Our Perspectives:
Commentary on the economy & regulatory policies affecting financial companies

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The Longbrake Letter*

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I. First Quarter U.S. Real GDP Growth Likely to Disappoint But Accelerating Global Growth Is Limiting Downside Risks

Expansion of economic activity in the U.S. began in July 2009 and is nearing the eight-year mark. While not yet the longest economic expansion – that honor belongs to the 9½ year expansion in the 1990s – this expansion is showing increasing signs of maturity. As reflected by March's 4.5 percent unemployment rate, little slack remains in the labor market.

But, to be sure, expansions do not die simply of old age. They turn into recessions when the economy overheats and excesses and imbalances build up. Usually, excesses and imbalances are visible, but markets usually tend to underestimate their severity and thus when recession actually takes hold, most are surprised. Examples of unsustainable imbalances that spawned the last two recessions were the dot.com stock market bubble of the late 1990s and the housing bubble of the mid-2000s.

Today, there does not appear to be any single highly visible imbalance. However, when the economy is operating at full employment and the Federal Reserve is engaged in tightening monetary policy, the risks of slower growth and even recession begin to build. A traditionally reliable precursor of the turning point from expansion to recession is a tight monetary policy which results in a flat or inverted yield curve. Currently, monetary policy is in the early stage of tightening. In addition to monetary policy, there are several other risks – "yellow flags" – which are emerging in the U.S. economy and deserve attention and monitoring. These "yellow flags" are discussed in the next section of this month's **Longbrake Letter**.

Following the election of Donald Trump as the next U.S. president last November, optimism soared across the board, stock markets rallied, and interest rates rose as market participants anticipated that the policies of the Trump administration would boost economic growth and business profits. This phenomenon became known as the "Trump Trades" in financial markets.

*The information contained in this newsletter does not constitute legal advice. This newsletter is intended for educational and informational purposes only.

Generally, markets anticipate the expected consequences of government policies and adjust prices of financial and real assets. That is what occurred at the end of 2016. However, since the Trump administration took office in late January it has become increasingly apparent to market participants that policy changes are likely to be less consequential than implied by campaign rhetoric and what changes do occur are likely to take longer for Congress to consider and take action. This is true both for trade and immigration policies with negative economic implications as well as for tax reform and infrastructure stimulus with positive economic implications. The failure of the Republican House of Representatives to pass replacement health care legislation and the delay in considering tax reform took the steam out of the "Trump Trades."

However in spite of these developments, the stock market has retained most of the post-election gains and remains near the peak reached on March 1. Long-term interest rates have eased by only about 15 basis points since the beginning of the year.

That naturally raises the question of why in the face of delays and increased doubt about the size of fiscal stimulus markets have not reacted negatively. The answer appears to be quite straightforward. Synchronized global growth has been accelerating since the second quarter of 2016. Furthermore, the value of the dollar has been stable. Both factors have favorable spill over impacts on the U.S. economy.

For the time being global economic acceleration appears to be sustainable. Europe at long last is benefitting from the European Central Bank's aggressive monetary easing; Europe's banks, with the notable exception of Italy, are in better condition and are lending; and many governments have pulled back on austerity policies. China returned about a year ago to its old tried and true policy of stimulating housing investment. Market reforms and building a consumer-based economy are not moving forward very rapidly. Eventually, the piper will be paid, because without reform the Chinese economy will eventually stagnate. However, that outcome is not yet imminent. India's economy under Prime Minister Modi is performing well and even the basket cases of Brazil and Russia are beginning to revive. Venezuela continues to go from bad to worse, but it is too small to have any impact of consequence.

Thus, for the time being, the global economic acceleration is real and has momentum. The U.S. economy is likely to continue to benefit.

But, U.S. first quarter real GDP is shaping up to be a significant disappointment. Notwithstanding the best consumer confidence numbers in years, consumer spending has been weak recently. This drag on growth is exacerbated by annualizing quarterly data and by the strength of consumer spending in the fourth quarter of 2016. Also, some believe that faulty seasonal adjustments impose a downward bias on first quarter real GDP. In any event the consensus expectation is for growth to be 1.1 percent. **B of A** expects 0.9 percent; **GS** expects 1.4 percent; the Atlanta Federal Reserve Bank estimate is 0.5 percent.

No one, however, is ready to reduce forecasts for all of 2017, which remain in a range of approximately 2.0 to 2.2 percent. For now there is optimism that global growth and Trump administration economic policies will help real GDP growth accelerate as the year wears on.

All-in-all markets are positioned for good news, not for bad news. While the odds of significant bad news actually occurring are not extraordinarily high, when markets are positioned for perfection the risks of disappointment go up.

We may continue to muddle through as we have for the past several years – lackluster growth, but no cataclysmic events. Let us hope so. There is little substantive evidence that growth will improve much

and political uncertainty is worrying.

II. "Yellow Flags" – Nascent Risks

Unlike the expansions that preceded the previous two recessions, there is no starkly obvious imbalance or bubble plaguing the U.S. economy that threatens imminent recession. However, there are several trends that bear close watching. Some of the "yellow flags" have been building up over an extended time period while others have developed relatively recently.

1. Household Wealth – Financial Assets and Real Estate

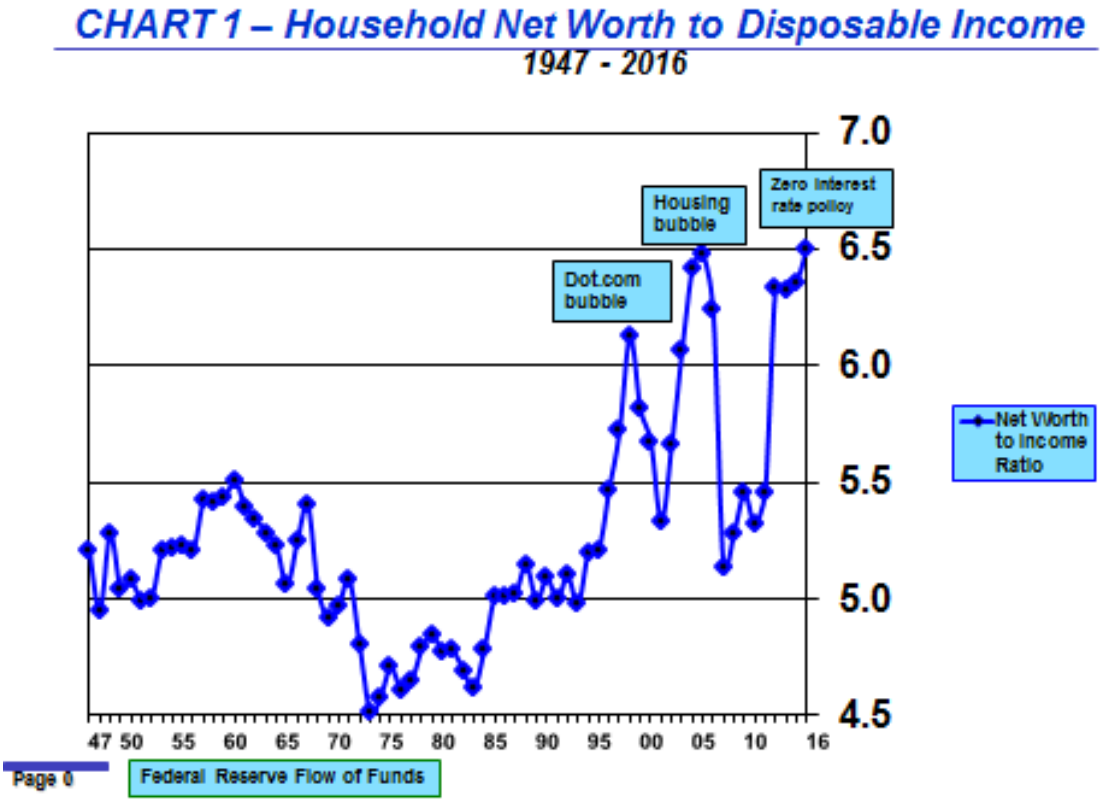
Chart 1 shows the ratio of household net worth to disposable income from 1947 through 2016. Until the mid-1990s this ratio was relatively stable, fluctuating between 4.5 and 5.5. However, since that time three spikes have occurred. With the benefit of hindsight, the first two spikes were driven by two bubbles – the dot.com bubble in the late 1990s and the housing bubble in the mid-2000s. In both cases the bubble eventually burst and the ratio dropped precipitously below 5.5. Now there is a third spike, which at the end of 2016 had reached the same elevated magnitude as the one caused by the housing bubble. The current spike in the ratio is a direct consequence of the Federal Open Market Committee's (FOMC) zero interest-rate policy (ZIRP) from 2009 to 2015. Part of the intent of ZIRP was to increase household wealth and stimulate spending. In that regard the policy has been successful in lifting the values of both financial assets and housing.

Since the FOMC instituted its ZIRP policy (2009-2015), the ratio of household net worth to disposable income has increased approximately 23 percent, reflecting a 60 percent increase in net worth and a 30 percent increase in disposable income. Stock prices rose 85 percent; housing prices increased 18 percent, all of which occurred between 2012 and 2015.

The question going forward is whether the ratio of household net worth to disposable income will revert to its long-term range as the FOMC normalizes interest rates. If reversion occurs, consumer spending growth will decline substantially for a period of time. Various measures of stock market valuation, such as the Shiller S&P 500 P/E ratio, suggest that stocks are overvalued relative to their long-term level by about one standard deviation. However, if the real rate of interest does not rebound and inflation remains low as the FOMC normalizes monetary policy, then nominal interest rates will remain low and this would support a higher ratio of household net worth to disposable income. Thus, although inflated household net worth is a risk factor, it is possible that this is not an imbalance but the result of a structural change in the economy that will continue to hold interest rates down and support higher valuations.

2. Income Inequality and the Collapse in Prime-Age Male Labor Force Participation

As can be seen in **Charts 2** and **3**, income inequality between the bottom 40 percent of the population and the top 5 percent has grown persistently since about 1980. The gap has widened more rapidly since 1997 and particularly since the FOMC implemented its ZIRP. Real income (nominal income deflated by



the PCE index[1]) rose twice as fast for the top 5 percent compared to the bottom 20 percent from 1967 to 1997 and three times as fast from 1997 to 2015.

Although there has been some counter-cyclical improvement in the labor participation rate over the past year and a half, only 88 percent of prime-age males aged 25 to 54 are in today's labor force compared to 98 percent in the 1950s. That amounts to approximately 7 million, a staggering underutilization of America's human resources. The problem is worse for males with only a high school education – only 83 percent are currently in the labor force.

"These men are generally not engaged in other productive activities like education or child-rearing. Instead, they mostly spend time in leisure activities, though not happily. Opioid use and dependency among them is rampant, and their mortality rates – what Anne Case and Angus Deaton of Princeton University call 'deaths of despair' – are rising."[2] The political left frets about the loss of manufacturing jobs. The political right stresses increasing dependency on public benefit programs such as Social Security Disability Insurance, Supplemental Security Income, Medicaid and food stamps (SNAP – Supplemental Nutritional

[1]The Bureau of Labor Statistics (BLS) deflates household income by the CPI index rather than the CPE index. James Pethokoukis in a recent AEI blog post (James Pethokoukis. "Have Worker Wages Really Gone Nowhere for 40 Years?, AEI blog post, April 3, 2017.) argues that the CPI unfairly deflates incomes by too much overtime leading to the conclusion that inflation-adjusted incomes for the lower 40 percent of households have been stagnant since 1975. He argues that methodological flaws in the CPI bias this inflation index upwards. He further argues that the more appropriate deflator should be the CPE, which is the one the Bureau of Economic Analysis uses to deflate aggregate consumer spending. BLS data in **Charts 2** and **3** are deflated by the CPE rather than the CPI.

[2]Brent Orrell, Harry Holzer, Robert Doar. "Let's Get Men Back to Work," AEI Blog, April 20, 2017. The full report is titled: "Getting Men Back to Work: Solutions from the Right and Left."

