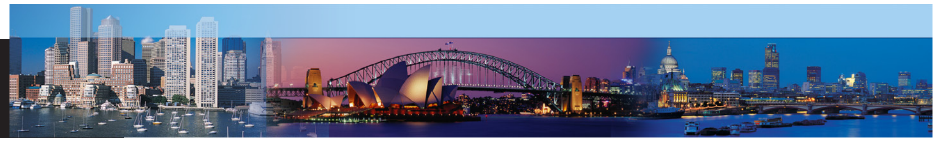
GMO

QUARTERLY LETTER

July 2013



Having some considerable trouble (once again) nailing down the topic I've been working on for this quarter's letter, I was pleased to see that my colleagues had already prepared good material. This gives me a convenient opportunity to skip a quarter and is probably a principle I should have adopted long ago for the occasional tougher topic. I'll be back – having enjoyed a slightly easier summer. In the meantime, if you have some time, you might check my session with Charlie Rose (click here) who kept me on my toes and made sure we covered a broad front.

–Jeremy Grantham

What the *&%! Just Happened?

Ben Inker

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The Purgatory of Low Returns

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GMO

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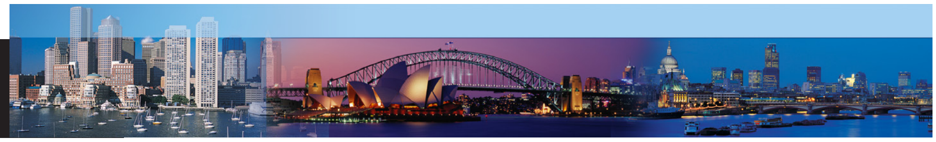


July 2013

What the *&%! Just Happened?

Ben Inker

To investors focused on U.S. equities, it may be easy to forget the investing excitement of this spring, but for others, particularly anyone running a portfolio predicated on asset class correlations being low, this has been a pretty shocking couple of months. From May 22 to June 24, the S&P 500 lost 5.6%, MSCI EAFE lost 10.1%, MSCI Emerging fell 15.3%, the Dow Jones/UBS Commodity index fell 4.5%, the U.S. 10-year T-Note fell 4.4%, and the Barclays U.S. TIPS index fell 7.1%. For good measure, the J.P. Morgan Emerging Debt Global index fell 10.8%, the German 10-year Bund fell 5.2%, the UK 10-year Gilt fell 3.4%, and the Australian 10-year bond fell 6.5%. Equity markets have made a fairly sharp recovery since then, with the S&P 500 actually hitting new highs, but lots of other asset classes are still licking their wounds. In light of the generally negative correlations between stocks and bonds of the last decade, the universality of the declines looks pretty weird. For those schooled in thinking that the only "risks" that matter for investors are growth shocks and inflation shocks, it's significantly more than just weird. To anyone of that mind, it's a bit of a soul-searching moment, and it forces you to either treat the episode as a one-off event that will hopefully not happen again anytime soon or as a challenge that requires you to rethink your risk model. Not surprisingly, at GMO we believe it to be the latter, and that most investor risk models are missing an important piece of the puzzle.

This is not to say that growth shocks and inflation shocks don't matter. They do, as they are two of the basic ways investors can lose significant amounts of money in otherwise diversified portfolios. Risk assets generally lose money in depressions, and nominal assets generally lose money in unanticipated inflations. But there is a third way to lose money, and it was what bit the financial markets in May and June. We call it valuation risk at GMO, and it is the risk associated with the discount rate on an investment rising. It can impact a single asset class for idiosyncratic reasons, but it can also affect a wide array of asset classes for a systematic reason. This spring it affected a wide array for a systematic reason.

The proximate cause of the decline was a statement given by Fed Chairman Ben Bernanke to Congress that quantitative easing would taper down within the next few Federal Reserve meetings if economic data continued to improve. Bernanke clearly did not mean for the market to freak out over the statement, as can be seen in the frantic backpedalling offered by various Fed governors, including Bernanke himself, in the following weeks. But freak out the market did, and not just one market, but seemingly all of them. Why?

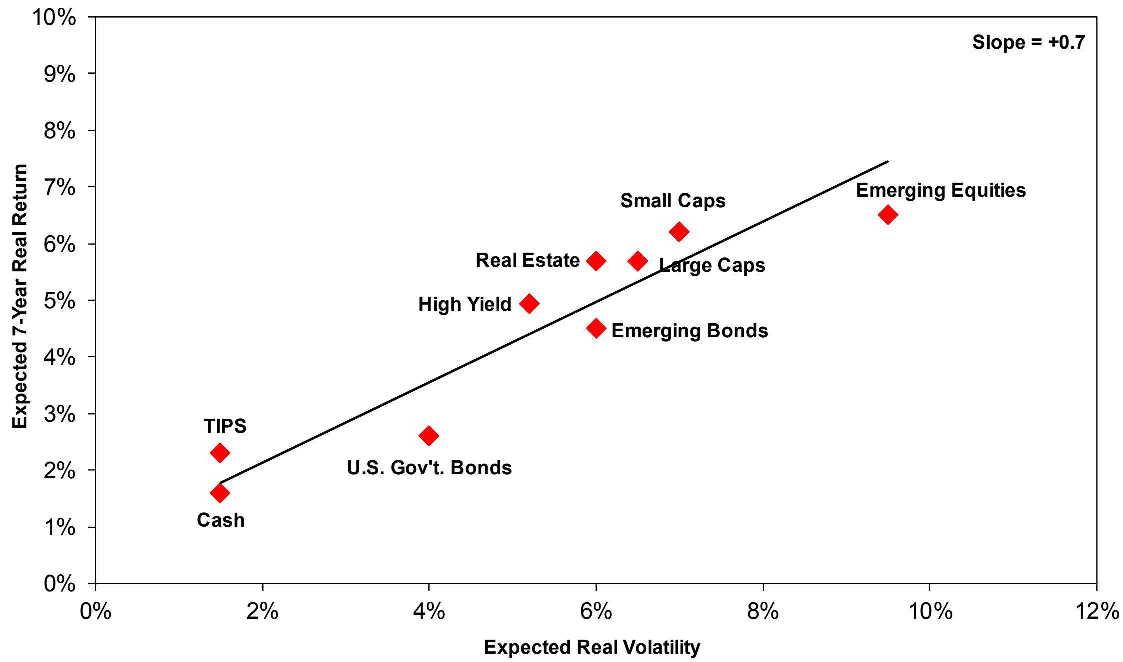
If he was of a mind to, Bernanke could choose to consider the whole thing a compliment. It is only because markets all around the world have been doing what he has asked them to that his words had the impact they did. Bernanke has been quite clear that a major purpose of easy monetary policy, and quantitative easing in particular, is to prod investors to bid up the prices of assets. In this, he has succeeded, even if it has not had the knock-on effects on the real economy that he might have hoped. To understand what has gone on, it is helpful to look at our 7-year forecasts in a way that we don't normally show them.[1]

Exhibit 1 shows our estimated equilibrium returns for asset classes as a scatterplot with expected return on the vertical axis and expected volatility as the horizontal axis.

[1] These charts may look vaguely familiar to anyone who remembers reading "When Diversification Failed" from December 2008, but I hereby forgive you for not remembering them. It was a busy time.

Exhibit 1

Equilibrium Return vs. Volatility



The chart represents real return forecasts for several asset classes and not for any GMO fund or strategy. These forecasts are forward-looking statements based upon the reasonable beliefs of GMO and are not a guarantee of future performance. Forward-looking statements speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update forward-looking statements. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in forward-looking statements.

Source: GMO As of 6/30/13

The various asset classes have significantly different expected returns, but the dots do have an associated pattern. This can be seen in the regression line, which has a notably positive slope. Before we get any further, I hear several colleagues' voices in my head shouting at me that volatility is not risk. They are correct. At GMO, we do not believe that investors get paid for taking volatility, but for taking "risk," and risk is a multifaceted concept for which volatility is a poor proxy at best.[2] But for this purpose I've only got two axes to play with and I have to do something, so please bear with me, recognizing the blunt nature of the tool I'm using.

Exhibit 2 shows our current 7-year forecasts as a similar scatterplot.

