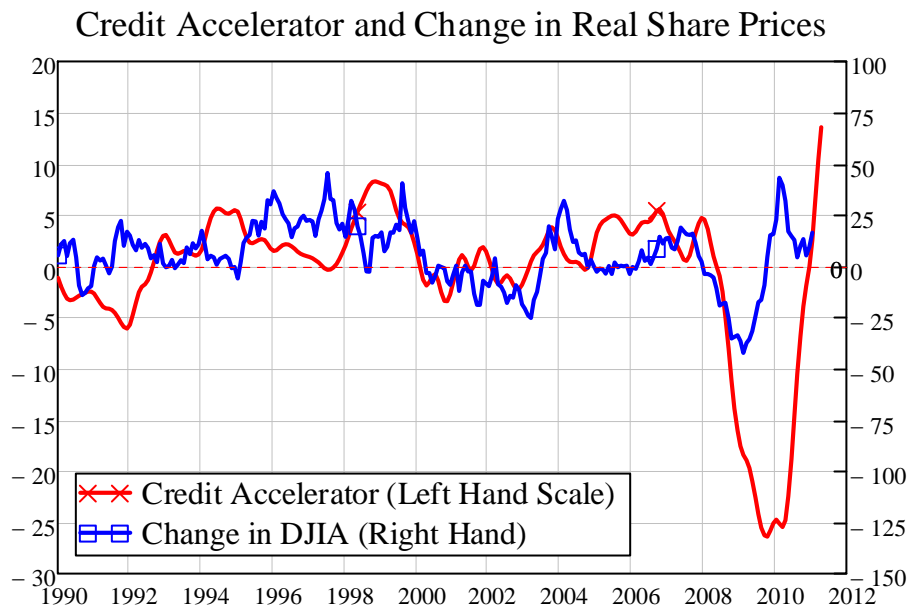
The Credit Accelerator also caused the temporary recovery in house prices:

Figure 7



And it was the primary factor driving the Bear Market rally in the stock market:

Figure 8



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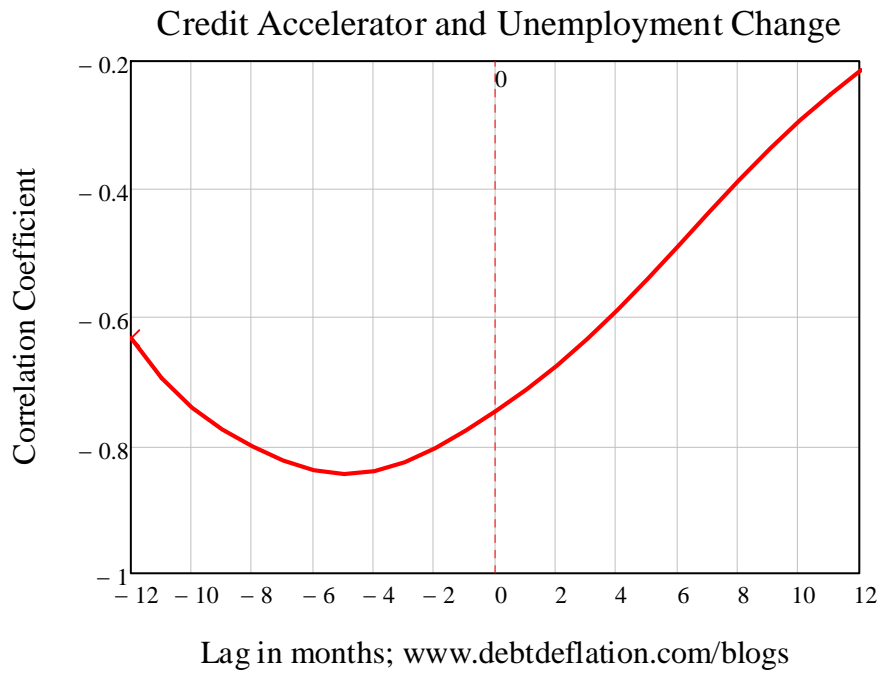
Leads and Lags

I use the change in the change in debt over a year because the monthly and quarterly data is simply too volatile; the annual change data smooths out much of the noise. Consequently the data shown for change in unemployment, house prices and the stock market are also for the change the previous year.