CHART 2 – Household Income Inequality 1967-2015

(percentage increase in real income)

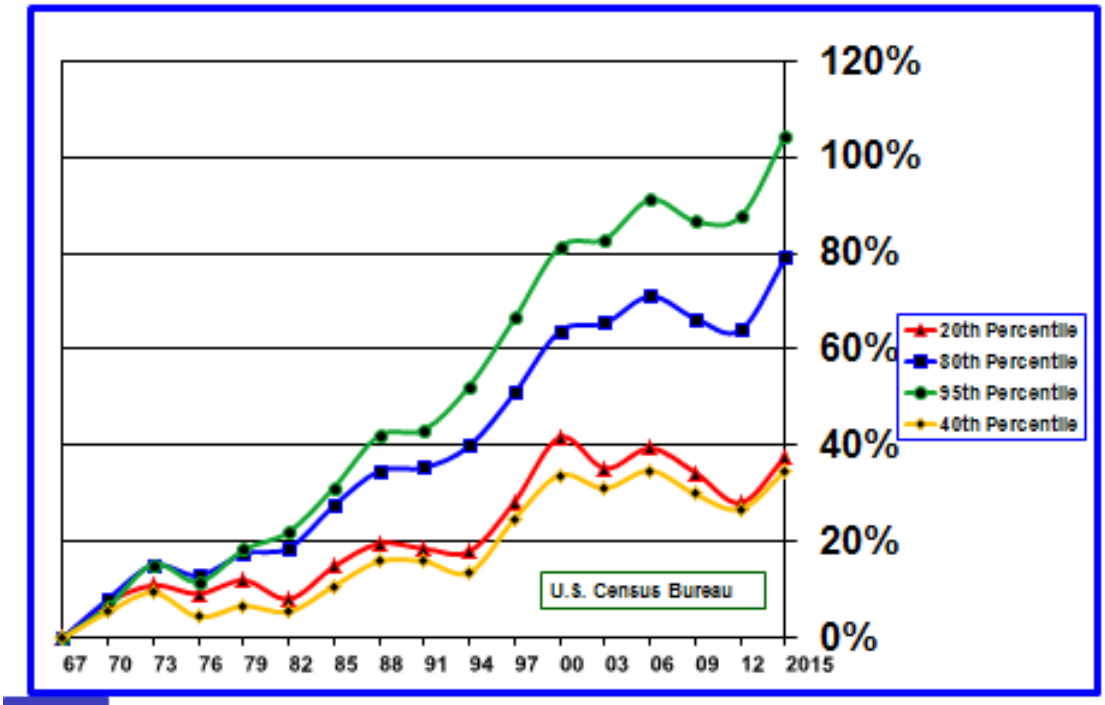


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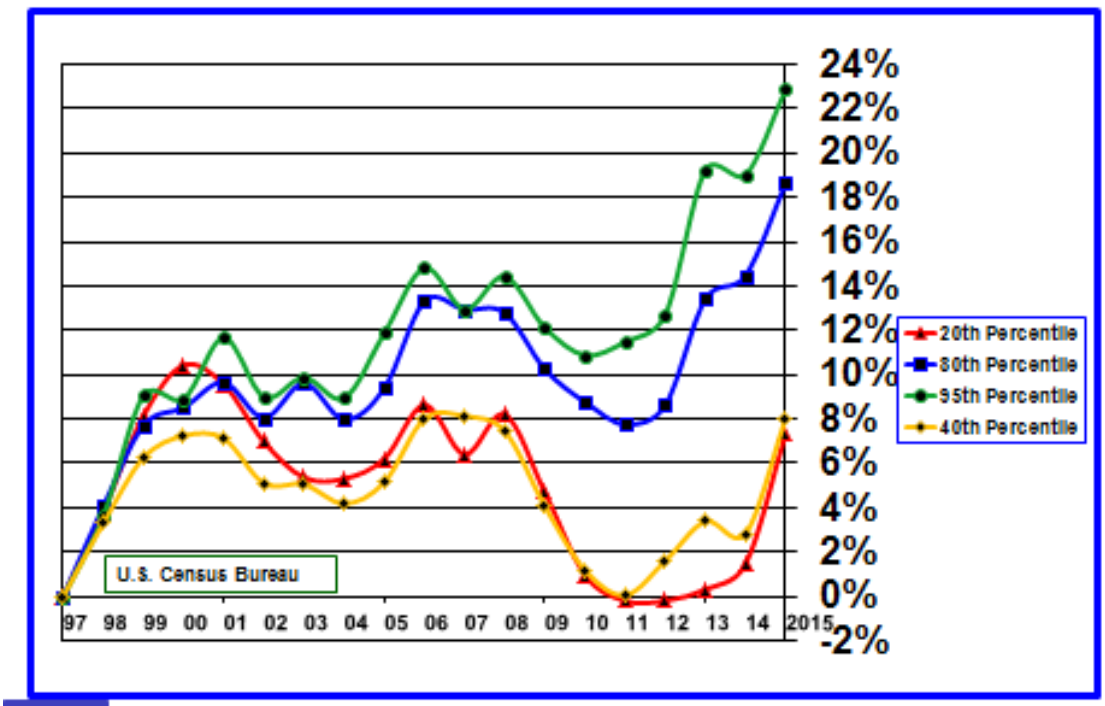
CHART 3 – Household Income Inequality 1997-2015

(percentage increase in real income)



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Assistance Program), which discourages work. Orrell, Holzer and Doar argue that both views have merit but government and society, more broadly, have done little to address the problem.

Growing income inequality and associated societal and culture trends make this an imbalance of a different sort which has been stunting economic growth on a persistent basis by holding down productivity gains, reducing the prime-age worker participation rate, and contributing to the increase in opioid use, health care issues more generally and deteriorating quality of life, particularly for males with lower educational attainment.

Also, the loss of dignity and hope among many of those who have been adversely affected by growing income inequality has become a political factor.

3. Restructuring of Retailing

Smart phones, big data, and cheap data processing are transforming how Americans shop. The trend has been developing gradually over the past several years, but appears to have accelerated significantly in the last year. According to **B of A**, since 2000, online retailers' sales have grown 4.8 percent annually compared to 0.8 percent for the entire retailing industry.[3]

In 2000, ecommerce retailing accounted for about 5 percent of sales and 3 percent of employment. By 2016, ecommerce's market share of sales had risen to 12 percent, but employment had nudged up only to approximately 4 percent. This is a classic example of creative destruction in which new highly productive technologies replace labor-intensive old technologies.

These developments forced Sears in its recently released financial statements for 2016 to disclose that its ability to continue in business was in doubt. Meanwhile Macys disclosed that it plans to close more than 60 stores nationwide during 2017.

Now there is recent evidence that the transition to ecommerce is accelerating dramatically. **B of A** monitors credit card spending by category. Spending growth at department stores between 2011 and 2014 hovered close to zero. Beginning in 2015 spending growth turned negative and accelerated in early 2017 to an annual rate of decline in excess of 15 percent. In the depths of the Great Recession, department store sales declined by just over 10 percent.

This abrupt acceleration is corroborated by recent employment research done by **GS**.[4] GS observes that historically retailing employment has grown by an average of 15,000 to 20,000 per month. To put this number into perspective, that amounts to about 10 percent of total monthly employment growth in the U.S., so this is a significant number. **GS** also observes that employment productivity is much higher in ecommerce establishments averaging 0.9 workers per million dollars of sales compared to 3.5 employees per million for bricks and mortar retailing establishments. This is a 4 to 1 ratio, which is similar to the B of A data for ecommerce market shares of employment and sales.

GS goes on to point out that retailing employment has been declining an average of 5,000 per month over the past six months in the face of an otherwise strong labor market. **GS** then projects retailing employment

[3] Joseph Song. "Brick and Mortar No More," Macro Viewpoint, Bank of America/Merrill Lynch US Economic Weekly, April 21, 2017.

[4] Daan Struyven. "The Retail Job E-quilibrium," US Daily, Goldman Sachs Economic Research, April 13, 2017.

growth depending on the rate of sales growth in ecommerce versus bricks and mortar establishments, assuming that the differential in employment productivity remains in a ratio of 4 to 1. **GS** concludes that retailing employment is likely to grow between 0 and 5,000 monthly in the future, depending upon how rapidly ecommerce replaces traditional retailing. This is not a trivial development. The reduction in growth amounts to about 15,000 monthly, which is nearly 10 percent of recent monthly employment growth and closer to 20 percent of projected employment growth now that the economy has reached full employment.

4. Commercial and Consumer Bankruptcies

There were 81,590 commercial and personal bankruptcies filed in March 2017 compared to 78,372 in March 2016. Samuel Gerdano, the executive director of The American Bankruptcy Institute said: "Distress in the retail sector is pushing up the total number of business filings, and we're also seeing an uptick in consumer filings from previous months."

5. Robotics and Artificial Intelligence

When globalization destroyed high-paying blue collar jobs over the last two decades, the public policy response was inadequate. Many of those workers have had to settle for lower paying unskilled work and quite a few simply dropped out of the labor force.

Now rapid technological advances in robotics and artificial intelligence may soon displace sizable portions of unskilled routine work. Unfortunately, although this threat is talked about increasingly, little substantive public policy response is in the works.

6. Consumer Spending – Autos

U.S. auto sales over the past several years have averaged about 18 million units annually. The consensus forecast for 2017 was originally 17.9 million units. However, sales over the first three months of 2017 have fallen short. The annual rate of sales in March was 16.6 million units.

GS, in a recent analysis, concludes that trend demand for cars in the U.S. is only 15 million units. That means that average sales of 18 million units over the past several years involved pent up demand, which has now largely dissipated.[5] **GS**'s estimate of 15 million is based on replacement demand of 12.5 to 13 million units annually with the remainder attributed to net new demand linked to population growth at a rate of about 0.8 to 0.9 percent annually or 2.0 to 2.5 million units.

Although this involves about a 15 percent decrease in auto production and sales, the impact on real GDP growth is likely to be modest in a range of 5 to 10 basis points annually. However, if the reversion to a lower long-term trend level occurs abruptly, the short-run economic impacts would be magnified.

[5] Jan Hatzius. "Auto Sales and the Unpleasant Trend," US Daily, Goldman Sachs Research, April 4, 2017.

7. Consumer Credit

Consumer credit delinquencies show very early signs of beginning to rise, particularly for auto loans. However, this is probably an indication that credit conditions are about as good as they can get at this late stage in the cycle. Consumer credit delinquencies typically are a coincident indicator with the unemployment rate, which is still falling. Thus, this yellow flag is not yet an indicator of more serious trouble ahead.

Trouble is already showing up in "less-than-prime" auto lending. According to R. Christopher Whalen, "Part of the problem for automakers is that the surge in new credit that enabled consumers to buy cars in part came from captive leasing units and independent auto lessors that are facing growing losses on existing loans and leases."[6] Ford Motor Company recently announced it expects its profits to fall be about 50 percent in the first quarter of 2017.

Household consumer debt as a percentage of disposable income peaked at 18.3 percent in the first quarter of 2009 and then fell to 16.7 percent in the third quarter of 2010, mostly due to defaults. However, in recent quarters this ratio has been rising and hit an all-time high of 20.0 percent in the fourth quarter of 2016. Overall consumer debt, however, was 78.2 percent of disposable income in the fourth quarter of 2016 compared to the peak of 96.5 percent in the second quarter of 2009. The decline is more than accounted for by a decrease in mortgage credit. Thus, on an overall basis it would appear that household balance sheets are relatively healthy. The problem with this simplistic conclusion is that renters do not have mortgage debt and that is predominantly the category of households that accounts for the increase in the ratio of consumer credit to disposable income.

8. Commercial and Real Estate Credit

Banks reported in the Senior Loan Officer Opinion Survey on Bank Lending Practices that they had tightened credit standards for commercial real estate loans in the fourth quarter of 2016 and that they intended to continue tightening standards in 2017. In many markets capitalization rates on commercial real estate have continued to fall even though long-term interest rates have begun to rise. Thus, valuations are rising even as cash flows are being constrained by higher interest costs. Tighter commercial real estate credit standards are a prudent response.

Rental housing inflation has slowed since the beginning of the year which suggests that the supply of rental units is growing faster than demand. Census bureau data indicates that rental vacancies may have bottomed during 2016, but does not conclusively indicate that vacancies are rising. There are anecdotal reports that new rental supply is increasing faster than demand in some metropolitan markets.

However, although credit standards for commercial and industrial loans have been stable according to the survey, actual lending has been declining. **GS** believes there is a benign explanation linked to the plunge in energy prices, which is no longer a current problem. When oil prices plunged in the second half of 2015, energy companies were unable to access capital markets and were forced to borrow against established bank lines of credit. Since early 2016, as oil prices stabilized, $11 billion of these lines of credit have been repaid. In addition, bankruptcies of oil and gas companies totaled $70 billion during the

[6] R. Christopher Whalen. "Q1 '17 Earnings & the Yellen Recession," blog post, April 6, 2017.

commodity price bust and some of the losses involved writing off commercial and industrial loans at banks.

Other indicators that might suggest that credit conditions remain healthy include record issuance of high-yield debt and tighter credit spreads with the exception of energy company debt. Of course, these "facts" could also be indicators of a degree of speculative euphoria and yield chasing, a condition that occurred in the mid-2000s prior to the Great Recession.

9. Money Supply Growth

Every recession in the U.S. has been preceded by a sharp slowing in money supply growth. Although the "true" money supply is notoriously difficult to measure, a measure devised by Murray Rothbard and Joseph Salerno more than 50 years ago, which has been a reliable predictor of incipient deterioration in economic growth, is slowing rapidly.[7] This measure was growing at an annual rate of 3.7 percent in March which was the slowest rate since 2008 during the Great Recession. This is a "yellow flag" because recession generally occurs only when money supply growth slows to zero.

Part of the slowdown in money supply growth is linked to tightening lending standards.

10. While Book Earnings are Rising, Real Inflation-Adjusted Earnings are Falling

S&P 500 earnings rose from 2015 to 2016 and continue to rise in 2017. However, corporate profits in the National Income Accounts prepared by the Bureau of Economic Analysis, which are adjusted for inventory valuation and capital consumption, declined in both 2015 and 2016. The decline is worse when corporate profits are adjusted for inflation. The National Income Accounts data are more indicative of cash flows. Thus, declining corporate profits adjusted for inflation means that more of investment has to be financed by borrowing relative to internal sources of cash.

11. Investment – Tightening Spread Between the Return on Capital and the Cost of Capital

When the spread between the return on capital (corporate profits) and the cost of capital (interest rates) narrows, companies begin to cut back on investment. This spread is now compressing. The danger is that the Federal Reserve will continue to raise interest rates, which will raise the cost of capital further, while simultaneously the return to capital continues to erode. Slower growth always follows the compression in this spread and if the spread narrows enough recession will occur. We are not there yet, but the erosion of this spread bears close watching.

III. U.S. Real GDP

While the recent trend in growth over the past several quarters had been one of gradual deterioration in growth, this downward pattern appears to be stabilizing and there are signs that this recent trend might

[7] Tan Kai Xian. "Watch US Money Supply Growth," GavekalResearch, April 7, 2017.

even reverse in coming. 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.

Expectations remain upbeat that stronger growth in Europe, China and elsewhere around the globe, along with business-friendly policies in the U.S., will boost U.S. growth substantially in coming quarters. **GS**'s most recent global current activity indicator (CAI), which is a surrogate for real GDP growth, was 4.4 percent in April. This exceeds the 2017 global real GDP growth forecast of 3.5 percent. **GS**'s emerging markets CAI increased from 4.3 percent in January to 5.6 percent in April. On balance these favorable global trends imply more upside than downside potential for U.S. real GDP growth during 2017.

Any real U.S. GDP growth in the first quarter greater than 0.8 percent will raise U.S. year-over-year growth. Thus, even **B of A**'s 0.9 percent anemic growth estimate and **GS**'s 1.4 percent estimate will raise the year-over-year growth rate slightly.

1. Consumption

Personal consumption contributed 2.40 percent to fourth quarter real GDP growth but still fell short of 2016's overall growth of 2.74 percent. Weak retail sales, particularly for autos, in January and February imply that personal consumption growth could be considerably lower in the first quarter.

