

Dr. John Hussman is no stranger to Outside the Box readers. And his recent posting has my mind reeling. In essence he is saying that if the Fed wants to stop the QE and allow rates to rise, they must either reverse the QE or bring on inflation. And he does it with numbers and his usual strong reasoning. I really did read this 3-4 times, thinking through the implications.

“There are a few possible outcomes as we move forward. One is that the economy weakens, and the Fed decides to leave interest rates unchanged, or even to initiate an additional round of quantitative easing. In this event, it's quite possible that we still would not observe much inflation, *provided* that interest rates are held down far enough. Unfortunately, the larger the monetary base, the lower the interest rate required for a non-inflationary outcome. T-bills are already at less than 4 basis points. In the event of even another \$200 billion in quantitative easing, the liquidity preference curve suggests that Treasury bill yields would have to be held at literally a single basis point in order to avoid inflationary pressures.”

You can read his latest work at [www.hussman.net](http://www.hussman.net) .

Note on Finland. The True Finns took over 19% of the vote, with the largest party getting slightly more than 20% and the number two a little less. Basically, 15% of Finnish voters used the True Finns to register their displeasure at the bailout at the cost of Finnish taxpayers. Germany is starting to talk about “restructuring” Greek debt, another word for default. The German banks must be getting in better shape if the talk is out in the open among German leaders – much as I said a year ago. Stay tuned.

Your wondering how the Fed will pull this off (without a real problem developing) analyst,

John Mauldin, Editor  
Outside the Box  
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## **Charles Plosser and the 50% Contraction in the Fed's Balance Sheet**

John P. Hussman, Ph.D.

Last week, an unusual event happened in the money markets that should not escape the attention of investors. The yield on 3-month Treasury bills plunged to less than 5 basis points. As I noted this past January in [Sixteen Cents: Pushing the Unstable Limits of Monetary Policy](#) , a collapse in short-term yields to nearly zero is a predictable outcome of QE2, based on the very robust historical relationship between short-term interest rates and the amount of cash and bank reserves (monetary base) that people are willing to hold per dollar of nominal GDP:

