

Six Impossible Things Before Breakfast

James Montier



One of the great joys of working at GMO is the freedom to disagree. Indeed, many moons ago when Ben Inker first approached me about joining GMO, he told me that, having read my work, he believed we were very much philosophically aligned. Ben noted, however, that occasionally I would reach a remarkably different conclusion than he, and that was interesting because we obviously approached problems using a very similar framework.

Over the years, Ben's observation has consistently revealed that at times the most valuable information can be found in our differences, and not in the areas in which we all agree. As the late Richard Russell opined, "If everyone is thinking the same, then no one is thinking." Or, as Alfred P. Sloan put it, "If we are all in agreement on the decision – then I propose we postpone further discussion of this matter until our next meeting to give ourselves time to develop disagreement and perhaps gain some understanding of what the decision is all about." Indeed, one of my jobs internally is to ask difficult questions and take the other side of debates when I feel so inclined: a contrarian amongst contrarians. It turns out that I've pretty much been in training to be a stubborn, difficult pain in the arse my whole life!

Introduction

In GMO's 3Q Letter, Ben wrote the following:

But it is difficult to dismiss the possibility that this time actually is different. While all periods in which asset prices move well away from historical norms on valuations have a narrative that explains why the shift is rational and permanent, I would argue that this time is more different than most. Whether we are talking about 1989 in Japan, 2000 in the US, or 2007 globally, what bubbles generally have in common is that the narratives require the suspension of some fundamental rules of capitalism. They require either large permanent gaps between the cost of capital and return on capital, or some group of investors to voluntarily settle for far lower returns than they could get in other assets with similar or less risk. Today's market has an internal consistency that those markets lacked. If there has been a permanent drop of discount rates of perhaps 1.5 percentage points, then market prices are generally close enough to fair value that you can explain away the discrepancies as business as usual.

In this paper I will lay out why I disagree with this viewpoint. For those wondering about the title I chose, it comes from Through the Looking-Glass, and What Alice Found There, which I have been reading to my daughters of late.

Alice laughed: “There’s no use trying,” she said, “one can’t believe impossible things.”

“I daresay you haven’t had much practice,” said the Queen. “When I was younger, I always did it for half an hour a day. Why, sometimes I’ve believed as many as six impossible things before breakfast.”

I believe the markets are behaving like the White Queen. In order to make sense of today’s pricing, you need to believe in six impossible (okay, I’ll admit some of them are just very improbable as opposed to impossible) things.

1. Secular stagnation is permanent and rates will stay low forever. As we have argued at length elsewhere, secular stagnation is a policy choice and we could exit it reasonably quickly by implementing appropriate policies.
2. The discount rate for equities depends on cash rates. This is nothing more than a belief. It has no foundation in data and not a scrap of evidence exists that supports this hypothesis.
3. Growth rates and discount rates are independent. This is a very questionable assumption. If, as I believe, it is false, then it makes the “Hell” outcome Ben has discussed in previous Quarterly Letters less likely, unless the first two beliefs hold completely.
4. Corporates carry out buybacks ad nauseum, raising EPS growth despite low economic growth. This would imply rising leverage, which is already close to all-time highs. Remember Minsky: Stability begets instability.
5. Corporate cash piles make the world a safer place. Cash levels aren’t high by historic standards, and valuations are extreme even when cash is fully accounted for.
6. The “Hell” scenario is the most probable outcome. This requires “this time is different” to be true and, unlike Jeremy Grantham, I am not yet ready to assign this exceptionally useful rule of thumb to the waste bin of history. Put another way, Hell requires that stock prices have reached a “permanently high plateau,” and I’m not about to embrace that statement.

A world priced for secular stagnation forever

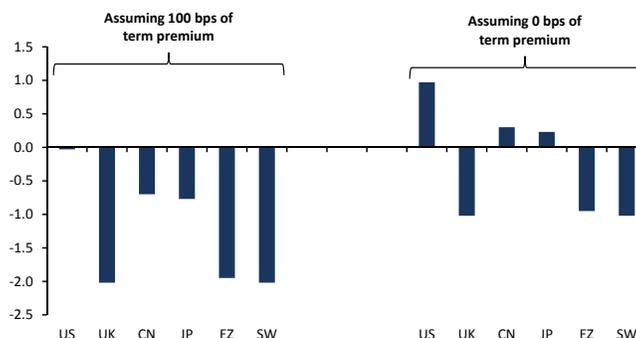
As Ben Graham wrote long ago, “The principles of common-stock investment may be closely likened to the operations of insurance companies.” I would broaden his statement from “common-stock” to “all” investment. Market prices can be thought of as embodying a set of beliefs about the future. Thus, we can cast investing as assessing the implied view of Mr. Market, and then work out where we disagree with it. To this end I often suggest starting with understanding what the market is currently “pricing in.”

