



The Longbrake Letter*

Bill Longbrake
March, 2015

Economic activity in the U.S. has been somewhat softer than expected over the last two months. The Citi Economic Surprise Index registered -71.9 as of March 18. A negative value means that a preponderance of recent data reports has fallen short of expectations. This is the worst reading of this index in over two years. Severe winter weather during February and early March could be part of the explanation, but the index is lower than it was during the winter of 2014 which, arguably, was even more severe than this year's. Or, the explanation might lie in expectations being overly optimistic because of the strong performance of the labor market over the last several months and the expected benefits to consumers of falling energy prices.

Among the disappointments are some erosion in consumer confidence measures, lackluster consumer spending and falling housing starts. Even the Federal Open Market Committee acknowledged that economic activity has moderated over the last two months, but it did not express any alarm.

Notwithstanding all of this the U.S. economy is performing reasonably well, but not spectacularly. An extended slowdown seems unlikely. Better data reports are likely as winter turns to spring.

Nonetheless, there are serious disconnects in key economic trends. Employment and hours worked has been surging with the consequent greater than expected decline in the unemployment rate. However, the rate of increase in hourly wages for all employees is stuck at 2.1 percent, where it has been anchored for five years, and shows absolutely no signs of break out to the upside. Real GDP growth is much weaker than expected and is inconsistent with strong employment growth. The two phenomena do link but in an unhealthy fashion. The connector is nonfarm business productivity which declined 0.1 percent in 2014.

So, a lot more people are working and working more hours, but growth in consumer incomes is being held back by meager wage growth. Real economic growth is being stunted by a lack of productivity. If these imbalances do not correct, employment growth will inevitably slow considerably and growth will be disappointingly low.

There are three potential culprits behind what is happening in the U.S. economy. I discussed one in the ***February 2015 Longbrake Letter***. It involves very low or negative real rates of interest and the condition of secular stagnation which leads to a persistent output gap and/or slow economic growth.

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A second culprit is lack of private business and governmental investment spending. It is related to the first but can also be driven by noneconomic forces such as political agenda and uncertainty. The long-run consequences of underinvestment are discussed in this month's letter. A third culprit is a change in expectations about the future that leads to a change in behaviors on a current basis. Such changes can be self-fulfilling. For example, an expectation of low or declining inflation may be interfering with the tendency of wages to rise when the labor market tightens. Employers lack pricing power and resist wage increases. Employees become less demanding for increases in nominal wages because they are less concerned about losing inflation-adjusted spending power.

Other forces are stirring which eventually may pose significant challenges for the U.S. economy. Immediate consequences are absent, however. One force is the sudden and substantial decline in energy prices. This change is likely to persist for a long time. On balance it should benefit consumers, although there is little evidence yet of pass through into spending. The near term consequence has been a substantial rise in the saving rate. This will probably change over time and as it does it will boost economic activity. Some harm will flow from lower energy prices but it is too early yet to know whether it will be moderate or severe.

Another recent development of consequence involves the substantial appreciation of the dollar. This will make U.S. exports, which account for 13 percent of real GDP, less competitive and imports, which account for 16 percent of real GDP, more attractively priced. This will harm U.S. companies that depend on exports for a substantial part of their business and will depress earnings of companies with substantial international operations. It will also take business away from companies that are unable to compete with cheaper foreign alternative goods and services. In addition, the price effects of a strong dollar will depress inflation, thus reinforcing the trend toward lower inflation that is already underway. The impacts of a stronger dollar will occur gradually but will probably have a fairly negative impact over time.

And, then there is the effect of excess global capacity and super-loose global monetary policies involving quantitative easing, which is forcing down U.S. interest rates to levels that would not normally prevail.

Although market participants feel that Europe has turned the corner, improvement is being driven by low energy prices, a falling euro, and quantitative easing. Fundamental problems in the governance structure of the European Union remain unresolved. Political fragmentation continues to build in many countries with parties on both the left and the right gaining at the expense of centrist parties committed to the European Project. The prospects that the Greek situation will end in bankruptcy and exit from the euro are growing, not diminishing. While Greece's exit from the Eurozone, and perhaps the European Union as well, may be contained, it would set a bad precedent that could contribute to an unraveling process as political fragmentation and differences in economic performance among member countries grow.

So, enjoy slow growth in the U.S. for the time being. This may be as good as it gets.

I. U.S. Economic Outlook — Real GDP Growth

Annualized fourth quarter real GDP growth in the "Preliminary Estimate" was 2.2 percent compared to the "Advance Estimate" of 2.6 percent (see **Table 1**). Although at first blush this appeared to be disappointing, the details actually indicated a fundamental improvement.

GDP growth is calculated as the annual rate of change of the change that has occurred over a three-month period. This methodology amplifies any unusual changes in quarterly data. It can lead to large swings in the calculated annual rate when there is a large reporting anomaly in the previous quarter that

Table 1
Composition of 2014 Quarterly GDP Growth

	Fourth Quarter 2014 Advance Estimate	Fourth Quarter 2014 Preliminary Estimate	Fourth Quarter 2014 Final Estimate	Third Quarter 2014	Second Quarter 2014	First Quarter 2014
Personal Consumption	2.87%	2.83%		2.21%	1.75%	0.83%
Private Investment						
Nonresidential	.24%	.61%		1.10%	1.18%	.20%
Residential	.13%	.11%		.10%	.27%	-.17%
Inventories	.82%	.12%		-.03%	1.42%	-1.16%
Net Exports	-1.02%	-1.15%		.78%	-.34%	-1.66%
Government	-.40%	-.32%		.80%	.31%	-.15%
Total	2.64%	2.20%		4.96%	4.59%	-2.11%
Final Domestic Sales	1.82%	2.08%		4.99%	3.17%	-0.95%
Private GDP	2.22%	2.40%		4.19%	2.86%	-0.80%
Private GDP — Net Exports	3.24%	3.55%		3.41%	3.20%	0.86%

is reversed in the current quarter. This is exactly what happened with government expenditures. Larger than normal federal government defense expenditures were recognized in the fourth quarter, which bumped up the fourth quarter GDP annualized growth rate. Because expense recognition was accelerated in the fourth quarter, a lesser amount of expenditures needed to be recognized in the first quarter. Growth was overstated in the fourth quarter but was understated in the first quarter.

Federal government expenditures are not the only volatile category. Net exports and inventories exhibit similar volatility from quarter to quarter. Even more stable categories, such as consumer expenditures, can be skewed from quarter to quarter because of special events, such as adverse weather conditions.

In addition, a considerable amount of data is based on surveys and estimates which later on are refined as more detailed source data become available. Every year in July the Bureau of Economic Analysis revises the five previous years of quarterly GDP data. And many times the revisions are substantial.

For these reasons one should not obsess over the aggregate quarterly GDP growth rate.

Some of the quarterly noise can be eliminated by looking at several alternative GDP measures that eliminate the more volatile categories. Those estimates are shown in the last three lines of **Table 1**.

“Final Domestic Sales” eliminates the impact of changes in inventories. This adjustment removes much of the difference between the “Advance” and “Preliminary” estimates of first quarter real GDP because there was a substantial revision in the inventories estimate. Importantly, this measure now shows that “Final Domestic Sales” improved from the “Advance” to the “Preliminary” estimate. However, there remains a good deal of volatility in the “Final Domestic Sales” estimate from quarter to quarter.

“Private GDP” eliminates both inventories and government expenditures. This measure is more stable

from quarter to quarter and provides a better sense of what is going on in the nongovernmental part of the economy.

But, the best overall measure is “Private GDP minus Net Exports” because it measures the transactions that are occurring in the domestic nongovernmental economy. This measure of GDP, which accounts for approximately 85 percent of total real GDP, has been remarkably stable over the last three quarters and indicates a strong and moderately improving trend in economic activity in the domestic economy from 3.20 percent in the second quarter of 2014 to 3.41 percent in the third quarter and 3.55 percent in the fourth quarter.

1. 2014 Q4 GDP — Preliminary Estimate

Personal consumption expenditures, which account for 68.2 percent of real GDP, contributed 2.83 percent to fourth quarter GDP growth. This continued the strong third growth. Annualized quarterly growth of 2.83 percent is consistent with overall real GDP growth of 4.15 percent, which is considerably above most estimates of long-run real potential GDP growth of about 2.1 percent. Recent strong growth in employment and total hours worked, coupled with the substantial decline in oil prices, bode well for continued strength in personal consumption growth over the next several quarters.

Nonresidential investment growth strengthened to 0.61 percent in the “Preliminary Estimate” from 0.24 percent in the “Advance Estimate,” but is still less than the strong growth realized in the second and third quarters. Nonresidential investment accounts for 13.3 percent of GDP, but contributed 28.8 percent of fourth quarter real GDP growth.

To a substantial extent, a significant improvement in real GDP growth in coming quarters will depend upon strong growth in total private investment spending including residential. This means that investment spending will need to contribute more to real GDP growth than its 17.1 percent share of real GDP (20.2 percent share of “Private GDP less Net Exports”). That condition was met in the fourth quarter as total private investment contributed 39.3 percent to real GDP growth (24.7 percent. These comparisons are scaled by the third quarter real GDP growth of 5.0 percent to “Private GDP less Net Exports”). The takeaway is that investment growth has been a strong contributor to real GDP growth in recent quarters. This is a mark of a healthy economic expansion.

Looking forward the question is one of whether investment growth will continue to exceed its long-term trend level and contribute to closing the output gap. In the near term the answer appears to be in the affirmative. The collapse in oil prices will reduce investment in oil and gas. But oil and gas capital spending amounts to just 7 percent of total investment. Thus, a sharp decline in energy-related investment will have only a small impact.

There is universal agreement that personal consumption spending will be boosted substantially by the decline in gas prices. As that occurs and with a bit of a lag, spending on capital expenditures should accelerate. That is because acceleration in investment spending tends to follow acceleration in consumption. Thus, there is ample reason to be optimistic that real GDP growth will be boosted by strong nonresidential capital spending over the next few quarters.

Residential investment accounts for 3.1 percent of GDP and contributed 4.6 percent of GDP growth during the fourth quarter. However, over the last several quarters residential investment spending has been very disappointing. Typically this category is one of the first to show strength following a recession. That has not occurred in the aftermath of the Great Recession. Residential investment spending has been

held back by a variety of factors including an initial substantial excess supply, depressed net household formation, and stringent mortgage underwriting. Excess supply is no longer a problem and after many quarters of lethargic household formation there was a burst during the fourth quarter, although it was too large a divergence from recent levels to be entirely credible. Stringent underwriting remains a significant deterrent to new home building.

With job growth accelerating and consumer optimism rising, it seems likely that household formation will be higher in coming quarters. However, mortgage underwriting seems unlikely to get much easier, but extremely low interest rates should be helpful. All-in-all, growth in residential investment spending should improve in coming quarters and that improvement could be quite substantial if household formation rates rise rapidly. Unfortunately, that improvement is not likely to occur in the first quarter of 2015. Housing starts declined unexpectedly in February, apparently due in part to weather conditions.

Government expenditures subtracted 0.32 percent from real GDP growth in the fourth quarter. Government expenditures account for 17.8 percent of real. As expected this decline reversed the unusual strength reported in the third quarter. Growth in government expenditures on average over the last 17 quarters has been negative. As the economy strengthens, growth should turn positive. However, policies in place at both the federal and state and local level assure that government spending will contribute far less to real GDP growth than their overall share of real GDP.

State and local government expenditures declined steadily until the first quarter of 2013. Over the last eight quarters these expenditures have grown modestly, but have contributed far less to real GDP growth over this time period, about 5.0 percent, than their 10.9 percent share of real GDP. This positive trend is likely to continue but substantial acceleration is unlikely, which means that state and local spending is likely to continue to shrink as a portion of total real GDP.

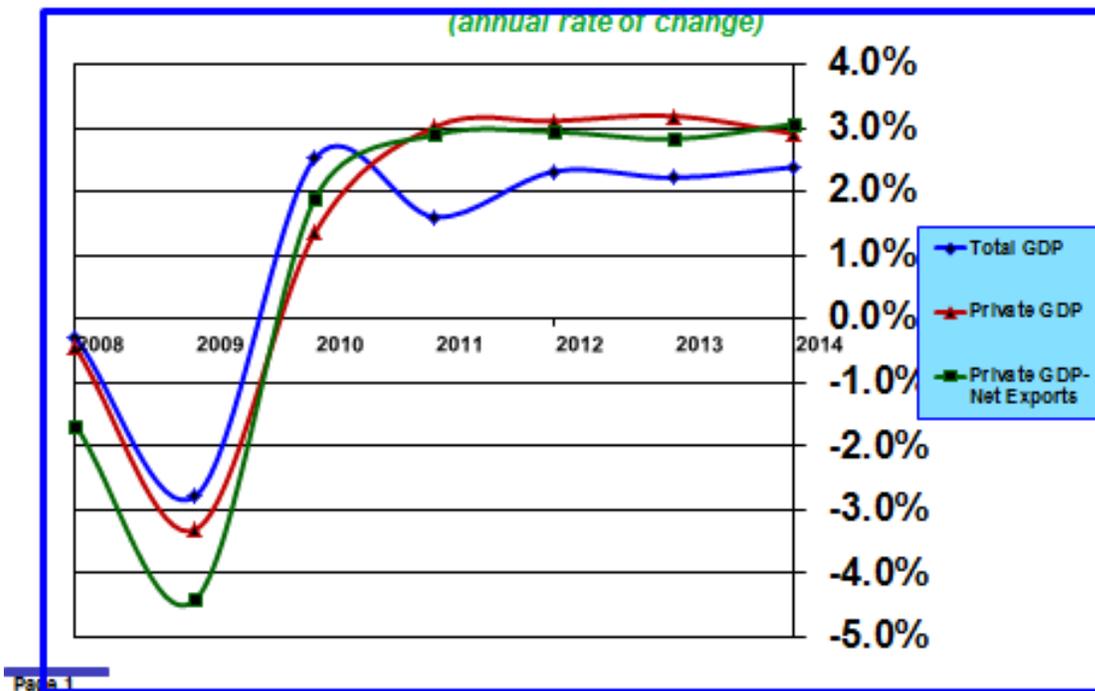
Net exports subtracted 1.15 percent from fourth quarter real GDP, reversing the 0.78 percent contribution to real GDP growth in the third quarter. The contribution of “Net Exports” to real GDP growth is very volatile from quarter to quarter and averages close to zero over the long run. A long-run zero growth rate is exactly what should be expected, provided that growth in exports and imports is approximately the same over time. Over the last 20 quarters annual growth in exports has been 4.7 percent and annual growth in imports has been 4.7 percent. Because the level of imports exceeds the level of exports, this means that “Net Exports” have had a slightly negative impact on real GDP growth over the last five years.

2. Longer-Run Trend in Total Real GDP and Private GDP (With and Without “Net Exports”)

Chart 1 compares total real GDP growth from 2008 through the fourth quarter of 2013 with two alternative measures. The first is “Private GDP,” which is derived by subtracting changes in inventories and government spending from total GDP. (See the second to last line in **Table 1**.) The second is “Private GDP less Net Exports.” (See the last line in **Table 1**.) Over long periods of time the two alternative measures should be approximately the same because the contribution of growth in “Net Exports” is close to zero.

Chart 1 clearly shows that real GDP growth for both alternative measures has been consistently stronger than total real GDP growth over the last four years, averaging about 3.0 percent compared to 2.1 percent for total real GDP. The drag from tepid growth in government expenditures is very apparent. However, in 2009 and 2010, as can be seen in **Chart 1**, a surge in government spending greatly moderated the consequences of the Great Recession.

CHART 1 – Total Real GDP and Private GDP (less Inventories and Government Expenditures)



While growth in government spending will continue to lag private sector growth in coming quarters, the gap is likely to narrow with the result that total real GDP growth should improve relative to private real GDP growth. With private real GDP growth poised to rise because of improving employment, rising consumer confidence and falling oil prices, this means that total real GDP growth should continue to be in the range of 3.0 percent or a little better over the next few quarters.

3. GDP Forecasts for Q4

Table 2 shows GDP forecasts/projections for the fourth quarter of 2014 and for the full years 2014 through 2017.

