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## The Longbrake Letter\*

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### I. Slow and Steady Growth, Accelerating Growth, Or Recession?

In October's letter I posed the question of whether the U.S. economy would experience "slow and steady growth" in coming months or whether a recession was imminent. While the consensus view firmly believed at that time that recession was not imminent, there was also broad-based acceptance of "slow and steady growth." I added, however, that the "imminent recession" view should not be dismissed categorically and cited reasons that this view should be taken seriously including the steady deterioration in U.S. economic activity over the past six quarters.

Three months have made quite a difference. Business, consumer and investor optimism has soared in the U.S. Interest rates have risen sharply and with them inflation expectations embedded in Treasury securities. The preponderance of recent data reports, both in the U.S. and globally, have come in above expectations. Goldman Sach's current activity index, which is designed to track U.S. real GDP growth on a real-time, continual basis, jumped to 3.0 percent in December, well above even the most optimistic estimates of potential real GDP growth.

Certainly some of the recent improvement in U.S. and global economic activity is a natural rebound to depressed economic activity during the first half of 2016, which might have been influenced by the short, but intense global financial market panic at the beginning of the year. If that is all that is at work, then the recent acceleration will probably be as short-lived as the period of slower growth during the first half of 2016.

But, it is abundantly clear that the election of Donald Trump and a Republican-controlled Congress, caused an abrupt and significant pro-growth change in sentiment. Survey data have verified that the surge in sentiment is broad-based and includes consumers, businesses and investors. This change in sentiment certainly was behind the rise in stock prices and interest rates that quickly followed on the heels of the

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November election. The 10-year Treasury note yield rose 57 basis points from 1.88 percent on election-day to 2.45 percent on December 1. Since then this yield has been relatively stable. Stock prices, as measured by the S&P 500 average, rose 6.2 percent between election-day and December 13 but have been stable since then.

Significant changes in sentiment can have real impacts on economic activity if the change in sentiment causes changes in decision making and risk taking. And they can feed on themselves for a while. Optimism about accelerating growth helps lift stock prices. Higher stock prices boost consumer optimism. Higher consumer optimism leads to more spending and borrowing. More spending and borrowing boost real economic activity. The sentiment change thus becomes self-fulfilling.

But changes in economic activity that are driven by changes in sentiment will prove transitory unless there are fundamental policy changes that impact the economy in ways that ratify expectations.

Experience indicates that significant sentiment changes often over-predict actual subsequent changes in economic activity. There are two reasons for this tendency. First, sentiment, like stock prices, tends to be momentum driven. This leads to overshoots and undershoots relative to ultimately realized changes in economic activity. Second, even when the expected policy changes occur there is rarely a full and accurate anticipation of the forces the policy changes will set in motion and the feedbacks that will occur. More often than not, the feedbacks dampen rather than reinforce.

If typical past experience is replayed, the recent surge in sentiment should have favorable effects on economic activity, at least for a while, but there is a good chance that expectations will not be fully realized.

There are at least two other caveats that are worth pondering which nearly all are ignoring at the present time. First, the economy is already near full employment. Further stimulus risks arousing the inflation bear from its deep slumber. But, the Fed seems to be of the mood to make sure the bear continues to slumber by tightening monetary policy. If that occurs, financial conditions would tighten, not only in the U.S. but also globally. The dollar's value would continue to increase. This would likely set in motion feedbacks that dampen substantially the fiscal growth impulse. And at the worst global imbalances that exist but have been like the sleeping inflation bear might be awakened and unleash financial market panic and perhaps recession. If that were to occur, it is unclear that the episode would be brief or reversible as occurred in January and February 2016.

Second, Trump's rhetoric on trade and bringing production back to America, if followed through with tariffs on imports and destination-based tax reform that switches the impact of the corporate income tax from exports to imports, could have significant and unpredictable global consequences. Some have speculated that such policies might even lead to a replay of the disastrous beggar-your-neighbor policies of the 1930s.

Both of these two potential negative consequences are speculative because we do not know yet what policies will be enacted and we do not fully understand how these kinds of policy changes will ripple through the global economy.

What we can say with certainty, however, is that many of Trump's proposed policy changes, including repeal and replacement of the Affordable Care Act, involve risks that could prove to be significant. What we can with certainty is that uncertainty of outcomes has increased.

So, take your pick — slow and steady growth, accelerating growth, or recession. All are possible outcomes in coming months. Prudence argues for being prepared to manage through any one of these outcomes.

## II. Outlook for 2017

In the Appendix are forecasts for a variety of economic variables covering 2017 for both the U.S. and global economies. However, it goes without saying that there is always a nontrivial possibility that the forecasts will not be fulfilled by actual events. The U.S. and global economies are dynamic and complex. Policy initiatives, specific natural and manmade events, and interactive feedbacks can fundamentally alter the course of economic and political activity.

Forecasts start with economic and political conditions in the world as we believe we understand them at a particular point in time. Then, the evolution of these conditions as well as anticipated policy initiatives and political events, with the aid of econometric models, past experience, and judgment, are woven together to develop forecasts of individual economic variables.

We are reminded how difficult peering ahead is when we look back at the accuracy of the previous year's forecasts. For example, in 2016 we knew that Britain would hold a referendum on whether to exit the European Union. We knew that there would be a presidential election in the U.S. But in both cases we did not expect the ultimate outcomes of Brexit and the election of Donald Trump. Both events were extremely significant. Both are already having impacts on economic activity and the evolution of political governance and both will continue to have impacts during 2017 and beyond which could be quite dramatic. We can speculate on what the consequences might be, but we don't know details yet, which could matter materially, and we have only a rudimentary understanding of the kinds of feedbacks that will be set in motion and even less understanding of how policy implementation and feedbacks will combine to produce economic and political outcomes.

### 1. U.S.

As we look forward to 2017 and beyond we know certain strengths and vulnerabilities of the U.S. and global economies and political systems. In the U.S. we know that the economy is at full employment. We know that Trump's election has unleashed a wave of consumer, business and investor optimism. We know that the FOMC is likely to raise the federal funds rate. We know that the all-Republican Congress will repeal the Affordable Care Act, but we don't know what will be put in its place. We know that the all-Republican Congress will probably enact tax reform and infrastructure spending, both of which will stimulate economic activity in the U.S. We know there is a possibility that the Trump Administration will pursue trade policies intended to keep more production on shore and reduce the size of the U.S. trade deficit. We know there is a possibility that the Trump Administration will impose restrictions on immigration.

But many important details and implementation timing are missing. In other words, even though we know a lot about where we are and where we might be going, there is a high degree of uncertainty about how matters will play out during 2017 and whether the consequences of actions and feedbacks will be favorable or unfavorable on balance. For example, will the value of the dollar soar as a consequence of

trade policies and tax reform, and will this depress U.S. exports and inflation and possibly unleash an emerging markets financial firestorm?

## 2. Europe

We also know much about global economies and political systems. We know that the Netherlands, France, and Germany will hold national elections in 2017. We know that Euroskeptical political movements are gaining ground in all three countries. But, we do not know whether one or more of these elections will prove catalytic existentially for the European Union or whether the slow, tortuous process of disintegration will continue. We know that economic activity is accelerating in the European Union as 2017 commences. But, we are not sure whether this is transitory due to European Central Bank monetary policy and an upwelling of optimism or whether it is fundamental and sustainable. We know that the UK will formally initiate the two-year process to exit the European Union (EU). We do not know what the exact terms are likely to be, although “hard Brexit” seems the most likely outcome, nor do we know the longer run consequences of exit for the UK and EU.

## 3. Japan

We know that Japan starts the year in a benign position with a weak yen, low unemployment, accelerating inflation, an accommodative monetary policy and strong business profitability. But we also know that Japan’s fundamental challenges of an aging population and negative population growth, a closed society, and an extraordinarily high public debt to GDP ratio remain as intractable as ever.

## 4. China

We know that political and economic stability is likely to persist in China during 2017. But we also know that the Chinese economy cannot maintain high growth rates indefinitely, given its failure to embrace market-based reforms and the aging of its population. We know that a principal driver of China’s high rate of growth, namely housing investment, is maturing and eventually must slow as urban migration slows and population growth stalls. We know that corporate debt has risen to excessive levels and is concentrated in state owned enterprises, but we believe the Chinese government will be successful in papering over bad debt problems. We know that President Xi is centralizing political power with the assistance of his anticorruption leadership purges.

We also know that China increasingly has embraced an assertive foreign policy in Asia. We also know that the U.S. may label China a currency manipulator and impose trade restrictions and tariffs. We know that Donald Trump intentionally muddied the waters on the U.S. one-China policy with his call to the Taiwanese president. What we do not know is whether relations between the U.S. and China will deteriorate and result in a trade war, or worse.

## 5. Emerging Markets

Emerging markets enter 2017 with positive economic momentum because of strengthening economies in the U.S., Europe and Japan. But more restrictive trade policies in the U.S. and a much stronger dollar could upset the apple cart. Even though the dollar is already overvalued in fundamental terms, as the world's primary reserve currency, any U.S. policy actions that narrow the U.S. current account deficit and reduce the amount of dollars circulating in global markets could lead to a global dollar squeeze and a spike in the value of the dollar.

One U.S. tax reform proposal, if enacted, would provide for taxation on a destination basis. Imports would be taxed; exports would not. This is the reverse of current tax policy. The intent of such a tax policy would be to reduce the cost of exports and increase the cost of imports. Such a policy would drive down the U.S. trade deficit and in so doing would increase the scarcity of dollars in global markets. Emerging market economies, especially those with high levels of debt denominated in dollars, would be hit with a double whammy. Economic activity would suffer because demand for their now more-expensive exports would decline. In addition, the cost of servicing their dollar-denominated debt would increase. Both factors could result in debt defaults and in the extreme catalyze a meltdown in emerging countries' financial markets, which could well result in global contagion. Even if this particular U.S. tax reform is not enacted, other policy actions could contribute to a stronger dollar and the possibility of a global dollar squeeze.

## 6. Goldman Sachs' "10 Questions for 2017" — U.S.<sup>1</sup>

### Question #1 — Will growth remain above trend?

#### GS View — Yes

**GS** expects year-over-year real GDP growth in 2017 to be 2.3 percent and Q4 to Q4 growth to be 2.2 percent compared to full-employment potential growth of 1.75 percent. **GS** acknowledges that the economy is already in the mature phase of the business cycle and little output slack remains. However, recession risk is below the historical average over the next 12 months (19 percent compared to the historical average of 24 percent). Over the next two years the recession probability is 23 percent compared to the two-year historical average of 34 percent.

**GS** also expects improved financial conditions compared to 2016 to remove a drag on growth. And, by the time this factor plays itself out, Trump fiscal stimulus will begin to take hold and help sustain above trend growth.

#### Bill's View — Yes

I am less bullish about the level of both actual and potential growth in 2017. My estimate of actual real GDP growth ranges from 2.0 percent to 2.1 percent on a year-over-year basis. My estimate of potential growth is 1.4 percent to 1.5 percent.

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<sup>1</sup>Jan Hatzius and Zach Pandl. "10 Questions for 2017," US Economics Analyst, Goldman Sachs Economic Research, December 30, 2016.

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**Question #2 — Will the incoming administration enact major tax-related legislation?****GS View — Yes**

**GS** cites three reasons. First, the all-Republican Congress can use the budget reconciliation process, which requires simple majorities of both houses, to pass budget and tax legislation. When the budget reconciliation legislative process is used, any legislation that is enacted automatically expires at the end of ten years. Second, tax reform was a key campaign promise. Third, tax reform has been a key policy priority for congressional Republicans and for Speaker Paul Ryan, in particular.

Focus will primarily be on corporate tax reform with simplification and a lower tax rate as an objective. Incentives to encourage U.S. companies to bring production home, which could include destination-based tax reform (see commentary in the Emerging Markets section above for a discussion of the risks that destination tax reform could unleash).

**GS** also believes that reductions in individual tax rates are likely.

Based upon Trump's campaign proposals, the Tax Policy Center estimates the cost would be \$2 trillion over ten years, although this estimate makes no allowance for dynamic positive feedbacks that would result in additional tax revenue.

**Bill's View — Yes**

I don't consider myself to be politically well connected enough to have views on the details of tax reform other than to agree that Congress is likely to pass legislation during 2017. **GS** does not mention infrastructure fiscal spending as a congressional priority. However, it is a priority for Stephen Bannon, President Trump's Strategist, and Wilbur Ross, Trump's Secretary of Commerce, who drafted a proposal during the presidential campaign.

I have assumed in my econometric model \$1 trillion in tax cuts evenly allocated at \$100 billion per year over ten years, and a \$500 billion front-loaded infrastructure spending program.

**Question #3 — Will the housing recovery continue?****GS View — Yes, at a moderate pace**

Employment and income growth are positive factors that will offset the negative impact of higher mortgage rates and prices which are rising faster than incomes in key markets. Housing starts will move higher but will still be below the annual rate of 1.4 million consistent with net household formation rates and demolition of outdated homes.

**Bill's View — Yes, at a moderate pace**

Consumer protection regulations, Fannie Mae and Freddie Mac stringent treatment of representations and warranties on defaulted mortgage buybacks, and high capital requirements for mortgages and mortgage servicing rights have discouraged risk taking in mortgage loan origination as evidenced by high average FICO scores. It is possible that Trump regulatory appointees could ease some of these impediments, which could boost the willingness of lenders and investors to accept a greater degree of risk. If that occurs, housing could grow at a somewhat faster rate.

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**Question #4 — Will consumption continue to outperform capital spending?****GS View — No**

**GS** expects real growth in consumption to slow as the benefits of lower energy prices play out. Correspondingly, investment growth, which was severely depressed by the plunge in energy prices, should recover. **GS** expects real consumer spending to rise 2.4 percent in 2017 compared to 2.7 percent in 2016 and fixed business investment spending to rise 3.1 percent in 2017 compared to a decrease of -0.4 percent in 2016.

**Bill's View — Possibly, real consumption growth will slow and real investment growth will improve, but real consumption could still grow a little faster than real investment**

I also expect real consumer spending growth to slow during 2017, but to a greater extent from 2.6 percent in 2016 to 2.0 percent to 2.2 percent. My estimate of more rapid slowing in real consumption growth results from slower employment growth. Moreover, I am also less optimistic about real investment growth. I do not attempt to forecast separately the fixed business investment component.

My more pessimistic assumptions about real investment growth stem from the lack of attractive investment opportunities in a low productivity environment. Weak demand and low interest rates have also been factors. However, animal spirits have been rekindled in the business community and that could lead to willingness to increase investment spending on the belief that stronger sales demand is just around the corner. There was a significant increase in small business investment plans in the January NFIB' survey. The balance of risks to my outlook is that real investment growth could turn out to be stronger in 2017 than I am currently assuming.

**Question #5 — Will the labor market overheat?****GS View — Yes, slightly**

**GS** believes the labor market is entering 2017 at or very close to full employment. Some labor market measures, such as the U-6 underemployment rate and the growth rate in nominal wages, which is a lagging indicator, suggest some slack remains. Other measures, such as the job openings rate and skills shortages, suggest the labor market is in the early stages of overheating.

**Bill's View — Yes, but very slightly**

I expect employment growth to slow more quickly, which would reduce the extent of overheating. **GS** expects payroll employment to grow an average of 163,000 monthly in 2017 compared to my assumption of 132,500 in my “**BASE**” scenario.

**Question #6 — Will wage growth hit our 3.0%-3.5% estimate of its full employment level?****GS View — Yes**

**GS** notes that wage growth has already firmed at the bottom end of the wage range, with some help from a plethora of increases in state and city minimum wage laws. Although **GS** expects nominal wage growth to reach at least the lower end of its forecast range in 2017, it acknowledges that “... negative composition effects on aggregate wage growth, and an environment of weak productivity growth and soft

inflation appear to account for most of . . .” the gap between recent nominal wage rate growth and historical experience. **GS** expects wage growth to reach the top end of its range in 2018 and then stabilize at that level.

### **Bill’s View — No**

**GS**’s forecast is based on the employment cost index (ECI) measure of nominal wage growth. My estimate of nominal wage growth is based on nonsupervisory and production workers who account for about 88 percent of total employees. There are methodological differences between the two measures and ECI covers all employees, so ECI is a more comprehensive measure of wage rate growth and, ideally, is the measure to forecast. Because of these methodological differences the two measures can rise at different rates over short periods of time, but growth rates tend to converge over much longer periods of time.

My forecast of nominal wage rate growth is 2.75 percent in 2017 and very gradually rises another 30 basis points over several years following 2017. In this sense, my forecast acknowledges that most of the adjustment in wage rate growth occurs during 2017 as **GS** expects, but not to quite as high a level. My forecast of wage growth never reaches the 3.5 percent level **GS** expects to occur by 2018. Most of my lower estimate is driven by my expectation that inflation never reaches the 2.0 percent target. There is also soft evidence that labor’s wage negotiation clout has diminished over time with the decline in unionization and that this has resulted in longer lag times before wages fully adjust to changes in supply and demand in the labor market.

### **Question #7 — Will inflation reach the Fed’s 2% target?**

#### **GS View — Yes**

**GS** expects 2.0 percent core PCE inflation to be reached by the end of 2017 due to labor market tightness and the waning of favorable impacts of past dollar appreciation.

#### **Bill’s View — No**

My econometric model and several others disagree with **GS**’s conclusion. Most of the impact of a tighter labor market already appears to be embedded in the core PCE inflation rate, while some residual benefits of past dollar strength remain to be realized. Moreover, the recent strengthening of the dollar, if sustained, will help hold inflation down.

### **Question #8 — Will the Fed hike faster than implied by market pricing?**

#### **GS View — Yes**

**GS** expects the FOMC to raise the federal funds rate three times in 2017 compared to the market’s expectation of two times. **GS** expects the first increase in June followed by a second in September and a third in December. However, if employment growth remains robust and other economic variables continue to come in relatively strong as they have over the past month, the first 2017 increase could come in March or April.

#### **Bill’s View — Yes**

My forecast for 2017 is consistent with **GS**’s. However, in contrast to **GS**, I expect the pace of tightening



to slow in 2018.

**Question #9 — Will the market’s terminal funds rate estimate continue to rise?**

**GS View — Yes**

The FOMC increased its median estimate of the terminal federal fund rate from 2.88 percent to 3.00 percent in its December Summary of Economic Projections. The market is pricing a terminal federal funds rate of 2.5 percent. **GS’s** problem with the market’s view is that if one assumes inflation will be 2.0 percent, then that means the real rate of interest will be only 0.5 percent. **GS’s** terminal federal funds rate estimate is 3.25 percent, which implies a real rate of 1.25 percent.

**Bill’s View — Yes**

My estimate of the terminal federal funds rate (average over the 2021-2026 period) is 3.35 percent, only slightly higher than **GS’s** estimate. However, because I expect inflation to average less than 2.0 percent, my estimate of the equilibrium real rate is closer to 1.75 percent, which would still be well below the long-term historical average of 2.65 percent from 1948 to 2009.

**Question #10 — Will the Fed start to shrink its balance sheet?**

**GS View — No**

**GS** expects reinvestment of maturing principal to continue until at least the middle of 2018. Thereafter **GS** expects a very gradual reduction in the size of the balance sheet over a long period of time, perhaps simply by not reinvesting maturing principal.

**Bill’s View — No opinion, but probably No**

It should be noted that some have argued that having a large balance sheet provides more flexibility to the FOMC in managing monetary policy.

## **7. Goldman Sachs’ “10 Questions for 2017” — Global<sup>2</sup>**

**Question #1 — Will global growth accelerate?**

**GS View — Yes, although most of the improvement is likely behind us in sequential terms**

**GS** expects global real GDP growth to rise from 3.0 percent in 2016 to 3.6 percent in 2017. Growth already accelerated considerably during the fourth quarter of 2016. **GS** also expects more benign global financial conditions to be supportive of growth.

**Bill’s View — Yes, but the balance of risks is to the downside relative to **GS’s** view**

**GS** is correct that the acceleration of growth in the fourth quarter of 2016 is likely to carry over into

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<sup>2</sup>Sven Jari Stehn and Jan Hatzius. “10 Questions for 2017,” Global Economics Analyst, Goldman Sachs Economic Research, January 15, 2017.

early 2017 and that will start the year off at a much higher level, which is opposite to what happened at the beginning of 2016. Arguments supportive of **GS**'s view include the upswing in global optimism, central bank friendly policy, with the exception of the U.S., reduced emphasis on austerity and greater willingness to engage in fiscal stimulus. However, on the other side of the equation are substantial political risks, particularly in the European Union, and the possibility of negative trade and immigration policies in the U.S. which could ignite a dollar squeeze with disruptive consequences for global financial markets and negative impacts on financial conditions.

Longer run, which means beyond 2017, real global growth above 3.0 percent is simply not sustainable for a variety of reasons. First, as economies mature, the rate of growth always slows to a level consistent with population growth and increases in productivity. Huge catch-up increases in productivity disappear in mature economies. Population growth slows dramatically in more developed economies. China will lead the way and because of the size of its economy this will have a substantial depressing effect on global growth..

### **Question #2 — Will global fiscal policy be eased?**

#### **GS View — Only slightly**

**GS** expects a \$200 billion fiscal stimulus to be enacted in the U.S. by the middle of the year which will boost real GDP growth by about 25 basis points late in the year. **GS** expects more expansionary fiscal policy to boost growth in the euro area by about 50 basis points in 2017. Budget consolidation in Japan and the UK will likely depress real GDP growth in those countries modestly. Overall, **GS** expects fiscal policy to boost global GDP growth by 20 basis points in 2017 and 30 basis points in 2018

#### **Bill's View — no good reasons to disagree with GS's view**

### **Question #3 — Will the world turn toward protectionism?**

#### **GS View — Yes, but the uncertainty is very large**

The immediate risk is that the Trump Administration will raise tariffs on imports. Unless increases are modest, retaliation seems probable. More consequential would be adopting destination-based taxation for U.S. imports and exports.