When I look around today, I see a world priced for secular stagnation (low growth, low inflation). Let’s start, for example, with the government bond market. Exhibit 1 shows the average real rate implied by various 30-year government bonds depending upon the assumption one chooses to make regarding the level of the term structure.

If one assumes that 30-year bonds should carry around 100 bps of term premium over cash (which is roughly what Japanese 30-year bonds have displayed since they reached zero cash rates), then bonds imply that the average real cash rate over the next 30 years will be somewhere between -50 bps and -250 bps depending upon the market chosen.

Now, perhaps you think 100 bps of term premium is too steep. I also ran the numbers assuming a zero term premium. The range of implied real rates shifts naturally but remains extraordinarily low by any standards, ranging from a positive 50 bps to around -150 bps. In either case, it is safe to say that the major government bond markets are priced for secular stagnation.

Exhibit 1: Implied Real Rates Over 30 Years



As of Jan 2017
Source: GMO

We can compare this to the limited data available on periods of financial repression (when interest rates are held below the rate of inflation). As shown in Exhibit 2, the average period of financial repression (to the extent that average makes any sense in this context) is 22 years \pm 12 years. The average real interest rate during those periods was -70 bps. Thus, many bond markets today seem to be implying both a longer and deeper period of negative real rates than the average historical experience.

Exhibit 2: Average Duration of Financial Repression

	Start	End	Duration	Average Real Rate
Argentina	1944	1974	30	
Australia	1945	1968	23	-2.2
	1971	1972	1	-1
	1976	1977	1	-4
Belgium	1945	1974	29	1
India	1949	1980	31	
Ireland	1965	1980	15	-0.9
Italy	1945	1970	25	-4
South Africa	1945	1974	29	-0.5
Sweden	1945	1965	20	0.1
	1984	1990	6	5.1
UK	1945	1980	35	-0.9
US	1945	1980	35	-0.7
	Mean		22	-0.7
	Median		25	-0.9
	Standard Deviation		12	2.5

Source: Reinhart and Sbrancia, DMS

One thing to note that truly is different this time is that past periods of financial repression have generally been achieved with high(ish) inflation. This is the first time we have seen low inflation and the use of negative nominal interest rates in the case of some central banks.

As a quick aside on negative nominal interest rates, they are almost certainly not going to aid in any economic recovery. Of course, as regular readers will know, I subscribe to the view that interest rates generally don't matter that much within the economy.¹ However, even if you don't agree with me on the general impotence of interest rates, we can agree that negative nominal interest rates are simply a tax. Now, don't get me wrong. I have absolutely no problem taxing banks. But thinking that the imposition of a tax is going to aid economic recovery is simply beyond my comprehension. Just recall that in a circular flow of income (macro 101), taxes are one of the leakages.

The pricing of government bonds to reflect the certainty of secular stagnation seems odd to me. As I have written before, secular stagnation is a policy choice.² We have both the tools and knowledge to end secular stagnation tomorrow if we collectively choose to do so. Contrary to conventional wisdom, monetary policy isn't the route out of our current problems. Monetary policy is really all about the redistribution of net worth between creditors and debtors. If secular stagnation is really about low growth and insufficient demand, then fiscal policy is the answer. Fiscal policy alters the level of an individual's net worth.

Of late, the concept of helicopter money has gained a certain degree of popularity. From my perspective, helicopter money is really just fiscal policy carried out by the central bank. It has the same effects as a fiscal expansion in that it raises the level of net worth for the private sector. So, should such a policy ever be tried, it is likely to be successful – although why one would want fiscal policy run by unelected technocrats is beyond me. However, the basic point here is that markets priced for secular stagnation are putting a zero probability on fiscal policy being used as a route out of our current malaise.

If bond markets are smoking weed, then the stock market appears to be hooked on crack. Exhibit 3 is a way of reverse engineering the equity markets' beliefs about interest rates. It is based on a simple dividend discount model (DDM) that I first used to explore financial repression and its impact.³ The idea is to show how long we would need to see -2% real interest rates, assuming a normal equity risk premium, in order to justify today's S&P 500 valuation as "fair." A cursory glance at Exhibit 3 indicates that we would need to believe that real rates of -2% real for 90 more years would be necessary in order to reach the conclusion that today's market valuation is fair! This would be a 6-standard-deviation event even in a world rife with financial repressions, and strikes me as another near impossible thing that investors are embracing as a certainty.

¹ See "The Idolatry of Interest Rates, Part I: Chasing Will-'o-the-Wisp," May 2015. This white paper is available with registration at www.gmo.com.