Most forecasters expect the “Final Estimate” for fourth quarter real GDP to be somewhat higher than the “Preliminary Estimate” of 2.2 percent.

B of A expects 2.5 percent growth in the fourth quarter. **B of A’s** forecast for 2014 GDP fourth-quarter-to-fourth-quarter (Q4/Q4) growth is 2.4 percent and 2.4 percent year over year (Y/Y).

GS’s forecast for the fourth quarter is slightly lower than **B of A’s** forecast — 2.3 percent Q4, 2.4 percent Q4/Q4, and 2.4 percent Y/Y.

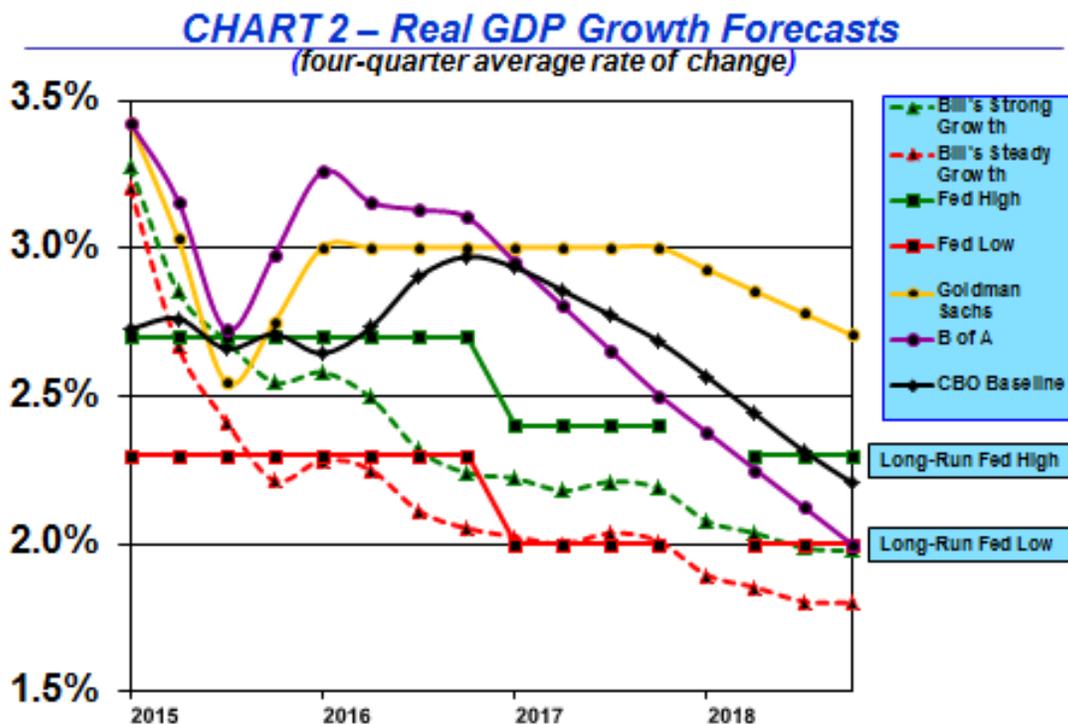
Table 2
Real GDP Growth Forecasts — B of A, GS, Bill’s “Steady Growth”, Bill’s “Strong Growth” and FOMC High and Low Projections

	2014 Q4	2014 Q4/Q4	2014 Y/Y	2015 Q4/Q4	2015 Y/Y	2016 Y/Y	2017 Y/Y
B of A	2.5	2.4	2.4	3.0	3.1	3.2	2.7
GS	2.3	2.4	2.4	2.75	2.9	3.0	3.0
Bill’s Steady Growth		2.4	2.4	2.2	2.8	2.2	2.0
Bill’s Strong Growth		2.4	2.4	2.6	3.0	2.4	2.2
FOMC — High#		2.4		2.7#		2.7#	2.4#
FOMC — Low#		2.3		2.3#		2.3#	2.0#

*Measured from Q4 to Q4

4. GDP Forecasts for 2015 and Beyond

As **Chart 2** and **Table 2** show, most forecasters expect GDP growth to accelerate in 2015 through 2017 as the economy picks up momentum and benefits from lower oil prices.



Consumer spending and private investment spending account for 84 percent of real GDP. **GS's** and **B of A's** forecasts for 2015, 2016 and 2017 for these real GDP categories are summarized below. In past letters, I have expressed skepticism about what I considered to be overly optimistic forecasts. That skepticism has been borne out by actual results.

However, in reviewing **GS's** and **B of A's** forecasts for the next three years I believe them to be possible. However, it should be noted that my own forecasts and now those of the FOMC as well are not nearly as optimistic.

Consumer Spending. **GS** and **B of A** both forecast strong acceleration in consumer spending growth from 2.5 percent in 2014 to 3.5 percent to 3.6 percent in 2015. Growth slows to between 3.15 percent and 3.45 percent in 2016 and between 2.7 percent and 2.8 percent in 2017 as the transitory benefit of lower oil prices dissipates and as employment growth begins to slow.

Residential Investment. **GS** expects residential investment growth to be about 5 percent in 2015 and then accelerate to 11 percent in 2016 and 13 percent in 2017. **B of A** is also optimistic. Its forecast for residential investment growth in 2015 is also about 5 percent and then accelerates to 9 percent in 2016 and 10 percent in 2017. In both cases residential investment growth is sufficiently strong that it boosts **GS's** and **B of A's** overall forecast of real GDP growth for 2015 — 2017.

Business Investment. **GS** forecasts business investment growth will average about 5.25 percent annually in 2015, 2016 and 2017. **B of A** expects investment growth of about 5.0 percent in 2015, 2016, and 2017. Both sets of forecasts are somewhat less optimistic than those made a year ago. However, real investment growth in the range of 5 percent is above the long-term average and will boost the annual rate of growth in real GDP.

Bill's Scenarios. Bill's "**Strong Growth**" scenario of Y/Y 3.0 percent growth in 2015 is consistent with the upper end of the consensus range and Bill's "**Steady Growth**" scenario of Y/Y 2.8 percent growth is aligned with the lower end of the consensus range.

Bill's real GDP forecasts for 2016 and 2017 for the "**Steady Growth**" and "**Strong Growth**" scenarios are lower than other forecasts, although neither is much different from the revised FOMC projection range. The principal difference between my scenarios and the **GS** and **B of A** forecasts has to do with my view that employment and investment growth will decelerate in 2016 and 2017. Slow investment growth will hold back employment growth and retard income growth, which implies that consumer spending growth will slow more rapidly after the benefits of the oil price collapse play themselves out.

5. FOMC GDP Forecasts for 2015 and Beyond

As **Table 3** shows, the FOMC's real GDP growth projections were persistently overly optimistic until recently. That no longer appears to be the case. Private forecasts are now somewhat more optimistic than the FOMC's projections.

Real GDP growth forecasts for 2015, including my own, range from 2.8 to 3.1 percent.

Although FOMC projections have been systematically overly optimistic in the past, FOMC projections for 2015, 2016, and 2017 are now generally lower than those of most forecasters (see **Table 2**).

Table 3
FOMC Central Tendency Real GDP Growth Projections Compared to Actual Results —
2011 to 2017

Meeting Date	2011	2012	2013	2014	2015	2016	2017	Long Run
Jan 2011	3.70	3.95	4.00					2.7
Apr 2011	3.30	3.65	4.00					2.7
June 2011	2.75	3.10	3.75					2.7
Nov 2011	1.70	2.90	3.35	3.60				2.6
Jan 2012		2.55	3.10	3.55				2.6
Apr 2012		2.55	3.10	3.60				2.6
June 2012		2.05	2.85	3.40				2.6
Sep 2012		1.80	2.90	3.40	3.35			2.6
Dec 2012		1.80	2.60	3.40	3.35			2.6
Mar 2013			2.50	3.20	3.15			2.5
June 2013			2.30	2.90	3.05			2.5
Sep 2013			2.10	2.75	2.95	2.85		2.3
Dec 2013				3.00	3.20	2.85		2.3
Mar 2014				2.90	3.10	2.75		2.25
June 2014				2.20	3.10	2.75		2.2
Sep 2014				2.10	2.80	2.75	2.40	2.15
Dec 2014				2.35	2.80	2.75	2.40	2.15
Mar 2015					2.50	2.50	2.20	2.15
Actual Q4 to Q4	1.68	1.60	3.13	2.37	2.75*	3.00*	3.00*	
Actual Y/Y	1.60	2.32	2.22	2.39	2.94*	3.00*	3.00*	
Bill Steady Y/Y					2.80	2.16	1.98	
Bill Strong Y/Y					3.03	2.38	2.17	
Long Run Potential								2.0-2.2 [#]

*GS forecast

[#]Bill's "Steady Growth" long-run potential = 1.97%; Bill's "Strong Growth" long-run potential = 2.21%

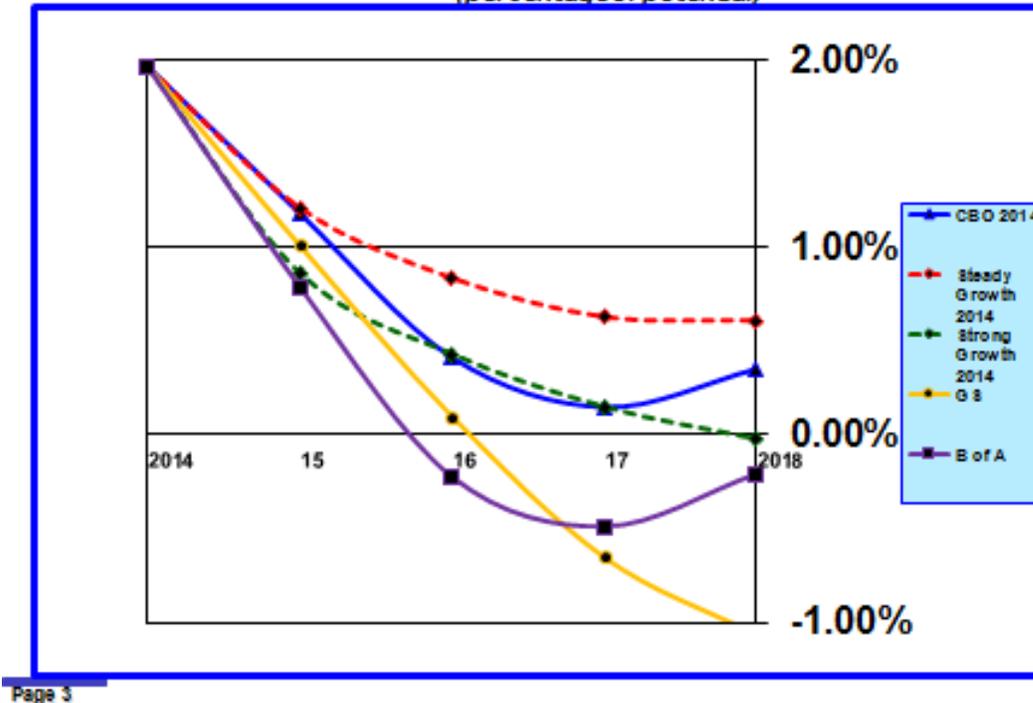
6. GDP Output Gap

Generally, most forecasters expect the real GDP output gap, which was 2.0 percent at the end of the fourth quarter, to close rapidly during 2015 and 2016. The only exception is my "*Steady Growth*" scenario. (See **Chart 3**.) So, at long last there is light at the end of a long tunnel. But the tunnel has been long indeed — 8 to 9 years from 2008 to 2016-2017.

II. Employment

Employment growth continues to be very strong and the unemployment rate is falling more rapidly than expected. But, as I will discuss below, weaknesses remain in the labor market.

CHART 3 – Real GDP Output Gap
(percentage of potential)



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1. The Good News

As can be seen in **Chart 4**, employment growth was strong in 2014 and that strength has continued into the first two months of 2015. Payrolls grew 3,116,000 during 2014 — a 2.27 percent increase. Payroll employment grew a further 534,000 in the first two months of 2015 bringing the 12-month rate of growth up to 2.39 percent.

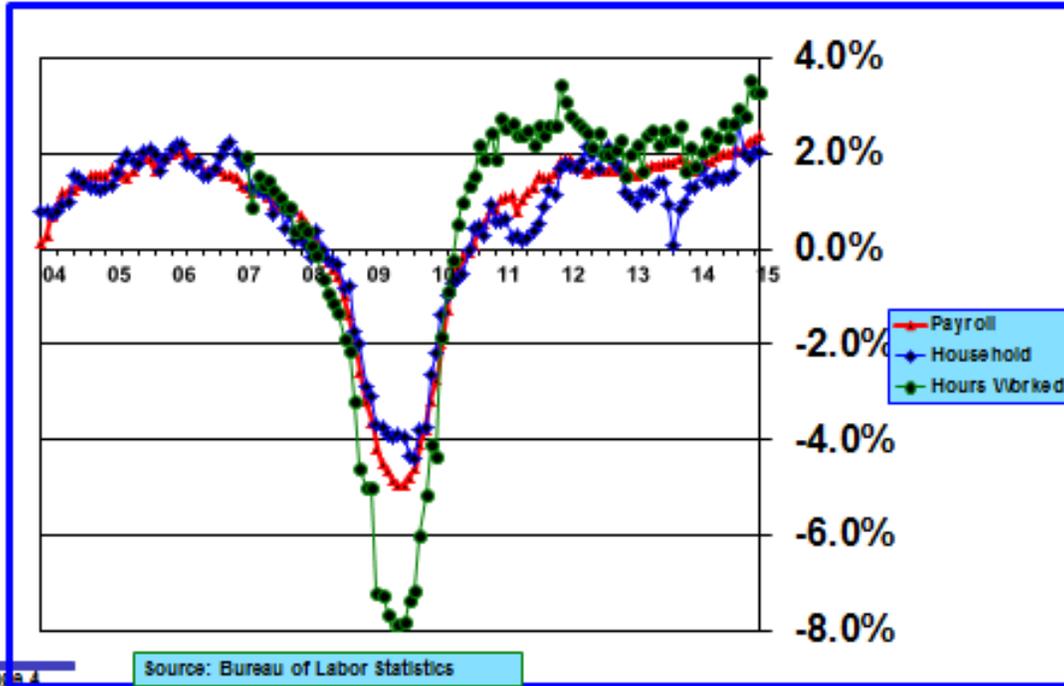
Household employment grew 2,770,000 — a 1.92 percent increase. The unemployment rate fell from 6.69 percent in December 2013 to 5.56 percent in December 2014 and was 5.54 percent in February. Notably, the current unemployment rate is not much different than CBO’s long-term noninflationary level of 5.39 percent.

Hours worked by all employees grew 3.53 percent during 2014 as the average length of the workweek stretched from 34.3 to 34.6 hours.

Chart 5 shows that the length of the workweek rose for all workers and for production and nonsupervisory workers. Total hours worked rose 3.47 percent for production and nonsupervisory workers and hours worked by all employees increased 3.53 percent during 2014, due primarily to a larger proportion of full time jobs but also to increasing overtime work. Momentum continued during the first two months of 2015. The 12-month rate of increase in hours worked was 3.55 percent for production and nonsupervisory workers and 3.17 percent for all workers.