**Bill's View — Yes, not only is uncertainty very large but risks of a dollar squeeze and risks of contagion and severe stress in global financial markets are also very high**

Theory says that destination-based taxation of imports and exports should lead to an increase in the value of the dollar sufficient to offset the effect of the tax. The problem is that if the corporate tax rate is 20 percent (reduced from the current rate of 35 percent as part of corporate tax reform), the dollar would have to appreciate by 25 percent according to theory to neutralize the effects of the tax. In practice a full adjustment seems unlikely and what adjustment occurs would probably take time to be fully realized. Nonetheless, the adjustment in the dollar is still likely to be large and could trigger severe consequences in some emerging market economies and perhaps catalyze a dollar squeeze and broader-based global financial markets contagion.

**Question #4 — Will China slow?****GS View — Yes, but only slightly**

GS expects China's real GDP growth to slow from 6.7 percent in 2016 to 6.5 percent in 2017. This is a difference without any significance because China has shown repeatedly that it can manage the number by force-feeding growth through credit expansion. In the long run growing credit at twice the rate of nominal GDP is not sustainable and will lead to stagnation or worse, but in China's managed economy this policy strategy can persist for a very long time before the inevitable consequences take hold. That will not happen in 2017.

**Bill's View — It doesn't matter because the policymakers still have the ability to make the numbers**

China is not likely to pose either strong upside or downside risk to the global economy in 2017. This could change if the U.S. and China engage in a trade war that combines with increasingly hostile foreign policy relations.

**Question #5 — Will labor markets return to full employment?****GS View — Yes in the U.S., but no in the Euro area and Japan**

GS expects slight overheating in the U.S. Most countries in the Euro area still have substantial amounts of labor slack, particularly in countries like Spain, Portugal, Greece, Italy and even France.

**Bill's View — Yes in the U.S., no in the Euro area**

GS's "no" for Japan makes no sense. Japan's unemployment rate is very low and by all accounts the labor market is tight. However, notwithstanding the tight labor market in Japan, employers have been slow to accelerate wage increases.

**Question #6 — Will Euro area core inflation move up significantly?****GS View — No**

Total inflation will increase given the firming in energy and commodity prices. However, core inflation is likely to remain anchored at a little under 1.0 percent throughout the year.

**Bill's View — No**

GS's view and analytics are sound.

**Question #7 — Will monetary policy divergence strengthen?****GS View — Yes**

The European Central Bank is committed to quantitative easing through the end of 2017. Significant slack remains in European economies. Likewise, the Bank of Japan remains committed to easy monetary policy as it continues its quest to boost both the rate of Japanese growth and inflation. The direction of U.S. policy is clearly toward tightening, so divergence is already locked in and will escalate each time the

FOMC raises the federal funds rate.

**Bill's View — Yes**

GS's view and analytics are sound.

**Question #8 — Will the UK head for a “soft” Brexit?**

**GS View — No**

“The UK government’s red lines’ for the Brexit negotiations — immigration controls and exclusion from the jurisdiction of the European Court of Justice — are incompatible with participation in the EU’s single market.” However, it is possible that some kind of “. . . preferred access to the single market will be negotiated involving tariff-free trade in goods and that agreement on a transitional arrangement for the financial services sector will be reached.” So, while this outcome, if it comes to pass, is short of a full “hard” Brexit, nonetheless it would have negative implications for the UK economy and the value of the pound. We will know more in March.

**Bill's View — No opinion**

GS's evaluation appears reasonable to me, but I do not have real expertise in this matter. The greater risk to GS's view is a full “hard Brexit” than a more accommodative softer Brexit. Based on a recent speech by Prime Minister May, “hard Brexit” seems increasingly likely.

**Question #9 — Will the Euro area crisis reappear?**

**GS View — No, but this is a risk**

Economic performance differs considerably among Euro area members and convergence is impossible within the straightjacket of the euro. Excruciatingly painful internal adjustments in countries like Ireland and Spain have increased their competitiveness. The same has not happened in France or Italy because of political paralysis. Greece remains a basket case. Nonetheless, modest improvements in growth in 2017 and an accommodative ECB will limit the likelihood that crisis reappears during 2017. Keeping rates low and providing plenty of liquidity can buy a lot of time. But that's all that can be done because the fundamental design flaws of the EU have not been addressed and as the political disintegration progresses they cannot be addressed.

Political risk continues to escalate and elections in the Netherlands, France and Germany could reignite the crisis. Experts do not expect any of these elections to trigger crisis, but then the experts were wrong on the Brexit vote and on Trump's election.

**Bill's View — No, but this is a risk**

It is only a matter of time, perhaps several years still, until the EU breaks up and is replaced by alternative economic and political systems involving smaller groupings of countries with more compatible economies..

**Question #10 — Will the Bank of Japan stick to its 0% yield curve target?**

**GS View — Yes**

The Bank of Japan's policy to target the 10-year government bond yield at 0 percent and thus a 0 percent yield curve target will become increasingly challenging as interest rates rise in the rest of the world. As Japan's rate differential with the rest of the world increases, the value of the yen will decline. But, this will be good for the profits of Japanese companies and could actually help accelerate attainment of the nominal inflation rate goal of 2.0 percent. The risk is that the rate differential becomes so large that the Bank of Japan runs out of bonds to purchase to maintain the 0 percent yield curve objective.

### **Bill's View — Yes**

I agree with **GS's** views. As long as the world is going the other direction, maintaining the 0 percent yield policy plays in Japan's favor.

## **8. GavekalResearch's "Our Top 12 Questions For 2017"<sup>3</sup>**

GavekalResearch produces meaty and thoughtful economic and market research. Its research is proprietary and, thus, is not available to the general public. Unlike some, GavekalResearch does not forge consensus among its various analysts. Thus, investors benefit from a variety of views which sometimes differ considerably.

### **Question #1 — Will the U.S. dollar continue its strong rally?**

#### **Analyst #1 — Yes**

Normally, currency values react to interest-rate differentials. But, sometimes hidden inventories of debt denominated in U.S. dollars can become too difficult to service, leading to margin calls. Previous examples of this phenomenon were Latin America in the 1980s and the Asian tiger economies in the late 1990s. The risk of a repeat rises as the dollar increases in value. Non-U.S. entities hold about \$10 trillion in U.S. dollar denominated debt.

#### **Analyst #2 — Yes, but not against the euro**

U.S. interest rates will rise more than expected, which will boost the value of the dollar, which in turn will prompt short covering by emerging markets dollar-based borrowers. However, Europe is not structurally short of dollars and thus is unlikely to be much affected by an increase in the value of the dollar. However, there are two significant risks which, if realized, could impact the euro. One would be the election of Marine Le Pen as French president which would prompt an existential crisis for the euro. The other would be corporate tax reform in the U.S. that imposes destination-based taxation on imports and exports.

#### **Analyst #3 — It depends upon what happens to return on invested capital**

If Trump's policies do not result in raising the return on invested capital in the U.S., the dollar will decline in value. If the return on invested capital rises because of protectionist trade policies, global depression becomes a significant threat. But, if the return on invested capital rises because of tax cuts and deregulation, global growth will benefit.

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<sup>3</sup>Charles Gave et al. "Our Top 12 Questions for 2017," The Gavekal Monthly, GavekalResearch, January 6, 2017. (This is a proprietary publication which is not available publically.)

**Question #2 — Will U.S. bond yields move permanently above 3%?****Analyst #1 — No**

Nominal yields on long bonds always return to the nominal rate of growth in the economy. Inflation has already peaked and real economic growth is in the 1.5 percent to 2.0 percent range. Nominal economic growth is unlikely to exceed 3.0 percent.

**Bill's View — Unclear**

I project a nominal structural rate of U.S. economic growth of about 3.5 percent, 1.6 percent inflation plus 1.9 percent real growth. However, the equilibrium 10-year Treasury rate for the period 2021-2026 is 3.0 percent. The simple rule of thumb that nominal yields on long bonds and the nominal rate of growth in GDP tend to be the same is only true if the real rate of return is stable on average in the long run. There is little dispute that the real rate of return in recent years has fallen below its historical average level. This phenomenon would explain why my estimate of the long-term nominal GDP growth rate is higher than the long-term bond yield.

**Analyst #2 — Yes**

U.S. growth and inflation will continue to accelerate and fiscal policy will add fuel to the fire.

**Question #3 — Will the Eurozone succumb to an existential crisis?****Analyst — No**

Economic conditions have improved throughout the Eurozone. The main risk is the election of Marine Le Pen as president of France.

**Question #4 — Will capital outflows trigger a financial panic in China?****Analyst — No**

The renminbi will continue its gradual depreciation against the dollar and the Bank of China will spend reserves to make sure the decline is orderly. Financial stress is rising but credit is almost entirely funded by low-risk bank deposits.

**Bill's View — No, this a future crisis in the making, but is probably a few years away from realization**

**Question #5 — Will the oil price end 2017 above U.S. \$55 a barrel?****Analyst — No**

\$50 to \$55 per barrel is the long-term oil price ceiling. During 2017 possible production cutbacks by Saudi Arabia and Russia will be offset by increases from the U.S., Iran, Iraq, Nigeria and Libya. The marginal cost of U.S. shale oil production has fallen below \$50 to \$55 per barrel setting the stage for potential oversupply.

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**Question #6 — Will U.S. tax reform push up the dollar, or improve te U.S. trade balance?****Analyst — Yes, both**

“Yes to both” depends upon two assumptions. First, the U.S. Congress passes destination-based taxation. Second, the dollar appreciates in value but not by enough to offset the effects of the tax, which results in a reduction in the U.S. trade deficit. This favorable effect on the trade deficit could increase over time if foreign companies decide to locate production facilities in the U.S.

**Bill’s View**

If the U.S. dollar were not the world’s reserve currency, the theory about destination-based taxation improving U.S. growth and jobs would have merit. As it is, however, for every winner there is a loser. And, when one considers the possibility of a significant increase in the value of the dollar, the casualties could be, and probably would be, enormous and there would be significant repercussions. Indeed, the parallels to the policies of the 1930s are real and troubling.

**Question #7 — Will U.S. bonds outperform equities?****Analyst — Yes**

Assuming that corporate tax reform includes elimination of the deduction of interest on debt, the impact should be to reduce debt issuance and lessen inflationary pressure — good for bonds.

Equity risks include: (1) policy changes (e.g., Affordable Care Act) could result in redundant capital and write offs; (2) compression of return on capital and cost of capital spread — further increases in interest rates without increases in the return on capital could lead to recession; (3) reduced liquidity and slowing money supply growth.

**Bill’s View**

The market is not paying attention to this development. The return on capital — cost of capital spread historically has had an excellent track record in foreshadowing recessions. Clearly a FOMC tightening regime will increase the cost of capital. Markets in their current euphoric state expect increases in the return on capital. If that occurs, all should be well. If it does not, when the realization sinks in, we could be in for very ugly stock market performance.

**Question #8 — Are China A-shares poised for a rally?****Analyst — Yes**

Fundamentals and sentiment, given improving Chinese growth, are supportive, provided regulators stay out of the way.

**Question #9 — Will Britain face recession and sterling fall more?****Analyst — Yes**

Markets are assuming a favorable negotiation of Brexit between the UK and EU. Once the Article 50 process begins sometime after March the reality that the negotiation will be difficult and unlikely to

be favorable will sink in. The negative economic implications of Brexit are still very much in play, just not yet triggered. In the meantime the plunge in the value of the pound has increased inflation and eroded consumer spending power. Consumer confidence is declining, savings rates are at cyclical lows and household debt leverage is near its previous high.

**Question #10 — Will E.U. equities finally outperform?**

**Analyst — Yes**

Improving economic growth and stable financial markets favor increases in equity prices from currently depressed levels. Political risks, such as the election of Marine Le Pen as French President, could derail this favorable scenario, but the odds of this occurring are low.

**Question #11 — Will a dollar squeeze cause financial crisis in emerging markets economies?**

**Analyst — No**

This analyst argues that emerging markets economies are well positioned with floating currencies and reserves to withstand a dollar squeeze.

**Bill's View**

This view ignores the large amount of dollar-denominated corporate debt in emerging economies and the vulnerability of companies with dollar-denominated debt to U.S. protectionist trade policies and a rising dollar.

**Question #12 — Will Indian growth recover from demonetization?**

**Analyst — Yes**

The policy to replace currency resulted in a cash shortage and that depressed economic activity, although the decline was not significant. The negative effects will persist for a while longer, but growth momentum should eventually recover.

### III. China's Great Stagnation

For the time being, China will continue to grow at a high rate and political stability will prevail. However, China has been pursuing unbalanced economic and financial policies which will eventually come home to roost and disrupt China's apparent economic miracle.

Dan Blumenthal and Derek M. Scissors, American Enterprise Institute fellows, recently authored an assessment of "China's Great Stagnation."<sup>4</sup>

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<sup>4</sup>Dan Blumenthal and Derek M. Scissors. "China's Great Stagnation," American Enterprise Institute, December 2016.



## 1. China's Economic Future — Three Views

- China's economy slows but transforms into a healthier and very large economy;
- China's economy stagnates;
- A “true economic crisis” is inevitable and occurs in the not too-distant future.

Blumenthal and Scissors argue that the preponderance of the evidence favors the stagnation view.

Pro-market-based reforms are needed, but the supposed reforms of the 2013 Third Plenary lacked substance and, thus, no progress has occurred under the rule of President Xi. Transformation of the Chinese economy, the first view, is not happening and is not likely to happen.

Blumenthal and Scissors also argue that the third view cannot happen because financial matters are controlled by the state. Thus, the state can force bailouts. This is not without cost, as it results in enormous misallocation of resources, but it does not lead to crisis and panic.

This leaves only the “view of stagnation” in play

## 2. Stagnation — Overinvestment

Countries can rise out of poverty but this does not automatically enable them to become rich. China is a case in point. It has been very successful in reducing poverty but it is not rich. Per capita disposable income averaged \$3,400 at the end of 2015, less than 10 percent of the U.S. level. But, you might ask the question as to whether the gap is closing. Another statistic implies this is not happening. Between 2011 and 2015 Chinese net private wealth grew 19 percent, but American net private wealth grew 43 percent over the same time period.

China's economic weakness began to accumulate in 2003 when the new government of Hu Jintao determined that state-owned banks and state-owned enterprises would constitute the core of the Chinese economy. State directed investment was controlled by requiring state-owned banks to lend to state-owned enterprises. This policy initiated rapid economic growth through investment and dramatically increased the contribution of investment relative to consumption in the composition of Chinese GDP.

Inevitably, force-feeding investment has led to massive misallocation of resources and corruption. Excess capacity skyrocketed from 3 industries in 2003 to 19 in 2013.

## 3. Stagnation — Demographics

Demographic trends indicate that growth in the labor force has stalled — indeed it is now declining. The number of working age people has fallen each year since 2012. One only has to look at Japan to see the economic consequences of a prolonged and significant decline in the size of the labor force.

#### 4. Stagnation — Natural Resources

Rapid growth has depleted natural resources. This development has prompted China to import foreign resources. But, as Blumenthal and Scissors observe, “As countries climb the technological ladder, however, they no longer benefit greatly from merely absorbing what others offer, and innovation becomes more challenging.”

There is plenty of evidence that innovation is most successful when it springs forth from a plethora of small entities and least successful when it is directed by governments or large corporations. China’s failure to adopt pro-market reforms assures that innovation will be stunted. Moreover, China does not protect intellectual property particular well which drains away individual incentive.

#### 5. Stagnation — Pro-Market Reform Prospects Are Dim

The Third Plenary’s much vaunted reforms were badly designed. For example, labor mobility was discouraged by denying benefits to those working in the “wrong” geographic area.

China could improve the value of natural resources by permitting private ownership of rural land and encouraging competition among energy companies. It has done neither.

While interest rates have been liberalized, interest rates can have little practical effect in helping to allocate resources when the bulk of lending is mandated by the state through state-owned banks.

State-owned enterprises would benefit from vigorous competition from privately-owned firms. This has not occurred to any substantive degree. Inefficient state-owned enterprises rather than being shut down are merged into other state-owned enterprises. This reminds me of the zombie savings and loan associations in the late 1980s in the U.S.

#### 6. Economic Implications of Stagnation

Pro-market reform is nowhere in sight. Investment-forced growth through excessive debt leverage is not a sustainable strategy. As long as this situation persists, stagnation will progress and eventually “true economic growth” will grind to a halt.

China’s economic model has been an engine of global economic growth. As China’s growth morphs into stagnation, the global implications for economic growth are hardly bright.

Yet, China is a nation of 1.3 billion people. While it might stop growing, it will remain a significant force within the global community of nations.

#### 7. Politics of Stagnation

President Xi has pursued three strategies to assert his control since coming to power in 2013. First, he has abandoned Deng’s post-Mao model of consensus driven leadership. Second, he has vigorously sought to

curtail corruption. This initiative sends the message to the Chinese public that cronyism and self-dealing is being rooted out — a welcome message. But, it is also a way of eliminating his rivals. Blumenthal and Scissors observe: “Corruption, which in essence was a guarantee to party elites that they would get rich, and consensus-based leadership are no longer the glue holding the party together.” Third, the party has increased its repression of civil society, including media, nonprofits, and religious groups.

Blumenthal and Scissors conclude their assessment of China’s developing stagnation with a chilling observation: “The CCP [community party] is no longer upholding its end of the social bargain with the people: economic growth in exchange for political quiescence. So now the two pillars of CCP survival — elite unity and economic growth — are crumbling.”

## IV. Components of U.S. Real GDP

According to the Bureau of Economic Analysis’ “**Final Estimate**,” real GDP grew 3.5 percent in the third quarter. This was cause for celebration among economists and politicians following dismal quarterly growth of 1.4, 0.8, and 0.9 percent over the three preceding quarters.

With the election of Donald Trump, optimism has broken out everywhere. This optimism has been reinforced by recent data reports which mostly have exceeded expectations.

But the trend over the past six quarters has been one of gradual deterioration in growth. The relevant question for 2017 is whether policies of the Trump Administration and the newly emergent spirit of optimism combine to reverse the recent trend.

Data in **Table 1** and **Chart 1** paint a graphic picture of progressively decelerating growth over the past six quarters, even including the relatively strong third quarter. Markets are notorious for emotional overreaction. The question one should ponder is whether Trump’s election marks a true turning point or whether the recent euphoria will prove to be misplaced and yet another episode of wishful thinking is not validated by subsequent events.

Recent survey data indicate that animal spirits have been unleashed. Typically, this prompts increased risk taking and willingness to act rather than to wait-and-see. Significant shifts in sentiment can have dramatic impacts on economic activity — both favorable and unfavorable. But sentiment shifts based upon expectations can have short time spans unless the expectations are ratified by substantive policy actions that impact economic activity.

Currently, market participants are expecting the Trump Administration to roll back regulatory impediments to economic activity and for Congress to enact significant tax reform and fiscal stimulus programs. While there certainly is considerable merit to these expectations, the anticipated benefits could fall short for several reasons. First, the full extent of expected changes may not become law and policy. Second, timing lags for law and policy changes to have substantive impact may take much longer than expected. Third, and probably most importantly, the impacts of the change in sentiment, such as a stronger dollar and higher interest rates, and the prospective consequences of fiscal stimulus and reforms, could spur feedbacks that limit the expected favorable impacts on growth or might even foster disruptive consequences.

When market optimism overshoots, as may be the case currently, it is usually because the potential

**Table 1**  
**Composition of 2016 and 2015 Quarterly GDP Growth**

	Third Quarter 2016 Advance Estimate	Third Quarter 2016 Preliminary Estimate	Third Quarter 2016 Final Estimate	Second Quarter 2016	First Quarter 2016	Fourth Quarter 2015
Personal Consumption	1.47%	1.89%	2.03%	2.88%	1.11%	1.53%
Private Investment						
Nonresiden- tial	.15%	.02%	.18%	.12%	-.44%	-.43%
Residential	-.24%	-.17%	-.16%	-.31%	.29%	.40%
Inventories	.61%	.49%	.49%	-1.16%	-.41%	-.36%
Net Exports	.83%	.87%	.85%	.18%	.01%	-.45%
Exports	1.17%	1.18%	1.16%	.21%	-.09%	-.34%
Imports	-.34%	-.31%	-.31%	-.03%	.09%	-.11%
Government	.09%	.05%	.14%	-.30%	.28%	.18%
Total	<b>2.91%</b>	<b>3.15%</b>	<b>3.53%</b>	<b>1.41%</b>	<b>.84%</b>	<b>.87%</b>
Final Sales	<b>2.30%</b>	<b>2.66%</b>	<b>3.04%</b>	<b>2.57%</b>	<b>1.25%</b>	<b>1.23%</b>
Private	<b>2.21%</b>	<b>2.61%</b>	<b>2.90%</b>	<b>2.87%</b>	<b>.97%</b>	<b>1.05%</b>
Private Domestic	<b>1.38%</b>	<b>1.74%</b>	<b>2.05%</b>	<b>2.69%</b>	<b>.96%</b>	<b>1.50%</b>

negative forces at work in the economy have been discounted or because the potential consequences of the feedbacks unleashed by the sentiment shift are not understood and thus not anticipated.