However the change in the change in debt operates can impact rapidly on some markets—notably the Stock Market. So though the correlations in the above graphs are already high, they are higher still when we consider the causal role of the debt accelerator in changing the level of aggregate demand by lagging the data.

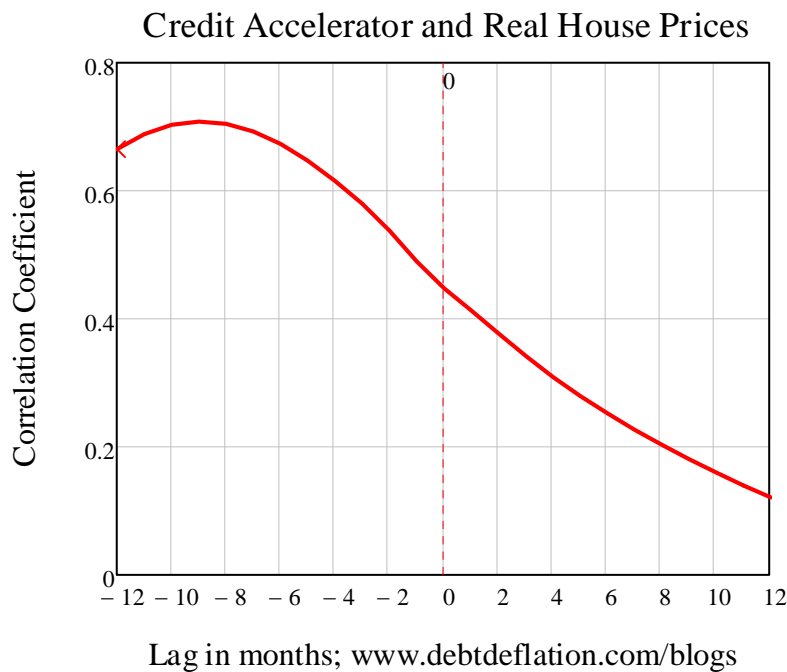
This shows that the annual Credit Accelerator leads annual changes in unemployment by roughly 5 months, and its maximum correlation is a staggering -0.85 (negative because an acceleration in debt causes a fall in unemployment by boosting aggregate demand, while a deceleration in debt causes a rise in unemployment by reducing aggregate demand).

Figure 9



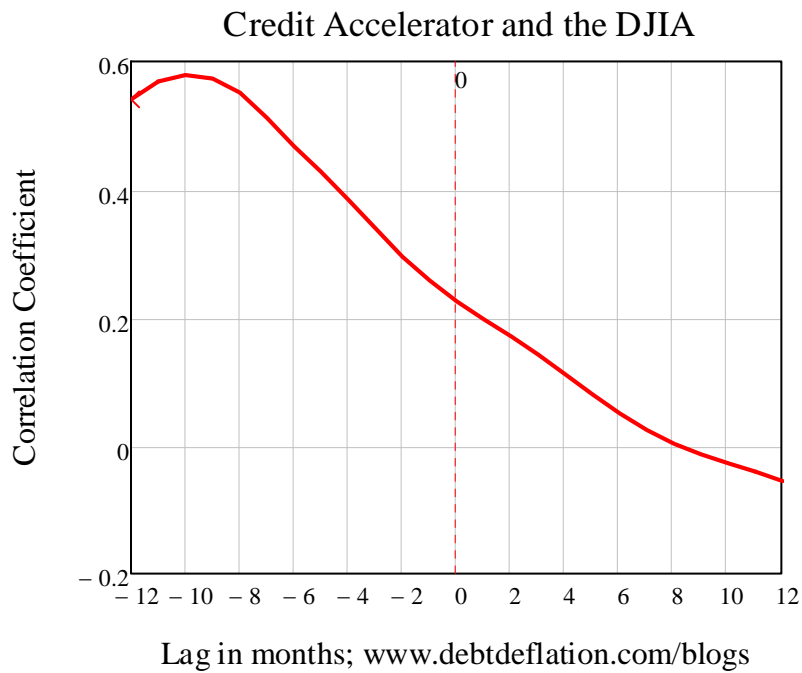
The correlation between the annual Credit Accelerator and annual change in real house prices peaks at about 0.7 roughly 9 months ahead:

Figure 10



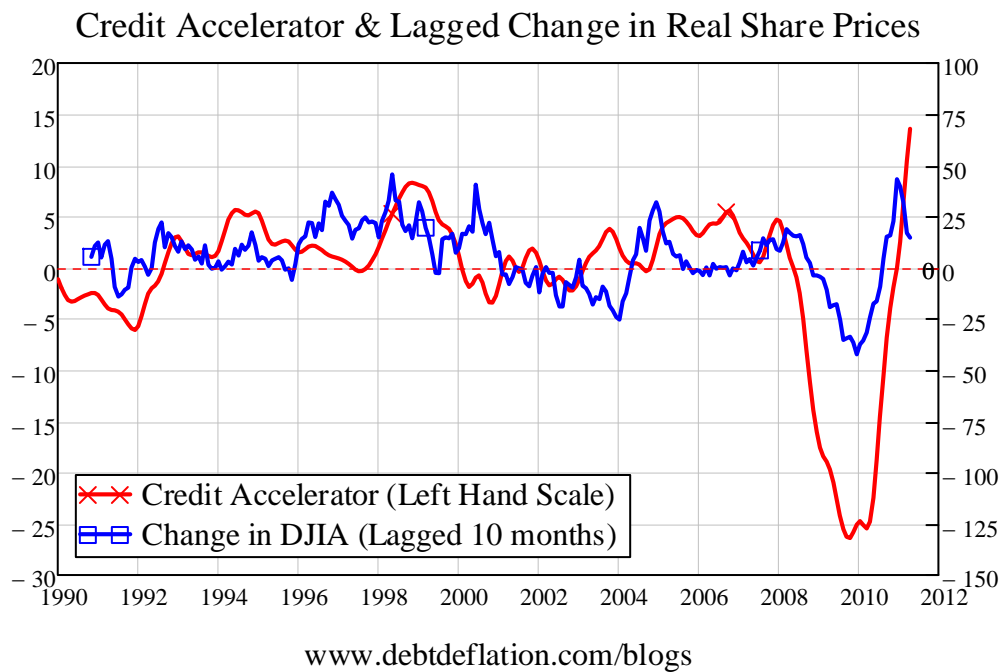
And the Stock Market is also a creature of the Credit Impulse, where the lead is about 10 months and the correlation peaks at just under 0.6:

Figure 11



The causal relationship between the acceleration of debt and change in stock prices is more obvious when the 10 month lag is taken into account:

Figure 12



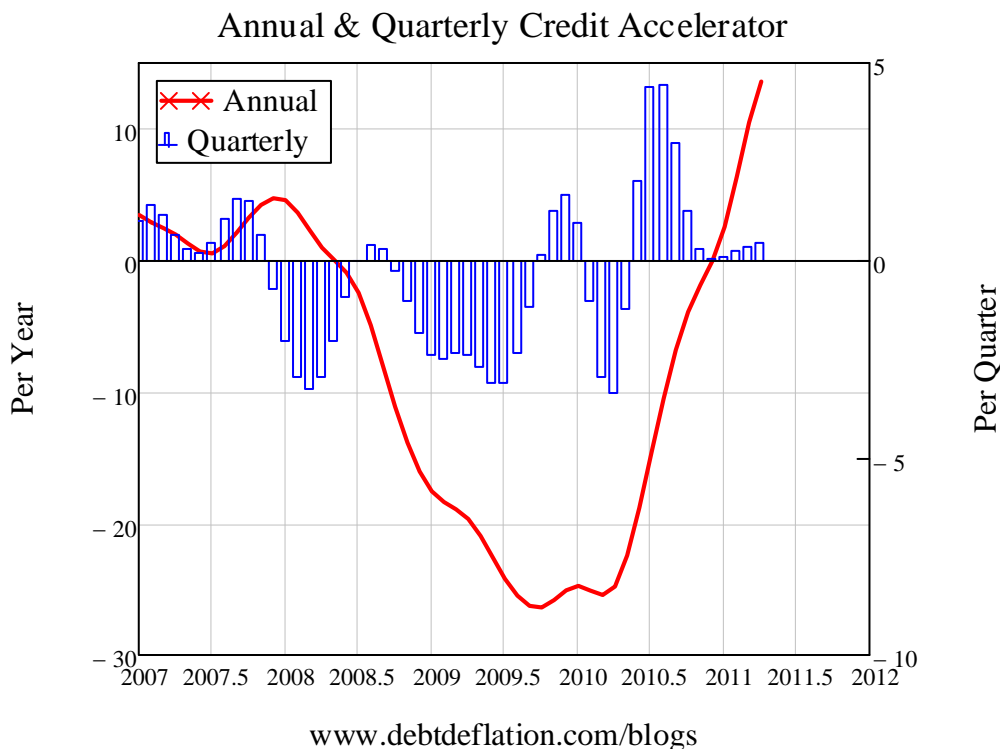
These correlations, which confirm the causal argument made between the acceleration of debt and the change in asset prices, expose the dangerous positive feedback loop in which the economy has been trapped. This is similar to what George Soros calls a

reflexive process: we borrow money to gamble on rising asset prices, and the acceleration of debt causes asset prices to rise.

This is the basis of a Ponzi Scheme, and it is also why the Scheme must eventually fail. Because it relies not merely on growing debt, but accelerating debt, ultimately that acceleration must end—because otherwise debt would become infinite. When the acceleration of debt ceases, asset prices collapse.

The annual Credit Accelerator is still very strong right now—so why is unemployment rising and both housing and stocks falling? Here we have to look at the more recent quarterly changes in the Credit Accelerator—even though there is too much noise in the data to use it as a decent indicator (the quarterly levels shown in **Figure 13** are from month to month—so that the bar for March 2011 indicates the acceleration of debt between January and March 2011). It's apparent that the strong acceleration of debt in mid to late 2010 is petering out. Another quarter of that low a rate of acceleration in debt—or a return to more deceleration—will drive the annual Credit Accelerator down or even negative again. The lead between the annual Credit Accelerator and the annualized rates of change of unemployment and asset prices means that this diminished stimulus from accelerating debt is turning up in the data now.

