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Sivon &
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ATTORNEYS at LAW
WASHINGTON, DC

The Longbrake Letter*

Bill Longbrake

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I. Introduction

Traders come back from the holidays in a distinctly bearish mood. Since the beginning of 2016, the S&P 500 has declined 8.2 percent and at one point was down 9.0 percent. Stocks are down 11.9 percent from their all-time high reached on May 21, 2015. This decline is not yet large enough to qualify officially as a bear market. The rule of thumb is a decline of at least 20 percent. However, it feels more like the start of a bear market than a correction.

Several developments have emerged more or less at about the same time and have spooked the markets. In the U.S., fourth quarter real GDP growth is on track to be exceptionally weak with forecasts ranging between just 1.0 percent and 0.1 percent.

- Commodity prices, and in particular oil prices, after having appeared to stabilize at a very low level, dropped precipitously once again as the new year got underway. Oil prices so far in January are down 15.1 percent from the December average and 26.4 percent from the November average.
- Perhaps a precursor of things to come, the 4-week average of unemployment claims have been inching up gradually over the last couple of months.
- Bond credit spreads have risen, especially in the energy and manufacturing sectors. Financial conditions have tightened significantly.
- U.S. corporate profits are showing signs of contracting which is reducing the rate of return.
- At the same time the Federal Reserve has begun to raise the cost of money with the consequence that the spread between the return on capital and the cost of capital is narrowing.

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- Capital is flowing out of many emerging markets in near panic fashion and this is pushing up the value of the dollar.
- China once again surprised the markets with an unexpected devaluation of the renminbi; in addition, the slowdown in the Chinese manufacturing sector has triggered renewed worries about the global consequence of slower growth in the Chinese economy.
- Terrorism and the political fallout from the huge increase in immigrants from Africa and the Middle East have cast a negative pall over the good news of modestly improved growth in the European Union.

Here is the question. Are these developments the forerunner of worse to come, including a U.S. recession? Or, is the market overreacting to “temporary” shocks?

After all, the market went through a similar, but short-lived anxiety attack in late summer. So, perhaps this is just another overreaction that will soon dissipate. But, perhaps it is not.

Prior to the recent market turmoil, most forecasters sketched out relatively upbeat, albeit modest, forecasts for 2016. Already there have been some downward revisions to those forecasts, which acknowledge that the market sell-off has imposed some damage on economic prospects.

In this month’s letter I explore the questions posed above. Of course, as time passes we’ll know the answers. But, from the vantage point of the present it’s difficult to discern where the U.S. and global economies are headed and just how fragile global financial markets really are. Part of the difficulty in assessing prospects has to do with the unprecedented intervention of central banks in all major developed economies in engaging in quantitative easing and forcing down interest rates. There is absolutely no historical experience to draw from. Academic theories are supportive of the policies that have been undertaken. But, the theories may turn out to be deeply flawed or flat out misguided. It’s a huge bet, so the consequences could be quite dire if the bet turns sour.

II. 2015 — How Well Did Forecasters Do?

Repeating a pattern that has persisted through the recovery from the Great Recession, 2015 forecasts of real GDP growth proved to be too optimistic. Indeed, this the 13th time in 16 years that the consensus forecast has been too optimistic. This time the forecasting miss stemmed from manufacturing and reduced exports because of a stronger dollar and a pullback in energy-related capital investment because of the collapse in oil and commodity prices.

Another forecasting miss in 2015 stemmed directly from the weaker than expected growth. Instead of beginning to raise interest rates in June, as originally expected, the Federal Open Market Committee (FOMC) did not make the first move until December. In addition, the 10-year Treasury yield finished the year essentially unchanged, moving up only 10 basis points from 2.17 percent to 2.27 percent. Forecasters had expected the 10-year Treasury yield to rise to 3.0 percent. So far in 2016, this rate has fallen 24 basis points to 2.03 percent. Although 2016 is young and much time remains, odds favor this rate remaining

very close to 2.0 percent throughout the year, which would entail yet another forecasting miss. In fact, the balance of risks right now is pointing toward further declines rather than increases in this rate.

For the third year in a row the consensus forecast for PCE inflation proved to be too high. The continued decline in commodity prices and the stronger U.S. dollar were responsible for overshoot of the forecast for total inflation, but the forecast for core PCE inflation was also too high. It should be noted that the forecast for CPI inflation was about right, but that was because unexpected strength in housing rents compensated for shortfalls in other categories.

Notwithstanding persistent low realized inflation, survey measures of inflation expectations remain well-anchored. However, market-based measures of inflation expectations are beginning to erode. Because expectations drive behaviors, a decline in inflation expectations would contribute to entrenching recent low inflation levels and possibly give impetus to further declines.

On the opposite end of the spectrum, the consensus forecast for the unemployment rate turned out to be too pessimistic. Consistent with this miss, employment growth was stronger than expected. These developments forced everyone to recalibrate unemployment rate forecasts. But since real GDP growth was weak, inflation undershot, and acceleration in wage growth was barely discernible, most concluded that the non-accelerating inflation rate of unemployment (NAIRU) must be considerably lower than the historical average of 5.0 percent.