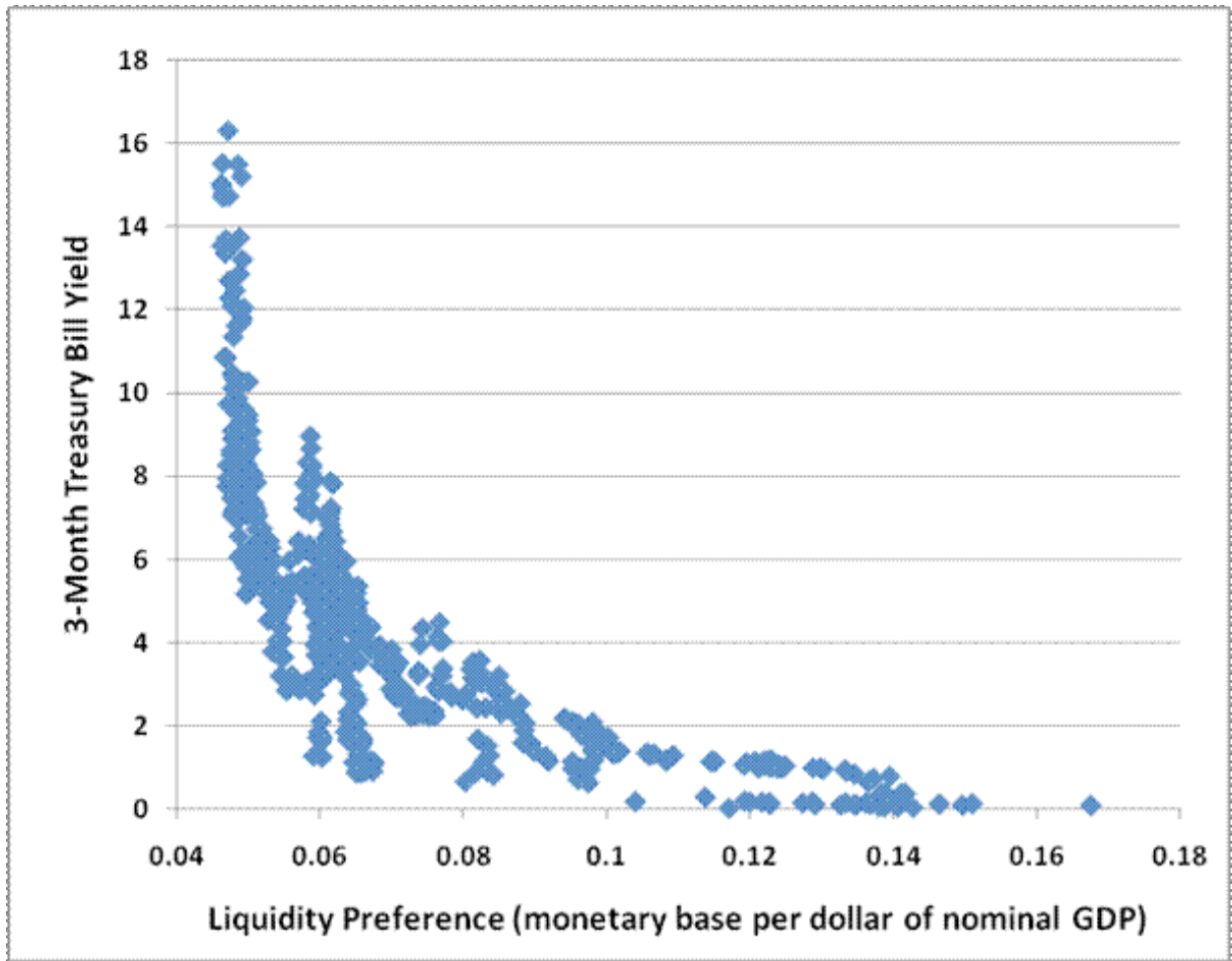
"Barring external upward pressures on interest rates, a further non-inflationary expansion of the Fed's balance sheet of \$400 billion, to \$2.4 trillion (as contemplated under QE2), would imply the need for 3-month Treasury yields to fall to just 0.05%. Higher rates would be inflationary, because monetary velocity would not be sufficiently restrained. In effect, a further expansion in the monetary base requires that short-term interest rates decline enough to ensure a significant drop in velocity.

"In terms of liquidity preference, a completion of QE2 requires liquidity preference to increase to 16 cents per dollar of nominal GDP - easily the highest level in history. We hit 15 cents at the peak of the credit crisis. To get past that, short-term interest rates will have to decline to the point where there is no competition from interest rates at all, but where the slightest amount of interest rate pressure would either drive inflation higher or force a massive contraction in the Fed's balance sheet to avoid that outcome. Then what?"

On further review, that "16 cents" figure actually underestimates how extreme the situation will be within a few weeks. The monetary base has *already* surpassed \$2.4 trillion. Indeed, as of Wednesday, the U.S. monetary base stood at \$2.49 trillion. QE2, as presently contemplated, will actually bring the U.S. monetary base to over \$2.6 trillion. As the Fed notes in its report [Domestic Open Market Operations during 2010](#):

"With progress towards its statutory objectives of maximum employment and price stability disappointingly slow in the fall of 2010, most Committee members judged it appropriate to provide additional monetary accommodation. Accordingly, the FOMC announced at its November meeting that it intended to increase the total face value of domestic securities in the SOMA portfolio to approximately \$2.6 trillion by the end of June 2011 by purchasing a further \$600 billion of longer term Treasury securities in addition to any amounts associated with the reinvestment of principal payments on agency debt and MBS."

With nominal GDP at about \$15 trillion, the U.S. economy will then have to hold well over *17 cents* of base money per dollar of GDP. In order to prevent inflationary impact from this level of monetary base (that is, to prevent base money from becoming a "hot potato" that nobody is willing to hold), we estimate that 3-month Treasury bill yields will have to be sustained no higher than a few basis points until the Fed reverses course.