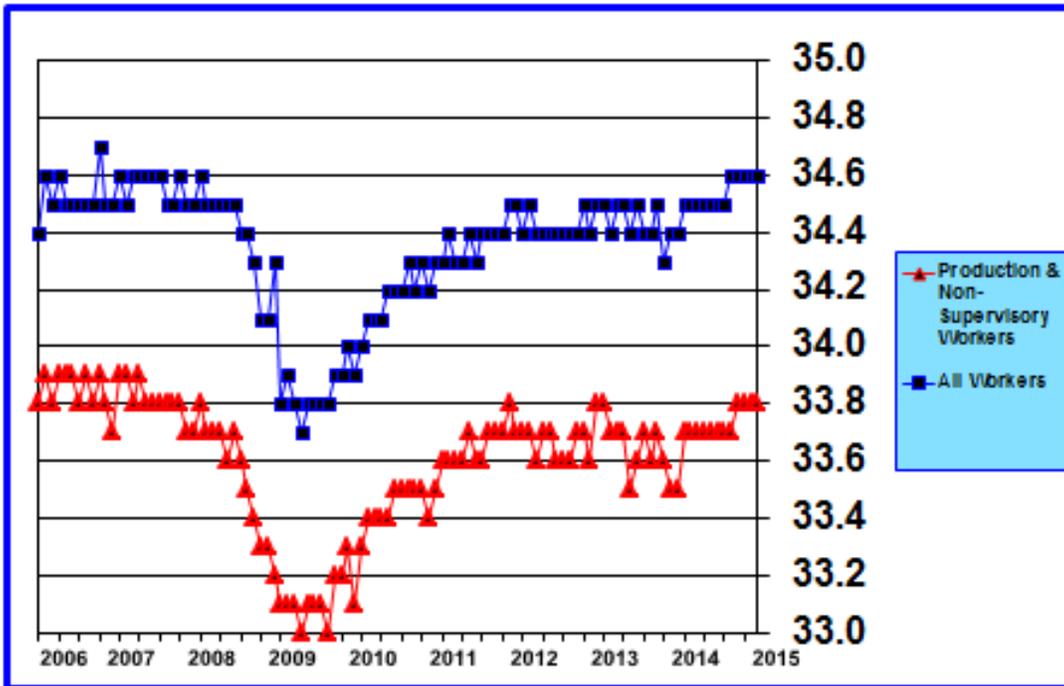
Strong growth in total hours worked is important because when the length of the workweek is expanding take-home pay grows more rapidly than implied by simply looking only at payroll and household

CHART 4 – Employment Growth
(annual rate of change)



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CHART 5 – Average Weekly Hours
(All Workers; Production and Non-Supervisory Workers)



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employment growth. This is typical of periods of economic expansion, as **Chart 4** indicates for the period from 2010 to the present.

If analysts looked no further, it would be easy to conclude that the labor market is fast approaching full employment.

2. Disappointing News

Although employment growth was strong, the drop in the unemployment rate to 5.54 percent in February paints a rosy picture of the health of the labor market that is not corroborated by other labor market measures.

a. Unemployment Rates — U-3 and U-6

First of all, the conventional unemployment rate, which the Bureau of Labor Statistics refers to as the “U-3” measure, is nearing the level that generally prevails when the economy is buoyant. But, the broader “U-6” measure of unemployment, which adds those who are working part-time for economic reasons and those marginally attached to the labor force to the U-3 measure, is still well above the 8 percent to 9 percent range that historically has prevailed when economic activity is strong (see **Chart 6**). The U-6 unemployment rate fell from 13.06 percent in December 2013 to 10.99 percent in February 2015. It is heading in the right direction but has yet to return to a level consistent with full employment. Historically, during economic expansions improvement in the U6 unemployment rate has lagged improvement in the U3 unemployment rate. However, allowing for this lagged relationship, the U-6 unemployment rate should be 10.73 percent instead of 10.99 percent. So, the U6 rate is actually improving somewhat more slowly than would be expected based on the recent improvement in the U3 rate.

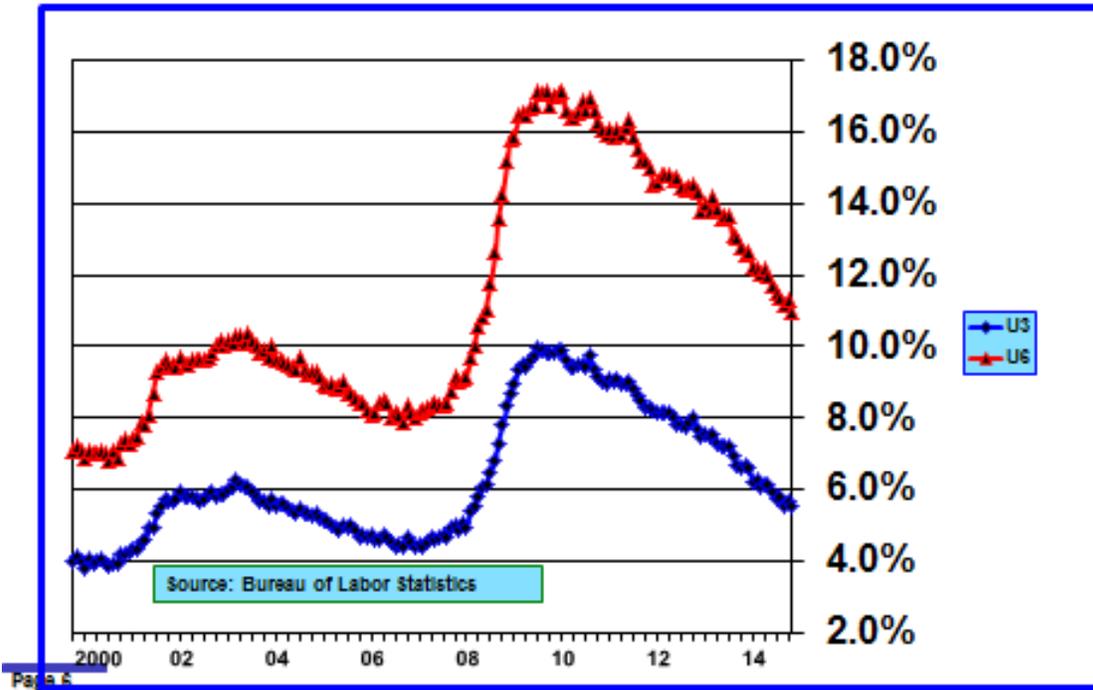
b. Long-Term Unemployment

Another labor market indicator that is still registering weakness is the long-term unemployment rate, defined as the percentage of the labor force that has been unemployed for 26 weeks or longer. When the short-term unemployment rate (those unemployed less than 26 weeks) averaged 3.8 percent in 2006 and 2007 just prior to the onset of the Great Recession, the long-term unemployment rate averaged 0.8 percent. In February 2015 the short-term unemployment rate was 3.8 percent, which was identical to the pre-Great Recession average. However, the long term unemployment rate was 1.7 percent, which was considerably above the full-employment level of 0.8 percent. As can be seen in **Chart 7**, the long-term unemployment rate fell from 2.5 percent in December 2013 to 1.7 percent in February 2015. Thus, this metric is improving rapidly but still has a ways to go to equal the pre-Great Recession average of 0.8 percent.

c. Employment-to-Population and Labor Force Participation Ratios (U-3 Definition of Unemployment)

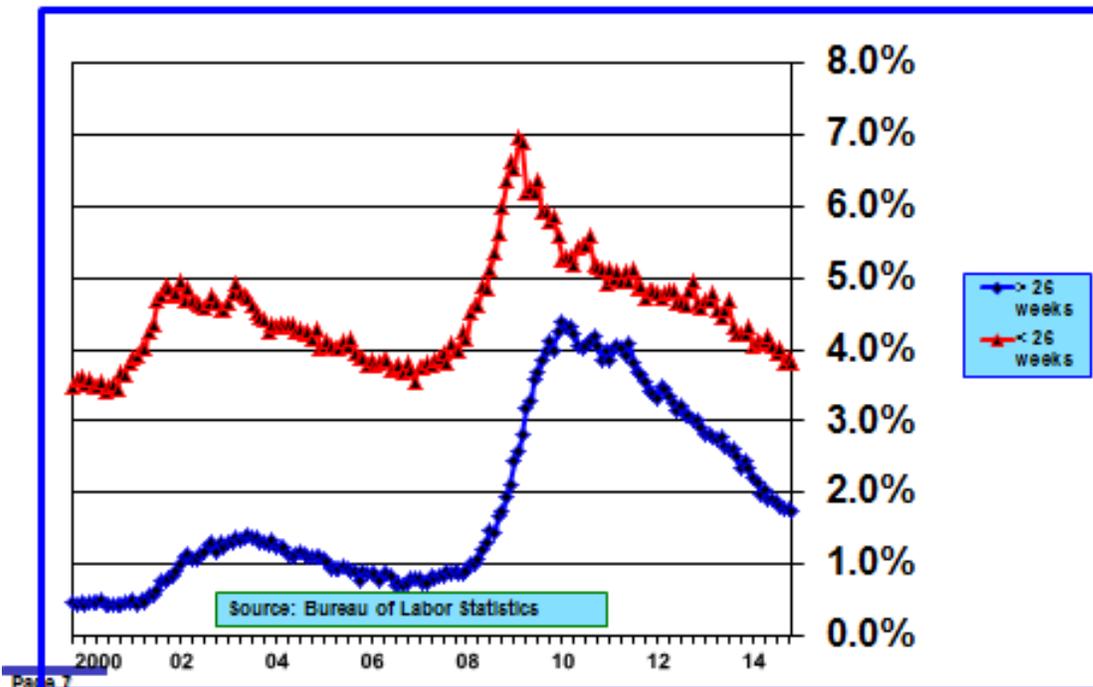
The **labor-force-participation ratio** and the **employment-to-population ratio** are also important measures of the health of the labor market. The **employment-to-population ratio** measures the percentage of people eligible to work who have a job, while the **labor force participation rate** is the percentage of those in the labor force who are either working or would like to work but are counted as

CHART 6 – U-3 and U-6 Unemployment Rates



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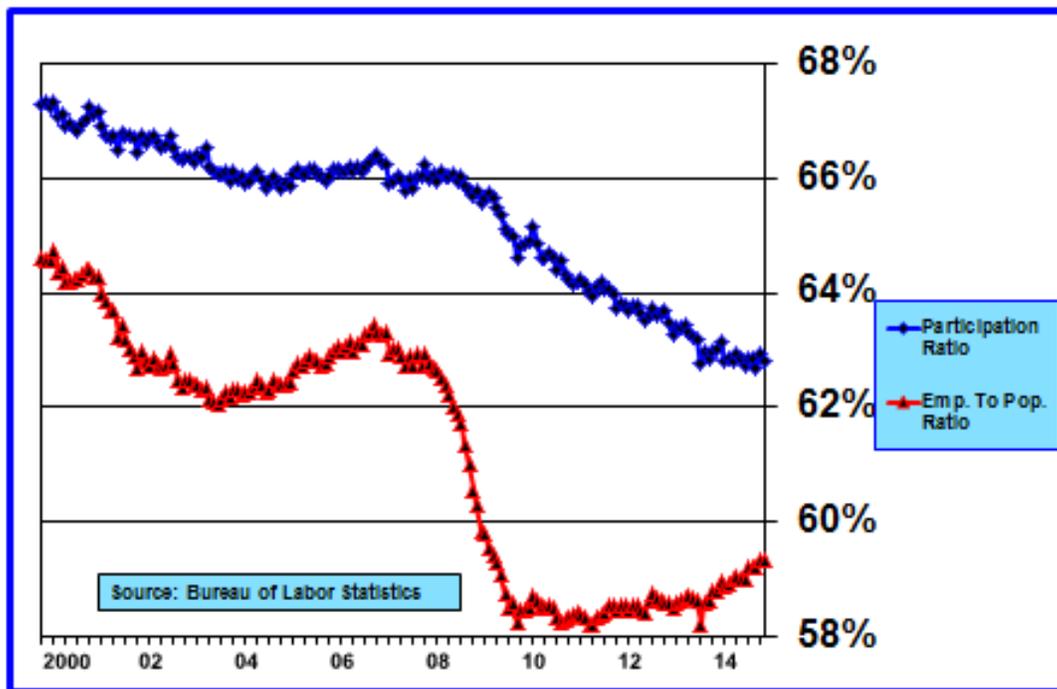
CHART 7 – LT (>26 weeks) and ST (<26 weeks) Unemployment Rates



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unemployed. The numerators of both of these measures are based on the U-3 measure of unemployment. The difference in the numerators of the two ratios is the number of unemployed workers — those who say they are looking for work — based upon the U3 definition of unemployment. Trends in both measures are shown in **Chart 8**.

CHART 8 – Labor-Force-Participation and Eligible-Employment-to-Population Ratios (U-3 Measure)



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When the Great Recession hit, the employment-to-population ratio plummeted from 62.9 percent in December 2007 to 58.2 percent in December 2009. What is troubling is that the recovery in this ratio has been anemic. It was 59.3 percent in February 2015 compared to 58.6 in December 2013. What this means is that most of the 10.3 million jobs created since December 2009 have accommodated approximately 7.7 million new entrants into the labor force who are willing to work. The difference of approximately 2.6 million is unemployed workers who have become reemployed. But, the number of unemployed workers has fallen by 6.4 million over this same period. What accounts for this 3.8 million discrepancy? All of them have left the labor force, but the question is one of whether they have left permanently or are simply discouraged and will enter the labor market in the future as employment prospects improve. The discrepancy was 4.2 million in December 2014 which suggests that 400,000 discouraged workers might have reentered the labor force during the first two months of 2015. If this is the case, then there remains a large unaccounted number of discouraged workers that might reenter the labor force in coming months as the labor market strengthens.

The **participation ratio** is measured by adding the number of unemployed workers to the numerator of the employment-to-population ratio. When the Great Recession hit, the participation ratio fell from 66.0 percent in December 2007 to 64.6 percent in December 2009. What is concerning is that the participation ratio has continued to decline, although it stabilized during 2014. It was 62.7 percent in December 2014 compared to 62.8 in December 2013. The ratio improved to 62.8 in February 2015.

Over the longer term, the aging of the labor force should continue to put downward pressure on the participation ratio; however, this measure has declined more than can be explained by demographic shifts alone. The discrepancy involves workers who have become discouraged and have simply dropped out of the labor force.

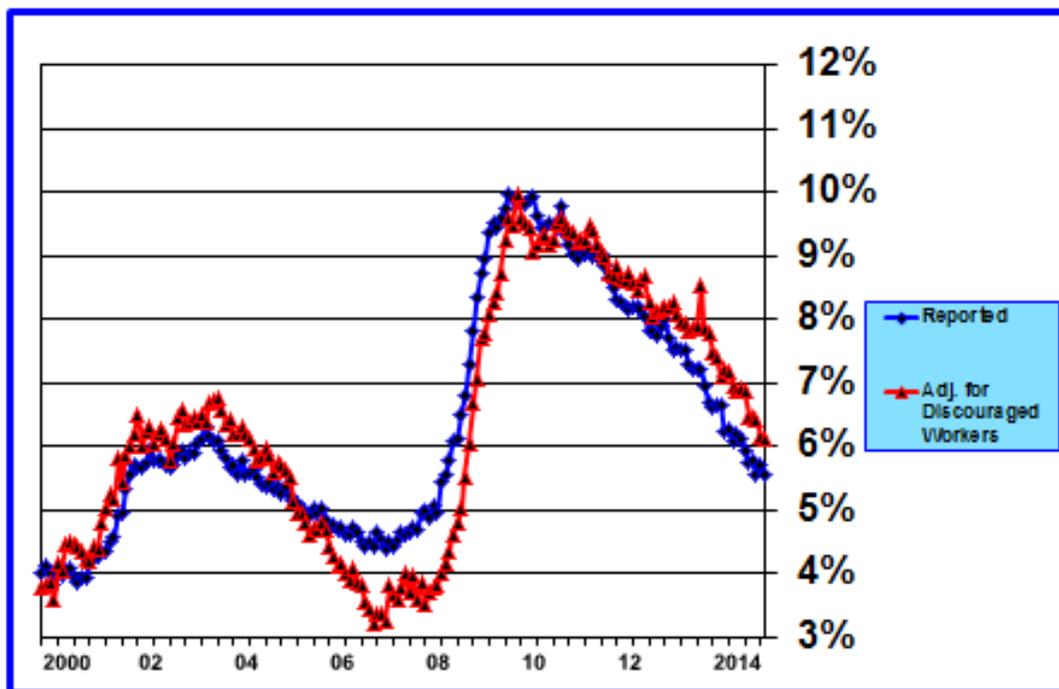
d. Discouraged Workers

While it is generally acknowledged that there is some number of uncounted discouraged workers, there is considerable disagreement about what that number is.

In recent months the unemployment rate has declined much more than expected, partially because employment growth has been stronger. But the question remains as to what extent the U-3 measure of unemployment might be artificially depressed by omission of discouraged workers, who may reenter the labor market in coming months.