Forecasting misses for real GDP growth and the unemployment rate should be in the same direction. The fact that the misses were in opposition poses a paradox. The answer to the paradox is that productivity has collapsed . . . another forecasting miss. There has been a good of head scratching about the causes of the decline in productivity; however, the answer may lie in secular stagnation and recent monetary policy.

Forecasters did get a few things right. Consumer spending, housing investment, and government spending were generally in line with consensus forecasts.

Slowly but surely forecasters as a group are catching on that potential real GDP growth has fallen to a lower level. However, there appears to be grudging acceptance of this development. While many forecasters now believe long-run potential real GDP growth in the U.S. is in a range of 1.8 to 2.2 percent, the consensus has moved down only to a range of 2.25 to 2.5 percent.

III. Outlook for 2016

Forecasters, with few exceptions, expect the U.S. economy to continue its gradual improvement during 2016. Risks to the outlook, however, are skewed to the downside and include the potential for a stronger dollar, tighter financial conditions, and adverse feedbacks from the decline in oil prices, slower growth in China, and financial market and policy challenges in emerging economies.

1. GDP

Entering 2016, real GDP growth forecasts are tightly clustered between 2.1 and 2.4 percent on a year-over-year basis. Because potential real GDP growth is lower, the output gap is expected to continue to close slowly. CBO expects potential real GDP growth to rise from 1.66 percent in 2015 to 1.83 percent in 2016. I expect potential real GDP to be much lower because my estimate of stable productivity is substantially less than CBO's estimate. Thus, my estimate of the GDP output gap closes more quickly, but unfortunately for the wrong reasons. Forecast real GDP growth would be stronger in 2016 were it not for the strong dollar and negative contribution of trade in the vicinity of 75 basis points. **Table 1** shows real GDP growth forecasts for 2016.

Table 1
2016 Real GDP Forecasts

Forecaster	Year Over Year	Q4 to Q4
Goldman Sachs	2.13%	2.30%
B of A/Merrill Lynch	2.08%	2.32%
J.P. Morgan	2.30%	2.30%
FOMC		2.3-2.5%
Bill - "Steady Growth"	2.26%	2.19%
Bill - "Strong Growth"	2.41%	2.4%

2. Employment

Forecasters generally expect the U.S. economy to be at full employment by the end of 2016. BLS's U-3 unemployment rate is already signaling full employment based on CBO's estimate of the long-term natural structural rate of unemployment. However, as 2016 commences, long-term unemployment is still slightly elevated compared to periods of full employment in the past and CBO believes that the employment participation rate is still depressed modestly from the level that would prevail at full employment.

Payroll employment growth averaged 221,000 monthly in 2015 compared to 260,000 monthly in 2014. However, the monthly growth rate of those in the labor force (sum of those working and the U-3 measure of unemployed persons) was 141,000 in 2015 and 88,000 in 2014. Because monthly estimates of the labor force have large sampling errors, the two-year average of 115,000 is a better measure of the underlying growth trend. Based on demographic trends, employment growth should slow gradually from the recent trend level of 115,000 monthly to about 75,000 by 2018.

Table 2 shows forecasts by the end of 2016 for the U-3 unemployment rate. For comparative purposes, the December 2015 U-3 unemployment rate was 5.01 percent. My estimates of the unemployment rate are higher than others because of a slightly higher participation rate.

Table 2
2016 U-3 Unemployment Rate Forecast

Forecaster	2016
Goldman Sachs	4.6%
B of A/Merrill Lynch	4.5%
J.P. Morgan	4.5%
FOMC	4.6-4.8%
Bill - "Steady Growth"	4.9%
Bill - "Strong Growth"	4.9%

Note the all forecasts expect the U-3 unemployment rate to drop below CBO's estimate of the natural structural rate of unemployment. If CBO's estimate is on the mark, this should lead to pressures to increase wages. However, there is debate that structural changes in the labor market might well have reduced the level of the natural structural rate of unemployment, perhaps to as low as 4.5 percent. If that turns out to be the case, then there would be less upward pressure on wages. The debate will continue without resolution until additional time has passed and new wage data is received and analyzed.

3. Consumer Spending

GS expects real housing investment spending to rise 2.4 percent in 2016. **B of A** is forecasting a 2.4 percent increase and **J.P. Morgan** expects a 2.6 percent increase. I forecast 2.3 percent growth in my "**Steady Growth**" scenario and 2.4 percent in my "**Strong Growth**" scenario. See **Table 3**.

Table 3
2016 Forecasts (Year Over Year)

Forecaster	Consumer Spending	Housing Investment	Business Investment	Government Spending
Goldman Sachs	2.4%	8.7%	3.6%	2.38%
B of A/Merrill Lynch	2.4%	8.2%	3.0%	1.27%
J.P. Morgan	2.6%	6.5%	4.3%	1.20%
Bill - "Steady Growth"	2.3%		3.0%	1.25%
Bill - "Strong Growth"	2.4%		3.4%	1.43%

4. Investment — Housing

GS expects real housing investment spending to rise 8.7 percent in 2016. **B of A** is forecasting a 8.2 percent increase and J.P. Morgan expects a 6.5 percent increase. **See Table 3.**

5. Investment — Business

GS expects real business investment spending to rise 3.6 percent in 2016. **B of A** is forecasting a 3.0 percent increase and J.P. Morgan expects a 4.3 percent increase. **See Table 3.**

I prepare only a combined forecast for housing and business investment. I forecast 3.0 percent growth in my “**Steady Growth**” scenario and 3.4 percent in my “**Strong Growth**” scenario. The corresponding forecasts are 4.6 percent for **GS**, 4.0 percent for **B of A**, and 4.7 percent for **J.P. Morgan**. Obviously, I am more pessimistic about investment growth than other forecasters. However, in recent years my pessimism has been validated by actual experience.