### Tracking QE2

Market participants widely assume that they are relatively "safe" to take speculative risk through mid-year, on the belief that the Fed's policy of quantitative easing will be sustained through the end of June. But looking at the monetary data, it is not clear that the Fed's statement "by the end of the second quarter" means "precisely until the end of the second quarter."

We can evaluate the pace of QE2 in two ways. One is by looking directly at the monetary base. QE2 transactions expand the Fed's balance sheet, increasing its assets (Treasury debt) and simultaneously increasing its liabilities (currency and bank reserves). So we can measure the progress of QE2 by calculating the change in the monetary base since QE2 was initiated.

Monetary Base 11/03/10: \$1985.1 billion

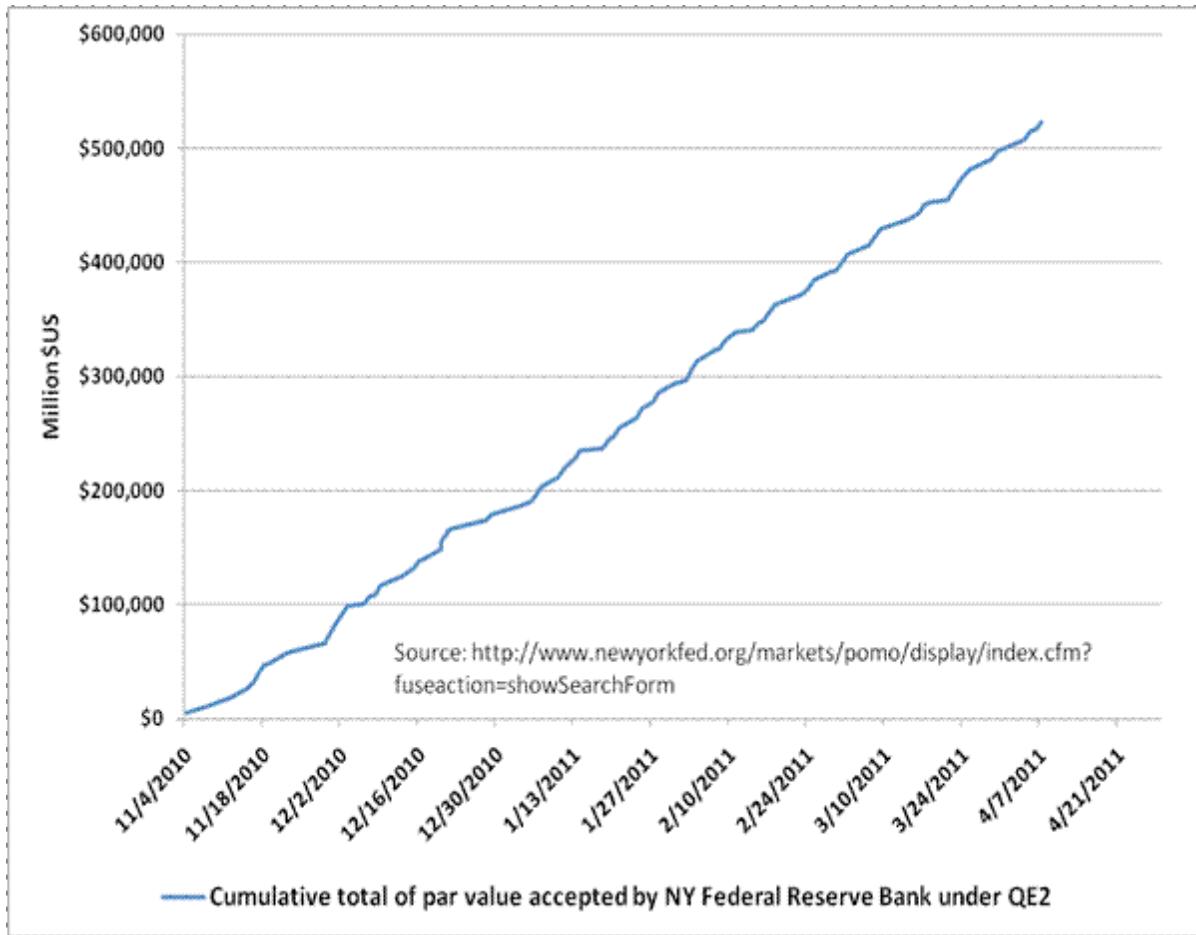
Monetary Base 04/06/11: \$2490.3 billion

