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

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The Longbrake Letter*

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I hope you enjoyed your summer respite from the Longbrake Letter. I certainly did by taking time off to explore the Rocky Mountains with my brother. We had a great time fishing, hiking, golfing, watching sporting events and enjoying fine dining, not to mention connecting with many old and new friends.

But the world does not stop for summer vacations.

I. We Have Become a Global Economy But Economic Policy Making Has Yet to Understand the Implications

Summer started with all eyes focused on the Greek government debt and solvency crisis. Would Greece default? Would Greece exit the euro? It seemed that the stage had been set for that possibility when Prime Minister Alexis Tsipras overwhelmingly won a referendum repudiating creditor conditions. However, in a startling about face just a few days later Tsipras accepted extraordinarily onerous terms for Greece's third bailout. With that, the crisis quickly dissipated and the existential threat to the euro and the European Union was deferred to another time.

But, calm did not return as a new crisis soon surfaced to replace the Greek crisis. The new crisis involves the slowing of China's economy and the potential ramifications for global growth and inflation and impacts on emerging markets countries in particular. The Chinese crisis began with the implosion of the Shanghai stock market which began on June 12. Initially, markets viewed Chinese stock market gyrations with bemusement. But that changed abruptly on August 11 when the Peoples Bank of China unpegged the renminbi's link to the dollar without any forewarning and with no explanation. Within days financial conditions tightened around the global, stock markets plunged, and volatility soared. Currencies of emerging markets countries were particularly hard hit.

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As we learned during the housing bubble, markets can embrace a false reality for a very long time. But eventually when the underlying economic fundamentals are out of sync with the market's beliefs, an event of some sort eventually occurs that discredits those beliefs. The sudden realization of the disconnection between belief and reality leads to panic as market participants scramble to mitigate losses.

Markets understood that China's economic growth would slow as its leaders steered the economy from a high-growth investment and trade driven economy to a slower growth, but more stable consumer focused economy. Markets also understood that the transition would be difficult but had confidence in the wisdom of Chinese leaders to manage effectively the economic and political challenges. Confidence in Chinese leadership acumen was shattered by the "keystone cops" attempts to manage the stock market crash and bungled communications about why China was unpegging the value of its currency. Suddenly, the possibility of hard landing for the Chinese economy became a real possibility in the minds of many market participants.

But, perhaps because market complacency had been broken by Chinese actions, yet another round of falling prices of commodities that got underway in earnest during the summer contributed to a reassessment of global growth prospects with the conclusions that growth would probably be slower than previously expected and deflationary forces would be much stronger. In short, the world is awash in excess supply and is confronted with diminishing demand. This is the stuff of deflationary busts.

Now, the U.S. economy is plugging along on a steady if uninspiring trajectory and many believe the U.S. economy is relatively insulated from global developments. Unemployment is down to 5.1 percent, a level that in the past has been indicative of full employment. Nonetheless, there is an uneasy mood. The Federal Open Market Committee (FOMC) acknowledged its own uncertainty by declining to raise the federal funds rate at its recent meeting and by emphasizing the importance of monitoring the impacts on the U.S. economy of unfolding global developments.

Recent revisions to U.S. economic data tell a story of slower growth in output, disposable income growth, and productivity. The most recent annual Congressional Budget Office (CBO) update of the economic projections it uses to project future federal budget deficits resulted in an unusual and seemingly contradictory small decrease in potential real GDP growth and increase in the size of the GDP output gap. The increase in the estimated output gap was caused by CBO's reduction in its estimate of the nonaccelerating inflation rate of unemployment (NAIRU) and an increase in its estimate of the labor force participation gap.

Even the FOMC has joined in the parade of data revisions. It downsized the estimate of future potential real GDP growth from a range of 2.1 percent to 2.3 percent to 1.8 percent to 2.2 percent. It also reduced its estimate of the equilibrium natural rate of interest from 3.75 percent to 3.5 percent. Notably, the FOMC still expects to achieve its 2.0 percent inflation target, although timing continues to drift toward a date farther into the future.

It is normal for humans to assess phenomena based on their experiences. This works as long as historical experience describes well the range of current and future possible outcomes. But, it will not necessarily work well if there have been fundamental changes in cause and effect relationships. For example, models of inflation forecast an acceleration in inflation as employment and output gaps diminish. Such an outcome is consistent with the basic notion that prices will respond as the relationship between supply and demand changes, with price increases accelerating when demand exceeds supply. Although this concept is

fundamental how it operates will depend on how markets are structured. It can be argued persuasively that labor bargaining power has declined in recent years. This would not eliminate the tendency of wages to rise more rapidly as unemployment falls, but it could lengthen response times and moderate feedback loops that contribute to acceleration. Even if domestic labor markets are tight, structural changes that have increased global competition could limit labor bargaining power.

Today's generation of policy makers grew up during the great inflation of the 1970s and 1980s. So their obsession with the threat of inflation is not surprising. But, if one looks at the broad sweep of history, that inflationary period was rather much of an anomaly. Market systems devoid of frictions that impede pricing decisions tend to be deflationary in the long run. That is because participants seek profit by creating new products, services and markets which provide competitive pricing advantage for a while and by finding ways to reduce production costs.

However, most market systems are imperfect because participants seek political power to establish and protect pricing power. The plunge in measured productivity in the U.S. in recent years could be interpreted as evidence that the forces of creative destruction have been corralled. Alternatively, as Charles Gave argues, low productivity could stem from the mispricing of capital which encourages speculation in asset prices rather than investment in productive activity. Or, as some others argue, productivity is simply understated because we don't know how to measure the considerable quality improvements embedded in technology software applications. However, if this last argument has merit, it must mean that measured inflation would be much lower.

That brings us back to the issue of whether inflation is a real threat as supposed by economic monetary policy doctrine. This should be pondered in terms of whether the models grounded in past experience accommodate adequately significant changes in the structure of global economic activity. Rapid growth in emerging economies is driven by enormous investment spending and, by direct implication, repression of consumption, and also by huge productivity gains as existing technologies of developed countries are adopted.

This is exactly what has happened in China over the last 30 years. Because of the overall size of China's population, accounting for one fifth of humanity, the impact of its rapid growth has been enormous. It has created enormous global excess supply which has unleashed powerful deflationary forces. High commodity prices were a direct consequence of China's rapid growth and masked for a time the deflationary consequences of all the supply China's economy was creating. Investment booms, such as China's, are not sustainable indefinitely. Eventually they have to slow down enough so that consumer demand can catch up with all the capacity created during the investment boom. One only needs to think about the housing bubble in the U.S. to understand this relationship.

China is at the end of its investment boom and is moving fitfully to transform its economy. Whether the Chinese leadership can manage that transformation without social and political consequences remains to be seen. It will take time for China to close its supply-demand gap, which means that China will continue to export deflationary pressures for the foreseeable future.

In addition, many other emerging economies, although some will be adversely impacted by the unwinding of China's investment boom, will continue to take advantage of investment opportunities to grow rapidly and to take advantage of significant productivity gains. This means that the persistence of excess global supply will not abate quickly. It also means that secular deflationary pressures should continue to

outweigh transitory cyclical inflationary pressures that might prevail in developed economies, such as the U.S., as they approach full employment.

In today's interconnected global economy in which capital flows relatively freely to presumed high-return initiatives, inflation, outside of egregiously managed local economies such as Venezuela, will not be a consequential threat.

Markets appear to be slowly coming to this realization as future inflation expectations slowly subside. Should inflation subside too much, as it has in Japan, that would unleash a new set of unpleasant outcomes for developed countries with high public-debt-to-GDP ratios and underfunded social retirement income and medical benefit programs. And, slowing population and labor force growth, which goes hand in hand with economic development, will exacerbate outcomes.

Policy makers historical obsession with inflation needs to be balanced by understanding how evolving structural changes in the global economy might make deflation the greater future threat to economic wellbeing.

II. U.S. Data Revisions

Every year the Bureau of Economic Analysis (BEA) updates U.S. income, consumption and GDP data for the prior three years. Revised data is released at the end of July. Also, CBO updates the economic assumptions it uses to project federal budget deficits. This usually occurs annually in August, although CBO did two revisions during 2015. Then, each quarter the FOMC updates its projections of key economic variables that are considered to be important inputs into the monetary policy making process. The most recent FOMC revisions occurred at its September meeting.

All three sets of data revisions tell a similar story. It is one of an economy with slowly diminishing growth potential driven by slowing labor force growth and declining productivity. The story told in the historical data but not in the projections is one of softening inflation. Inflation projections appear to be based more on belief that the FOMC will ultimately be successful in raising inflation to its 2.0 percent annual target than on hard-headed analysis devoid of policy expectations. My statistical analysis of inflation prospects does not corroborate consensus forecasts.

1. Income, Consumption and Output Data Revisions — Bureau of Economic Analysis

Table 1 shows that data revisions were greatest for 2013. Real GDP decline 9 basis points in 2012, 71 basis point in 2013 and rose 8 basis points in 2014 for a cumulative decline of 72 basis points over the three years or about 24 basis points annually. Average real GDP growth over these three years declined from 2.31 percent to 2.06 percent (**Table 2**). Revisions to consumption, which accounts for approximately 68 percent of real GDP, was the primary driver of the decline in real GDP. There were only two components — nonresidential investment and net exports — that boosted revised real GDP. Since net exports is negative, which means that imports exceed exports, the positive boost from net exports means that revised exports grew more than revised imports over the three-year period.

Table 1
Data Revisions — Percentage Change in Real GDP Components

	2012	2013	2014
GDP Real	-0.09%	-0.80%	-0.72%
Consumption	-0.35%	-1.02%	-0.85%
Nonresidential Investment	1.67%	1.66%	1.51%
Residential Investment	0.00%	-2.13%	-1.98%
Inventories	-4.04%	-3.31%	-3.68
Net Exports	1.19%	0.69%	2.23%
Government	-0.42%	-1.37%	-1.78%

Source: Bureau of Economic Analysis

Table 2
Average Three-Year Growth Rate in Real GDP Components Before and After Data Revisions

	Pre-Revision 3-Year Growth Rate	Post-Revision 3-Year Growth Rate
GDP Real	2.31%	2.06%
Consumption	2.24%	1.95%
Nonresidential Investment	5.50%	6.03%
Residential Investment	8.87%	8.15%
Inventories	23.37%	21.84%
Net Exports	0.50%	1.24%
Government	-1.21%	-1.80%

Source: Bureau of Economic Analysis

Note the outsized growth in inventories. This is not necessarily very positive. Also, note that the negative contribution from government grew considerably in the revised number. This is also not necessarily a good outcome because government spending in the national income accounts covers direct consumption and investment spending — transfer payments are not included.

Table 3 shows annual rates of growth for key GDP components and first and second quarter 2015 estimates. Quarterly data can be quite volatile because of timing quirks in the data compilation. These quirks are amplified by annualizing quarterly data. That is particularly apparent for inventory and net exports data but can show up in other components as well.

The bottom panel of **Table 3** shows three alternative measures of real GDP growth. "Final Sales" simply eliminates the change in inventories from total real GDP and is a more stable measure of economic activity over time as it eliminates unintended inventory accumulation and de-accumulation over the business cycle. "Private GDP" eliminates both inventories and government spending. In recent years there has been

a systematic reduction in both federal and state and local spending. As a consequence, total real GDP understates the strength of the private sector. Finally, "Private GDPNet Exports" shows the growth in the domestic private sector by netting out changes in imports and exports.

Table 3
Composition of 2011 — 2014 Annual and 2015 Quarterly GDP Growth

	2011	2012	2013	2014	2015 Q1	2015 Q2
Personal Consumption	1.55%	1.01%	1.16%	1.84%	1.19%	2.11%
Private Investment						
Nonresidential	.85%	1.05%	.38%	.77%	.20%	.41%
Residential	.01%	.33%	.27%	.05%	.32%	.25%
Inventories	-.14%	.14%	.06%	.05%	.87%	.22%
Net Exports	-.02%	.08%	.20%	-.18%	-1.92%	.23%
Government	-.65%	-.38%	-.58%	-.11%	-.01%	.47%
Total	**1.60%**	**2.23%**	**1.49%**	**2.42%**	**.65%**	**3.69%**
Final Sales	**1.74%**	**2.09%**	**1.43%**	**2.37%**	**-.22%**	**3.47%**
Private GDP	**2.39%**	**2.47%**	**2.01%**	**2.48%**	**-.21%**	**3.00%**
Private GDP - Net Exports	**2.41%**	**2.39%**	**1.81%**	**2.66%**	**1.71%**	**2.77%**

Source: Bureau of Economic Analysis

Choose whichever measure of GDP you wish. If one ignores inventories, net exports and government, "Private GDPNet Exports," the underlying rate of growth over the past four years has been about 2.4 percent. It's too early to tell whether there is a change in trend in 2015, but it doesn't look like it.

Table 4 shows a huge decrease in personal and disposable income in 2013 offset partially by increases in 2012 and 2014. The large decrease in disposable income in 2013 is consistent with the sharp downward revision in consumption growth in the same year.

Table 4
Data Revisions — Percentage Change in Nominal Personal Income, Nominal Disposable Income and Productivity

	2012	2013	2014
Personal Income	0.20%	-0.70%	-0.23%
Disposable Income	0.16%	-0.88%	-0.55%
Nonfarm Productivity	-0.34%	-1.13%	-1.03%

Sources: Bureau of Economic Analysis and Bureau of Labor Statistics

While the three-year average growth rates in nominal personal and nominal disposable income decreased somewhat, the shocker is the 35 basis points decline in three-year average nonfarm productivity growth to 0.41 percent which already at an unprecedented low level (see **Table 5**). If productivity does not improve

soon, dismal potential real GDP growth projections will have to be reduced to even lower levels. (Note that nonfarm productivity is provided by the Bureau of Labor Statistics (BLS). However, BLS derives its measure of output from BEA national income accounts data and always revises productivity data at the same time that BEA revises national income accounts data.)

Table 5
Average Three-Year Growth Rate in Nominal Personal and Disposable Income and in Productivity Before and After Data Revisions

	Pre-Revision 3-Year Growth Rate	Post-Revision 3-Year Growth Rate
Personal Income	3.58%	3.50%
Disposable Income	3.24%	3.05%
Nonfarm Productivity	0.76%	0.41%

Sources: Bureau of Economic Analysis and Bureau of Labor Statistics

2. CBO Economic Assumptions Revisions

While BEA revises historical data, **CBO** revises projections of key economic variables. **CBO** usually revises data once a year in August; however, in 2015 it also did an interim revision in January, denoted "2015J" in the charts below.

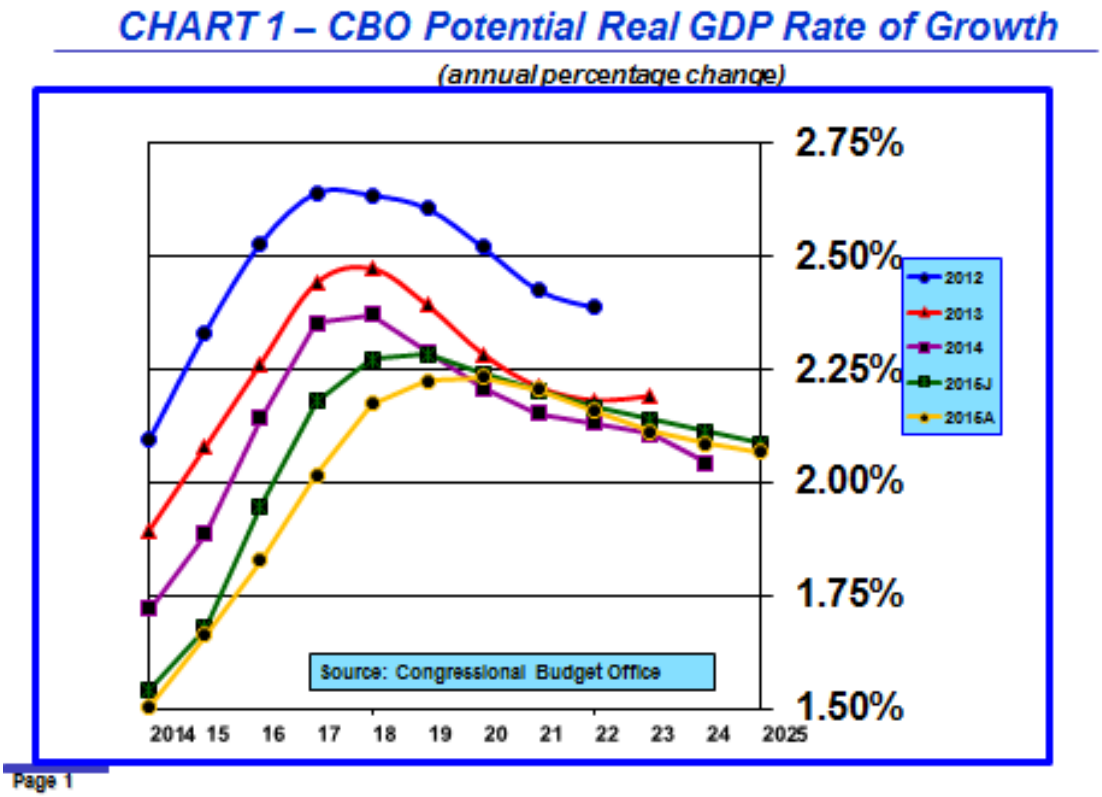
a. Potential Real GDP

CBO's estimate of potential real GDP is built from the bottom up and depends on assumptions about labor force growth and productivity. Labor force growth depends on demographics, immigration and voluntary decisions to participate in the labor force. While there is some uncertainty surrounding each of these assumptions, the range of uncertainty is fairly narrow. Assumptions about future productivity rely heavily on historical data and thus projections tend to mirror historical experience.

As can be seen in **Chart 1**, **CBO's** projections of potential real GDP growth have been reduced substantially over the last three years. However, there has been little change in the "out years" since 2013. That is because there have been no substantive changes in labor force growth assumptions or long-term productivity assumptions. The risk is that **CBO** is too optimistic about long-term productivity trends. Most other analysts have lowered expectations for future productivity growth based on the miserable recent performance of productivity.

b. Potential Labor Force Growth

Chart 2 shows historical labor force growth in five-year intervals from 1965 to the present. The chart indicates very clearly the long-term secular decline. Since potential real GDP growth is the product of



labor force growth and productivity, it is evident that it is impossible to return to the halcyon days of 3+ percent real GDP growth. Note the collapse in labor force growth over the last five years. This was due to the severity of job losses during the Great Recession and the slow recovery.

Chart 3 shows **CBO's** labor force growth projections through 2023 and alternative projections for three scenarios I test — "Steady Growth," "Strong Growth," and "Stagnation," which includes a short recession in 2016. According to **CBO**, potential labor force growth will average about 1.06 percent from 2015 to 2019 and 0.56 percent from 2020 to 2023.

c. Productivity

Chart 4 shows historical productivity growth in five-year intervals beginning in 1965. The dot.com spike in the late 1990s and early 2000s followed by the recent productivity collapse is clearly evident.

Chart 5 shows **CBO's** projections for productivity along with projections for my three scenarios. It also shows Goldman Sach's (**GS**) estimate, which is the least optimistic in later years.