### 1. “Final Estimate” of Third Quarter GDP

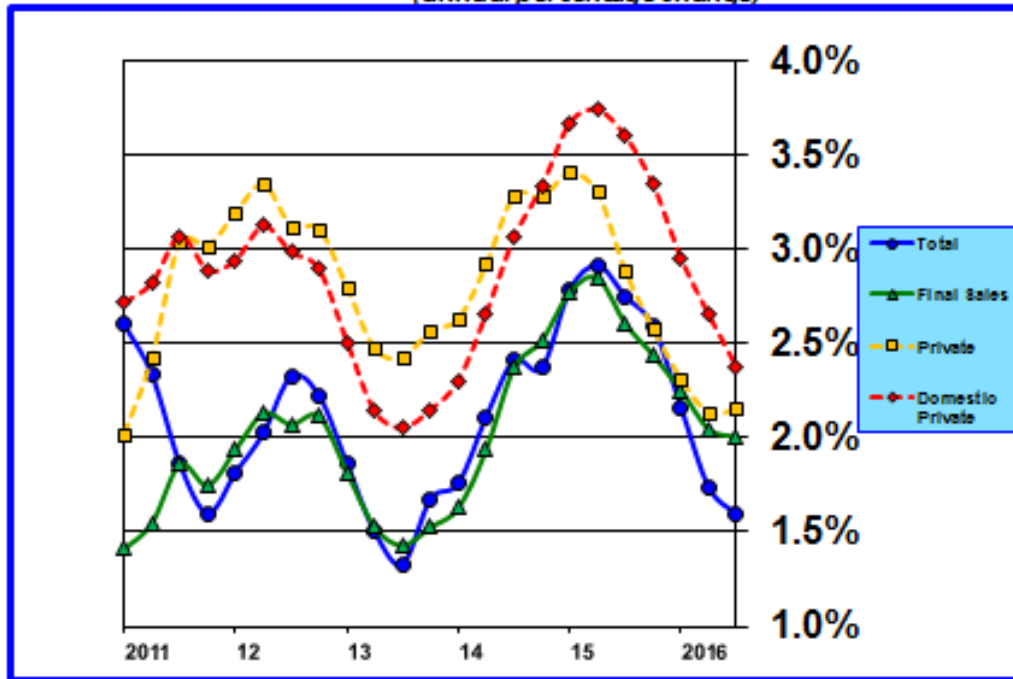
Annualized third quarter real “**Total**” GDP growth in the “**Final Estimate**” was 3.53 percent (blue line with circles in **Chart 1**). Alternative GDP measures, shown in **Table 1** and **Chart 1**, reveal that economic growth was quite a bit weaker than the third quarter topline number implies.

“**Final Sales**” omits inventory changes which tend to be volatile over the cycle, rising when the economy slows and falling when the economy accelerates (green line with triangles in **Chart 1**). This measure of real GDP was 3.04 percent in the third quarter because inventory restocking added 0.49 percent following on the heels of the second quarter’s rare outright decline in inventories which subtracted 1.16 percent from second quarter real GDP growth. Netting out inventories, growth in “**Final Sales**” improved from 2.57 percent in the second quarter to 3.04 percent in the third quarter.

“**Private**” GDP is a measure of non-governmental economic activity. It omits both inventory changes and government investment spending (yellow dotted line with squares in **Chart 1**). Growth in government

## CHART 1 – Real GDP Growth – Alternative Measures

(annual percentage change)



Page 1

expenditures rises during periods of economic weakness and falls during periods of strength or when fiscal austerity is the order of the day. Growth in “**Private**” GDP was greater than growth in “**Total**” GDP during 2011, 2012, 2013 and 2014, a period when fiscal policy was contractionary. Since 2015, with the exception of the second quarter of 2016, fiscal policy has been mildly supportive of “**Total**” real GDP growth. Government activity added 14 basis points to “**Total**” real GDP growth during the third quarter. “**Private**” GDP growth was stable — 2.87 percent in the second quarter and 2.90 percent in the third quarter.

“**Private Domestic**” GDP is a measure of domestic non-governmental economic activity. It omits inventory changes, government investment spending and net exports (red dotted line with diamonds in **Chart 1**). Since mid-2014 net exports have depressed “**Total**” real GDP growth. That development has flowed directly from the stronger dollar and was corroborated by the slowdown in industrial production and manufacturing, which are more directly linked to international trade than other sectors of the economy. Like inventories, net exports typically are highly volatile on a quarterly basis. This was particularly the case in the third quarter as net exports inflated “**Total**” GDP by 85 basis points. Netting out the impact of net exports, annualized “**Private Domestic**” GDP declined from 2.69 percent in the second quarter to 2.05 percent in the third quarter.

*Thus, when the noise of inventories, government and net exports is swept out of the way, third quarter annualized real GDP was a lot weaker 2.05 percent than the headline number of 3.53 percent.*

There are three important takeaways from **Chart 1**. First, all four measures of real GDP growth peaked

in either the first or second quarter of 2015 and have steadily decelerated since then. However, downward momentum in one measure, “**Private**” GDP growth, was stable from the second to third quarter of 2016 and might mark a turning point. Second, “**Private**” GDP growth, which omits government spending and inventory accumulation, grew more rapidly than “**Total**” GDP during 2011-2014, converged during 2015 but then began to diverge again during 2016. This pattern was due to growth weakening in the private sector rather than strengthening in the government sector at least until government growth weakened during the second and third quarters of 2016. Third, “**Total**” GDP growth has been consistently dragged down by a higher growth rate in net foreign sales. This differential has worsened in the last two years because of strong dollar appreciation that has boosted domestic demand for imports and depressed foreign demand for exports.

**Table 2** provides numeric year-over-year data (four-quarter rolling average) for the four measures of GDP shown in **Chart 1**. **Table 2** also includes year-over-year data showing the year-over-year growth rates for key components of real GDP — personal consumption, nonresidential investment, residential investment, net exports, and government.

Deceleration in economic activity over the past six quarters is evident in most measures of real GDP. The decline in “**Total**” GDP is greater than the decline in “**Final Sales**,” reflecting inventory destocking. And, if most analysts are on the mark in expecting long-run potential real GDP to increase annually in a range of 1.7 to 2.0 percent, the “**Final Sales**” year-over-year growth rate of 2.00 percent in the third quarter may still have room to fall further as the economy approaches full employment.

Growth in personal consumption and nonresidential investment, which collectively contribute 82.2 percent to “**Total**” GDP, has weakened steadily over the past six quarters.

Slowing personal consumption growth seems premature given strong employment gains and small increases in wages in recent quarters, but is not surprising given the downward trend in real disposable income growth from 3.9 percent in the second quarter of 2015 to 2.9 percent in the third quarter of 2016. In fact, the decline in real personal consumption growth parallels the decrease in real disposable income growth. This means that the much ballyhooed increase in employment in excess of underlying fundamental expansion of the labor force in recent months has not been accompanied by commensurate increases in spending, which is what should have been expected in a normal cyclical recovery in employment and economic activity. Again, the data paint a weakening trend.

Weakness in nonresidential investment is particularly worrisome because strong productivity gains in the long run depend on robust investment spending growth. Recent weakness is due in part to the decline in oil prices and the collapse in energy investment, but the declining trend in nonresidential investment is much broader-based than energy.

Residential investment growth has been a bright spot, but accounts for only 3.6 percent of “**Total**” GDP. And, growth in this component of GDP has slowed over the last two quarters.

Overall, as the economy verges on full employment, the deceleration in real GDP growth is concerning. This is especially so because of the unparalleled expansionary monetary policy that has propped up asset prices and contributed to a substantial increase in wealth. Perhaps, as the market expects, the proposed fiscal policies of the incoming Trump Administration will reverse the trend.

Rising wealth boosts personal consumption spending. Over the last 12 months, rising wealth con-

**Table 2**  
**Year-Over-Year Growth Rates for Components of Real GDP**

	GDP Component Weigh	Third Quarter 2016	Second Quarter 2016	First Quarter 2016	Fourth Quarter 2015	Third Quarter 2015	Second Quarter 2015
Personal Consump- tion	69.0%	2.61%	2.70%	2.86%	3.18%	3.42%	3.44%
Private Investment	17.0%						
Nonresi- dential	13.2%	-.30%	.33%	1.08%	2.07%	3.10%	4.67%
Residen- tial	3.6%	7.83%	10.77%	12.11%	11.70%	9.98%	7.25%
Net Exports	-3.3%	8.13%	17.23%	21.68%	26.83%	26.60%	17.60%
Exports	12.8%	-.56%	-1.14%	-.66%	.11%	1.42%	2.71%
Imports	-16.1%	1.12%	2.21%	3.26%	4.58%	5.48%	5.15%
Govern- ment	17.5%	1.30%	1.65%	1.97%	1.79%	1.32%	.78%
<b>Total</b>	<b>100.0%</b>	<b>1.59%</b>	<b>1.74%</b>	<b>2.16%</b>	<b>2.60%</b>	<b>2.75%</b>	<b>2.92%</b>
Final Sales	99.8%	2.00%	2.05%	2.25%	2.44%	2.61%	2.85%
Private	82.3%	2.16%	2.13%	2.31%	2.58%	2.89%	3.31%
Private Domestic	85.7%	2.38%	2.66%	2.96%	3.34%	3.60%	3.74%

tributed approximately 29 percent of the growth in real consumer spending — 21 percent from rising stock prices and 8 percent from rising home prices.

Obviously, a decline in stock prices would have a negative impact but not an immediate impact because the wealth effect feeds into consumer spending over a considerable period of time. Based upon my econometric model, a 10 percent instantaneous decline in stocks prices that remains in place for the next 24 months would reduce the increase in real consumer spending by 23 percent over the next 12 months and by 7 percent in the following 12 months — the average decline in consumer spending over two years would be 14 percent. This would reduce real GDP by 0.4 percent in the next 12 months and 0.3 percent in the following 12 months.

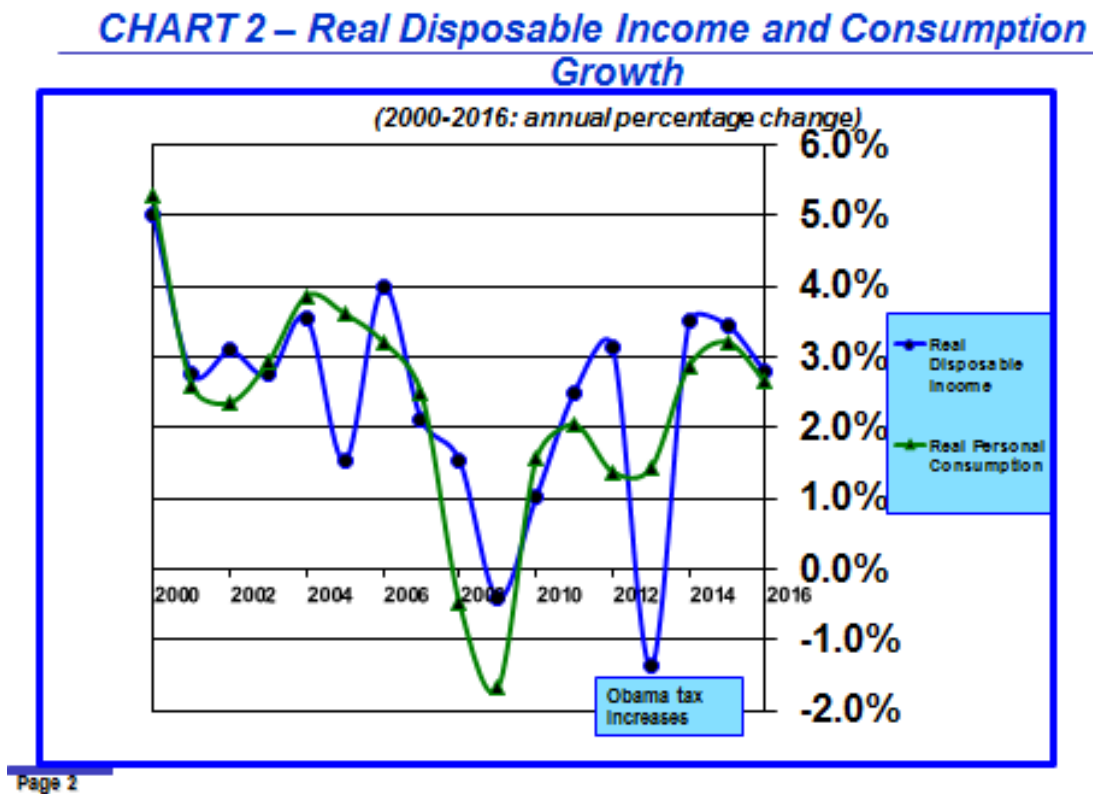
And, none of this factors in the impact of slowing employment growth, although business optimism and fiscal stimulus could offset the natural slowing in employment growth that ordinarily occurs when

the economy has reached full employment. Thus, in spite of sunny prognostications by many forecasters, downside risks to real GDP growth in a maturing economy in the face likely monetary policy tightening are much greater than commonly acknowledged.

## 2. Consumption

Personal consumption contributed 2.03 percent to third quarter real GDP growth compared to 2.88 percent in the second quarter. The year-over-year growth rate decelerated from 2.70 percent to 2.61 percent.

In the long run, growth in nominal disposable income and consumer saving preferences determine growth in nominal personal consumption. Nominal disposable income depends upon a lot of things but the most important ones are the level of employment and wage rates. Slow growth in employment and in wage rates will result in slow growth in disposable income. As can be seen in **Chart 2**, over the last year and a half growth in both real disposable income and personal consumption has slowed slightly. This pattern is reflective of a gradual subsidence in the overall rate of economic growth and mirrors the pattern of slowing real GDP growth shown in **Chart 1**.



Other indicators are sending a similar message of a gradual deceleration in consumer spending growth. For example, state retail sales tax receipts, which are sensitive to fluctuations in purchases of durables such as autos, have slowed over the last year.

Forecasts of growth in real consumer spending are shown in **Table 3** and **Chart 3**. With eleven months

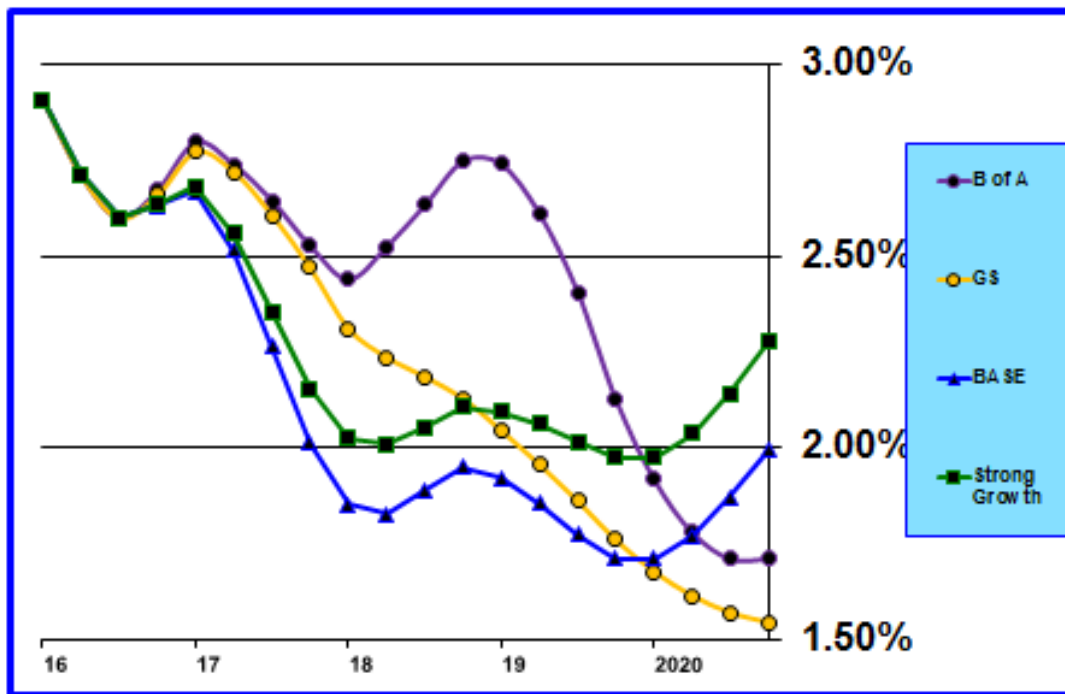


of data reported, forecast growth for 2016 has converged to a narrow range of 2.6 to 2.7 percent.

**Table 3**  
**Real Personal Consumption Growth Rate Forecasts**

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual	1.38	1.43	2.88	3.21					
B of A					2.67	2.53	2.75	2.13	1.71
GS					2.66	2.45	2.13	1.76	1.55
Bill's BASE					2.63	2.01	1.95	1.71	1.99
Bill's Strong Growth					2.63	2.16	2.11	1.98	2.28

**CHART 3 – Real Consumer Spending Forecasts**  
*(annual rate of change)*



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Over the longer run growth in real consumer spending generally should follow growth in employment and growth in real wages (disposable income). Now that the economy is very close to or at full employment, employment growth is set to slow to match underlying demographic dynamics. This is why all forecasters expect real consumer spending growth to slow in coming years.

This is the general pattern apparent in the data in **Table 3** and **Chart 3**. Growth in wages (disposable income) might moderate the forecast decline in growth, but only if the growth rate in real wages (disposable income) increases. That would require productivity to improve from its recent very low level. That would be a welcome result, but is not at all assured.

**GS** cites several other reasons why consumer spending growth should slow over the next three years. First, growth in capital-related income accounts, which include income from individual proprietorships, rental properties and interest and dividends, have slowed and that is likely to continue because of slow growth in profits and low interest rates. Second, the benefit from the plunge in oil prices has passed. In addition, real disposable income available for spending will be squeezed increasingly by rising rents and medical care premiums. Third, borrowing is likely to become more difficult as financial institutions begin to tighten credit standards, particularly for auto loans and credit card debt. Credit availability for home mortgages never eased much following the housing bubble. Fourth, pent-up demand for consumer durables, such as autos, has largely been satisfied. Indeed, purchases may already be above the long-term trend level due to easy credit.

My forecasts, shown in the “**BASE**” and “**Strong Employment**” scenarios, generally follow the same trend as **GS**’s forecast. My forecasts dip below **GS**’s in 2017 and 2018 and then rise above in 2019 and 2020. This pattern is the result of assumptions published by **CBO** in August, which I incorporate into my “**BASE**” scenario. **CBO** projects payroll employment to fall to 10,000 monthly from 2016’s monthly average of 180,000 over the next two years. In addition, because the average length of the workweek has been contracting recently, it is quite possible that growth in total hours worked in two years’ time will be zero or negative. Doing the math, either it would take an astronomical acceleration in hourly wage growth or a collapse in the saving rate to forestall a more rapid deceleration in consumption growth in the next few months.

There is another possibility, of course, and that is that **CBO**’s forecast collapse in employment growth is spurious. So, if my projections of consumption spending growth appear to be overly pessimistic, it is primarily because I relied on **CBO**’s basic economic assumptions.

In summary, because it is likely that employment growth will slow in coming months and because the cyclical components of consumer spending are deteriorating, the contribution of consumer spending to real GDP growth is likely to decline. In combination with weakening growth in trade and investment, this does not bode well for robust real GDP growth in coming quarters. But, consumer optimism (reduction in the saving rate) and easy access to credit (leverage) could bolster consumer spending growth for a few more months.

### 3. Investment

Real private investment consists of three principal categories — business investment, which is labeled “nonresidential” in the National Income Accounts, residential investment, and changes in inventories. While changes in inventories are volatile from quarter to quarter, over the very long run the growth rate in inventories generally tracks growth in business and residential investment.

**Table 4** shows growth rates for real private investment and separately for two of its three principal components — nonresidential (business) and residential investment. Residential investment is 20 percent of total investment, nonresidential investment is 77 percent, and growth in inventories accounts for approximately 3 percent.

**Nonresidential investment (business)** growth was crushed in 2015 by the collapse in oil prices. Energy investment has continued to decline in 2016, but investment is down in other sectors as well. As a

**Table 4**  
**Real Private Investment (Residential and Nonresidential) Growth Rate Forecasts**

	2013	2014	2015	2016	2017	2018	2019	2020	Ave. 1947-2016
<b>REAL PRIVATE INVESTMENT</b>									
Actual	5.02	5.54	3.90						<b>3.71</b>
B of A				0.74	2.46	4.73	3.80	3.03	
GS				0.75	3.76	4.10	3.63	3.13	
Bill's BASE				0.47	1.41	2.17	2.27	2.20	
Bill's Strong Growth				0.59	2.39	3.03	3.03	3.02	
<b>REAL NONRESIDENTIAL INVESTMENT</b>									
Actual	3.50	6.04	2.07						<b>2.35*</b>
B of A				-0.28	2.53	4.41	3.68	3.03	
GS				-0.36	3.11	3.48	3.06	2.70	
<b>REAL RESIDENTIAL INVESTMENT</b>									
Actual	11.88	3.49	11.70						<b>-0.38*</b>
B of A				4.68	2.19	5.94	4.21	3.03	
GS				5.11	6.15	6.33	5.65	4.58	

\*Average 1999-2016; real private investment = 1.43% for 1999-2016

result, most forecasters now expect nonresidential investment growth will be less than 1 percent in 2016, followed by a recovery in 2017 and 2018 to a level slightly above average trend growth of 2.35 percent over the last 17 years. Optimism about investment growth, about which I have been consistently skeptical, has faded to a considerable degree. Slower growth in manufacturing is a contributing factor.

**B of A** has developed a model that explains business investment growth which can be used to produce forecasts. The model is driven by three variables — corporate profits (National Income Accounts data with adjustments), credit conditions (Baa-Aaa corporate bond spread), and policy uncertainty. Based on its model, **B of A** concludes that business investment is similar in this expansion cycle to previous ones. In other words, the shift in the composition of economic activity toward services and software and away from manufacturing and mining (oil exploration) has not had any meaningful impact on business investment activity.