Chart 9 shows my alternative unemployment measure, which adjusts for discouraged workers. In February 2015, my alternative unemployment rate was 6.13 percent compared to BLS’s reported rate of 5.54 percent for the U-3 unemployment rate. This difference of 0.59 percent amounts to approximately 900,000 discouraged workers or approximately one-quarter of the 3.8 million “missing” workers. To the extent that this is a reasonable estimate, it means that the other three-quarters have permanently left the labor force due to demographic shifts in the composition of the labor force, such as the increasing percentage of retirees.

CHART 9 – Reported Unemployment Rate & Adjusted for Discouraged Workers



In December there were 4.2 million missing workers of which I estimated that 1.4 million were discouraged. Both of these totals have improved by approximately the same amount since December. This suggests that the remaining 900,000 discouraged workers could reenter the labor force in coming months but this is far less likely to occur for the remaining 2.9 million missing workers.

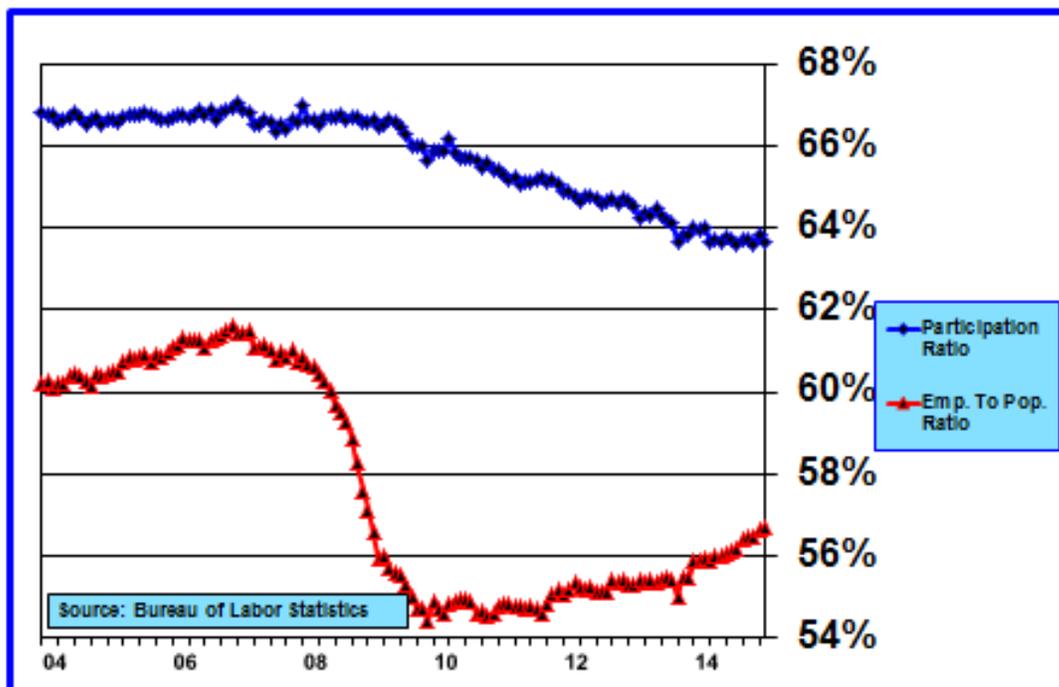
What is important from a policy standpoint is whether workers who have stopped looking for jobs, and thus are no longer counted as unemployed, will reenter the job market when jobs become more plentiful or whether their exit is permanent because there are no jobs that fit their skills and there won't be any in the future.

All of this implies that the U-3 measure of unemployment, which has nearly reached CBO's long-term full employment potential rate of unemployment of 5.39 percent, probably overstates the strength of the labor market.

e. Employment-to-Population and Labor Force Participation Ratios (U-6 Definition of Unemployment)

The **labor-force-participation ratio** and the **employment-to-population ratio** can be adjusted to the U-6 measure of unemployment. The numerators of both of these revised measures are based on the U-6 measure of unemployment. The difference in the numerators of the two ratios is the number of unemployed workers — those who say they are looking for work — plus those working part-time for economic reasons and marginally attached to the labor force, based upon the U-6 definition of unemployment. Trends in both measures are shown in **Chart 10**.

CHART 10 – Labor-Force-Participation and Eligible-Employment-to-Population Ratios (U-6 Measure)



When the Great Recession hit, the U-6 employment-to-population ratio plummeted slightly from 60.8 percent in December 2007 (U-3 = 62.9 percent) to 54.4 percent in December 2009 (U-3 = 58.2 percent). The decline for the U-6 measure of the employment-to-population ratio was larger than the decline in the U-3 measure and reflected the substantial increase in people working part-time for economic reasons (increase of 4.5 million) and marginally attached workers (increase of 926,000) during and just following the Great Recession.

This U-6 ratio has improved a little more rapidly than the U-3 measure over the last 14 months as the number of working part-time for economic reasons (-1,131,000) and those marginally attached to the labor force (-268,000) have declined. The ratio was 56.7 percent in February 2015 (U-3 = 59.3 percent) compared to 55.5 in December 2013 (U-3 = 58.6 percent). The U-6 measure has improved 1.2 percentage points compared to 0.7 percentage points for the U-3 ratio.

The **U-6 participation ratio** is measured by adding the number of unemployed workers and those marginally attached to the labor force to the numerator of the U-6 employment-to-population ratio. When the Great Recession hit, the participation ratio fell from 66.6 percent in December 2007 (U-3 = 66.0 percent) to 65.7 percent in December 2009 (U-3 = 64.6 percent). The smaller decline in the U-6 measure reflects an increase in the number of marginally attached workers.

The U-6 participation ratio, like the U-3 measure, has also continued to decline, although it showed signs of stabilizing. It was 63.7 percent in February 2015 (U-3 = 62.8 percent) compared to 63.8 in December 2013 (U-3 = 62.8 percent).

f. Wage Rate Growth

Growth in hourly wages is an important measure of labor market strength. An increasing rate of growth would be evidence of a strengthening labor market in which labor, particularly in scarcer job categories, is gaining more bargaining power.

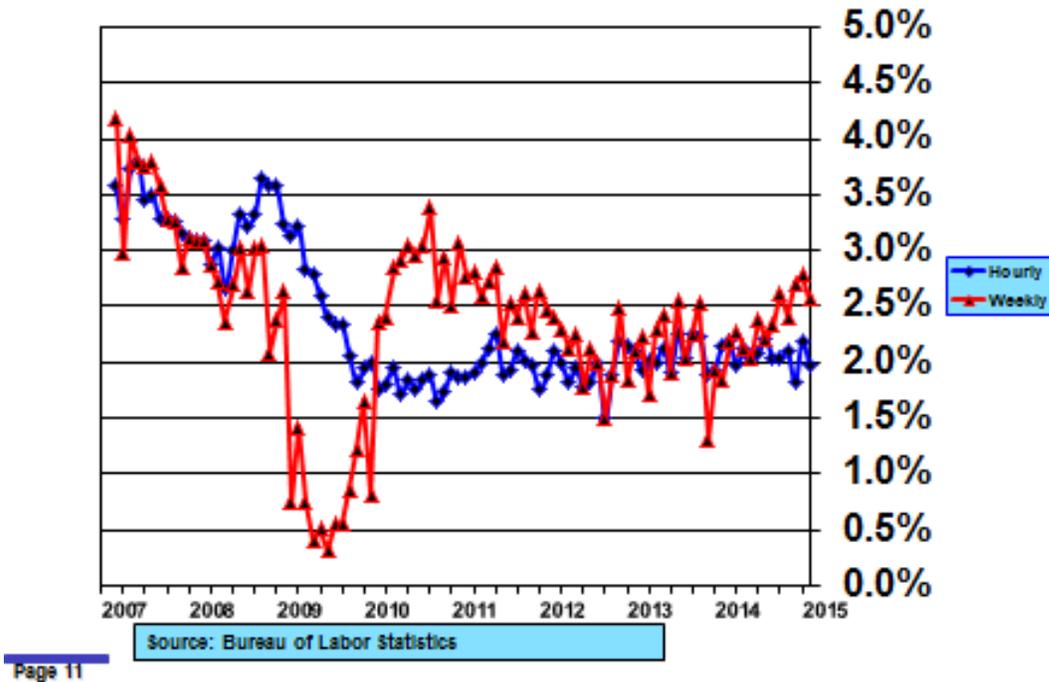
As can be seen in **Chart 11**, the rate of growth in hourly wages for all workers has fluctuated in a narrow band in the vicinity of 2.0 percent for the last five years. In a way this is good news because the large output gap and high unemployment rate, which have persisted for several years, have not put further downward pressure on wage rate growth. But, it has become increasingly concerning that wage growth has not shown any sign of acceleration as the U-3 unemployment rate has dropped to close to CBO's long-term full employment level of 5.39 percent.

Hourly wages grew 1.98 percent over the last 12 months. This is not what market watchers had expected and offsets to some extent the optimistic picture painted by many other aspects recent employment reports.

In contrast to hourly wages, weekly average wages for all employees has grown 2.57 percent over the last 12 months, reflecting an increase in the length of the workweek from 34.4 hours in February 2014 to 34.6 in February 2014.

Chart 12 smooths trends in hourly wages by calculating a 12-month moving average. Over the last year the trend growth rate in hourly wages has not budged. Hourly wages were growing 2.08 percent in December 2013 and 2.07 percent in February 2015. Thus, in spite of expectations and commentary that wage growth is showing preliminary signs of acceleration, there is as yet no direct evidence that is actually occurring in the hourly wage data compiled by the BLS for all workers. Nonetheless, most expect that acceleration in wage growth will begin to show up during 2015 and that is certainly what **GS's** wage tracker suggests, although at 2.2 percent that measure is not indicating there is likely to be much near-term

CHART 11 – Hourly and Weekly Wages – All Workers (annual rate of change)



upward pressure on hourly wages.

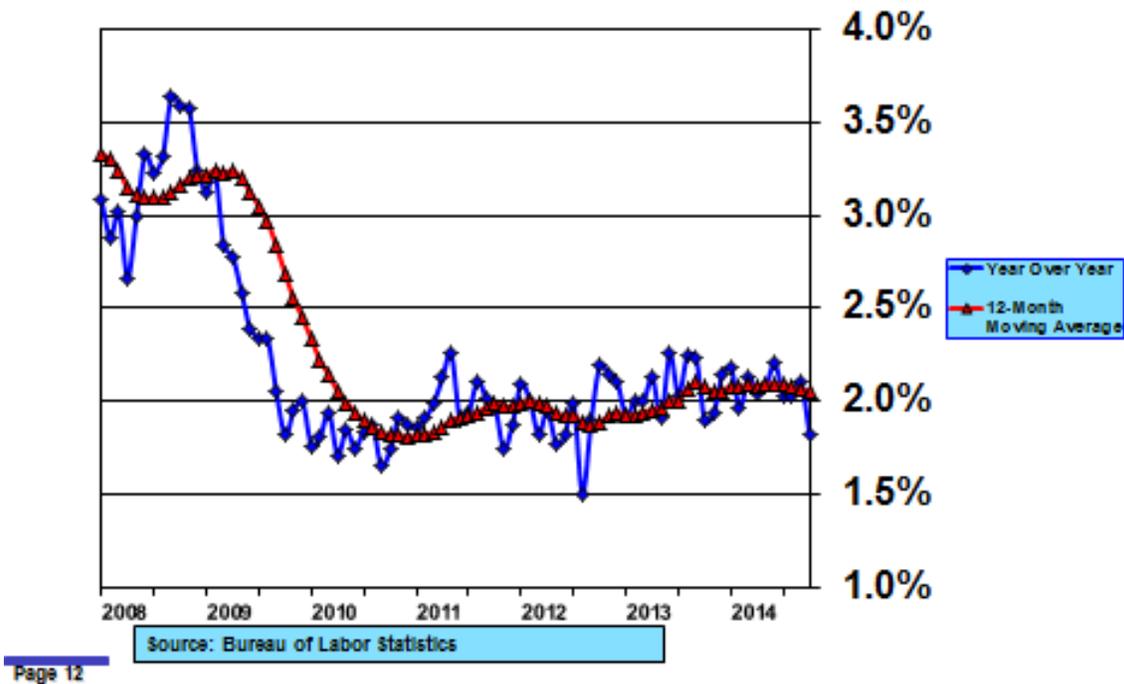
It goes without saying that the failure of hourly wages to begin rising as the labor market gradually tightens has led to a search for plausible reasons. There are two possibilities.

First, employers did not reduce wages during the extended period of labor market weakness by as much as the standard relationship between the supply and demand for labor implies. This relationship is described by the wage-unemployment Phillips curve. The explanation is that there is downward wage rigidity which simply means that employees resist wage cuts and employers tend to avoid doing things that create negative employee relations. This phenomenon leads to “pent-up wage cuts.” When the labor market improves, employers respond to pent-up wage cuts by waiting longer to raise wage rates or by raising them in smaller increments.

This pattern of employer behavior is well documented in a recent study authored by Mary C. Daly and Bart Hobijn, economists at the San Francisco Federal Reserve Bank.¹ They marshal considerable statistical evidence that shows clearly that industries that lacked employment flexibility and were least able to cut wages during and just after the Great Recession, thus resulting in pent-up wage cuts, experienced much slower rates of wage rate increase as the labor market strengthened. In other words, industries that have limited wage flexibility, such as construction, perhaps because of union contracts, experience smaller reductions in wage growth during difficult times but also experience smaller gains during better times. Industries with considerable wage flexibility, such as financial, insurance and real estate services, experience much more wage flexibility.

¹Mary C. Daly and Bart Hobijn. “Why Is Wage Growth So Slow?” Federal Reserve Bank of San Francisco Economic Letter 2015-01, January 5, 2015.

CHART 12 – Hourly Wage Rate Growth – All Workers
(annual year over year and 12-month moving average rates of change)



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What this implies is that wage growth should begin to accelerate as the labor market continues to tighten, but the acceleration should be gradual. To the extent that this is what actually happens in coming months, there would be little near-term upward pressure on inflation.

Second, as logical as the “pent-up wage cut” theory is and the historical evidence that supports it, wage increases may turn out to accelerate far less, if at all, than implied by the historical experience. That is because employees and employers also respond to expected changes in inflation. If employers expect prices of their services and products to rise more slowly in the future, they will be more reluctant to raise wages, even as labor scarcity increases. Similarly, as long as employees expect low inflation to result in adequate improvement in real spendable wages, they are likely to extend less pressure for nominal wage increases.

This is all about human psychology. An extended period of disinflation and perhaps even deflation is not a phenomenon we have experienced in our lifetimes, so it is difficult to speculate how this might impact the extent to which nominal wage growth accelerates in coming months.

What we do know is that when people expect prices to fall (deflation) they postpone purchases. This behavioral response depresses demand relative to supply and actually reinforces deflationary pressures. That is one of the reasons that policymakers focus so intently on trying to maintain expectations of gradual price increases and why the Federal Open Market Committee (FOMC) has a 2.0 percent inflation objective for monetary policy.

Although measured inflation in the U.S. has been below the 2.0 percent objective for some time, the threat of outright deflation remains remote. Nonetheless, there is increasing evidence that inflation expectations are becoming unanchored and moving lower. This development could well depress upward

pressure on wage rate growth and if that, indeed, does occur, it will make it more difficult to drive inflation back up to 2.0 percent and correspondingly will increase the risk that the inflation rate falls rather than rises in coming months. It is this risk that underpins escalating worry about why interest rates are low and whether the collapse in oil and commodity prices might contribute to unanchoring inflation expectations to the downside.

3. Implications of Substantial Remaining Labor Market Slack

What do these remaining weaknesses in the labor market mean? First and foremost, the sharp decline in the employment-to-population ratio (total number employed to total number eligible to work) means that the U.S. economy is a lot smaller than it could be based on historical employment patterns. That means there is less income. Americans are not as well off collectively as they could be if a greater proportion of them were employed.

Second, the U.S. has no unemployment objectives other than “full employment”. We are not even sure how to measure what “full employment” is. We do not know how to determine whether someone is discouraged. We do not have any objective for what the employment-to-population ratio ought to be. Therefore, we have few specific policies aimed at creating jobs.