CHART 2 – Historical Labor Force Growth

(annual percentage change)

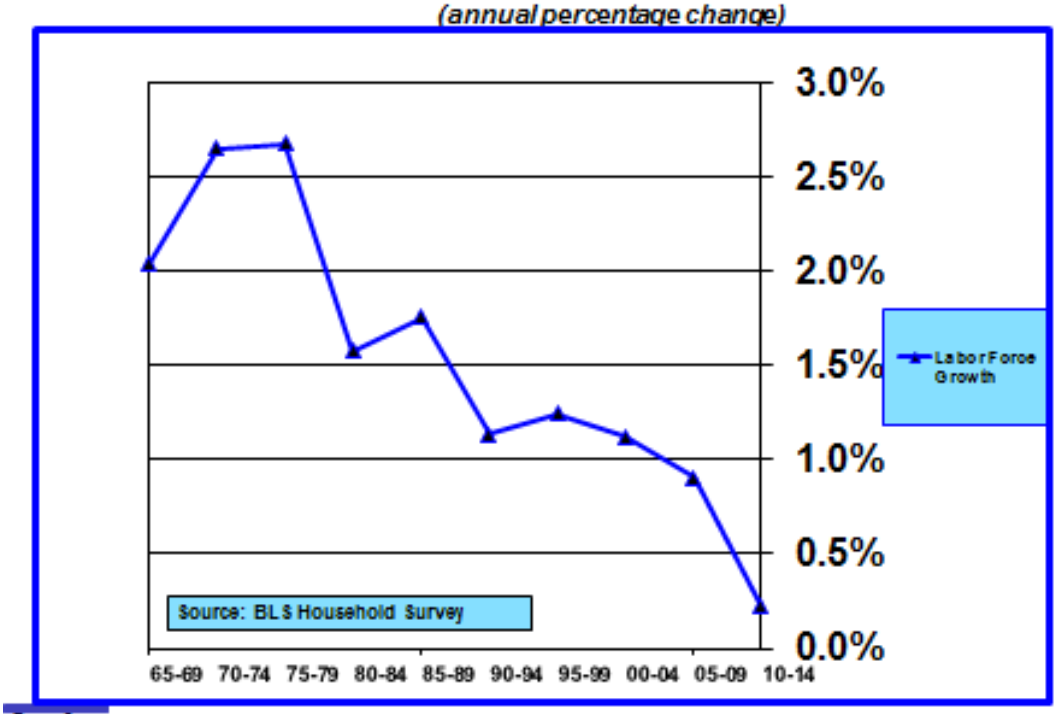


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CHART 3 – Employment Growth (Hours Worked)

(annual percentage change)

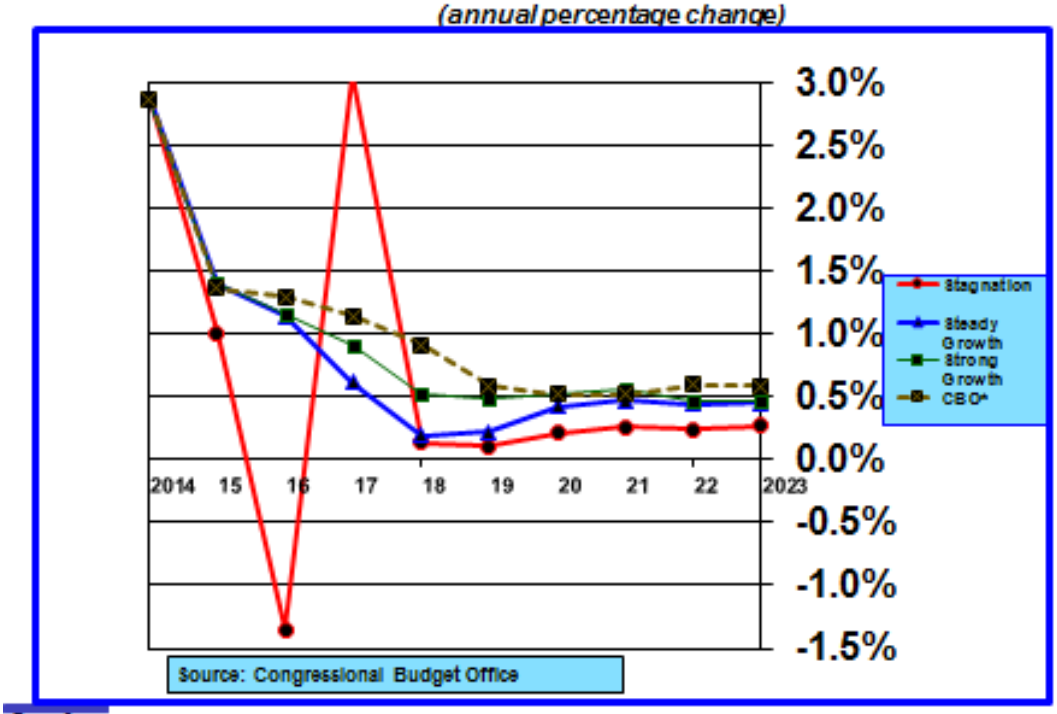

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CHART 4 – Nonfarm Productivity

(annual percentage)

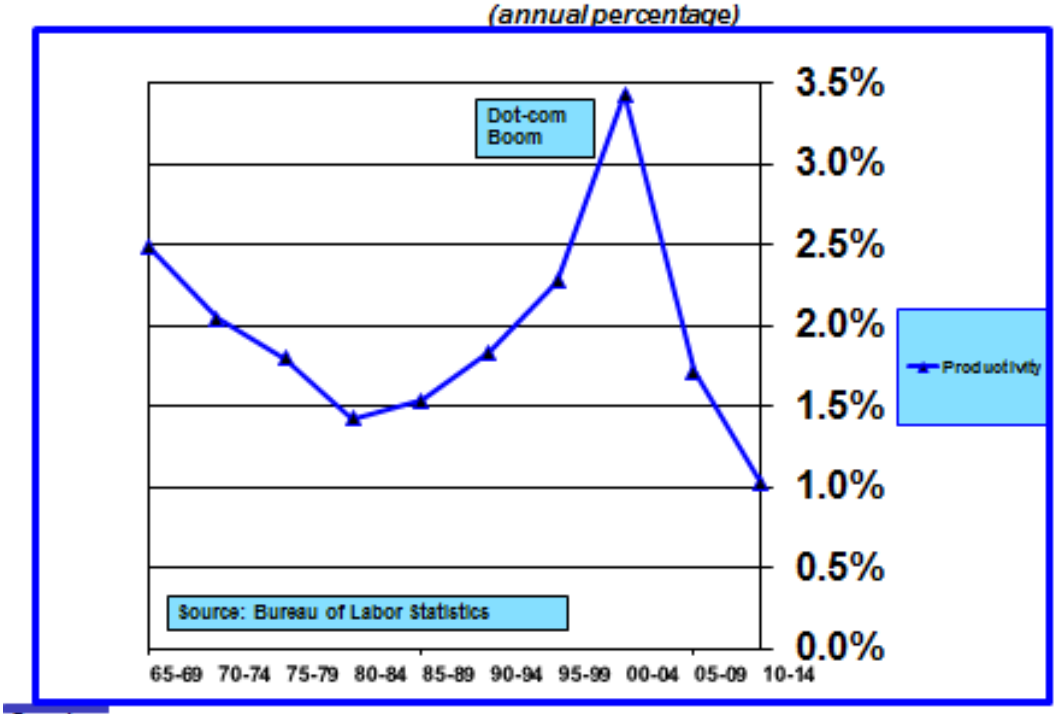
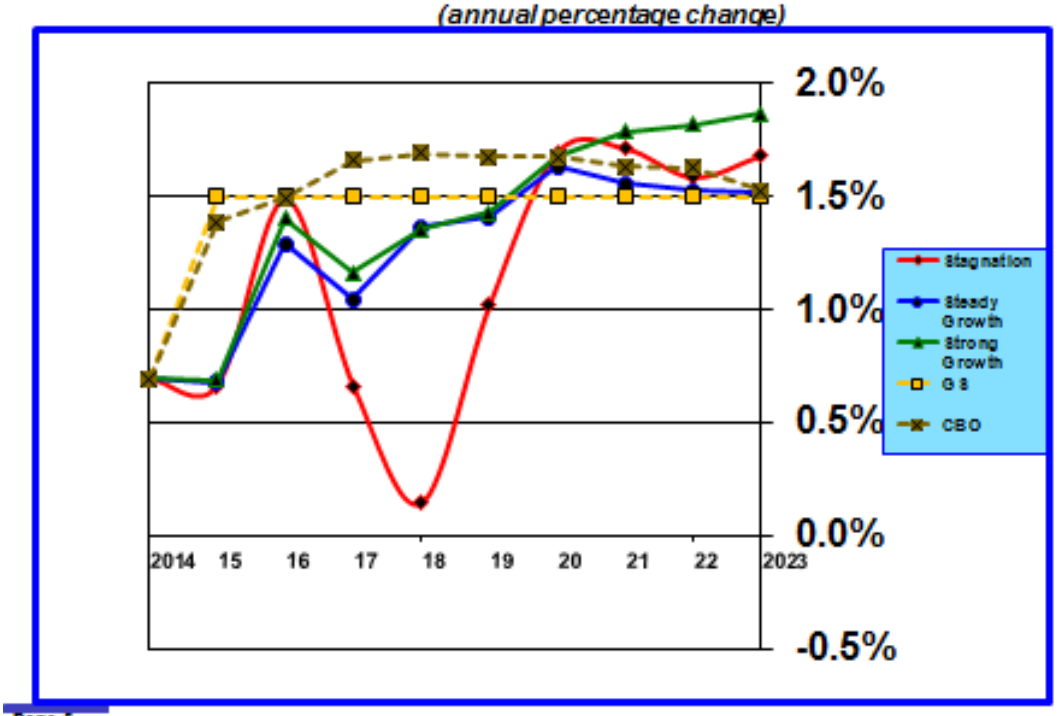


CHART 5 – Productivity

(annual percentage change)



d. Potential Real GDP Growth

Chart 6 shows potential and actual real average GDP growth in five-year intervals from 1965 to the present. There is more variability in actual GDP growth because of business cycle fluctuations. The decline in potential and actual real GDP growth over the last ten years reflects the ravages of the Great Recession and declining productivity growth.

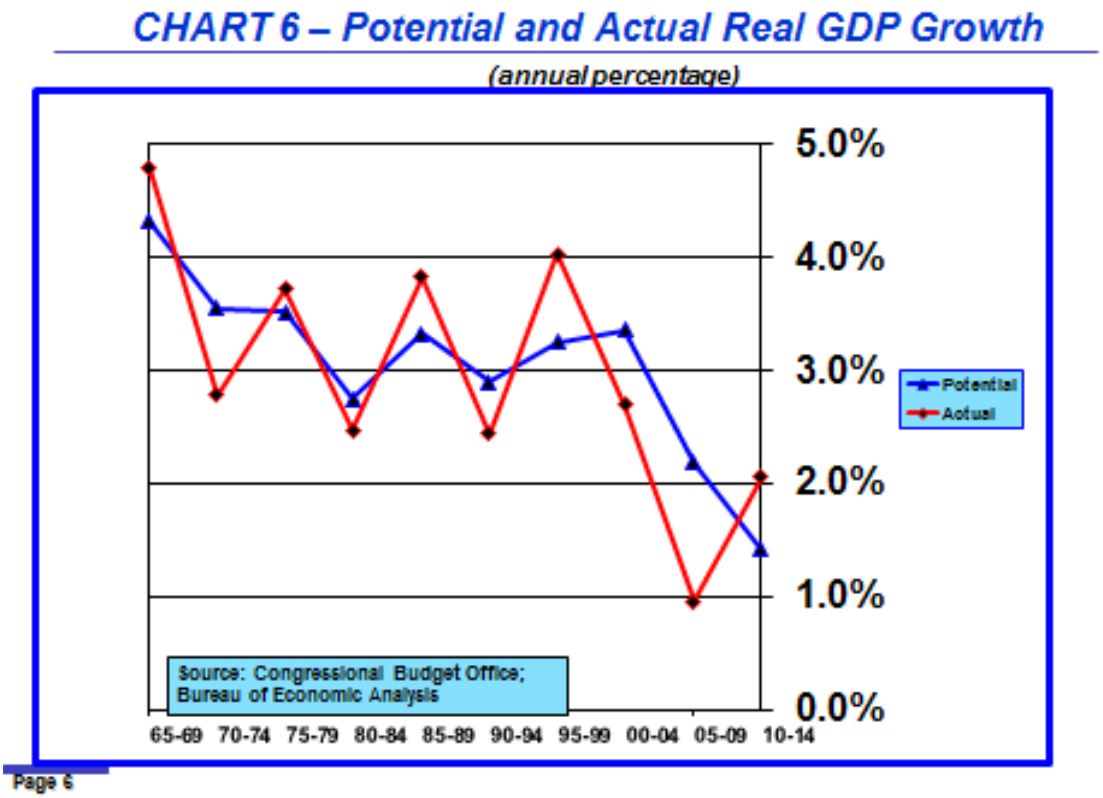


Chart 7 shows the combined effects of labor force and productivity growth in driving potential real GDP growth. **CBO** projects a very rapid recovery in potential real GDP growth in the next few years followed by a shallow decline. My forecasts for both labor force growth and productivity are lower than **CBO's** and when these two effects are combined in **Chart 7** it reveals a large gap in potential growth which peaks at about 0.5 percent before narrowing a bit in the "out years."

e. Forecast Realized GDP Growth

Chart 8 differs from **Chart 7** only in that it includes forecasts of actual real GDP growth as opposed to potential real GDP growth. CBO realized GDP growth forecasts for 2015 and 2016 look to be outlandishly high compared to other forecasts, including those of the FOMC.

CBO's high forecasts for 2015 and 2016 are very clear in **Chart 9**. Bank of America (**B of A**) is also more optimistic about real GDP growth the next couple of years than **GS** or the FOMC.

CHART 7 – Potential Real GDP Growth

(annual percentage change)

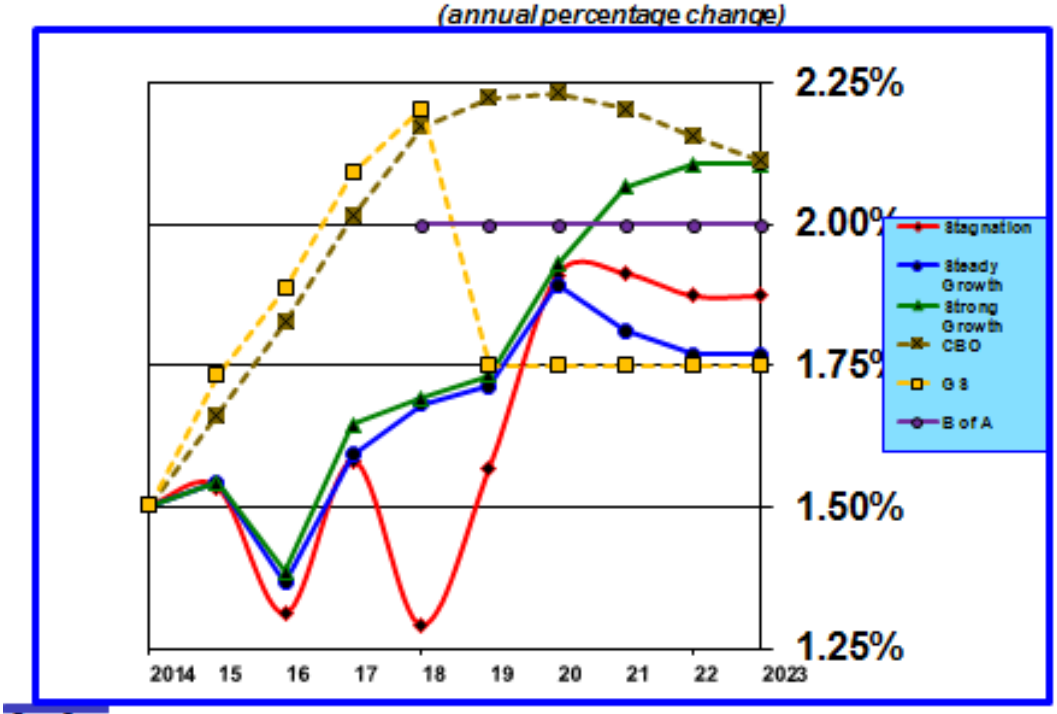
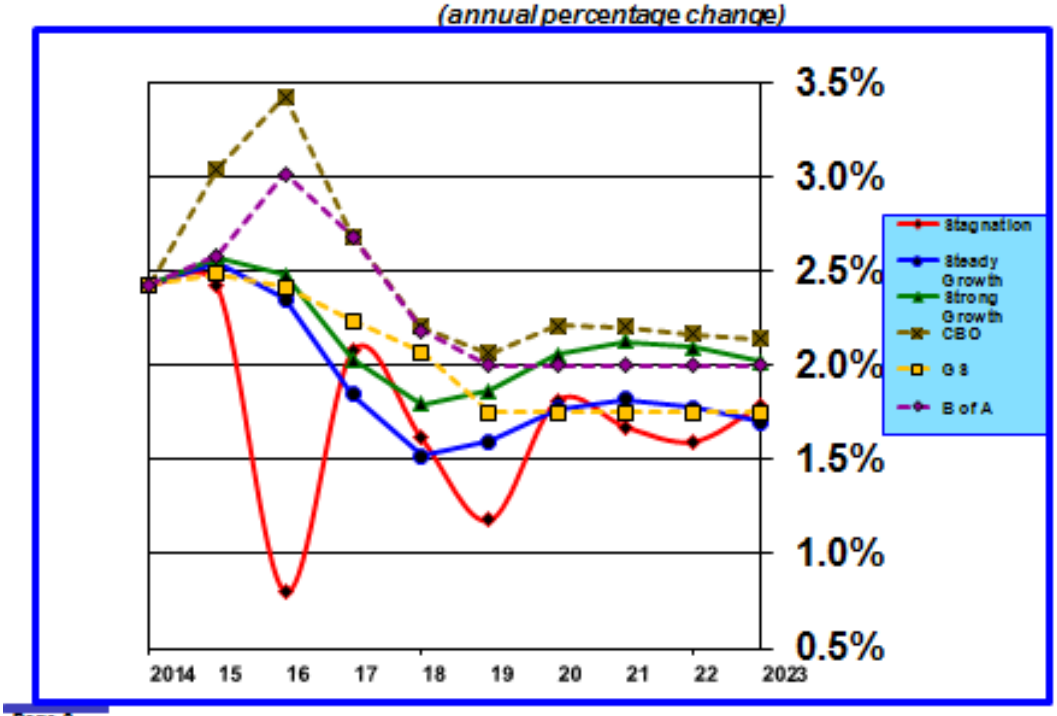
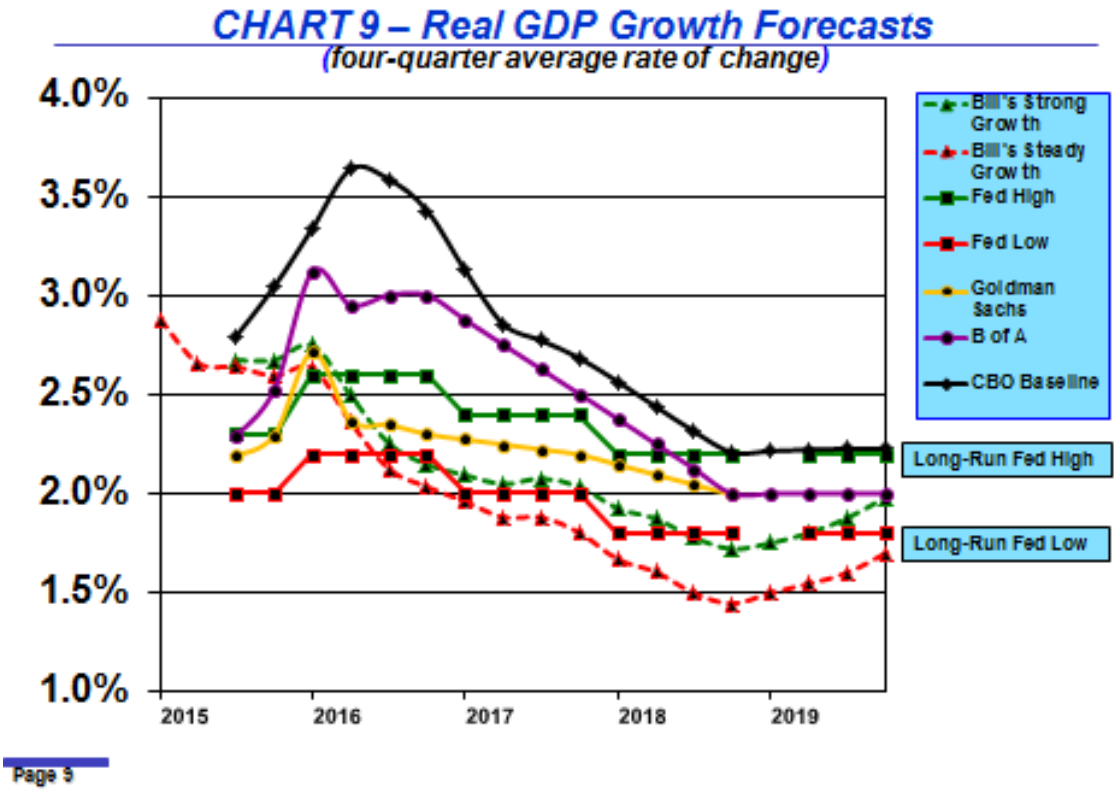