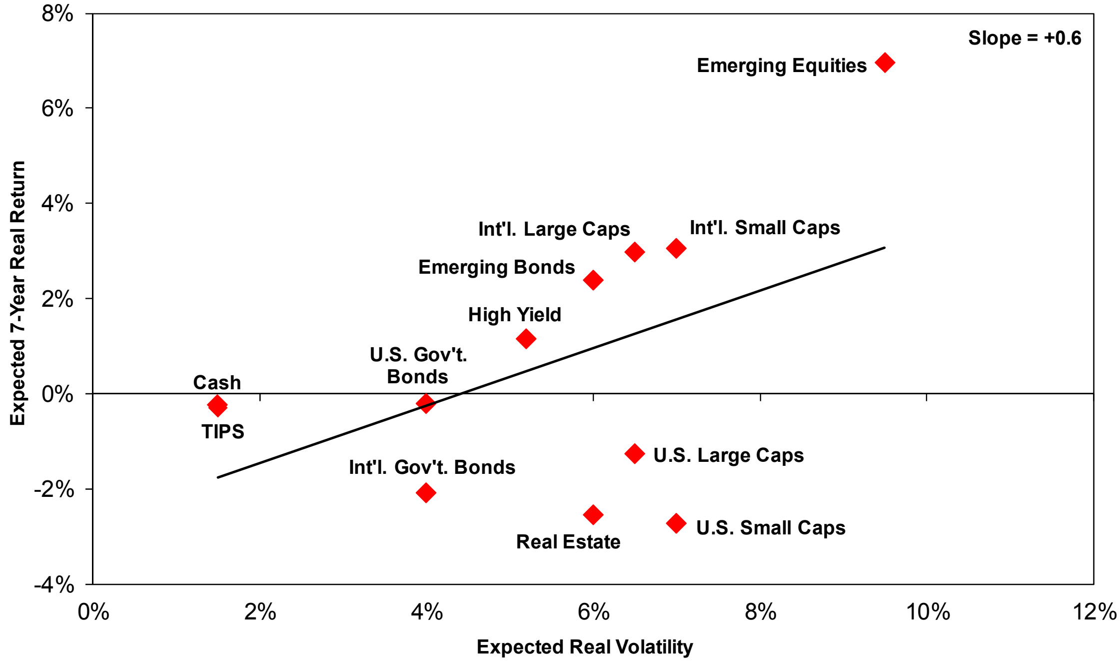
Two things jump out from Exhibit 2, or at least they do for me. The first is that the slope of the regression line is pretty close to normal. This is not always the case. Exhibit 3 shows the equivalent chart for September 2007, and you can see that the line at that time was actually downward sloping – investors were paying for the privilege of taking volatility, rather than getting paid.

The second point is that the whole line has been shifted down about three points relative to the equilibrium level. This combination is exactly what Bernanke has been trying to accomplish. By pulling down both today's cash rate and the market expectation of future cash rates, the Fed has increased the relative attractiveness of pretty much all assets other than cash and, as a consequence, their prices have risen. Since 2009 it has been difficult to avoid making money in the financial markets. Nominal bonds, inflation linked bonds, commodities, credit, equities, real estate – *everything* – has been bid up as a consequence of the very low expected returns of cash. And this gives today's markets a vulnerability that has not existed through most of history. *Today's valuations only make sense in light of low expected cash rates*. Remove that expectation, and pretty much every asset across the board is vulnerable to a fall in price, as the rising real discount rate plays no favorites.

[2] Given that the expected volatility that I'm using is expected 7-year annualized volatility, which is a meaningful number to pretty much no one beyond GMO, and even at GMO we don't tend to care a lot about long-term volatility as opposed to risk, I admit the whole thing is a trifle on the metaphysical side.

Exhibit 2

June 2013 Expected Return vs. Volatility



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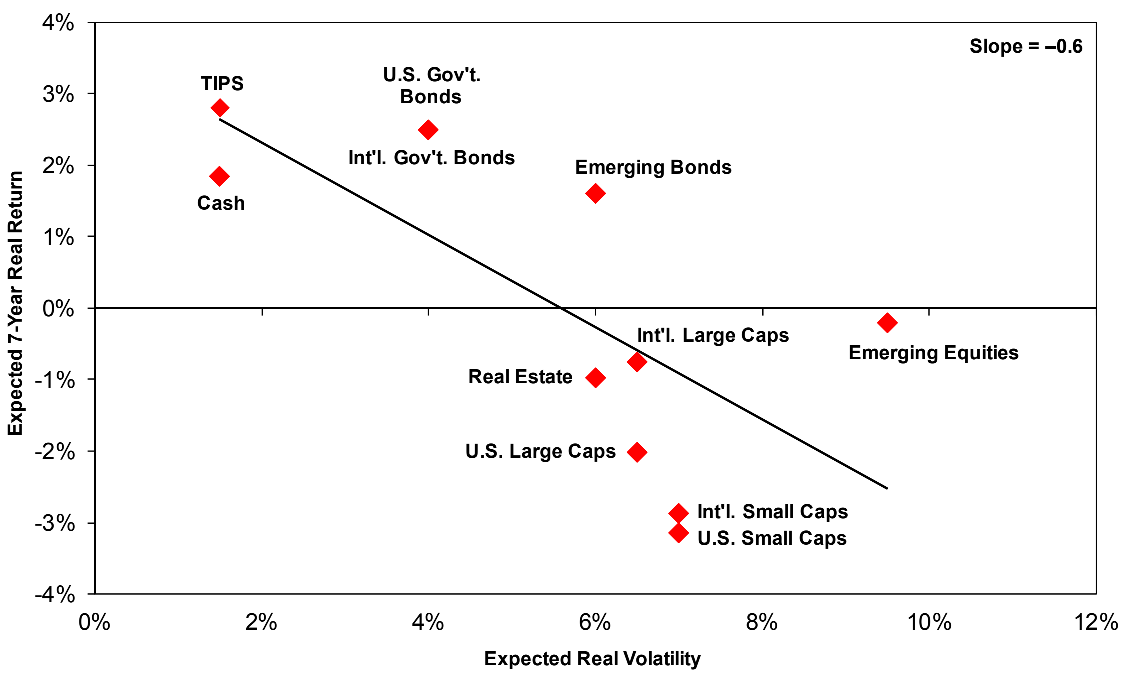
Source: GMO As of 6/30/13

Exhibit 3

September 2007 Expected Return vs. Volatility



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Source: GMO As of 9/30/07

We have known this for a while, but the trouble is that there is no easy way to resolve this problem. There is no asset class you can hold that would be expected to do well if the real discount rate rises from here.[3] Under normal circumstances, a rising real discount rate would probably come on the back of rising inflation or stronger than expected growth, which are diversifiable risks in a portfolio. But May's shock to the real discount rate came not because inflation was unexpectedly high or because growth will be so strong as to lift earnings expectations for equities and other owners of real assets, but because the Fed signaled that there was likely to be an end to financial repression in the next few years. And because financial repression has pushed up the prices of assets across the board and around the world, there is unlikely to be a safe harbor from the fallout, other than cash itself.

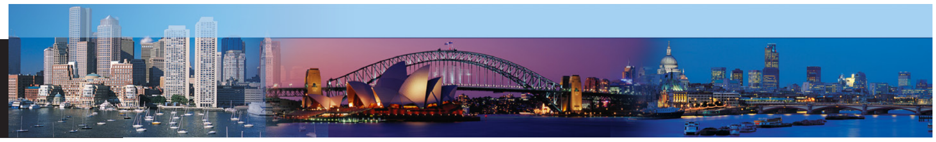
I would like to say that having warned investors of this problem, we were able to spare our clients losses in this environment. But most of the reason we have been complaining about this issue as loudly and continuously as we have is that there is no good way out. During the market hiccup, we certainly did not do as badly as some other investors who have invested without regard to the risk of a shock to real discount rates. But to avoid taking any losses in a situation like this, you really need to know when it will occur. Avoiding losses as real discount rates rise requires sitting in cash, and we know cash offers no return today, while other asset classes are priced to give positive returns, even if lower than their historical averages. We have held more short-duration assets than normal for the last couple of years in asset allocation portfolios where that is appropriate, and that did help cushion the blow a bit, but did not save us entirely. The scatterplot in Exhibit 2 shows that investors are getting paid to move away from cash if things revert to normal over 7 years. If things are going to revert over 2 years instead, cash suddenly becomes a pretty appealing asset by comparison, but we don't know that that will happen. As a result, we own assets that we know will get hit the next time markets are shocked by the prospect of discount rates normalizing.

In honor of the currently scorching temperatures, I'd like to put our current positioning in terms of a summer camp metaphor. We're in a canoe race to the other side of the lake. We know all of the canoes are old and a bit leaky in the best of times, and there's a storm coming. If we knew the storm were going to break now, we'd just stay in the cabin and laugh at everyone else as they were forced to turn around and trudge back to the cabin, sopping wet and half drowned. But we don't know when the storm will break or even if it might miss us altogether, so we've stuck an extra guy in the middle of our boat with a bucket instead of a paddle. We know it will slow us down, but it will go a long way to help ensure we don't sink along the way, even if we're resigned to the likelihood of a long slow paddle in the rain, sitting in water up to our ankles.