4. Outlook for the Unemployment Rate

One of the great unexpected surprises over the last two years has been how rapidly the U-3 measure of unemployment has fallen. It was 7.9 percent in December 2012, 6.7 percent in December 2013, and 5.6 percent in December 2014 and February 2015. The current U-3 unemployment rate is not much above CBO’s long-term full employment potential unemployment rate of 5.4 percent.

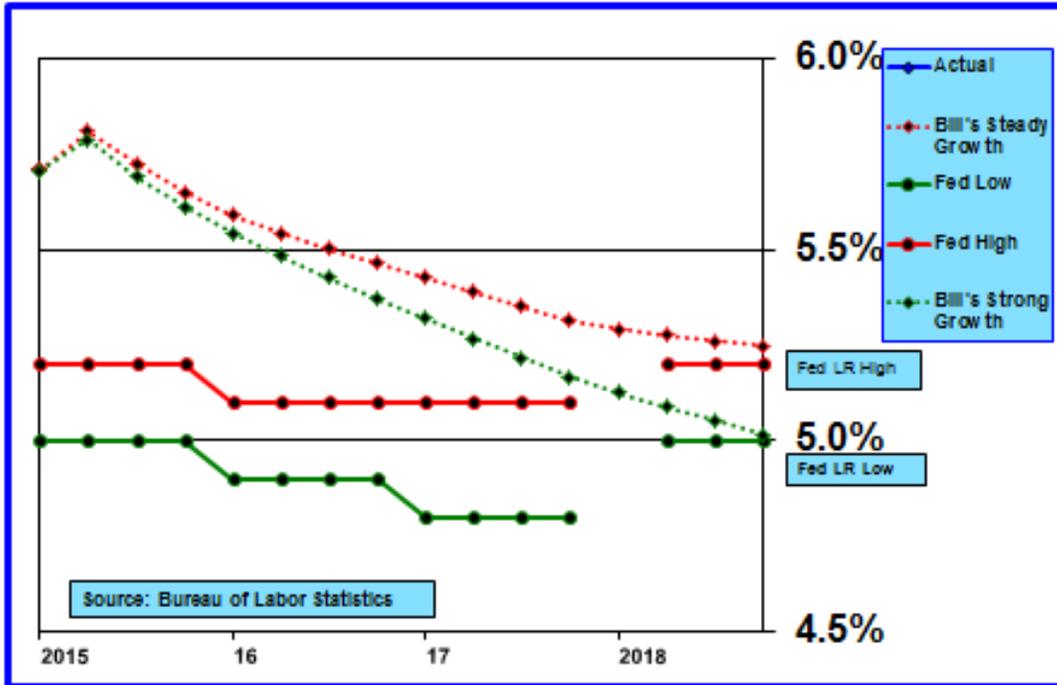
But, as discussed in the sections above, considerable labor market weakness remains, meaning that the signaling value of the U-3 unemployment rate is overstated, at least for the time being.

Chart 13 shows the FOMC’s high (red line and circles) and low (green line and circles) unemployment rate projections for 2015, 2016 and 2017. The FOMC expects further declines in the unemployment rate through 2017 to a level below its long-term expected range. That means that the FOMC expects growth to be above long-term potential and as slack in the economy diminishes, a tighter monetary policy will be required. A tight labor market is expected to take hold in 2016 and 2017, but because monetary policy operates with a 12 to 18 month lag, the FOMC’s unemployment rate projections imply that it will begin raising the federal funds rate during 2015.

I have included in **Chart 13** unemployment rate forecasts for both my “*Steady Growth*” (red dashed line and diamonds) and “*Strong Growth*” (green dashed line and diamonds) scenarios. Unemployment rate estimates in both scenarios are slightly above the FOMC’s projection range, but converge to the FOMC’s long-term full potential range of 5.0 percent to 5.2 percent in 2018.

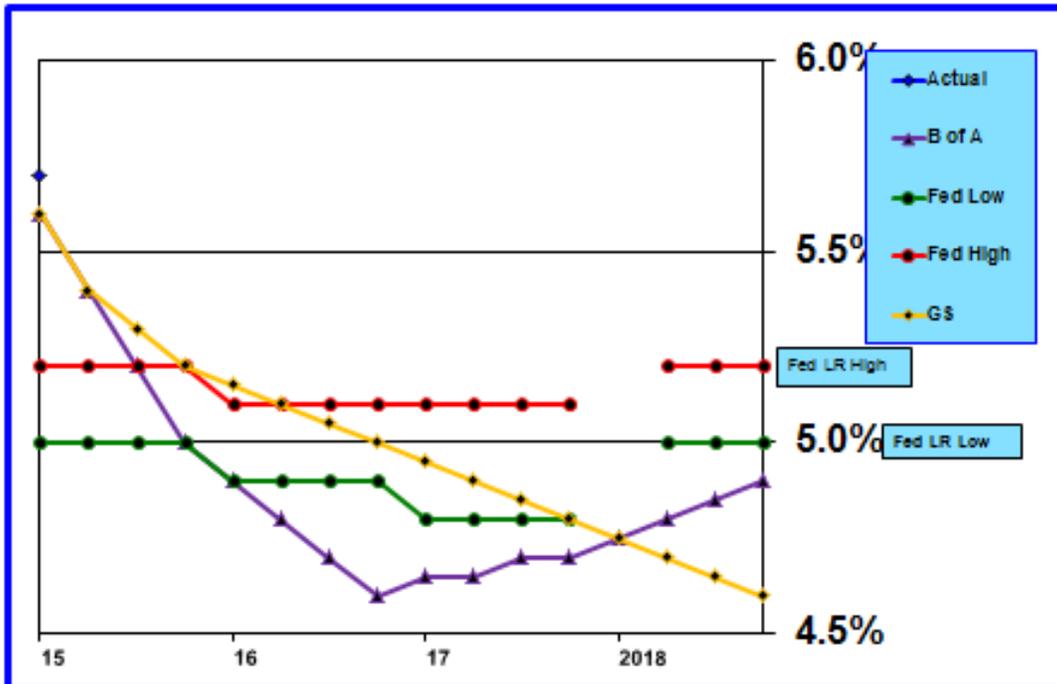
Both **B of A** and **GS**, like all other forecasters, have repeatedly marked their unemployment rate forecasts to market over the last two years. Both agree with the FOMC’s projection range in 2015. **B of A** is more optimistic than FOMC projections and the **GS** forecasts in 2016 and 2017 (see **Chart 14**).

CHART 13 – Unemployment Rate
(quarterly average)



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CHART 14 – Unemployment Rate
(quarterly average)



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Source: Bureau of Labor Statistics

III. Business Activity

As measured by the Institute for Supply Management (ISM) monthly surveys of manufacturing and non-manufacturing establishments, business activity continues to expand.

As 2015 begins, however, there are some cross-currents that bear watching. Good job growth during 2014 and gradual acceleration in nominal personal income growth are positive factors. In addition, the recent sharp decline in oil prices will enable consumers to redeploy spending to a variety of non-energy purchases, which should bolster sales of many businesses. However, a negative factor is the increase in the value of the dollar. This will hurt those businesses whose sales depend on the dollar. The burden will fall in particular on manufacturing firms that are heavily dependent on exports. Non-manufacturing firms, think retailers and providers of services, in theory could be hurt by rising import prices, as consumers switch their purchases to cheaper imports. However, research conclusively indicates that while a strong dollar does depress exports, it has limited impact on imports, at least in the short run. In the aggregate businesses should have a good year in 2015, but manufacturers heavily dependent upon export sales will be challenged.

All measures of business activity remain relatively strong but show preliminary signs of weakening.

1. ISM Manufacturing Index

The **ISM Manufacturing Index** averaged 55.7 over the last 12 months, with a monthly range from 52.9 to 58.1. The index was 55.1 in December, but declined to 53.5 in January and 52.9 in February, which is the lowest level over the last 12 months. The recent weakness in this index is due in part to the stronger value of the dollar but also may have been depressed temporarily by the west coast dock strike and severe winter weather.

Values of this index above 50 mean that manufacturing activity is expanding. But, according to ISM, values of this index above 43.2 generally are consistent with overall expansion in the economy.

2. ISM Nonmanufacturing Index

Much the same story is told by the **ISM Non-manufacturing Index**, which averaged 56.8 over the last 12 months, with a monthly range from 53.7 to 58.8. The index was 56.9 in February and remains squarely in the middle of its recent range.

3. NFIB — National Federation of Independent Business

Small business optimism (**NFIB — National Federation of Independent Business**) was 100.4 in December, the highest level this business activity measure has registered since October 2006 a year prior to the onset of the Great Recession. However, the index fell back to 97.9 in January and 98.0 in February.

Small businesses have been very pessimistic for a long time, but optimism has now returned. This measure is benchmarked at a value of 100 covering 1986, a year that occurred in the middle of a long economic expansion.

4. Goldman Sachs Analyst Index (GSAI)

GSAI tells a similar story — one of ongoing strength, but slightly weaker activity as 2015 gets underway. It averaged 59.8 during 2014, with a monthly range of 54.4 to 64.7. The index was 58.2 in February.

IV. Investment Activity

Investment in people, plant and equipment, and technology are keys to long-run potential real GDP growth. Increased investment generally leads to greater capital and labor productivity. Labor force growth and productivity combine to determine an economy's long-term potential rate of growth. Labor force growth is largely determined by long-term demographic trends but can be influenced to a degree by immigration policy.

Productivity is more responsive to policy formulation and implementation that impact education, worker training, workplace rules, compliance and regulation. Productivity is also determined to a very large extent by policies that encourage investment. This can occur in the form of direct intervention through fiscal policy, particularly through incentives embedded in the tax code. Monetary policy, by influencing interest rates and changing the cost of financing investment relative to expected returns, can encourage or discourage investment, particularly by private businesses. In this context low real interest rates, which increasingly characterize the evolving deflationary tendencies of the global economy, probably discourage investment and are an element of secular stagnation. To the extent that this is actually occurring it is a very negative development because it diverts activity away from the kinds of investment that enhance productivity to unproductive financial speculation in financial and real assets. This is the stuff of Larry Summers musing a year ago on secular stagnation and frequent asset price bubbles.

Investment can be divided into private business and government activities. Productivity depends upon both sectors and contrary to popular opinion the effect of a dollar of investment on productivity differs little between the private and government sectors. A one percent increase in private business sector investment increases productivity by approximately 41 basis points over an average lag time of 2.5 quarters. A similar increase in government spending increases productivity by about 38 basis points over a longer average lag time of 8.8 quarters. The difference in lag times between the private and public sectors may derive from the tendency for government to invest in activities, such as education and infrastructure, that have long gestation periods. Thus, business investment is very important in the short run in boosting real GDP growth, but government investment spending is just as important in the longer run in boosting potential real GDP growth. When this is understood, the substantial pull back in government investment spending, not the pullback in spending on transfer payments, is a very negative and short-sighted policy which will reduce real potential GDP growth in years to come.

1. Business Investment

Table 4 shows actual residential, nonresidential, and total private investment growth for 2012, 2013, and 2014, and forecasts for 2015 through 2018. Relative to the 68-year average growth of 3.80 percent annually for total private business investment, the actual recent growth rates and forecasts are quite optimistic. The forecasts look even more heroic when compared against the 1.55 percent growth rate in total private investment from 1999 to 2014.

However, recent growth in total private business investment was depressed by overinvestment in resi-

Table 4
Real Private Business Investment (Residential and Nonresidential) Growth Rate Y/Y
Forecasts — B of A, GS, Bill’s “Steady Growth” and Bill’s “Strong Growth”

	2012	2013	2014	2015	2016	2017	2018	Ave. 1947-2014
REAL PRIVATE BUSINESS INVESTMENT								
Actual	8.30	4.68	5.39					3.80*
B of A				5.23	5.53	5.99	5.10	
GS				4.89	6.38	6.95	6.79	
Bill’s Steady Growth				6.21	2.97	2.55	2.55	
Bill’s Strong Growth				6.80	4.18	2.94	2.81	
REAL NONRESIDENTIAL INVESTMENT								
Actual	7.19	3.05	6.33					2.55*
B of A				5.18	4.73	5.02	4.44	
GS				4.95	5.26	5.54	5.42	
REAL RESIDENTIAL INVESTMENT								
Actual	13.51	11.90	1.56					-1.34*
B of A				5.45	8.95	9.95	7.68	
GS				4.64	11.17	12.66	11.99	

*Average 1999-2014; real private business investment = 1.55% for 1999-2014

dential structures followed by the collapse of the housing bubble, which explains the -1.34 percent growth rate in residential investment over the last 16 years. Going forward a rebound in residential investment is probable. However, the slowing secular trend in population growth, and with it household formation, means that growth in residential investment will be lower in future years than it was in the past when the population was growing more rapidly.

Perhaps the optimism will be warranted as a way of catching up from the long drought in private investment since the dot.com boom of the late 1990s. But, if low real interest rates and secular stagnation are obstacles, perhaps this will not turn out to be the case. Perhaps the recent surge in investment spending is a natural cyclical result of a healing economy, but one that might prove to be short-lived. If that turns out to be the case, then my “*Steady Growth*” scenario may prove to be more accurate than other more optimistic forecasts. It should be noted that both B of A and GS have been overly optimistic about the prospects for private investment growth over the last few years. This has accounted for much of the disappointing difference between forecast and actual real GDP growth over the last two years.

2. Government Investment

Government investment spending in BEA’s GDP spending accounts is divided between federal and state/local investment spending. State and local government spending accounts for 61.3 percent of the total.

It might surprise you to know that total government investment spending as a percentage of real GDP was relatively constant in a range of 30.9 percent to 34.3 percent between 1955 and 1970, but is just 17.8 percent today. Prior to the Great Recession government spending accounted for 19.6 percent of real GDP, so in spite of the initial fiscal response to the Great Recession, government investment spending continues

to shrink as a component of real GDP. Remember! Government transfer payments are not included in real GDP.

Table 5 shows actual total government investment growth for 2012, 2013, and 2014, and forecasts for 2015 through 2018. Relative to the 68-year average growth of 2.69 percent annually the actual results and forecasts are quite pessimistic. But the pessimism is warranted by the political constraints that have been imposed on government spending in recent years. All forecasts, including my own, are consistent with the 1.16 percent rate of growth in government investment spending over the last 16 years, but may still turn out to be too optimistic.

Table 5
Government Investment Growth Rate Y/Y Forecasts — B of A, GS, Bill’s “Steady Growth” and Bill’s “Strong Growth”

	2012	2013	2014	2015	2016	2017	2018	Ave. 1947-2014
Actual	-1.28	-2.01	-0.15					2.69*
B of A				0.30	1.00			
GS				0.53	1.25	1.26	1.27	
Bill’s Steady Growth				0.81	1.16	1.26	1.21	
Bill’s Strong Growth				1.04	1.30	1.34	1.36	

*1999-2014 average growth rate = 1.16%

Given that the contributions of private and government investment spending to productivity are very similar, a downsizing of the government contribution to new investment would not necessarily be problematic if the slack were taken up by the private sector. This has occurred over the last couple of years and is forecast to continue for at least another couple of years. But, this could prove to be transitory. Perhaps more telling of the decline in investment spending over the longer term is that the combined contribution of private and government investment spending to real GDP has fallen from an average of 38.5 percent over the 20 years from 1980 to 2000 to 35 percent recently. Both a smaller amount of total investment and slower growth will retard productivity growth and depress the potential rate of real GDP growth.

V. Productivity

Productivity declined 0.1 percent in 2014. Many revisions will occur in the future and it is entirely possible that productivity for 2014 will eventually show an increase. My model indicates that productivity should have increased by 1.1 percent in 2014. Even my estimate is disappointingly low.

Productivity, along with labor force growth, determines an economy’s potential rate of real GDP growth. Growth rates in private business investment and government investment are important determinants of productivity.

It is generally understood that the slowing rate of growth in the U.S. population and population demographics, namely ageing, will reduce potential real GDP growth in coming years. The greater than expected decline in the labor participation ratio, apparently due to the exit of discouraged workers from the labor force, if not reversed, will assure a permanent reduction in the level of real GDP, although it should not affect the potential real rate of growth going forward.