CHART 8 – Realized Real GDP Growth

(annual percentage change)





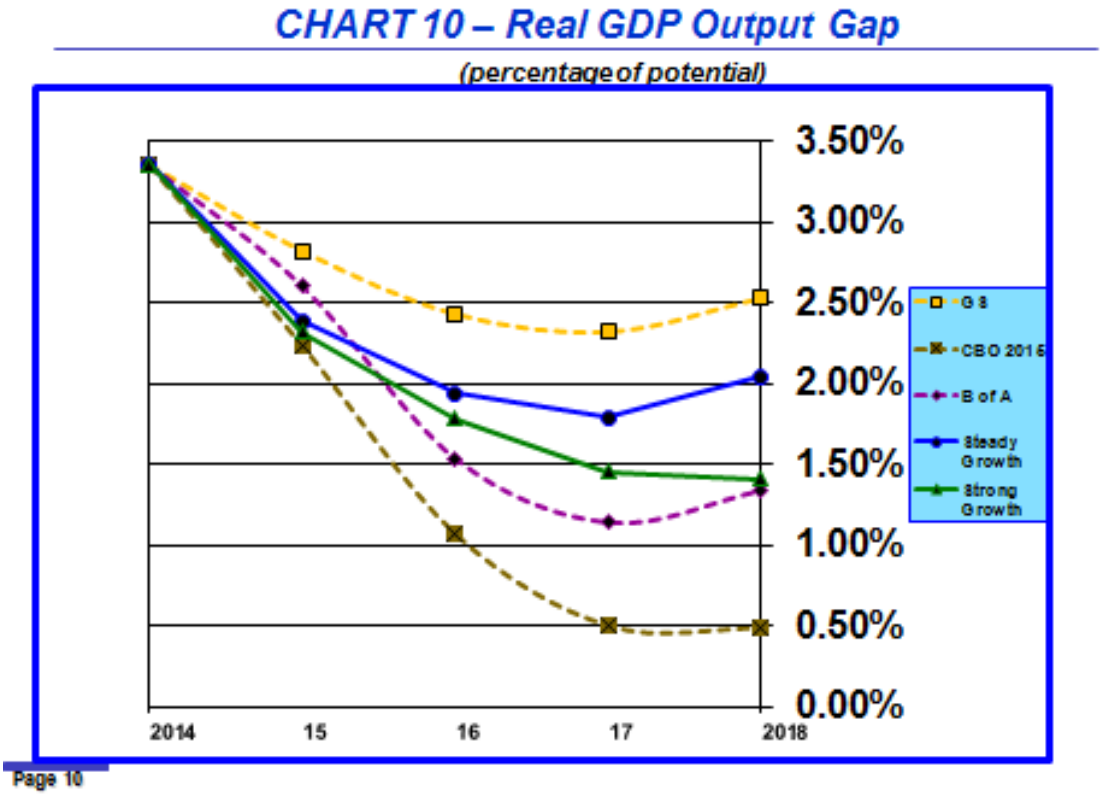
f. Real GDP Output Gap

Forecasts of potential and actual real GDP enable calculation of the size of the output gap. That metric is shown in **Chart 10**.

Interestingly, based on **CBO's** projections of potential real GDP, only its own forecast of actual real GDP results in closing the output gap to 0.50 percent by 2017. All other estimates of the output gap are higher and range between 1.25 percent and 2.25 percent in 2017. My estimates of the output gap are based upon my own forecasts of both potential and actual real GDP growth. However, the output gaps for **B of A** and **GS** are based on their actual forecasts compared to **CBO's** potential growth estimate.

g. Unemployment Rate and Labor Market Slack

Chart 11 shows unemployment rate forecasts for **B of A**, **GS** and the FOMC. **B of A** expects the unemployment rate to fall more. This is consistent with its above consensus forecast for real GDP growth. It also believes that the NAIRU rate of unemployment is lower than **CBO's** estimate of approximately 5.0 percent (see **Chart 12**). **CBO** reduced its estimate of NAIRU and increased its estimate of potential labor force participation substantially in its August 2015 assumption revisions. These changes increased the measured employment gap considerably going back to 2012 and depressed my estimates of future inflation. My inflation model is sensitive to the size of the employment gap and an increase in the estimated size of the gap reduces the estimate of future inflation. If **B of A** is correct in its view that NAIRU is even lower



than 5.0 percent, based upon my statistical model inflation could decline further and remain well below the FOMC's 2.0 percent target for a very long time. Other analysts have not discussed or evaluated this possibility. The consensus remains that inflation is near a bottom currently and will move back toward the long-run 2.0 percent target over the next three years.

CBO also increased its estimate of the potential labor participation rate. This adjustment, combined with its reduction in NAIRU, increased **CBO's** estimate of current labor market slack by approximately 80 basis points. The implication of this adjustment is that there will be less upward pressure on inflation.

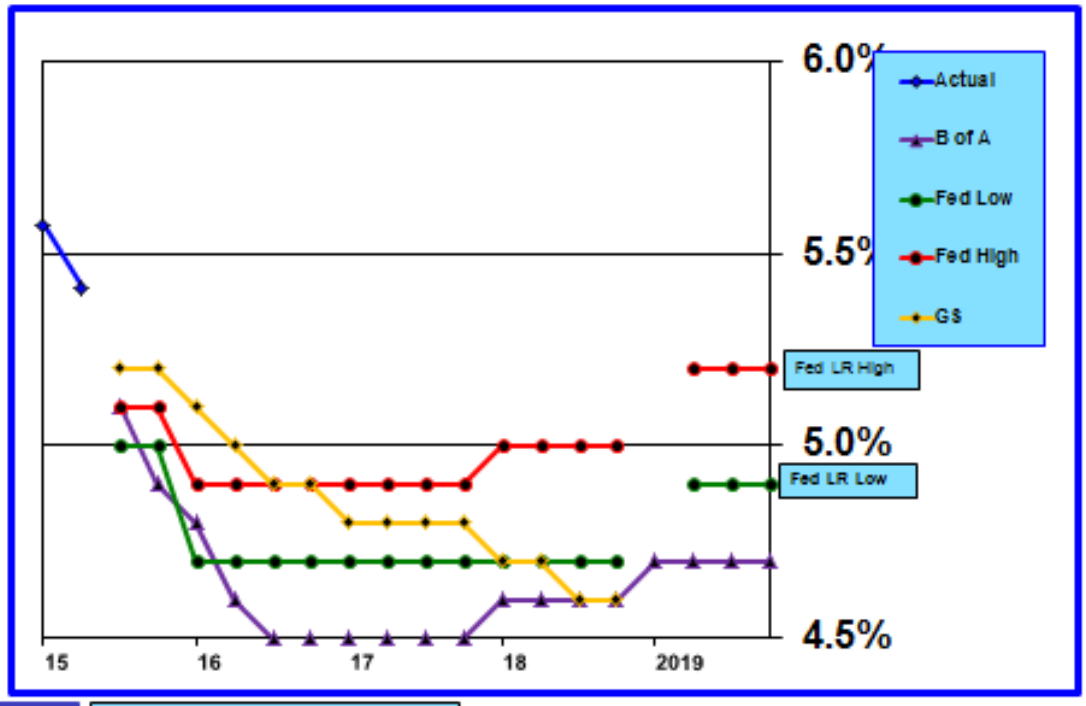
Chart 13 shows estimates of long-run unemployment rates. Interestingly, **CBO's** unemployment estimates do not fall much, even though it expects strong real GDP growth over the next couple of years. **B of A's** sharp decline in the unemployment rate is consistent with its above consensus forecast for real GDP growth.

3. FOMC Revisions for Key Economic Variables

Tables 6-9 show the FOMC's projections for key economic variables from December 2012 through September 2015.

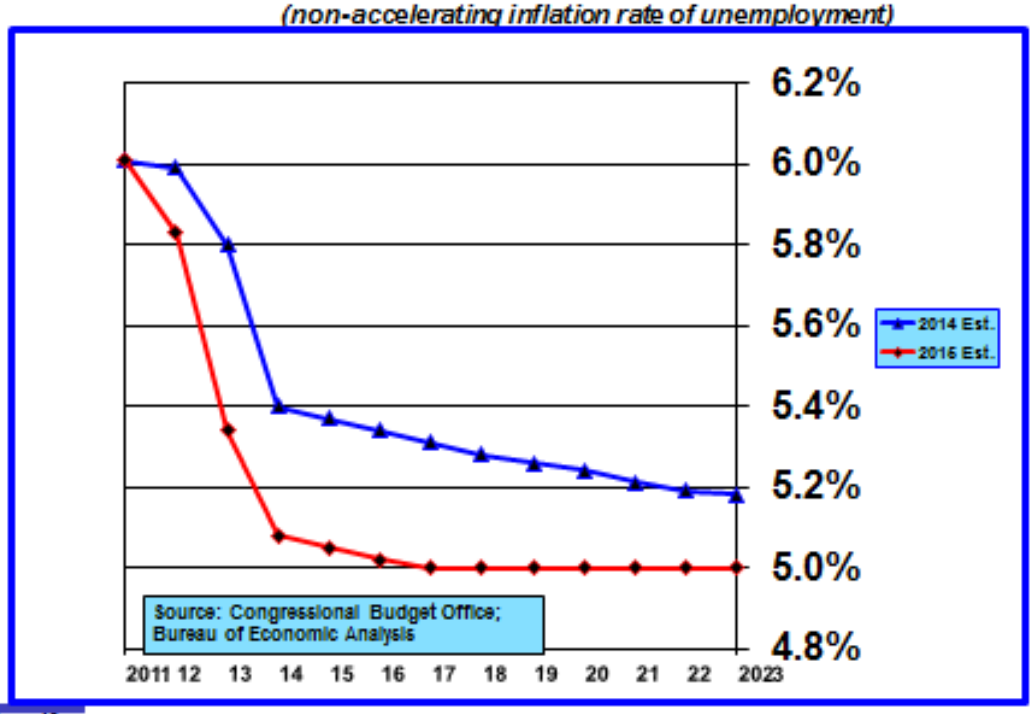
There is a striking pattern in the progression of the FOMC's projections for annual real GDP growth over the last three years. The FOMC has downgraded its forecast progressively over time. Unfortunately,

CHART 11 – Unemployment Rate
(quarterly average)



Page 11 Source: Bureau of Labor Statistics

CHART 12 – CBO's Estimate of NAIRU
(non-accelerating inflation rate of unemployment)



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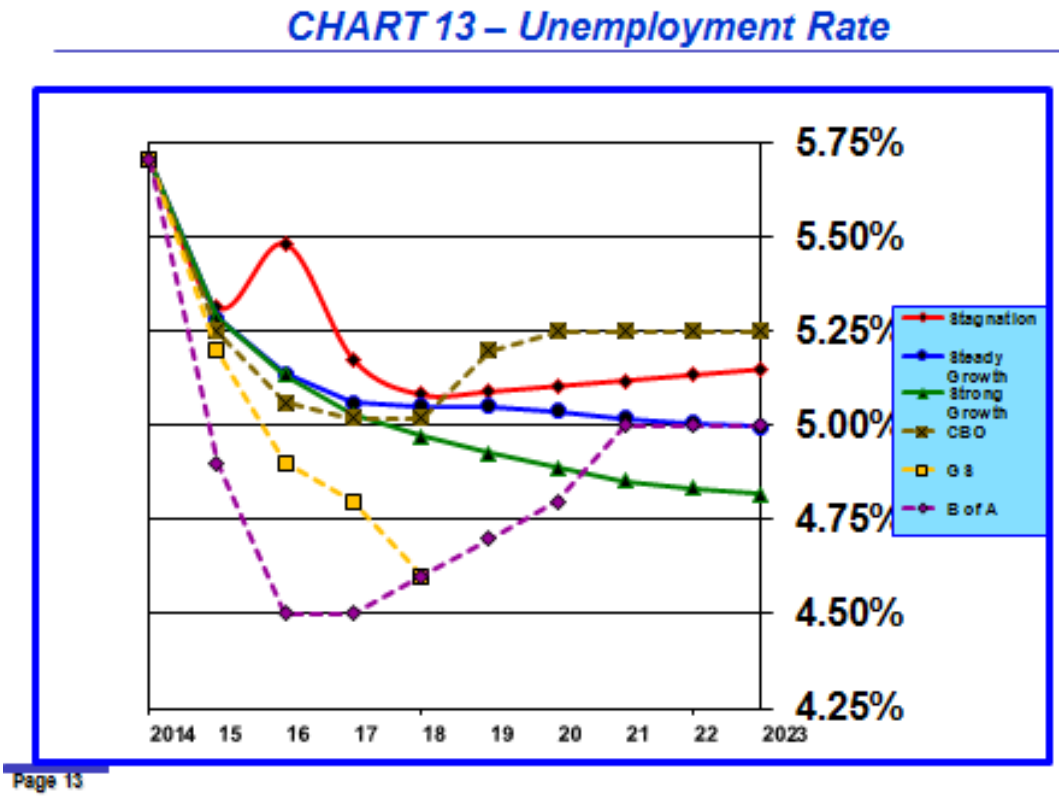


realized real GDP growth in 2014 and 2015 fully justify the reductions. Perhaps most distressing in **Table 6** is that FOMC members have grown progressively more pessimistic about long-term potential real GDP growth. Its estimate has come down nearly 0.5 percent over the last three years.

FOMC members haven't been particularly prescient in projecting unemployment rates either, as can be seen in **Table 7**. One would think that over optimism on real GDP growth should have translated into optimism on a more rapid decline in the unemployment rate. But, FOMC members did not foresee the collapse in productivity, which has driven down real GDP growth. Neither did they fully anticipate the substantial decline in the labor force participation rate which has contributed to the much greater than expected decline in the unemployment rate. In fairness, other analysts did not anticipate these developments as well. And in both cases, there is no firm conclusion about why participation and productivity are as low as they are.

Estimates of long-term unemployment in **Table 7** are essentially the FOMC's estimate of NAIRU. They have been coming down over time and the level is currently similar to CBO's estimate of NAIRU. Reportedly, the Fed staff believes that NAIRU is lower at approximately 4.85 percent.

Table 8 shows FOMC member projects for total and core PCE inflation. The overestimates of total inflation are understandable to a certain extent because the collapse in energy prices was not fully anticipated.

With the benefit of hindsight, this development should have been anticipated to a certain extent. Prices

Table 6
Economic Projections of Real GDP By Federal Reserve Board Members And Federal Reserve Bank Presidents, September 2015

Real GDP %		Central Tendency					
		2014	2015	2016	2017	2018	Longer Run
	Sep		*2.0 - 2.3*	*2.2 - 2.6*	*2.0 - 2.4*	*1.8 —2.2*	*1.8 - 2.2*
	June		1.8 - 2.0	2.4 - 2.7	2.1 - 2.5		2.0 - 2.3
	Mar		2.3 - 2.7	2.3 - 2.7	2.0 - 2.4		2.0 - 2.3
2014	Dec	2.3 - 2.4	2.6 - 3.0	2.5 - 3.0	2.3 - 2.5		2.0 - 2.3
	Sep	2.0 - 2.2	2.6 - 3.0	2.6 - 2.9	2.3 - 2.5		2.0 - 2.3
	June	2.1 - 2.3	3.0 - 3.2	2.5 - 3.0			2.1 - 2.3
	Mar	2.8 - 3.0	3.0 - 3.2	2.5 - 3.0			2.2 — 2.3
2013	Dec	2.8 - 3.2	3.0 - 3.4	2.5 - 3.2			2.2 - 2.4
	Sep	2.9 - 3.1	3.0 - 3.5	2.5 - 3.3			2.2 - 2.5
	June	3.0 - 3.5	2.9 - 3.6				2.3 - 2.5
	Mar	2.9 - 3.4	2.9 - 3.7				2.3 - 2.5
2012	Dec	3.0 - 3.5	3.0 - 3.7				2.3 - 2.5

of commodities rose to highly profitable levels that stimulated exploration and development of new sources of supply. Every price bubble in history has fostered an explosion of new supply. Increasing capacity for commodities takes a long time similar to the length of time it takes to build houses. This time gap foster price speculation in derivative financial instruments which contributes to further price increases for a period of time. But eventually new supply comes on line and the supply-demand imbalance flips and prices crash. The commodity price bubble was no different than any other price bubble. And, it had an amplifier in China's investment in infrastructure boom. All that is past now and at least to a certain extent reversal in commodity prices and the impact of this on total inflation should have been foreseeable.