3 If you want to get cute, an interest-only (IO) mortgage backed security should do well in a rising discount rate environment because it cuts down on the rate of mortgage pre-payments, but it's hard to call IOs an asset class.

Mr. Inker is the co-head of asset allocation.

Disclaimer: The views expressed herein are those of Ben Inker as of July 22, 2013 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.



July 2013

The Purgatory of Low Returns

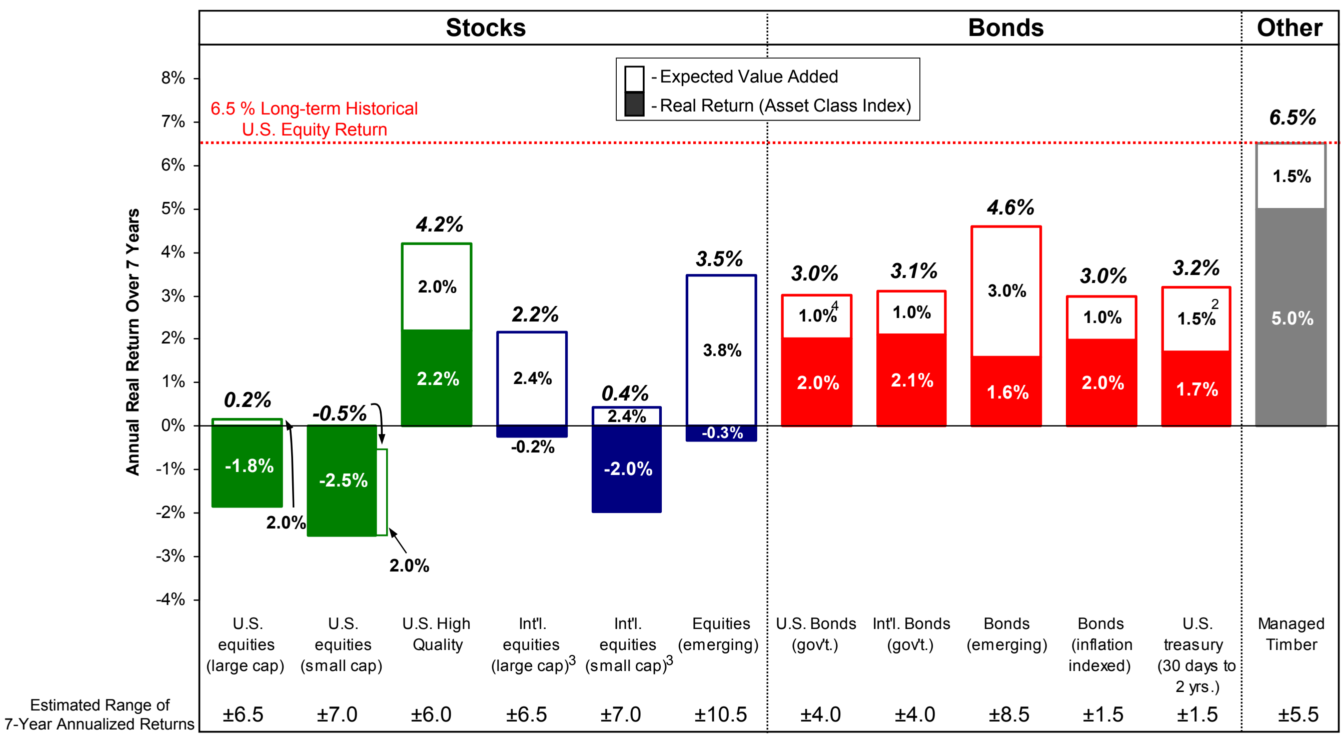
James Montier

This might just be the cruelest time to be an asset allocator.[1] Normally we find ourselves in situations in which at least something is cheap; for instance when large swathes of risk assets have been expensive, safe haven assets have generally been cheap, or at least reasonable (and vice versa). This was typified by the opportunity set we witnessed in 2007.

Exhibit 1

GMO 7-Year Asset Class Real Return Forecasts*

As of September 30, 2007



* The chart represents real return forecasts[1] for several asset classes and not for any GMO fund or strategy. These forecasts are forward-looking statements based upon the reasonable beliefs of GMO and are not a guarantee of future performance. Forward-looking statements speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update forward-looking statements. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in forward-looking statements.

1 Long-term inflation assumption: 2.5% per year.
2 Alpha transported from management of global equities.
3 Return forecasts for international equities are ex-Japan.
4 Alpha transported from management of global bonds.

Source: GMO

[1] It is certainly a bad time to be writing a paper on bonds, given that I seem to be revising the numbers almost every day!

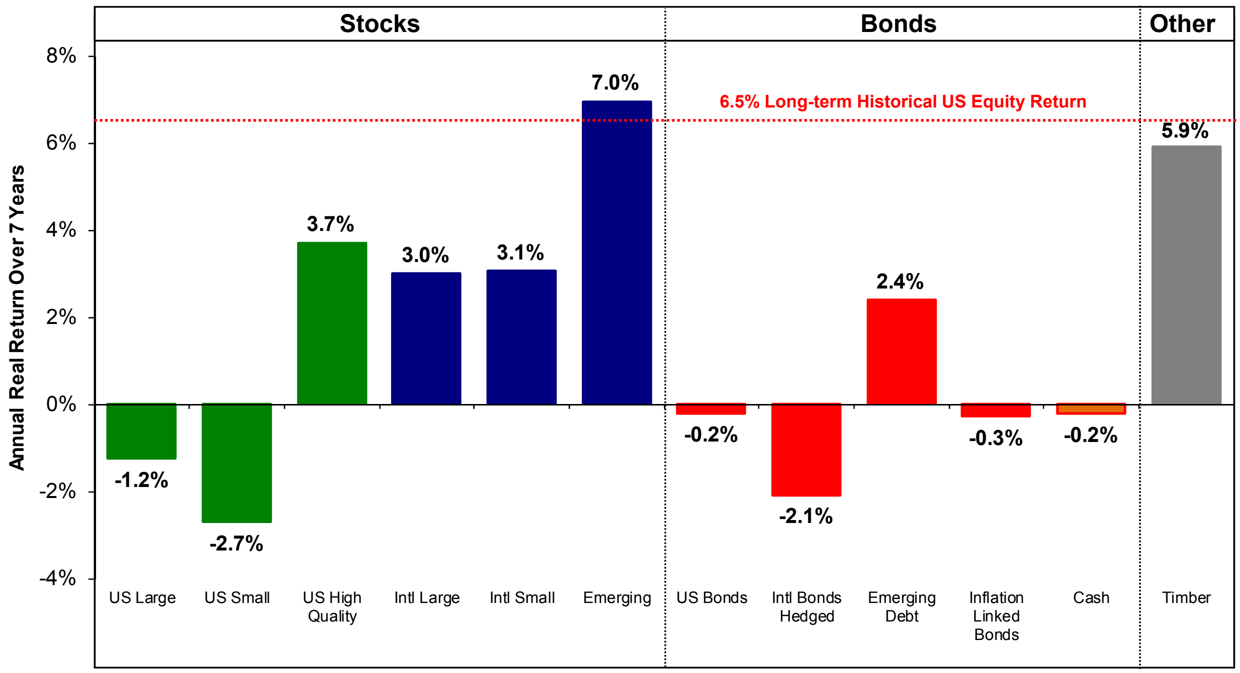
Likewise, during the TMT bubble of the late 1990s, the massive overvaluation of certain sectors was offset by opportunities in "old economy" stocks, emerging market equities, and safe-haven assets.

However, today we see something very different. As Exhibit 2 shows, today's opportunity set is characterized by almost everything being expensive. As I noted in "The 13th Labour of Hercules,"[2] this is a direct effect of the quantitative easing policies being pursued by the Federal Reserve and their ilk around the world.

Exhibit 2

GMO 7-Year Asset Class Real Return Forecasts*

As of June 30, 2013



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Source: GMO

The Fed has been unusually transparent in explaining its thoughts on the impact of quantitative easing. Brian Sack of the New York Fed wrote in December of 2009 (bold emphasis added):

> A primary channel through which this effect takes place is **by narrowing the risk premiums on the assets being purchased**. By purchasing a particular asset, the Fed reduces the amount of the security that the private sector holds, displacing some investors and reducing the holdings of others. **In order for investors to be willing to make those adjustments, the expected return on the security has to fall. Put differently, the purchases bid up the price of the asset and hence lower its yield**. These effects would be expected to spill over into other assets that are similar in nature, to the extent that investors are willing to substitute between the assets. These patterns describe what researchers often refer to as the portfolio balance channel.