² Most recently in the companion paper to this paper, "The Deep Causes of Secular Stagnation and the Rise of Populism," co-authored with Philip Pilkington.

³ "The 13th Labour of Hercules: Capital Preservation in the Age of Financial Repression," November 2012. This white paper is available with registration at www.gmo.com.

Exhibit 3: Number of Years of -2% Real Rates To Justify S&P Valuation as Fair



As of Jan 2017
Source: GMO

Discount rates driven by cash rates?

The model I used to frame this analysis has two key assumptions, neither of which I find very palatable. The first assumption is that the discount rate used for equities should be a function of the interest rate, which I've discussed in a previous paper.⁴ To provide the briefest of recaps, the idea that the discount rate (which should reflect your required return on equity investing) is a function of the interest rate is an assumption, nothing more and nothing less. It may seem innocuous enough, but I have serious misgivings about its grounding in reality.⁵

In fact, I can find no evidence of a relationship between real interest rates and valuations. Consider Exhibit 4, which plots the perfect foresight real interest rate over 10 years (that is to say, if one could predict with perfect certainty both the nominal interest rate and the inflation rate over the next 10 years – a feat beyond mortal man for sure) against the Shiller P/E. If low real rates did indeed co-exist with high valuations, we would see the data points line up on a 45-degree line sloping downwards from top left to bottom right. Low rates would coincide with high P/Es, and low P/Es would coincide with high rates. However, the data indicates something quite different. At best, we see no relationship; at worst, a line of best fit would show a positive relationship. This is obviously at odds with the idea that the real interest rate determines valuation, and thus also at odds with the assumption that the discount rate for equities should be a function of the interest rate.⁶ I know that it seems to be utterly believable that the two should be related, but there isn't a shred of evidence to support this view.⁷

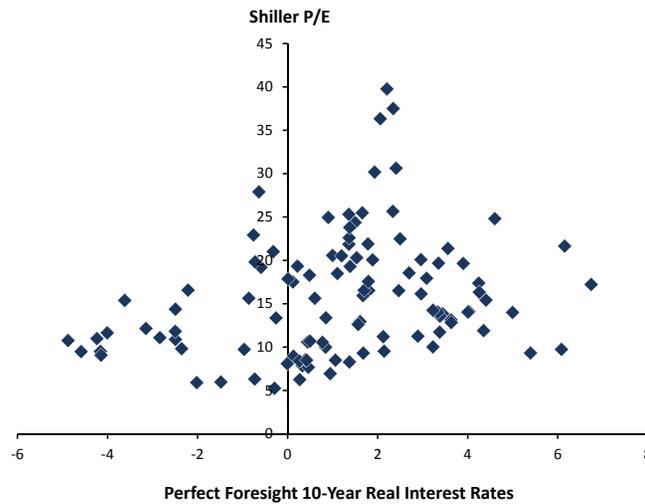
⁴ See "The Idolatry of Interest Rates, Part II: Financial Heresy and Potential Utility in an ERP Framework," August 2015. This white paper is available with registration at www.gmo.com.

⁵ Unlike Milton Friedman, I believe that key assumptions should at least be compatible with reality.

⁶ If one insists on maintaining the belief that the interest rate matters, then one is forced into the position that the equity risk premium has magically altered inversely with the real interest rate in order to be congruent with the data.

⁷ Sadly, as I have detailed elsewhere (see Chapter 42 of [Behavioural Investing](#)), we tend to judge things by how believable we find them to be, rather than by employing logic or empirical evidence.

Exhibit 4: Tell Me Again that Real Rates Drive Valuations



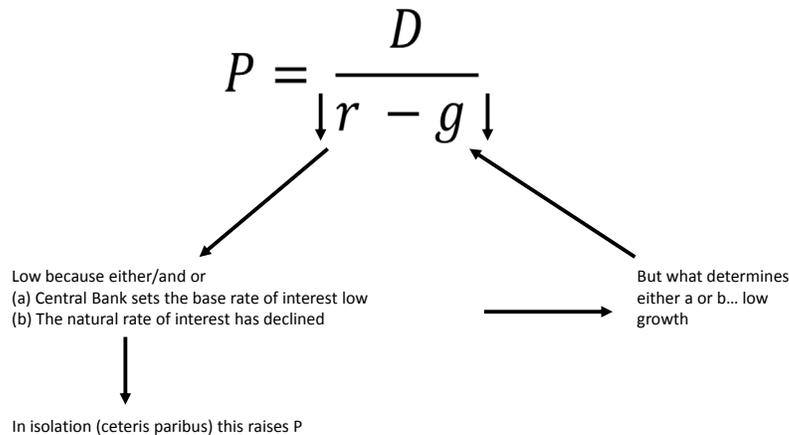
As of Jan 2017
Source: GMO

Separated at birth? Growth rates and discount rates

However, even if we put aside this criticism, there is still another dubious assumption lurking within the original model, and one that I highlighted in my original piece. The model assumes that whilst the discount rate is affected by secular stagnation/financial repression, cash flows are not.