6. Government Spending

Thanks to congressional action in late 2015 on the budget and tax extenders, federal spending will increase during 2016 and should add about 30 basis points to real GDP growth.

GS expects government spending to rise 2.38 percent in 2016. **B of A** is forecasting a 1.27 percent increase and **J.P. Morgan** expects a 1.20 percent increase. I forecast 1.25 percent growth in my “**Steady Growth**” scenario and 1.43 percent in my “**Strong Growth**” scenario. **See Table 3.** **GS’s** forecast stands out as the anomaly, but may be more accurate because it includes increased spending that resulted from last year’s congressional action.

7. Wage Inflation

GS expects average hourly wages will rise 2.6 percent year-over-year in 2016. My estimate is a well-below consensus 1.8 percent. While there is reason for skepticism about my low estimate, **GS’s** 2.6 percent increase is not particularly large compared to the 2.2 percent increase in 2015 for all employees and the 2.1 percent increase in wages and salaries in the employment cost index.

8. Price Inflation — Core CPE

Most forecasters expect core CPE inflation to rise modestly in 2016 from 1.4 percent in 2015. **See Table 4.** Forecasts are tightly clustered around 1.6 percent except for mine. I expect the strong dollar to have a greater negative impact. Generally, the small increase others expect has to do primarily with the playing out of “temporary” downward pressure on health care prices, which would add back about 15 basis points to the core inflation rate. We shall see what transpires — I have greater conviction about my core PCE inflation forecast than I do for my hourly wage rate increase forecast.

Table 4
2016 Core PCE Inflation

Forecaster	2016
Goldman Sachs	1.6%
B of A/Merrill Lynch	1.6%
J.P. Morgan	1.6%
FOMC	1.5-1.7%
Bill - “Steady Growth”	1.2%
Bill - “Strong Growth”	1.2%

J.P. Morgan discusses the role of inflation expectations in its outlook and observes that the risk to its forecast is tilted in the downward direction if inflation expectations “...fail to exert the upward pull that it [the forecasting model] expects.”

9. Interest Rates

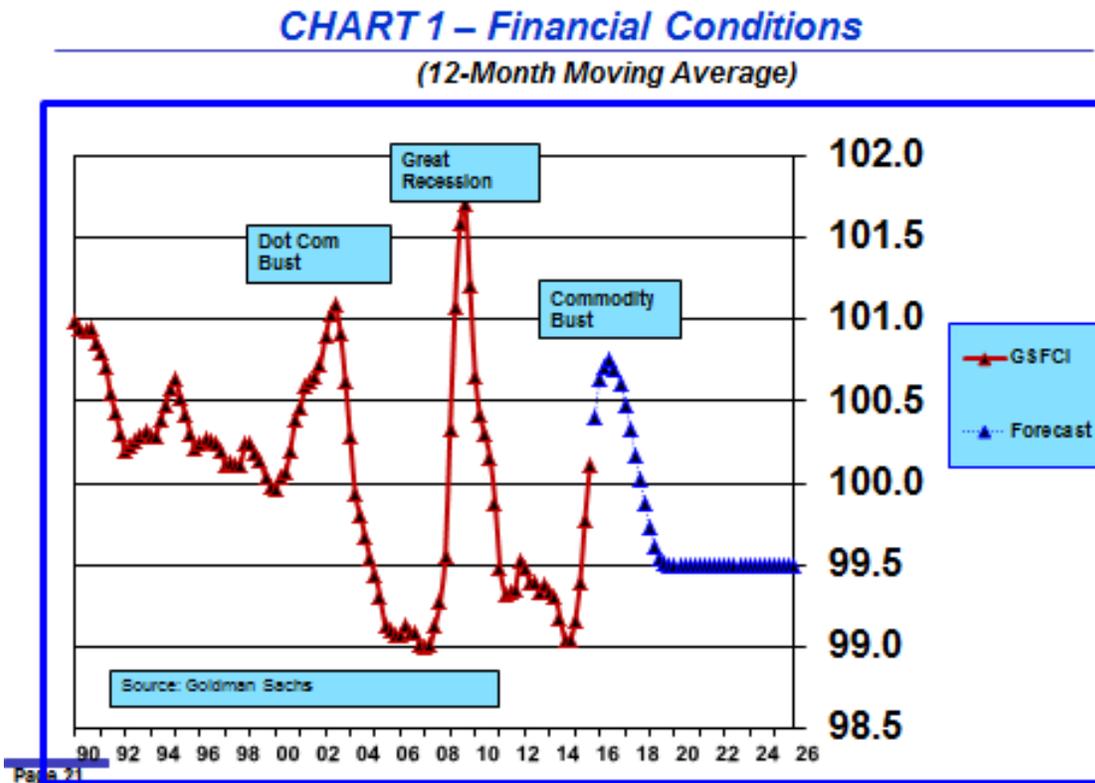
As in past years, virtually all forecasters expect long-term rates to rise during 2016 as the economy continues to firm. **Table 5** includes forecasts from **GS** and **B of A**, as well as my own estimates.