Market participants have (at least until the last month) reacted to this situation by "reaching for yield" as witnessed by the more detailed fixed income forecasts in Exhibit 3. This could be described as a "near rational" bubble (inasmuch as investors are reacting to the very low cash returns, which they expect to last for a long time). I've described it as

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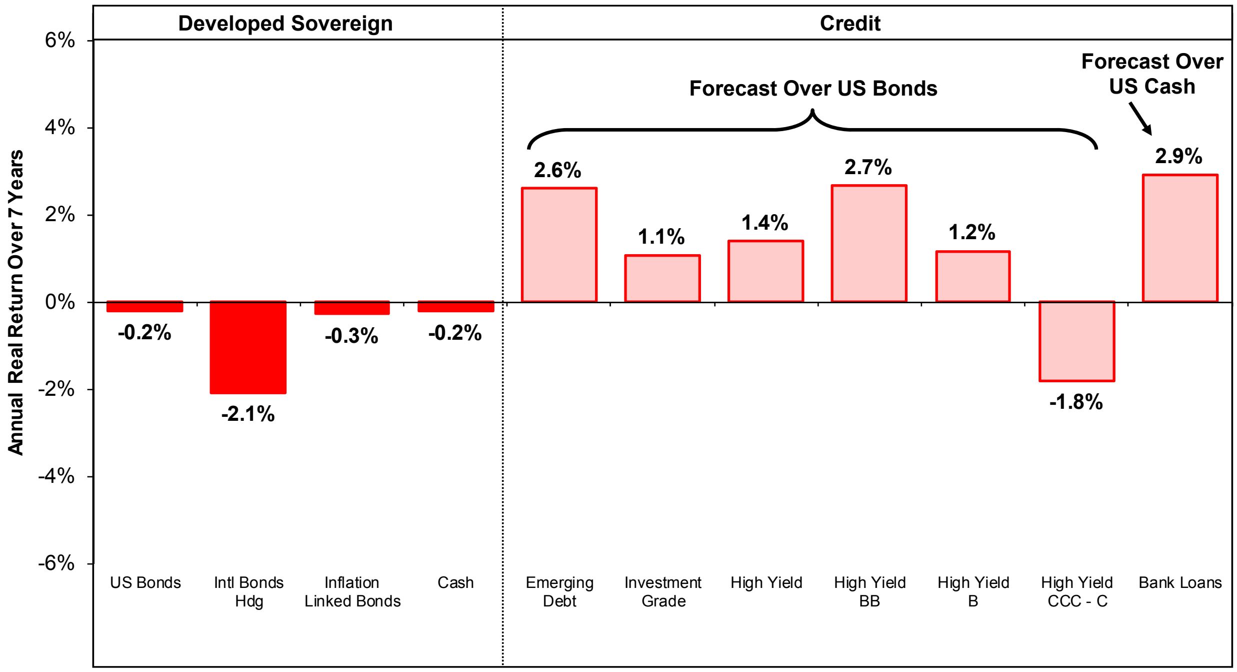
[2] James Montier, "The 13th Labour of Hercules: Capital Preservation in the Age of Financial Repression," November, 2012. A white paper available, with registration, at www.gmo.com.

a "foie gras" bubble as investors are being force-fed higher risk assets at low prices.[3] The bad news is that reaching for yield rarely ends well.

Exhibit 3

GMO 7-Year Fixed Income Forecasts*

As of June 30, 2013



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Source: GMO

Of course, like all of our published forecasts, the forecasts for government bonds and cash assume mean reversion. That is to say that when constructing our forecasts, we follow a pattern such as the one shown in Exhibit 4.[4] Effectively, this forecast says that real cash rates will mean-revert toward something close to long-term average, the slope of the yield curve will move to its long-term average, and inflation will move to the consensus view of long-term inflation (in the absence of a strong view on the future path of inflation). As even a cursory glance at the exhibit shows, the main driver of our negative view on treasuries is the impact of real rates normalizing from -2% to 1.6% over the course of 7 years.[5]

To convert this into a 7-year forecast we need to acknowledge the various components: the shift in the yield curve; the real yield; and the roll down (from having a 10-year bond that after 1 year becomes a 9-year bond, and thus to ensure constant maturity, you sell and reinvest in a new 10-year bond). Under our baseline assumptions (i.e., those shown in Exhibit 4), this gives rise to the forecast shown in Exhibit 5.

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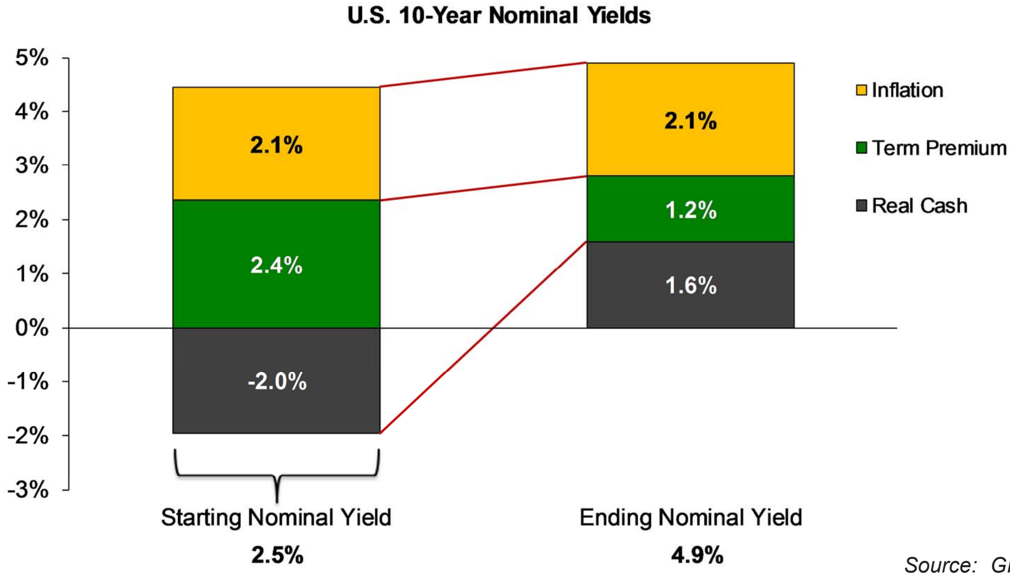
3 Of course, investors always have a choice not to participate by simply sitting on the sidelines. However, this option is often not viable for many because "career risk" dominates. This innate tendency to be invested is, of course, severely exacerbated when sitting on the sidelines carries the price tag of a negative real return.

4 The framework for constructing bond forecasts is based on the work of several of my colleagues including Edmund Bellord, Nick Nanda, and Kai Wu. They have each forced me to think much more deeply about bonds.

5 It is perfectly possible that over the next 10 years we may end up with a cash rate that is lower than 1.6% because of the policies the world's central banks are pursuing.

Exhibit 4

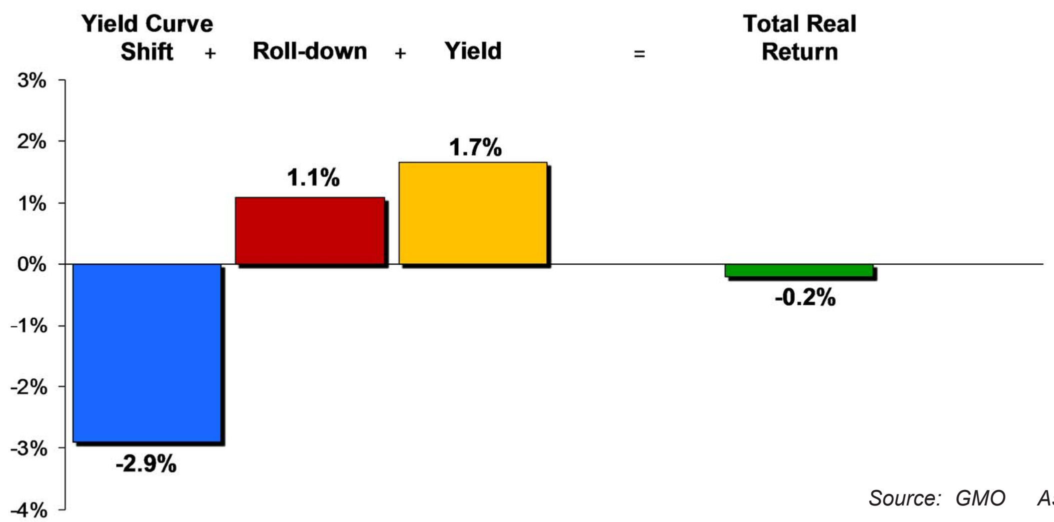
Yield Decomposition for U.S. Treasuries



Source: GMO As of 6/30/13

Exhibit 5

U.S. 10-Year: Building a 7-Year Forecast



Source: GMO As of 6/30/13

A GMO Heresy: The Possibility of No Mean Reversion!