Think about it in the context of the simplest DDM, the Gordon Growth Model, as presented in Exhibit 5.

Exhibit 5: The Gordon Growth Model



Source: GMO

In isolation, as the model assumes, lowering the discount rate raises the price of equities. However, if one believes the discount rate is being driven by a lower interest rate, then one must ask why the interest rate is low.

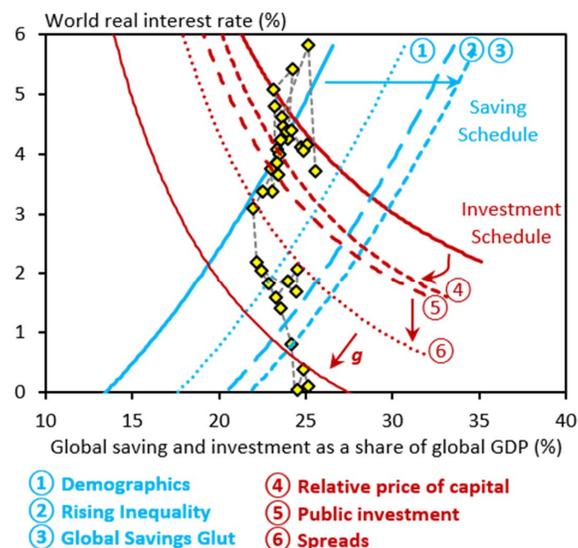
In essence, I can think of two reasons why the interest rate is low. The most compelling explanation to me is very simply that the central bank has chosen to set the base rate of interest low. Presumably this is done in response to low inflation and/or low growth.

Alternatively, one could believe that the laughably named “natural rate of interest” has declined. I have described the concept of a “natural rate of interest” as a will-o-the-wisp.⁸ There is no evidence that such an interest rate exists – it is purely an unobservable creation of economists, beloved by central bankers.

One of the most recent, and asinine, contributions to the literature regarding the falling natural rate of interest comes from the Bank of England. Back in 2014, the analysts from the wonderfully, almost Orwellian, named Monetary Analysis Directorate wrote an excellent article for their *Quarterly Bulletin*, explaining how monetary creation worked in the modern economy, and the central bank’s role in the process via the setting of interest rates.⁹

Unfortunately, the paper apparently never reached the research department, which earlier this year published a paper¹⁰ whose framework (loanable funds) is in direct contradiction of the *Quarterly Bulletin* piece. In the second piece, the authors argue that the real interest rate is set by the interaction of supply and demand for savings (and investment). Such is the tortuous world of economists that when they looked at Exhibit 6 they concluded not that their model was wrong (i.e., the real interest rate appears to be independent of the level of savings), but rather they inferred that the two nonexistent curves must have both shifted repeatedly over time.

Exhibit 6: The Investment-Saving Framework
Quantifying shifts in desired savings and investment



Source: Bank of England

⁸ Ibid

⁹ Michael McLeay, Amar Radia, and Thomas Ryland, “Monetary creation in the modern economy,” *Quarterly Bulletin*, Q1 2014.

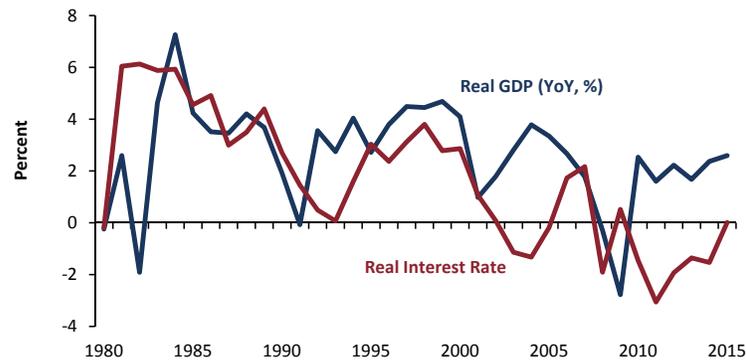
¹⁰ Lukasz Rachel and Thomas D. Smith, “Secular drivers of the global real interest rate,” Bank of England Staff Working Paper No. 571, December 2015.

They eventually concluded that of the roughly 450 bps of decline in real rates between 1980 and 2015, nearly 90% of the decline was explained by structural factors, leaving just 10% “unexplained.” Only the research department at a central bank could manage to exculpate central banks themselves from declining interest rates.