Table 5
Forecasts/Projections of Federal Funds and 10-Year Treasury in the Fourth Quarter of 2016

Forecaster	Federal Funds	10-Year Treasury
Goldman Sachs	1.38%	3.00%
B of A/Merrill Lynch	1.13%	2.65%
J.P. Morgan	1.38%	
FOMC	1.29%	
Bill - “Steady Growth”	.20%	2.20% - 3.22%
Bill - “Strong Growth”	.23%	2.24% - 3.27%

My estimates are presented in a range and require a bit of explanation. My econometric analysis indicates that financial conditions have a powerful impact on interest rates — both short-term and long-term. Moreover, the effect is in the expected direction. When financial conditions tighten, interest rates rise and when they loosen rates fall. I use **GS’s** financial conditions index in my econometric model. **Chart 1** shows how this index has oscillated over time. Note the two peaks that occurred at the times of

the dot com bust and the Great Recession. The index is rising again and the December value was 100.77, which if it continues for another few months, will result in another peak nearly as great as the one that occurred during the dot com bust.

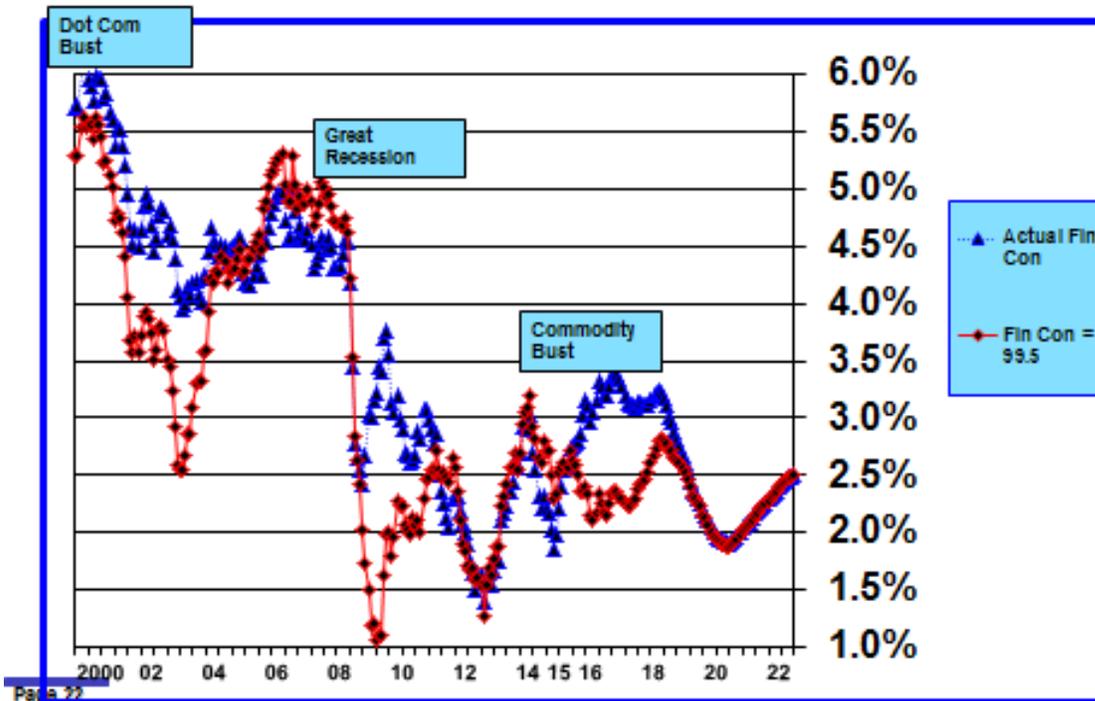


Changes in financial conditions have a very powerful impact on interest rates. A one point move in the index, say from 99 to 100, lifts the effective federal funds rate by 101 basis points with an average lag of 21 months and the 10-year Treasury rate by 85 basis points with an average lag of 9 months. This relationship indicates that recent tightening in financial conditions has had the effect of raising the implied federal funds rate by 100 to 150 basis points compared to the FOMC's actual increase of just 25 basis points.

My projection of the 10-year Treasury rate at the end of 2016 is 3.2 to 3.3 percent, if financial conditions remain tight, but just 2.2 percent if financial conditions are a level of 99.5.

Chart 2 shows the 10-year rate for two scenarios — actual financial conditions index and an alternative in which the financial conditions index is held constant at 99.5. Forecast values for both alternatives are shown from 2016-22. The blue triangles indicate what the forecast 10-year yield should be if financial conditions are high but gradually ease to 99.5. It shows the 10-year peaking near 3.5 percent in 2017. However, if financial conditions are stable at 99.5 the 10-year yield ranges only between 2.0 and 2.75 percent over the next several years and indicated in **Table 5**, would be approximately 2.2 percent by the end of 2016 ... not much change from the current level.