Figure 13

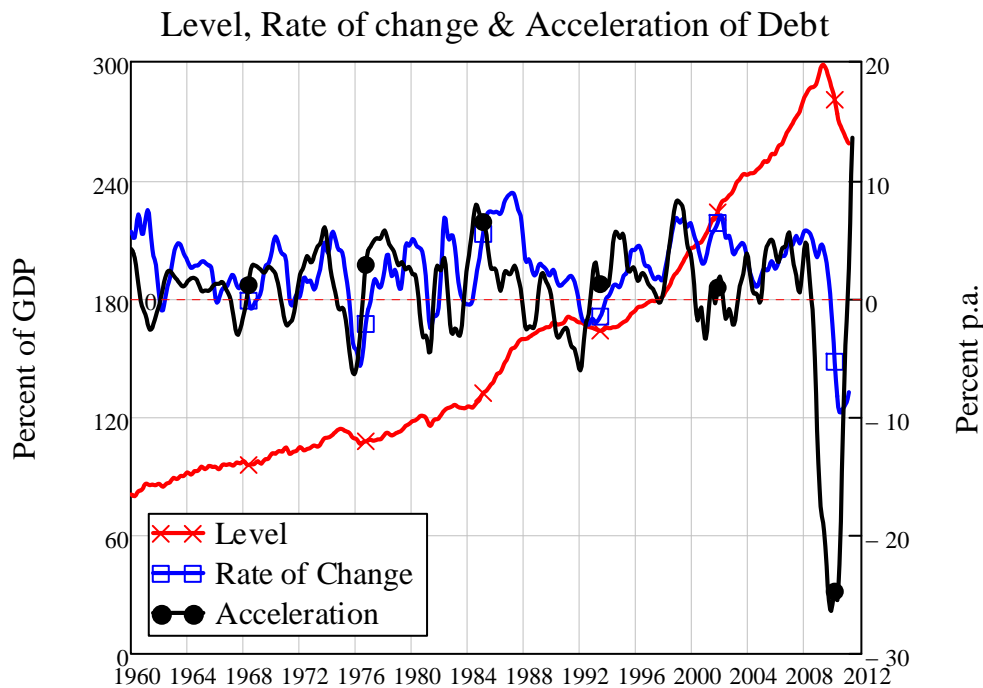


This tendency for the Credit Accelerator to turn negative after a brief bout of being positive is likely to be with us for some time. In a well-functioning economy, the Credit Accelerator would fluctuate around slightly above zero. It would be above zero when a Schumpeterian boom was in progress, below during a slump, and tend to exceed zero slightly over time because positive credit growth is needed to sustain economic growth. This would result in a private debt to GDP level that fluctuated around a positive level, as output grew cyclically in proportion to the rising debt.

Instead, it has been kept positive over an unprecedented period by a Ponzi-oriented financial sector, which was allowed to get away with it by naïve neoclassical economists in positions of authority. The consequence was a secular tendency for the debt to GDP ratio to rise. This was the danger Minsky tried to raise awareness of in his Financial Instability Hypothesis ([Hyman P. Minsky, 1972](#))—which neoclassical economists like Bernanke ignored.

The false prosperity this accelerating debt caused led to the fantasy of “The Great Moderation” taking hold amongst neoclassical economists. Ultimately, in 2008, this fantasy came crashing down when the impossibility of maintaining a positive acceleration in debt forever hit—and the Great Recession began.