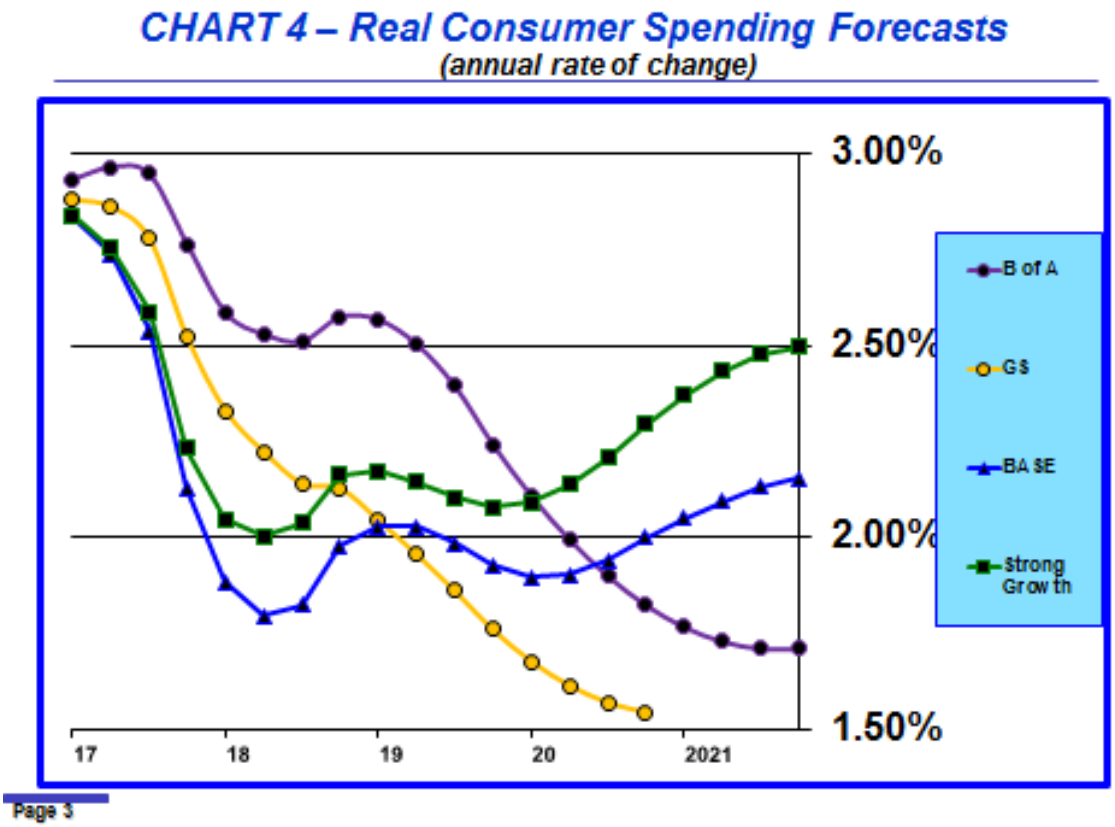
In the long run, growth in nominal disposable income and consumer saving preferences determine growth in nominal personal consumption. Nominal disposable income depends upon a lot of things but the most important ones are the level of employment and wage rates. Tepid growth in employment and lethargic growth in wage rates will result in slow growth in disposable income.

Forecasts of growth in real consumer spending are shown in **Table 1** and **Chart 4**. 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.

Table 1
Real Personal Consumption Growth Rate Forecasts

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Actual	1.43	2.88	3.21	2.74					
B of A					2.76	2.58	2.24	1.82	1.71
GS					2.52	2.13	1.76	1.55	
Global Insight					2.80	3.20	2.90	2.40	2.30
Economy.com					3.20	3.20	2.10		
Blue Chip					2.70	2.50	2.20	2.20	2.10
Bill's BASE					2.13	1.98	1.93	2.00	2.15
Bill's Strong Growth					2.23	2.16	2.08	2.30	2.50

This is the general pattern apparent in the data in **Table 1** and **Chart 4**. Growth in wages (disposable income) might moderate the forecast decline in consumer spending 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.



Although all forecasters agree that consumer spending growth will slow, there are considerable differences in opinions about growth in 2017 and 2018. My forecasts, shown in the "**BASE**" and "**Strong Employment**" scenarios, are decidedly at the pessimistic end of the range in 2017 but gravitate toward the optimistic end of the range by 2021.The considerable divergence in forecasts for the next two years reflect different assumptions about employment and wage growth and the possible effects of fiscal stimulus. Over the longer run, most analysts' forecasts converge based upon shared expectations that employment growth will slow and wage growth will stabilize.

2. First Quarter 2017 and Longer-Term Real GDP Forecasts

Chart 5 shows the change in real GDP growth from the quarter of one year to the same quarter of the next year. **Chart 5** covers the time period from the fourth quarter of 2016 to the fourth quarter of 2020. **Table 2** includes annual real GDP growth and forecasts for 2013 to 2020. The data projections in **Table 2** are a four-quarter moving average of the rate of change in real GDP, which results in slightly different numbers from those shown in **Chart 5**, which are calculated as the change from a quarter in one year to the same quarter in the next year.

Generally, 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.

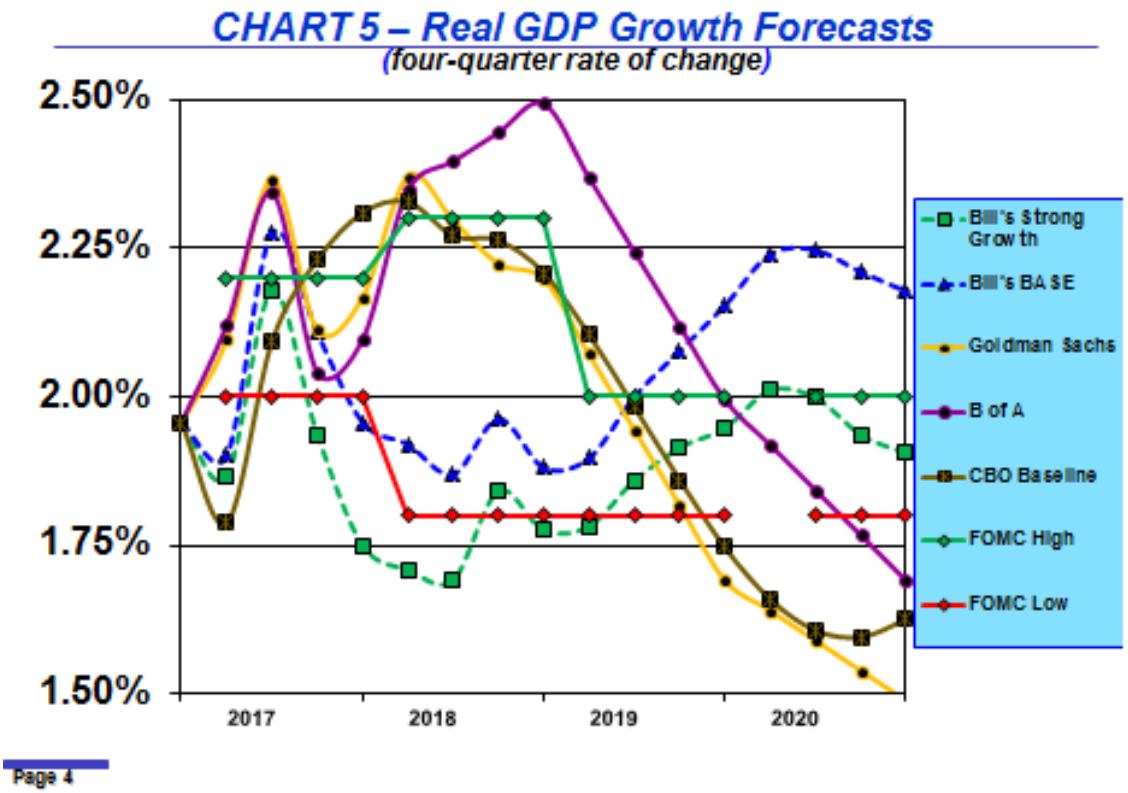


Table 2
Real GDP Growth Forecasts
(***year-over-year average***)

	2013	2014	2015	2016	2017	2018	2019	2020
Actual	1.68	2.37	2.60	1.62				
B of A					2.15	2.42	2.18	1.80
GS					2.19	2.27	1.88	1.56
GLOBAL Insight					2.30	2.70	2.30	2.10
Economy.com					2.60	2.90	2.20	
Blue Chip					2.30	2.40	2.10	2.10
CBO					2.28	2.01	1.71	1.54
FOMC — High*					2.20	2.30	2.00	
FOMC — Low*					1.80	1.80	1.80	
Bill's BASE					2.01	1.75	1.88	1.96
Bill's Strong Growth					2.10	1.91	2.03	2.22

*Q4 to Q4 – FOMC four-quarter year-over-year moving average equivalent for 2017 is a range of approximately 2.00 to 2.20 percent, which is in line with other 2017 forecasts

My "**BASE**" scenario is on the lower end of the spectrum in 2017 and 2018 because of lower assumed employment and productivity growth. **CBO**'s forecasts, based upon its January update, are now generally similar to other forecasts in 2017 but are somewhat more pessimistic in 2018, 2019 and 2020. 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, 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. The somewhat faster growth expected by most in 2018, other than myself, reflects a modest boost from tax reform and federal infrastructure spending. Note that forecasts of others, such as GLOBAL Insight, Economy.com, and the Blue Chip consensus, are at the optimistic end of the range. This optimistic bias is pretty much "standard operating procedure."

IV. U.S. Employment Developments

March's payroll employment report was much weaker, suggesting that the strength in January and February was due, at least in part, to favorable weather conditions. March payroll employment rose 98,000 and January and February were revised downward by 22,000, bringing the average for the first three months of 2017 to 177,667.

Still, even with a soft March, monthly payroll employment gains are likely to converge to the underlying natural rate of growth in the labor force in coming months, which currently is in a range of 70,000 to 80,000. If monthly growth well above the natural rate continues over the next several months, the labor market will overheat and the FOMC will continue to raise the federal funds rate at a faster than expected pace with the intent to prevent an upside breakout in inflation.

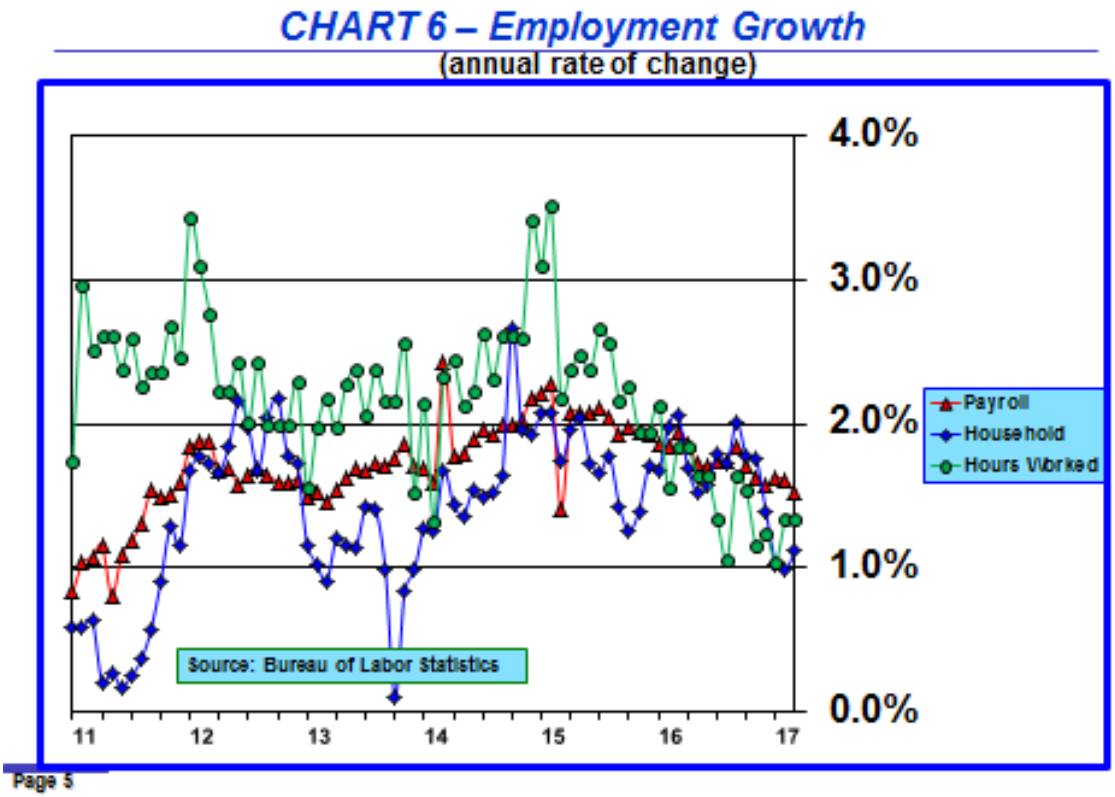
1. Employment Growth

The trend in the 12-month rate of growth in payroll employment has slowed gradually from the cyclical peak of 2.27 percent in February 2015 to 1.52 percent in March 2017. Payroll employment growth averaged 226,000 in 2015, 187,000 in 2016 and 177,667 over the first three months of 2017.

Household employment growth averaged 209,200 in 2015, 173,400 in 2016, and 296,000 over the first three months of 2017. Household employment has grown at a slower annual rate of 1.12 percent over the past 12 months compared to payroll employment growth of 1.52 percent.

Growth in total hours worked by all employees has been slowing as well. 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 1.33 percent over the past 12 months, compared to 1.24 percent in 2016, 1.94 percent in 2015 and 3.42 percent in 2014.

Chart 6 shows the three measures of employment growth – payroll employment, household employment, and total hours worked. Probably the most important thing to notice in **Chart 6** is the choppy downward trend in employment growth. This is indicative of a maturing labor market.