What is less well understood is that falling growth in private and governmental investment spending will reduce future productivity gains and this will, in turn, depress the potential growth rate of real GDP.

Over the last few years private investment spending growth has been depressed by the extraordinarily large output gap and weak aggregate demand. Low real rates of return and secular stagnation may also be a factor. Governmental investment spending has been depressed by political factors that favor social spending over investment spending and limit willingness to use taxes and deficit spending to increase investment spending. These political factors appear to be deeply entrenched, which means that increased governmental investment spending seems unlikely.

Table 6 shows historical changes in the key variables that drive productivity and potential real GDP growth. It should be noted that faster labor force growth directly raises potential real GDP growth but indirectly depresses real GDP growth by reducing productivity. That is why potential real GDP growth in the 1973-1997 period was almost as great as in the 1997-2004 period, even though productivity was only half as great in the earlier period. The last 10.5 year period from 2004-2014 was particularly abysmal. Both labor force growth and growth in investment spending was very weak which resulted in poor productivity and real GDP growth.

Table 6
Productivity and Potential Real GDP

	Growth in Hours	Private Invest- ment	Government Investment	Productiv- ity Estimate	Observed Productiv- ity	Potential Real GDP Growth
1955-1973:2	1.50%	5.24%	4.62%	2.74	2.78	3.79%
1973:3-1997:2	1.76%	4.19%	2.05%	1.59	1.50	3.07%
1997:3-2004:2	0.37%	4.58%	2.78%	3.44	3.36	3.31%
2004:3-2014	0.42%	1.66%	0.35%	1.25	1.48	11.51%
1955-2014	1.28%	4.42%	1.90%	2.10	2.11	3.05%
2015-2017	1.27%	3.38%	1.08%	1.37		2.42%
2018-2023	0.59%	2.33%	1.12%	1.65		2.01%
2018-2023 High	0.59%	3.33%	1.62%	2.25		2.52%
2018-2023 Low	0.59%	1.83%	0.87%	1.35		1.76%
Federal Reserve						2.0-2.3%

Looking forward, we already know that slowing labor force growth will reduce potential real GDP growth. This is dictated by population growth and immigration trends as well as changing demographics. The projected growth rate in total hours of 0.59% from 2018-23 may rise or fall a few basis points, depending upon deviations in the labor force participation ratio from the expected trend. But, such impacts, should they occur, are unlikely to be significant.

Assuming that conclusion is reasonable, then significant improvement in the real GDP growth rate will depend upon productivity and productivity will depend upon investment. My base case for productivity growth is 1.65, which results in potential real GDP growth of 2.01 percent. This is at the bottom of the FOMC's 2.0 percent to 2.3 percent range and below CBO's 2.22 percent average for the 2018-23 period.

I show a high and low range for investment and productivity growth during the 2018-23 period in **Table 6**. If private investment spending increases 1 percentage point to 3.33 percent and if governmental investment spending rises 50 basis points to 1.62 percent every year, annual productivity increases will rise from 1.65 to 2.25 and potential real GDP will grow from 2.01 percent to 2.52 percent. Correspondingly, a 50 basis point decline in private investment spending and a 25 basis point decline in governmental investment spending will reduce productivity to 1.35 and potential real GDP growth to 1.76 percent.

VI. Monetary Policy, Inflation and Interest Rates

In the U.S. the major question confronting policy makers is when will the FOMC begin raising the federal funds rate.

1. Monetary Policy Objectives

By law, monetary policy's objectives are to maximize employment consistent with maintaining price stability. When the labor market is weak, as it has been since late 2007, the FOMC eases monetary policy in an attempt to stimulate aggregate demand.

There are four ways in which the FOMC can implement monetary policy.

- First, historically, the FOMC's primary policy instrument was changing the federal funds rate. Changes in this rate affected interest rates and the cost of capital. By easing monetary policy through reductions in the federal funds rate, the FOMC expects to stimulate business investment spending and consumer spending on durables such as homes and cars.
- A second transmission mechanism involves boosting financial wealth and stimulating additional consumer spending.
- A third transmission mechanism is to change market and household expectations through policy statements. This is where the credibility of the FOMC's communications becomes important. If communications lack credibility, this transmission mechanism will not work as intended.
- A fourth mechanism is prudential supervision of the activities of financial firms and markets. This fourth mechanism was seldom used while Alan Greenspan was Fed chairman. Its efficacy has been restored in the aftermath of the Great Recession, but it is too soon to tell yet whether this policy mechanism will be deployed effectively. To be effective, prudential supervision must be tied to incentives. When incentives are lacking prudential supervision will probably be ineffective. For example, jawboning banks to make more loans did not result in them actually making any more loans. Banks simply continued to make loans based on borrower demand and risk considerations. Moreover, there is reason to be concerned that revised capital and liquidity regulations and credit underwriting supervision, in an attempt to promote financial stability and reduce the potential for financial panics, might reduce risk appetite to an extent that depresses the potential real rate of GDP growth.

When interest rates hit the zero boundary in early 2009, the primary policy instrument of cutting the federal funds rate ceased to be effective. In an attempt to overcome this problem the FOMC has imple-

mented nontraditional policy tools including large scale asset purchases, calendar-based and qualitative guidance, and projections of economic variables.

Nontraditional tools have been studied in theoretical academic papers and analyzed using econometric models. However, when they were first implemented their real world impacts were untested. Behaviors in the real world are not tidy in the ways that models usually assume. The effectiveness of nontraditional tools relies to a considerable extent on what market participants expect the tools to accomplish. This highlights the importance of the FOMC providing clarity about the intent of the tools. However, the economy is dynamic and ever changing, which is why forecasters don't do a very good job in predicting the future beyond a few quarters. FOMC members are no better forecasters than anyone else. For that reason they feel it imperative to retain flexibility to adjust policy to changing conditions, thus the "data dependency" policy. Unfortunately, flexibility to adjust policy is at odds with providing policy clarity. Basically, it puts the FOMC in a no-win position.

Such a dilemma continues to face the FOMC. The labor market is clearly improving, although weaknesses remain. In the past when the unemployment rate fell to nearly the noninflationary full-employment rate as it now has, the FOMC would begin tightening monetary policy to make sure that accelerating economic activity didn't initiate a hard to control inflationary process. For that reason there is plenty of talk about the need for the FOMC to begin raising interest rates, perhaps as soon as the June meeting.

However, inflation remains well below the FOMC's target of 2.0 percent and plunging commodity prices and bond yields threaten to drive inflation even lower, notwithstanding accelerating economic activity. The FOMC's dilemma is one of how to manage market expectations. Should it respond to the threat of lower inflation or the prospect of faster growth? And, what if neither outcome actually occurs — inflation doesn't fall and growth slows down. Premature signaling of what the FOMC intends to do and when could unintentionally result in counterproductive responses. Thus, the prudent course, which is the one the FOMC has taken, is to emphasize that monetary policy is data dependent and that the FOMC will consider how to adjust policy as new information is received.

2. FOMC's Assessment of Economic Activity

While noting the continued improvement in a variety of labor market indicators, the FOMC began its assessment of the economy with this statement: "*Information received since the Federal Open Market Committee met in January suggests that economic growth has moderated somewhat.*" Although this statement is consistent with recent data reports, which generally have been weaker than expected, the FOMC cited no particular reason other than observing that "*export growth has weakened.*" Consumer spending is "*rising moderately*" and business investment "*is advancing,*" while the housing recovery "*remains slow.*" There is no sense of alarm, but the statement, given the importance of data dependency, can be interpreted to mean that the FOMC sees no urgency to tighten monetary policy.

3. FOMC's Assessment of Inflation

While the FOMC acknowledges that inflation is below its long-term target and has declined further due to falling energy prices, it voices no concern because "*survey-based measures of longer-term inflation expectations have remained stable.*" The FOMC expects inflation to move back toward its 2 percent target over time "*as the transitory effects of energy price declines and other factors dissipate.*"

4. FOMC Projections of Economic Variables

At the end of each quarter the FOMC releases projections, shown in **Table 7**, of its members for real GDP growth, the unemployment rate, total and core PCE inflation, and estimates of the level of the Federal Funds rate at future dates.

There were an unusually large number of significant revisions in the projections. The most notable were the substantial downgrading of the central tendency for the Federal Funds rate in 2015, 2016 and 2017 by 30 to 50 basis points. Moreover, the “dot plot” now indicates that interest rates will not be normalized until after 2017. The 0.77 percent average for the Federal Funds rate at the end of 2015 implies that just two rate increases of 25 basis points each are unexpected in 2015. Presumably the first would occur in June and the second would occur in December.

Five rate increases of 25 basis points each are implied for 2016 and four increases are implied in 2017. This implies a rate every other FOMC meeting and a pattern might evolve of doing the rate increase at the quarter end meeting when the economic projections are updated and Chair Yellen holds a press conference. Of course, all bets are off if economic activity accelerates more quickly and inflation begins to rise more rapidly than currently expected.

Another notable change in the projections involved a reduction in the long run unemployment rate to a range of 5.0 percent to 5.2 percent from 5.2 percent to 5.5 percent. This should be interpreted as the FOMC becoming less concerned that further declines in the unemployment rate from the 5.54 percent level reported in February would raise the risk of rising inflation. The absence of any substantive indications that wages are poised to rise rapidly is consistent with change in view.

Other than marking total PCE inflation to market to reflect the obvious impact of falling energy prices, there were no significant revisions to the core PCE inflation projections.

Real GDP growth projections were marked down substantially. After years of being overly optimistic and repeatedly being forced to reduce real GDP growth projections, the FOMC may now have overshot the mark on the pessimistic side. The central tendency projection for 2015 is below most forecasts and the revised projection for 2016 is also on the low end of forecasts. Perhaps the FOMC expects employment growth to slow more rapidly than the consensus view and for productivity gains to continue to be extremely weak.

5. Prospects for PCE Inflation

Core PCE inflation was 1.30 percent in January and total PCE inflation was 0.22 percent (see **Chart 15**). Compared to core PCE inflation, total PCE inflation is much more volatile and has been negative for short periods of time in the past. For that reason the FOMC prefers to focus policy deliberations on the core PCE inflation measure.

Core PCE inflation is well below the FOMC’s target level of 2 percent and is not much above the lows near 1.0 percent experienced briefly in mid-2009 and late-2010 when the FOMC was concerned about the threat of deflation. As can be seen in **Table 8** (**Chart 15** shows historical core PCE price index data and data from **Table 8** in graphical form), forecasts of the core PCE inflation index indicate that inflation will change little during 2015. FOMC members are projecting a slightly higher range.

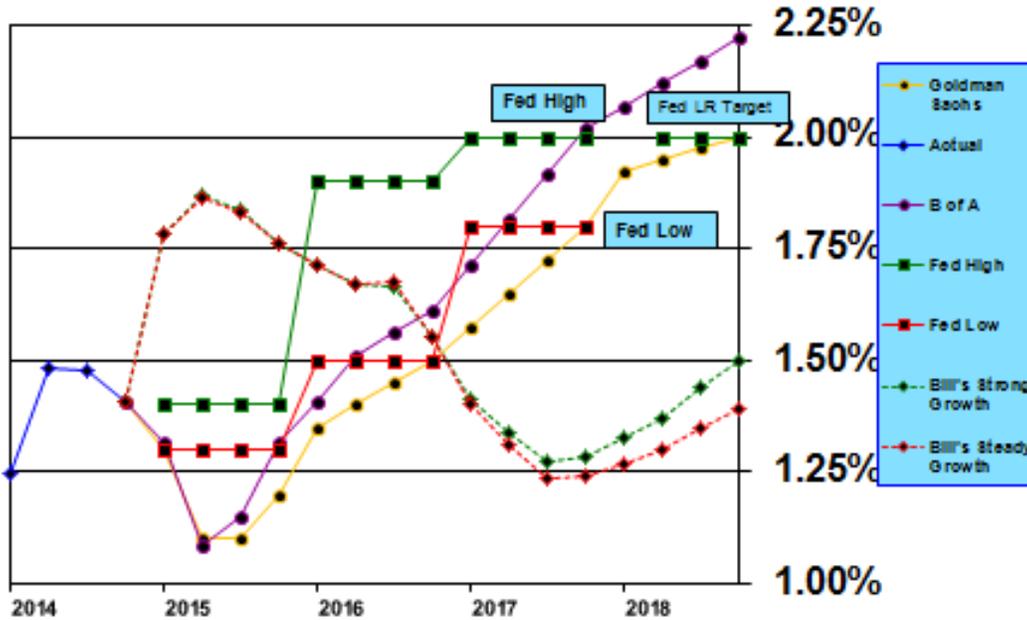
Most forecasters, including the FOMC’s projections, expect core PCE inflation to rise gradually in

Table 7
Economic Projections of Federal Reserve Board Members And Federal Reserve Bank Presidents, March 2015

Variable		Central Tendency				
		2014	2015	2016	2017	Longer Run
Real GDP %	Mar		2.3 - 2.7	2.3 - 2.7	2.0 - 2.4	2.0 - 2.3
	Dec	2.3 - 2.4	2.6 - 3.0	2.5 - 3.0	2.3 - 2.5	2.0 - 2.3
	Sep	2.0 - 2.2	2.6 - 3.0	2.6 - 2.9	2.3 - 2.5	2.0 - 2.3
	June	2.1 - 2.3	3.0 - 3.2	2.5 - 3.0		2.1 - 2.3
	Mar	2.8 - 3.0	3.0 - 3.2	2.5 - 3.0		2.2 ? 2.3
	Dec	2.8 - 3.2	3.0 - 3.4	2.5 - 3.2		2.2 - 2.4
	Sep	2.9 - 3.1	3.0 - 3.5	2.5 - 3.3		2.2 - 2.5
	June	3.0 - 3.5	2.9 - 3.6			2.3 - 2.5
	Mar	2.9 - 3.4	2.9 - 3.7			2.3 - 2.5
	Dec	3.0 - 3.5	3.0 - 3.7			2.3 - 2.5
Unemp. Rate %	Mar		5.0 - 5.2	4.9 - 5.1	4.8 - 5.1	5.0 - 5.2
	Dec	5.8	5.2 - 5.3	5.0 - 5.2	4.9 - 5.3	5.2 - 5.5
	Sep	5.9 - 6.0	5.4 - 5.6	5.1 - 5.4	4.9 - 5.3	5.2 - 5.5
	June	6.0 - 6.1	5.4 - 5.7	5.1 - 5.5		5.2 - 5.5
	Mar	6.1 - 6.3	5.6 - 5.9	5.2 - 5.6		5.2 - 5.6
	Dec	6.3 - 6.6	5.8 - 6.1	5.3 - 5.8		5.2 - 5.8
	Sep	6.4 - 6.8	5.9 - 6.2	5.4 - 5.9		5.2 - 5.8
	June	6.5 - 6.8	5.8 - 6.2			5.2 - 6.0
	Mar	6.7 - 7.0	6.0 - 6.5			5.2 - 6.0
	Dec	6.8 - 7.3	6.0 - 6.6			5.2 - 6.0
PCE Inflation %	Mar		0.6 - 0.8	1.7 - 1.9	1.9 - 2.0	2.0
	Dec	1.2 - 1.3	1.0 - 1.6	1.7 - 2.0	1.8 - 2.0	2.0
	Sep	1.5 - 1.7	1.6 - 1.9	1.7 - 2.0	1.9 - 2.0	2.0
	June	1.5 - 1.7	1.5 - 2.0	1.6 - 2.0		2.0
	Mar	1.5 - 1.6	1.5 - 2.0	1.7 - 2.0		2.0
	Dec	1.4 - 1.6	1.5 - 2.0	1.7 - 2.0		2.0
	Sep	1.3 - 1.8	1.6 - 2.0	1.7 - 2.0		2.0
	June	1.4 - 2.0	1.6 - 2.0			2.0
	Mar	1.5 - 2.0	1.7 - 2.0			2.0
	Dec	1.5 - 2.0	1.7 - 2.0			2.0
Core PCE %	Mar		1.3 - 1.4	1.5 - 1.9	1.8 - 2.0	
	Dec	1.5 - 1.6	1.5 - 1.8	1.7 - 2.0	1.8 - 2.0	
	Sep	1.5 - 1.6	1.6 - 1.9	1.8 - 2.0	1.9 - 2.0	
	June	1.5 - 1.6	1.6 - 2.0	1.7 - 2.0		
	Mar	1.4 - 1.6	1.7 - 2.0	1.8 - 2.0		
	Dec	1.4 - 1.6	1.6 - 2.0	1.8 - 2.0		
	Sep	1.5 - 1.7	1.7 - 2.0	1.9 - 2.0		
	June	1.5 - 1.8	1.7 - 2.0			
	Mar	1.6 - 2.0	1.8 - 2.1			
	Dec	1.6 - 2.0	1.8 - 2.0			
Federal Funds %	Mar		.77	2.03	3.18	3.66
	Dec	.25	1.13	2.54	3.50	3.78
	Sep	.29	1.40	2.81	3.67	3.78
	June	.30	1.20	2.53		3.78
	Mar	.30	1.13	2.42		3.88
	Dec	.34	1.06	2.18		3.88
	Sep	.40	1.25	2.26		3.93
	June	.43	1.34			4.01
	Mar	.55	1.30			4.01
	Dec	.61	1.47			4.04

2016 and 2017 toward the FOMC's 2.0 percent target. Increasingly, this expectation is taking on more of an attribute of hope that building momentum in the U.S. economy and a belief that the FOMC will

CHART 15 – Core PCE Inflation Forecasts
(percentage change over previous 12 months)



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Table 8
Core PCE Inflation Forecasts — B of A, GS, Bill’s “Steady Growth”, Bill’s “Strong Growth” and FOMC High and Low

Core CPE	2013	2014	2015	2016	2017	2018
B of A	1.3	1.4	1.3	1.6	2.0	2.2
GS	1.3	1.4	1.2	1.5	1.8	2.0
Bill’s Steady Growth	1.3	1.4	1.75	1.55	1.25	1.4
Bill’s Strong Growth	1.3	1.4	1.75	1.55	1.3	1.5
FOMC — High			1.4	1.9	2.0	
FOMC — Low			1.3	1.5	1.8	

be successful in fighting powerful global deflationary forces will prove successful in nudging the core PCE inflation rate back toward 2.0 percent. But, this expectation has been in place for a longer period of time and the date of realization continues to be extended year after year.