As regular readers will know, we at GMO are stalwart supporters of the concept of mean reversion in general.[6] However, if ever there was an economic case for a question mark over mean reversion, it is surely with respect to cash rates and bond yields. The simple reason behind this seemingly heretical statement is that rates are (can be) policy instruments. As Keynes[7] noted, "The monetary authorities can have any interest rate they like… They can make both the short and long-term [rate] whatever they like, or rather whatever they feel to be right… Historically the authorities have always determined the rate at their own sweet will."

We are all used to thinking of central banks as setting the short-term interest rates, but generally the long rate is seen as a market-determined rate (i.e., some combination of market expectations of future short rates, liquidity preference, and risk premiums). However, there is nothing to stop central banks from setting the long rate as well. Indeed, in

[6] See, for instance, "What Goes Up, Must Come Down," a white paper by James Montier available, with registration, at www.gmo.com.

[7] John Maynard Keynes, Collected Writings (Volume XXVII), Cambridge University Press, December 1980.

the past they have done exactly that (e.g., the UK during World War II had a target of 3% for bond yields). So bond yields can be an outright policy instrument too.

The Myth of the Bond Vigilantes

When I'm talking to people about this, it is at this point that someone usually brings up the bond vigilantes: surely these guardians of monetary and fiscal rectitude will step in. However, for a nation that can print its own currency and has a floating exchange rate, bond vigilantes are a myth – an economic bogey man made up to scare recalcitrant governments into "good" behaviour.

Just imagine that I as a foreigner decide to sell my holdings of U.S. government bonds. If the Federal Reserve stands ready to buy at the same yield at which I sell, there will be precisely zero impact on yields, i.e., I sell at, say, 2.5% and the Fed buys those same bonds at 2.5%. The only impact is that the dollar will go down against the pound as I switch from holding a dollar asset to holding sterling.

This, of course, assumes that the central bank targets price (i.e., has a desired bond yield) and doesn't care about the exchange rate. As an aside (to me, at least), one of the oddities in the process of quantitative easing is that it is "quantitative" rather than price-based. Presumably, the Fed and its brethren think they can do more than simply lower rates by using the "quantitative" approach. I'm just not sure what. To me, a combination of a price/yield target for treasuries and a quantitative easing policy for other assets (such as MBS) would be the easiest and most logical way to move beyond the zero bound on short rates. A price target is certainly easier to exit as you simply raise the yield target to your new desired level. The good news is that policy making is well above my pay grade!

The Myth of the "Natural" Rate

An alternative argument that gets put forward is that the Fed can't really set any rate that it likes because, ultimately, it must respect the "natural rate of interest." One should always be suspicious of the word "natural" in the context of economics. It tends to imply some semi-divine concept, yet there are essentially no natural laws in economics.

The concept of the "natural" rate dates back to early monetary theorists but was given maximum exposure in the works of the Swedish economist, Knut Wicksell.[8] However, there are several arguments that I find compelling and believe cast serious doubt on the concept of a "natural" rate of interest. The arguments over the existence of a natural rate of interest are generally what can only be described as "wonkish"[9] and thus I won't subject the reader to an elongated discussion here. For those (geeks, nerds, and anyone with trouble sleeping) who are interested, I've written a wonkish addendum to this piece called "Wicksell's Red Surströmming."

Rather than a single, divine "natural" rate, I'd suggest it might be more helpful to think of a range of neutral or consistent rates. As Keynes put it, "It cannot be maintained that there is a unique policy which, in the long run, the monetary authority is bound to pursue."[10] For instance, a price stability consistent interest rate might be defined as the rate of interest consistent with stable prices (akin to inflation targeting, the darling of central bankers around the globe), a full employment[11] consistent interest rate would aim to reduce unemployment to levels that were essentially frictional, and one can easily posit a financial stability consistent interest rate that kept financial markets well-behaved.[12]

The chance of these various rates all coinciding is essentially zero. Trying to achieve all three outcomes with a single policy instrument (short-term interest rates) is likely to be an impossible task. Thus, some political guidance as to the relative merits of the various objectives is needed, or more instruments available to be called upon.[13]

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8 Knut Wicksell, Interest and Prices, 1898.

9 Indeed, when I wrote up some of these arguments internally even a couple of my more tolerant colleagues suggested they were excessively wonkish.

10 From Keynes Lectures 1932 (via Rymes [1989] Keynes's Lectures, 1932-35).

11 Defined as frictional unemployment and zero underemployment with participation rates at high levels.

12 One could plausibly argue that the recent pronouncements by the Fed over the possibility of tapering were driven more by concern about the behaviour of financial markets than the underlying state of the economy.

13 For instance, using fiscal policy to target full employment.

This, of course, simplifies away from the problem of actually knowing what these various rates are. What level of rates ensures price stability? What level of rates ensures full employment? And so on. This is certainly well beyond my ken, and I suspect an unknown for the central bankers as well. To really add salt to the wound, these various rates are highly likely to be time-varying as well. Hence, trying to identify any one of these rates is akin to looking for a needle in a haystack, with the added complication that someone keeps moving the entire haystack!

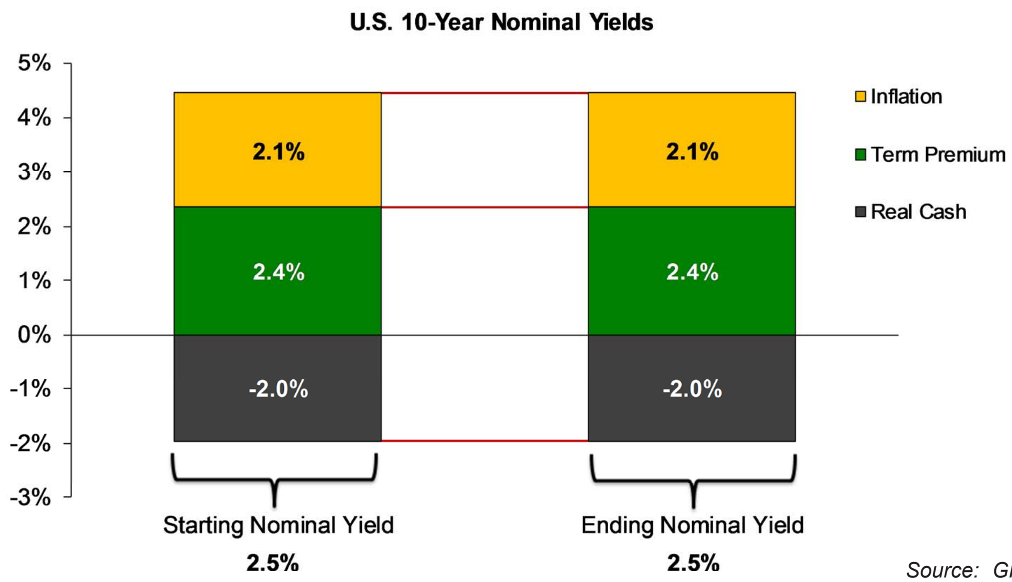
Fixed Income Forecasts in a World without Mean Reversion

Anyway, back to forecasting. The bottom line is that it is perfectly possible that the Fed, et al, could hold rates down (at both the long and short end) for some prolonged period. This is obviously an exceptionally bullish case for bonds (in fact, I'd argue it was the "best" case outcome that could reasonably be expected, absent a strongly deflationary viewpoint).

It is easiest to see how this would play out by thinking about the buy and hold return to owning a 10-year treasury. Currently, such an investment yields around 2.5% p.a. in nominal terms. If we were to hold such a bond for its lifetime, then we would simply end up with a real return equal to the current yield minus the inflation rate (say, 2.3%[14]), i.e., close to a zero real return.