QE2 completed based on change in Monetary Base: \$505.2 billion

A second way to evaluate the pace of QE2 is to go directly to the information on "permanent open market operations" (POMO) conducted by the Federal Reserve Bank of New York. However, the POMO figures also include reinvestment of principal repayments from mortgage-backed securities. So a portion of these transactions do not change the monetary base - they simply exchange mortgage-backed assets with Treasury securities. The cumulative par amount accepted by NY FRB from 11/04/10 through 04/07/11 is \$523.2 billion

A \$600 billion addition to the monetary base from QE2 would leave the Fed with only about \$94.8 billion of QE2 transactions remaining. Alternatively, the targeted size of the Fed's SOMA (System Open Market Account) portfolio is \$2600 billion at the end of QE2 (this is the primary repository of assets backing the monetary base, the remainder representing the Maiden Lane portfolios and about \$11 billion in gold). As of April 6, the [SOMA portfolio](#) was already at \$2421 billion. This would leave a larger \$179 billion remaining to QE2, putting the program about 70% complete. The average pace of Fed purchases since February has been about \$5.5 billion per business day, with about \$4.7 billion adding to the monetary base, on average (the rest representing mortgage principal reinvestments). That leaves QE2 somewhere between 20 to 38 business days from completion.

The next FOMC meeting is on April 26-27. While there has been some debate on whether the Fed might decide at that meeting to terminate the policy of QE2 early, that debate is actually moot. By the time the Fed meets later this month, QE2 will *already* be at least 85% complete.



### Charles Plosser and the 50% contraction of the Fed's balance sheet

A week ago, Charles Plosser, the head of Philadelphia Federal Reserve Bank, argued that the Fed should increase short-term interest rates to 2.5% "starting in the not-too-distant-future," preferably during the coming year. Given the robust historical relationship between short-term yields and the amount base money per dollar of nominal GDP, we can make a fairly tight estimate of how much the Fed would have to contract the monetary base in order to achieve a 2.5% yield without provoking inflationary pressures. While the monetary base will be over \$2.5 trillion by the end of this month, a 2.5% interest rate would require a contraction of about \$1.4 trillion in the Fed's balance sheet, to a smaller monetary base of just over \$1.1 trillion.

[Geeks Note: The interest rate estimates here are based on the inverse of the liquidity preference function, which explains 96% of the historical variation in money holdings as a fraction of nominal GDP. The dynamic equation is  $i = \exp(4.25 - 129.87 * M/PY + 84.42 * M/PY_{\text{lagged}_6_{\text{mos}}})$ . This has the steady-state of  $i = \exp(4.27 - 45.5 * M/PY)$ . See the original "[Sixteen Cents](#)" piece for further details].

In his comments, Plosser discussed a plan to sell about \$125 billion in Fed holdings for every 0.25% increase in the Fed Funds rate. That overall estimate (implying \$1.25 trillion

in total balance sheet reductions) is slightly low, but close to our own calculations. Plosser's estimates correctly imply that a 2.5% non-inflationary interest rate target would require the Fed's balance sheet to contract by more than 50%.

