Black Hole Economics

There is a precise point, a mathematical singularity, as measured on the GDP/Total Debt Ratio spectrum, at which a company, and indeed an entire economy, stops expanding and begins to contract instead, due to the dead weight of debt. This point is the equivalent to the event horizon of celestial ‘black holes’ and acts in a similar manner, the one sucking energy (light and matter) into its vortex, the other drawing economic energy – GDP – into its ‘vortex’. If central banks, encouraged by unfortunately misguided Neo-Keynesian policies, use so-called Quantitative Easing, debt will expand increasingly rapidly, adding strength to the power of the vortex, while sucking in more and more GDP and causing its collapse along with the value of the currency (the international price of its debt).

In the attached monograph, The Limits of Debt, I have shown the full mathematical development and analysis from first principles, the associated table of values, and graphic relationship which results, and is shown below. In the chart, a GDP/Debt ratio of 0.289 ($3.50 of debt per $1.00 of GDP) is the financial equivalent to the “event horizon” of a celestial black hole. Like the celestial sort, the size of economic black holes keeps increasing as the amount of debt increases, and in doing so, sucks in more and more GDP as the debt vortex increases in mass. Activity, as measured by the total of (GDP plus Total Debt) may rise, but the growth of GDP itself turns negative while Total Debt keeps expanding at a faster and faster rate. Total economic activity becomes increasingly frenetic as value (GDP) is being destroyed by the very effort used to keep trying to produce it by issuing more and more debt. The problem is, nothing
sticks to the bottom line. It is activity for the sake of activity, which only serves to crush GDP and increase the dead weight of debt on the economy.

Money-issuing governments and central banks, faced with this problem, historically have typically reacted by trying to issue more and more paper to compensate for the failure of the real economy to catch fire, not realizing that in doing so, it feeds the debt vortex and actually makes the problem steadily worse. Since the beginning of the 20th century, from a study by the Cato Institute dated August 15, 2012, 55 governments executed this ‘strategy’, all with devastating similar consequences for the value of their respective economies and currencies. Thus far in the 21st Century, we have seen this approach at work in Greece and Spain (among several others), and Japan is following suit. Of course, while currency values and real GDP may decline, stock market values soar, so that “stimulus” policies seem to work. In other words, as the debt aneurism expands and the money has to go somewhere, so it heads into the “safety” of the ownership of hard assets. Unfortunately, if history is a reliable guide, sooner or later, it then heads into price (and wage) hyper-inflation. The US is currently dancing on the edge of its own “event horizon”, and is only still standing because it is the global key currency. It is drawing money from both Japan and Europe, as they are in worse financial condition and there is a flight of money to the US. It is not a situation in which GDP growth will prove to be self-sustaining, however, although it is ‘self-delusioning’.

At and below a GDP/Debt ratio of .289, the incremental value generation of additional debt falls to and then below zero. This point is termed a scientific bankruptcy because the effects of bankruptcy hold, namely that debt compounds while values (GDP activity) recedes. Parenthetically, such a point must exist, because otherwise, Zimbabwe (for one) would be one of the richest countries in Africa, and Greece and Spain would be sitting atop all of Europe.

Japan is a test in real time of the solvency mathematics in the attached paper, and will act as the canary in the coalmine for the economy of the US. Unfortunately, the minor economies of Greece and Spain are well through that level and their respective GDPs have already been crushed to the tune of some -25%, so studying them is only an academic exercise in hindsight. However, other European economies bear close attention.

There is such a thing as “too much debt” and much of the Western world is now at or beyond that point. Growth is not only grinding to a halt, but worse, is heading into decline. One need go no further than this to grasp why loan growth hasn’t caught fire in this cycle, even with near zero interest rates. Without demand pressure on goods and services, why would anyone expect price inflation? Without demand pressure, wages and prices will either be steady or go into a slow decline (but only for a while!). Indeed, in the shorter term, if we have a marginal negative demand for money, why would we expect anything but a marginal negative return on money?

(Note that a few years ago, the economist Ken Rogoff identified this value as quite possibly having significance, but without these mathematics to back his findings up, Rogoff could not defend his results as being anything but statistically discursive and he was, essentially,
shouted down. The assertion of possible importance without a rigorous and mathematical proof could not and did not stand up to powerful critics with their Keynesian axes to grind.)

In the shorter term, the failure of wages and prices to react as Milton Friedman had suggested, has led many to think (hope?) that Monetarism is, or may be, dead. This has lulled our central bankers into a sense that the real risk lies in a 1930s-style deflation when, in truth, the exact opposite is the case. They argue that deflation, with falling prices, is the risk when in fact, we are facing rampant inflation, the problem being one of measurement.