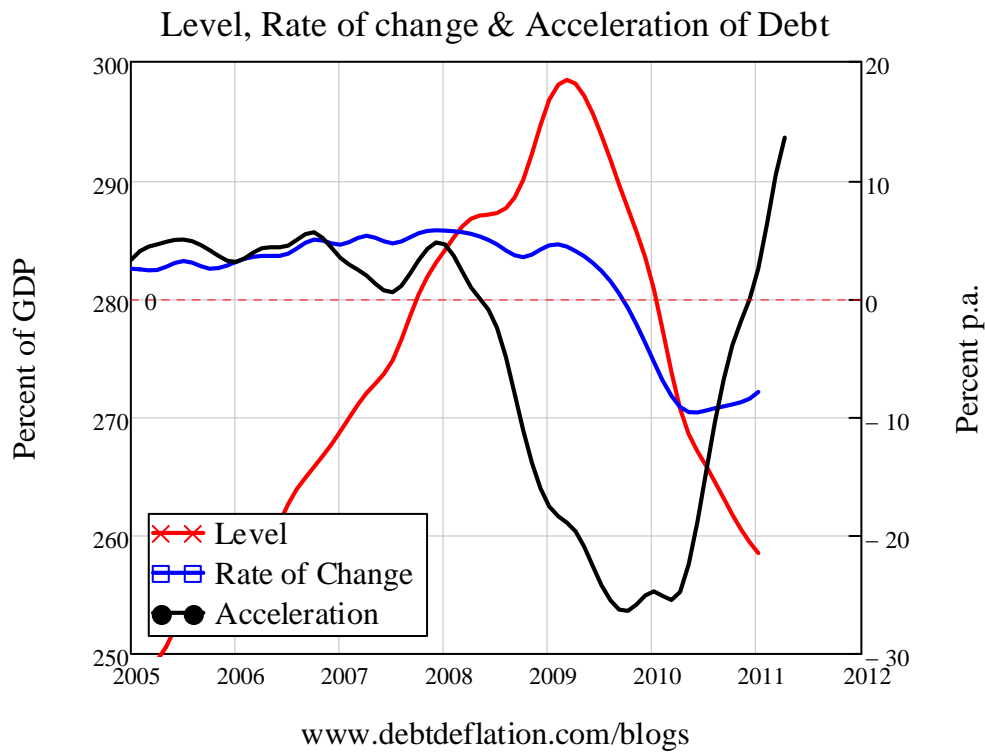
Figure 14



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From now on, unless we do the sensible thing of abolishing debt that should never have been created in the first place, we are likely to be subject to wild gyrations in the Credit Accelerator, and a general tendency for it to be negative rather than positive. With debt still at levels that dwarf previous speculative peaks, the positive feedback between accelerating debt and rising asset prices can only last for a short time, since it if were to persist, debt levels would ultimately have to rise once more. Instead, what is likely to happen is a a period of strong acceleration in debt (caused by a slowdown in the rate of decline of debt) and rising asset prices—followed by a decline in the acceleration as the velocity of debt approaches zero.

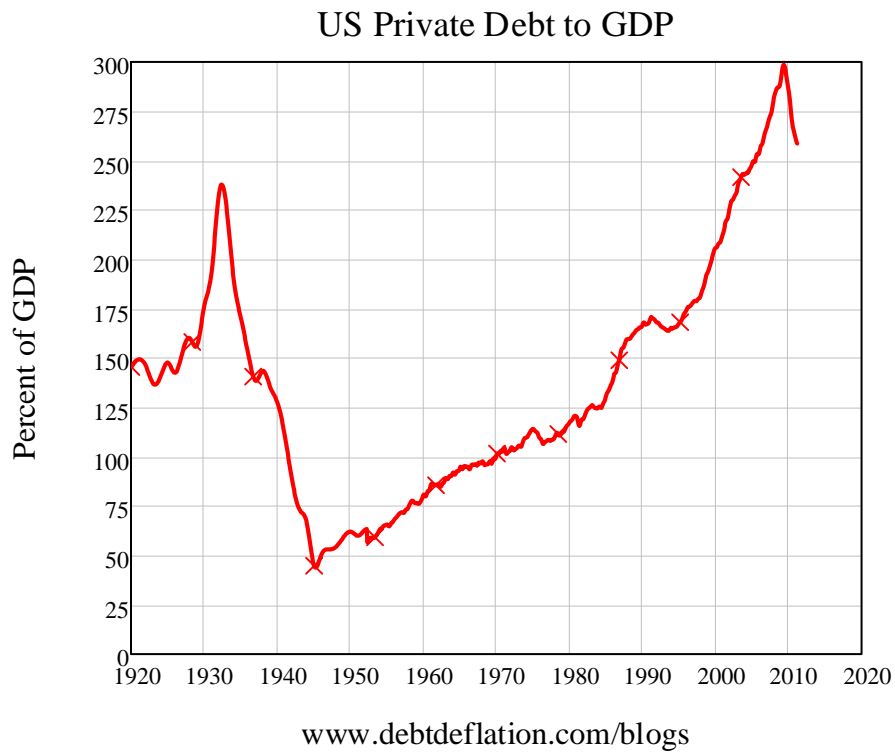
Figure 15



Here Soros's reflexivity starts to work in reverse. With the Credit Accelerator going into reverse, asset prices plunge—which further reduces the public's willingness to take on debt, which causes asset prices to fall even further.

The process eventually exhausts itself as the debt to GDP ratio falls. But given that the current private debt level is perhaps 170% of GDP above where it should be (the level that finances entrepreneurial investment rather than Ponzi Schemes), the end game here will be many years in the future. The only sure road to recovery is debt abolition—but that will require defeating the political power of the finance sector, and ending the influence of neoclassical economists on economic policy. That day is still a long way off.

Figure 16



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