But, FOMC members are guilty of the same phenomenon of expecting core inflation, which arguably is not subject to the direct effects of commodity prices, to rise back toward the FOMC's 2.0 percent target only to have to repeatedly mark to market near-term projections and extend the time frame to reach the target level. This has been accompanied by sincerely uttered excuses that there are transitory factors that have depressed inflation which will soon dissipate. By now I have become more than a little bit cynical about what I have come to regard as a belief system rather than serious analysis. My concern is that the belief system is interfering with considering the possible alternative of falling inflation and the consequences that development would lead to. Chinese leaders right now are being faulted for "making it up on the fly,"

Table 7
Economic Projections of Unemployment Rate by Federal Reserve Board Members And Federal Reserve Bank Presidents, September 2015

Unemp.		Central Tendency					
Rate %		2014	2015	2016	2017	2018	Longer Run
	Sep		*5.0 - 5.1*	*4.7 - 4.9*	*4.7 - 4.9*	*4.7 - 5.0*	*4.9 - 5.2*
	June		5.2 - 5.3	4.9 - 5.1	4.9 - 5.1		5.0 - 5.2
	Mar		5.0 - 5.2	4.9 - 5.1	4.8 - 5.1		5.0 - 5.2
2014	Dec	5.8	5.2 - 5.3	5.0 - 5.2	4.9 - 5.3		5.2 - 5.5
	Sep	5.9 - 6.0	5.4 - 5.6	5.1 - 5.4	4.9 - 5.3		5.2 - 5.5
	June	6.0 - 6.1	5.4 - 5.7	5.1 - 5.5			5.2 - 5.5
	Mar	6.1 - 6.3	5.6 - 5.9	5.2 - 5.6			5.2 - 5.6
2013	Dec	6.3 - 6.6	5.8 - 6.1	5.3 - 5.8			5.2 - 5.8
	Sep	6.4 - 6.8	5.9 - 6.2	5.4 - 5.9			5.2 - 5.8
	June	6.5 - 6.8	5.8 - 6.2				5.2 - 6.0
	Mar	6.7 - 7.0	6.0 - 6.5				5.2 - 6.0
2012	Dec	6.8 - 7.3	6.0 - 6.6				5.2 - 6.0

but we may look back from the vantage point of sometime in the future and conclude that the FOMC was not preparing for possibilities that were inconsistent with their belief system.

Table 9 shows the average federal funds rate projections of the 19 FOMC members for the next several years. This is often referred to as the "dot plot" by market participants and is intended to convey a since of when and how rapidly the FOMC is likely to raise the federal funds rate. Like its other projections, the FOMC's accuracy is lacking. The market has gotten used to this and although much attention is given to the "dot plot" market projections are lower for longer than those embedded in **Table 9**.

One important takeaway in **Table 9** is that the long-run neutral equilibrium federal funds rate has been coming down. The average has fallen from 4.04 percent in December 2012 to 3.46 percent in September 2015, while the median has fallen from 4.0 percent to 3.5 percent over the same time period.

Table 8
Economic Projections of Inflation By Federal Reserve Board Members And Federal Reserve Bank Presidents, September 2015

Variable		Central Tendency					
		2014	2015	2016	2017	2018	Longer Run
PCE Inf. %	Sep		0.3 - 0.5	1.5 - 1.8	1.8 - 2.0	2.0	2.0
	June		0.6 - 0.8	1.6 - 1.9	1.9 - 2.0		2.0
	Mar		0.6 - 0.8	1.7 - 1.9	1.9 - 2.0		2.0
2014	Dec	1.2 - 1.3	1.0 - 1.6	1.7 - 2.0	1.8 - 2.0		2.0
	Sep	1.5 - 1.7	1.6 - 1.9	1.7 - 2.0	1.9 - 2.0		2.0
	June	1.5 - 1.7	1.5 - 2.0	1.6 - 2.0			2.0
	Mar	1.5 - 1.6	1.5 - 2.0	1.7 - 2.0			2.0
2013	Dec	1.4 - 1.6	1.5 - 2.0	1.7 - 2.0			2.0
	Sep	1.3 - 1.8	1.6 - 2.0	1.7 - 2.0			2.0
	June	1.4 - 2.0	1.6 - 2.0				2.0
	Mar	1.5 - 2.0	1.7 - 2.0				2.0
2012	Dec	1.5 - 2.0	1.7 - 2.0				2.0
Core PCE Inf. %	Sep		1.3 - 1.4	1.5 - 1.8	1.8 - 2.0	1.9 - 2.0	2.0
	June		1.3 - 1.4	1.6 - 1.9	1.9 - 2.0		
	Mar		1.3 - 1.4	1.5 - 1.9	1.8 - 2.0		
2014	Dec	1.5 -1.6	1.5 - 1.8	1.7 - 2.0	1.8 - 2.0		
	Sep	1.5 -1.6	1.6 - 1.9	1.8 - 2.0	1.9 - 2.0		
	June	1.5 -1.6	1.6 - 2.0	1.7 - 2.0			
	Mar	1.4 - 1.6	1.7 - 2.0	1.8 - 2.0			
2013	Dec	1.4 - 1.6	1.6 - 2.0	1.8 - 2.0			
	Sep	1.5 - 1.7	1.7 - 2.0	1.9 - 2.0			
	June	1.5 - 1.8	1.7 - 2.0				
	Mar	1.6 - 2.0	1.8 - 2.1				
2012	Dec	1.6 - 2.0	1.8 - 2.0				

Table 9
Economic Projections of Federal Funds Rate By Federal Reserve Board Members And Federal Reserve Bank Presidents, September 2015

Federal		Central Tendency					
Funds Rate %		2014	2015	2016	2017	2018	Longer Run
	Sep		.40	1.48	2.64	3.34	3.46
	June		.57	1.75	3.00		3.65
	Mar		.77	2.03	3.18		3.66
2014	Dec	.25	1.13	2.54	3.50		3.78
	Sep	.29	1.40	2.81	3.67		3.78
	June	.30	1.20	2.53			3.78
	Mar	.30	1.13	2.42			3.88
2013	Dec	.34	1.06	2.18			3.88
	Sep	.40	1.25	2.26			3.93
	June	.43	1.34				4.01
	Mar	.55	1.30				4.01
2012	Dec	.61	1.47				4.04

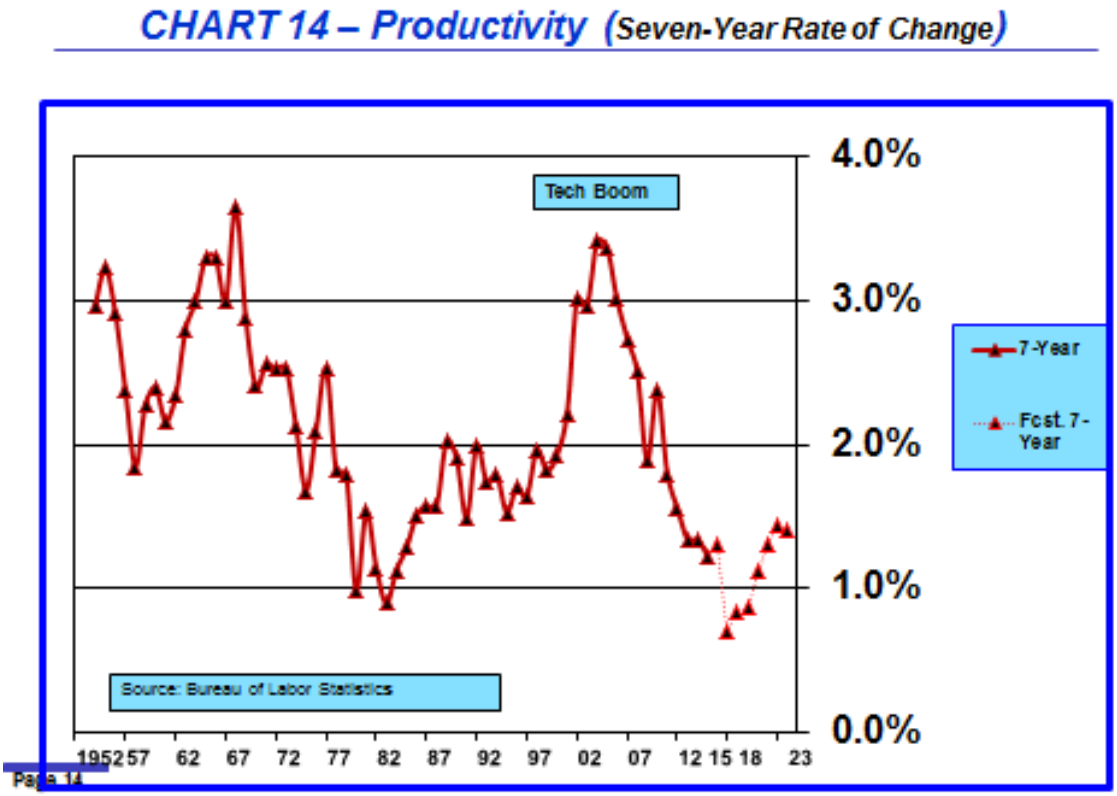
III. Why Is Productivity So Low?

Nonfarm productivity has averaged just 0.41 percent over the three years compared to a 50-year average of approximately 2.1 percent. Most blithely assumed that productivity would remain near its historical average once the economy recovered from the Great Recession. However, the persistent anemic level of productivity in recent years has led to increasing doubts that productivity will return to historical levels and has spurred a search for explanations.

Productivity can be measured in one of two ways — top down or bottom up. BLS calculates a top-down measure quarterly by dividing a measure of output by total hours worked. Typically this measure of productivity is highly volatile. CBO calculates a bottom-up measure by estimating separating the contributions to total productivity of capital investment, technical progress, labor skills, and process improvements.

Historical productivity trends are easier to discern when a long-term average is calculated. **Chart 14** shows the long-term trend in a seven-year moving average of nonfarm productivity. The recent collapse in productivity to the low level that prevailed in the early 1980s is starkly evident. One more year of productivity less than 1 percent will take the seven-year average to its lowest level in 50 years. The

improvement in forecast productivity assumes that productivity growth will rise from its recent level of 0.4 percent to about 1.5 percent. There is no assurance that this will actually occur.



Is the collapse in productivity temporary or will it rebound as the economy continues to improve and economic slack diminishes? One acknowledged culprit of the productivity slowdown is reduced investment spending — both public and private. But, this does not fully explain the extent of the productivity slump. There are three theories that seek to explain the remainder of the decline.

1. Diminished Technical Progress

Robert Gordon, a Northwestern University economic historian, has argued that today's economy, which is based on information and communications technologies, is inherently less susceptible to productivity improvement than previous structural transformations of the economy involving railroads, electricity, and manufacturing automation. This is an argument without robust quantitative analysis to support it. In addition, many find this theory intuitively implausible. Think about how your smart phone with all of its apps has transformed your life and made it easier and less costly to manage your daily activities. Nonetheless, many have accepted the plausibility of this explanation for weak productivity.

2. Inadequate Demand

This theory posits that low consumer demand for goods and services coupled with low wages discourages new investment, which in turn slows productivity growth. There are several related forces that operate in the same direction. Inadequate demand can also be the consequence of excess supply. When supply exceeds demand this fuels deflationary pressures which inevitably extend to reluctance to raise wages in the interests of preserving profit margins. Through the operation of feedback loops, this assures that demand remains weak.

Labor's bargaining power has atrophied in recent years. Reasons include declining union membership, much expanded global alternative sources of cheap labor, declining inflation expectations, and, until recently, persistently high unemployment. Some would add that the expansion of the social safety net has also contributed to the decline in labor's bargaining power. All of these factors tend to limit increases in wages. The shift in recent years of a part of labor's share of income to owners is evidence of labor's loss in bargaining power.

In addition, as Charles Gave argues, quantitative easing has depressed the return to capital and this encourages allocation of funds and the use of cheap debt leveraging to speculate in the prices of existing assets rather than to invest in risky, low-return new productive investments. Inflation in asset prices enriches high income individuals who have a lower propensity to consume. This also depresses aggregate demand and holds down wages.

In theory, the problem of inadequate demand could be remedied by policy actions to increase aggregate demand. Supposedly monetary policy can contribute by reducing interest rates and making it more attractive to buy interest-sensitive assets, such as houses, thus inducing additional spending and investment. However, at best this is an indirect policy tool and there is scant evidence that monetary policy is having much impact.

Aggregate demand can be increased directly through increased government spending. However, fear of big government and burgeoning public debt has resulted in fiscal policy that is reducing spending and thus reducing aggregate demand.

Sum all of this up and the conclusion is that powerful forces are at work that are assuring that aggregate demand remains weak and wages remain restrained. There is little incentive to make new investments when growth prospects are limited. The consequence is that productivity grows more slowly. The unwelcome conclusion is that productivity growth is unlikely to rise much until aggregate demand strengthens and the prospect for that to happen is based mostly on hope.

Forecast productivity in my statistical analysis depends upon three variables — the rate of growth in the labor force, the percentage increase in real private investment spending, and the percentage increase in real public investment spending. The rate of growth in the labor force captures oscillations in productivity that occur over the business cycle. When labor markets are tight (labor force growth is high), productivity declines as employers hire marginal workers. The opposite occurs during and following recessions as employers shed marginal workers and expect remaining employees to cover more work activity. The coefficient of the labor growth variable is exactly equal to -1.0 with a 2.2 quarter lag. What this means is that a 1 percent increase in employment growth will result in a 1.0 percent decline in productivity 2.2

quarters later.

Investment spending has a much greater impact on the level of productivity. A 1 percent increase in real private investment increases productivity by 41 basis points after 5.1 quarters and a 1 percent increase in real public investment increases productivity by 43 basis points after 8.7 quarters. The problem is that growth in investment spending has dropped sharply in recent years relative to the 1947-2015 long-term averages. **Table 10** shows the separate and combined effects on productivity of the decline in investment spending growth. The 50-year period from 1947 to 1999 is compared with the recent 15-year period from 2000 to 2015.

Table 10
Contributions of Private and Public Investment Spending to Productivity Growth

	1947-1999	2000-2015	Change	Coefficient	Contribution
Private Investment	4.53%	1.49%	-3.04%	.414	-1.26
Public Investment	3.18%	0.94%	-2.24%	.431	-.97
Total	3.72%	1.21%	-2.51%		-2.22

It might surprise you to see that the decline in the real rate of growth in both private and public investment spending between the two periods has been so substantial. It might also surprise you to see that the decline in the real rate of growth in investment is not of recent vintage but has persisted for over 15 years and includes the tail-end of the technology boom. The 2.22 percent decline in productivity between the two periods is huge. Thus, it is not at all surprising that productivity has risen at an annual average of just 0.41 percent over the last three years. Given the public mind set about government spending, there is little hope that real public investment growth will improve from the recent trend level. One can hope that the real rate of growth in private investment spending will improve, but given the headwinds of weak aggregate demand, low inflation, low wage growth and low interest rates, improvement, if it occurs at all, will probably be modest.

To the extent that this analysis describes accurately what is going on in the economy, it would discredit the absence of technical progress theory. It could be argued that technical progress is as robust as ever, which would mesh with intuition based on personal experience. However, policy impediments to investing and policy depressed returns to investing simply are discouraging turning potential technical progress opportunities into actual investments. The consequence remains a very low level of productivity and depressed potential growth.

3. Mismeasurement

But, perhaps it is not all gloom and doom if, as some argue, productivity is mismeasured and is not capturing the impacts of significant innovation. The focus of the mismeasurement argument typically is on software. BLS can measure nominal dollars and it can measure units fairly easily. What is difficult to measure are the benefits derived from use of software innovations in performing all kinds of economic activity.

GS has written extensively on this topic and has assembled evidence to support its belief that productivity has not captured the benefits of advances in software technology and that the gap between reported productivity and actual productivity has been growing as software applications become an ever greater component of overall economic activity.[1]

Measurement issues are rather arcane, but the simple explanation is that the prices of technology innovations, particularly software, are not being adjusted for quality improvements. Or, put somewhat differently, if you pay the half the price for the latest software application update but derive twice the benefits, it has become twice as productive for you at half the cost. In dollar terms you are receiving four times the benefits per dollar spent. This quality improvement should be measured by calculating the real value of output, which requires deflating the nominal price to adjust for the increase in quality.

If the inflation index is not adjusted fully for quality improvements, inflation will be overstated and real output will be understated because the price deflator is too high. Because real output is understated, productivity, which is the ratio of real output to total hours worked, will also be understated. **GS** estimates that nonfarm productivity could be understated by as much as 75 basis points. Correspondingly, real GDP growth would be understated by about 60 basis points. The difference has to do with real GDP including more than just the nonfarm sector of the economy.

If **GS's** analysis is reasonable, and the arguments and metrics appear to be thoughtful and thorough, both real GDP and potential real GDP are understated. The size of the GDP output gap should not be affected. And, the measure of nominal GDP will remain unchanged.

Probably the more important consideration is that GDP price deflator could be overstated by a considerable amount, perhaps by as much as 60 basis points. Since the GDP price deflator is currently about 1.0 percent over the last year, an adjustment of this size would put us very close to deflation territory.

Policy implications of productivity mismeasurement are limited primarily to the overstatement of inflation. Indexing economic activity, such as annual social security benefit adjustments, to an overstated inflation measure will have the consequence of keeping upward pressure on inflation. But, perhaps this is not such a bad outcome in a world in which deflationary forces hold sway.

IV. Wage Growth — Is Acceleration Just Around the Corner or Missing in Action?

FOMC members are not the only ones with poor forecasting track records. Private sector economists have forecast acceleration in wage rate growth for some time now as the amount of slack in the labor market gradually declined. To date there is no broad-based evidence that wage increases are accelerating or even poised to so. However, the expectation that acceleration will occur is so embedded that missed forecasts simply get pushed forward in time. And, one can always play the anecdote game and find a story involving some company or industry that has recently raised wages. But, at the economy-wide level convincing evidence is lacking.

[1] Jan Hatzius and Kris Dawsey. "Doing the Sums on Productivity Paradox v2.0," Goldman Sachs Economic Research, Issue No: 15/30, July 24, 2015.

1. Broad-Based Measures of Labor Compensation

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

There are two primary broad-based measures of labor compensation that provide information about compensation trends. Both are compiled by BLS. One is released monthly as part of the monthly labor situation report and includes both hourly and weekly wage rates for all workers, but includes no information about benefits which comprise approximately 30 percent of total compensation. The other, the employment cost index (ECI), is released quarterly and consists of wage and salary, benefits, and total compensation indices.

Although both sets of 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. Hourly wages are rising 2.1 percent annually and that rate of growth has neither accelerated nor decelerated for several years. The wage and salary component of ECI, which had been relatively stable at a 1.5 percent annual rate of growth between 2009 and 2013 began edging up in 2014 and was 2.1 percent in the second quarter of 2015 — the same as the hourly wage survey in the monthly employment situation report. The more comprehensive measure of ECI, which includes benefits, has risen only 2.0 percent over the last year.