**B of A** is optimistic about the outlook for business investment to accelerate in 2018 and 2019 because it expects those three drivers to improve. A potential weakness in **B of A**'s business investment model is the possibility of cumulative negative effects over time of low interest rates and depressed innovation, as reflected in a slower rate of new business formation.

**GS** believes that about 50 percent of the non-energy investment spending slowdown has been caused by the collapse in commodity prices and stronger dollar. If this is true, then stabilization in commodity prices and the dollar should contribute to a recovery in investment spending. The forecast rebound in

investment spending in 2017 reflects this expectation.

I expect annual business investment growth in coming years to average about the same or a little less than the 2.35 percent annual growth rate that has prevailed since 1999. Growth could be slower in the near term as we approach the end of the cycle.

**Residential investment** growth was very strong in 2015. Growth in 2016 promises to be considerably slower, although still at a respectable level. Housing inventories are lean and demand is relatively strong, resulting in upward pressure on housing prices. However, outsized housing price increases will eventually dampen single-family residential demand and inventories should improve with the consequence that residential investment growth should slow in coming years. Generally, forecasts reflect this scenario.

Housing starts are still historically low relative to family formation rates. The trend rate in housing starts should be about 1.4 million. However, starts are running at about a 1.16 million rate in 2016 and are expected to rise only modestly in 2017, still considerably below 1.4 million. Starts fell to an annual rate of 1.163 million in November due to a substantial decline in multi-family starts. This may turn out to be a one-month anomaly, although increased regulatory scrutiny of underwriting standards may be partially responsible.

#### 4. Inventories

Inventories subtracted 1.2 percent from “**Total**” GDP growth in the second quarter and added 0.5 percent in the third quarter. As can be seen in **Table 5**, real inventory accumulation was \$114.4 billion in the first quarter of 2015, \$93.8 billion in the second quarter of 2015, \$70.9 billion in the third quarter of 2015, \$56.9 billion in the fourth quarter of 2015, \$40.7 billion in the first quarter of 2016, actually declined -\$9.5 billion in the second quarter of 2016, and then added \$7.1 billion in the third quarter. Slowing growth in inventory accumulation subtracts from “**Total**” GDP growth — 116 basis points in the second quarter, while expanding growth adds to “**Total**” GDP — 49 basis points in the third quarter.

Inventories generally add between 0.1 and 0.2 percent to annual real GDP growth. Based on the historical record, both Q2 and Q3 inventory data were anomalous. The 1.2 percent decline due to inventory de-accumulation in the second quarter painted a weaker picture and the 0.5 percent increase due to inventory accumulation in the third quarter a stronger picture of “**Total**” GDP growth than long-term trends warrant.

Commentary following the second quarter real GDP report generally concluded that recent inventory destocking has been overdone and that restocking must occur and this will boost “**Total**” GDP growth in coming quarters. This view is not necessarily analytically sound. **B of A** commented:

*“The pendulum swung to the extreme and the economy is now left with a dearth of inventory. In prior episodes when the change in private inventories has turned negative, there has been a restocking within two quarters.”*

Negative inventory accumulation is unusual and generally occurs only during a recession. But, it does not follow necessarily that negative inventory accumulation in a non-recessionary economy automatically results in a “*dearth of inventory*.” It is entirely possible that the overall stock of inventories is still too high. I’ll come back to this observation in a moment.

**Table 5**  
**Quarterly Real Inventory Data**  
*(most recent data are in red)*

	Advance Estimate	Preliminary Estimate	Final Estimate	First Annual Revision	Second Annual Revision	Third Annual Revision
2016 Q3	12.6	7.6	7.1			
2016 Q2	-8.1	-12.4	-9.5			
2016 Q1	60.9	69.6	68.3	40.7		
2015 Q4	68.6	81.7	78.3	56.9		
2015 Q3	56.8	90.2	85.5	70.9		
2015 Q2	110.0	121.1	113.5	93.8		
2015 Q1	110.3	95.0	99.5	112.8	114.4	
2014 Q4	113.1	88.4	80.0	78.2	76.9	
2014 Q3	62.8	79.1	82.2	79.9	66.8	
2014 Q2	93.4	83.9	84.8	77.1	55.2	
2014 Q1	87.4	49.0	45.9	35.2	36.9	31.7
2013 Q4	127.2	117.4	111.7	81.8	87.2	103.6
2013 Q3	86.0	116.5	115.7	95.6	93.6	109.0
2013 Q2	56.7	62.6	56.6	43.4	39.6	52.6

As can be seen in **Table 5**, initial inventory data are crude estimates and are subject to substantial revision over the next three years. This means that the 7.1 billion inventory third quarter estimate will be revised at least three more times in the next three years.

To add to the data quality problem quarterly changes are annualized and this can greatly amplify the impact of data errors and contribute to misperceptions about the trend in real GDP growth. Volatile inventory data are especially troublesome in this regard.

There are two ways to gain a better sense of the underlying trend in real GDP growth. One way is to omit highly volatile data, especially data that are subject to substantial subsequent adjustment. That is why many analysts report the growth rate in “**Final Sales**,” which omits inventory data, as I do in **Tables 1** and **2**.

Another method that helps give a better sense of the underlying trend in real GDP growth is to focus on year-over-year growth rates, which are calculated by dividing the average of the most recent four quarters by the average of the preceding four quarters. The result of that calculation methodology is shown in **Table 2** and **Chart 1**. Quarterly data volatility in growth rates largely disappears — the impact of inventories on “**Total**” GDP growth is very small and the growth trends in “**Total**” GDP and “**Final Sales**” are very similar.

Year-over-year growth rates give a much better sense of trends but they do not eliminate entirely

the potential for oscillations in inventories to skew the observed trend up or down from the underlying unobservable “true” trend. For example, year-over-year growth in “**Total**” GDP peaked at 2.92 percent in the second quarter of 2015 and has since declined to 1.59 percent in the third quarter of 2016. Year-over-year growth in “**Final Sales**” also peaked in the second quarter of 2015 at 2.85 percent but has declined less since then to 2.00 percent in the third quarter of 2016 — a total of 85 basis points versus 133 basis points. Both measures indicate GDP growth is decelerating, but without knowing what the “normal trend” contribution of inventories is to GDP, it is unclear whether the level of GDP and GDP growth are too high, which would be the case if inventories remain above the “normal trend” level, or whether the reverse is the case, which would be the case if inventory liquidation has taken inventories below the “normal trend” level.

So, we still are left with the question of whether underlying GDP growth is 2.00 percent, 1.59 percent, or some other number.

And it’s actually even more complicated. While over an entire cycle inventories grow at approximately the same rate as GDP, inventories increase faster during the expansion phase of the cycle and fall quicker during the contraction phase.

To shed some light on the question of whether inventories are too high or too low requires discerning what the normal trend in inventories is and also determining what phase the inventory cycle is in. Armed with this knowledge we can estimate whether accumulation of inventories over time is above or below trend. That knowledge, in turn, should provide some insight as to whether inventories currently are too high or too low and this analysis will illumine whether the observed growth rate of “**Total**” GDP is too high, too low, or about right relative to the unobserved “true” trend growth rate.

Data for inventories were not reported separately in the National Income Accounts until 1999. From 1999 through the third quarter of 2016 “**Total**” GDP grew at an annual rate of 1.7333 percent and “**Final Sales**” grew at an annual rate of 1.7346 percent. This means that inventories grew only slightly slower than the rest of GDP — approximately 1.1631 percent. A slower growth rate in inventories is reasonable because of steady improvements inventory management.

Without going into the details of the math, inventories should have contributed \$36.0 billion to “**Total**” GDP in the third quarter of 2016. The actual contribution of inventories was \$7.1 billion, which means that inventory accumulation was \$28.9 billion below its trend level in the third quarter. But, by itself, this still does not answer the question of whether the overall stock of inventories was too high or too low in the third quarter.

We can gain a little more insight by looking at the past several quarters. In 12 of the past 14 quarters (the period covered in **Table 5**), inventory accumulation exceeded the trend level. During this 14-quarter period, \$870.1 billion was added to inventories, but a “normal” trend amount would have been only \$494.4 billion, meaning that an excess buildup of \$375.7 billion remains. This probably overstates the excess amount since we are still in the expansion phase of the business cycle when inventories typically accumulate at an above trend rate. But, even so, this rate of inventory accumulation is an average of \$27 billion per quarter, or 75 percent, above the “normal” trend level.

For comparative purposes, a similar 13-quarter cyclical expansionary period occurred from the first quarter of 2004 to the first quarter of 2007. During that period inventory accumulation was \$848.8 billion compared to “normal” trend accumulation of \$412.2 billion, for an excess of \$436.6 billion, or an average

excess of approximately \$34 billion quarterly. In this context, recent excess inventory accumulation looks reasonable.

Putting this all together, if you are an optimist, inventory accumulation should return to its trend level of about \$36 billion per quarter. If you are a pessimist, the current expansion is getting a bit long in the tooth, which is to say that GDP growth will decelerate in coming quarters as employment growth and consumer spending slow. If that were to occur, inventory accumulation would probably stay at a below trend level in coming quarters.

But, this is a longer-term view and may be swamped in the short run by the surge in optimism that followed Donald Trump's election as president. Small business optimism reported by the National Federation of Independent Businesses (NFIB) skyrocketed in December to 105.8, the highest level since December 2004. The substantial improvement in optimism in December was driven almost entirely — 73 percent of the increase — by expectations for better business conditions and improved sales. Another 15 percent of the improvement in December was due to optimism about the climate for business expansion, which reflects at least in part optimism about less intrusive government regulation. Thus, 88 percent of the surge in optimism was based on expectations compared to just 12 percent on realized changes in business conditions.

Improved expectations could turn out to be fleeting. However, the NFIB data strongly suggest that small businesses will act affirmatively commensurate with their improved optimism to increase capital spending. If favorable feedbacks kick into action, improved sales and continued optimism will lift inventory accumulation. So, the stage is set for at least a temporary rebound in inventory accumulation to above long-term trend levels. However, it is worth noting that NFIB's measure of plans to increase inventories showed no change in December. Thus, the evidence remains ambiguous about prospects for greater inventory accumulation in coming months. But, the balance of risks appears to have shifted toward greater inventory accumulation and this in turn boosts prospects for somewhat greater real GDP growth in coming quarters.

## 5. Net Exports

In the “**Final Estimate**” net exports contributed an outsized 0.85 percent to third quarter real GDP growth (see **Table 1**). This was an anomalous and one-time blip due primarily to a temporary rise in food exports in response to a weak soybean harvest in South America. Growth in exports, which adds to real GDP, was 1.16 percent and growth in imports, which subtracts from real GDP was -0.31 percent. The takeaway is that third quarter real GDP was unrealistically inflated and there is a high probability that the contribution of net exports will be negative in the fourth quarter as this one-time event statistically falls out of the quarterly growth calculation.

Net exports is the difference between exports and imports and when reported as a net number obscures underlying trends in exports and imports. Over the long run, both exports and imports should rise in tandem with overall growth in the economy. But, in the short run growth rates can vary. The biggest factor influencing short-term growth rates is the trade-weighted exchange value of the dollar. When the dollar is rising in value, as it did from April 2011 through January 2016 — a period during which the dollar's value rose 37.1 percent, exports become less competitive and growth slows or even turn negative. Correspondingly, imports become less expensive and they grow faster as cheaper imports are substituted for domestically produced goods and services.

This phenomenon can be seen in the year-over-year growth in exports of goods and services from 10.0 percent in the second quarter of 2011, when the dollar's value troughed, to -0.6 percent in the third quarter of 2016 (**Table 2** shows the trends for the last six quarters). The reverse trend did not occur in imports, as would be expected all else equal. Year-over-year growth in imports was 10.8 percent in the second quarter of 2011, but declined 1.1 percent in the third quarter of 2016. All else was not equal as growth in imports was depressed by the substantial decline in commodity prices and the surge in U.S. oil production. The declining growth rate in imports over the last six quarters can be seen in **Table 2**.

Part of the slowing growth in imports is also due to a world-wide decline in trade. The decline in global trade does not appear to be a temporary phenomenon. The declining trend is traceable at least in part to technological advances and the related shift in economic activity toward knowledge-based services, which generally are located near the point of consumption. The decline in trade has not been limited to the U.S.; it is a global phenomenon.

Anti-trade policies seem more likely than not to materialize under the Trump Administration. To the extent that turns out to be the case, the deteriorating trend in U.S. and global trade could worsen.

Since peaking in January 2016, the dollar's trade-weighted value has moved in a narrow range, initially down more than 5 percent but returned to January's peak level in December. Higher interest rates, the possibility of stronger real GDP growth, tax reform, and trade restrictions in coming months could drive the value of the dollar higher. In addition, the waning benefit of lower energy prices on imports should slow and probably reverse the trend growth rate in imports. When these trends and risks are combined they imply downside risk to exports and upside risk to imports with the consequence that the contribution of net exports to real GDP growth in coming quarters should be negative, which is a far cry from the 0.85 percent contribution of net exports to third quarter real GDP growth.

## 6. Government Investment

Government investment added 0.14 percent to third quarter real GDP growth. Federal government spending added 0.16 percent and state and local spending deducted 0.02 percent (see **Table 1**).

Government spending ceased to be a negative factor for real GDP growth in 2015 as it had been since 2010. And, while the third quarter "**Final Estimate**" indicates a small increase in government spending, government spending is only up an annual rate of 25 basis points over the first nine months of 2016. State and local spending may well be feeling the effects of a slowdown in sales tax revenues.

**Table 6** shows recent growth rates in government spending and forecasts for 2016-2020.

Federal government spending growth is likely to increase in coming quarters based upon proposals made during the presidential campaign by members of Trump's advisory team. Specifics about the timing and magnitude of additional federal government spending remain to be determined by Congress. The spending growth estimates in Table 6 for the "BASE" and "Strong Growth" scenarios reflect a front-loading of a \$450 billion ten-year infrastructure investment program that begin in late 2017. After spending reaches a peak level in 2018, annual percentage increases decline and actually fall below the long-run trend level, even though the level of federal government investment spending is higher.

Other forecasters have not yet adjusted their estimates of federal government investment spending



**Table 6**  
**Forecast Growth Rates of Federal and State and Local Investment Spending**

	2013	2014	2015	2016	2017	2018	2019	2020
Federal	-5.82	-2.54	0.00					
State and Local	-0.81	0.23	2.92					
Total Government	-2.86	-0.86	1.79					
GS Federal				0.67	0.56	1.35	1.22	1.04
GS State and Local				1.03	1.64	2.49	2.33	2.09
GS Total				0.89	1.22	2.05	1.91	1.69
B of A Total				0.89	1.88	1.68		
<b>BASE</b>				<b>0.88</b>	<b>1.27</b>	<b>3.56</b>	<b>2.22</b>	<b>0.75</b>
<b>Strong Employment</b>				<b>0.88</b>	<b>1.27</b>	<b>3.56</b>	<b>2.22</b>	<b>0.75</b>

growth for prospective congressional legislation to boost infrastructure spending.

## 7. Fourth Quarter 2016 and Longer-Term Real GDP Forecasts

**B of A** is forecasting 2.4 percent fourth quarter growth. **GS** currently is projecting 2.3 percent.

**Chart 4** and **Table 7** show quarterly real GDP growth projections from the fourth quarter of 2016 to the fourth quarter of 2020. All forecasts are tightly clustered, although my “**BASE**” and “**Strong Growth**” forecasts are at the lower end of the range during 2017 and 2018, but then move to the higher end of the range in 2019 and 2020.

My “**BASE**” scenario is on the lower end of the spectrum in 2017 and 2018 because it is based upon **CBO**’s collapse in employment growth. **CBO**’s forecasts for 2017 and 2018 are at the higher end of the range, which is entirely inconsistent with its assumption about slow employment growth during that period of time. All other forecasts fall within the **FOMC**’s high and low estimates throughout the 2017-2019 periods. Besides the low employment growth embedded in my “**BASE**” scenario, real GDP growth in that scenario and also in my “**Strong Growth**” scenario is depressed by the assumption of continued depressed productivity gains relative to the forecasts of other analysts. While my assumptions may prove to be overly pessimistic, I would suggest to you that the risks are skewed to the downside, and by that I mean that real GDP is more likely to come in under rather than over the forecasts of others in the next few years.

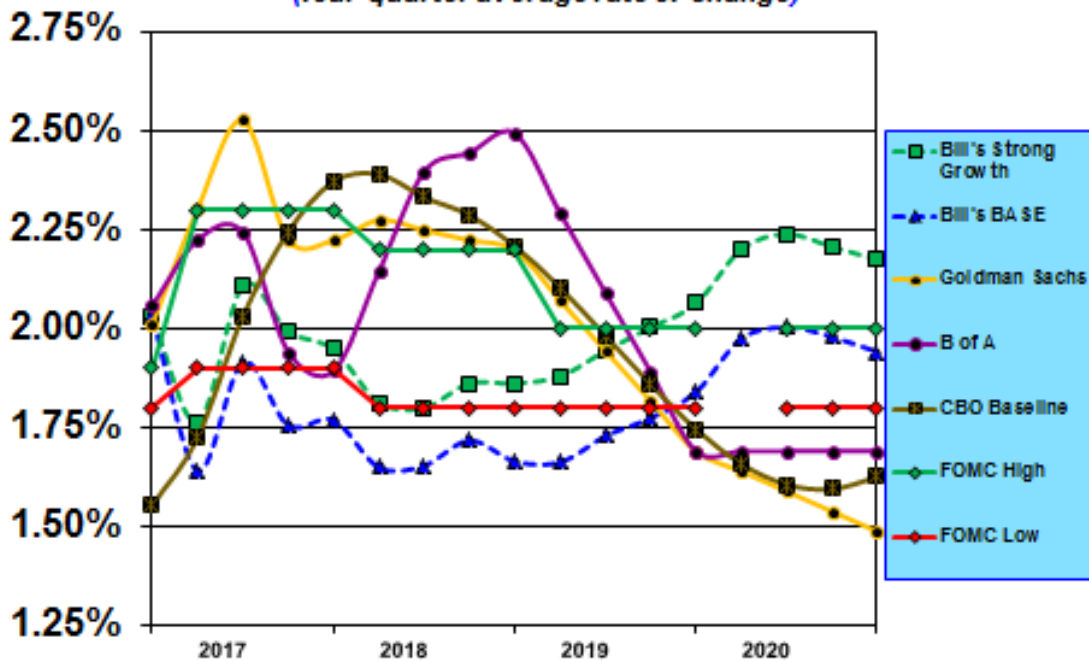
Based on **GS**’s current activity index (CAI), which is scaled to mirror real GDP growth on a continual basis as each new data report and survey become available, 2017 is beginning with strong growth momentum. CAI was 3.0 percent in December.

**Table 7**  
**Real GDP Growth Forecasts**  
*(year-over-year average)*

	2013	2014	2015	2016	2017	2018	2019	2020
Actual	1.68	2.37	2.60					
B of A				1.64	2.07	2.37	1.99	1.69
GS				1.63	2.32	2.24	1.88	1.56
CBO				1.55	2.37	2.21	1.75	1.63
FOMC High*				1.90	2.30	2.20	2.00	
FOMC Low*				1.80	1.90	1.80	1.80	
Bill's BASE				1.64	2.00	1.67	1.75	1.97
Bill's Strong Growth				1.64	2.11	1.83	1.97	2.20

\*Q4 to Q4 — FOMC year-over-year 2016 equivalent is a range of 1.51 to 1.56 percent, which is in line with other 2016 forecasts

**CHART 4 – Real GDP Growth Forecasts**  
*(four-quarter average rate of change)*



## V. U.S. Employment Developments

As the labor market approaches full employment there is increasing evidence that employment growth is slowing. December's payroll employment gains were 156,000, bringing this year's monthly average to 180,000, which is well above trend growth in the labor force. As the economy nears full employment, it is inevitable that monthly payroll growth will converge to the underlying natural rate of growth in the labor force, which currently is in a range of 70,000 to 80,000 monthly. John Williams, president of the San Francisco Federal Reserve Bank believes the monthly trend level is about 80,000 with a range of 50,000 to 100,000, depending upon potential labor force trends and participation.

Job growth has already begun to slow. Monthly employment growth averaged 180,000 in 2016 compared to 229,000 in 2015 and 251,000 in 2014. Slowing employment growth is reasonable and not worrisome because the labor market is very close to full employment based on many traditional measures.

### 1. Employment Growth

The trend in the 12-month rate of growth in payroll employment has slowed gradually from the cyclical peak of 2.28 percent in February 2015 to 1.51 percent in December 2016.

Household employment growth averaged 173,417 in 2016 compared to 209,167 in 2015 and 231,583 in 2014. Household employment grew at an annual rate of 1.39 percent in 2016 compared to payroll employment growth of 1.51 percent.