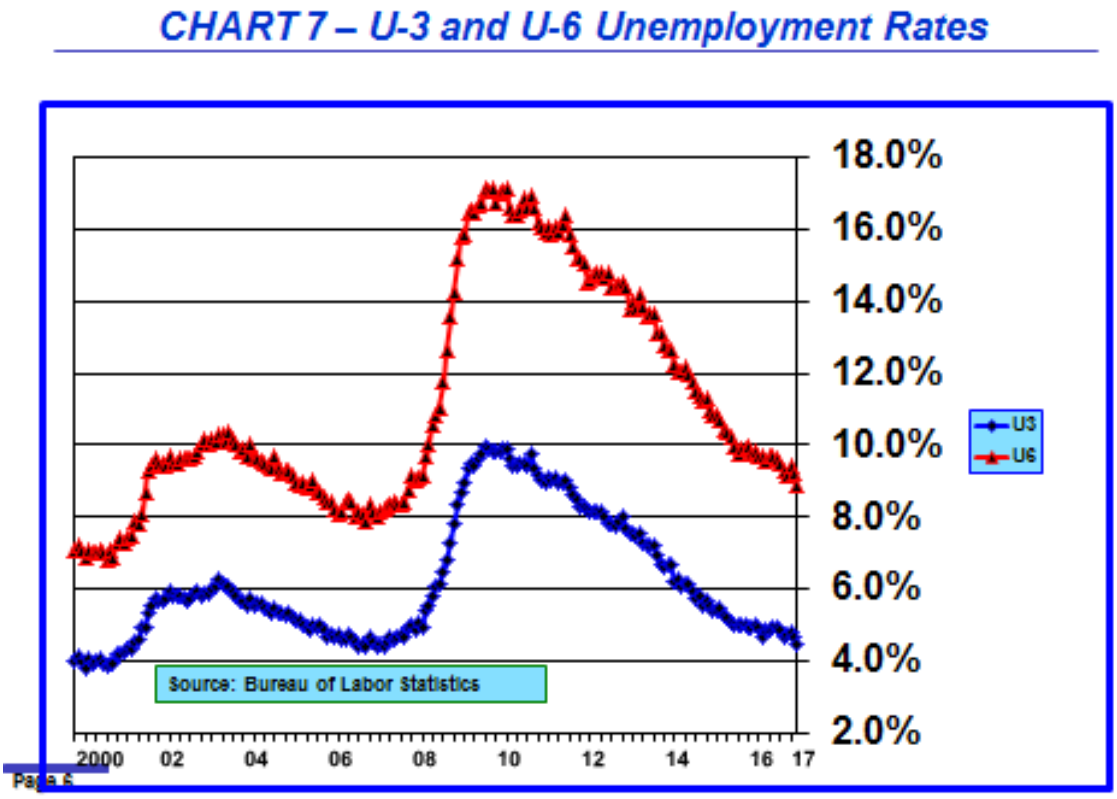
2. Employment Participation

Employment participation had been declining until about a year ago, reflecting demographic shifts and an increase in discouraged workers exiting the labor force due to poor job prospects during and following the Great Recession. The downward trend in participation driven by changing demographics should continue to reduce participation by about 0.15 percent annually over the next ten years. Because discouraged workers are not counted in the labor force there has been considerable debate about their 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 62.97 percent in March 2017 is suggestive evidence that many discouraged workers have reentered the labor market in the last few months as jobs have become more abundant. If that were not the case, the participation ratio should have fallen to about 62.16. This is a swing of approximately 1.3 million workers many of whom were probably discouraged but have now reentered the labor.

3. Measures of Unemployment Reflect a Labor Market That Is At Full-Employment

As can be seen in **Chart 7**, the U-3 unemployment rate has fallen to 4.50 percent and matches the level attained prior to the Great Recession. The March U-3 unemployment rate was 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



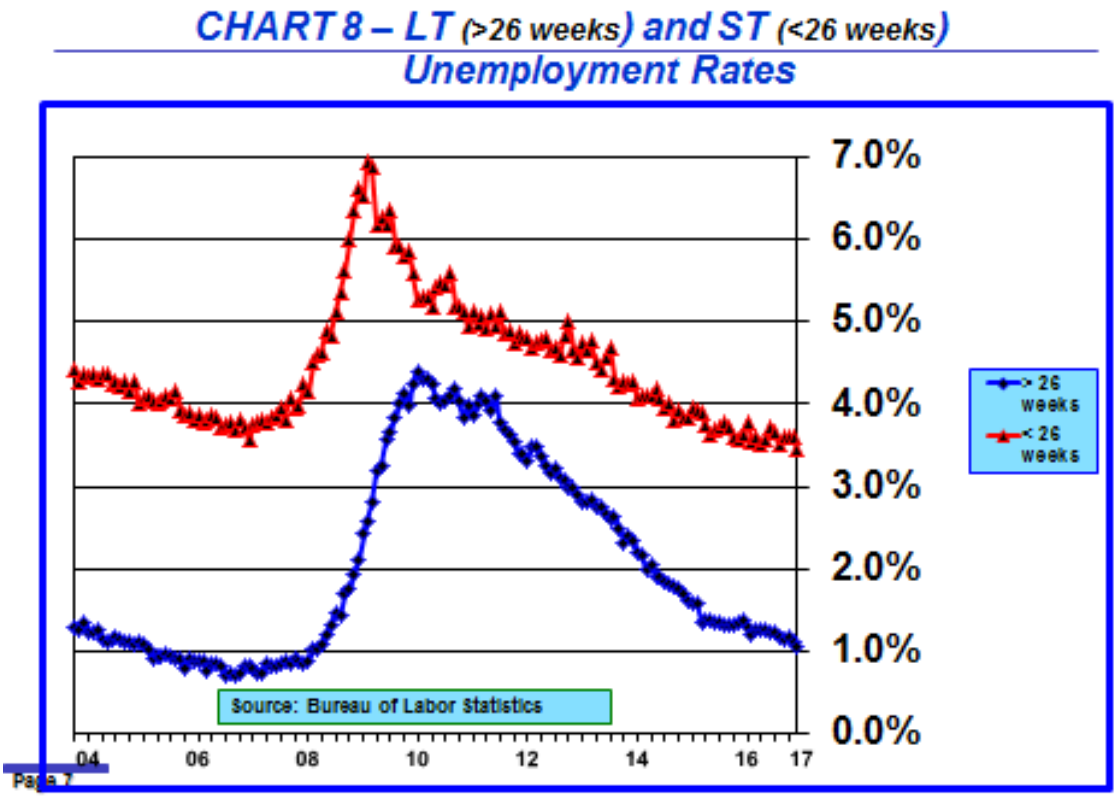
employment and those marginally attached to the labor force to the U-3 measure, has fallen to 8.87 percent but is about 0.3 percentage points above the 2005 pre-Great Recession difference between the U-3 and U-6 unemployment measures when the labor market was at full employment. The U-6 measure of unemployment fell 103 basis points over the past 15 months compared to a decline of 52 basis points in the U-3 measure, which underscores an improving labor market that is now at full employment.

Long-term and short-term unemployment rates are also indicators of labor market tightness and are shown in **Chart 8**. 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 1.05 percent in March. It is still about 0.2 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 current U-3 unemployment rate is 25 basis points below **CBO**'s full-employment estimate of the non-accelerating inflation rate of unemployment (NAIRU).

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 is now crafting monetary policy to maintain full employment but limit the potential for tight labor markets to foster inflation. The



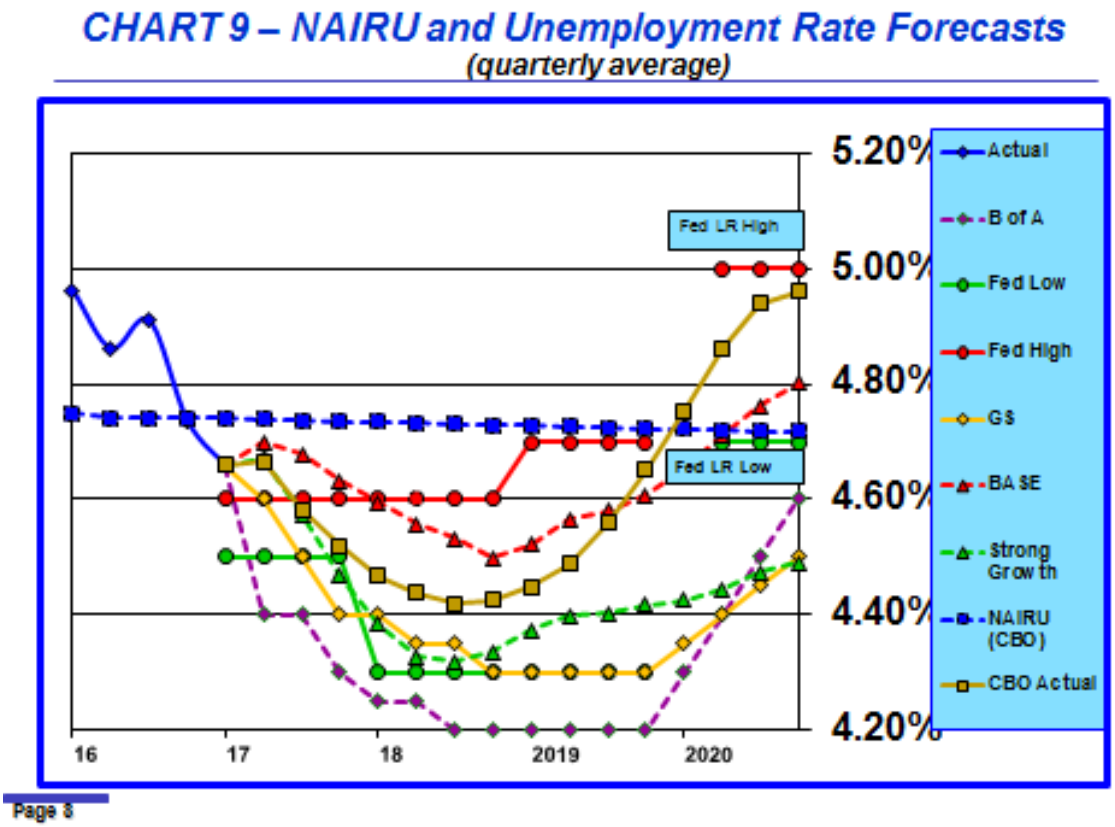
traditional monetary policy tool involves raising interest rates. While this worry is a prominent topic for FOMC members, offsetting worries up to now about tepid growth in real GDP and fragility of international financial markets had resulted in the FOMC adopting a cautious, go slow approach to increasing interest rates. Recent indications of stronger economic growth both domestically and globally have emboldened the FOMC to normalize monetary policy more rapidly.

Chart 9 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 9**.

Most forecasts project the unemployment rate to 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 between 4.2 percent and 4.3 percent by 2018. The unemployment rate falls to 4.5 percent in my **"BASE"** scenario by 2018, while it falls to 4.35 percent in the "**Strong Growth**" scenario.

B of A's forecast unemployment rate holds at 4.2 percent in 2019; **GS**'s forecast remains flat at 4.3 percent and my "**BASE**" scenario rises to 4.6 percent and my "**Strong Growth**' scenario edges up to 4.40 percent.

After 2019 all forecasts, including the FOMC's long-run projected range, move upwards gradually toward **CBO**'s estimate of NAIRU. **CBO** expects the unemployment rate to begin rising in 2019 and by 2020 its forecast exceeds NAIRU.



Forecast for **B of A**, **GS** and my "**Strong Growth**" scenario are close to the low end of the FOMC's forecast range during 2017, 2018 and 2019. My "**BASE**" scenario is consistent with **CBO**'s projections and both fall about midway between the FOMC's high and low projections.

5. Wage Growth Is Accelerating As the Labor Market Tightens

Now that the labor market has reached 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, there is considerable inertia in wage adjustments which results in a slow rise in average wages even after the labor market has reached or exceeded full employment. Inertia may be greater in this cycle for a number of reasons. First, collective bargaining power provided by unions on the behalf of labor continues to decline as a catalyst for higher wages. Second, because wage increases might not have slowed as much as they could have during the extended period of labor market slack, there is less need to increase wages as a faster rate now that the labor market has tightened. However, some of this inertia has been offset as many states and local governments have raised minimum wage floors over the past two years.

Forecasts of wage rate increases generally have been higher than have actually materialized.

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 10**). A third is also released quarterly as part of **BLS**'s report on output, total hours worked, and productivity.

Chart 10 reveals that there has been very little acceleration in total compensation over the past six years. Total compensation was growing at a rate of about 2.0 percent in 2011 and 2.25 percent in 2016. Growth in wages and salaries has moved up from about 1.6 percent in 2011 to 2.35 percent in 2016. But, much of the acceleration in wages and salaries has been offset by slowing growth in benefits, which declined from about 3.0 percent in 2011 to 2.0 percent in 2016.