The problem, however, is that the required shift in the monetary base is *not* linear. It's heavily front-loaded in the sense that massive reductions the Fed's balance sheet would be required in the first few hikes (see the scatter plot near the top of this comment). Based on the historical liquidity preference relationship (which explains about 96% of the variation in historical data), and assuming nominal GDP of \$15 trillion, the following are levels of the monetary base consistent with a *non-inflationary* increase in short-term interest rates up to 2.5%. The non-inflationary provision is important. You can't just allow interest rates to rise without contracting the monetary base. Otherwise, as noted earlier, non-interest bearing money would quickly become a hot potato and inflation would predictably follow:

#### **Treasury bill yields and monetary base consistent with price stability**

0.03%: \$2.60 trillion  
0.25%: \$1.92 trillion  
0.50%: \$1.68 trillion  
0.75%: \$1.54 trillion  
1.00%: \$1.44 trillion  
1.25%: \$1.36 trillion  
1.50%: \$1.30 trillion  
1.75%: \$1.24 trillion  
2.00%: \$1.20 trillion  
2.25%: \$1.16 trillion  
2.50%: \$1.12 trillion

The upshot is that Plosser's estimate of about \$125 billion in asset sales for every 0.25% increase in yields is a reasonably accurate *overall* average, but the profile of required asset sales is enormously front-loaded. The first hike will be, by far, the most difficult. In order to achieve a non-inflationary increase in yields even to 0.25%, the Fed will have to reverse the *entire amount* of asset purchases it has engaged in under QE2. Indeed, the last time we observed Treasury bill yields at 0.25%, the monetary base was well under \$2 trillion.

In my view, this is a major problem for the Fed, but is the inevitable result of pushing monetary policy to what I've called its "unstable limits." High levels of monetary base, per dollar of nominal GDP, require extremely low interest rates in order to avoid inflation. Conversely, raising interest rates anywhere above zero requires a massive contraction in the monetary base in order to avoid inflation. Ben Bernanke has left the Fed with no graceful way to exit the situation.

As a side note, it's probably worth noting that the Federal Reserve has already pushed its balance sheet to a point where it is leveraged 50-to-1 against its capital (\$2.65 trillion / \$52.6 billion in capital as reported the [Fed's consolidated balance sheet](#)). This is a greater

leverage ratio than Bear Stearns or Fannie Mae, with similar interest rate risk but less default risk. The Fed holds roughly \$1.3 trillion in Treasury debt, \$937 billion in mortgage securities by Fannie and Freddie, \$132 billion of direct obligations of Fannie, Freddie and the FHLB, and nearly \$80 billion in TIPS and T-bills. The [maturity distribution](#) of these assets works out to an average duration of about 6 years, which implies that the Fed would lose roughly 6% in value for every 100 basis points higher in long-term interest rates. Given that the Fed only holds 2% in capital against these assets, a 35-basis point increase in long-term yields would effectively wipe out the Fed's capital.

Still, the Fed also earns an interest spread between its assets and its liabilities, providing about 3% annually (as a percentage of assets) in excess interest to eat through, which would allow a further 50 basis point rise in interest rates over a 12-month period without wiping out that additional cushion. In that case, the interest paid on the Federal debt held by the Fed would be used to cover the Fed's losses, rather than being remitted back to the Treasury. In any event, it is clear that if the Federal Reserve was an ordinary bank, regulators would quickly shut it down.

To avoid the potentially untidy embarrassment of being insolvent on paper, the Fed quietly made an [accounting change](#) several weeks ago that will allow any losses to be reported as a new line item - a "negative liability" to the Treasury - rather than being deducted from its capital. Now, technically, a negative liability to the Treasury would mean that the Treasury owes the Fed money, which would be, well, a fraudulent claim, and certainly not a budget item approved by Congress, but we've established in recent quarters that nobody cares about misleading balance sheets, Constitutional prerogative, or the rule of law as long as speculators can get a rally going, so I'll leave it at that.