2. Hourly and Weekly Wage Trends

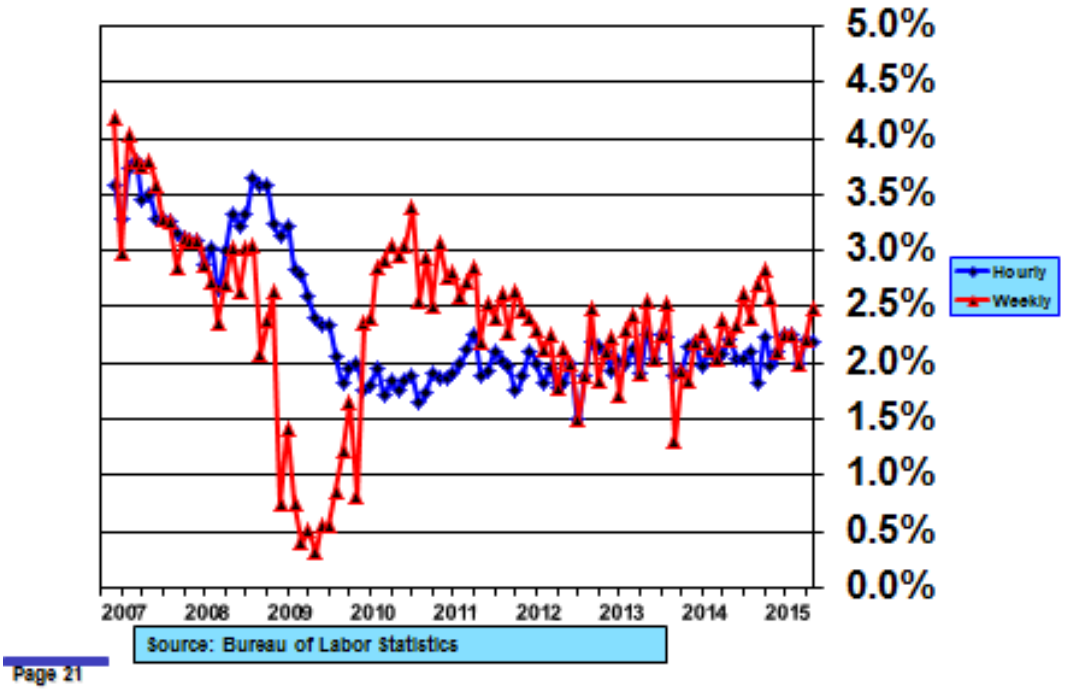
As can be seen in **Chart 15**, the rate of growth in hourly wages for all workers has fluctuated in a narrow band in the vicinity of 2.0 percent for the last six years. In a way this is good news because the large output gap and high unemployment rate, which have persisted for several years, did not put further downward pressure on wage rate growth. But, it has become increasingly concerning that wage growth has not shown any sign of acceleration as the U-3 unemployment rate has dropped to CBO's long-term full employment level.

Hourly wages grew 2.2 percent over the last 12 months. This was a slight improvement of 0.1 percent over the previous month, but may reflect measurement issues according to some analysts rather than being a harbinger of an emerging trend.

Weekly average wages for all employees has grown 2.5 percent, reflecting an increase of 0.1 hour in the length of the workweek over the last 12 months.

Chart 16 smooths trends in hourly wages by calculating a 12-month moving average. Over the last year the trend growth rate in hourly wages has not budged. Hourly wages were growing 2.09 percent in August 2014 and 2.10 percent in August 2015. Thus, in spite of expectations and commentary that wage growth is showing preliminary signs of acceleration, there is no strong evidence that is actually occurring in the hourly wage data compiled by the BLS for all workers.

CHART 15 – Hourly and Weekly Wages – All Workers
(annual rate of change)



Source: Bureau of Labor Statistics

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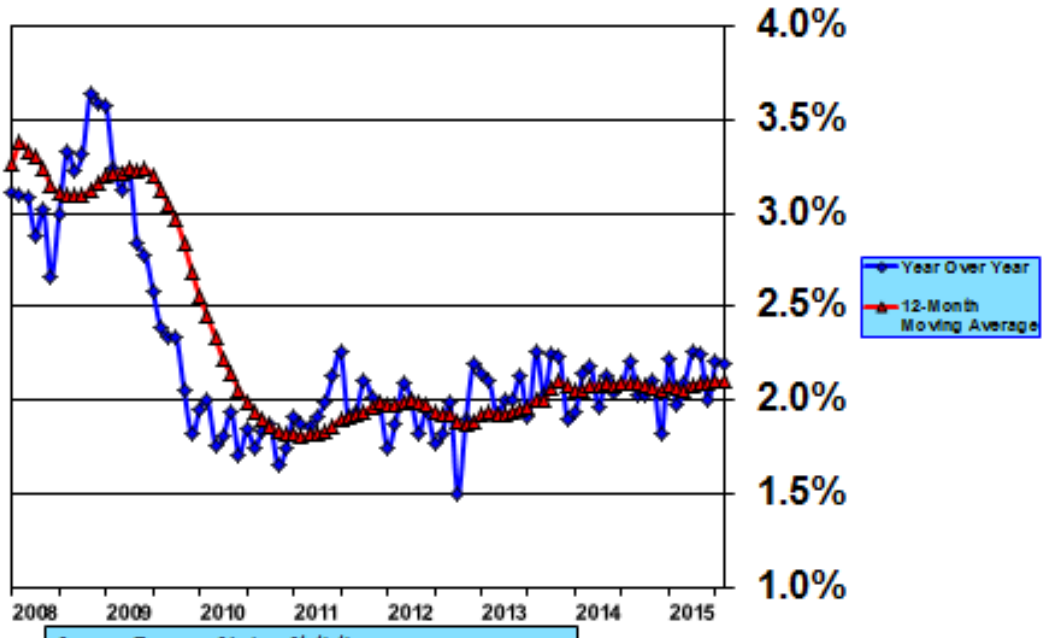
CHART 16 – Hourly Wage Rate Growth – All Workers
(annual year over year and 12-month moving average rates of change)



Source: Bureau of Labor Statistics

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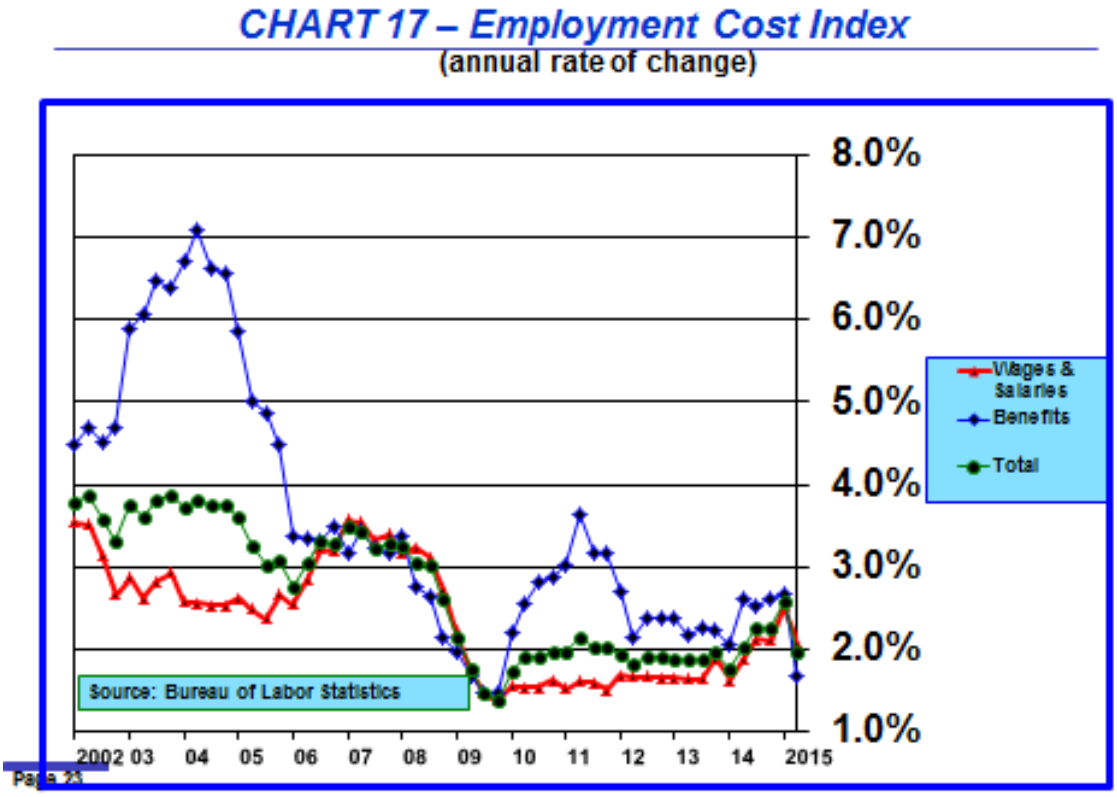
3. Employment Cost Index

Chart 17 shows trends in wages and salaries, benefits, and total compensation. The recent short-lived acceleration apparently was not the result of a firming trend in compensation growth but a compositional anomaly due to one-time reporting of nonproduction bonuses in a few industry sectors. When these one-time compensation elements are discounted, ECI tells basically the same story of no substantive acceleration in employment compensation.



4. GS's Wage Tracker

GS's wage tracked is a statistical compilation of three measures — ECI (40 percent weight); average hourly earnings (AHE) of production & non-supervisory workers (35 percent weight); and compensation per hour from the national income accounts (25 percent weight). The wage tracker in the second quarter of 2015 indicated that wages were rising 2.0 percent annually, down from 2.2 percent in the first quarter. **GS's** wage tracker has varied little from the 2.0 percent level for the last six years. **GS** had expected its wage tracker to rise to 2.5 percent in the second quarter. Obviously, it did not and the miss was sizeable.

Nonetheless, **GS** still expects the wage tracker to rise to between 2.50 percent and 2.75 percent by the end of 2015, although its confidence in its forecast appears to have wavered.

In a separate analysis of trends in wage growth at the state level, **GS** did find evidence supporting

modest wage rate acceleration in states with less labor market slack.

While **GS's** wage tracker forecasts are based on its statistical analytics, intuitively, even though **GS** has lowered its expectation, the forecasts still seem optimistic to me. There is an embedded assumption that U.S. labor force composition is stable. If, however, the composition is shifting toward lower wage categories and more part-time work, an eventual wage growth rate of 3.5 percent could well be too high. In addition, the rise to 3.5 percent presumes that the historical relationship between labor market slack and wage rate growth is stable. This also does not appear to take into consideration that the current level of inflation has been low for an extended period of time and that might have the effect of slowing down acceleration in wage rate growth for a given amount of labor market slack. Then, there is also the matter of low productivity. If low productivity persists, which seems likely, then this phenomenon will retard the rate of acceleration in wage rate growth.

Failure of wage growth to accelerate as the labor market tightens also means that feedback loops of wages to inflation will have limited impact. This is yet another argument favoring the persistence of low inflation rates for a much longer period of time than most expect.

V. Monetary Policy, Inflation and Interest Rates

Well, the FOMC blinked and did not raise the federal funds rate at its September meeting. The market had expected this outcome, but the policy statement was somewhat more dovish than expected with its discussion about global growth concerns and tighter financial conditions. After thinking about it, global stock markets sold off the next day, perhaps thinking that the dovish FOMC statement reflected concerns about slower growth in the U.S.

1. FOMC Policy Statement

Economic Conditions. The first paragraph of the FOMC's policy statement summarizes its view of economic and financial conditions.

Overall, the FOMC concluded that "*... economic activity is expanding at a moderate pace.*" Consumer spending, business investment, employment and housing were cited as improving. However, "*... net exports have been soft."* The substantial increase in the trade-weighted value of the dollar over the last year is taking its toll on U.S. production which is beginning to be manifested in net exports, as exports are more expensive to foreigners and imports are cheaper to U.S. consumers. *"Underutilization of labor resources has diminished ...."* Notably, the FOMC acknowledged that inflation "*... has continued to run below the Committee's longer-run objective ...."* But, as it has in the past, the FOMC cited temporary reasons for this outcome, although it acknowledged that "*[m]arket-based measures of inflation compensation moved lower ...."*

Risk Assessment. The second paragraph of the FOMC statement discusses risks to employment and inflation. In this regard, the FOMC stated explicitly its concern that *"[r]ecent global economic and financial developments may restrain economic activity somewhat and are likely to put further downward pressure on inflation in the near term."* That said, the FOMC expressed confidence that the economy

would continue to move closer to its long-run goals for employment and inflation, but hedged just a bit by stating that "... *the risks to the outlook for economic activity and the labor market* [are] ***nearly*** *balanced but* [the Committee] *is monitoring developments abroad."* The FOMC expressed confidence that low inflation would move back toward its 2.0 percent target "*... over the medium term as the labor market improves further and the transitory effects of declines in energy and import prices dissipate.* " But, the FOMC concluded its risk assessment with another hedge by stating, "*The Committee continues to monitor inflation developments closely."*

Policy Statement. The policy statement was unchanged. Thus, there was no hint about when the FOMC will raise the federal funds rate.

Prospects. While most market participants expect the FOMC to begin raising rates at its December meeting, the absence of more explicit guidance in the policy statement, coupled with hedges in the risk assessment, will foster market debate in coming weeks about whether the FOMC will act in December or wait until 2016 to begin raising rates.

Key data to watch in coming weeks will be labor market developments, inflation, financial conditions, and trends in economic activity.

2. Employment

Employment has improved steadily over the last several months. Job growth has averaged 212,000 monthly during 2015 and the U-3 unemployment rate has fallen to 5.11 percent, which is nearly identical to CBO's recently revised estimate of the "full employment" level of unemployment of 5.06 percent.

But weaknesses in some measures of the labor market, in particular wage rate growth, still persist. In addition, slow growth in the labor force epitomized by an employment participation rate that refuses to rise, as it ordinarily does when the labor market tightens, and elevated levels of involuntary part-time employment and long-term unemployment reflect a labor market that has not yet returned to full health. Nonetheless, labor market improvements have been sufficient to warrant beginning to tighten monetary policy were it not for depressed inflation.

3. Prospects for PCE Inflation

Core PCE inflation was 1.24 percent in July and total PCE inflation, which continues to be depressed by the plunge in oil prices and lower import prices, was 0.30 percent (see **Chart 18**). Compared to core PCE inflation, total PCE inflation is much more volatile and has been negative for short periods of time in the past. For that reason the FOMC prefers to focus policy deliberations on the core PCE inflation measure.

Core PCE inflation is well below the FOMC's target level of 2 percent and is not much above the lows near 1.0 percent experienced briefly in mid-2009 and late-2010 when the FOMC was concerned about the threat of deflation.

As can be seen in **Table 11** (**Chart 18** shows historical core PCE price index data and data from **Table 11** in graphical form), forecasts of the core PCE inflation index indicate that inflation will change

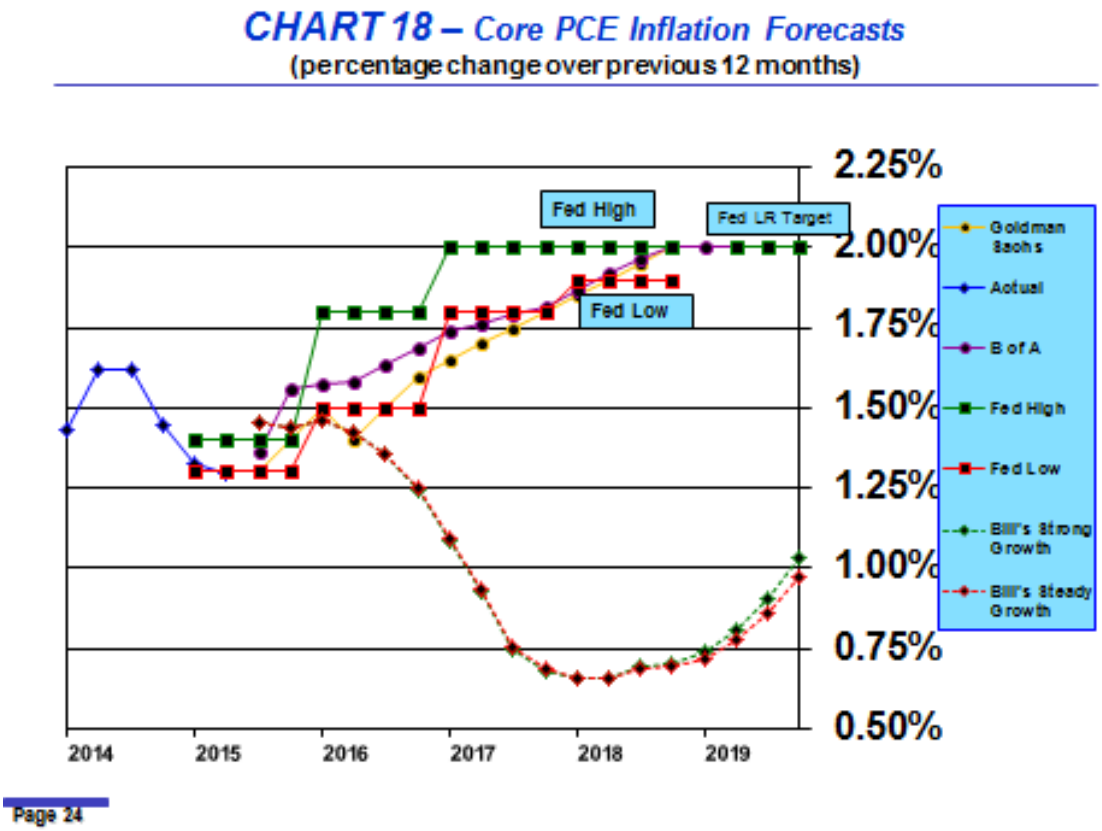


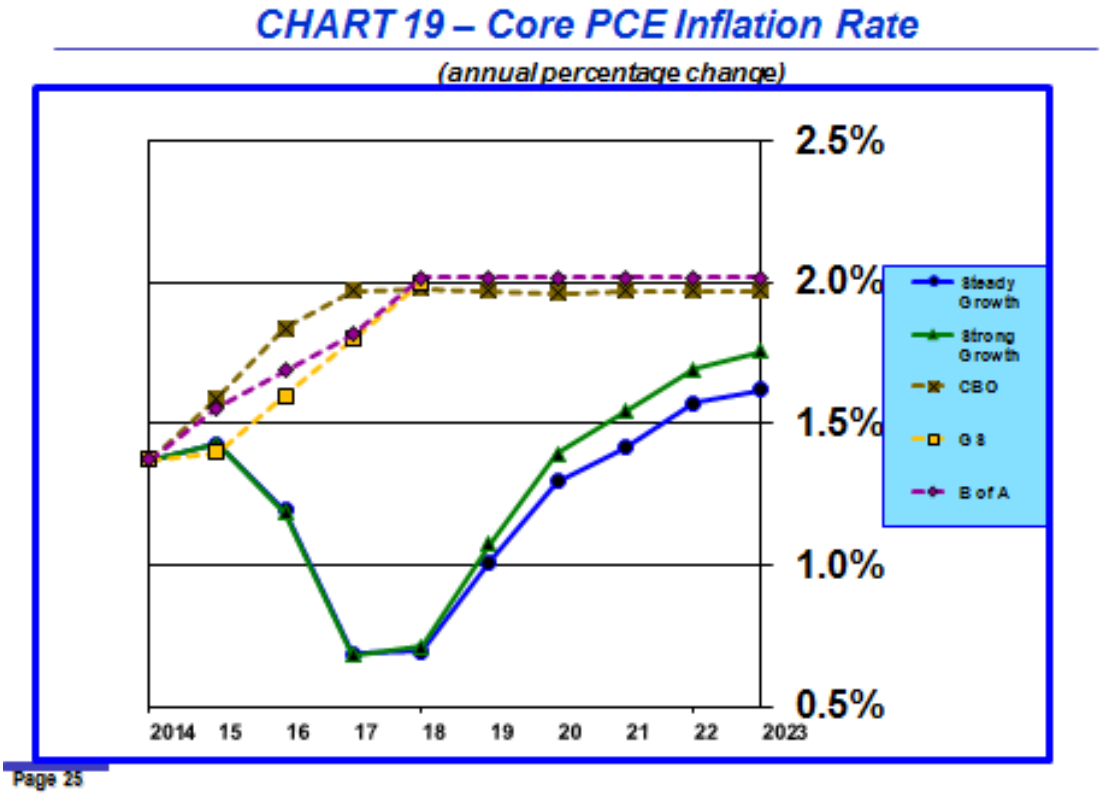
Table 11
Core PCE Inflation Forecasts — B of A, GS, Bill's "Steady Growth", Bill's "Strong Growth" and FOMC High and Low

Core CPE	2013	2014	2015	2016	2017	2018
B of A	1.3	1.4	1.3	1.5	1.8	2.0
GS	1.3	1.4	1.3	1.5	1.8	2.0
Bill's Steady Growth	1.3	1.4	1.4	1.2	0.7	0.7
Bill's Strong Growth	1.3	1.4	1.4	1.2	0.7	0.7
FOMC — High			1.4	1.8	2.0	2.0
FOMC — Low			1.3	1.5	1.8	1.9

little during 2015. **B of A** and **GS** expect core PCE inflation to bottom out at 1.3 percent by the end of 2015 and then begin a very gradual rise, reaching 2.0 percent sometime during 2018. FOMC member projections also reflect a gradual rise.