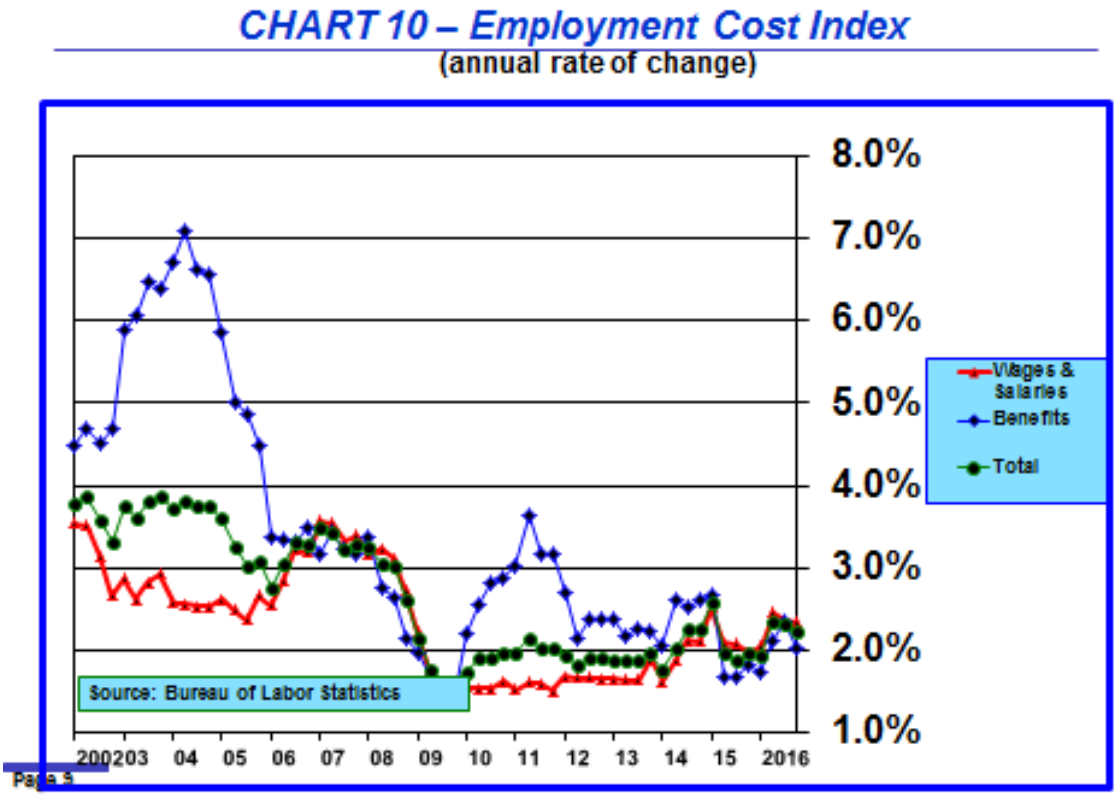
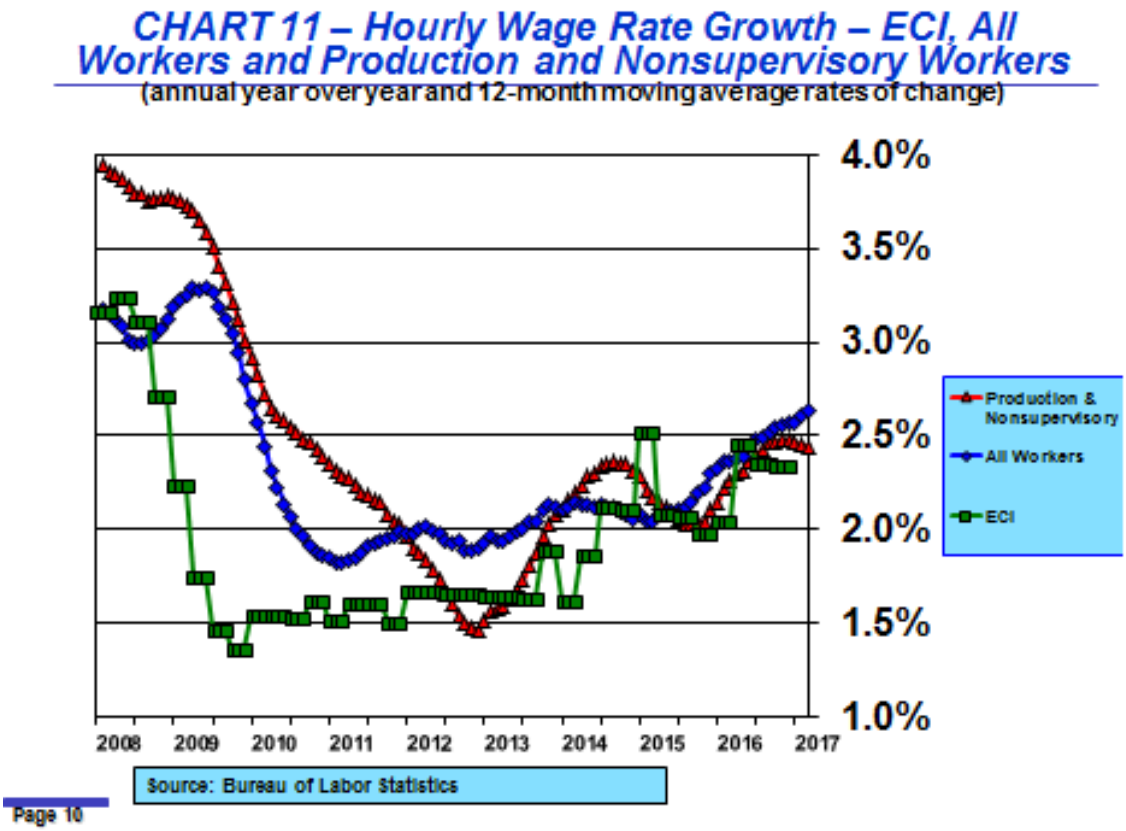


Chart 11 shows the rate of growth in hourly wages for all workers, production and nonsupervisory workers, as well as the ECI (total wages and salaries). All three sets of measures in **Chart 11** track each other closely over time. All three measures have been rising gradually over the past five quarters.

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 2.64 percent annually over the past 12 months compared to 2.37 percent a year ago. Average hourly wages (12-month moving average) of production and nonsupervisory workers are rising 2.45 percent annually compared to 2.26 percent a year ago. ECI total compensation growth has risen from 1.95 percent in the fourth quarter



of 2015 to 2.24 percent in the fourth quarter of 2016.

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, there has been little growth in weekly wages for all employees, rising from 2.22 percent in March 2016 to 2.30 percent in March 2017 (see **Chart 12**). 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, offset by growth in the hourly wage rate.

Chart 13 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 wages and salaries component of ECI for all workers.

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 at every point in time. **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 3.3 percent in 2019 but then recedes to 3.0 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 at about the same rate as **CBO**'s and **GS**'s projections in my "**BASE**" and "**Strong Growth**" scenarios, reaching 3.2-3.3 percent in 2019.

CHART 12 – Hourly & Weekly Wage Rate Growth – All Workers

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

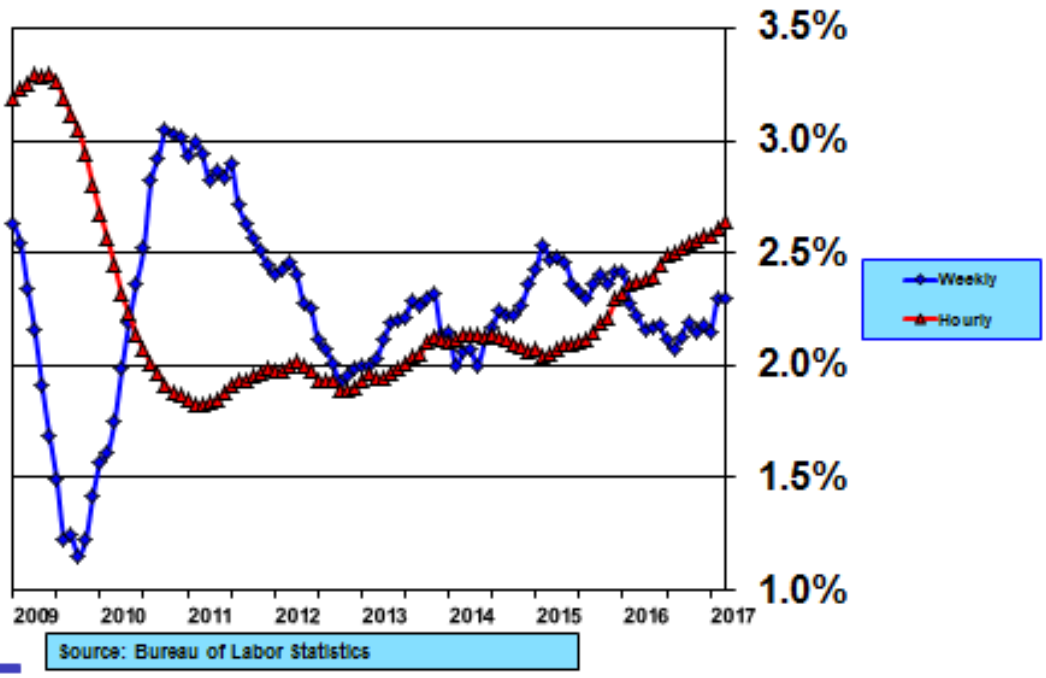


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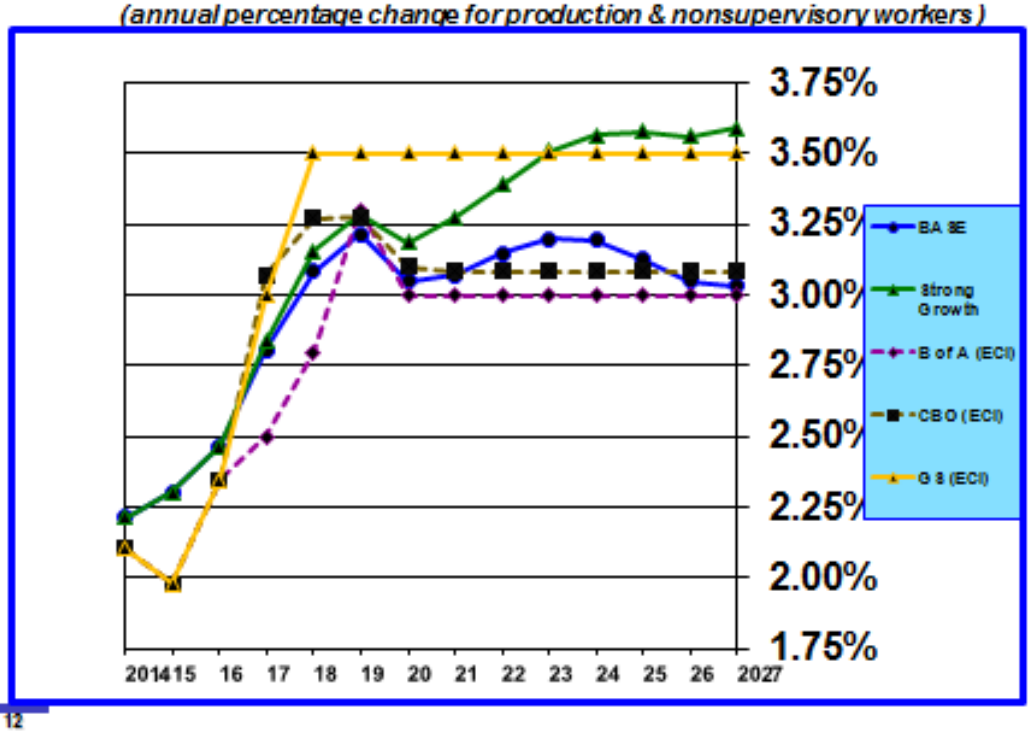
CHART 13 – Hourly Wage Rate Forecasts

(annual percentage change for production & nonsupervisory workers)



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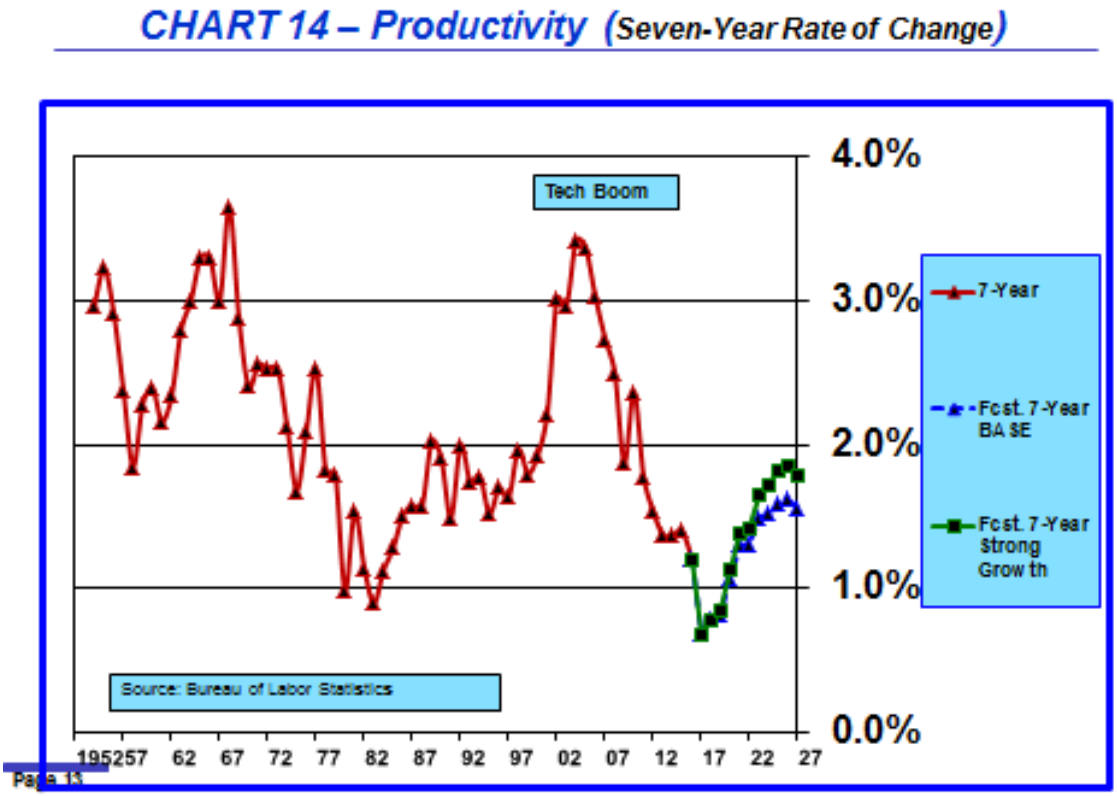
Thereafter wage growth in my "**BASE**" scenario is stable and tracks CBO's projections closely and is not much different from **B of A**'s projections. Wages continue to rise gradually in my "**Strong Growth**" scenario to approximately 3.6 percent by 2027, reflecting the impacts of faster employment growth and lower short-term and long-term unemployment rates.

V. Productivity

To remind readers, the long-run real growth speed limit of the economy is determined by the rate of growth in the labor force and productivity.