Powerful global deflationary forces are at work. I believe the downward impact of these forces will

CHART 2 – 10-Year Treasury Yield

overwhelm the upward pressures of tighter financial conditions on interest rates. Thus, interest rates should remain low for the foreseeable future. This also has implications for monetary policy, which is discussed in the next section.

10. Impact of Financial Conditions on Growth

Tighter financial conditions and the recent stock market decline will have several negative impacts on economic activity in coming months.

First, the negative wealth impact of the stock market decline will depress consumer spending over time. In addition, the market decline could depress consumer confidence, which would depress consumer spending by all consumers, not just those directly affected by declining wealth. A 20 percent decline in the stock market by March, which holds at that level for the remainder of 2016, and then returns to the long-term trend level during 2017, would reduce real consumer spending by approximately 0.6 percent during 2016. Because consumer spending accounts for approximately 70 percent of GDP, that means that real GDP would decline 0.4 percent during 2016. **GS** estimates a negative impact of approximately 0.3 percent on real GDP given a 20 percent decline in stock prices; however, **GS** has included a small offset due to rising home prices in its estimate.

Tighter financial conditions are also helping push up the value of the dollar which will have negative impacts on exports and inflation. The trade-weighted value of the dollar rose about 1.5 percent during the

first half of January.

Tighter financial conditions are an indicator of difficulties in credit markets. The cost of credit rises and its availability decreases. As underwriting tightens it becomes more difficult to obtain financing and marginal projects are shelved. This weighs on investment growth. Similarly, as the cost of borrowing rises, the spread between the expected return on investment and the cost of capital narrows and this drives out both marginal projects and those whose expected returns are highly uncertain. Real GDP growth is slowed by a decline in investment activity.

11. Forecast Risks

It should be clear that the recent market turmoil is already having negative impacts on economic activity. If the turmoil turns out not to be transitory, as was the case for last summer's growth scare, it is highly likely that many of the forecasts for 2016 summarized above will miss their mark in the negative direction. Just about every economic activity indicator could well end the year below expected levels, with the exception of government spending.

IV. Monetary Policy — How Many Rate Hikes in 2016?

Now that the FOMC has taken the first step to increase the federal funds rate, the “dot plot,” which records member expectations about the future level of interest rates, provides relatively clear guidance about what FOMC members believe they should do in coming months based on current and expected economic conditions. The “dot plot” indicates that the median expectation of the 17 current FOMC members is an increase in the federal funds rate of 1.0 percent during 2016 to a range of 1.25 to 1.50 percent, which is usually characterized as four 25 basis points increases, probably one each quarter. Of course, not all members agree, so the central tendency, which drops the three highest and three lowest projections, ranges from two to four 25 basis points hikes during 2016. So, although the median is four increases, the skew is to the downside.

For quite some time financial markets have disagreed with the FOMC. The forward yield curve indicates that the market only expects one to two hikes during 2016. In recent days the market's expectations have moved toward the bottom end of this range.

FOMC policy statements have clearly stated that changes in monetary policy are data dependent. This was reinforced recently when the data dependency language was amplified to include both a reference to incoming data as well as expected data. What all of that means is that as economic outcomes and financial market conditions change, the FOMC will respond accordingly. The “dot plot” is not a foreordained pathway. It is simply a projection and a projection that could turn out to be wrong.

Recent events suggest that the collective wisdom of the market embedded in the forward yield curve may turn out to be a much better forecast of what happens to the federal funds rate during 2016 than the FOMC's “dot plot.”

Notwithstanding the market's signals, most forecasters entered the year generally endorsing the FOMC

projections with a fairly tight range of three to four expected hikes during 2016. My econometric model has never validated this outlook. It has consistently forecast a much shallower and slower increase in the federal funds rate. Currently, my model indicates that there will be no increases in the federal funds rate during 2016.

Of course, debate will continue and much ink will be spilled. But, I think it is safe to say that there is a consensus that there will be no more than four rate hikes to a range of 1.25 to 1.50 percent by the end of the year. Furthermore, risks are tilted to the downside, so fewer increases or no increase at all is entirely possible.

V. Federal Budget — Trouble Ahead

The Congressional Budget Office (CBO) recently released a summary of its ten-year federal budget outlook. With last year's budget busting congressional legislation and less optimistic economic assumptions, the federal deficit now is projected to grow more rapidly than nominal GDP on an accelerating basis over time. The direct consequence is that the ratio of public debt to GDP is now forecast to move higher from its already high level.

CBO will release full details of its revised economic assumptions in a few days which will enable me to update certain parts of my econometric model. For one thing I expect CBO to revise down potential GDP. This should reduce the size of CBO's estimate of the output gap even though it is already clear from the summary that CBO has also reduced its assumption about the rate of growth in actual nominal and real GDP.

