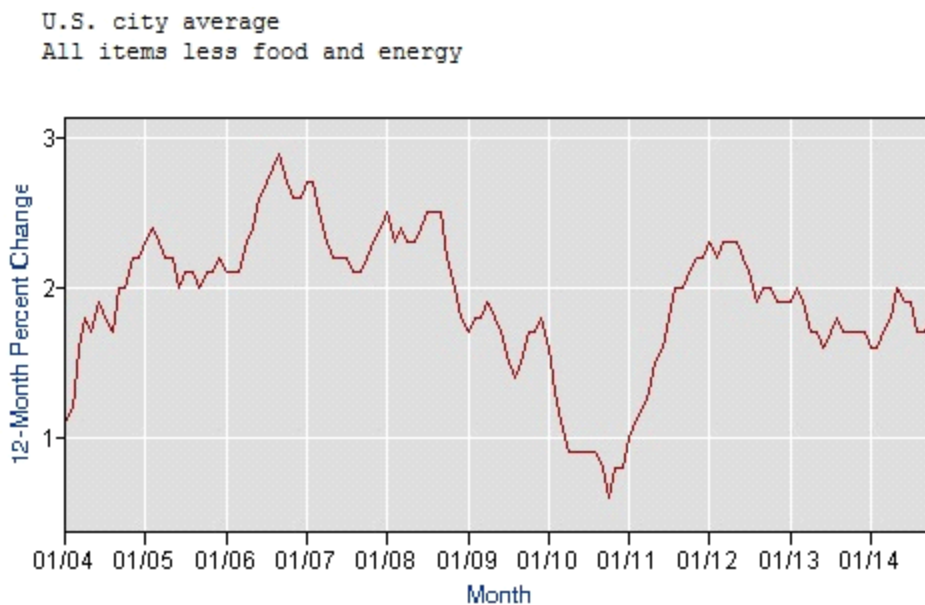


## Mitchell's Musings 12-29-14: How Low Can You Go?

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In past musings, we have noted that there is a group of monetarist-oriented economists who are convinced that the fact that the Federal Reserve greatly increased its lending in various ways during and in the aftermath of the Great Recession means a Great Inflation is on the way. So far, however, that inflation has yet to appear, as the chart below indicates. Although inflation has varied, as measured by the "core" Consumer Price Index (which excludes the volatile food and energy sectors), no Great Inflation is evident.

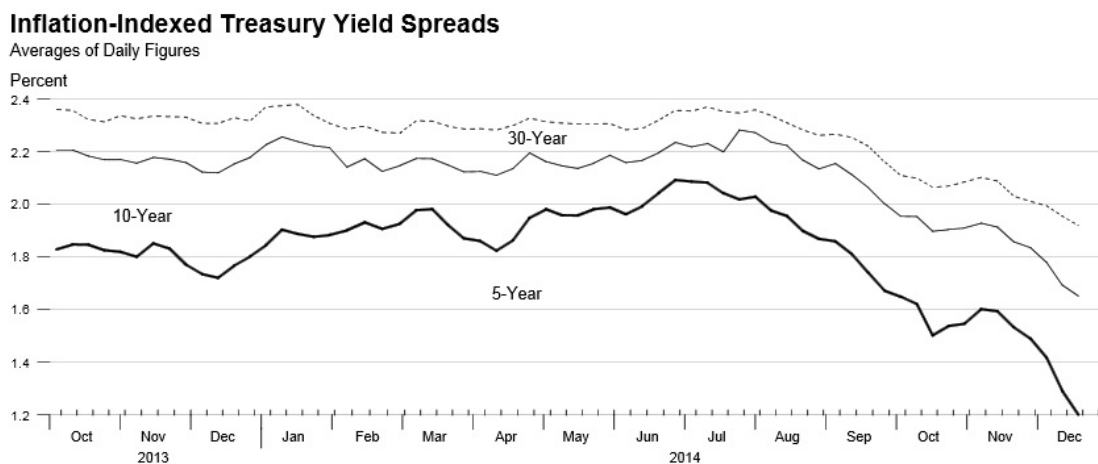


Source: U.S. Bureau of Labor Statistics.