Chart 14 shows historical rates of increase in productivity and projections for my "**BASE**" and "**Strong Growth**" scenarios.



Analysts expect, or perhaps the more appropriate word is "hope," that productivity will rebound from its recent dismal 0.72 percent annual rate of increase to at least 1.50 to 1.75 percent. There isn't much hard evidence, however, to back up this hope.

Charles Gave blames poor productivity on low real rates of interest and asserts that cheap money destroys growth.[8] The general argument is that capital is diverted to low-risk speculative assets because leverage is cheap and interest rates are controlled rather than financing more risky investments in productive

[8]Charles Gave. "E Pur Si Muove, GavekalResearch, The Daily April 7, 2017.

activities. Unambiguously, over long periods of time, low real rates and low productivity are positively correlated. However, the question is whether low rates are the cause of low productivity or rather whether low productivity caused by other forces is the cause of low rates of interest.

I tested Gave's hypothesis and found a sustained decline in long-term real interest rates of 100 basis points reduces productivity by about 20 basis points and potential real GDP growth by a little more.

Persistent low productivity gains in recent years are not unique to the U.S. It is a shared phenomenon affecting all developed economies. While it is tempting to blame this development on consequences of the Great Recession, arguments have been made that the weakness in productivity is not transitory but rather reflects a secular slowdown in innovation and capital investment. But Gave's view, which appears to be supported by my econometric analysis, would assign some of the responsibility for lower productivity to central banks' use of monetary policy to depress nominal and real rates of interest.

GS continues to argue that part of the decline in productivity is due to measurement error, which it estimates accounts for 0.25 to 0.50 percent or about half of the shortfall from 1.50 to 1.75 percent. Other analysts, while acknowledging that productivity is hard to measure and is probably misstated, argue that there is no evidence that measurement error has been materially greater in recent years. They do not find **GS**'s arguments persuasive. It should be noted that if **GS**'s view about measurement error is valid, then inflation is overestimated.

March's unexpected decline in the core CPI rate, and probably in the core CPE rate as well, was cited by **GS** as evidence supporting its mismeasurement hypothesis.[9] The BLS incorporated a quality adjustment for cell phone services stemming from Verizon's adoption of unlimited data packages. Quality adjustments depress the inflation deflator and all else equal raise measured productivity and real GDP growth, which is **GS**'s allusion to the "return of the missing growth." Of course, a lot more quality adjustments would be required to depress inflation and raise growth significantly. That may happen and, if it does, that would lend support to **GS**'s mismeasurement hypothesis. However, that would mean that the FOMC's task of lifting inflation to its 2 percent target would transform into a bigger job.

If measurement error is dismissed as explaining part of the decline in productivity, **GS** argues that there are two other cyclically-based effects that explain much of the decrease. The implication is that cyclically-based effects will eventually reverse and productivity will rebound to a much higher and persistent level.

First, **GS** argues that slower growth in capital services per hour worked has had an important negative impact of productivity. This is linked to weakness in capital spending. The cyclical argument is that capital spending will rebound as the economy operates at full capacity over time. I would categorize this as a "hope" argument. Measures of capacity utilization remain elevated even though full employment appears to have been reached or nearly reached. There are countervailing arguments having to do with structural changes in the economy toward less-productivity prone services, diminished innovation, as well as significant declines in housing and government investment.

Second, **GS** examines components of its proprietary current activity indicator that historically have been correlated with changes in productivity. It finds that growth in output-related components has accelerated and this development should lead to increased productivity over time. This is a novel analysis

[9] Daan Struyven and Jan Hatzius. "The Return of the Missing Growth," US Economics Analyst, Goldman Sachs Economic Research, April 21, 2017.

and may turn out to have merit, but it is untested; in other words, correlation does not necessarily imply causality.

Persistent weakness in productivity would depress potential real GDP to a considerably greater extent than forecasters currently expect. Such an outcome would depress interest rates and growth in wages and would exact downward pressure on inflation.

VI. Inflation

FOMC members remain confident that both core and total PCE inflation will return to the 2.0 percent target level by 2018 or 2019. In 2013 and 2014 FOMC members were premature in their expectation that inflation would rise quickly toward the target of 2.0 percent and were forced repeatedly to extend the time frame for achievement of the 2.0 percent target. Over the past two years as PCE inflation has risen slowly, FOMC projections have been stable. With core PCE inflation of 1.75 percent in 2016, FOMC members are confident that the target of 2.0 percent will be reached in the next two years.

Core PCE inflation was 1.75 percent in February and has risen 44 basis points from its recent low of 1.31 percent in July 2015. Total PCE inflation, which had been depressed by the plunge in oil prices and lower import prices in late 2015, rebounded to 2.12 percent in February, 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 should peak in March at about 2.3 percent, as the early 2016 declines in prices of commodities drop out of the year-over-year annual rate of change. Core PCE is anticipated to edge up toward 2.0 percent during 2017.

As can be seen in **Table 3** (**Chart 15** shows historical core PCE price index data and data from **Table 3** in graphical form), forecasts of the core PCE inflation index indicate that inflation will increase about 15 to 25 basis points during 2017. Over the longer run, **B of A** and **GS** expect core PCE inflation to break above 2.0 percent during 2019, and then edge back toward 2.0 percent after that. **B of A** expects inflation to reach 2.3 percent in 2019 and **GS** is forecasting 2.2 percent in 2019. FOMC projections reflect a gradual rise to its 2.0 percent target during 2018.

In looking at **Chart 16**, my "**BASE**" and "**Strong Growth**" forecasts for core PCE inflation move toward 2.0 percent by 2019. But, as can be seen in **Chart 16**, core PCE inflation does not remain near 2.0 percent as others expect but drifts down to about 1.6 percent. The principal culprit is weak productivity and also a modest rise in the employment gap as unemployment begins to edge up beginning in 2019 in the "**BASE**" scenario.

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 on 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 near full employment and which could benefit from additional fiscal stimulus by the end of the year.

While nearly everyone believes inflation is heading higher, my model does not corroborate this expec-

CHART 15 – Core PCE Inflation
(annual percentage rate)

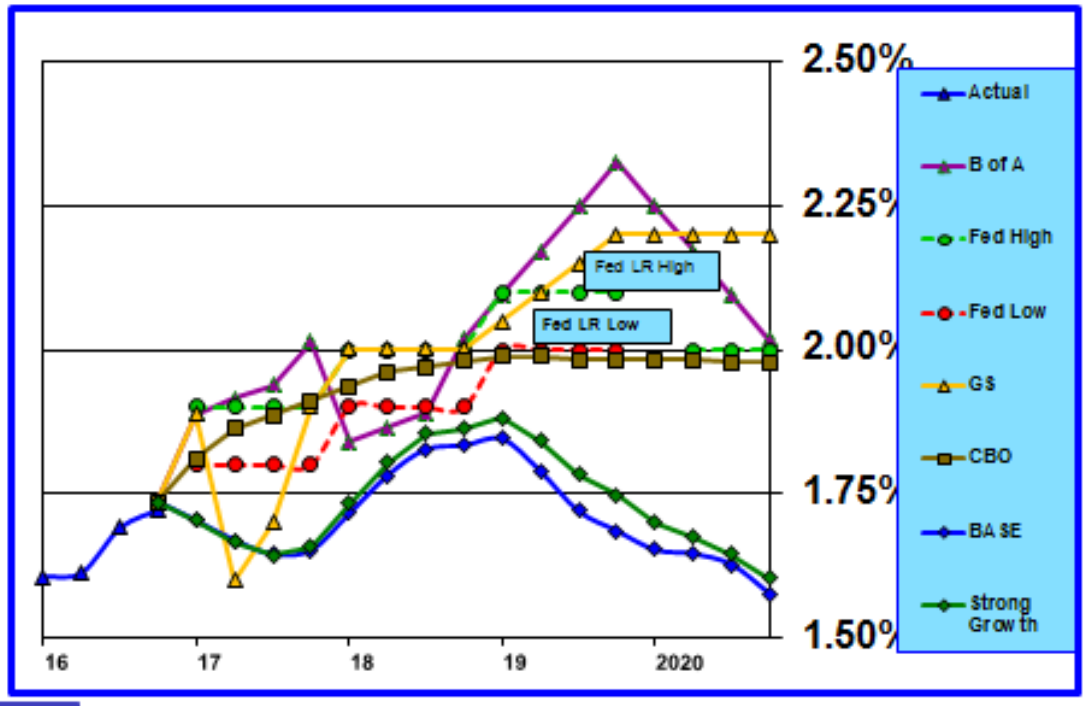


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CHART 16 – Core PCE Inflation
(annual percentage rate)

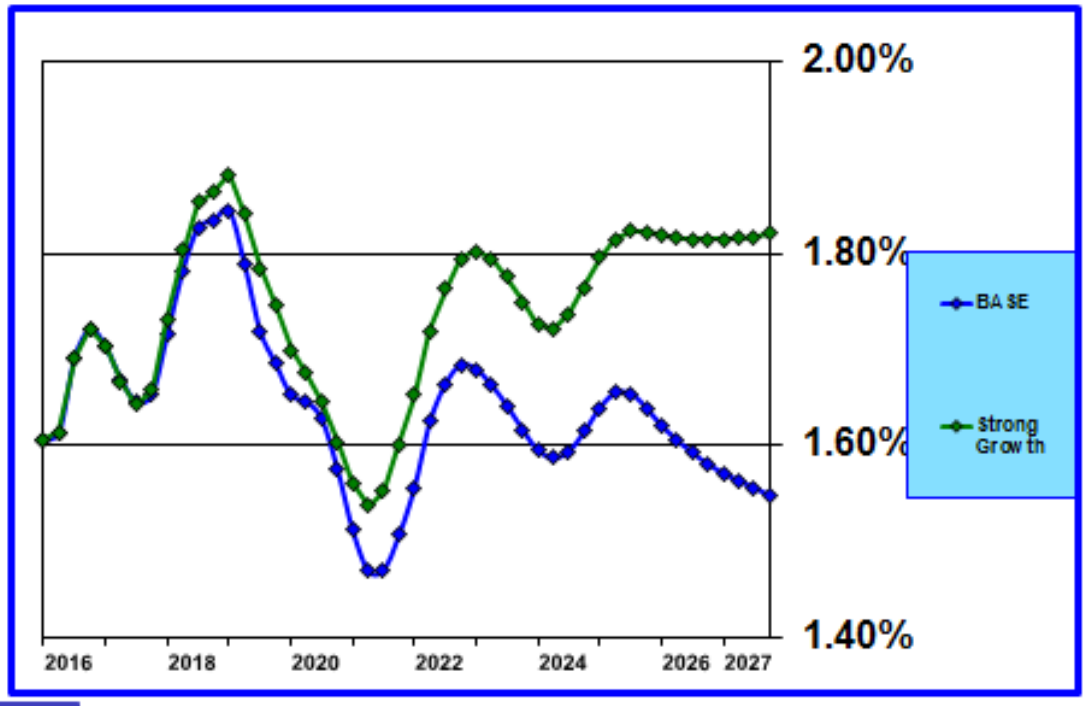

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Table 3
Core PCE Inflation Forecasts – B of A, GS, Bill's "BASE", Bill's "Strong Growth" and FOMC High and Low

Core CPE	2013	2014	2015	2016	2017	2018	2019	2020
Actual	1.55	1.50	1.39	1.75				
B of A					2.01	2.02	2.32	2.02
GS					1.90	2.00	2.20	2.20
GLOBAL Insight*					2.40	1.90	2.40	2.70
Economy.com*					2.80	2.70	3.10	
Blue Chip*					2.50	2.30	2.30	
Bill's BASE					1.68	1.84	1.68	1.55
Bill's Strong Growth					1.69	1.87	1.73	1.59
FOMC — High					1.9	2.0	2.0	
FOMC — Low					1.8	1.9	2.0	

*Total CPI

tation. Tan Kai Xian cited three reasons why inflation might not head higher as most expect.[10]

First, energy prices have been stable for over a year and have recently fallen a tad. The pro-energy policies of the Trump administration are likely to favor increases in supply relative to demand which would keep a lid on prices. Indeed, the risks of lower energy prices in coming months are greater than the risks of higher prices.

Second, growth in consumer, real estate and business lending has slowed as financial institutions have tightened underwriting. Auto lending has slowed to an annualized rate of 0.9 percent over the last three months and credit card lending to an annual rate of 3.6 percent over the past 12 months. Business lending has stalled, but might recover if business optimism leads to capital investment and inventory building in anticipation of improved sales. Commercial real estate lending has slowed largely in response to increased regulatory scrutiny and tighter underwriting standards. Slower credit growth will take pressure off of inflation.

Third, inflation expectations rose sharply following last year's presidential election because of President Trump's tax reform and infrastructure proposals. Congress has been distracted by investigations and the health care debacle and has yet to move forward on tax and infrastructure legislation. Moreover, President Trump has now declared war on the Freedom Caucus which is composed of approximately 30 House of Representatives Republicans, whose votes are necessary to pass any legislation, assuming Democrats vote against as a bloc. At the best economic stimulus legislation and its implementation have been delayed; at worst, the Republicans will be unable to enact anything of consequence without working with Democrats. Moreover, the demise of health care legislation makes the job of passing tax reform harder because it was anticipated that the health care legislation would help pay for the costs of tax reform. And, in addition, the border adjustment tax, which also would provide revenues to finance tax cuts and increases in spending, is extremely controversial and passage is far from assured. Sum all of this up and the risks of longer than expected delays in enacting and implementing tax reform and infrastructure stimulus seem all but assured and no substantive action at all cannot be ruled out.

[10]Tan Kai Xian. "US Inflation: The End of the Affair," GavekalResearch, The Daily, February 13, 2017.

Tan Kai Xian concludes that the more likely pathway for CPI inflation "*... to tail off through the spring and flatten out at about 2% in the summer months.*" PCE inflation of about 1.6 percent, which is generally what my "**BASE**" scenario is forecasting, is consistent with 2.0 percent CPI inflation.

VII. Financial Conditions

GS calculates and publishes a financial conditions index, **GSFCI**. **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.