Unfortunately, the deficit update makes it painfully clear that slow nominal growth coupled with demographic changes has set the U.S. on a path that will eventually have significant consequences. However, although trouble is clearly ahead it is not imminent. And this probably means that Congress will be in no hurry to deal with the elephant in the room, so the problem will slowly worsen. The elephant in the room, of course, is social safety net transfer programs, and in particular, Medicare and Social Security. It has been clear for a long time that an aging population would put stress on the solvency of these programs. What was not as clear but now is involves a much slower rate of growth in economic output, both in terms of nominal values because of low inflation but also in terms of real growth because of vanishing productivity.

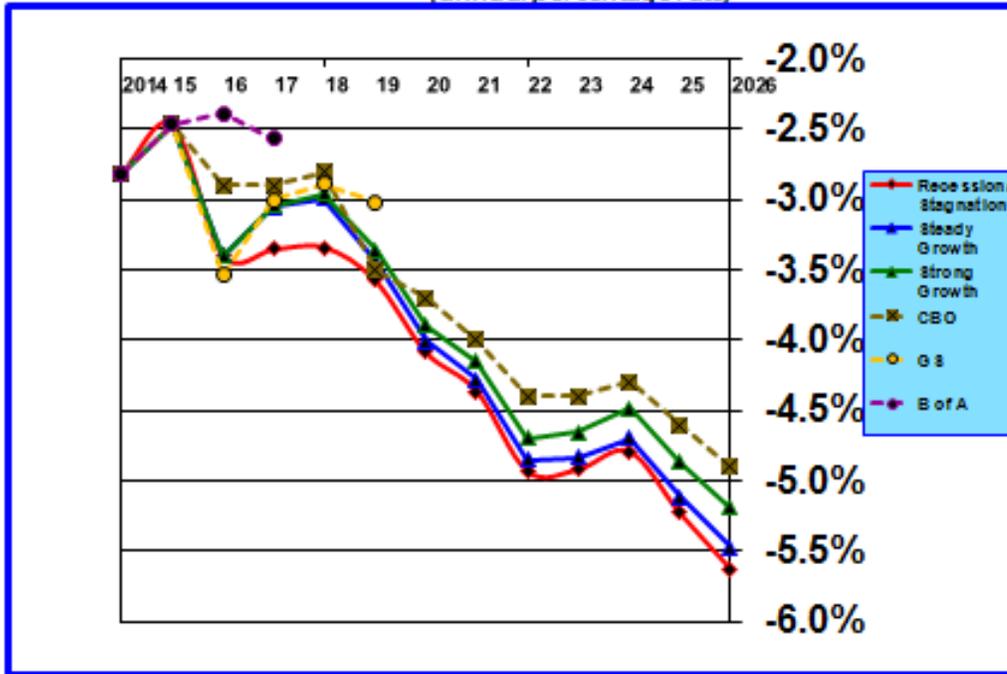
What is new is that Congress added in late 2015 significantly to future deficits with a variety of spending increases and selective cuts in taxes.

Charts 3 and 4 show the bad news. **Chart 3** presents forecasts for the annual budget deficit over the next ten years. It's not a pretty picture. Deficits steadily worsen over time reaching 5 percent of nominal GDP by 2026.

Chart 4 shows how the public-debt-to-nominal-GDP ratio grows over time. My scenarios paint a far worse picture than CBO's forecast, and CBO's is pretty bad. The difference between my scenarios and CBO's forecast is all about growth in nominal GDP because I incorporate CBO's nominal deficit assumptions in my "**Steady Growth**" scenario. The short-fall in nominal GDP in my scenarios is driven primarily by lower inflation and to a lesser extent by smaller productivity gains.

CHART 3 – Federal Budget Deficit

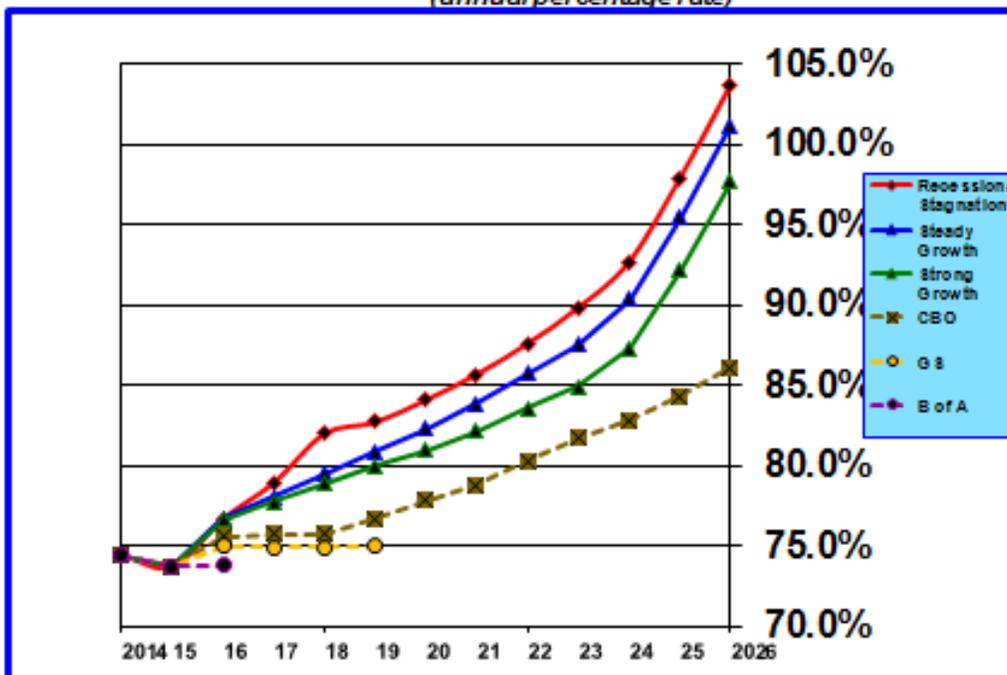
(annual percentage rate)