## Looking Ahead

Assets compete. If you create a huge volume of non-interest bearing money, somebody somewhere has to hold it. So long as close substitutes such as Treasury bills offer any competition at all, investors try to shift out of the non-interest bearing stuff into the interest-bearing stuff. Of course, in equilibrium, that sort of shift is impossible in aggregate since somebody still has to hold the money. So the result of the Fed's quantitative easing is that short-term interest rates have dropped to about zero. As long as that happens, people are OK holding the money, and you don't *need* to have inflationary consequences, but the sensitivity to small errors becomes magnified. Meanwhile, QE has also caused investors to seek out riskier assets, and the result has been an increase in stock prices, commodity prices and a variety of speculative securities. As prices rise, prospective future returns fall. The process stops at the point where all assets, on a maturity- and risk-adjusted basis, are priced to achieve probable returns near zero.

And so here we are.

There are a few possible outcomes as we move forward. One is that the economy weakens, and the Fed decides to leave interest rates unchanged, or even to initiate an additional round of quantitative easing. In this event, it's quite possible that we still would

not observe much inflation, *provided* that interest rates are held down far enough. Unfortunately, the larger the monetary base, the lower the interest rate required for a non-inflationary outcome. T-bills are already at less than 4 basis points. In the event of even another \$200 billion in quantitative easing, the liquidity preference curve suggests that Treasury bill yields would have to be held at literally a single basis point in order to avoid inflationary pressures.

A second possibility is that we observe any sort of external pressure on short-term interest rates, independent of Fed policy. In that event, the Fed would have to rapidly contract its balance sheet in order to avoid an inflationary outcome. As noted above, even a quarter-percent increase in short-term interest rates would require a full-scale reversal of QE2. Alternatively, the Fed could leave the monetary base alone, and allow prices to restore the balance between base money and nominal GDP. In order to accommodate short-term interest rates of just 0.25% in steady-state, leaving the monetary base unchanged at present levels, a 40% increase in the CPI would be required. I doubt that we'll observe this outcome, but it provides some sense of what I mean when I talk about the Fed pushing monetary policy to its "unstable limits."

In case the foregoing comment seems preposterous, it's helpful to remember that the U.S. economy has *never* held even 10 cents of monetary base per dollar of nominal GDP except when short-term interest rates have been below 2%. We are presently approaching 17 cents. So you can think of the situation this way. Short-term interest rates of 2% are consistent with money demand of about 10 cents of base money per dollar of GDP. To get there, with the monetary base unchanged, you would have to increase nominal GDP (mostly through price increases) by 70%. Again, because the relationship is non-linear, this impact would be front-loaded. Significant inflation pressure would emerge in response to an increase of even 0.25% - 0.50% in short-term interest rates. Historically, it has taken about 6-8 months for such pressures to translate into observed inflation.

A third possibility is that the Fed intentionally reduces the monetary base, gradually moving interest rates higher as Plosser suggests. This is undoubtedly the best course, in my view, but it's important to recognize that there are already substantial risks baked in the cake as a result of the Fed's recklessness up to this point. The first 25 basis points will require an enormous contraction of the Fed's balance sheet. Risky assets have already been pushed to price levels that now provide very weak prospective returns. Our 10-year annual total return projection for the S&P 500 remains in the 3.4% area. Expected returns for shorter horizons are near zero or negative, but are associated with greater potential variability. Commodity prices have been predictably driven higher by the hoarding that results from negative short-term interest rates (if you expect inflation, but interest rates don't compensate, you have an incentive to buy storable goods now, and this process stops when commodity prices are so high that they are actually expected to depreciate relative to a broad basket of goods and services, to the same extent that money is expected to depreciate).

In short, the outcome of the present situation need not be rapid inflation, and need not be steep market losses. Rather, the predictable outcome is instability. If you put a brick on a



flagpole, and keep raising the flagpole and adding more bricks, you don't have the luxury of predicting when the bricks will fall, or in what direction. What you do know, however, is that the situation is not stable. People may briefly be rewarded for standing directly below, cheering, while branding anyone who keeps their distance as fools or worse. But if you look closely, those cheerleaders are typically hiding enormous welts, scars and gashes from being repeatedly smacked over the head - if you look even closer, you'll find that they have typically thrived no better for it over the long-term. While it's possible to continue without unpleasant events, the Fed has already placed the course of the economy, inflation, and the financial markets beyond a comfortable scope of control should surprises emerge.