However, regardless of whether one believes in will-o-the-wisps or central banks lowering interest rates, in neither case are these independent of the growth rate of the economy. In “natural rate” models, trend growth is a driving force in determining equilibrium levels, and central banks have been lowering interest rates because growth is low.

Since the Greenspan era, Exhibit 7 shows that real rates have clearly moved with growth. Interestingly, the long-run data shows no such pattern, again supporting the role of central banks as setters of rates as opposed to the natural rate view. But what is important in this context is that the rates and growth have declined together. In the context of a simple DDM, if both r and g are dropping at the same rate, there should be no change in price (as the denominator in the simple DDM isn’t changing at all).

Exhibit 7: r and g Are Not Independent



As of Dec 2015
Source: Datastream

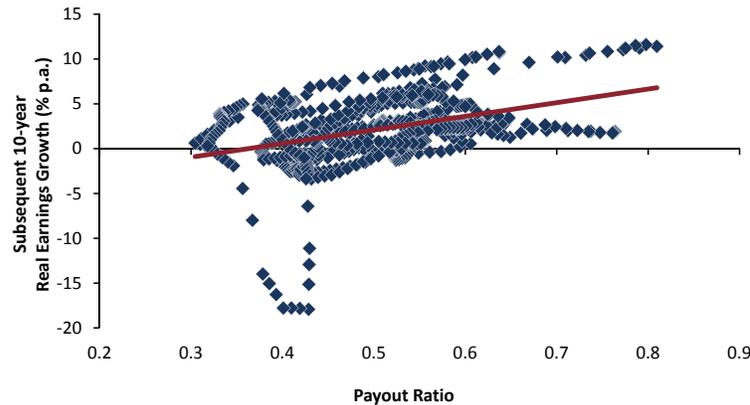
Now, if one still insists that the market’s increase in valuations is justified, then there is just one available route, best seen by rewriting the simple DDM with both sides divided by earnings. (Yes, this model is doing as many fast costume changes as a Pantomime Dame.) This gives:

$$\frac{P}{E} = \frac{\text{Payout ratio}}{r - g}$$

If r and g are both falling at the same time and pace, then the only way to justify a higher valuation on the market is to argue that the payout ratio is increasing. This is exactly what finance theory would say: Payout ratios and growth should have an inverse relationship. Higher payouts should lead to lower growth, and lower payout ratios should lead to higher growth.

However, there is a problem with this theoretical belief. It is at odds with the evidence. This was first pointed out by Arnott and Asness in 2003.¹¹ Exhibit 8 highlights their primary finding: When payout ratios are plotted against future real growth, the slope of the line has the wrong sign! High payout ratios are associated with high future growth, and low payout ratios generally foretell low future growth – in direct contradiction of the beliefs of finance theory.

Exhibit 8: Finance Theory Wrong Again! Payouts and Future Growth



Source: Shiller

I will happily admit that the relationship isn't very strong. I don't need it to be; I'm happy enough to conclude that there is no meaningful relationship between payouts and growth.¹² Thus, I'd argue that the final route of defense for those who believe that higher valuations are justified in the context of a DDM has been cut off.

This has obvious implications for equilibrium equity returns. In my original piece from 2012, I presented an exhibit similar to Exhibit 9. The blue line takes the DDM and shows the impact of lowering the discount rate to -70 bps on equity fair value for the time given on the horizontal axis, assuming a constant equity risk premium. It is clear that lowering the discount rate for one year really doesn't matter, but the longer the discount rate remains low, the greater the impact on fair value. So 100 years of -0.7% cash rates would "justify" a fair value return of around 4% real from equity.

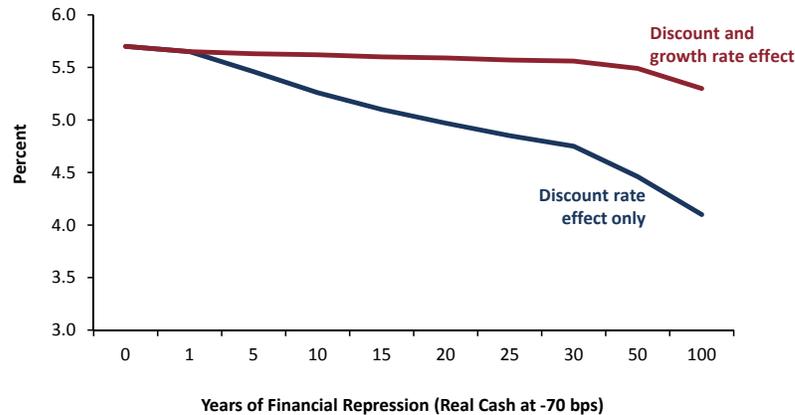
I've augmented this exhibit by including the red line. This models the effect of both the interest rate and the growth rate declining at the same time. It is important to note that if both the discount rate and the growth rate are lowered in perpetuity, then the two models effectively converge (not shown in the chart), with the end result a very low return to equities. However, in time periods less than infinity, lowering both the discount rate and the growth rate obviously mutes the effect when compared to simply reducing the discount rate.¹³ Thus, once again we see that to believe in the Hell scenario is to believe that the markets have changed forever – that this time is truly different.