Even though the FOMC is raising interest rates, which ordinarily would tighten financial conditions, GS's financial conditions indicator has declined modestly so far in 2017. This development is growth friendly.

VIII. Interest Rates

1. Interest Rates – Federal Funds Rate

The FOMC raised the federal funds rate 25 basis points at its March meeting. Going forward the debate now revolves around how rapidly the FOMC will raise rates. The expected number and timing of federal funds rate increases made by several analysts, including myself, is shown in **Table 4**. It should be emphasized that the market forward yield curve indicates that fewer rate increases will occur and they will be stretched out over a longer period of time.

Table 4
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	0	9	2.75-3.00
B of A	3	3	3	0	9	2.75-3.00
GS	3+	4	4	0	11	3.25-3.50
Bill's BASE	2	2	4	2	10	3.00-3.25
Bill's Strong Growth	3	2	4	4	15	4.25-4.50

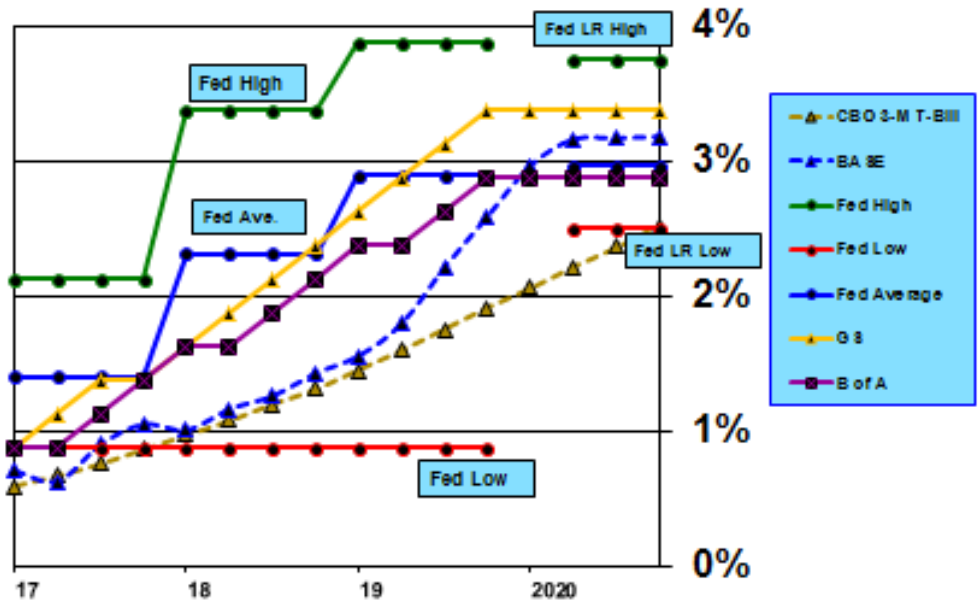
In its March Summary of Economic Projections (SEP), the median FOMC member view is three 25 basis point increases in the federal funds rate in 2017 (1.25-1.50 percent), three more in 2018 (2.00-2.25 percent), three more in 2019 (2.75-3.00 percent), and a long-term equilibrium level of 2.75 to 3.00 percent. 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.

B of A now expects three increases in 2017 with the two remaining increases occurring in September and December. **GS** is firmly in the three increases camp and expects the remaining two increases to occur in June and September. 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 to 3.50 percent compared to 2.75 to 3.00 percent for the FOMC and 2.75 to 3.00 percent for **B of A**.

My updated federal funds rate forecast in my "**BASE**" scenario projects one additional rate increase in 2017, two additional increases in 2018, followed by four increases in 2019 and two more in 2020. My "**BASE**" case equilibrium rate settles at 3.00 to 3.25 percent, slightly above **B of A**'s and the FOMC's projections. However, the federal funds rate in my "**Strong Growth**" scenario continues to rise to 4.25 to 4.50 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 gradually to 4.0 percent in this scenario by 2027, considerably below the NAIRU rate of approximately 4.7 percent.

Chart 17 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. My forecast pathway rises a bit more slowly but by 2020 lands between **B of A**'s and **GS**'s projections.

CHART 17 – Federal Funds Rate Forecasts



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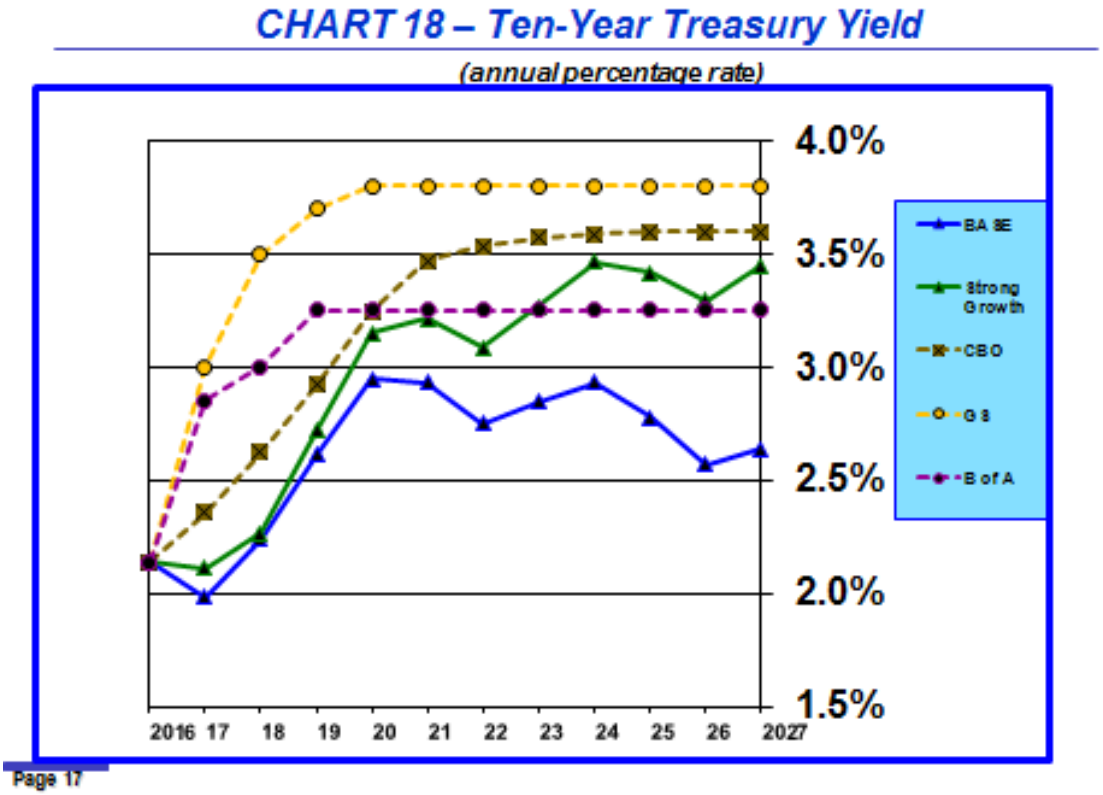
Until December 2016, FOMC members had steadily reduced the median estimate of the long-term nominal value of the federal funds rate from 4.25 percent to 2.875 percent – the median value rose to 3.00 percent in December and remained at that level in March. Based upon my model, my sense is that the FOMC's 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 "**BASE**" scenario, assuming 2.0 percent core PCE inflation, indicates that a long-term nominal federal funds rate of about 3.50 percent is a likely level for the long-term neutral federal funds rate, but it could be lower at 3.25 percent, if productivity remains relatively weak. This also means that the real neutral interest rate, assuming inflation is 2.00 percent, would be 1.25 to 1.50 percent.

2. Interest Rates – 10-Year Treasury Note Yield

Assuming an inflation rate of 2.0 percent, my model indicates that the 10-year neutral rate should be about 3.50 percent. The long-term neutral rate is 3.80 percent for **GS**, 3.25 percent for **B of A** and 3.60 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 18**, are lower because my forecasts of inflation are lower than 2.0 percent. The range in my actual forecasts is 2.75 percent to 3.50 percent, rather than 3.50 percent that my model says would prevail if inflation were 2.0 percent in the "**BASE**" scenario.



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.** — **April Assessment:** Strengthening growth; surging consumer, business, and investor optimism; increased political uncertainty stemming from new U.S. president and Republican-controlled Congress; survey data have been much stronger than hard economic data reports, but better economic data is expected to follow improved optimism

   ✓ **The Citi Surprise Index continues to rise, reaching 47.3 on April 6 compared to a 13-week average of 43.9**

   ✓ **Estimates of Q1 annualized GDP growth have been lowered as hard data reports have been worse than expected and have failed to validate the surge in optimism that followed Donald Trump's election; the consensus now expects just 1.1% annualized real Q1 GDP growth**

   ✓ **However, the defeat of the Republican health care legislation and increased uncertainties about tax reform legislation might dampen the positive market sentiment that has prevailed since Donald Trump's election; the Markit U.S. Manufacturing index receded in March to its lowest level since last October**

   ✓ **The Conference Board's U.S. economic leading indicator finally rose above the pre-Great Recession peak of 125.9 in March, reflecting a modest acceleration in growth**

   - ***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.

     ? B of A's Q1 forecast is 1.5% but its current tracking estimate is 0.9%

     ? GS's Q1 forecast is 1.4%%; GS's April U.S. Current Activity Indicator (CAI) eased to 2.9% from a relatively strong 3.3% in March; the CAI is a proxy for real GDP growth; its recent high level has been driven by strong survey data, which have yet to translate into strong actual economic activity

     ? The Atlanta Fed's Q1 GDPNow forecast, which relies more on hard economic data, has fallen to 0.5%

     + B of A's 2017 forecast is 2.1% and GS's is 2.2%; my "BASE" scenario forecast is 2.0% and my "Strong Growth" scenario is 2.1%; FOMC tightened its 2017 Q4/Q4 central tendency range in March to 2.0-2.2%

   - ***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).

     ? CBO in its January update reduced the size of the 2016 Q4 output gap from 1.2% to 0.9%; the revised end of 2017 output gap should be in a range of 0.5% to 0.7%

   - ***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%.

- Based on updated CBO data, I now expect potential GDP growth in 2017 to be approximately 1.5%

- Long-term potential real GDP growth has moved higher to a range of 1.9% to 2.15%

- ***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.

  ? 2016 productivity was 0.2% Y/Y and 1.1% Q4/Q4; Y/Y productivity growth in 2017 could be as high as 1.3%

- ***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.

  - Payroll employment growth averaged 177,667 over the first three months of 2017

  - Household employment growth averaged a very strong 296,000 over the first three months of 2017; labor force growth over the same period averaged 187,000

  + Evercore ISI temporary and permanent employment surveys remain strong, but have edged down from an average of 60.1 in December to 57.2 in April (a value above 50 is favorable)

  - The Conference Board's labor market differential was +12.6 in March compared to +7.3 in February and +6.0 in January, indicative of a strong employment market

  + The Federal Reserve's labor market conditions index fell to 0.4% in March from 1.5% in February, primarily reflecting the weaker payroll employment report

  + Total job openings have ceased to increase over the past several months

- ***Employment participation*** will resume a gradual decline during 2017 due to demographically-embedded retirements of baby boomers.

  - Participation grew from 62.67% in December to 62.97% in March

- ***Unemployment rate*** should edge down slightly to between 4.3% and 4.5%.

  + U3 unemployment rate in March was 4.50%

- ***Hourly wage growth*** should edge up slightly during 2017 to a range of 2.7% to 3.1%.

  ? BLS Y/Y hourly wage growth for all employees in March was 2.64%

  ? Atlanta Fed wage tracker declined from 3.8% in December to 3.4% in April

- ***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%.

  - As of February nominal consumer income growth over the past 12 months was 3.9%; growth in 2017 appears likely to be at or above the top end of the forecast range

- ***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%.

  - As of February nominal consumer spending growth over the past 12 months was 4.1%; growth in 2017 appears likely to be at or above the top end of the forecast range

  ? University of Michigan Survey of Consumers sentiment index rose to 98.0 in April compared to 96.9 in March, 96.3 in February, but below the 98.5 registered in January and 98.2 in December ; improved confidence since the election is solely the result of those identifying themselves as Republicans, confidence among Democrats has declined sharply

? Conference Board consumer confidence index pulled back to 120.3 in April after surging to 125.6 in March, the highest level since December 2000; this compares to 116.1 in February, 111.8 in January and 113.3 in December; since the election confidence has risen the most for those earning $35,000 to $100,000, the only category that has declined is those earning $15,000 or less

? Bloomberg's U.S. Consumer Comfort index eased to 49.9 on April 15 from 51.3 on March 24, which was the highest level in 16 years

? Evercore ISI's index of company surveys was 51.6 on April 21 compared to 50.1 on December 30

? Retail sales growth declined during January and February but increased in March; spending declined for lower income households, but increased for higher income households

? Auto sales slowed significantly in March to an annual rate of 16.6 million units compared to the recent annual average of about 18 million

- ***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%.

  + The saving rate averaged 5.49% over the first two months of 2017 compared to 5.73% over the past 12 months

- ***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 6.7% as of April 25

- ***Manufacturing*** will continue to be weak with the PMI index just slightly above or below 50, reflecting the negative consequences of dollar strength.

  - Due to a sharp decrease in motor vehicles and parts, manufacturing production declined 0.4% in March after six consecutive months of expansion; recent manufacturing strength reflects stronger global growth

  - 93.3% of manufacturers are somewhat or very positive about business prospects for their companies compared to 56.6% a year ago – this is an all-time high for this survey in its 20-year history

  - The NFIB optimism index skyrocketed to 105.8 in January and held at a high level of 105.3 in February and 104.7 in March; these readings are the highest sustained level since 2004; however this high level of optimism has yet to translate into increased hiring and capital investment

  - ISM manufacturing index was 57.2 in March compared to 57.7 in February, 56.0 in January and 54.5 in December (a value above 50 is favorable)

  - ISM non-manufacturing index fell to 55.3 in March compared to 57.6 in February, 56.5 in January and 56.6 in December (a value above 50 is favorable)

  ? GS analyst index fell further in March to 51.8 from 56.7 in February, 58.8 in January and 60.7 in December (a value above 50 is favorable)

- ***Business investment*** spending growth should improve and be in a range of 1.0% to 3.0%.