Risks of downward pressure on core PCE inflation relative to the forecasts and projections outweigh risks of upward pressure. Although real global GDP growth should benefit during 2015 from commodity price deflation as spending power is transferred to countries and consumers with a higher propensity to spend, this outcome may be insufficient to put enough pressure on aggregate global demand to offset the highly deflationary consequences of excess aggregate global supply.

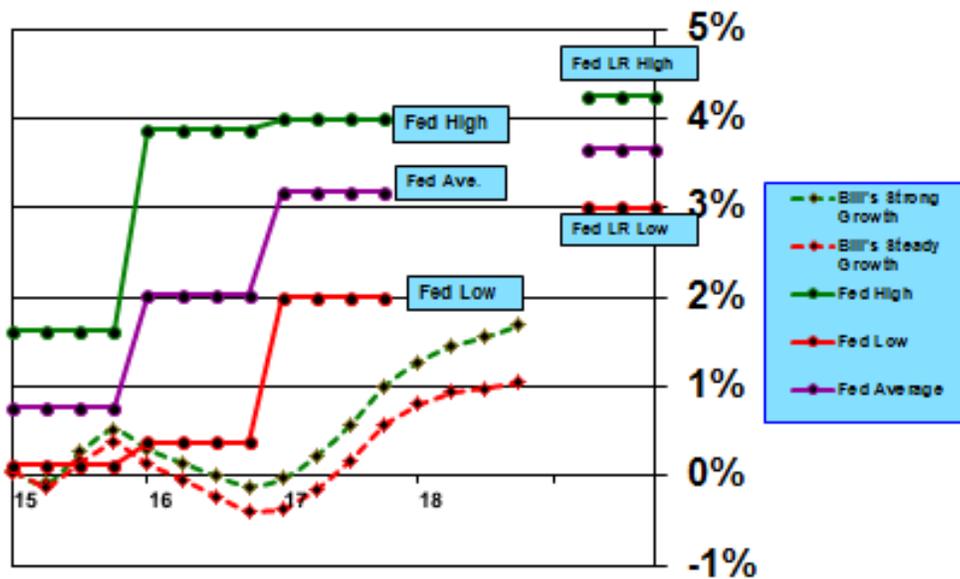
Moreover, as global bond markets are signaling, long-term nominal interest rates have fallen to levels

that imply deflation once a real rate of return and term premium are considered, provided that the recent substantial declines are not solely an artifact of fear and overreaction to the sudden collapse in oil prices, or to the transitory impact of massive quantitative easing by the ECB and Bank of Japan. At least a part of the recent decline in global nominal long-term interest rates, and perhaps a substantial part, is due to a substantial decrease in long-term inflation expectations. As commented on above, when inflation expectations become unanchored, this time in the downward direction, they can lead to behavioral responses that are self-fulfilling.

6. Federal Funds Rate

Chart 16 shows the FOMC’s central tendency range for high and low projections for the federal funds rate for 2015, 2016, and 2017. The purple line (circles) is the average of projections for the 19 FOMC members (7 governors and 12 presidents — note that there are two vacancies on the Board of Governors currently which means the dots reflect only 17 participants). The projections imply that the first increase in the federal funds rate will take place sometime during 2015.

CHART 16 – Federal Funds Rate Forecast



Both **B of A** and **GS** expect the first federal funds rate increase will occur at the September 2015 meeting of the FOMC. However, based upon the FOMC statement and remarks made by various FOMC members a June “lift off” is not out of the question.

But, the FOMC is not on a pre-ordained schedule. It has said time and again and Chair Yellen has emphasized repeatedly that the decision to raise interest rates is data dependent. This means that the

first increase could occur even later than the September meeting if economic activity remains moderate and inflation falls more than expected.

The FOMC has a dual mandate — to achieve full employment and maintain stable prices. While the FOMC has no explicit employment goal, the CBO’s long-term U-3 full-employment potential unemployment rate of 5.4 percent serves as an imperfect proxy. Currently, the U-3 unemployment rate is 5.54 percent which implies that the FOMC is closing in on its full-employment mandate. However, other employment market measures are less robust. Until these other measures improve further the FOMC’s “data dependent” language gives it flexibility to delay a rate increase.

Inflation, or lack of it, is rapidly becoming the more important policy mandate. Core PCE inflation has persistently been below the FOMC’s explicitly stated 2.0 percent objective. While FOMC members have been steadfastly optimistic that core PCE inflation will return to 2.0 percent within a couple of years, the timing of this expectation has repeatedly been pushed forward. Now global events and bond prices are signaling that even lower inflation and in some countries deflation is a very real threat. To date FOMC members have been dismissive of these risks. But, if core PCE inflation edges down in coming months, the FOMC will be hard pressed to raise interest rates unless the U.S. economy takes off.

Market participants place a higher probability that the first federal funds rate increase will come at the September rather than the June meeting. Moreover, the forward yield curve has flattened considerable since the start of the year and implies that increases in the federal funds rate, when they come, will occur more gradually and the end point will be lower as shown in **Chart 16**.

My “*Steady Growth*” and “*Strong Growth*” forecasts are shown by the red dashed line (diamonds) and green dashed line (diamonds). My “*Steady Growth*” forecast indicates that the federal funds rate could rise a bit in late 2015 but further rate increases could be delayed until 2017 or later, which is inconsistent with FOMC guidance. In my “*Strong Growth*” forecast, the first increase in the federal funds rate occurs in late 2015 but there is little pressure to move it up rapidly.

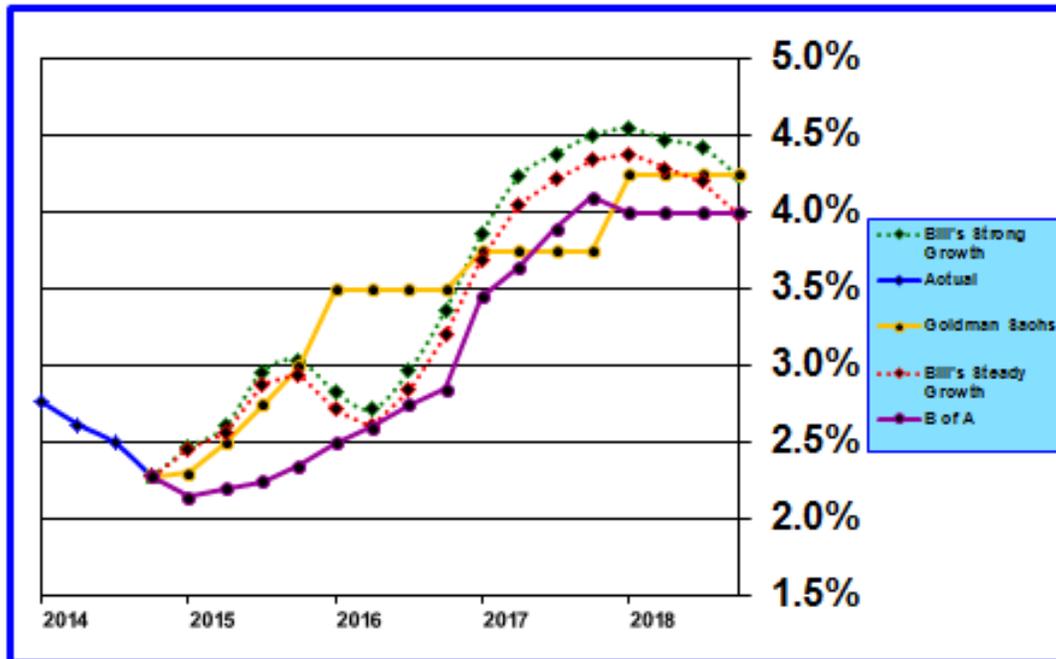
7. 10-Year Treasury Rate

Chart 17 shows forecasts for the 10-year Treasury rate for my “*Steady Growth*” (red dashed line and diamonds) and “*Strong Growth*” (green dashed line and diamonds) scenarios. **GS’s** forecast (yellow line and circles) and **B of A’s** forecast (purple line and circles) are also shown.

As of March 20, the 10-year Treasury yield was 1.93 percent, down from 2.17 percent at the beginning of 2015 and 3.04 percent at the beginning of 2014. With the exception of **B of A**, forecasts of the 10-year rate by the end of 2015 cluster around 3.00 percent. These forecasts increasingly appear to be too high based upon what has happened so far in 2015 in global bond markets. The rapidly rising value of the dollar and very low long-term rates in Europe and Japan will put a lid on long-term U.S. interest rates, which is likely to be substantially below 3.0 percent. The forecasts also assume anchored inflation expectations. That assumption is rapidly losing credibility. A step down in inflation expectations, to repeat again, tends to have self-fulfilling behavioral consequences. The implication is that the forecasts shown in **Chart 21** are probably overstating the extent to which long-term interest rates will rise in 2015 and perhaps in the years beyond the current year as well.

Long-term interest rates have a theoretical equilibrium value which is a combination of several components: a real rate of return, the rate of expected inflation over the next several years, an inflation uncertainty premium, a liquidity premium, and a credit risk (default) premium. The risk-based premiums

CHART 17 – 10-Year Treasury Rate Forecasts



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can be artificially reduced if the policymakers state directly or past practices indicate that bondholders will be protected from default risk. Had not Mario Draghi opined in the summer of 2012 that the ECB would “do whatever it takes to preserve the euro,” long-term rates on the sovereign bonds of countries like Greece, Spain, and Italy would not be nearly as low as they are today.

Long-term rates can also be depressed by an intentional quantitative easing bond buying policy by a central bank. Quantitative easing usually results in depressing the value of a country’s currency. That has been an intentional part of Japan’s Abenomics. Whether intentional or not, the plunge in the value of the euro appears to be a direct result of the ECB’s aggressive quantitative easing bond buying program.

Because the U.S. ended quantitative easing in October last year, the U.S. is now on the receiving end which is evidenced in the rising value of the dollar. This has a relatively immediate effect of transmitting lower foreign long-term interest rates to the U.S. through purchases of U.S. treasury bonds. It also has a longer term effect of depressing U.S. exports and slowing the rate of real GDP growth. This is the phenomenon of currency wars in which each nation attempts to avoid the deflationary consequences of excess aggregate supply relative to aggregate demand by devaluing its currency. The overall result is that that country’s deflation is simply exported to other countries. Where this evolving international policy mix takes us in a deflationary setting is uncertain, but the odds are that the consequences will not be nearly as benign as many expect.

Other factors also influence long-term rates, at least in the short run. There is the dollar safe-haven effect which lowers rates on U.S. Treasury securities. This effect ebbs and flows, depending on global political crises and periodic turmoil in financial markets.

If the real rate of interest is depressed below its “natural level” needed to stimulate investment, then this will depress investment, slow growth and add to disinflationary and deflationary pressures which, in turn, will drive nominal rates even lower. This is the condition of the world that we currently find ourselves in. The risks are high that outcomes over time will not be favorable.

So what should the 10-year rate be today? If one simply adds the real rate of return to an expected inflation rate and ignores the nuances of all the other factors that influence long-term rates, the rate should be about 3.0 percent, assuming expected inflation is 1.5 percent and the real rate of return is 1.5 percent. That is why most conventional forecasts expect the 10-year rate to be between 2.75 percent and 3.00 percent by the end of 2015. A current 10-year Treasury rate of 1.93 percent barely covers inflation and leaves little real return. Inflation would have to drop a lot from a 1.5 percent level to justify today’s 1.93 percent rate and provide an acceptable real rate of return. Either the recent level of rates is the result of temporary factors and rates will soon return to a higher level or today’s low rates reflect forces afoot that are not transitory and which will have significant consequences.

Even if the downside risk to the 10-year rate proves transitory and an artifact of momentary surge in market participants’ fear and anxiety, it is important to note that none of these forecasts indicates a substantial rise in the 10-year rate for a very long time.

VII. Fiscal Policy Developments

We have entered the last two years of the Obama presidency with Republicans in control of both the House and Senate. It should prove an interesting year until presidential politicking takes over in the fall. Congress has much to do. What follows is an update on key issues and dates:

- February 2 President’s budget released and sent to Congress (**political document generally ignored by Republican Congress, although there are many areas of potential agreement between the president and the Congress**)
- February 27 Spending authority for Department of Homeland Security expires (**after much brinksmanship, funding approved for remainder of fiscal year by a preponderance of Democrats and a few Republicans**)
- March 4 Supreme Court hears arguments on Affordable Care Act subsidies; ruling will come before session ends in June (**potential for Supreme Court to invalidate provision of Affordable Care Act that provides subsidies for insurance purchased through federal exchanges — invalidation unlikely to have significant macroeconomic impact**)
- March 16 Federal debt ceiling reinstated at then current level of debt (**CBO expects crunch time to be delayed until October or November after the start of the next fiscal year**)

- March 31 Medicare “doc fix” expires (the doc fix has been changed temporarily 17 times since 1997 — a permanent fix is possibly in the making which would repeal the sustainable growth rate formula rather than patching it, and enact other changes, such as a two-year extension of the Children’s Health Insurance Program, all of which would cost approximately \$213 billion over the next ten years; partial funding offsets are under consideration)
- May Highway trust fund depleted (both parties want to fund the highway trust fund on a long-term basis; however, no agreement exists with respect to a funding source; President Obama wants to use repatriation of foreign earnings as a source, but Republicans are firm that repatriation must be linked to corporate tax reform)
- May 31 Highway legislation expires
- June 30 Export-Import Bank charter expires
- October 1 Spending authority expires requiring either a continuing resolution or appropriation legislation; next phase of budget sequester kicks in (House and Senate Budget Committees passed fiscal year 2016 budget proposals on March 19; the proposals boost military spending above sequestration caps)
- December 31 Tax extenders — latest date for renewal for calendar year 2015
- Late 2016 Social Security Disability Insurance Trust Fund becomes insolvent

Other fiscal issues under consideration include tax reform, European and Pacific trade promotion authority, Federal Reserve audit, immigration, and energy policy reform. These and other issues will be considered by Congress and may result in legislation.