Exhibit 6

No Mean Reversion in Yields



Source: GMO As of 6/30/13

However, as noted above, if we pursue a constant maturity strategy (i.e., when our 10-year bond becomes a 9-year bond, we sell it and reinvest in a new 10-year bond), a rolldown return is created (assuming a normal upward-sloping yield curve). This would translate into a 7-year forecast in an identical fashion to that noted earlier and as represented in Exhibit 7. Effectively, rather than the -0.20 bps forecast we see under the baseline assumption of mean reversion, we would get a forecast of 2.2% p.a.[15]

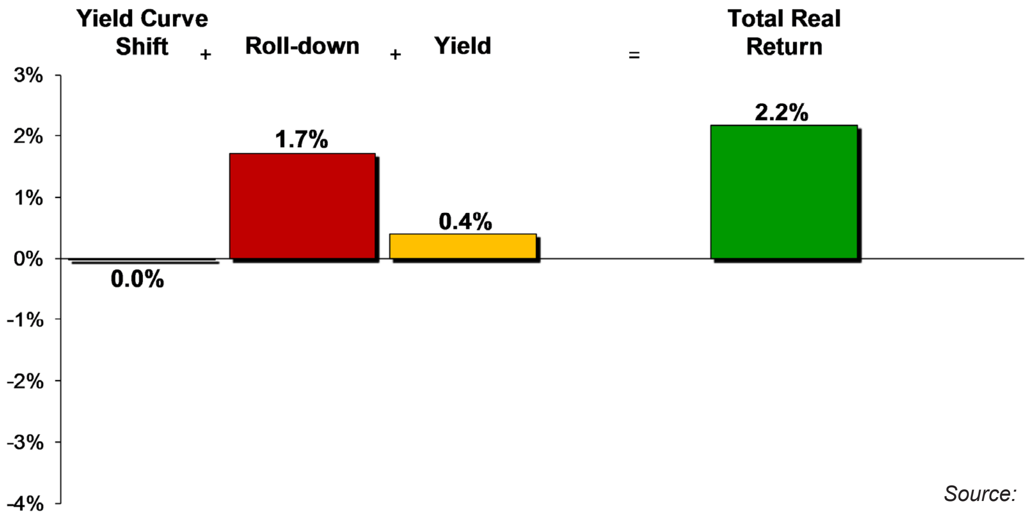
This might seem like a reasonable rate of return. **However, it only holds if and only if the Fed keeps rates unchanged in real terms over the next decade.** As I showed in my previous work on equities under financial repression ("The 13th Labour of Hercules"), the way you behave and your estimates of return are driven by your expectation of the duration of financial repression.

[14] Both the inflation swaps market and the Philadelphia Fed Survey show around this level of expected inflation over the next 10 years.

[15] This work was first presented by Edmund Bellord at our client conference in the fall of 2012.

Exhibit 7

Impact on Return Generators of No Mean Reversion



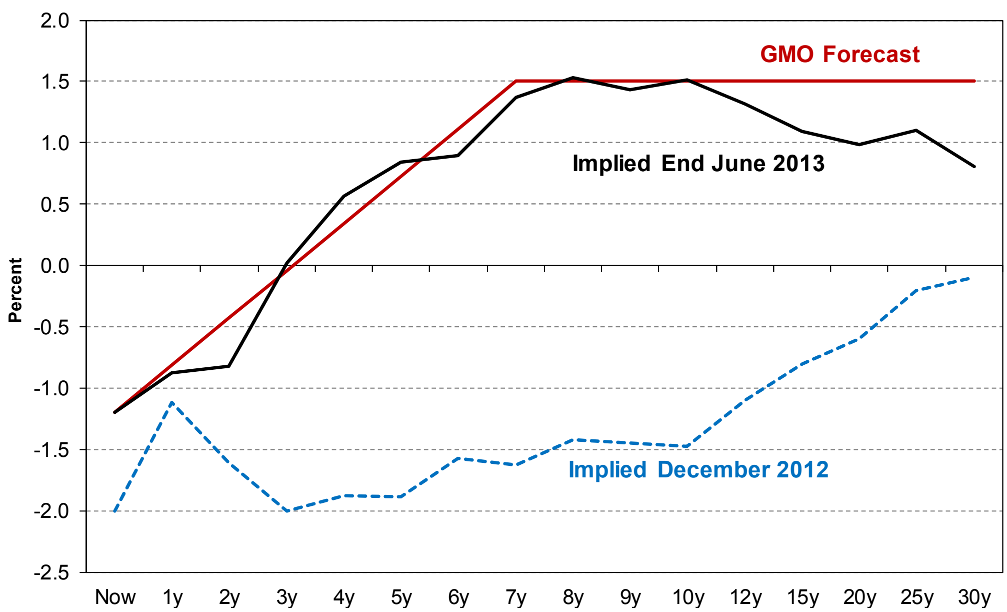
Source: GMO As of 6/30/13

However, as I also pointed out in previous musings on financial repression, as far as I can tell, no one has any real idea how long the Fed (and others) will keep rates low. The market's implied view has certainly changed radically over the last six months as Exhibit 8 shows. In essence, the Fed spoke of "tapering" and Mr. Market heard "tightening."

For what it is worth (and I assure you it isn't a lot), I think that given that the Fed merely mentioned the possibility of tapering its quantitative easing policies, this seems like a probable over-reaction, especially since the Fed is explicitly following a so-called "Evans Rule" and is committed to keeping policy easy until the unemployment rate reaches 6.5% (currently at 7.5% with low participation rates) or inflation (based on the PCE) exceeds 2.5% (currently at 1%). A tapering of the quantitative easing policies seems like a very different thing than the Fed embarking on an explicit interest rate tightening cycle.

Exhibit 8

Implied Real Short Rates



The chart represents a real return forecast for the above named asset class and not for any GMO fund or strategy. These forecasts are forward-looking statements based upon the reasonable beliefs of GMO and are not a guarantee of future performance. Forward-looking statements speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update forward-looking statements. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from the forecasts above.

Source: GMO As of 6/30/13

Given the massive uncertainty surrounding the duration of financial repression, it is always worth considering what happens if you are wrong. In owning treasuries under the assumption that the Fed holds real cash rates negative, you get the roll return as above, but this could be described as a "pennies in front of a steamroller" style strategy. It is always possible that the Fed could decide to step away from the market or normalize real rates and you would end up with a return more akin to the baseline mean reversion forecast we presented above. You are effectively running a strategy that potentially has significant tail risk embedded within. One of the most useful things I've learnt over the years is to remember that if you don't know what is going to happen, don't structure your portfolio as though you do!

The bottom line is that treasuries offer low returns under most scenarios. If the Fed steps away from the market and normalizes, you get a negative return; if the Fed stays in the market, you get a pretty low return. You are pretty much doomed either way. The only scenario under which treasuries do "well" is one with outright deflation! In essence, in the absence of a strong view on deflation, you neither want to be long, nor short, treasuries. You just don't want to own any.

The Death of an Asset Class?

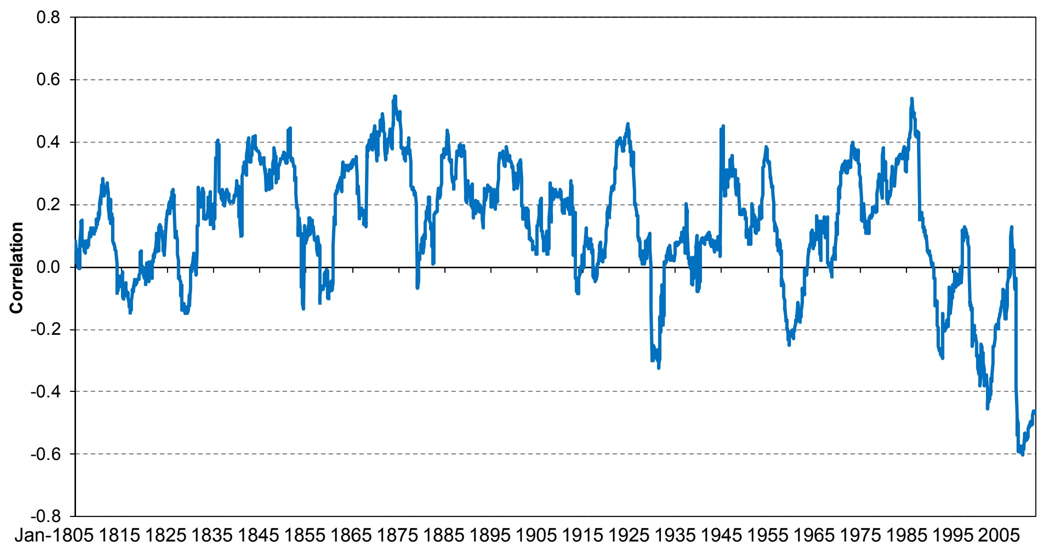
I am well aware of the dangers of proclaiming the death of an asset class, because usually when this is announced, we witness an enormous bull market in the supposedly dead asset class. However, barring the deflation outcome, we could finally be witnessing what Keynes described as the euthanasia of the rentier:

> "The owner of capital can obtain interest because capital is scarce, just as the owner of land can obtain rent because land is scarce. But whilst there may be intrinsic reasons for the scarcity of land, there are no intrinsic reasons for the scarcity of capital… I see… the euthanasia of the rentier."[16]

Assuming you aren't expecting outright deflation, then the best that can be said for owning some treasuries is that they act as diversification/insurance in the context of an equity portfolio. However, as Exhibit 9 shows, the correlation between bonds and equities isn't exactly stable – it wanders all over the place, and on average is positive! Certainly it is negative during a subset of events that are probably best described as deflationary busts (e.g., 1930s, 2008). So if this is the risk you are worried about, then perhaps you should own some fixed income. However, it isn't obvious just how much of a diversifier bonds can be at very low yields.[17] Nor do bonds act as diversifying assets to events

Exhibit 9

Correlation of Bond and Equity Returns (Rolling 5-Year)



Source: GMO *As of 6/30/13*

[16] John Maynard Keynes, The General Theory of Employment, Interest and Money, MacMillan Cambridge University Press, 1936.