Dana Skinner, in his book Seven Kinds of Inflation (written in 1937) pointed out that inflation takes many forms. He identified asset price inflation as one form, and we are having that in spades. He failed, however, to identify an 8th kind of inflation, namely the cost of a dollar of GDP. Consider that for most of the 20th century until about 1984–5, in the US, it used to take about $1.45–.50 of debt to generate $1.00 of GDP. Since then, the marginal “cost” of an additional $1.00 of GDP has escalated to $3.50 (and more) in many countries. Yet central banks and mainstream economists are mute on this critical issue that has reached global epidemic proportions. They certainly do not refer to this as “inflation”! However, the pathology of country insolvency is clear from the 55 examples since 1900. Indeed, all of them ended with a collapse of both their economies and the associated currencies. The advent of paper currencies has been a double-edged sword. As much damage wrought as good has been done!

The Marginal Productivity of Debt

Incremental Value Generation (GDP)

Stability Ratio (GDP/Debt)
I would draw the reader’s attention to the **right hand** side of the complete curve, the area in which *additional debt adds to the generation of value* (GDP), and for some while in an *accelerating* fashion.

The emergence of China as a global economic power is not due to the “command economy” to which the Chinese like to attribute their success, but very simply to the growing use of leverage (debt). One intriguing question today is, however, *if* the debt/GDP ratio is China is in excess of 2 (as some analysts measure) then China may already be on the wrong side of the peak of the MPD curve and may need to rein in its lending activities.

With at least three of the key economies of the world, the US, Japan and parts of Europe in a deeply insolvent condition, it is no surprise that global GDP is grinding to a halt. And, of course, *if* China has joined the rest on the wrong side of the curve, then China will become less and less of the stimulus than they have been for the last 2 decades.

The resolution of the current debt problem is (axiomatically) simple. When we are in a *first-order bankruptcy* as the math clearly underlines, then dealing with the challenge is straight-forward. How does a bankruptcy lawyer or accountant deal with bankruptcy? He directs the bankrupt to sell assets and pay down debt, write off any and all debt which the bankrupt is unable to pay down, and then live within one’s means (no credit cards!). From the MPD curve, that outcome would mean a *large increase* in GDP as a result of the debt burden being lifted, a solution devoutly to be wished. However, governments do not like nor want to abide by what is essentially the banking discipline and Greece is proving to be, perhaps, merely the first example of a 21st Century government to outright reject this obvious solution!

I leave this discussion with five additional considerations.

1. **The Lifeboat Economy**

   When growth ends and an economy stops expanding and starts to contract, we are left with two possible outcomes, share what there is or grab everything that we can. I call this the Lifeboat Economy because growth can no longer skate our overall *desire for more* onside. In the US, it is quite clear to what I am referring, as the expansion of *budgetary entitlement rights* has grown from a modest percentage of government revenues to more than 100% (before deficit financing). Cooperation between political parties has fallen below zero because to share what we already have with someone else is to take away from what we now have. The US political scene has bifurcated into two parts, those who are Debt Drunk but at least try to expand the sharing process although they have nothing to share that doesn’t belong to someone else in the absence of real growth, and the One Percent Party which is determined to keep even more of what they have at the expense of the rest of the populace. Internationally, Greece nicely represents a caricature of the lifeboat phenomenon. Having eaten themselves out of house and home and watched their economy collapse, they have come demanding that others support them. Sorry to tell them but Germany is on the right track about fixing their debt problem.
2. **Why Austerity Cannot Work: Orders of Insolvency**

It’s difficult to cover every detail in a short summary of *Black Hole Economics* but I do need to point out that .289 is what we refer to as a *second-order insolvency*. There are two additional orders, a first order insolvency being one that is most relevant to the current discussion. This occurs at a solvency ratio of .499… and marks the **point of chronic deficit**. This was the precise condition of the US in 1992 when Bill Clinton took the reins of office and set out to clean up the US government balance sheet by *raising taxes* and *cutting costs* – which he did with such devastating effectiveness that there was a fear that government bonds would disappear, as some may recall! When he left office in 2000, the US was on top of the world, its currency was at an all-time high, consumer confidence was at an all-time high, the stock market was booming, and the economy was on fire. Small wonder that he is still revered today on both sides of the political spectrum. Austerity “worked” in 1992-2000 because the impact of an increasingly solvent government balance sheet spilled directly and immediately over into the real economy. The resulting decline in leverage pushed the US economy up the MPD Curve!

The reason that austerity cannot and does not work for scientifically bankrupt economies is due to this reason: those economies are so deep in the chronic deficit phase that austerity cuts do not actually improve living standards. They can only cut into the deficit (debt expansion), but with no gain in GDP.