Some expect some type of tax reform — probably corporate — to be enacted and signed into law in late 2015 or some time in 2016. Also, there is optimism that a fiscal year budget resolution will be passed without resorting to a continuing resolution. But, there is some talk about using the budget reconciliation legislative process to deal with other matters such as Dodd-Frank Act reform and Affordable Care Act issues.

CBO updated its ten-year budget deficit projections in March but did not revise other economic forecast assumptions. CBO increased its deficit projection for fiscal year 2015 by \$18 billion to \$486 billion, primarily because of changed assumptions for student loans, Medicare, and Medicaid. Deficits for 2016 through 2025 were reduced by \$431 billion due to lower Affordable Care Act subsidy assumptions, lower Medicaid spending and higher tax revenues related to lower health insurance premium assumptions.

Public concern about deficits has been waning which has opened the door to some budget deals that don’t have matching funding offsets. This is likely to be the case for the doc fix and higher defense spending and may be the case when tax extenders come up for extension at the end of the year.

VIII. APPENDIX: Outlook — 2015 and Beyond — Forecast Summary for the U.S. and the Rest of the World, Highlights of Key Issues, and Identification of Risks

Observations about the 2015 U.S. and global economic outlook and risks to the outlook were contained in the *December 2014 Longbrake Letter* and are included below without any changes. As events unfold during 2015, this will enable the reader to track my analytical prowess. Current assessments follow each item with the following identifiers: “+” tracking forecast; “-” not tracking forecast; “?” too soon to know. *Forecast assessment will begin with the March 2015 Longbrake Letter.*

1. U.S.

- **2015 real GDP Y/Y** growth projections range from 2.7% to 3.5%. The FOMC’s central tendency Q4/Q4 projections range from 2.6% to 3.0%. (Q4/Q4 projections are highly dependent upon potential anomalies in Q4 data; therefore, Y/Y estimates, which average all four quarters, are more stable estimates.) Because the substantial decline in oil prices is likely to boost consumption growth more than it depresses investment growth, actual 2015 real GDP growth is likely to be at the high end of the forecast range.
- ✓ - *The Federal Reserve lowered its GDP forecast range to 2.3% to 2.7%;*
- ✓ ? *Other forecasts remain in the middle of the range: GS = 2.9%; B of A = 3.1%; Bill’s Steady scenario = 2.8%; Bill’s Strong scenario = 3.0%*
- **Real GDP output gap** will remain high, but will close rapidly during 2015 from about 3.4% to 2.0%. (The exact size of the output gap will be revised by CBO, probably in February 2015).
- ✓ + *CBO revised the output gap down by 1.1 percentage points in February; output gap should decline to between 1.2% and 0.9% by the end of 2015*
- **Potential structural rate of real GDP growth** has declined significantly in recent years. I expect potential growth to be about 2.0% in 2014. Long-term potential real GDP growth will edge up in coming years to between 2.0% and 2.3%.
- ✓ + *CBO reduced 2015 potential growth from 1.8% to 1.7%*
- ✓ - *Potential growth for my scenarios for 2015 is 1.4%*
- ✓ + *Long-run potential growth for my scenarios is between 2.0% and 2.2%; it is between 2.0% and 2.3% for the Federal Reserve; and it is 2.1% for CBO*
- **Productivity** should rise during 2015 as growth improves and investment increases, but should still fall well short of the historical 2.1% average.
- ✓ ? *No 2015 data yet available; nonfarm productivity declined 0.1% in 2014, so it won’t be hard to meet this forecast*
- **Employment** growth should slow during 2015 as full employment approaches and grow about 185,000 per month.
- ✓ - *Payroll growth has averaged 267,000 over the first two months of 2015*
- **Employment participation** will rise slightly during 2015 as the unemployment rate falls, labor market conditions tighten and discouraged workers find jobs. These cyclical factors will more than offset the downward pressure on the participation rate stemming from an aging population.
- ✓ + *The participation ratio has risen from 62.7% in December to 62.8% in February*
- **Unemployment rate** should edge down to about 5.25%. A higher rate could occur if substantial numbers of discouraged workers re-enter the labor force.

- ✓ + *The unemployment rate has fallen from 5.56% in December to 5.54% in February*
- **Nominal consumer disposable income**, measured on a Y/Y basis will rise about 3.2% (roughly 1.2% increase in hours worked; 1.8% increase in CPI inflation and .2% increase in the hourly wage rate).
- ✓ ? *Only one month of data available; 12-month rate of change is 4.4% through January*
- **Nominal consumer spending growth** on the Y/Y basis will grow slightly faster at approximately 3.5%, but could grow slightly faster if low oil prices persist.
- ✓ ? *Only one month of data available; 12-month rate of change is 3.8% through January*
- **Household personal saving rate** will decline slightly as growth in spending exceeds growth in disposable income.
- ✓ ? *Only one month of data available; saving rate was 5.5% in January, compared to 4.9% in 2014 and benefited from the substantial price decline in energy products*
- **Stock prices**, as measured by the S&P 500 average, should rise between 0% and 5%.
- ✓ + *Through March 20th, stock prices were up 2.4%*
- **Manufacturing** growth will continue to be relatively strong and the PMI index will exceed 50.
- ✓ + *The ISM manufacturing index has softened since the beginning of the year but was still at an expansionary level of 52.9 in February*
- **Business investment** spending growth should remain relatively strong in a range of 4% to 6% as employment and consumer spending growth gathering momentum; however, low oil prices will depress energy investment.
- ✓ ? *Data not yet available for 2015; Q1 investment growth expected to be weak between an annual rate of 2% and 3%*
- **Residential housing investment** should improve over 2014's disappointing level by 8% to 10%; residential housing starts should rise 15% to 20%.
- ✓ ? *Data not yet available for 2015; Q1 investment growth expected to be very weak between an annual rate of -1% and +3%*
- ✓ - *Over the first two months of 2015 housing starts were 1.2% below the 2014 level, perhaps due to bad weather nationally in February*
- **Residential housing prices** should rise about 2% to 4% in 2015, more slowly than 2014's projected 4.5% increase.
- ✓ ? *Housing price data for 2015 not yet available; housing prices rose 6.4% in 2014 according to the Federal Housing Finance Agency and 6.6% according to the S&P Case/Shiller Index*
- **Trade deficit** should be slightly higher in 2015 as economic growth improves growth in imports and the rising value of the dollar depresses growth in exports. The **dollar's value** on a trade-weighted basis should continue to rise.
- ✓ ? *The trade deficit for goods was relatively unchanged from December to January*
- ✓ + *The trade weighted value of the dollar rose 5.9% from December through February and is 15.8% higher than February 2014*
- **Monetary policy** — the Federal Reserve will raise the federal funds rate at its June, or possibly, September 2015 meeting. Because inflation is likely to continue to fall short of the Federal Reserve's expectations, the pace of increases in the federal funds rate is likely to be slow.

- ✓ + *Most expect the first increase in the Federal Funds rate to occur in September; FOMC members lowered projections for the level of the Federal Funds rate in the future*
- **Total inflation** measures (CPI and CPE) will fall sharply during the first half of 2015, reflecting the significant decline in oil prices. **Core PCE inflation** will be stable to slightly lower in a range of 1.3% to 1.5%, reflecting global disinflationary trends. Core PCE inflation will remain well below the FOMC's 2% objective at least through 2017.
- ✓ + *The total CPE was up 0.2% in January compared to January 2014 and is projected to continue declining to -1.1% by June and -0.1% by December*
- ✓ + *The annual rate of change in core PCE was 1.3% in January and should dip to 1.1% by June before ending the year at 1.3%; however, an even lower rate of increase is more likely than a higher rate*
- **Federal funds rate** is not likely to increase before mid-2015 and might not increase at all in 2015 if growth is less than expected and core inflation declines more than expected. The pace of increases is likely to be slow.
- ✓ ? *The 10-year Treasury rate was 1.93% on March 20th; because of low rates globally and aggressive quantitative easing by the European Central Bank and the Bank of Japan, the 10-year Treasury rate is likely to remain near the lower end of the 2.0% to 3.0% range during 2015*
- The **10-year Treasury rate** is likely to fluctuate in a range between 2.0% and 3.0% in 2015. Faster than expected real GDP employment growth will push the rate toward the top end of the range; greater than expected declines in inflation and/or heightened financial instability will push the rate toward the bottom end of the range.
- ✓ ? *The 2015 fiscal year deficit is on track to match 2014's deficit of 2.75% based on a recent small increase in CBO's estimate of the expected 2015 deficit*
- **Fiscal policy** will have limited impact on real GDP growth during both fiscal year and calendar year 2015. The deficit as a percentage of nominal GDP will probably decline from fiscal year 2014's level of 2.75% to 2.50%. The decline could be greater if economic growth and tax revenues exceed expectations or less if Congress increases spending without offsets as it did in approving the tax extenders bill for 2014.
- **State and Local investment** spending growth rises slightly from 0.5% in 2014 to 1.0% in 2015, which is still well below the long-term average of approximately 1.4%.
- ✓ ? *No data will be available until Q1 GDP data are released at the end of April*

2. Rest of the World

- **Global growth** is likely to improve to 3.7% in 2015 from 3.2% in 2014. Risks are tilted to the upside because of the substantial decline in oil prices.
- ✓ - *Global growth forecast has been lowered to 3.5%*
- **European growth** will be positive but will likely fall short of the consensus 1.2%.
- ✓ - *Europe's growth forecast has been raised to 1.5%*
- **European inflation** will continue to decline and may even turn into outright deflation. Quantitative easing, assuming it occurs, may be too late and have too limited an impact to deflect emerging deflationary expectations. Europe may well be headed to the kind of deflationary trap Japan has been in for the last 20 years.
- ✓ + *Consumer prices in Europe are expected to decline -0.2% during 2015*

- **European financial markets** may face renewed turmoil. Markets expect the ECB to begin purchasing large amounts of securities, including sovereign debt, by March. This presumes that legal hurdles and German opposition will be overcome. Assuming that quantitative easing actually occurs, its impact is likely to disappoint.
 - ✓ ? *The ECB has embarked upon a massive quantitative easing program; markets remain quiet and interest rates continue to plunge to near zero levels across the yield curve; it is much too early to determine whether quantitative easing will lead to a sustained improvement in growth*
 - **European political dysfunction, populism and nationalism** will continue to worsen gradually. Countries to watch include the U.K., Greece, Spain, Italy and Portugal.
 - ✓ + *Centrists lost the Greek election; the National Front party is gaining ground in France; centrist parties are likely to lose the Spanish elections scheduled for late 2015; the UK parliament could be hung after the May elections*
 - **U.K. growth** is expected to slow from 3.0% in 2014 to 2.6% in 2015; however, political turmoil should the May parliamentary elections be inconclusive could drive growth lower.
 - ✓ ? *It will not be clear until much later in the year whether prospective political turmoil results in lower growth*
 - **China's GDP growth** will slow below 7% and gradually moved toward 6% as economic reforms are implemented and the shift to a consumer-focused economy gathers momentum.
 - ✓ + *Chinese leadership has lowered the 2015 GDP growth goal to 7.0%, but this will be difficult to achieve*
 - **China's leadership** will focus on implementing **economic reforms** and will overcome resistance and maintain stability.
 - ✓ + *Chinese reform policies are being implemented slowly; the anti-corruption campaign continues and has had a chilling impact on speculation in commodities*
 - **Japan's** economic policies may be successful in defeating deflation, but GDP growth will be hard pressed to achieve the expected 1.6% rate in 2015 if Abenomics' third arrow of economic reforms fails to raise the level of potential growth sufficiently to overcome the effect of negative population growth on labor force growth.
 - ✓ + *Japanese expected growth has been lowered to 1.3%; the Bank of Japan is likely to fall short of its goal to raise inflation to 2.0% inflation expectations currently are about 1.0%*
 - **India** should experience an improvement in real GDP growth to 6.3% in 2015.
 - ✓ ? *Too early to determine*
 - **Emerging market countries** that are energy consumers will experience greater growth, as long as the U.S. does better in 2015; energy producing countries and those heavily dependent upon commodities exports for growth will do less well.
 - ✓ ? *Too early to determine*
3. **Risks** — stated in the negative, but each risk could go in a positive direction.
- **U.S. potential real GDP growth** falls short of expectations
 - ✓ + *Preliminary data for Q1 suggest this risk will be realized*
 - **U.S. employment growth** is slower than expected; the **participation rate** is stable or declines rather than rising modestly
 - ✓ - *This risk is not materializing; employment growth has exceeded expectations through the first two months of 2015*

- **U.S. hourly wage rate growth** does not rise materially over its 2014 level of 2.1%
- ✓ + *Through February this risk is being realized — wage growth remains unchanged at 2.1%*
- **US. Unemployment rate** falls less than expected
- ✓ - *Data for January and February suggest that the unemployment rate may fall more than expected*
- **U.S. productivity** remains low in the vicinity of 1%
- ✓ ? *No data available until late April*
- **Real U.S. consumer income and spending** increase less than expected
- ✓ - *Data for January suggest that consumer disposable income and spending may rise more than expected*
- **U.S. financial asset prices** rise more than expected posing increased bubble risks
- ✓ + *Bond prices have risen much more than expected*
- ✓ - *The increase in stock prices is within the expected range so far*
- **Growth in U.S. residential housing investment and housing starts** is less than expected
- ✓ + *Housing starts and residential investment are well below expectations, but may recover later in the year*
- **U.S. residential housing price increases** slow more than expected
- ✓ - *Preliminary evidence suggests that home prices may rise more than expected*
- **U.S. private business investment** does not improve as much as expected
- ✓ ? *Too early to tell; data will be released in late April*
- **Oil price declines** in the U.S. trigger bankruptcies and cause tight financial conditions with negative implications for economic activity and growth
- ✓ - *There is no evidence yet of significant disruptions stemming from the fall in oil prices*
- **U.S. manufacturing growth** slows as the value of the dollar rises and global growth slows
- ✓ ? *ISM manufacturing index remains above 50 but is softening*
- **U.S. trade deficit** widens and the **value of the dollar** rises more than expected
- ✓ + *The value of the dollar has risen more than expected*
- ✓ - *The trade deficit did not worsen in January*
- **U.S. monetary policy** spawns financial market uncertainty and contributes to financial instability
- ✓ - *Volatility has increased somewhat but there is no indication of financial instability*
- **U.S. inflation** falls, rather than rising, and threatens deflation
- ✓ ? *Total PCE inflation is falling, but core PCE inflation is relatively stable and positive; deflation is not yet a threat*
- **U.S. interest rates** fall or rise more than expected
- ✓ + *Interest rates have fallen more than expected*
- **U.S. fiscal policy** is more restrictive than expected and the **budget deficit** falls more than expected
- ✓ - *This risk has not materialized*
- **U.S. state and local spending** does not rise as fast as expected
- ✓ ? *Too early to tell; data will not be available until late April*

- **Global GDP growth** does not rise as fast as expected
- ✓ + *The global GDP growth forecast has been reduced from 3.7% to 3.5%*
- **Europe** slips back into recession
- ✓ - *Growth is improving in Europe because of the decline in the value of the euro, easier financial conditions, and less fiscal drag*
- **ECB** does not engage in quantitative easing or the quantitative easing program it decides to pursue lacks market credibility
- ✓ - *This risk will not materialize because the ECB has initiated a massive quantitative easing program*
- **Europe** — financial market turmoil reemerges
- ✓ - *This risk has not materialized*
- **Europe** — political instability and social unrest rises more than expected threatening survival of the Eurozone and the European Union
- ✓ ? *Political fragmentation is building slowly but does not yet threaten the survival of the Eurozone and the European Union*
- **Acute political turmoil** engulfs the **U.K.**
- ✓ ? *This risk will remain unclear until after the May parliamentary elections*
- **Chinese** leaders have difficulty implementing **economic reforms**
- ✓ - *This risk has not materialized*
- **China's growth** slows more than expected
- ✓ ? *Growth has slowed somewhat and incoming data suggest it may slow even more*
- **Japan** — markets lose faith in Abenomics
- ✓ - *This risk has not materialized*
- Severe and, of course, unexpected **natural disasters** occur, which negatively impact global growth
- ✓ - *This risk has not materialized*

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