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CHART 4 – Total Federal Public Debt to Nominal GDP

(annual percentage rate)



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Both the numerator and denominator of the public-debt-to-nominal-GDP ratio are important. Greater deficit spending worsens the outlook. Failure to deal meaningfully, sooner than later, with demographically-stressed entitlement programs worsens the outlook. And, slower inflation and slower real growth in real GDP slows growth in the denominator and worsens the outlook.

Yes, trouble is coming. But, probably little will be done any time soon.

VI. Are We At A Turning Point? Is the Global Growth Scare for Real?

To reminisce, when the unraveling of financial markets started in early 2007 with problems in the sub-prime mortgage market, few at that time foresaw that this was the proverbial tip of the ice berg. The depth of the imbalances that had built up was not understood and policy makers and others confidently predicted that the sub-prime mortgage problems would be contained and resolved without leading to contagion. Of course, we now know just how wrong that belief was.

Could it be that we are in the early stages of a market meltdown that will eliminate excesses and imbalances that built up over the extended period of zero interest rates and aggressive quantitative easing? Will it turn out that administering interest rates to artificially low levels promoted speculative activity which was aided and abetted by abundant cheap debt leverage? If so, the deflationary bust is at hand. Underlying all of this is a global economy in which supply greatly exceeds demand and intended saving exceeds intended investment. We may soon find out that attempts to boost demand through monetary policy only created a speculative bubble and a lot of debt but did not fundamentally rebalance global supply and demand.

Brace yourself for what could be a very turbulent 2016.

APPENDIX

Outlook — 2016 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 2016 U.S. and global economic outlook and risks to the outlook are listed below. Beginning with the **March 2016 Longbrake Letter** I will report actual developments and include short commentary about salient developments.

1. U.S.

- **2016 real GDP Y/Y** growth projections range from 2.3% to 2.5%. The FOMC's central tendency Q4/Q4 projections range from 2.3% to 2.5%. (Q4/Q4 projections are highly dependent upon potential anomalies in Q4 data; therefore, Y/Y estimates, which average all four quarters, usually are more stable estimates.) Risks are tilted to the upside because of the substantial federal tax reductions and spending increases Congress enacted at the end of 2015.
- **Real GDP output gap** will remain high, but will close rapidly during 2016 from about 2.6% to 2.0%. (The exact size of the output gap will be revised by CBO, probably in February 2016; I expect CBO to reduce the size of the gap).
- **Potential structural rate of real GDP growth** has declined significantly in recent years. I expect potential growth to be about 1.4% in 2016. Long-term potential real GDP growth will edge up in coming years to between 1.8% and 2.1%.
- **Productivity** should rise during 2016 as growth improves and investment increases, but should still fall well short of the historical 2.1% average.
- **Employment** growth should slow considerably during 2016 as full employment is reached and slow growth in the labor force becomes binding; payroll growth should average 130,000 to 165,000 per month.
- **Employment participation** will be relatively stable during 2016 as labor market conditions tighten and discouraged workers find jobs, offsetting the demographically-embedded decline stemming from retirements of baby boomers.
- **Unemployment rate** should edge down to between 4.6% and 4.8%.
- **Nominal consumer disposable income**, measured on a Y/Y basis should slow as employment growth slows; this will be offset partially by an increase in average hourly wage rates; growth should be in a range of 2.2% to 2.5%.
- **Nominal consumer spending growth** on the Y/Y basis will be relatively stable in a range of 3.3% to 3.5% at approximately 3.5%.
- **Household personal saving rate** will decline slightly as growth in spending exceeds growth in disposable income.
- **Stock prices**, as measured by the S&P 500 average, should be between 5% higher or lower, reflecting the slowing growth in profits and rising short-term interest rates.
- **Manufacturing** will continue to be weak with the PMI index just slightly above or below 50.
- **Business investment** spending growth should edge down slightly and be in a range of 2.0% to 3.5% as employment and consumer spending growth slows.