3. **Greece and Spain versus Japan: Why the Difference in Outcomes?**

In Greece and Spain, the economy massively declined, while in Japan (so far) only the currency has tumbled but the economy in nominal terms has not. Yet both are scientific bankrupts. Why the difference? I think that the answer is fairly self-evident. Greece is lumbered with a currency, the Euro, that is more or less fixed and immutable (to Greek tampering, at any rate). And so the downwards insolvency pressures fall directly on the economy. In Japan, the same pressures are in evidence, but the currency value has taken the heat and it has fallen instead. The Japanese may be a lot poorer in international terms than a few years ago, but relative to others in Japan, not much has changed. People aren’t happy but they are not rioting in the streets – yet. If I were Japanese, I would not count on this situation to hold up much longer, and already we are seeing evidence that the Japanese economy is now also starting to implode.

**Japan** is indeed a story about the “success” of Quantitative Easing. It has been almost 20 years since Japan became a second-order insolvent (bankrupt) with a GDP/Debt ratio of .289. Curiously enough, Japan simply hung right there and did not get any worse (or any better) although Government Debt as a percentage of GDP rose from 100% in 1995 to about 200% today. GDP essentially flat-lined: it is quite remarkable to look at a chart of their GDP for that entire period. At the same time, household and corporate debt fell to keep the ratio constant. This was not a happy time for Japan, and that country has enjoyed/suffered a succession of 11 prime ministers in that period, each promising an escape from their no-growth economy. Ben Bernanke is the one widely considered to be the cause of QE in Japan by chiding Prime Minister Abe that the problem with Japanese stimulus to that date was that it was not enough and that Japan should try harder. Well, Japan has done so. The results? Since then, the currency has collapsed by some
50% and now we are seeing Japanese GDP start to head into decline. (Consumer spending in 9 of the past 12 months has declined, the other three months being flat.) I would guess that every Japanese citizen should join together in saying, “Thank you, Ben”.

4. **Money on strike**

One truly striking characteristic of Japan, the US, and Europe is that the velocity of money in all of those places is not only declining but has been in a steady decline for a long time, in some cases going back nearly three decades (MZM in the US). I suspect that this is one key characteristic of increasingly insolvent economies: money does less and less “work” as time goes on, matching the overall financial inefficiencies brought on by excess debt. The problem and the challenge to monetary authorities is that of trying to overcome what is effectively a decline in money availability caused by falling velocity, and this they do historically by issuing more and more money through programmes equivalent to quantitative easing. Unfortunately, the solvency mathematics of Dr. Atrill demonstrate all too clearly that this makes the problem worse. This last point is unimpeachable and here there is an abundance of evidence.

As 55 countries have already shown, there is a tipping point when things reverse. I do not have debt/GDP numbers from those 55, so I cannot be pedantic about where it occurs. **I can, however, make an informed guess based on the mathematics, which I would confidently expect to stand up to close scrutiny.** Not only does price and wage inflation then reverse their moribund courses but velocity must re-accelerate massively as well (as Weimar Germany, for one, shows). As holders of the currency in question try to get rid of it in exchange for things – anything – which can hold its value, the value of those currencies must and do collapse. Seen in this light, we should all hope that the quest by central banks to stimulate an uptick in inflation (as measured by wages and prices) fails, as they are most likely to waken a sleeping tiger. Germany has already been there but cannot seem to convince the unfortunate Greeks that far worse things may lie ahead.

5. **The Miller/Modigliani Theorem Can be Retired**

I do not know anyone who has initially encountered the Miller/Modigliani Theorem and thought it to be complete nonsense. Anyone with an ounce of common sense “knows” instinctively and intuitively that debt does count in the valuation process that the market carries out and in the generation of activity that results from too much debt. However, having proved that debt does not count – by using the wrong measure of leverage – Messrs. Miller and Modigliani did inspire at least one ‘client’, government, to cheerfully ignore the impact of too much debt. [Note that some companies tried to ignore the impact of over-indebtedness during the great LBO craze from a couple of decades ago, but the resulting bankruptcies brought the corporate world back on side to the “banking discipline” again.]

Leverage – as measured by the Atrill Solvency Ratio (see Limits) – does count. As the MPD Curve shows, at .289, economic activity goes into reverse. One of SAC’s board members did his Ph.D. thesis on forecasting currency and interest rate movements using the Atrill
Solvency mathematics, and with excellent success. SAC has been using this measure to forecast currency movements ever since. In our common stock valuation work, it remains a truism that price follows solvency (leverage). In short, it is time to expunge the M/M Theorem from the books of both government and academia.

So we have at least three economies in deep trouble thanks to too much debt, and the best that the Greek, Spanish, and Japanese politicians and central bankers can say is, “we need more debt on our national balance sheet”. If common sense cannot finally prevail, we would have to end by asking, gold, anyone?