[17] Again, assuming no deflation.

like the stagflation of the 1970s. Ultimately, if you own bonds as insurance you must ask yourself how much you are paying for that insurance, because insurance is as much a valuation-driven proposition as anything else in investing.

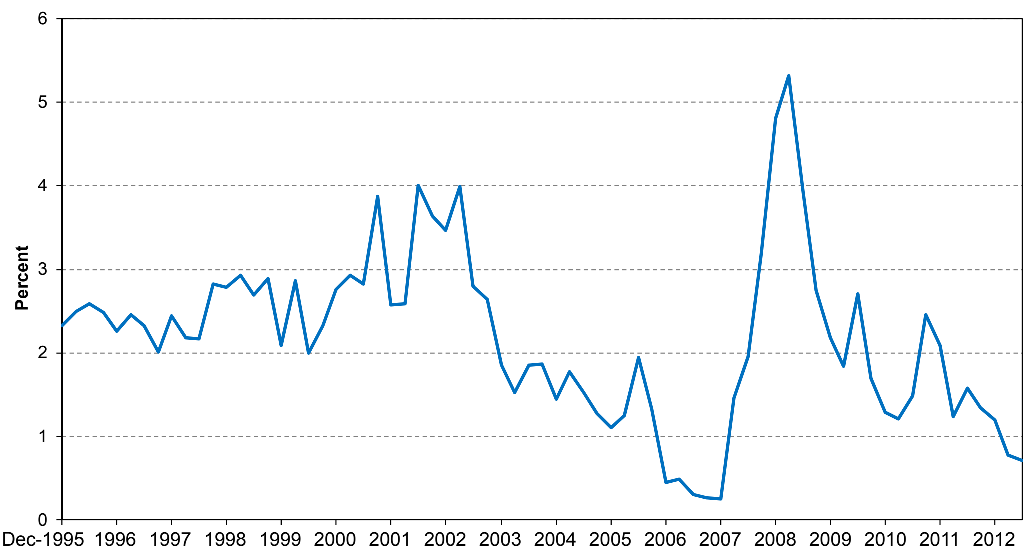
The Purgatory of Low Returns

Of course, bonds aren't the only low-returning asset class. As Exhibit 2 showed, the current opportunity set according to our forecasts is generally not compelling. To us, both bonds and equities generally look to be "overvalued." Those focusing on the "attractive level of the equity risk premium" potentially fail to recognize this situation.

If the opportunity set remains as it currently appears and our forecasts are correct (and I'm using the mean-reversion-based fixed income forecast), then a standard 60% equity/40% fixed income strategy is likely to generate somewhere around a paltry 70 bps real p.a. over the next 7 years![18] Even if we used the non-mean-reversion-based forecast, the 60/40 portfolio looks likely to generate a lowly 1.7% p.a. real. Thus, if the opportunity set remains constant, investors look doomed to a purgatory of low returns.

Exhibit 10

60/40 Forecast Real Returns over Time



Each data point represents GMO's forecast for a 60%(S&P 500)/40%(U.S. Bonds) portfolio. These forecasts are forward-looking statements based upon the reasonable beliefs of GMO. Past forecasts were not, and current forecast are not, a guarantee of future performance. Forward-looking statements speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update forward-looking statements. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in forward-looking statements.

Source: GMO As of 6/30/13

So what is an investor to do? I believe there are at least four (possibly not mutually exclusive) paths an investor could go down to try to avoid this outcome:

(i) *Concentrate*. Simply invest in the highest-returning assets. This is obviously risky as you become dependent upon the accuracy of your forecasts, and right now nothing is outstandingly cheap so you are "locking in," at best, fair returns (assuming you wanted to have a portfolio that was 100% invested and split between, say, European value and emerging market equities). You are, however, giving up the ability to rebalance.

(ii) *Seek out alternatives*. This meme had been popular until the GFC revealed for all to see that many alternatives were anything but alternatives. True alternatives may be fine, but they are likely to be few and far between.

(iii) *Use leverage*. This is the answer from the fans of risk parity. Our concerns about risk parity have been well

[18] This uses a global equity (40% U.S./40% International/20% Emerging) forecast.

documented.[19] As a solution to a low-return environment, leverage seems like an odd choice. Remember that leverage can never turn a bad investment into a good one, but it can turn a good investment into a bad one (by forcing you to sell at just the wrong point in time).

(iv) *Be Patient*. This is the approach we favour. It combines the mindset of the concentration "solution" – we are simply looking for the best risk-adjusted[20] returns available, with a willingness to acknowledge that the opportunity set is far from compelling and thus one shouldn't be fully invested. Ergo, you should keep some "powder dry" to allow you to take advantage of shifts in the opportunity set over time. Holding cash has the advantage that as it moves to "fair value" it doesn't impair your capital at all.

Of course, this last approach presupposes that the opportunity set will shift at some point in the future. This seems like a reasonable hypothesis to us because when assets are priced for perfection (as they generally seem to be now), it doesn't take a lot to generate a disappointment and thus a re-pricing (witness the market moves in the last month). Put another way, as long as human nature remains as it has done for the last 150,000 years or so, and we swing between the depths of despair and irrational exuberance, then we are likely to see shifts in the opportunity set that we hope will allow us to "out-compound" this low-return environment. As my grandmother used to chide me, "Good things come to those who wait."

[19] See Ben Inker's white paper of March 2010, "The Hidden Risks of Risk Parity Portfolios" at www.gmo.com, with registration.

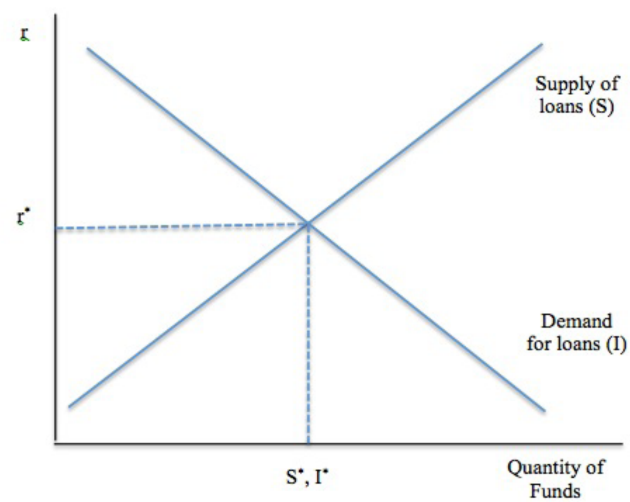
[20] Of course, when we say risk we don't mean volatility, beta, or VaR. Rather, we are driving at an assessment of the "fundamental risk" of an investment.

Wicksell's Red Surströmming (A Wonkish Addendum)[1]

The concept of a "natural" rate of interest is ubiquitous in modern finance and in discussions about monetary policy (i.e., the Fed's rates are too low, too high, etc). Effectively, inflation/deflation is said to be caused by a gap between the "natural" rate and the policy-determined rate. However, I fear the concept of a "natural" rate of interest is ill-defined and probably doesn't exist at all (outside of some extremely restrictive models, of interest only to academics).

As noted in the main essay, the concept of the "natural rate of interest" was given its most expansive representation in the works of Knut Wicksell (especially Wicksell 1898). He argued that the natural rate of interest "is obtained by thinking of it as the rate which would be determined by supply and demand if real capital were lent without the intervention of money." By real capital, Wicksell is referring to machines, tools, etc. In more general terms, the approach is usually summed up by a diagram such as the one below (aka Robertson's loanable funds market).

Figure 11.7 Classical interest rate determination



The supply of loans is the savings curve, and the demand of loans is the investment curve. These curves are held to be determined by real forces such as productivity and thrift. Thus the natural rate of interest is argued to be independent of "monetary factors." Ben Bernanke certainly subscribes to this view. In a recent speech[2] he opined, "In the longer term, real interest rates are determined primarily by nonmonetary factors." Similarly, the current darling of the Fed and "central banking guru," Michael Woodford, is a self-confessed "neo-Wicksellian" whose magnum opus shares the title of Wicksell's 1898 book, Interest and Prices.

However, there are some fundamental issues with this framework. We can see a simple example by considering the following: let's take a private closed economy (i.e., no government, no trade).

Output (Y) can be defined as consumption (C) plus investment (I)

$Y = C + I$

If we accept that output equals income, then we can also define

Savings (S) is equal to all income (Y) not consumed or

$S = Y - C$

This can be rewritten as $Y = C + S$

At this point it becomes obvious that $S = I$.