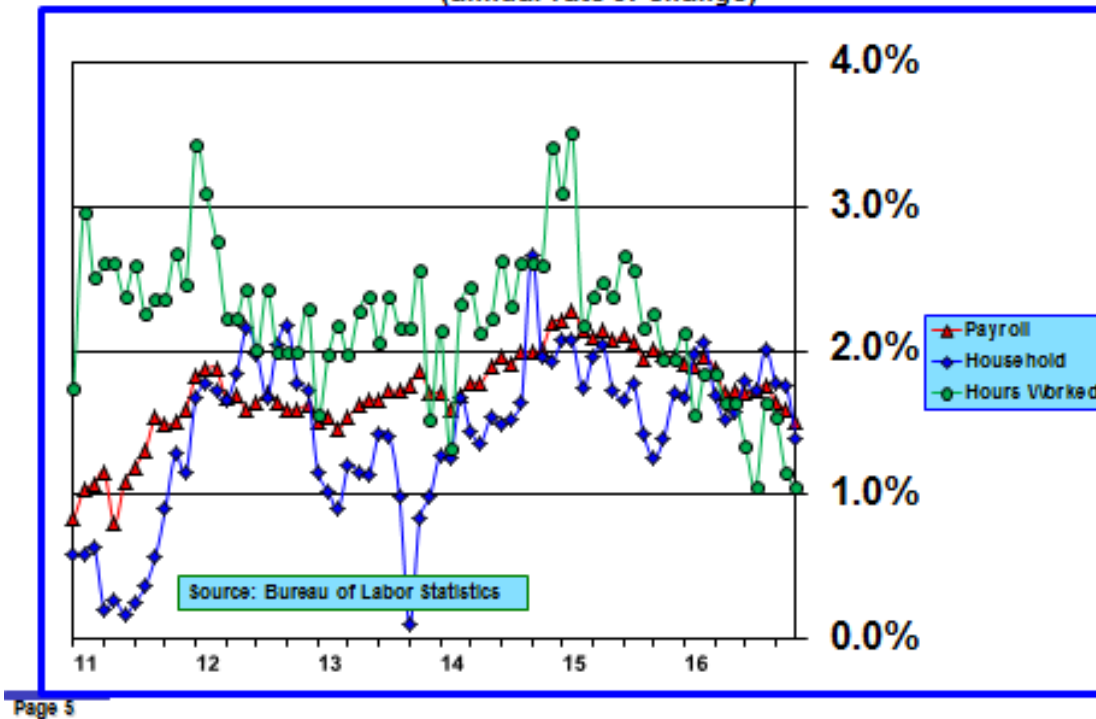
However, growth in total hours worked by all employees has been slowing more rapidly than growth in the number of employees reported in both the payroll and household surveys because the average length of the work week shortened during 2016 from 34.5 hours to 34.3 hours. The 12-month growth rate in total hours worked by all employees was 1.05 percent compared to 1.94 percent in 2015 and 3.42 percent in 2014.

**Chart 5** shows the three measures of employment growth — payroll employment, household employment, and total hours worked. Probably the most important thing to notice in **Chart 5** is the choppy downward trend in employment growth. This is indicative of a maturing labor market that is at or near full employment.

Generally, in the early stages of recovery employers increase the length of the work week of existing workers before hiring new ones resulting in total hours worked growing faster than the other two labor growth measures. This pattern reverses when economic activity slows — employers cut hours before firing workers. This pattern is evident in **Chart 5A**. The steady deceleration in the growth rate of total hours worked over the last two years is indicative of a maturing economic cycle. (See **Chart 5B**.)

**Charts 5A** and **5B** also include the rate of growth in the labor force. The labor force includes those reported in the household survey as working but also includes those who are unemployed but looking for work. Over long periods of time growth in the labor force is relatively stable reflecting growth in the population and changing population demographics. Over shorter time periods, as is evident in **Charts 5A** and **5B**, labor force growth varies somewhat. That variation is due to changes in the labor force participation rate which are triggered by the ease or difficulty in finding a job, which is clearly related to the economic cycle. This is clearly evident in the acceleration in the growth rate of the labor force over

**CHART 5— Employment Growth**  
(annual rate of change)



the last two years.

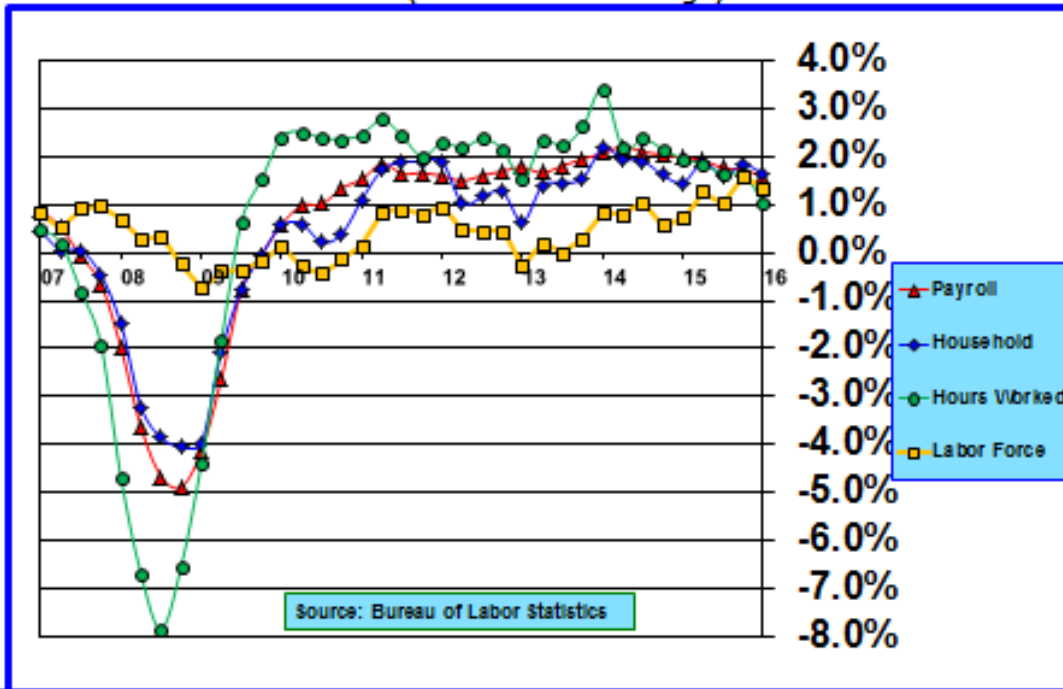
Reflecting long-run demographic trends, all measures of employment growth should decline over the next two years to a range of 0.5 percent to 0.6 percent, compared to the range of 1.05 percent to 1.64 percent that prevailed in the fourth quarter of 2016.

## 2. Employment Participation

**Chart 6** shows the labor force participation rate and the eligible-employment-to-population ratio. The denominators of both measures are the total number of people eligible to work (the employment population). The numerator of the eligible-employment-to-population ratio is the total number of people employed and unemployed who wish to be in the labor force. The numerator of the participation ratio only counts those who are employed.

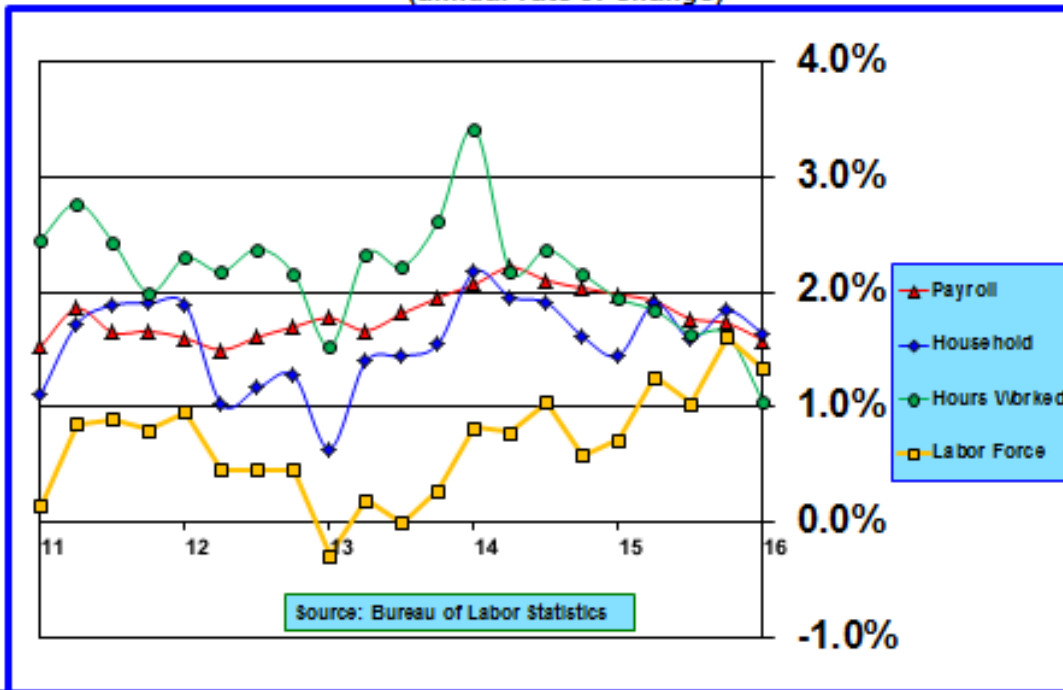
The eligible-employment-to-population ratio plunged during the Great Recession and then stabilized for several years before beginning to rise in 2014. However, the participation rate continued a steady decline until about a year ago. The downward trend in the participation ratio in recent years has been driven by changing demographics which should continue to reduce participation by about 0.2 percent annually over the next ten years. However, the decline in the participation ratio during and immediately following the Great Recession was exacerbated by the exit of discouraged workers from the labor force. Because discouraged workers are not counted in the labor force there has been considerable debate about their

**CHART 5A– Employment Growth**  
(annual rate of change)



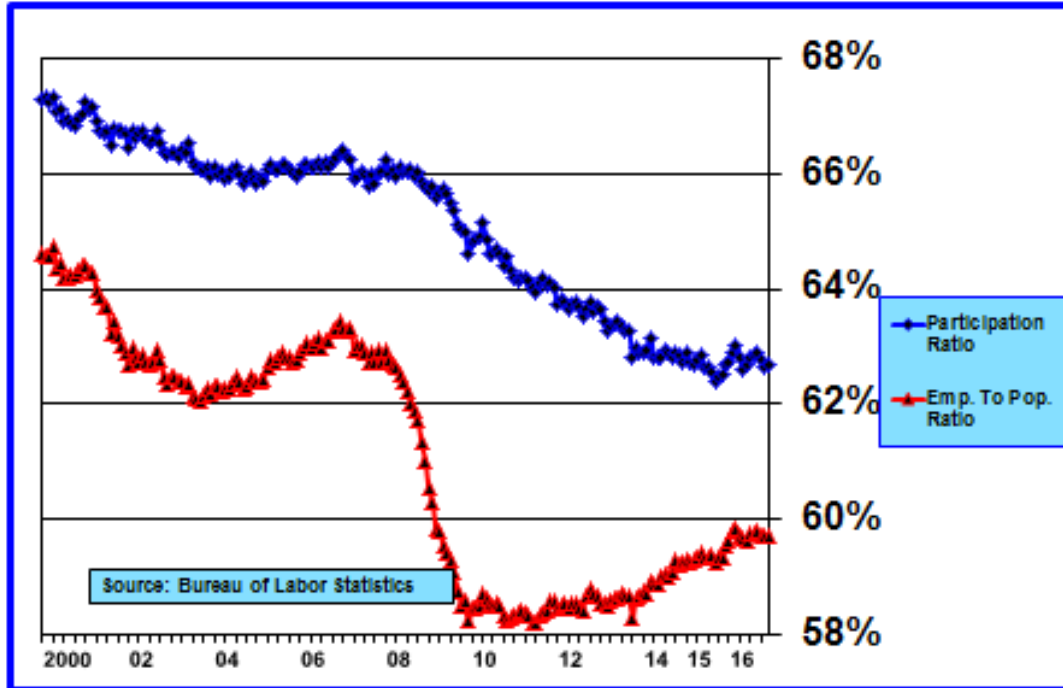
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**CHART 5B– Employment Growth**  
(annual rate of change)



Page 7

**CHART 6 – Labor-Force-Participation and Eligible-Employment-to-Population Ratios (U-3 Measure)**



Page 6

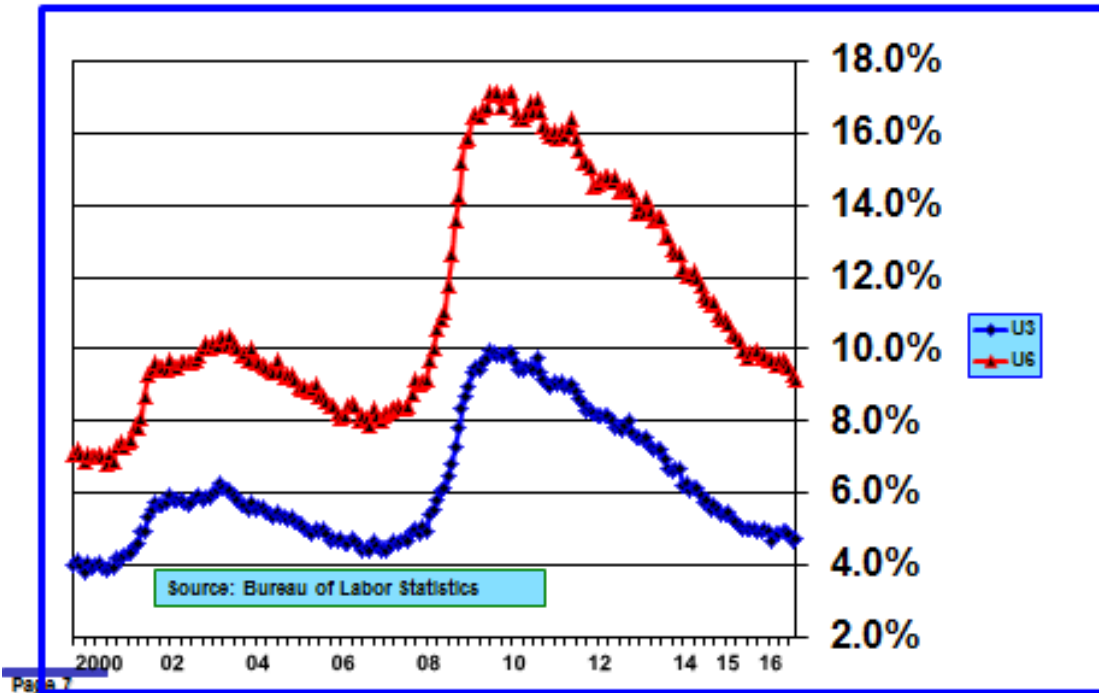
numbers and whether they would reenter the labor force once the labor market tightened. The increase in the participation rate from 62.39 percent in September 2015 to 62.67 percent in December 2016 is suggestive evidence that some discouraged workers have reentered the labor market in the last few months. If that were not the case, the participation ratio should have fallen to about 62.14. This is a swing of approximately 800,000 workers many of whom were probably discouraged but have now reentered the labor force as the labor market tightened and jobs became easier to find.

### 3. Measures of Unemployment Reflect a Labor Market That Is Close to Full-Employment

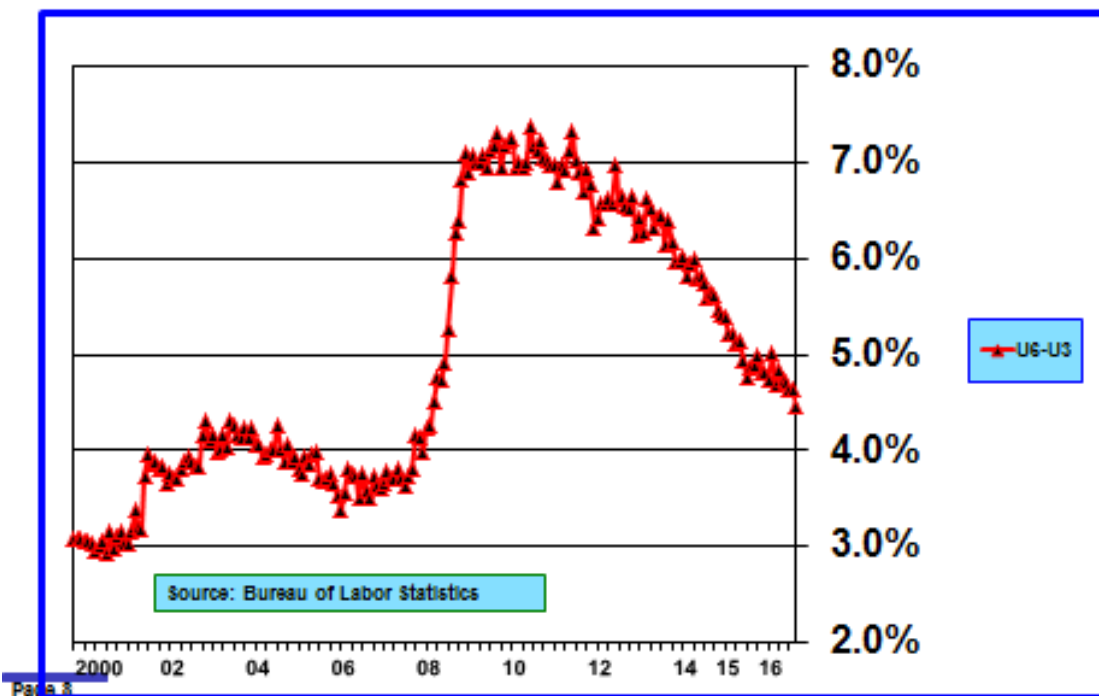
As can be seen in **Chart 7**, the U-3 unemployment rate has fallen to 4.72 percent and nearly matches the level attained prior to the Great Recession. The December U-3 unemployment rate was slightly below CBO's full employment (NAIRU) estimate of 4.74 percent.

The U-6 measure of unemployment, which adds those working part time who would prefer full-time employment and those marginally attached to the labor force to the U-3 measure, has fallen to 9.18 percent but, as can be seen in **Chart 8**, is about 0.4 percentage points above the 2005 pre-Great Recession difference between the U-3 and U-6 unemployment measures when the labor market was at full employment. The U-6 measure of unemployment fell 72 basis points during 2016 compared to a decline of 30 basis points in the U-3 measure, which underscores an improving labor market. Both unemployment measures reflect a tightening labor market that is near or at full employment.

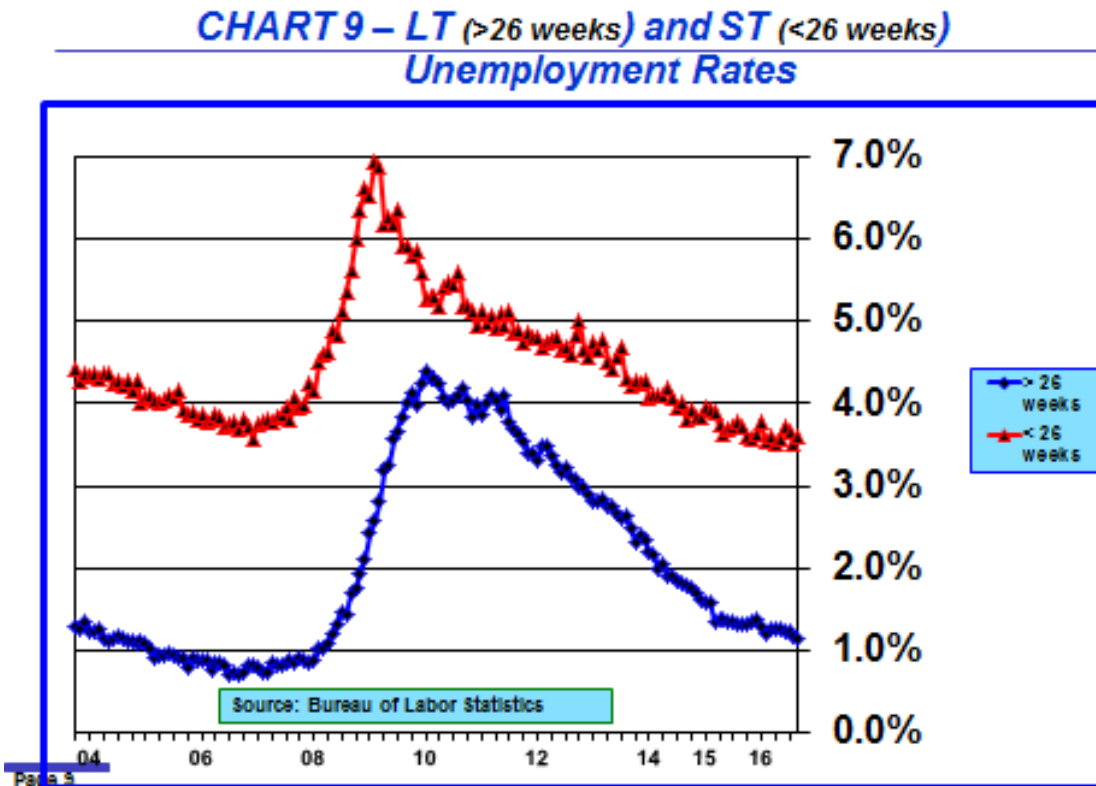
**CHART 7 – U-3 and U-6 Unemployment Rates**



**CHART 8 – U-6 Minus U-3 Unemployment Rates**



Long-term and short-term unemployment rates are also indicators of labor market tightness and are shown in **Chart 9**. The short-term unemployment rate has returned to the low level that prevailed prior to the Great Recession. The long-term unemployment rate has declined from over 4 percent in the aftermath of the Great Recession to 1.15 percent in December. It is still about 0.3 percent above the low level reached in 2006 just prior to the onset of the Great Recession.