Chart 19 shows longer run pathways for core PCE inflation for various economic scenarios. With the exception of my scenarios, others converge toward 2 percent in the long run. Either this is serendipity or there is confidence that the FOMC will be able eventually to hit and maintain the 2 percent core PCE

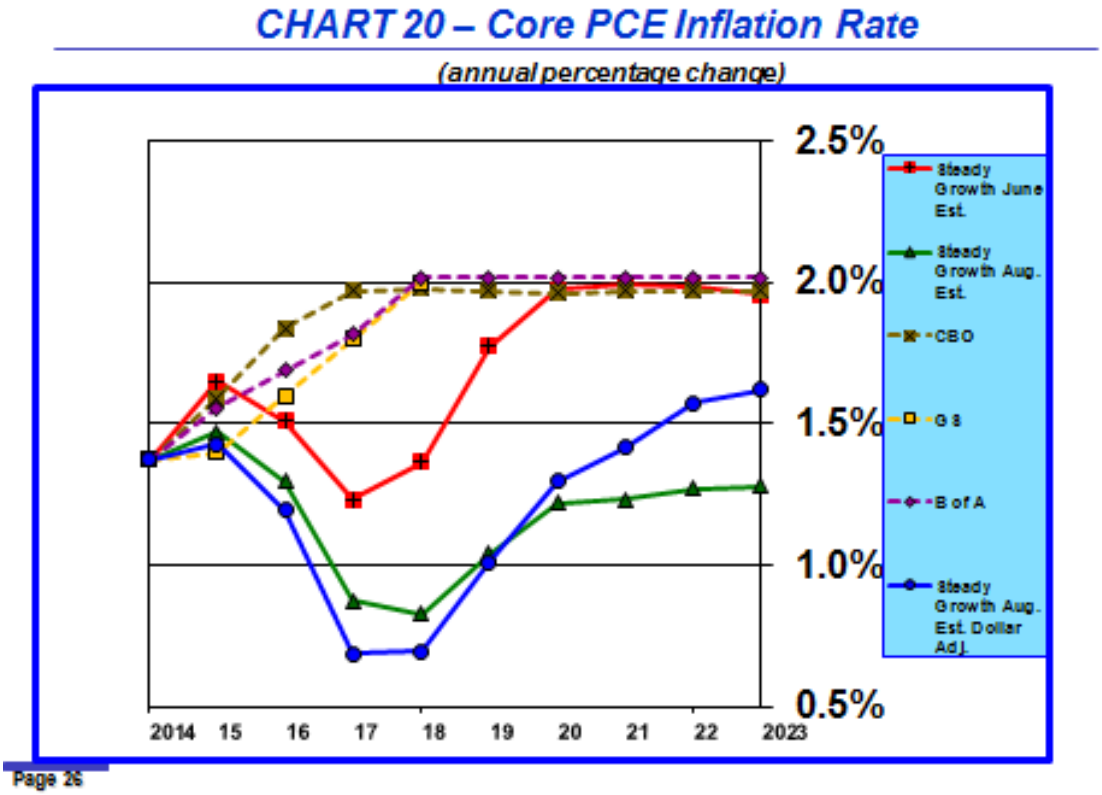
inflation target, even though it has rarely achieved this objective in the last 20 years and global headwinds to inflation are currently stronger than ever. Based on recent developments, my sense is that risks to the inflation outlook are tilted toward the downside rather than to the upside as the FOMC and other analysts believe.



My projections are much more pessimistic than the consensus and require some explanation. **Chart 20** shows the same **B of A**, **GS** and **CBO** projections of core PCE inflation as shown in **Chart 19.** My scenario, labeled "Steady Growth Aug. Est. Dollar Adj.," is identical to my "Steady Growth" scenario in **Chart 19.**

I show three versions of my core PCE "Steady Growth" projections. The base case is the June version, which did not incorporate CBO's significant revisions in labor market assumptions. With the exception of some near-term downward pressure in my projection of core PCE inflation during 2016, 2017, and 2018, my June estimate converged to 2.0 percent by 2020. One can debate the precision of my projections and I am not adamant about the prospect for lower core PCE inflation over the next three years other than to point out that the risks are to the downside.

What is more important to consider are the potential impacts on future core PCE inflation of greater labor market slack and the rising value of the dollar. These impacts are shown in **Chart 20** in two additional scenarios — "Steady Growth Aug. Est.," which includes CBO's revised labor market slack assumptions, and "Steady Growth Aug. Est. Dollar Adj.," which adds the effect of the rising value of the dollar to changes in CBO's labor market assumptions.



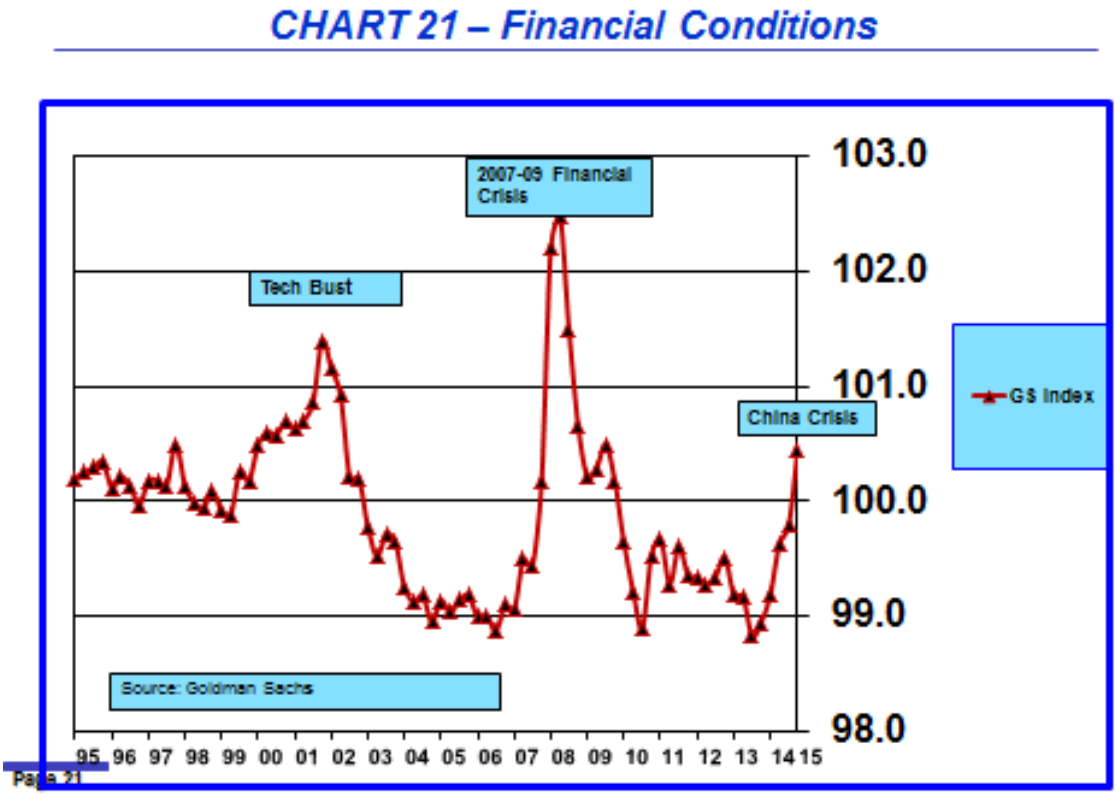
CBO's revisions increased the size of estimated labor market slack by about 80 basis points. But, the revisions also imply that it will take longer for labor market slack to be eliminated. When CBO's revisions were included in the "Steady Growth Aug. Est." scenario, estimates of future core PCE inflation dropped by more than 50 basis points across the entire time horizon. This is intuitively plausible and consistent with the ongoing absence of upward pressure on wage rate increases. I find it curious that analysts and FOMC members have totally ignored the importance of revisions in CBO's labor market slack projections in influencing future inflation estimates. At the very least, my two scenarios point out the sensitivity of future estimates of core PCE inflation to the measurement of labor market slack.

It also came to my attention that import prices affect core PCE inflation. Omission of the influence of the changing value of the dollar on core PCE inflation doesn't matter much when the value of the dollar is stable. However, since the trade-weighted value of the dollar bottomed in October 2013, it has risen 22.4 percent. With a lag that runs to an average of about 3.5 years, a rising dollar depresses core PCE inflation by 33 basis points for a 10 percent increase. Because of the long lag time, the effect of the dollar's rise is still working its way into core PCE inflation. Thus, core PCE inflation is projected to fall even more in 2016, 2017 and 2018. My model assumes that the value of the dollar stabilizes as time passes and then falls. As that occurs, the impact of the dollar on core PCE inflation reverses and boosts inflation estimates in the "out years," bringing core PCE inflation closer to the 2.0 percent target by 2023, but still below.

All-in-all, I am skeptical about the consensus belief that core PCE inflation will move back toward 2.0 percent any time soon. I am also skeptical that the factors holding core PCE inflation down currently are transitory.

4. Financial Conditions

Chart 21 shows the **GS** financial conditions index (**GSFCI**) on a quarterly basis from 1995 to the third quarter of 2015. There are three spikes in the index — tech bust in 2001-2002, financial crisis of 2007-2009, and the China-induced financial market crisis of 2015. We are in the midst of the latest financial markets crisis and it remains to be seen whether it is short-lived or persists. All financial market crises have damaging impacts on the economy. The extent of the damage, however, depends upon the amplitude and duration of the crisis.



GSFCI is a robust indicator of the state of the crisis on a real-time basis and reasonably good predictor of the extent of economic consequences. If **GSFCI** remains elevated for the next few months at recent levels there will be significant negative consequences although not as great as in the two previous crises. Consequences comparable to the two previous would occur if **GSFCI** moves higher over the next several months. At the moment that does not appear to be a highly probable development. And, if **GSFCI** quickly subsides to a lower level in the next few months, economic damage would be limited. Thus, it will be important to monitor the trend in **GSFCI** in coming weeks.

What sets **GSFCI** apart from other measures of financial conditions is that GS has carefully constructed the index so that it can predict the relationship between variations in the index's value and future changes in the real rate of growth in GDP.

GSFCI is a weighted average of six components (weights are in parentheses): federal funds rate (5.5%);

10-year Treasury yield (36.5%); iBoxx domestic non-financials BBB 15 year+ to 10-year Treasury yield spread (29.7%); TED spread (15.8%); Shiller P/E ratio (4.7%); and trade-weighted dollar (7.9%).[2]

Principal contributors to the tightening of financial conditions over the last year include the increase in the value of the dollar, lower equity prices and wider credit spreads. At this moment none of these factors has worsened or improved.

Although there is a wide degree of uncertainty, **GS** estimates that the tightening in financial conditions has a negative impact of economic activity equivalent to about and increase of 75 basis points in the federal funds rate. In this sense, the FOMC's failure to raise the federal funds rate is irrelevant since the market has already done more to tighten monetary conditions than the FOMC could have done with a 25 basis point increase in the federal funds rate.

GS poses three scenarios for real GDP growth in coming months depending upon whether financial conditions remain at the current higher level (base), worsen (adverse), or improve (benign).[3] In the base case, real GDP declines about 80 basis points by the beginning of 2016 and then slowly fades to 0 by the beginning of 2017. In the adverse case real GDP declines 110 basis points by the first quarter of 2016 and then fades to 0 by early 2017. In the benign case real GDP declines about 60 basis points by the fourth quarter of 2015 and dissipates to 0 by mid-2016. **GS** notes that the recent further decline in oil prices would ameliorate the negative consequences for real GDP growth to a certain extent in all three scenarios.

In summary, significant economic damage is already in store and could worsen, depending upon how long adverse financial conditions remain tight and whether they worsen. But, the good news is financial conditions would need to tighten a lot more than they have to throw the economy into recession.

5. Federal Funds Rate

Chart 22 shows projections for the federal funds rate. My scenarios are lower than the others because my inflation projections are much lower for the reasons discussed above.

Chart 22 shows the FOMC's central tendency range for high and low projections for the federal funds rate for 2015, 2016, 2017, and 2018. The purple line (circles) is the average of projections for the 19 FOMC members (7 governors and 12 presidents — note that there are two vacancies on the Board of Governors currently which means the dots reflect only 17 participants). The projections imply that the first increase in the federal funds rate will take place during 2015, probably at the December meeting. However, 3 of the 17 participants do not expect the federal funds rate to increase until some time in 2016.

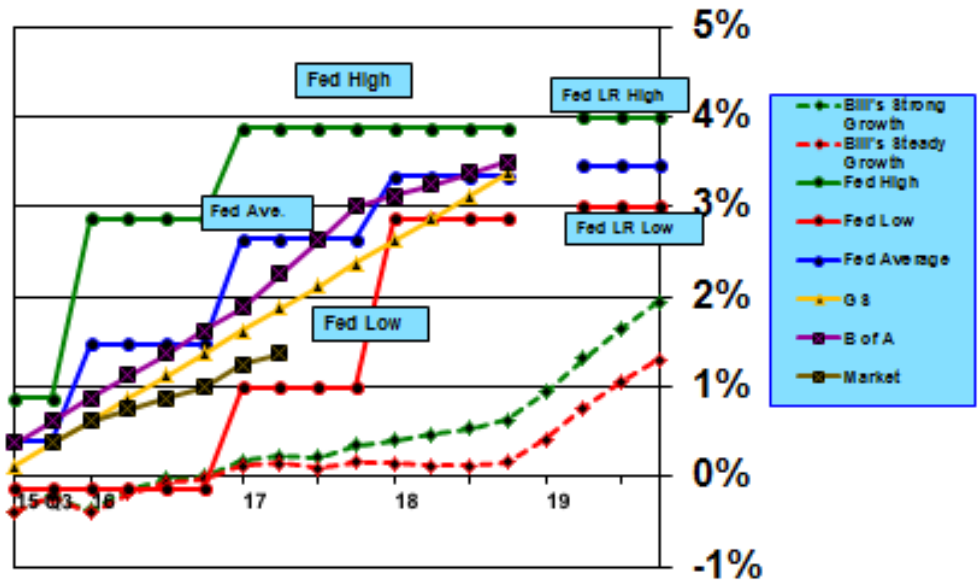
B of A, which had expected the first federal funds rate increase would occur at the September 2015 meeting of the FOMC, now expects the first increase to occur at the December meeting. **GS** had expected the FOMC to wait until December and remains firm in its conviction.

My "***Steady Growth***" and "***Strong Growth***" forecasts are shown by the red dashed line (diamonds) and green dashed line (diamonds). Both scenarios indicate limited pressure to raise the federal funds rate

[2]Sven Jari Stehn. "Q&A on the GSFCI," US Daily, Goldman Sachs Research, September 15, 2015.

[3]Sven Jari Stehn. "How Big a Growth Risk From the Market Turmoil?" US Daily, Goldman Sachs Research, August 24, 2015.

CHART 22 – Federal Funds Rate Forecast



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until 2017.

All scenarios agree that rates will rise very gradually over time and that the long-term equilibrium level, or natural rate, is close to 3.5 percent.

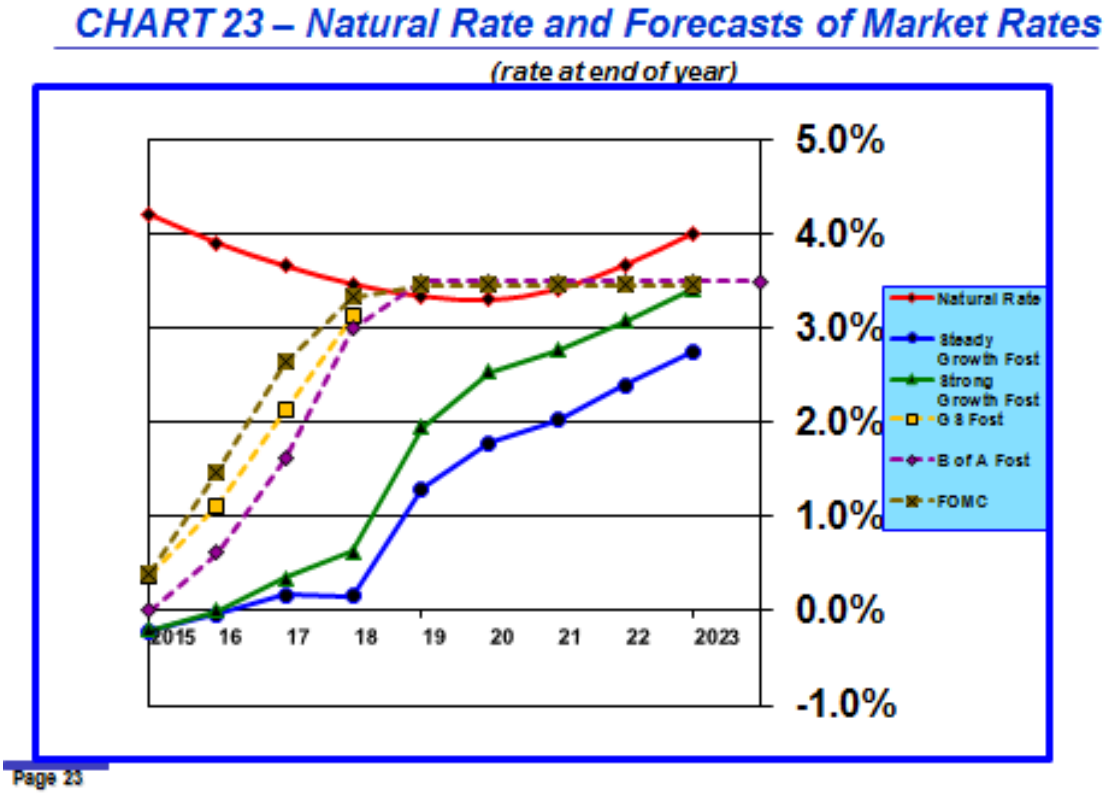
6. Natural Rate of Interest and Long-Term Federal Funds Rate Projections

Most forecasters have concluded that real potential GDP growth will be subdued in coming years within a range of 1.8 to 2.2 percent. There are two implications of lower potential real GDP growth for monetary policy.