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1 Surströmming is a Swedish "delicacy" that consists of putrefied herring.

2 http://www.federalreserve.gov/newsevents/speech/bernanke20130301a.pdf

This is an identity: it has to be true at all points in time and with all interest rates! In terms of the loanable funds diagram shown above, this effectively says the investment and saving lines are one and the same thing (just viewed from different angles). They are really just one line. Thus, they can't determine the "natural rate of interest."

The neoclassical economists (such as Myrdal and Ohlin) argued that the S=I identity was not a problem because it was an ex post statement, and the loanable funds framework was an ex ante analysis – i.e., it was about planned savings and planned investment. It was said that these planned levels were equilibrated by the real rate of interest. Under this view, both saving and investment are seen as volitional decisions of individual savers and investors.

This may be true under a very specific model of the economy – one in which we are all farmers! Chick[3] notes "Classical theory had its beginnings in the setting of an agricultural economy, where the archetypal form of saving was the seed-corn; production not consumed, a real resource. (Being real [and highly divisible], there is no problem of aggregation.) Income, the harvest, is predetermined. When corn is held back from consumption, it is saving; when sown, investment. The saving is done (slightly) prior to the investment in the nature of things and is only done for the purpose of investment." In this type of economy saving does indeed proceed investment, and conforms to the loanable funds approach.

This is a typical example of what Schumpeter[4] terms "real analysis" (in which money is a veil):

> Real Analysis proceeds from the principle that all essential phenomena of economic life are capable of being described in terms of goods and services, of decisions about them, and of relations between them. Money enters the picture only in the modest role of a technical device that has been adopted in order to facilitate transactions.

However, whilst the loanable funds approach may hold for a single-commodity agricultural economy, the conclusions don't extend to more complex economies. We then need to turn to "monetary analysis," in which monetary variables are not considered an essentially redundant veil, but rather as fundamental from the start:

> Monetary Analysis introduces the element of money on the very ground floor of our analytical structure and abandons the idea that all essential features of economic life can be represented by a barter-economy model. Money prices, money income, and saving and investment decisions bearing upon these... acquire a life and importance of their own, and it has to be recognized that essential features of the capitalist process may depend upon the 'veil' and that the 'face behind it' is incomplete without.

In Chick[5] an evolution of banking in "stages" is outlined. The second stage is characterized by widespread acceptance of deposits as money for transactions. "The banking system can now lend to a multiple of reserves, subject to... reserve requirements; deposits are a consequence." Effectively, loans now create deposits. Banks decide to make loans based on expected profitability and the creditworthiness of borrowers. This means that investment can now proceed saving. As Moore[6] puts it, savings simply becomes the accounting record of investment.

Under this framework, saving is no longer volitional. Under a monetary analysis, all investment spending must be financed, but it can be financed in one of two ways, either via internal finance or external finance. When investment is financed by internal means, the money to finance must first have been saved. When investment is financed externally, the accompanied savings may be volitional or non-volitional. When the external finance takes the form of issuing new stocks or bonds, then this represents an increase in volitional saving. When the external finance is via bank loans, then the saving is non-volitional (since it need not involve any decision to abstain from consumption). Deficit spending, deficit finance, and non-volitional saving cannot occur in nonmonetary economies and thus are missed by those following a "real analysis path."

3 Victoria Chick, Macroeconomics After Keynes: A Reconsideration of the General Theory, The MIT Press, 1983.

4 Joseph Schumpeter, History of Economic Analysis, Oxford University Press, USA, 1954.

5 Victoria Chick, "The Evolution of the Banking System and the Theory of Saving, Investment and Interest," discussion paper, University College of London, Dept. of Economics, 1992.

6 Basil Moore, Shaking the Invisible Hand: Complexity, Choice and Critiques, Palgrave Macmillan, 2006.

Above we defined savings as income not consumed. Moore points out that a more transparent definition is "net wealth accumulation." He notes:

> If income is not spent on consumption goods it must necessarily be spent on or held in the form of non-consumption goods. When individuals "save" their net worth increases... when saving is defined as the change in net worth, it can very easily be seen to simply be the accounting record of investment.

Moore suggests looking at the National Balance Sheet (Table 1). Changes in tangible assets must create changes in net worth. Thus "saving" is the accounting record of investment.

Table 1

National Balance Sheet	
Δ Financial Assets XX	Δ Financial Liabilities XX
Δ Tangible Assets XX	Δ Net Worth
(Investment)	(Savings)

We can then say that investment causes savings. With the exception of unplanned inventory accumulation, all decisions to invest are volitional. In contrast, most saving behaviour is non-volitional. Planned savings by households will almost never equal planned investment by firms (except by extreme accident). Hence, the precepts of the loanable funds approach must be rejected and there is no such thing as the "natural rate of interest."

The Cambridge Capital Controversies

If that wasn't enough wonkishness for you, there is another problem with the "loanable funds" approach to the natural rate of interest. It dates back to an intellectual dispute that raged in the 1950s/60s between Cambridge UK (with Robinson, Kaldor, Sraffa, and Pasinetti among the combatants) and Cambridge USA (represented by Solow, Samuelson, Hahn, and Bliss).

The war was effectively opened by the following salvo from Joan Robinson:[7]

> The production function has been a powerful instrument of mis-education. The student of economic theory is taught to write Q = f(L,K) where L is a quantity of labour, K a quantity of capital and Q a rate of output of commodities. He is instructed to assume all workers are alike, and to measure L in man-hours of labour; he is told something about the index-number problem in choosing a unit of output; and then he is hurried on to the next question, in the hope that he will forget to ask in what units K is measured. Before he ever does ask, he has become a professor, and so sloppy habits of thought are handed on from one generation to the next.

In standard neo-classical economics, the production function Q=f(L,K) is coupled with a handful of further assumptions such as exogenously given resources and technology, constant returns to scale, diminishing marginal productivity, and competitive equilibrium. From this, what Samuelson[8] called the three parables can be derived:

1) The real return on capital (the rate of interest) is determined by the marginal productivity of capital.
2) A greater quantity of capital leads to a lower marginal product of capital/lower interest rate (also holds with respect to capital/output ratio and the sustainable levels of consumption per capita).
3) The distribution of income between labour and capital is explained by relative factor scarcities and marginal products.

7 Joan Robinson, "The Production Function and the Theory of Capital," *Review of Economic Studies*, 21(2), 1953-54, pp. 81-106.

8 Paul Samuelson, "A Summing Up," *The Quarterly Journal of Economics*, Vol. 80, No. 4, November 1966.

As with Wicksell's original statements about real capital (above), all is good and well in a single-commodity example. However, when one generalizes, things begin to go awry. Heterogeneous capital goods can't be aggregated in physical units[9] (semi-conductors and spades don't share a common unit of account in physical terms). Hence they are required to be valued in some terms; generally this is done with reference to the present value of output they are capable of producing (i.e., some form of discounted cash flow analysis). This, of course, involves an interest rate, and here the whole thing collapses into circularity – **you can't get a rate of interest without knowing the value of capital and you can't know the value of capital without an interest rate**. As Sraffa[10] (1962) put it, "What is the good of a quantity of capital... which, since it depends on the rate of interest, cannot be used for its traditional purpose... to determine the rate of interest."[11]

Sadly, although the Cambridge UK team won the battle as even Samuelson admitted the three neo-classical parables "cannot be universally valid," the Cambridge USA team won the war[12] given the aggregate production function and the loanable funds theory are still drummed into unsuspecting students' heads without any discussion of the issues raised by the Cambridge Capital Controversies.

Conclusion

The idea of a natural rate stems from models that are appropriate to the most basic form of economy, but that simply do not translate into models of more complex economies. The identity nature of S=I combined with the reality of a modern financial system and the problems raised by the Cambridge Capital Controversies all add up to very good reason for doubting the existence of a natural rate of interest. I would go as far as to say that the natural rate of interest is a myth.

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9 Wicksell himself was aware of this problem, which he detailed in 1911. "Whereas labour and land are measured each in terms of its own technical unit (e.g., working days or months, acre per annum) capital... is reckoned... as a sum of exchange value – whether in money or as an average of products. In other words, each particular capital-good is measured by a unit extraneous to itself."

10 Piero Sraffa, Production of Commodities by Means of Commodities: Prelude to a Critique of Economic Theory, Vora & Co., 1960.

11 Interestingly (well, to me anyway) the eventual neoclassical end point of general equilibrium models also finds that the three parables can't be extended outside of the simple, one-commodity good environment.

12 It should be noted that one of the reasons that the Cambridge UK group stopped poking holes was due to its literal demise: of the group only Pasinetti is still going, with both Robinson and Sraffa dying in 1983, and Kaldor in 1986.

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