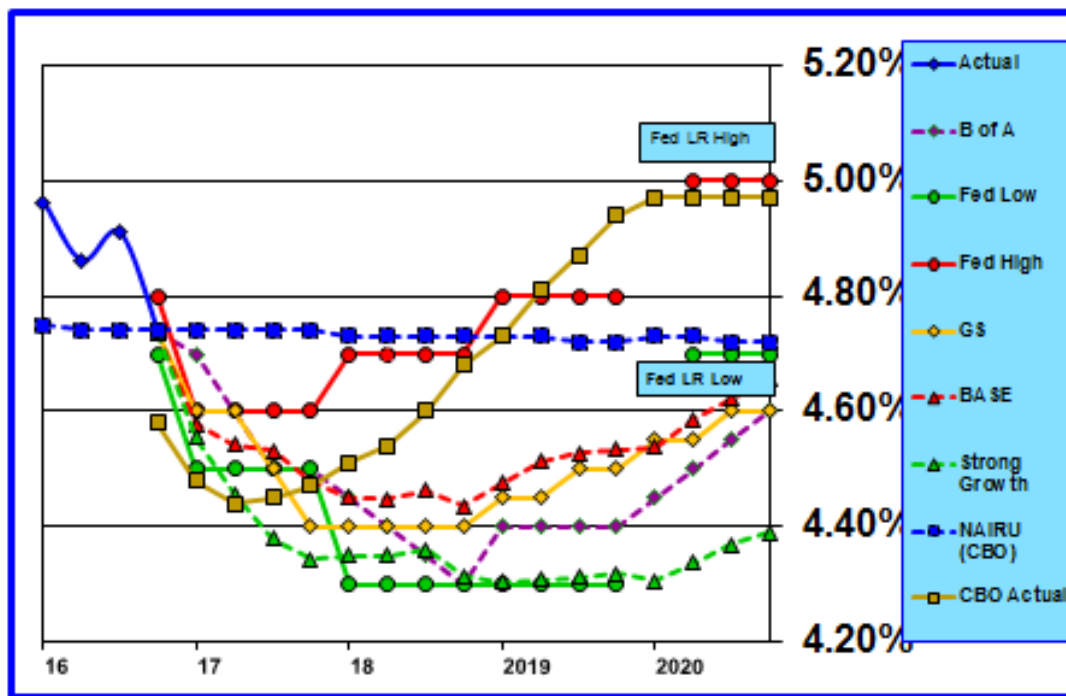
#### 4. Forecasts of the U-3 Unemployment Rate

Forecasters expect the labor market to continue to tighten. The U-3 unemployment rate nearly matches CBO's full-employment estimate of the non-accelerating inflation rate of unemployment (NAIRU). While this is certainly welcome news after seven years of high unemployment, further declines in unemployment will result in a tight labor market. Scarcity of workers typically drives wages higher. This is also a favorable development because it will increase worker spending power. But, as the term NAIRU implies, when unemployment falls below this level for any length of time not only do wages increase but inflation increases as well. For that reason, the FOMC will worry about formulating monetary policy to maintain full employment but limit the potential for tight labor markets to foster inflation. The traditional monetary policy tool involves raising interest rates. While this worry is a prominent topic for FOMC members, offsetting worries up to now about tepid growth in real GDP and fragility of international financial markets have resulted in the FOMC adopting a cautious, go slow approach to increasing interest rates. While caution still prevails among the majority of FOMC members, recent signs of stronger economic growth are now more likely to lead to tighter monetary policy in coming months.



Chart 10 shows U-3 unemployment rate forecasts for **B of A**, **GS**, and **FOMC** high and low range, and my “**BASE**” and “**Strong Growth**” scenarios. **CBO**’s estimate of **NAIRU** is also shown in **Chart 10**.

**CHART 10 – NAIRU and Unemployment Rate Forecasts**  
(quarterly average)



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Most forecasts project that the unemployment rate will stay below NAIRU over the next three years. **GS** and **B of A** are the most optimistic and anticipate that the unemployment rate will fall to 4.4 percent by 2018. My “**BASE**” scenario tracks the **GS** and **B of A** forecasts quite closely. All three of these forecasts are closer to the bottom end of the **FOMC**’s forecast range than they are to the top end. My “**Strong Growth**” scenario parallels the low-end of the **FOMC**’s projection range.

**CBO**’s pessimism, or whatever caused it to reduce employment growth after 2017, is clearly evident in **Chart 10** as **CBO**’s unemployment rate forecast rises during 2018 and then exceeds its estimate of **NAIRU** in 2019 and 2020.

### 5. Wage Growth Is Accelerating As the Labor Market Tightens

As the labor market approaches full employment, theory and past experience indicate that growth in wages should be accelerating. That is what is supposed to happen when excess supply disappears and demand is increasing. And the data indicate this is occurring. However, acceleration in wage growth to date has been weaker than experience suggests should be the case.

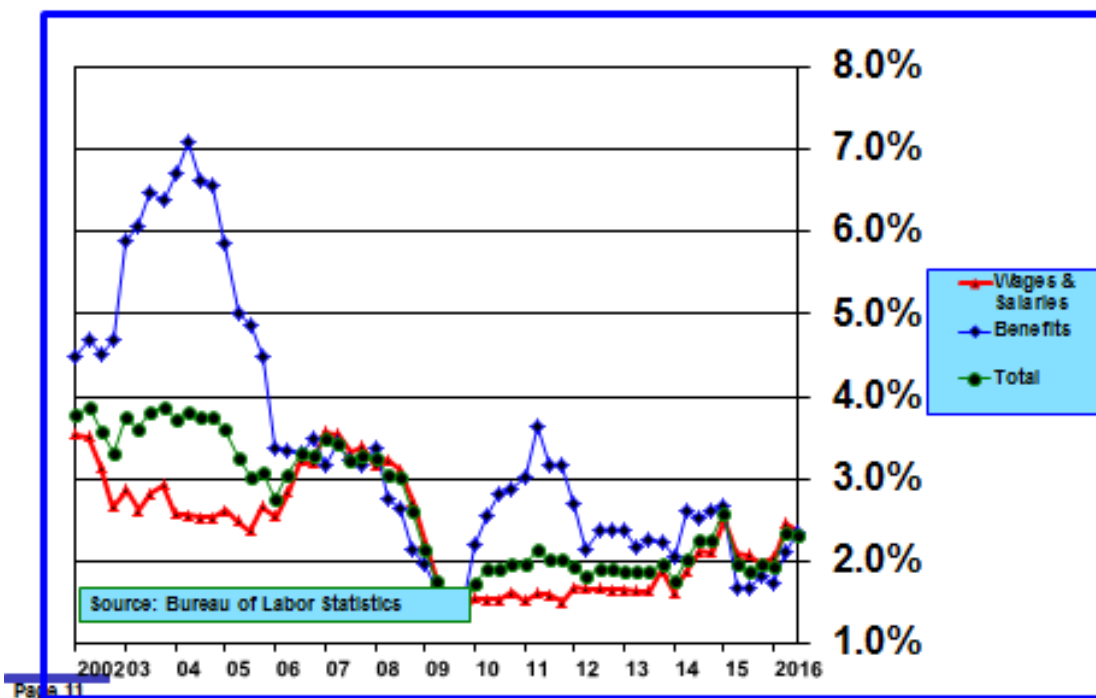
Growth in wages is an important measure of labor market strength. An increasing rate of growth is

evidence of a strengthening labor market in which labor, particularly in scarcer job categories, is gaining more bargaining power.

### a. BLS-Compiled Wage Measures

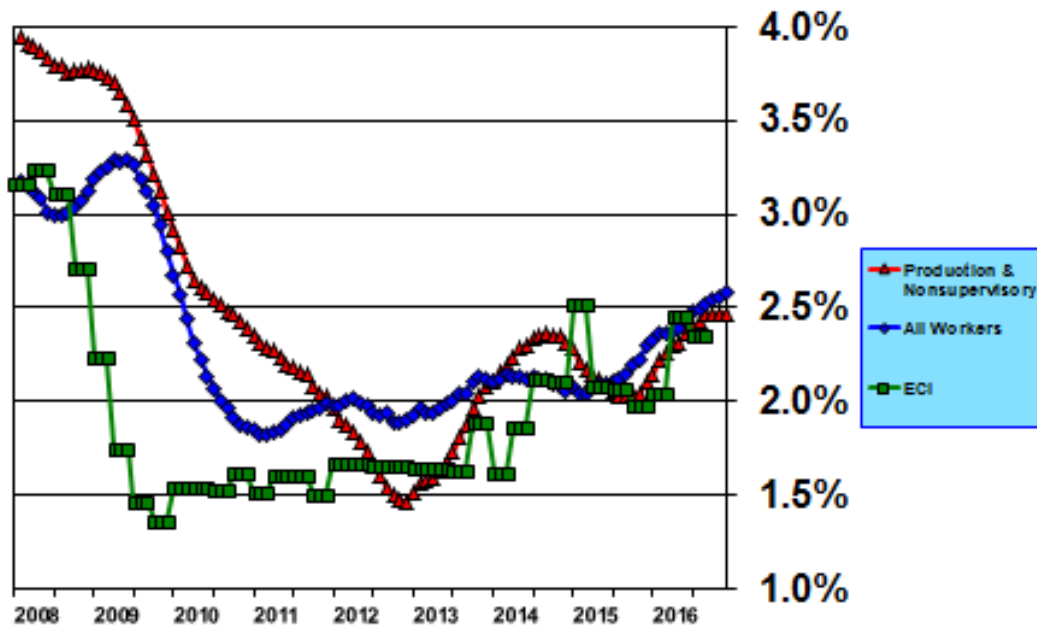
There are three primary broad-based measures of labor compensation that provide information about compensation trends. All are compiled by the Bureau of Labor Statistics (BLS). One is released monthly as part of the monthly labor situation report and includes both hourly and weekly wage rates for all employees and separately for production and nonsupervisory workers, but includes no information about benefits which comprise approximately 30 percent of total compensation. A second measure, the employment cost index (ECI), is released quarterly and consists of wages and salaries, benefits, and total compensation indices (see **Chart 11**). A third is also released quarterly as part of BLS's report on output, total hours worked, and productivity.

**CHART 11 – Employment Cost Index**  
(annual rate of change)



Looking at **Chart 11**, although there is a slight upward movement in both the wages and salaries and benefits sub-components of ECI, there is really no significant change in the total index over the past five years. Analysts were expecting third quarter ECI data to ratify the upward trend in compensation growth reflected in other measures (see **Chart 12**). Instead the year-over-year growth rate in total compensation was unchanged at 2.33 percent compared to 2.34 percent in the second quarter. The salaries and wages sub-component actually declined slightly from 2.45 percent in the second quarter to 2.36 percent in the third quarter. It is expected that when fourth quarter data are released in a few weeks that ECI will finally ratify wage and benefits growth rate acceleration.

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



Source: Bureau of Labor Statistics

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**Chart 12** shows the rate of growth in hourly wages for all workers, production and nonsupervisory workers, as well as the ECI (total wages and salaries). All three sets of measures in **Chart 12** track each other closely over time. All three measures have been rising gradually over the past five quarters.

Although these measures are highly correlated over time, because compilation methodologies differ for each set of measures percentage changes over fixed time periods will not necessarily be in sync. This is the case currently. Average hourly wages (12-month moving average) of all employees are rising 2.58 percent annually at the end of 2016 compared to 2.30 percent a year ago. Average hourly wages (12-month moving average) of production and nonsupervisory workers are rising 2.47 percent annually compared to 2.10 percent a year ago. ECI total compensation growth has risen from 1.98 percent in the fourth quarter of 2015 to 2.36 percent in the third quarter of 2016.

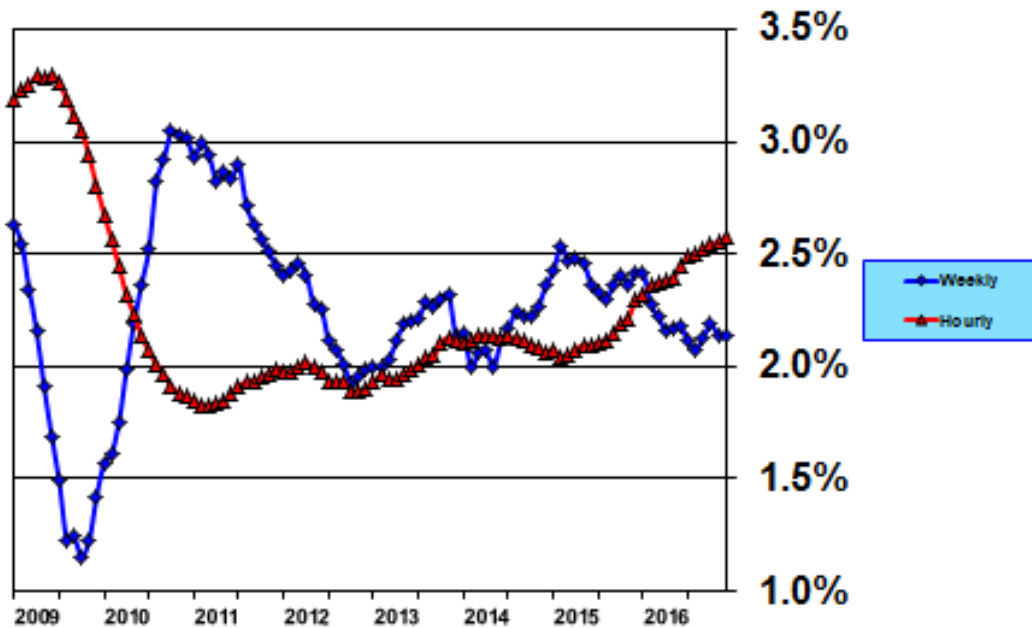
#### b. Weekly Versus Hourly Wage-Rate Growth

To a certain extent, focusing only on hourly wages is a bit misleading. If one looks at growth in average weekly earnings, which factors in the length of the workweek and thus incorporates changes in the mix of full and part-time employees, rather than the hourly wage rate, growth in weekly wages for all employees has fallen from 2.42 percent a year ago to 2.14 percent in December 2016 (see **Chart 13**). This outcome reflects a modestly shorter average number of hours worked per week, which could be due to a greater proportion of part-time workers as well as fewer hours for other employees. Nominal disposable income depends upon growth in total weekly earnings rather than growth in the hourly wage rate. This means

that deceleration in the growth rate in average weekly wages should eventually translate into slower growth in disposable income and correspondingly slower growth in consumer spending. However, as indicated in **Chart 14**, consumer income and spending data do not yet reflect the development of a decelerating trend.

**CHART 13 – Hourly & Weekly Wage Rate Growth – All Workers**

(annual year over year and 12-month moving average rates of change)



Source: Bureau of Labor Statistics

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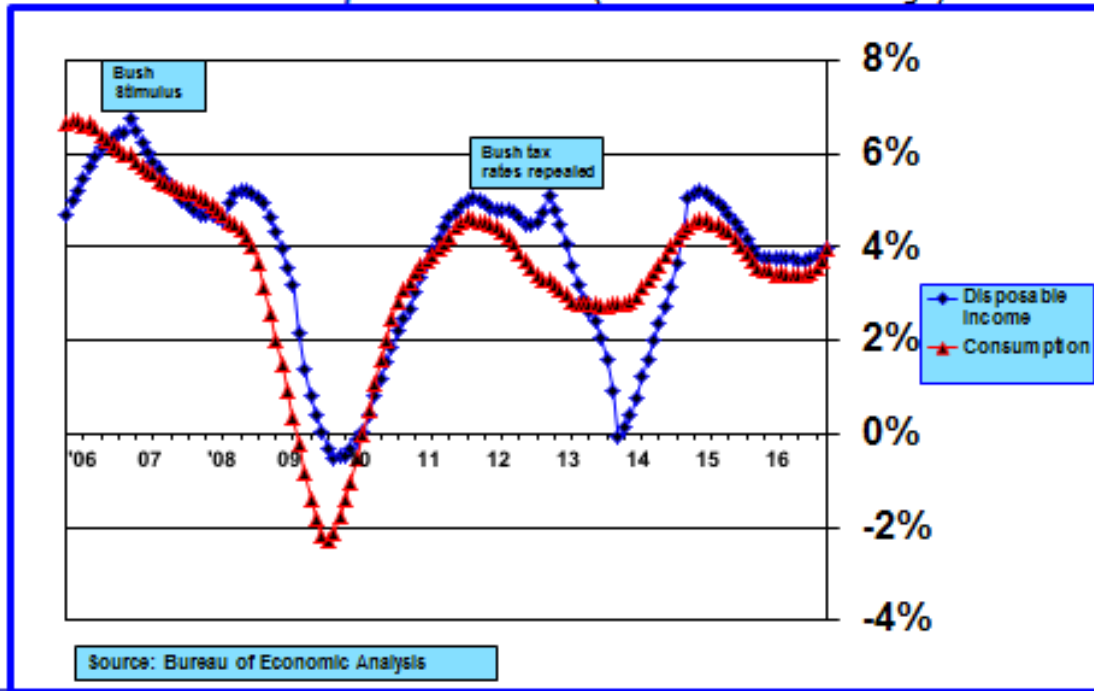
**c. Hourly Wage Forecasts**

**Chart 15** shows my projections for wage growth for production and nonsupervisory workers over the next ten years and **CBO’s**, **GS’s** and **B of A’s** projections for growth in the wage and salary component of ECI for all workers.

Two comments about the details shown in **Chart 15** are in order. First, the data series for all employees only began in 2006 while the data series for production and nonsupervisory workers goes back to 1964. Thus, the data series for production and nonsupervisory workers contains a lot more historical information which is useful for constructing robust forecasts. In the long run growth rates in wages for all employees and for production and nonsupervisory workers are highly correlated (see **Chart 12**).

Second, **CBO**, **GS** and **B of A** forecast wage rate growth only for ECI. Although the methodologies for constructing these different wage data series differ, the directionality of all is highly correlated over time, even if the levels aren’t precisely the same. **GS’s** ECI wage growth forecast rises to 3.5 percent by 2018 and remains at that level thereafter. **B of A’s** ECI forecast also rises to 3.5 percent in 2018 but then recedes to 3.3 percent. **CBO’s** ECI forecast rises to 3.3 percent in 2018 but then slows to 3.1 percent by 2020. Wage growth for production and nonsupervisory workers rises more slowly in my “**BASE**” and

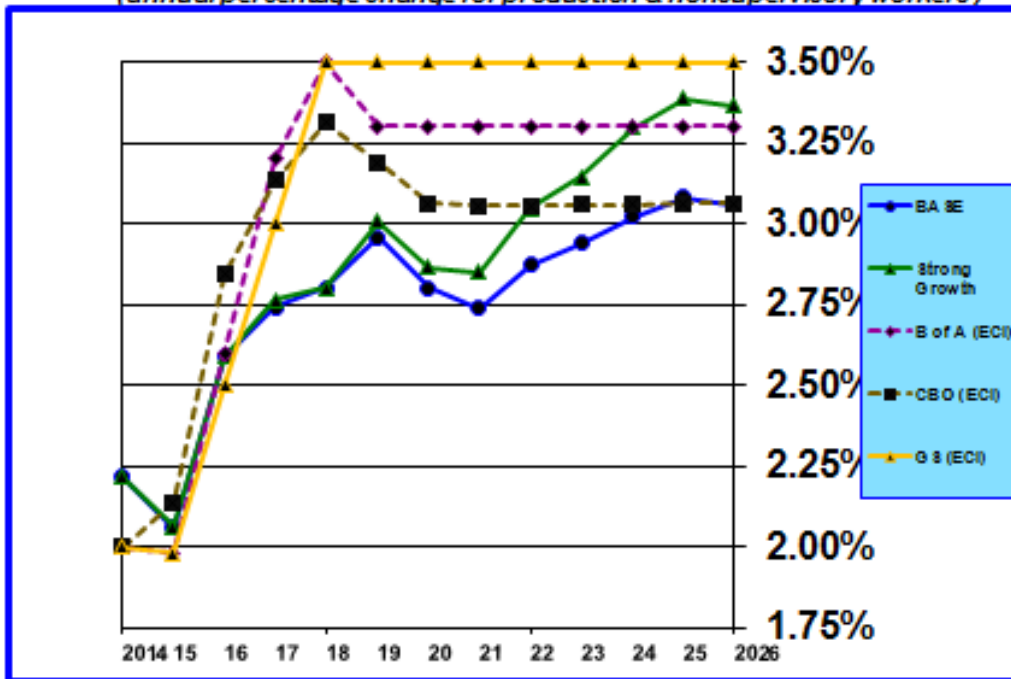
**CHART 14 – Nominal Disposable Income and Consumption Growth (12-month rate of change)**



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**CHART 15 – Hourly Wage Rate Forecasts**

(annual percentage change for production & nonsupervisory workers)



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“**Strong Growth**” scenarios, but after several years reaches a range of 3.1 percent to 3.3 percent.

## 6. Concluding Observations

Based upon a variety of measures, the U.S. labor market is very near full employment. The U-3 unemployment rate of 4.72 percent compared to **CBO**’s 4.74 percent estimate of full employment and the U-6 rate is about 0.4 percent away from full employment.

But, can the labor market remain as strong as it has been in recent months when the pool of skilled eligible workers is shrinking? And, what if erosion of profit margins as wages rise puts pressure on employers to curtail hiring? Is the recent shortening in the length of the workweek a warning signal? And, what if consumer spending slows? Won’t that lead to unwanted inventories and production cutbacks? What if stock prices decline sharply and financial conditions tighten, perhaps because of an international shock or tighter U.S. monetary policy? That outcome would likely feed employer caution.

There are many risks. The labor market may well continue its forward march, but the balance of risks appears to me to weigh in the direction of slower employment growth in coming months. Also, longer run, the demographics simply do not support the rate of growth in employment that we have experienced in recent times. We may look back at the summer of 2016 and conclude that it marked the apex of good times in the employment market.

## VI. Inflation and Interest Rates

The FOMC remains confident that both core and total PCE inflation will return to the 2.0 percent target level by 2018. The FOMC has repeatedly extended the time frame for achievement of the 2.0 percent target, but has not wavered from its conviction that the target will eventually be achieved. In its latest update of projections in December, the FOMC did not extend the time frame to reach its target of 2.0 percent. With core PCE inflation at approximately 1.7 percent, I expect that most FOMC members are now confident that the target of 2.0 percent will be reached in the next two years.