Smaller Output Gap. CBO has progressively over the past few years lowered its estimate of potential real GDP growth as it has revised down its estimates of labor force growth but particularly as it has decreased its expectations for productivity. This has had the immediate effect of reducing the measured size of the output gap, although CBO's August assumption revisions raised the its output gap estimate somewhat. But in essence this means that going forward it will take a lower real rate of growth in GDP to close the gap. When the gap is closed risks will escalate that aggregate demand will exceed supply and set off an inflationary spiral. In that case, moving to tighten monetary policy too late would heighten inflationary risks. However, if the output gap is actually larger than CBO's measure and CBO acknowledged that possibility in August with its revisions, tightening monetary policy prematurely would run the risk of depressing economic activity before full employment is reached.

Note that if productivity does not rebound as expected, potential real GDP growth will be lower than projected and it would require a lower actual rate of real GDP growth to close the output gap.

Lower Natural Rate of Interest. Declining productivity and persistently low inflation depresses the equilibrium or natural rate of interest. This means that the FOMC will not have to raise interest rates as much as it has in past cycles to reach the noninflationary full employment level of interest rates. The FOMC already recognizes this phenomenon in its long-term projection for the federal funds rate and, as indicated in **Chart 23**, my own estimate of the equilibrium natural rate of interest is very similar to the FOMC's.

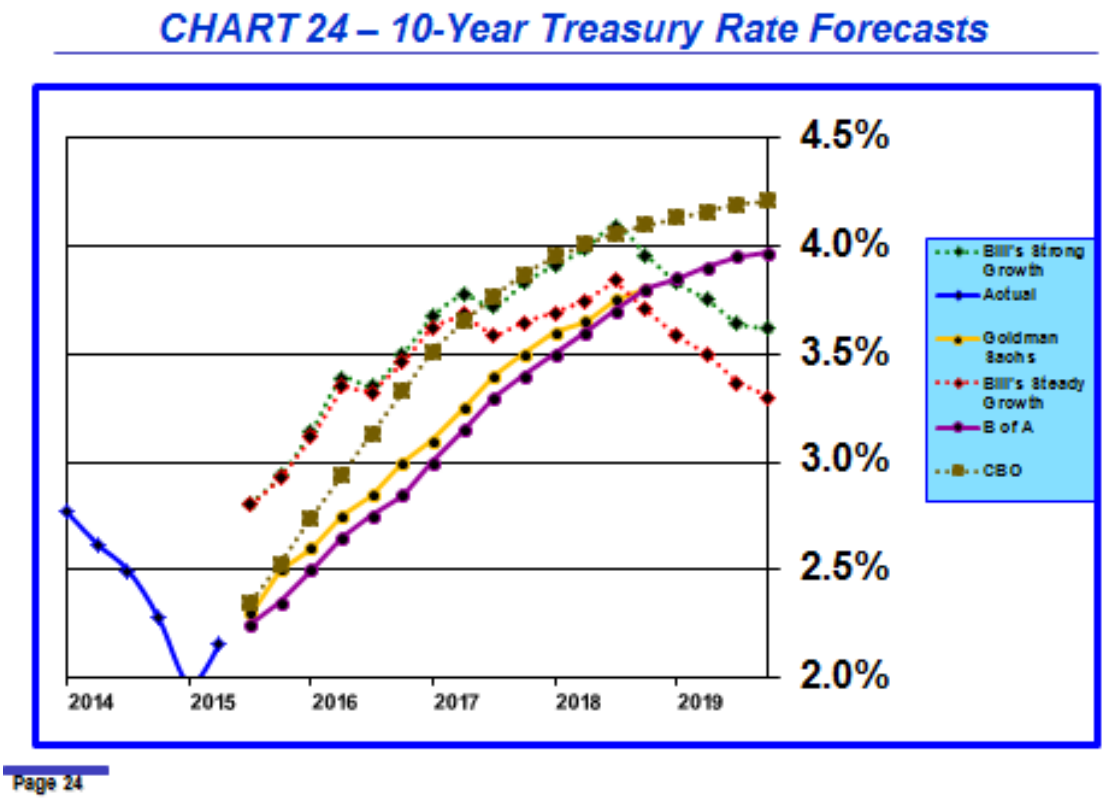


Thus, with these considerations in mind, FOMC member commentary about increasing the federal funds rate gradually should be taken seriously as reasonable policy. Indeed, if other forecasters and the market are right, actual increases in the federal funds rate will occur even more gradually. The only caution is that this outcome is contingent on inflation remaining well behaved and not becoming unanchored. This appears to be a very reasonable presumption given a global economy in which aggregate supply greatly exceeds aggregate demand. Indeed, I believe that downside risks to inflation outweigh upside risks. If my concerns are borne out, it follows directly that the FOMC will stretch out the timeframe for federal funds rate increases.

And, if it turns out that productivity does not rebound to the expected level, then both potential real GDP growth and the natural rate of interest will end up lower than indicated in **Chart 23.**

7. 10-Year Treasury Rate

Chart 24 shows forecasts for the 10-year Treasury rate for my "***Steady Growth***" (red dashed line and diamonds) and "***Strong Growth***" (green dashed line and diamonds) scenarios. **GS's** forecast (yellow line and circles) and **B of A's** forecast (purple line and circles) are also shown.



As of September 22, the 10-year Treasury yield was 2.14 percent, little changed from 2.17 percent at the beginning of 2015. Forecasts of the 10-year rate by the end of 2015 have been edging down and now range from 2.35 percent (**B of A**) to 2.50 percent (**GS**). The forecasts for my scenarios are slightly higher at 2.90 percent. The increased value of the dollar and very low long-term rates in Europe and Japan will continue in coming months to put a lid on long-term U.S. interest rates. All of these forecasts assume anchored inflation expectations. A step down in inflation expectations tends to have self-fulfilling behavioral consequences. Persistently low inflation, if that develops, would translate into lower inflation expectations eventually and that development would result in lower long-term interest rates than those forecast in **Chart 24**.

Long-term interest rates have a theoretical equilibrium value which is a combination of several components: a real rate of return, the rate of expected inflation over the next several years, an inflation uncertainty premium, a liquidity premium, and a credit risk (default) premium. The risk-based premiums can be artificially reduced if the policymakers state directly or past practices indicate that bondholders will be protected from default risk. Had not Mario Draghi opined in the summer of 2012 that the ECB would "do whatever it takes to preserve the euro," long-term rates on the sovereign bonds of countries like

Greece, Spain, and Italy would not be nearly as low as they are today.

Long-term rates can also be depressed by an intentional quantitative easing bond buying policy by a central bank. Quantitative easing usually results in depressing the value of a country's currency. That has been an intentional part of Japan's Abenomics. It is also an intentional result of the ECB's aggressive quantitative easing bond buying program.

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

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

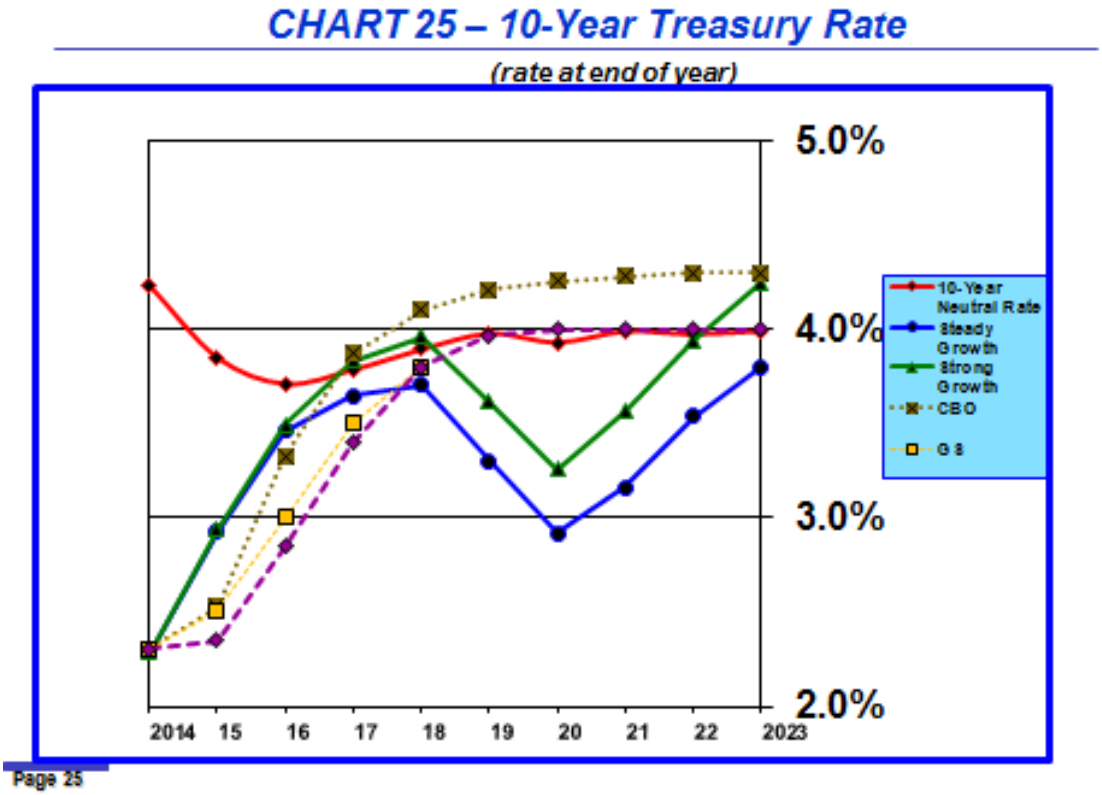
If the real rate of interest is depressed below its "natural level" needed to stimulate investment, then this will depress investment, slow growth and add to disinflationary and deflationary pressures which, in turn, will drive nominal rates even lower. This is the condition of the world that we currently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

Chart 25 shows that the current 10-year rate is well below the neutral 10-year rate and this relationship will persist through 2016 into the first part of 2017, although the gap will narrow progressively. After 2017 the neutral rate is consistent with **B of A's** forecast. Estimates of the 10-year rate in my two scenarios eventually converge to the neutral rate by 2023.

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

Annualized second quarter real GDP growth in the "Advance Estimate" was 3.7 percent, which was considerably better than the "Preliminary Estimate" of 2.3 percent (see **Table 12**). All GDP components improved, but 81 percent of the 137 basis point increase occurred in nonresidential investments, 48 basis points; inventories, 30 basis points; and government, 33 basis points.

All of the alternative measures of GDP also improved. However, private GDP — net exports, improved the least from 2.13 percent to 2.77 percent, which is not much different from the 2.66 percent growth in this particular alternative measure of real GDP for all of 2014.



1. 2015 Q2 GDP — Advance Estimate

Personal consumption growth was better than the "Preliminary" estimate and definitely much better than the first quarter of 2015, but still nothing to shout about. The increase of 2.11 percent was better than 2014's 1.84 percent growth, but growth during the first half of 2015 was only approximately 1.65 percent. This is disappointing because forecasters generally expected the plunge in oil prices to result in higher consumption spending growth and this has not happened.

Net exports added 23 basis points to second quarter real GDP growth after subtracting -1.92 percent from real GDP growth in the first quarter. On balance the substantial increase in the value of the dollar over the last two years should cause net exports to subtract from real GDP growth over the next several quarters. That did not happen in the second quarter but it seems likely that the small gain in the second quarter was a statistical offset to the much larger than expected decline in the first quarter. This kind of volatility in the quarterly data reflects data reporting timing issues the amplification of data anomalies by annualizing quarterly data.

Nonresidential business investment improved 48 basis points in the "Advance Estimate." However, its contribution of 41 basis points to real GDP growth on top of the first quarter's paltry 20 basis points, which was depressed by significant cutbacks in energy investment, is disappointing relative to 2014's contribution of 77 basis points to real GDP growth.

Government consumption and investment spending improved 33 basis points in the "Advance

Table 12
Composition of 2015 and 2014 Quarterly GDP Growth

	Second Quarter 2015 Advance Estimate	Second Quarter 2015 Preliminary Estimate	Second Quarter 2015 Final Estimate	First Quarter 2015	Fourth Quarter 2014	Third Quarter 2014
Personal Consumption	1.99%	2.11%		1.19%	2.86%	2.34%
Private Investment						
Nonresidential	-.07%	.41%		.20%	.09%	1.12%
Residential	.21%	.25%		.32%	.31%	.11%
Inventories	-.08%	.22%		.87%	-.03%	-.01%
Net Exports	.13%	.23%		-1.92%	-.89%	.39%
Government	.14%	.47%		-.01%	-.26%	.33%
Total	**2.32%**	**3.69%**		**.65%**	**2.08%**	**4.28%**
Final Sales	**2.40%**	**3.47%**		**-.22%**	**2.11%**	**4.29%**
Private GDP	**2.26%**	**3.00%**		**-.21%**	**2.37%**	**3.96%**
Private GDP — Net Exports	**2.13%**	**2.77%**		**1.71%**	**3.26%**	**3.57%**

Estimate" — 8 basis points from federal spending and 25 basis points from state and local spending. The 46 basis point contribution of state and local spending to second quarter real GDP growth was the greatest in many years. At least part of the increase is probably due to timing differences but there is reason to be hopeful that going forward state and local spending will continue to be a positive contributor to real GDP growth.

Inventories improved 30 basis points in the "Advance Estimate" and added 22 basis points to second quarter real GDP growth versus subtracting 8 basis points in the "Preliminary Estimate." This actually is not a positive result because inventory accumulation far exceeds its normal rate and therefore will most likely be reversed in coming quarters and that will reduce real GDP growth. Real growth in inventories rose from an annual rate of $112.8 billion in the first quarter to $121.1 billion in the second quarter. The progression in real inventory accumulation over the last four years has been $37.6, $54.7, $61.4, and $68.0 billion. So far in 2015 real inventory accumulation is averaging $117.0 billion. This is simply unsustainable and most likely will result in a significant decrease in quarterly real GDP growth in the next one or two quarters.

All in all, although growth appeared to be reasonably healthy in the second quarter, when combined with the first quarter's dismal performance first half growth differs little from the feeble real GDP growth pattern of the last few years.

2. GDP Forecasts for Q3

Table 13 shows forecasts/projections for the third quarter of 2015 and for the full years 2015 through 2018.

Table 13
Real GDP Growth Forecasts — B of A, GS, Bill's "Steady Growth", Bill's "Strong Growth" and FOMC High and Low Projections

	2015 Q3	2015 Q4/Q4	2015 Y/Y	2016 Y/Y	2017 Y/Y	2018 Y/Y
B of A	3.2	2.5	2.6	3.0	2.7	2.2
GS	2.4	2.5	2.4	2.5	2.4	2.2
Global Insight	2.1		2.2	2.8	2.8	2.6
Economy.com	3.0		2.4	3.4	3.0	
Bill's Steady Growth		2.4	2.55	2.35	1.85	1.5
Bill's Strong Growth		2.5	2.6	2.5	2.0	1.8
FOMC — High[#]		2.3[#]		2.6[#]	2.4[#]	2.2[#]
FOMC — Low [#]		2.0[#]		2.2[#]	2.0[#]	1.8[#]

[#]Measured from Q4 to Q4

B of A expects real GDP growth to come in at a strong 3.2 percent in the third quarter. **GS's** original third quarter forecast growth was 2.4 percent but might have been revised higher based on recent data reports.

Third quarter real GDP growth should benefit from a pickup in consumer spending, stronger housing construction and the flow through benefits on spending from strong employment gains. Offsets will probably include subdued business investment and weaker manufacturing activity due to the strong dollar and lower energy prices, both of which have negatively impacted the competitiveness of U.S. exports. In addition, slower accumulation of inventories may reduce third quarter real GDP.

3. GDP Forecasts for 20152018

As **Table 13** shows, most forecasters expect GDP growth to be about 2.4 to 2.6 percent Y/Y in 2015 and then to be a little better in 2016. The FOMC appears to be a little on the light side.

There is a rather large dispersion of estimates for 2016. That is probably because of the uncertainty about how a stronger dollar, tighter financial conditions and China will affect the U.S. economy. **B of A** is unabashedly optimistic but seems not to have taken into consideration the impact of tightening financial

conditions to the extent **GS** has. So, at this juncture, I'd place my bet on **GS's** forecast and not on **B of A.s**. Indeed, 2016 real GDP forecasts for my scenarios, GS and the FOMC are all tightly clustered in a range of 2.2 percent to 2.6 percent.

Optimism generally fades for all forecasters after 2016. The outlook for both of my scenarios is the most pessimistic and reflects my expectation that employment growth will slow dramatically and productivity will recover little from the recent extremely depressed level.

Consumer Spending. August retail sales were stronger than expected. Strong employment growth over the last year and the decline in oil prices should boost consumer spending for a while longer. As can be seen in **Table 14,** forecasts for real consumer spending growth in 2015 range between 2.85 percent and 3.3 percent, which, if realized, would make 2015 the best year since 2006.

Table 14
Real Consumer Spending Growth Rate Y/Y Forecasts — B of A, GS, Bill's "Steady Growth" and Bill's "Strong Growth"

	2012	2013	2014	2015	2016	2017	2018
Actual	1.38	1.65	2.67				
B of A				3.13	3.12	2.66	2.20
GS				3.12	3.03	2.65	2.20
Global Insight				3.00	3.10	2.90	2.70
Economy.com				3.30	4.30	3.90	
Bill's Steady Growth				2.84	2.13	2.06	1.32
Bill's Strong Growth				2.90	2.42	2.37	1.66

Most forecasters expect real consumer spending growth to remain relatively strong in 2016. But after 2016 forecasts fall based on an expected sharp decline in the rate of employment growth. Economy.com's forecasts do not pass the smell test.

However, Evercore ISI's Company Surveys are striking a note of caution. As can be seen in **Chart 26**, they have edged down a bit since peaking in April. Collectively, these surveys support the expectation that consumer spending could weaken somewhat during the remainder of 2015.

Beginning in 2016 my forecasts are low relative to others reflecting an earlier and more dramatic slowdown in employment growth as well as slower improvement in wages. I also expect feeble productivity growth to hold down wage growth and therefore consumer spending growth.

Chart 27 shows that various forecasts of real consumer spending growth converge to about 2.0 percent annually within about five years. A long-term 2.0 percent real of growth is logical, if the potential real rate of growth of GDP is also 2.0 percent and one can reasonably assume that the saving rate remains relatively constant and consumption spending's share of GDP also remains constant.