¹¹ Robert D. Arnott and Clifford S. Asness, "Surprise! Higher Dividends = Higher Earnings Growth," *Financial Analysts Journal*, 2003.

¹² This inverse relationship isn't unique to the US data. It has been shown to hold for UK, French, German, and other international markets. See Owain ap Gwilym, James Seaton, Karina Suddason, and Stephen Thomas, "International Evidence on the Payout Ratio, Earnings, Dividends, and Returns," *Financial Analysts Journal*, 2006.

¹³ The model we use actually covers 500 years, so 100 years of lowered discount rates and growth rates appear to be relatively muted in their impact on true fair value. Of course, holding equities during the low-returning 100 years would have been exceedingly painful. Obviously, as the time approaches the limit (500 years in this case), the effect gets more pronounced, until essentially convergence occurs.

Exhibit 9: Implications for Equilibrium Equity Returns

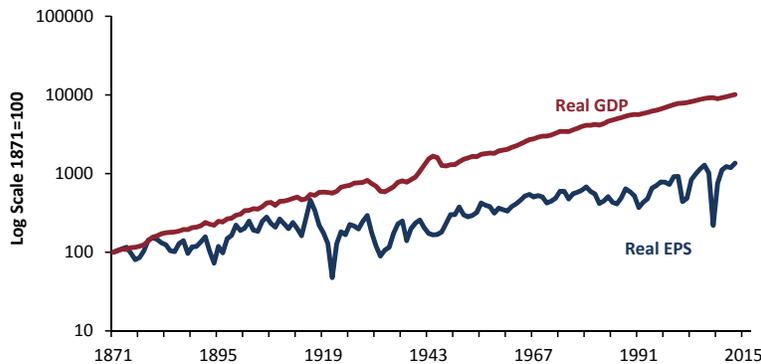


Source: GMO

So far I have been a little vague about the concept of growth, but it is now time to turn there. In a DDM, it is dividend growth that matters, and, once the payout ratio is accounted for, it maps into earnings growth.

As Exhibit 10 shows, over the very long term real GDP growth has provided an upper bound to real earnings per share (EPS) growth. This makes intuitive sense as there are significant elements of GDP that stock market investors simply aren't exposed to. In addition, as Bernstein and Arnott¹⁴ pointed out, a dilution effect occurs as the stock market composition evolves over time, leading investors to buy and sell shares, thus creating a wedge between GDP and EPS.

Exhibit 10: Real EPS Bounded by Real GDP in the Long Term



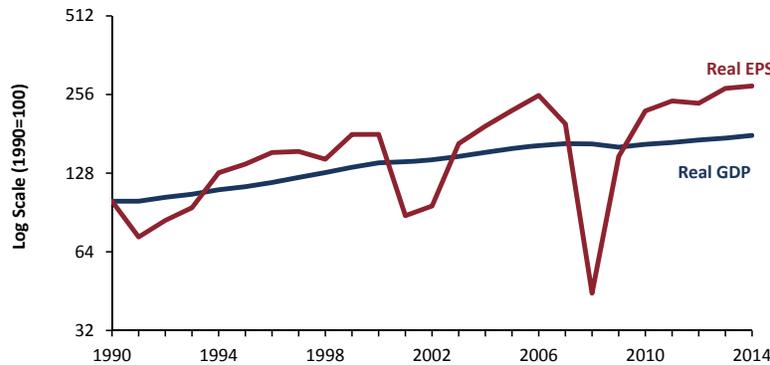
As of Jan 2017
Source: Shiller, Maddison

¹⁴ William J. Bernstein and Robert D. Arnott, "Earnings Growth: The Two Percent Dilution," *Financial Analysts Journal*, September/October 2003.

This relationship is important, because if one believes that GDP growth is going to be low for an extended period (one of the definitions of secular stagnation), then it implies that real EPS will also be low.

However, in shorter sample periods this isn't always the case, and looking over the last 16 years real EPS has outgrown real GDP. Real EPS was significantly more volatile (as one would generally expect) but nevertheless managed to outgrow GDP (Exhibit 11).