  ? Capacity utilization (the U.S. operating rate) rose slightly to 76.1% in March, but remains well below the 80.0% level that typically leads to an acceleration in business investment spending

? Small business plans to increase capital spending rose along with the increase in optimism in January, declined in February, but rose in March; plans have been relatively stable for the past 12 months

? EvercoreISI's survey of capital goods has been rising gradually and reached 52.0 in the week ending April 21 (a value above 50 indicates growth in activity)

? C&I lending standard have tightened some; C&I lending has declined at an annual rate of -1.1% since November

? Reflecting regulatory pressures, commercial real estate lending is slowing but is still rising at a favorable 6.6% annual rate

- ***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%.

  ? NAHB housing market index declined to 68 in April from 71 in March, 65 in February and 67 in January (a value above 50 is favorable)

  ? Higher mortgage rates will depress housing investment; GS estimates that a 100 basis points increase in mortgage rates will decrease the level of residential housing investment by 4-8%

  ? Annualized housing starts in March were 6.5% above the 2016 total

  ? Evercore/ISI's homebuilders survey has risen from a strong 57.5 in December to an even stronger 61.2 on April 21, although it is now falling from the recent peak of 65.2 reached on March 31 (a value above 50 is favorable)

  ? Homeownership averaged 63.4% during 2016, the lowest level in 50 years

- ***Residential housing prices*** should rise more slowly in 2017 in a range of 2% to 4% in 2016.

  ? GS estimates that median housing prices will grow 3-4% more slowly for each 100 basis points increase in mortgage rates

  ? The Federal Housing Finance Board's Housing Purchase Price Index rose 6.2% during 2016

- ***Trade deficit*** should rise in 2017 as the increase in the value of the dollar depresses exports and increases imports.

  ? The trade deficit in February, measured as a 12-month moving average, was 2.65%, which was unchanged from December

- 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.

  - Trade-weighted dollar was down -0.5% in March from December

- ***Oil prices*** are likely to trade in a narrow band of $40 to $55 per barrel because abundant and flexible supply in the U.S. will constrain prices if global demand accelerates.

  + Oil prices averaged about $52 a barrel so far in 2017; downside risks to prices outweigh upside risks because of rapidly rising U.S. shale production and a record net long speculative positions which are betting on higher prices

- ***Monetary policy*** – the Federal Reserve will raise the federal funds rate one to three times during 2017 in 25 basis point increments.

  + The FOMC raised the federal funds rate by 25 basis points on March 15 and reaffirmed its expectation to raise this rate two more times during 2017; B of A expects two additional increases in September and December; GS expects two additional increases in June and September; the probability of an increase at the June FOMC meeting is 45-50%

? Financial conditions have eased so far in 2017 and were 99.57 in April compared to 100.05 in December and matched the recent low of 99.57 reached in July 2016

- ***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%.

  ? Total CPE inflation in 2016 was 1.60%

  + Total CPE inflation was up 2.12% in February compared to February 2016; however, because the depressing effects of low oil prices experienced in early 2016 will fall out of the index in coming months, total CPE inflation is expected to peak above 2.0% in March and then fall back to the 1.7-2.0% range by the end of the year

  ? 5-10 year inflation expectations fell slightly to 2.4% in April from 2.5% in February; inflation expectations for the next year fell from 2.7% in February to 2.5% in April

- ***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.

  ? Core CPE inflation in 2016 was 1.74%

  + Core CPE inflation was up 1.75% in February compared to February 2016

- 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 2.35% on April 25 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%.

  ? Congress is off to a very slow start

  - The failure of the House of Representatives to pass health care legislation complicates and will delay consideration of tax reform legislation

  - While tax reform and infrastructure stimulus are still likely to occur, enactment of legislation may be delayed until early 2018 and the impact may be smaller

- 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.

  - Through March 2017 the budget deficit for the prior 12 months is 3.43%

  - CBO's revised budget deficit projection for fiscal 2017 is 3.10%; my current estimate is 3.26%, which assumes Congress cuts taxes and increases infrastructure spending (it is no longer likely that fiscal stimulus will affect the 2017 fiscal year deficit)

- ***State and Local investment*** spending growth should range between 1.0% and 1.5%.

2. **Rest of the World** — **April Assessment:** Stronger economic activity and much improving confidence.

   ✓ **GS's global current activity indicator rose to 4.4% in April compared to 4.3% in March and 4.1% in February, indicating that global growth is accelerating above**

the forecast pace of 3.4% for 2017 and the 3.0% actual growth in 2016; the pace of growth for major advanced economies has accelerated from 1.5% last summer to 3.0% in April; this indicator for emerging markets rose from 4.3% in January to 4.7% in February, 5.5% in March, and 5.6% in April

✓ **The J.P. Morgan Global Manufacturing PMI remained at 53.0 in March, the strongest level since May 2011**

✓ **OECD's global index of leading economic indicators has been rising over the past year and reached 100.0 in February**

- ***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.

  - Both B of A and the IMF have raised their 2017 forecasts for global growth to 3.5%

  ? Global inflation has drifted up due to firming commodities prices; diminishing output gaps should create modest further upside pressure

- ***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.

  ? Eurozone manufacturing PMI index has improved to its best level of 56.0 since 2010 during the recovery from the Great Recession

  - European growth forecast has been revised upward to 1.5%

- ***European inflation*** will rise from 2016's 0.2% but will probably fall short of the expected 1.2%.

  - Thanks to rebounding energy prices, the inflation forecast has been boosted to 1.6%; however, core inflation remains below 1% and has shown no signs of rising

- ***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.

  + Dutch elections on March 15 resulted in a smaller than expected gain for the far right Party for Freedom from 15 to 19 seats out of 150, which eliminated the possibility of a referendum on European Union membership; however, the parliament is more fragmented than ever and will require three or four parties to forge a coalition, which could take several months

  + Emmanuel Macron, a centrist Europhile, won 23.9% of the vote in France's first round of presidential voting; he will face Marine Le Pen of the far-right National Front, who received 21.4% of the vote, in the second round of voting on May 7; polls indicate that Macron will win with 68% of the vote; candidates of both centrist parties on the left and the right did not advance to the second round of voting, reflecting the hollowing out of the traditional political center in France; historically, the centrist parties engineer the outcome of the parliamentary elections, which follow the presidential election on June 11 and 18, to shut out candidates of

extreme left and right parties – that might not happen this time, thus it is possible that the far right will lose the presidential election, but the possible composition of the new parliament might make Macron's ability to govern difficult and create political crisis – Le Pen has promised a referendum on European Union membership

? Germany holds Bundestag elections on September 24; while it is assumed that Angela Merkel will prevail, the tides of populism and nationalism and the outcome of the French election could undermine her support; a grand coalition government remains the likely outcome, but could be led by the SPD (Social Democratic) party rather than Merkel's CDU (Christian Democratic Union) party

? Italy is not scheduled to hold elections until 2018, however an evolving rift in former prime minister Renzi's party could accelerate elections to this year; popular support for the euro is ebbing

? While Greece has faded from the news and appears to be complying, albeit grudgingly, with creditor bailout requirements, the real test will come during the summer when Greece is required to make payments for which bailout funds might be insufficient

? The U.K. triggered the two-year withdrawal process from the EU on March 29; EU leaders scheduled a summit in early April to map out the framework for negotiations on Britain's exit from the EU; based on that framework, the European Commission will develop detailed guidelines, which will be submitted to EU member states on the EU Council for approval

- ***U.K. growth*** is expected to decline to 0.9% in 2017 compared to 1.8% in 2016 as Brexit consequences begin to develop.

  ? Parliament initiated the two-year time frame for U.K. withdrawal from the European Union on March 29; increasingly a "Hard Brexit" outcome appears likely

  ? Prime Minister May unexpectedly set early parliamentary elections for June 8; Conservatives are expected to strengthen their majority which would reinforce the likelihood of a "Hard Brexit;" however, the election might also strengthen the Scottish National Party, which could increase the probability of a referendum and Scottish vote to leave the U.K.

  - Expected 2017 GDP growth has been marked up to 1.4%; however, given the likelihood of a "Hard Brexit," growth is expected to decelerate considerably in future years

- ***China's GDP growth*** is expected to be 6.6% but risks are to the downside.

  + The official 2017 GDP growth target has been cut to 6.5% from 7.0% in 2016; however, 2017 GDP growth is still tracking 6.6%

  + Growth momentum is strong and downside risks have diminished

  ? The yuan is down 4.4% against the dollar over the last 12 months; however, foreign reserves have dropped below a still very hefty $3 trillion

- ***China's leadership*** will continue to be slow in implementing ***economic reforms*** but financial and political stability will be maintained.

  ? The 19 Party Congress will be held in the fall of 2017; President Xi will receive a second term; however, there is no indication at this time that economic reforms will be a significant agenda matter

- ***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.

- Expected 2017 inflation has been marked up to 1.3%

- ***India*** should continue to experience relatively strong real GDP growth in a range of to 7.0% to 8.0% in 2017.

  ? Recent state elections resulted in a major victory for Prime Minister Modi's Janata Party, which will increase Modi's ability to pursue his reform agenda; increasingly it is looking like India can sustain high GDP growth for a number of years, which will offset a probable slowing of growth in China

- ***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.

  ? Growth is accelerating; the dollar's slight decline in value has diminished potential risks to growth

  ? GS's current activity index for emerging markets countries rose from 4.3% in January to 4.7% in February to 5.5% in March as manufacturing accelerated

- ***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.

  ? Expected 2017 GDP growth for Brazil is 1.0%

  ? Economic conditions continue to deteriorate in Venezuela, but regime change does not appear to be in the offing

3. **Risks** – stated in the negative relative to the forecast (***+ risk realized***; ***- risk not realized***).

   April Assessment: No significant positive or negative risks have surfaced so far in 2017

   - ***U.S. potential real GDP growth*** falls short or exceeds expectations; falling short is the more serious risk

     - Risk not realized

   - ***U.S. employment growth*** is slower or faster than expected; slower growth is the more serious risk

     + Through the first 3 months of 2017, employment growth is above the expected level

   - ***Employment participation rate*** rises rather than remaining stable or falling modestly

     + The participation rate has risen over the first 3 months of 2017

   - ***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

     - Risk not realized

   - ***U.S. Unemployment rate*** rises

     - Risk not realized

- ***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

  + Consumer income has risen faster than expected

  + Consumer spending growth is slightly above the upper end of the expected range
- ***U.S. stock prices*** fall more than or rise more than the expected range of -10% to +5%

  - Growth in stock prices is at the upper end of the expected range
- ***Growth in U.S. residential housing investment and housing starts*** are less than or more than expected; below expectations is the more serious risk

  + Housing starts are slightly above the expected range
- ***U.S. residential housing price increases*** are less than expected

  - Early indications are that housing prices are rising more 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

  ? Business investment appeared to be weaker than expected during Q1; however, the Q1 GDP report will provide clarity
- ***U.S. manufacturing growth*** contracts or expands more than expected; contraction is the more serious risk

  + Manufacturing surveys are stronger than expected
- ***U.S. trade deficit*** does not widen as expected

  ? Trade deficit is stable
- ***Value of the dollar*** rises substantially and triggers a global dollar squeeze

  - Risk not realized, the dollar has declined slightly in value so far in 2017
- ***Oil prices*** rise above or fall below the expected range

  - Risk not realized
- ***U.S. monetary policy*** tightens more than 75 basis points, spawns financial market uncertainty and contributes to global financial instability

  - Risk not realized
- ***Financial conditions*** tighten and cause financial market volatility

  - Risk not realized, financial conditions have eased slightly so far in 2017 and are supportive of modestly greater real GDP growth in 2017
- ***U.S. inflation*** falls or rises more than expected

  - Risk not realized
- ***U.S. interest rates*** fall *or* rise more than expected

  - Risk not realized
- ***U.S. fiscal policy*** is more expansionary than expected

  - Risk not realized; however, the chances that tax reform and infrastructure stimulus will be delayed are rising

- ***Federal budget deficit*** increases more than expected

  - Risk not realized; according to CBO the deficit is likely to be a little smaller in 2017

- ***U.S. state and local spending*** does not rise as fast as expected
- ***Global GDP growth*** does not rise as fast as expected

  - Risk not realized; growth appears to be accelerating

- ***Global trade*** declines as the U.S. and other countries pursue protectionist policies

  - Risk not realized; other than cancelling TPP, the Trump administration has taken no action so far to limit trade

- ***European growth*** is considerably less than expected

  - Risk not realized, growth is accelerating

- ***ECB's*** quantitative easing program is not successful in raising inflation and stimulating the European economy

  - Risk not realized, Europe's GDP growth is accelerating and inflation has stabilized

- ***Europe*** – financial market turmoil reemerges

  - Risk not realized

- ***Europe*** – political instability and social unrest rises more than expected threatening survival of the Eurozone and the European Union

  - The Netherlands Party for Freedom, which has an anti-immigration platform and Euroskeptic sympathies, did not do as well as expected in the Dutch elections on March 15

- ***Chinese*** leaders have difficulty implementing ***economic reforms***

  ? The word "difficulty" may be the wrong word choice, as leaders appear to lack resolve to pursue economic reforms

- ***China's growth*** slows more than expected

  - Risk not likely to be realized

- ***Japan*** – Abenomics and monetary policy are unsuccessful in raising inflation to the 2 percent target and economic growth continues to be below expectations

  ? Growth momentum is improving; the inflation goal of 2% will not be met

- ***Emerging economies*** – a strong dollar leads to serious difficulties especially for countries with large amounts of dollar-denominated debt.

  - Risk not realized, the dollar's value has been relatively stable

- Severe and, of course, unexpected ***natural disasters*** occur, which negatively impact global growth
- ***New risk*** – North Korea's developing nuclear strike capability and potential for pre-emptive military intervention to neutralize that capability

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