### 1. Core Inflation

Core PCE inflation was 1.65 percent in November and has risen 34 basis points from its recent low of 1.31 percent in July 2015. Total PCE inflation, which continues to be depressed by the plunge in oil prices and lower import prices, was 1.37 percent in November, up from the 0.23 percent rate of increase that prevailed at the end of 2015. Now that commodity prices have stabilized, total CPE inflation will continue to rise in coming months, as the early 2016 declines in prices of commodities drop out of the year-over-year annual rate of change. While core PCE is anticipated to remain slightly below 2.0 percent during 2017, total PCE inflation is expected to rise to slightly more than 2.0 percent.

As can be seen in **Table 8** (**Chart 16** 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 increase modestly during 2017. Over the longer run, **B of A** and **GS** expect core PCE inflation to rise gradually, reaching

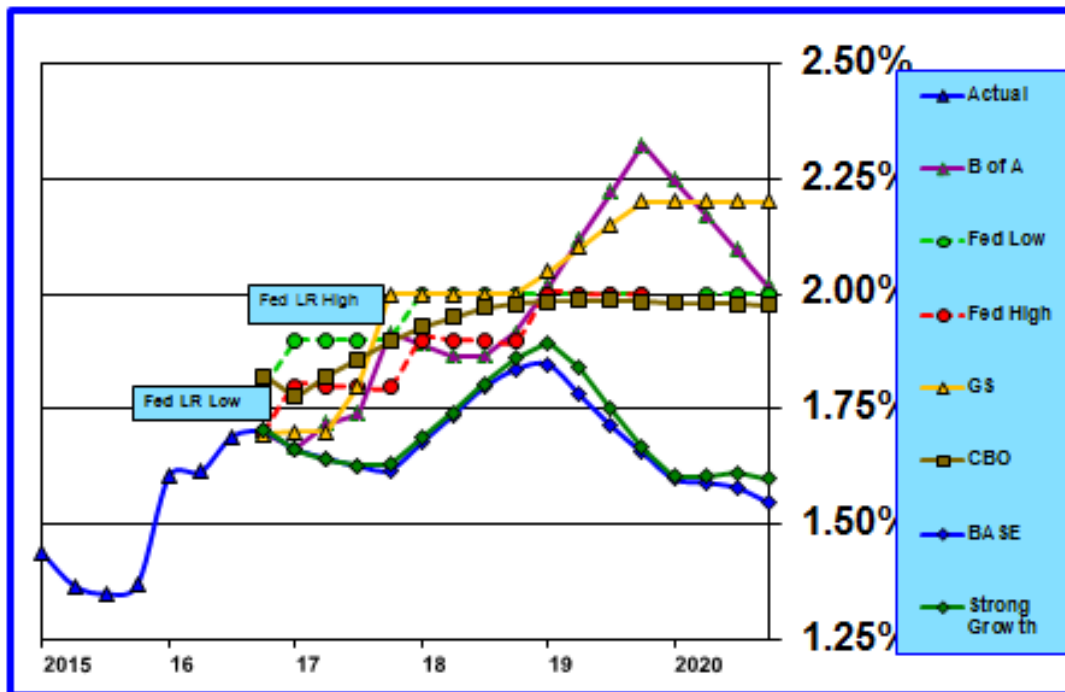
2.0 percent sometime during 2018, and then to move above 2.0 percent in 2019. **B of A** expects inflation to reach 2.3 percent in 2019 and **GS** is forecasting 2.2 percent in 2019. **B of A** then expects inflation to recede to the 2.0 percent target over the long run. FOMC projections reflect a gradual rise to its 2.0 percent target.

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

Core CPE	2013	2014	2015	2016	2017	2018	2019	2020
Actual	1.55	1.50	1.39					
B of A				1.7	1.9	1.9	2.3	2.0
GS				1.7	2.0	2.0	2.2	2.2
Average of 6 Models*					1.7	1.7	1.7	
Bill’s BASE				1.7	1.6	1.8	1.7	1.6
Bill’s Strong Growth				1.7	1.6	1.9	1.7	1.6
FOMC — High				1.8	1.9	2.0	2.0	
FOMC — Low				1.7	1.8	1.9	2.0	

\*Cleveland Federal Reserve Bank Economic Commentary 2016-14

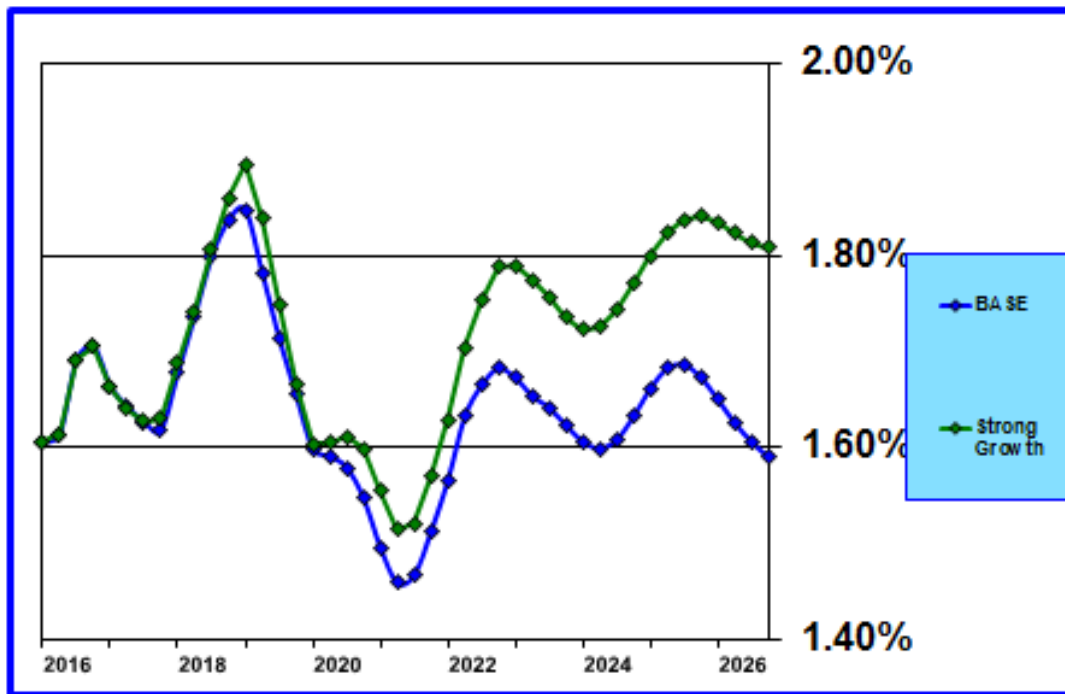
**CHART 16 – Core PCE Inflation**  
*(annual percentage rate)*





In looking at **Chart 17**, my “**BASE**” and “**Strong Growth**” forecasts for core PCE inflation also move toward 2.0 percent by 2018. But, as can be seen in **Chart 17**, core PCE inflation does not remain near 2.0 percent as others expect but drifts down to a range of 1.6 to 1.8 percent. The principal culprit is weak productivity and also a modest rise in the employment gap as unemployment edges up in the “**BASE**” scenario.

**CHART 17 – Core PCE Inflation**  
(annual percentage rate)



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Ellis Tallman and Saeed Zaman, in an economic commentary published by the Cleveland Federal Reserve Bank, examined core PCE inflation forecasts of six inflation forecasting models that in the past have proved reasonably accurate.<sup>5</sup> All of the models forecast modest increases in core inflation over 2017, 2018, and 2019. However, there was less than a 50 percent probability in 5 of the 6 models that inflation would reach 2.0 percent. The point estimates of the six models ranged between 1.6 and 1.8 percent in all three years and the average of point estimate of the six models was 1.7 percent in each year. Core PCE inflation forecasts for my “**BASE**” and “**Strong Growth**” scenarios are not materially different. All are a bit lower than the forecasts of **B of A**, **GS** and the FOMC. While one should never discount the possibility of a sea-change in the economic environment in the future that would set inflation of a different course, the preponderance of the evidence indicates that core PCE inflation will remain modestly below 2.0 percent in coming years, notwithstanding an economy that is operating at full employment and benefiting from additional fiscal stimulus.

**Table 9** shows contributions, based on my econometric model, of various economic variables to forecast core PCE inflation for two periods of time — 2017-2020 and 2021-2026. The starting point is the 1.65

<sup>5</sup>Ellis W. Tallman and Saeed Zaman. “The Likelihood of 2 Percent Inflation in the Next Three Years,” Cleveland Federal Reserve Bank, Economic Commentary 2016-14, November 29, 2016.



percent rate that prevailed in November. By the end of 2020 core PCE inflation is a few basis points lower in both the “**Strong Growth**” and “**BASE**” scenarios, as the positive impacts of tighter labor markets, a weaker dollar (dollar strengthens in the early part of the period and then weakens by 2020), and the passthrough effects of gains in housing prices (proxy for the rent and owners equivalent rent components of the core PCE inflation index) are more than offset by negative impulses from low productivity (depresses the equilibrium real rate of inflation as well as the measured level of inflation) and a very small effect of slower employment growth.

**Table 9**  
**Changes in Core PCE Inflation**  
*(Basis Points)*

“Strong Growth” Scenario						
	Labor Growth	Labor Gap	Productivity	Dollar	Housing Prices	Total
2017-2020	-2	27	-50	4	9	-13
2021-2026	0	-3	-5	42	-13	22
2017-2026	-2	24	-54	45	-4	9
“BASE” Scenario						
2017-2020	-2	22	-43	5	-1	-19
2021-2026	0	-18	-4	44	-17	5
2017-2026	-2	4	-47	49	-18	-14

During the 2021 to 2026 period core inflation rises slightly in both the “**BASE**” and “**Strong Growth**” scenarios. The effects of a weaker dollar dominate the collective impact of other variables.

## 2. Inflation Expectations

At the beginning of the year the 10-year U.S. Treasury note yield was 2.27 percent. On December 31, 2016 it was 2.45 percent. However, during most of the year the 10-year yield was much lower and bottomed out at 1.37 percent on both July 5 and 8 following the British vote to leave the European Union. On the day before the election of Donald Trump, this rate was 1.88 percent. By the end of the year the yield rose 67 basis points as market participants came to a consensus that a Republican president and a Republican Congress would pursue a strongly pro-growth economic agenda. This would have the consequence over time, given that the economy is already near or at full employment, of boosting inflation. Thus, most of the increase in the 10-year yield by the end of the year was caused by a recalibration of inflation expectations and a boost in the real rate of interest based upon expectations of faster growth in real GDP.

My “**BASE**” and “**Strong Growth**” scenarios include assumptions of \$150 billion in added fiscal stimulus annually over the next ten years with the capital infrastructure part of the stimulus front loaded in 2018 and 2019. This amounts to about 0.8 percent of nominal GDP. Nonetheless, after some upward pressure on core PCE inflation to about 1.9 percent in 2018, core inflation settles back into a lower range (see **Table 8** and **Chart 17**).

According to the University of Michigan monthly Surveys of Consumers, expectations for long-term inflation was 2.5 percent in January. This survey measure has been trending down gradually. A year ago long-term inflation expectations were 2.7 percent.

### 3. Financial Conditions

Maintaining financial stability is a responsibility of the Federal Reserve. In this regard the Federal Reserve was tested repeatedly during the global financial crisis of 2008 and by most accounts responded effectively.

However, prior to the time of the financial crisis, the Federal Reserve regarded its lender of last resort role as just that. It was to respond and stabilize the financial system during times of crisis. Monitoring the fragility of the financial system and formulating monetary policy in an anticipatory manner to assure ongoing financial stability was not regarded as a primary function of monetary policy. That approach has changed in the aftermath of the global financial crisis but it still appears that the macroeconomic goal of maintaining financial system stability remains more one of reaction to developments.

That is not to say that there has been a lack of attention, but the focus has been primarily at the micro level — individual financial institutions — rather than at the macro level. The Dodd Frank Act mandated a comprehensive regulatory regime intended to assure financial strength and prudent management of individual financial institutions. Thus, financial institutions are now subject to more stringent capital and liquidity requirements. Notwithstanding these safeguards, should an individual institution get into serious trouble, the requirement for systemically important financial institutions (SIFIs) to have living wills, is intended to enable regulatory authorities to quickly and surgically resolve failures and contain the potential for systemic contagion.

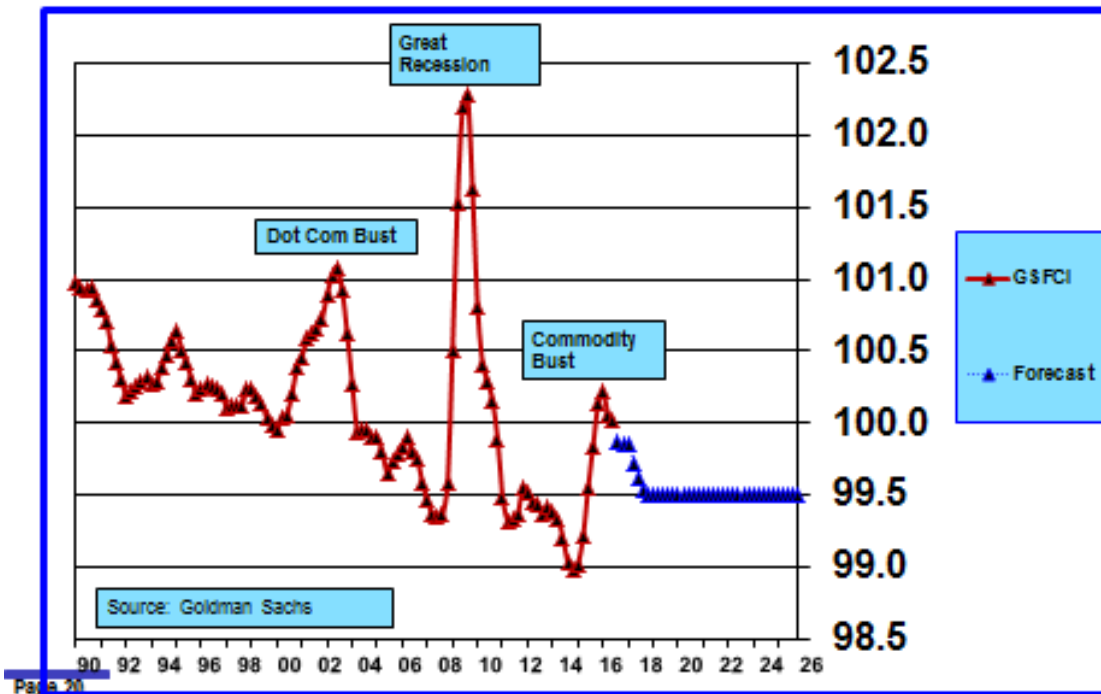
To my way of thinking, as helpful as establishing rigorous prudential standards might be and preparing for prompt intervention when trouble arises, this micro approach ignores the possibility that macroeconomic policy will drive systemic financial instability rather than the acts of one or more wayward SIFIs. The Federal Reserve needs to monitor macroeconomic developments and the consequences of policy responses not just in terms of their impacts on employment and inflation but also in terms of financial system stability. There is building awareness, I believe, in the importance of this tri-part focus, but considerations of systemic financial stability are not yet robustly built into the monetary policy decision making process.

**GS** calculates and publishes a financial conditions index. **GS** has conducted extensive empirical research which demonstrates that financial conditions impact economic growth. Tighter financial conditions lead to slower growth. Tighter financial conditions can occur through intentional tightening of monetary policy by the FOMC. But, tighter financial conditions can also occur during episodes of financial market instability and panic. **Chart 18A** shows the history of the **GS** Financial Conditions Index (**GSFCI**) from 1990 through 2016 on a quarterly average basis. During this period there were three episode of financial market instability — the dot com bust during 2001 to 2003, the Great Recession of 2008 to 2010 and the recent commodity price bust of 2015 which carried over into early 2016.

The forecast in **Chart 18A** assumes that **GSFCI** stabilizes at 99.5, a level that historically has been consistent with relatively benign financial market conditions.

**GSFCI** is a strong predictor of interest rates with an average lag of about 18 to 29 months with the

**CHART 18A – Financial Conditions**  
(Quarterly Average)



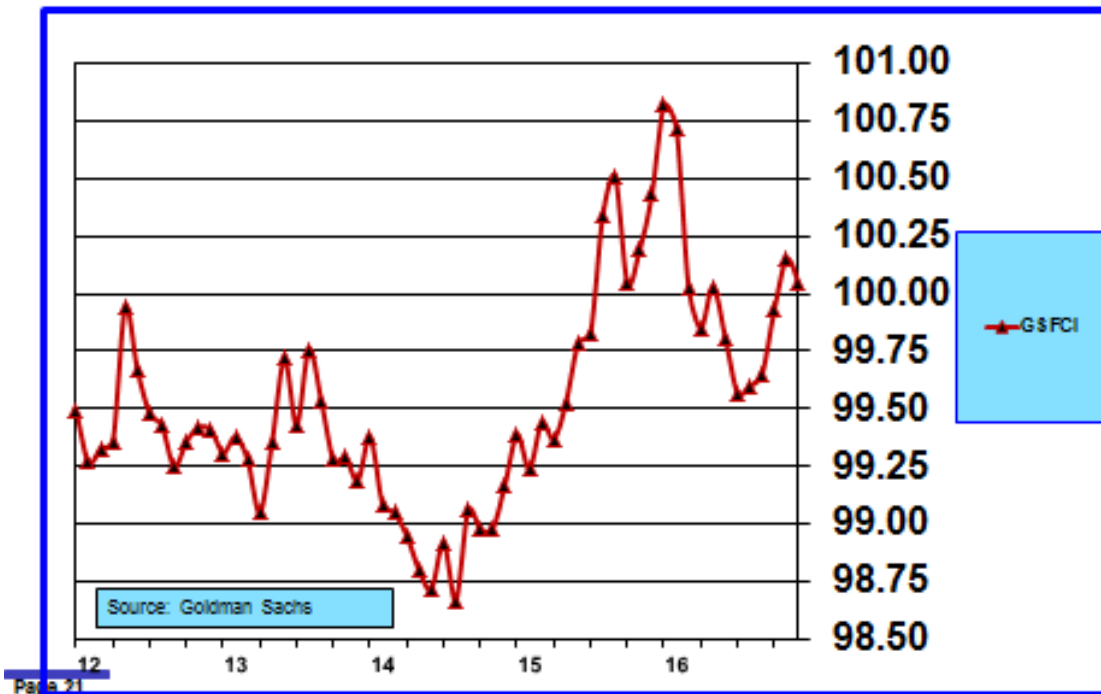
longest lag occurring for short-term rates and the shortest lag for long-term rates. A sustained increase of 0.25 in **GSFCI** raises the federal funds rate by 50 basis points and the 10-year Treasury yield by 35 basis points.

That brings us to the short-lived global financial panic at the beginning of the year. **GSFCI** began to escalate during the summer of 2015 as commodity prices plummeted. Indeed, the FOMC in response to tightening financial conditions in global markets delayed the first federal funds rate hike that had widely been expected to occur in September 2015. When a degree of calm returned to markets during the fall, the FOMC proceeded to initiate monetary tightening in the U.S. at its December meeting. However, financial conditions immediately began to tighten again and full-scale panic ensued in January. This sequence is clearly evident in **Chart 18B**. Again, the FOMC responded by pulling back and the crisis passed.

This is not to argue that the FOMC was wrong to begin tightening monetary policy in December 2015. After all, the labor market was near full employment and the risk of rising inflation, although not necessarily the reality that inflation would actually increase, existed. The FOMC found itself in the difficult position of attempting to satisfy its full employment and price stability mandates without aggravating the financial instability that was present in a global financial system that has become dependent upon quantitative easing and abundant liquidity. The FOMC responded by going on hold and international markets calmed down.

Financial conditions again tightened briefly and only moderately in the immediate aftermath of the Brexit vote (see **Chart 18B**), but markets were quickly soothed by central banks' promise of providing liquidity. Financial conditions quickly resumed an easing trend and stock prices headed higher.

## CHART 18B – Financial Conditions (Monthly)



But, this brief respite was short-lived and financial conditions again began to tighten in October as the market began to revise its inflation expectations upwards. While the markets are gleeful about the prospects for economic growth under a Trump presidency, financial conditions have not eased because concerns about higher inflation and tighter monetary policy have offset the benefits of higher expected growth.

GS's research indicates that the tightening in financial conditions that began in mid-2014 and continued to early 2016, reduced real GDP growth by 1.0 percent over the past year. That intuitively makes sense because tighter financial conditions reflect elevated perceptions of risks and cause market participants to act with a greater degree of caution. Riskier loans are not made and more speculative investments are deferred or avoided altogether. The good news, according to GS, is that the easing of financial conditions that has occurred during 2016 should add 0.5 percent to real GDP growth over the next 12 months. However, part of this expected benefit has now been cancelled due the recent rise in GSFICI.

GS recently included a financial conditions variable in its version of the traditional Taylor Rule, which provides guidance for calibrating monetary policy to attain full employment and price stability. GS posits that the effects of financial conditions on the policy interest rate are not necessarily independent of the employment and inflation components of the Taylor Rule. In fact, increases in the federal funds rate will tighten financial conditions. GS simulated three scenarios.

Because of the interactive effects, GS believes that a more gradual rate of monetary policy tightening in the U.S. is prudent policy. In this regard, GS has ratified through a model a policy that the FOMC has already embraced. In GS's first scenario the federal funds rate increases over the next few months by 40

basis points including the 25 basis point increase that occurred in December. Real GDP growth improves by approximately 0.5 percent over the next 12 months but the benefit fades toward the end of 2017. In the second scenario, the federal funds rate rises by 100 basis points by the end of 2017, including the 25 basis point increase in December, and there is no net impact on real GDP growth. Note that the FOMC's median projection from its December Summary of Economic Projections is for the federal funds rate to increase an additional 75 basis points by the end of 2017. In the third scenario, financial conditions worsen by more than what can be attributed to a 100 basis point increase in the federal funds rate. In this case, real GDP growth is depressed by about 0.5 percent over the next 12 months. At the moment both the FOMC and **GS** believe scenario is most likely, which, if **GS**'s analysis is on the mark, means that tighter financial conditions caused by an additional 75 basis point increase in the federal funds rate by the end of 2017 will have a minimal impact on real GDP growth.