Exhibit 11: Recently Real EPS Has Outgrown Real GDP

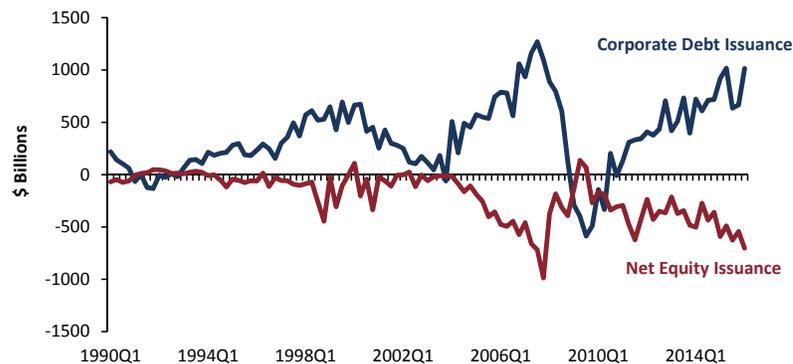


As of Jan 2017
Source: GMO

Is financial engineering a sustainable growth source?

This raises the question as to how real EPS has managed to outgrow real GDP, and whether this provides any insights into this being a new trend or something unsustainable. The reason that EPS has been so much better than GDP over the more recent past is that we have been witnessing a massive debt for equity swap carried out by USA Inc (Exhibit 12).

Exhibit 12: Massive Debt for Equity Swap

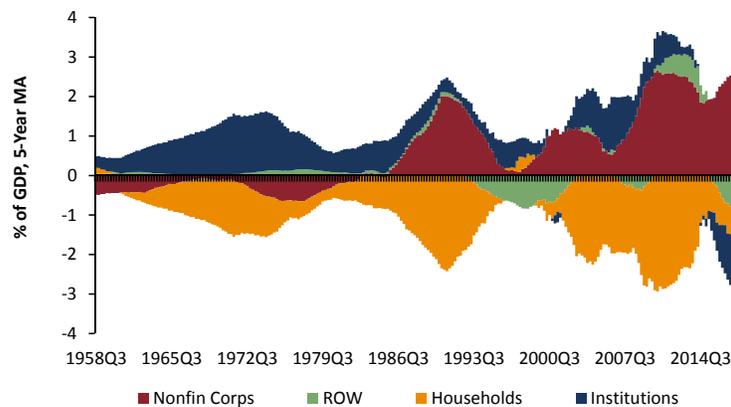


As of Jan 2017
Source: Federal Reserve

As I have written before,¹⁵ corporate managements have preferred to engage in financial engineering rather than carry out real investment (hardly surprising when they are rewarded by measures tied to short-term stock performance). They have chosen to issue debt and repurchase equities on a truly massive scale.

In fact, they have been the sole buyers of US equities of late (and the majority buyers for a long time). Exhibit 13 shows the iron law of equilibrium. It must sum to zero: For every buyer there must be a seller. Despite the obvious and simple nature of this statement, I am constantly amazed by the number of times I hear people talk about “cash on the sidelines.” This is, of course, nonsense; cash only passes through the market. If Jim buys a stock from Sally, he gives Sally cash, and Sally gives Jim the ownership certificate. So the next time someone sits in front of you and utters the phrase “cash on the sidelines,” please do give him a slap!

Exhibit 13: The Iron Law of Equilibrium (5y ma)



As of Jan 2017
Source: Federal Reserve

So if buybacks are a large part of the EPS growth that we have witnessed over recent years, then the natural question to ask is, “Is such behaviour sustainable?” I would suggest not. Clearly, the consequence of a massive debt for equity swap is rising leverage at the corporate level. The optimists will point to the blue line in Exhibit 14 and tell you that leverage isn’t a problem. However, I am not a fan of debt to net worth because a low(ish) reading can simply be saying that net worth is extended, effectively masking the real problem.

I prefer the red line, which shows debt as a percent of gross value added (which is akin to the macro equivalent of EBITDA). Here we see that leverage is approaching all-time highs once again. This creates a systemic weakness, or fragility, if you will. As Minsky outlined in his financial instability hypothesis, stability begets instability. Low rates allow debt issuance, and equity repurchases help line the pockets of corporate managements and (participating) shareholders alike, but ultimately the robustness of the system is diminished.

¹⁵ “The World’s Dumbest Idea,” December 2014, and “The Deep Causes of Secular Stagnation and the Rise of Populism,” March 2017. These white papers are available with registration at www.gmo.com.

Exhibit 14: Rising Fragility – Remember Minsky!