- **Residential housing investment** should remain relatively strong in a range of 6% to 8%, but should edge down a bit from 2015's level; housing starts should rise 10% to 15%.
- **Residential housing prices** should rise more slowly in 2016 in a range of 2% to 4% in 2016.
- **Trade deficit** should rise in 2016 as the increase in the value of the dollar continues to depress exports and increase imports. The **dollar's value** on a trade-weighted basis should rise slightly.
- **Monetary policy** — the Federal Reserve will raise the federal funds rate two to three times during 2016 in 25 basis point increments.
- **Total inflation** measures (CPI and CPE) will rebound sharply in 2016 as the depressing effects of 2015's collapse in oil prices passes out of the indices. **Core PCE inflation** will be relatively stable in a range of 1.2% to 1.6%, reflecting global disinflationary trends offset somewhat by the closing U.S. employment and output gaps. Core PCE inflation will remain well below the FOMC's 2% objective at least through 2018 and perhaps much longer.
- The **10-year Treasury rate** is likely to fluctuate in a range between 2.25% and 2.75% in 2016. Faster than expected real GDP and employment growth would push the rate toward the top end of the range; greater than expected declines in inflation and/or heightened financial instability would push the rate toward the bottom end of the range.
- **Fiscal policy** will have a positive impact on real GDP growth during both fiscal year and calendar year 2016, raising real GDP growth by 0.4 to 0.6%. The deficit as a percentage of nominal GDP will increase substantially from fiscal year 2015's level of 2.46% to a range of 3.25% to 3.50%. Stronger than expected growth would push the deficit toward the lower end of the range.
- **State and Local investment** spending growth should range between 1.5% and 2.0%.

2. Rest of the World

- **Global growth** is likely to improve to 3.4% in 2016 from 3.1% in 2014. Risks are tilted to the downside.
- **European growth** will be positive but will likely fall short of the consensus 1.7% as the benefits of 2015's fall in the value of the euro wane and social and political disruptions occur.
- **European inflation** will rise from 2015's 0.1% but will probably fall short of the expected 0.9%.
- **European financial markets** should be relatively stable with periodic episodes of volatility prompted by specific events.
- **European political dysfunction, populism and nationalism** will continue to worsen gradually. Countries to watch closely include Greece, Spain, Italy and Portugal.
- **U.K. growth** is expected to remain a solid 2.5% in 2016 compared to 2.4% in 2015; some risk to this outlook could evolve from the proposed referendum for the U.K. to leave the European Union.
- **China's GDP growth** will slow below 6.5% and could be as low as 6.0% by the end of 2016 as economic reforms are implemented and the shift to a consumer-focused economy gathers momentum.
- **China's leadership** will continue to be slow in implementing **economic reforms** but financial and political stability will be maintained.

- *Japan's* economic policies will continue to fall short of achieving the 2.0% inflation target; inflation is expected to rise from 0.5% in 2015 to 1.0% in 2016. GDP growth will also continue to fall short of the policy target, but should rise from 0.7% in 2015 to 1.2% in 2016. Population decline and slow implementation of market reforms will continue to weigh heavily on both growth and inflation.
 - *India* should continue to experience relatively strong real GDP growth in a range of to 6.0% to 7.0% in 2016.
 - *Emerging market countries* should experience better growth in 2016 than in 2015 when falling prices for commodities depressed economic activity in many countries.
 - *Brazil, Russia, and Venezuela* will continue to struggle the consequences of the steep decline in the prices of commodities and particularly in the price of oil.
3. **Risks** — stated in the negative relative to the forecast.
- *U.S. potential real GDP growth* falls short or exceeds expectations; falling short is the more serious risk
 - *U.S. employment growth* is slower or faster than expected; slower growth is the more serious risk
 - *Employment participation rate* rises rather than remaining stable or falling modestly
 - *U.S. hourly wage rate growth* falls from its 2015 level of 2.2% or rises much more rapidly than expected; falling wage growth is the more serious risk
 - *US. Unemployment rate* falls less than expected
 - *U.S. productivity* remains below 1%
 - *Real U.S. consumer income and spending* increase less or more than expected; less than expected increases are the more serious risks
 - *U.S. stock prices* fall more than or rise more than the expected range of -5% to +5%
 - *Growth in U.S. residential housing investment and housing starts* are less than or more than expected; below expectations is the more serious risk
 - *U.S. residential housing price increases* are less than expected
 - *U.S. private business investment* does not improve as much as or more than expected; falling short of expectations is the more serious risk
 - *Oil price declines* that occurred in 2015 trigger bankruptcies and cause tighter financial conditions with negative implications for economic activity and growth
 - *U.S. manufacturing growth* contracts or expands more than expected; contraction is the more serious risk
 - *U.S. trade deficit* does not widen as expected;
 - *Value of the dollar* rises substantially
 - *U.S. monetary policy* spawns financial market uncertainty and contributes to financial instability
 - *U.S. inflation* falls, rather than remaining stable or rising as expected
 - *U.S. interest rates* fall or rise more than expected

- *U.S. fiscal policy* is more expansionary than expected
- *Federal budget deficit* increases more than expected
- *U.S. state and local spending* does not rise as fast as expected
- *Global GDP growth* does not rise as fast as expected
- *European growth* is considerably less than expected
- *ECB's* quantitative easing program is not successful in raising inflation and stimulating the European economy
- *Europe* — financial market turmoil reemerges
- *Europe* — political instability and social unrest rises more than expected threatening survival of the Eurozone and the European Union
- *Chinese* leaders have difficulty implementing *economic reforms*
- *China's growth* slows more than expected
- *Japan* — Abenomics and monetary policy are unsuccessful in raising inflation to the 2 percent target and economic growth continues to be below expectations
- Severe and, of course, unexpected *natural disasters* occur, which negatively impact global growth

Bill Longbrake is an Executive in Residence at the Robert H. Smith School of Business at the University of Maryland.