If **GS**'s analysis is sound, a gradual tightening in monetary policy may maintain a semblance of financial stability for the time being, but such a policy will not directly deal with the sources of financial instability that are already present in the global financial system. In that regard, such a policy is palliative, not curative. And, cynics will continue to observe, with merit, that every time that the market has a convulsion, the FOMC pulls back and, perversely, this encourages more risk-taking which worsens, rather than ameliorates, underlying financial market instability.

Volatility has recently fallen to cyclically extremely low levels. This is true for both interest rates and exchange rates. One is reminded that the last time interest-rate volatility was low was in 2006 and 2007 in the waning days of the Great Moderation just prior to the financial crisis and onset of the Great Recession. And, the last time currency exchange rate volatility was low was in 1986 and 1987, just prior to the stock market's decline of 22 percent in a single day. Markets can be lulled into complacency by soothing words and friendly policy intervention. Low volatility actually encourages risk taking and the deployment of leverage to arbitrage narrow spreads. But, the mispricing of risk sets the stage for a potentially violent correction when the market loses confidence in policymakers' ability to deliver. This is not to say that such a correction is inevitable or even imminent. It is merely an historical observation that low volatility is an artifact of aggressive policy management. And, if that policy management discourages markets from managing risk or, worse, encourages excessive risk taking, then history tells us that a Minsky moment will occur, often without much warning.

The euphoria that has gripped global markets since the election of Donald Trump has upped the ante on risk taking and reinforced uncritical complacency.

As I have said before, policymakers can postpone the day of reckoning, perhaps for a very long time. But, if underlying global systemic imbalances are not addressed effectively, the day of reckoning will inevitably eventually occur. And, history tells us that the longer imbalances are allowed to build, the greater will be the pain when pretend and extend policies no longer work.

One more gloomy thought: If Trump follows through on his anti-trade rhetoric with concrete action and the dollar strengthens significantly, global financial stresses will build and particularly in emerging economies with high levels of corporate debt that is dollar-denominated.

#### 4. Interest Rates — Federal Funds Rate

As expected the FOMC raised the federal funds rate 25 basis points at its December meeting.

Going forward the debate now revolves around how rapidly the FOMC will raise rates. The expected number of federal funds rate increases is shown in **Table 10**.

**Table 10**  
**Number of Federal Funds Rate Increases of 25 Basis Points — FOMC, B of A, GS, Bill’s “BASE”, Bill’s “Strong Growth”**

	2017	2018	2019	2020	Total to Equilibrium	Equilibrium Rate
FOMC — median	3	3	3	1	10	3.00
B of A	1	3	2	3	9	2.75
GS	3	4	4	0	11	3.25
Bill’s BASE	3	1	3	3	10	3.00
Bill’s Strong Growth	3	1	4	3	14	4.00

In its December Summary of Economic Projections (SEP), the median FOMC member view is three additional 25 basis point increases in the federal funds rate in 2017 (1.25-1.50 percent), three more in 2018 (2.00-2.25 percent), three more in 2019 (2.75-3.00 percent), and a long-term equilibrium level of 3.00 percent. In the past the SEP projections have proved to be very unreliable guides to future monetary policy. For example, a year ago the FOMC median projected four increases in the federal funds rate. Only one occurred. The question now is whether, with the economy at full employment and fiscal stimulus in the wings, the FOMC’s projected three rate increases in 2017 might turn out to be an underestimate. The market does not think so. It is projecting one to two rate increases during 2017.

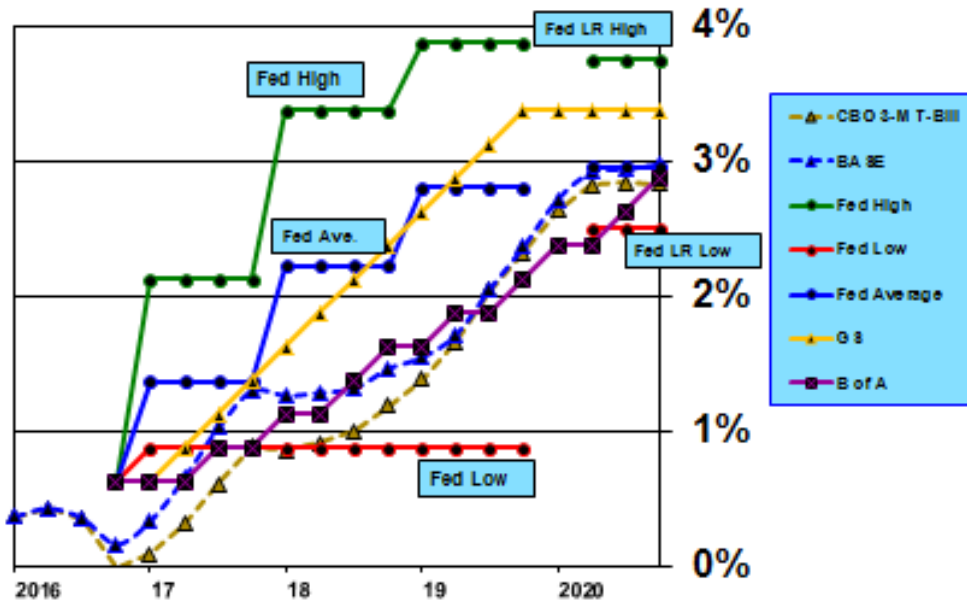
**B of A** expects only one increase in 2017 but has hedged its bets by adding the caveat that the balance of risks favors more rate increases. **GS** is firmly in the three-rate increases camp. Also, **GS** expects a faster pace of tightening than **B of A** and a higher equilibrium level of the federal funds rate of 3.25 percent compared to 3.00 percent for the FOMC and 2.75 for **B of A**.

My updated federal funds rate forecast, with the addition of fiscal stimulus, now projects three rate increases in 2017 but only one additional increase in 2018, followed by three to four increases in 2019 and three more in 2020. By “**BASE**” case equilibrium rate settles at 3.0 percent, the same as the FOMC’s projection. However, the federal funds rate in my “**Strong Growth**” scenario continues to rise to 4.0 percent. Actually, this is not an equilibrium rate but reflects the consequences of a tight monetary policy in an overheated economy — the unemployment rate falls to 4.3 percent in this scenario, considerably below the NAIRU rate of approximately 4.7 percent.

Even with the recent increase in interest rates market expectations for increases in the federal funds rate, which are embedded in futures and the forward yield curve, are for a slower pace of adjustment in the federal funds rate and a lower equilibrium value than the FOMC’s median and most professional forecasters’ projections.

**Chart 19** shows the quarterly progression in the federal funds rate from the present through 2020 implied by the FOMC’s high, low and average projections. It also shows forecasts for **B of A**, **GS**, and my “**BASE**” scenario.

**CHART 19 – Federal Funds Rate Forecasts**



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My forecast is at the lower end of the range but tracks **B of A**’s projections quite closely.

### 5. Interest Rates — 10-Year Treasury Note Yield

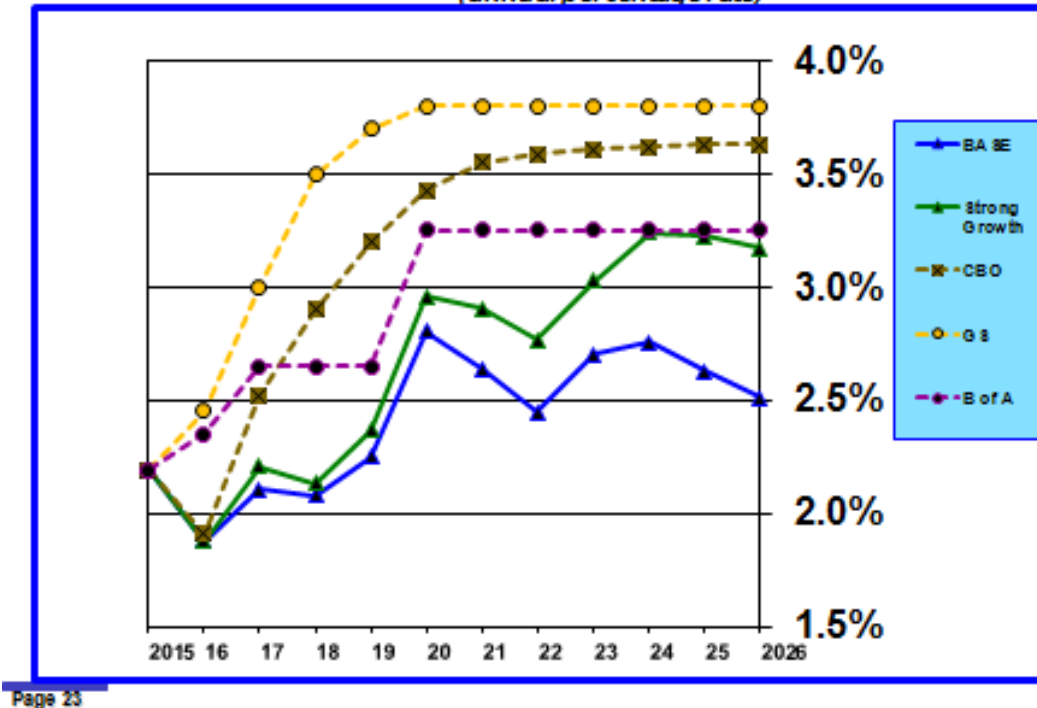
**Chart 20** shows forecasts for the 10-year Treasury note yield over the next ten years. Over time analysts have reduced their forecasts for the ten-year yield. Partly this is a mark-to-market exercise driven by the persistent decline in this yield contrary to expected increases. But the adjustments also reflect a growing consensus that the long-run equilibrium real rate of interest has declined. Analysts still expect long-term rates to rise from the current level, but no longer to as high a level.

My estimates of values of the long-term neutral federal funds rate and the long-term equilibrium 10-year Treasury rate are shown in **Table 11** for various assumed values of the growth rate in total hours worked and productivity, along with the long-term potential real GDP growth rate implied by these assumed values.

The top panel of **Table 11** holds growth in total hours worked constant at 0.6 percent annually and shows the impact on neutral federal funds and the equilibrium 10-year Treasury rates for assumed productivity values of 0.9, 1.4, and 1.6 percent. The only change in the bottom panel of **Table 11** is in

**CHART 20 – Ten-Year Treasury Yield**

(annual percentage rate)



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the assumed annual growth rate in total hours worked, which is raised to 0.8 percent.

Until the December 2016, FOMC members had steadily reduced the median estimate of the long-term nominal value of the federal funds rate from 4.25 percent to 2.875 percent — the median value rose to 3.00 percent in December. Based upon my model, as shown in **Table 11**, my sense is that the FOMC’s median projection for the federal funds rate is reasonable with its estimate of long-term real GDP growth of 1.8 to 2.0 percent. My model indicates that a long-term nominal federal funds rate of 3.0 to 3.25 percent is a likely level for the long-term neutral federal funds rate, but it could be lower at 2.75 percent, if productivity remains at the dismal level of 0.9 percent that it has averaged over the last ten years. This also means that the real neutral interest rate, assuming inflation is 2.00 percent, would be 1.0 to 1.25 percent.

Assuming an inflation rate of 2.0 percent, my model indicates that the 10-year neutral rate should be in a range of 3.25 percent to 3.50 percent. The long-term neutral rate is 3.80 percent for **GS**, 3.25 percent for **B of A** and 3.6 percent for **CBO**. These estimates do not differ materially — all fall within a range of 3.25 percent to 3.80 percent.

However, my forecasts for the 10-year yield in my “**BASE**” and “**Strong Growth**” scenarios, which are shown in **Chart 20**, are lower because my forecasts of inflation are lower than 2.0 percent. The range in my actual forecasts is 2.50 percent to 3.25 percent, rather than 3.25 percent to 3.50 percent that my model says would prevail if inflation were 2.0 percent.

Over the next four years my model forecasts that the 10-year yield will rise 98 to 114 basis points from its estimated December level of 1.88 (actual December level was 2.50 percent, which means that the



Table 11

**Long-Term Potential Real Rate of GDP Growth for Various Assumed Values of Growth in Total Hours Worked and Productivity and Corresponding Nominal Long-Term Natural (Neutral) Interest Rates for Federal Funds and 10-Year Treasury Rates**

*(assumes nominal rate of inflation = 2.0% and economy is at full employment)*

	Assumptions		
Potential Real GDP	1.37%	1.80%	1.97%
Productivity	.9%	1.4%	1.6%
Labor Force	.6%	.6%	.6%
	Neutral Nominal Rate		
Federal Funds	2.76%	3.10%	3.23%
10-Year Treasury	2.93%	3.28%	3.42%

	Assumptions		
Potential Real GDP	1.56%	1.99%	2.16%
Productivity	.9%	1.4%	1.6%
Labor Force	.8%	.8%	.8%
	Neutral Nominal Rate		
Federal Funds	3.00%	3.33%	3.46%
10-Year Treasury	3.12%	3.47%	3.61%

four-year increase would be a smaller 36 to 52 basis points) to 2.86/3.02 percent (see **Table 12**). The favorable effects of slowing labor force growth, *based upon CBO's assumptions*, and improving financial conditions are more than offset by the negative effects of firming inflation, a reduced full-employment labor gap, and improving productivity.

After 2020, with slowing employment growth and benign inflation there is little upward pressure on the 10-year yield in the “**Strong Growth**” scenario other than potential improvements in productivity. The 10-year yield actually falls quite a bit in the “**BASE**” scenario because of weaker employment growth, a somewhat large employment gap, and lower inflation.

**Table 12**  
**Changes in 10-Year Treasury-Note Yield**  
*(Basis Points)*

	STRONG GROWTH					
	Labor Growth	Labor Gap	Productivity	Inflation	Financial Conditions	Total
2017-2020	-107	71	29	151	-31	114
2021-2026	-1	-2	45	-9	-16	18
2017-2026	-107	69	74	142	-47	131
	BASE					
2017-2020	-111	68	23	148	-31	98
2021-2026	-7	-18	37	-29	-16	-33
2017-2026	-118	49	60	119	-47	65

## APPENDIX

**Outlook — 2017 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 2017 U.S. and global economic outlook and risks to the outlook are listed below. As events unfold during 2017, this will enable the reader to track my analytical prowess. Observations which are on track are denoted by “+”; observations not on track are denoted by “-”; indeterminate observations are denoted by “?” and general observations are denoted by “✓”.

1. **U.S. — January Assessment:** Strengthening growth; surging consumer, business, and investor optimism; increased political uncertainty stemming from new U.S. president and Republican-controlled Congress

- **2017 real GDP Y/Y** growth projections range from 2.0% to 2.4%. The FOMC’s central tendency Q4/Q4 projections range from 1.9% to 2.3%. (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 fiscal policy activism to cut taxes and increase infrastructure spending.
- **Real GDP output gap** will remain high, but will narrow considerably during 2017 from about 1.2% to 0.5% to 0.8%. (The exact size of the output gap will be revised by CBO, probably in February 2017 and again in August 2017).
- **Potential structural rate of real GDP growth** has declined significantly in recent years. I expect potential growth to be about 1.3% to 1.4% in 2017. Long-term potential real GDP growth will edge up in coming years to between 1.75% and 2.0%.
- **Productivity** should rise during 2017 from near zero in 2016 but is still likely to be less than 1.0%, as growth improves and investment increases; it will fall well short of the historical 2.1% average.
- **Employment** growth should slow considerably during 2017; now that full employment has been reached actual employment growth should closely track growth in the labor force; payroll growth should average 125,000 to 150,000 per month.
- **Employment participation** will resume a gradual decline during 2017 due to demographically-embedded retirements of baby boomers.
- **Unemployment rate** should edge down slightly to between 4.3% and 4.5%.
- **Wage growth** should edge up slightly during 2017 to a range of 2.7% to 3.1%.
- **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 2.75% to 3.25%.
- **Nominal consumer spending growth** on the Y/Y basis will rise due in part to upward pressure on inflation in a range of 3.5% to 4.0%.

? *University of Michigan Survey of Consumers sentiment index was 98.1 in January, down only slightly from the post-election high of 98.2 in December*

? *Evercore ISI’s index of company surveys was 49.4 on January 13 compared to 50.1 on December 30*

- **Household personal saving rate** will decline slightly as growth in spending exceeds growth in disposable income in a range of 5.0% to 5.5%.
- **Stock prices**, as measured by the S&P 500 average, should be between 5% higher or 10% lower, on the downside reflecting rising wages, slowing growth in profit margins and rising short-term interest rates and on the upside reflecting growth friendly fiscal policy; there is analysis indicating that U.S. stock prices are overvalued as 2017 commences.  
*? The S&P 500 stock index was up 1.6% as of January 13*
- **Manufacturing** will continue to be weak with the PMI index just slightly above or below 50, reflecting the negative consequences of dollar strength.  
*? The NFIB optimism index skyrocketed to 105.8 in January, the highest level since December, 2004*
- **Business investment** spending growth should improve and be in a range of 1.0% to 3.0%.  
*? Small business plans to increase capital spending rose along with the increase in optimism in January*
- **Residential housing investment** should be about the same in 2017 as it was in 2016 in a range of 3% to 6%; housing starts should rise 2% to 5%.
- **Residential housing prices** should rise more slowly in 2017 in a range of 2% to 4% in 2016.
- **Trade deficit** should rise in 2017 as the increase in the value of the dollar depresses exports and increases imports.
- The **dollar's value** on a trade-weighted basis should rise due to stronger economic growth and higher interest rates relative to other developed economies.
- **Oil prices** are likely to trade in a narrow band of \$40 to \$55 because abundant and flexible supply in the U.S. will constrain prices if global demand accelerates.
- **Monetary policy** — the Federal Reserve will raise the federal funds rate one to three times during 2017 in 25 basis point increments.
- **Total inflation** measures (CPI and CPE) will be relatively stable in 2017: CPI will rise 2.0% to 2.4% and CPE will rise 1.7% to 2.0%.
- **Core PCE inflation** will rise slightly in a range of 1.6% to 1.9%, reflecting global disinflationary trends offset somewhat by the closing U.S. employment and output gaps.
- The **10-year Treasury rate** is likely to fluctuate in a range between 1.75% and 2.75% in 2017. 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.  
*? The 10-year Treasury yield was 2.40% on January 13 compared to 2.45% on December 31, 2016*
- **Fiscal policy** will have a positive impact on real GDP growth during both fiscal year and calendar year 2017, raising real GDP growth by 0.2 to 0.3%.
- The **deficit** as a percentage of nominal GDP will increase substantially from fiscal year 2016's level of 3.15% to a range of 3.50% to 4.25%. Stronger than expected growth and delayed implementation of tax cuts and infrastructure spending would push the deficit toward the lower end of the range.

- **State and Local investment** spending growth should range between 1.0% and 1.5%.
2. **Rest of the World — January Assessment:** Stronger economic activity and much improving confidence.
- **Global growth** is likely to improve to 3.4% in 2017 from 3.0% in 2016. However, due to political instability in Europe and the possible negative impacts of a strong dollar on emerging market economies, risks are tilted to the downside.
  - **European growth** will be positive but will likely fall short of the consensus 1.4% because of potential social and political disruptions, but a decline in the value of the euro would have favorable consequences.
  - **European inflation** will rise from 2016's 0.2% but will probably fall short of the expected 1.2%.
  - **European financial markets** should be relatively stable with periodic episodes of volatility prompted by specific events, such as the French and German elections or a potential banking crisis in Italy.
  - **European political dysfunction, populism and nationalism** will continue to worsen gradually. Countries to watch closely include France, Italy, the Netherlands, Greece, Spain, and Portugal. Germany's election will occur toward the end of 2017 and could be significant, depending upon whether political and social turmoil escalates in other parts of Europe earlier in the year.
  - **U.K. growth** is expected to decline to 0.9% in 2017 compared to 2.0% in 2016 as Brexit consequences begin to develop.
  - **China's GDP growth** is expected to be 6.6% but risks are to the downside.
  - **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 0.2% in 2016 to 1.2% in 2017. GDP growth will also continue to fall short of the policy target, but is expected to rise from 1.0% in 2016 to 1.5% in 2017. 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 7.0% to 8.0% in 2017.
  - **Emerging market countries** should experience better growth in 2017 than in 2015 and 2016 when falling prices for commodities depressed economic activity in many countries. Growth is expected to improve from 2.6% in 2016 to 3.5% in 2017. However, a major downside risk is a strong dollar, particularly for emerging economies that have large amounts of dollar-denominated debt.
  - **Brazil, Russia, and Venezuela, in particular,** will continue to struggle with 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 (**+ risk realized; - risk not realized**).
- **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 2016 level of 2.6% or rises much more rapidly than expected; falling wage growth is the more serious risk
- *U.S. Unemployment rate* rises
- *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 -10% 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
- *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 and triggers a global dollar squeeze
- *Oil prices* rise above or fall below the expected range
- *U.S. monetary policy* tightens more than 75 basis points, spawns financial market uncertainty and contributes to global financial instability
- *Financial conditions* tighten and cause financial market volatility
- *U.S. inflation* falls or rises more than 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
- *Global trade* declines as the U.S. and other countries pursue protectionist policies
- *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
- ***Emerging economies*** — a strong dollar leads to serious difficulties especially for countries with large amounts of dollar-denominated debt.
- Severe and, of course, unexpected ***natural disasters*** occur, which negatively impact global growth

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