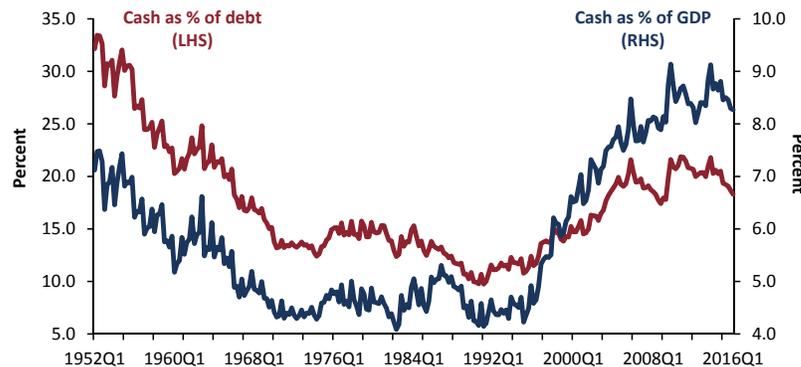


As of Jan 2017
Source: Federal Reserve

But what about the corporate cash piles?

A common retort to this kind of concern is that USA Inc is swimming in cash, and hence we have nothing to worry about. However, once again it depends on how one chooses to frame the data (see Exhibit 15). Cash as a percent of GDP is indeed high, but cash as a percent of debt is certainly not high by historical standards. In the 1950s, for instance, cash was a much greater percentage of debt. Personally, I think the latter measure is the more important one because it compares the two things we are currently discussing – cash and debt.

Exhibit 15: What about the Much Heralded Cash Piles?



As of Jan 2017
Source: Federal Reserve

We can combine equities, debt, and cash into a single valuation metric, a macro equivalent to EV/EBITDA, by using the series mentioned earlier – gross value added. Exhibit 16 shows EV (defined as equity + debt - cash)/gross value added. It is clear that the US security market in aggregate (equity and debt combined) is fast approaching the obscene levels of expense that we witnessed in the madness of the TMT bubble.

Exhibit 16: Enterprise Value to GVA Approaching TMT Peaks



As of Jan 2017
Source: Federal Reserve

Conclusion: Is Hell the most probable outcome?

It appears that asset markets are priced as if secular stagnation were a certainty. Certainty is a particularly dangerous assumption when it comes to investing. As Voltaire stated, “Doubt is not a pleasant condition, but certainty is absurd.”

In order to believe that asset market pricing makes sense, I think you need to hold any number of “impossible” (by which I mean at best improbable, and at worst truly impossible) things to be true. This is certainly a different sort of experience from the bubble manias that Ben mentioned in the opening quotation, which are parsimoniously captured by Jeremy’s definition of bubbles – “excellent fundamentals, irrationally extrapolated.” This isn’t a mania in that sense. We aren’t seeing the insane behaviour that we saw during episodes like the Japanese land and equity bubble of the late 1980s, or the TMT bubble of the late 90s, at least not at the micro level. However, investors shouldn’t forget that the S&P 500 currently stands at a Shiller P/E of just over 28x – the third highest in history (see Exhibit 17). The only two times that level was surpassed occurred in 1929 and in the run-up to the TMT bubble. Strangely enough, we aren’t hearing many exhortations to buy equities because it is just like 1929 or 1999. Today’s “believers” are more “sophisticated” than the “simple-minded maniacs” who drove some of the other well-known bubbles of history. But it would be foolish to conflate sophistication with correctness. Current arguments as to why this time is different are cloaked in the economics of secular stagnation and standard finance work horses like the equity risk premium model. Whilst these may lend a veneer of respectability to those dangerous words, taking arguments at face value without considering the evidence seems to me, at least, to be a common link with previous bubbles.

Exhibit 17: Shiller P/E for the S&P 500



Source: Shiller, GMO

James Montier. Mr. Montier is a member of GMO's Asset Allocation team. Prior to joining GMO in 2009, he was co-head of Global Strategy at Société Générale. Mr. Montier is the author of several books including "Behavioural Investing: A Practitioner's Guide to Applying Behavioural Finance"; "Value Investing: Tools and Techniques for Intelligent Investment"; and "The Little Book of Behavioural Investing." Mr. Montier is a visiting fellow at the University of Durham and a fellow of the Royal Society of Arts. He holds a B.A. in Economics from Portsmouth University and an M.Sc. in Economics from Warwick University.

Disclaimer: The views expressed are the views of James Montier through the period ending March 2017, and are subject to change at any time based on market and other conditions. This is not an offer or solicitation for the purchase or sale of any security and should not be construed as such. References to specific securities and issuers are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations to purchase or sell such securities.

Copyright © 2017 by GMO LLC. All rights reserved.