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Some Great Inflationists have suggested in response to the official numbers that the CPI is being rigged to hide inflation. There is some irony in that charge since to the extent there have been modifications of the CPI methodology, they came largely in response to criticisms by many of the same folks who argued in the 1990s that the CPI exaggerated the inflation rate. Apart from that historical detail, their estimate of the exaggeration was around 1 percentage point per annum, so any estimates of the effect of the modifications are upper-bounded by that limit. In short, you can't make a case for a hidden Great Inflation based on recent changes in CPI methodology.

Of course, what has happened to inflation *so far* does not necessarily indicate what *could* happen in the future. An interesting question is what financial markets expect the trend in inflation to be. One measure we have cited in prior musings is the yield spread between conventional Treasury securities and Treasury securities that are adjusted to the CPI - so-called TIPS. You can see the yield spreads below and they are not suggesting any forthcoming Great Inflation. Indeed, for the last six months, inflation expectations have been diving.<sup>1</sup>



Now there is no guarantee that the implicit inflation forecast by financial markets will come true. Indeed, the Great Recession was a Great Illustration of the fallibility of such markets. But what if something like the implicit forecast turns out to be accurate and the inflation rate – as measured by the CPI – turns out to be something like, say, 2% per annum over the long term?

There would be implications of such a development for macroeconomic policy which is partially aimed at keeping inflation low. *But a neglected area in the inflation outlook is the implication for defined-benefit pension plans, nowadays mainly found in the public sector.* Such plans provide a pension based on a formula linked to the earnings history of the employee. A trust fund is supposed to hold sufficient assets, derived from employer and employee contributions and past earnings on the portfolio, to pay those benefits. Particularly in the aftermath of the Great Recession and the related drop in the stock market that accompanied it, those plans tended to be underfunded.

When actuaries calculate funding ratios for pension plans, they make assumptions about inflation. Inflation is assumed to affect future wage growth of employees and thus will affect their eventual pensions, typically based on some version of end-of-career earnings. In some cases, there may also be partial or full inflation adjustments to the pensions themselves after retirement. Each plan has its own formulas so the impact of assuming more or less inflation will vary.

<sup>1</sup>Source: <http://research.stlouisfed.org/publications/usfd/20141224/usfd.pdf>

In calculating the funding ratio of a pension plan, actuaries use an assumption of the expected earnings over the long term of the trust fund portfolio. Typically, the assumption is expressed in nominal, not real, terms. A common assumption nowadays is a nominal return of around 7.5% per annum. Critics of such assumptions argue that numbers like 7.5% are too high. While portfolios might have seen such long-term earnings before the Great Recession, we are now, they say, in a “new normal” of lower returns. Therefore, the argument goes, estimates of pension underfunding are too low. Maybe the long-term rate of earnings will be only 6.5% or less and not 7.5%.

The impact of a lower actual nominal earnings rate on the funding ratio will vary from plan to plan. But to illustrate the impact, consider a promise to pay \$1 per year, *adjusted for future inflation*, “forever.” Suppose, in addition, you thought the inflation rate over the long term (forever) would be 3%. If you wanted to set aside enough today to meet that commitment (100% funding) and thought you could earn 7.5% per annum, you would need to set aside about \$23.<sup>2</sup> But if you thought you could earn only 6.5%, you would need over \$29, i.e., roughly a fourth more. The lower the rate you expect to earn in nominal terms, *given an assumed rate of inflation*, the greater is your liability. (If you could earn only 3% - so your real rate of earnings was zero – your liability would be infinite since it goes on forever.)

Suppose, however, your expectation of inflation dropped, say, from the 3% per annum of the previous example to 2%. Essentially, your required earning would drop by the same amount in this story. So with 2% inflation, nominal long-term earnings of 6.5% would produce about the same \$23 liability that 7.5% earnings with 3% inflation gave you before.

The bottom line here is that even if defined-benefit pension trustees have been over-optimistic about assumed future nominal earnings, if inflation over the long term will be less than they expect, they in fact won’t need as high a nominal earnings rate as they have anticipated. Put another way, if you argue for lowering the assumed nominal earnings rate for a pension plan because we are in a “new normal” of lower stock market gains, you have to consider whether you should also be lowering your assumption of future inflation. A “new normal” of lower inflation tends to offset a new normal of lower nominal earnings.

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<sup>2</sup>Nominal earnings of 7.5% and inflation of 3% amount to a real rate of about 4.4%.  $[(1.075/1.03)-1]$  is about 4.4%. Dividing \$1 by .044 will give you about \$23.