## **Market Climate**

As of last week, the Market Climate for stocks was characterized by a syndrome of overvaluation, overbought conditions, overbullish sentiment, and rising yield pressures that has historically been hostile to stocks on average. Every component of this syndrome worsened last week. Our estimate of 10-year projected total returns for the S&P 500 is presently just 3.4% annually, the major indices remain overbought on an intermediate-term basis, and Investors Intelligence reports that bullish sentiment has surged to 57.3% bulls and only 15.7% bears, which is close to the spread we observed at the 2007 market peak. Investors Intelligence observes "extreme readings, as we are experiencing right now, historically have major significance." Meanwhile, upward interest rate pressures reasserted themselves last week. Both Strategic Growth Fund and Strategic International Equity remain well hedged here.

Importantly, our defensive stance is not driven by the expected completion of QE2, nor our considerable doubts about the potential for a successful economic "handoff" to the private sector in the face of tightening federal and state budgets and a fiscal cliff as stimulus funding to the states rolls off about mid-year. All of those considerations make us aware of potential risks, but in practice, we are defensive based on testable and observable market conditions that have historically been associated with a negative return/risk profile, on average.

Though the market has not recovered to its February highs here, the measures that define the "overvalued, overbought, overbullish, rising yields" syndrome are actually worse now, on balance. While there remains a possibility that we can clear some component of this syndrome without also observing a strong deterioration in broader market internals (including breadth across individual stocks, industries, and sectors, leadership measures, price-volume action across a wide range of industries and security types, and other factors), conditions are so extended here that there is now only a narrow "window" between a market decline that would be sufficient to clear the overbought or overbullish components of the present hostile syndrome, and a market decline that would signal a larger and more robust shift toward investor risk aversion. Put simply, a market decline that clears this syndrome could be a whopper. That said, we'll respond to the evidence as it emerges, and will continue to look for opportunities to accept exposure to market fluctuations as the overall return/risk profile improves.

In bonds, the Market Climate deteriorated last week. On Tuesday, in response to evidence of accelerating yield pressures, as well the recognition that QE2 was much further along than investors widely seem to believe, we substantially cut our bond duration to about 1.5 years in Strategic Total Return.

In gold, the further advance in prices on shallow corrections brings us back to the concern I expressed a few weeks ago about bubble-type action. Silver prices are displaying even more exaggerated "log-periodic" behavior, as are some agricultural commodities. We don't know exactly when this will end, but we would prefer to scale back early rather than late. A Sornette-type analysis (see [Anatomy of a Bubble](#)) suggests a "finite-time singularity" within days or weeks. Any additional upward leaps in price, with very shallow corrections and increasing volatility at 10-minute intervals would strengthen that impression further. I've been generally bullish on gold since September of 2000, when it was below \$300 an ounce and we observed a clearly favorable shift in the set of conditions I noted in [Going for the Gold](#). Our actual gold models are more elaborate in practice, but as I noted back then, precious metals shares tend to perform far better in the face of falling Treasury yields, particularly when the ISM indices are weak. Those conditions are absent at present, and the recent extreme price behavior is of some concern. The rally in gold stock prices late in the week gave us an opportunity to clip our exposure back to about 6% of assets in Strategic Total Return. The risks in precious metals are clearly increasing.

\* As a technical note, I've seen a comment from a number of analysts lately, along the lines of "there's been an 80% correlation between the size of the monetary base and the level of the S&P 500 since early 2009." This is just poor statistics. There's little doubt that the two have been related, but the seemingly impressive strength of the correlation is completely an artifact of the shared upward slope. If you take *any* two series with generally diagonal trends and little cyclical fluctuation, you'll always get a "strong" correlation. That's not to say that the stock market has not been substantially driven by Fed policy, but rather to warn against careless statistical reasoning more generally. I guarantee that there's also a correlation of more than 80% between the height of a baby kangaroo in Melbourne and the cumulative number of eggs laid by a hen in Oklahoma since early 2009.