CHART 26 – Aggregate Index & Retail Sales *(diffusion index)*

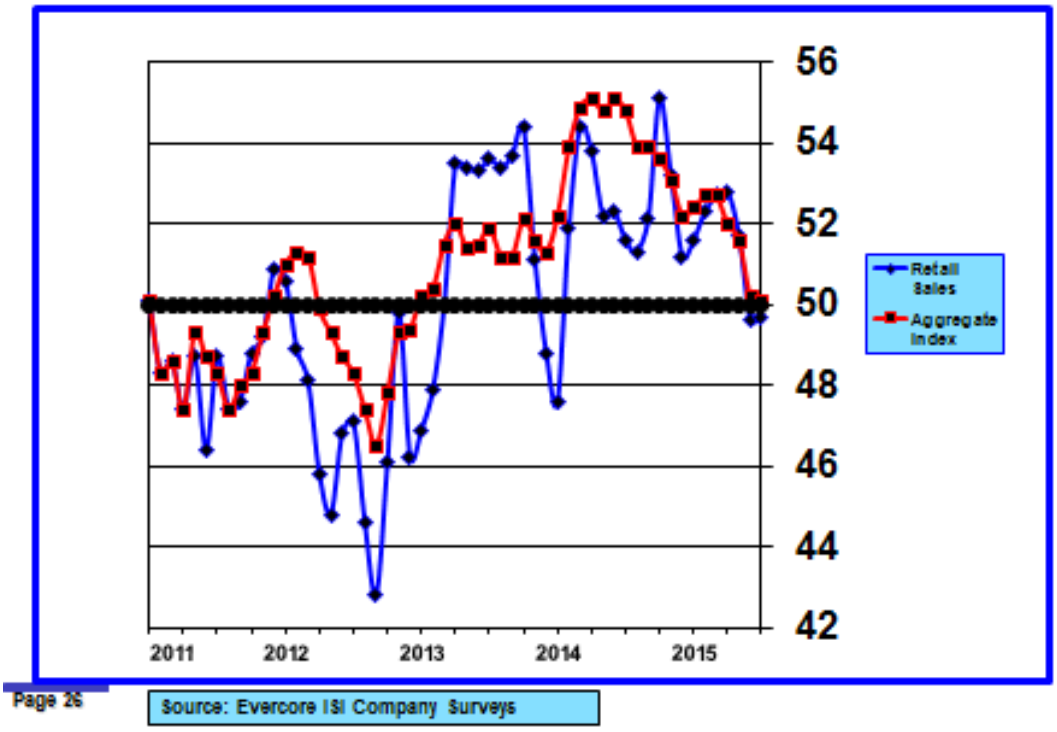
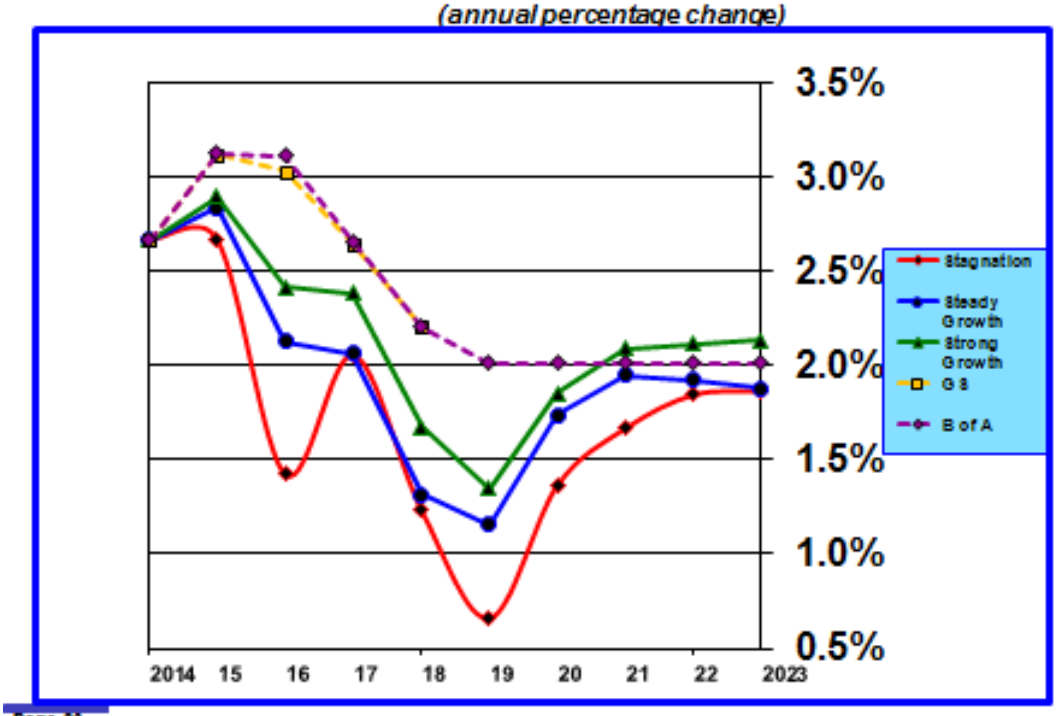


CHART 27 – Growth in Real Consumer Spending

(annual percentage change)



Residential Investment. Forecasts for growth in residential investment are shown in **Table 15**. Residential investment growth was strong in the first two quarters of 2015, growing at an annual rate of 10.1 percent in the first quarter and 7.8 percent in the second quarter. Both **GS** and **B of A** expect residential investment growth to continue to be strong in the remainder of 2015 and on through 2017. However, the two forecasters part company in 2018. Strong growth is warranted because of the shortage of housing that now exists and the surge in new household formation.

Table 15
Real Private Business Investment (Residential and Nonresidential) Growth Rate Y/Y Forecasts — B of A, GS, Bill's "Steady Growth" and Bill's "Strong Growth"

	2012	2013	2014	2015	2016	2017	2018	Ave. 1947-2014
REAL PRIVATE BUSINESS INVESTMENT								
Actual	9.78	4.21	5.31					**3.81***
B of A				5.63	5.06			
GS				5.71	5.68	5.26	4.56	
Bill's Steady Growth				4.25	3.67	2.15	1.91	
Bill's Strong Growth				4.30	4.18	2.73	2.55	
REAL NONRESIDENTIAL INVESTMENT								
Actual	8.98	3.03	6.15					**2.13***
B of A				3.76	5.39	5.24	4.44	
GS				3.61	4.83	4.11	3.74	
REAL RESIDENTIAL INVESTMENT								
Actual	13.51	9.52	1.76					**-1.38***
B of A				8.93	9.68	8.62	3.98	
GS				9.43	12.30	10.61	8.93	

*Average 2000-2015; real private business investment = 1.49% for 2000-2015

Notwithstanding the recent strength in residential housing investment, it would probably be stronger were it not for the persistence of tight mortgage underwriting standards and the absence of a fully-functioning market for private mortgages. Except for jumbo mortgages, nearly all mortgages today are guaranteed by FHA, Fannie Mae and Freddie Mac.

Nonresidential Investment. Forecasts for growth in nonresidential investment are shown in **Table 15**. This category of investment has repeatedly failed to measure up to forecaster expectations. Results so far in 2015 are no different. Real nonresidential investment grew at a 1.6 percent rate in the first quarter

and 3.2 percent in the second quarter. Investment will have to accelerate considerably in the third quarter if B of A's forecast of 3.8 percent growth and GS's forecast of 3.6 percent growth for all of 2015 are to be realized.

Both forecasters expect stronger investment growth in 2016, 2017, and 2018 in a range of about 4 percent to 5 percent. Over the last several quarters, measured nonresidential investment growth has consistently come in lower than forecasts. Weak aggregate demand, low income growth, a strong dollar and other factors discussed elsewhere in this month's letter all suggest that **B of A's** and **GS's** optimism will continue to be unfulfilled.

Private Business Investment. Private business investment includes both residential and nonresidential investment. I provide a forecast of this measure of investment but not of its component parts — residential and nonresidential investment. My forecast for 2015 is somewhat lower than other forecasts. My below consensus forecasts in 2016, 2017 and 2018 result from my more pessimistic outlook for nonresidential investment, which I believe will continue to be depressed by low real interest rates and slower real GDP growth.

Government Investment. Government investment spending is divided between federal and state/local investment spending. State and local government spending accounts for 61.2 percent of the total.

Table 16 shows actual total government real investment growth for 2012, 2013, and 2014, and forecasts for 2015 through 2018. Relative to the 68-year average growth of 2.65 percent annually the actual results and forecasts are quite pessimistic. But the pessimism is warranted by the political constraints that have been imposed on government spending in recent years. Forecasts for 2015-2018, including my own, assume a modest increase over the 0.94 percent annual real rate of growth in government investment spending over the last 16 years. However, as is already turning out to be the case in 2015, even these low rates of growth may prove to be too optimistic.

Inflation-adjusted state and local spending is up 1.35 percent over the last year. **GS** cites three reasons to expect relatively weak state and local government spending growth in coming quarters. First, state revenue growth will be weak due both to slow economic growth and voter resistance to tax increases. Second, most states plan only modest budgetary increases, which is directly related to weak revenue growth and balanced budget requirements. Third, a growing proportion of state and local expenditures are allocated to health and other social benefits, which are not counted as spending in the national income accounts — they are transfer payments.

Trade. The trade-weighted value of the dollar has declined 22.4 percent since the dollar's value peaked in October 2013. This should lead to a larger trade deficit as growth in exports is depressed and cheaper prices lead to a surge in imports. Indeed, exports of goods have fallen from 9.6 percent of nominal GDP in October 2013 to 8.9 percent in July. However, imports of goods have also fallen over the same time period from 14.0 percent of nominal GDP to 13.2 percent, with the result that the trade deficit for goods remains unchanged at 2.9 percent of nominal GDP. The total trade deficit, which includes financial flows, also is unchanged over the last year. Thus, the weaker dollar has not yet had the expected effect. A partial explanation is that the fall in commodity prices, particularly oil, have depressed the value of imports. Nonetheless, lower prices of imports are already depressing measures of inflation and will eventually prompt consumers to substitute cheaper foreign goods for more expensive domestic goods. In other words, it is only a matter of time before the expected increase in the trade deficit for goods increases.

Table 16
Government Investment Growth Rate Y/Y Forecasts — B of A, GS, Bill's "Steady Growth" and Bill's "Strong Growth"

	2012	2013	2014	2015	2016	2017	2018	Ave. 1947-2015
Actual	-1.86	-2.95	-0.58					**2.65** *
B of A				0.87	1.35			
GS				0.68	1.28	1.24	1.25	
Bill's Steady Growth				0.67	1.28	1.26	1.26	
Bill's Strong Growth				0.74	1.38	1.34	1.40	

*2000-2015 average growth rate = 0.94%; federal = 2.14%; state & local = 0.24%

VII. Fiscal Policy

Congress after a quiet and lengthy summer recess, has returned and faces several deadlines and several significant fiscal policy issues. While there is a possibility that Congress will miss the September 30 deadline for funding the government for fiscal year 2016, which would result in closing some portions of the federal government, the political costs of such an outcome strongly argue against such an outcome. However, a Republican initiative to defund Planned Parenthood stands in the way. Thus, at the very least there will be a great deal of sabre rattling and a burst of last minute uncertainty; at worst there is a possibility of a short government closure or short-term continuing resolution, which would "kick the can down the road" a few weeks.

However, **GS** places the probability of closure at 50 percent. The problem is that House Republicans do not have sufficient votes to pass a budget resolution without reaching out to Democrats because of the Planned Parenthood issue. Ultimately, a budget resolution will pass but probably with more Democratic than Republican votes but perhaps not before there is a brief closure of the government to force the issue.

Also, the debt limit needs to be lifted but thanks to strong tax revenues this deadline probably won't become binding until December.

For the time being, the broad bi-partisan congressional coalition that has resulted in enactment of considerable legislation so far this year should continue to hold sway at least until partisan presidential politics heat up next spring.

1. Deficit

Over the first eleven months of the current fiscal year (October 2014 through September 2015) federal revenues have risen at an 8.0 percent annual rate, while expenditures are up only 5.0 percent. This means that the deficit has been decreasing at a 10.6 percent annual rate. With one month remaining in the current fiscal year, the deficit is likely to be about $425 billion or 2.35 percent of nominal GDP compared to $483 billion last year or 2.75 percent of nominal GDP. The decline in the federal deficit continues to exceed expectations, primarily because of stronger than anticipated growth in federal revenues.

Note that the entire 5.0 percent increase in federal government expenditures over the last 12 months is due to transfer payments. There has been no change in government consumption and investment spending, which, as noted above, has negative implications for productivity and potential real GDP growth. There is a possibility, however, that Congress might approve a modest increase in spending caps in fiscal 2016, which could boost real GDP growth by as much as 0.2 percent over the coming year.

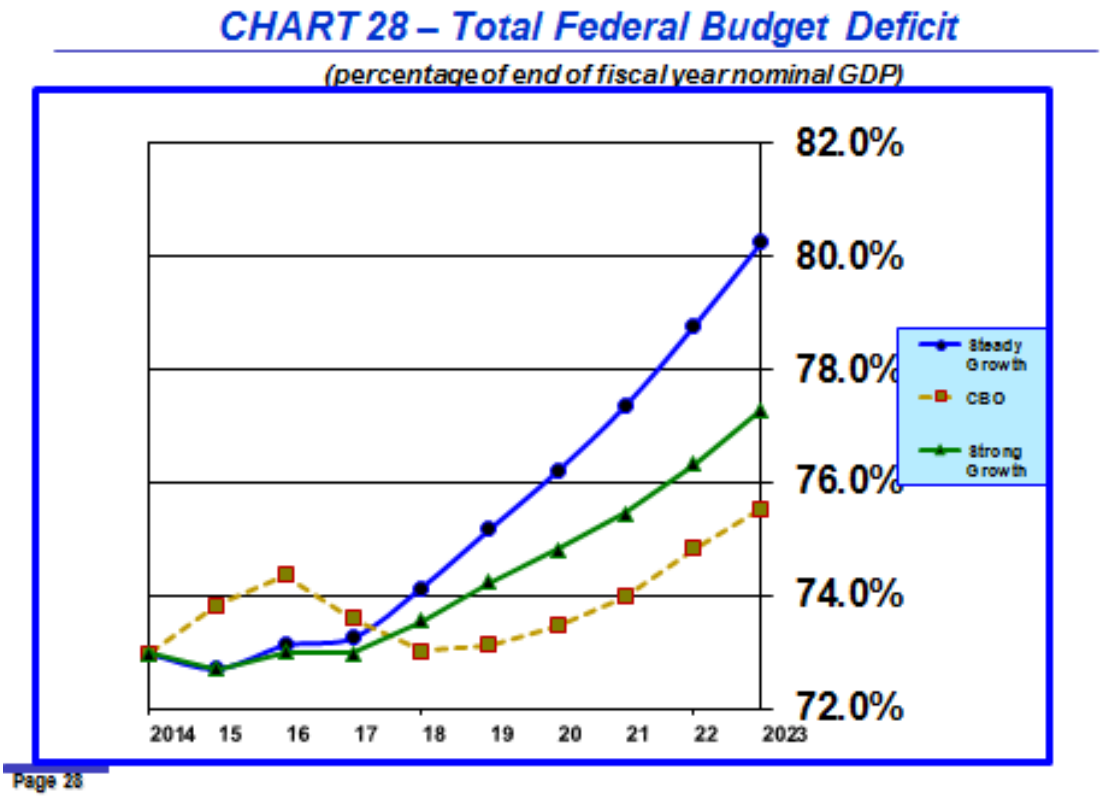
CBO is forecasting a modest decline in the fiscal year 2016 deficit to $414 billion and a relatively stable fiscal year 2017 deficit of $416 billion. CBO deficit projections are based on current law. Thus, tax provisions, such as extenders, which expire but which also are almost always renewed for another short-term period, are not counted. Thus, CBO's budget deficit estimates tend to be understated. However, CBO's interest rate forecast, which determines its estimate of interest payments on the debt, is higher than that of most other analysts. At this moment in time, these two sets of considerations are largely offsetting, implying that CBO's deficit estimates are probably reasonable — neither understated nor overstated.

After 2017 annual deficits begin to rise both in amount and as a percentage of nominal GDP as entitlement spending for social security and Medicare begin to rise more rapidly as the population ages. Unfortunately, as can be seen in **Chart 28**, this means that the ratio of public debt to nominal GDP will not decline much from the current level of approximately 73 percent and will begin to rise gradually after 2017. My estimates of the debt ratio rise faster because my forecast of growth in the level of nominal GDP over time is less optimistic.

While the size of the deficit is not problematic at this juncture, particularly since interest rates are low and are likely to remain so, the deficit is more than twice the 32 percent level that existed in 2001. The concern is that when the next recession hits and drives down government revenues there will be less flexibility to engage in deficit spending to stimulate the economy without raising the public-debt-to-nominal-GDP ratio to a much higher level that could pose real risks to financial stability. While we don't know what the exact tipping point is for sure we do know from Greece's experience that there is one.

2. Increase in the Federal Debt Ceiling

Although seemingly forgotten, the federal debt ceiling limit kicked in and became binding on March 16, 2015. As has become the practice in recent years, the Department of the Treasury has been engaging in a variety of cash management practices to keep the government functioning even though it can't raise any net new debt. The steady decline in the size of the annual budget deficit has made it easier to extend the timeframe in which these measures can defer the day of judgment. However, as long as there continues to be a deficit of just about any size, the debt ceiling eventually will have to be increased. That is expected



to occur sometime in December.

Based on recent congressional practice the likely solution will be to suspend the debt ceiling for a period of time, probably until after the 2016 presidential election. The timing of this action will probably occur just in the nick of time and may be accompanied by legislation to deal with a plethora of tax extenders which expired at the end of calendar year 2014. No one expects this matter to result in a threat to shut down government operations and that is supported by Congress's bipartisan action earlier this year to fund the Office of Homeland Security for fiscal year 2015.

In effect, reinstating the debt ceiling at a higher level is no longer a contentious congressional issue.

3. Tax Reform and Transportation Funding

Congress has been unable so far this year to agree on long-term extension of transportation funding. While there is broad bipartisan support, no consensus has yet emerged as to how to fund a long-term extension. The potential solution is to combine international corporate tax reform, which would encourage repatriation of foreign earnings, with long-term extension of highway funding. Both congressional Republicans and the White House are exploring this possible solution. But the negotiation is complex and the outcome remains uncertain.

When transportation funding authority expired on July 31, there was no agreement yet about a long-

term funding source, so Congress approved a temporary extension through October 29. However, the Department of Transportation recently announced that the Highway Trust Fund will remain solvent through mid-2016. This has introduced an element of uncertainty. Stay tuned for further developments linking these two important fiscal policy initiatives.

4. Re-chartering the Export-Import Bank

On June 30, 2015, the charter of the Export-Import Bank expired, although it continues to operate for now on the expectation that Congress will eventually renew its charter. However, until the charter is renewed it cannot extend new export credit loans and guarantees.

Obviously, there has been no rush to re-charter the bank; however, it is generally expected that re-chartering will occur eventually in conjunction with the passage of some other legislation, such as highway funding.

5. Pacific Trade Treaty

Congress passed fast-track legislation in the summer which should either result in congressional approval or presidential veto of a congressional rejection that Congress is unable to override. Timing will depend on conclusion of trade negotiations, which are ongoing.

6. Repeal of Oil Export Ban

Now that the U.S. is rapidly reducing its dependence on oil imports, support is building to repeal the ban on exports. The Senate Energy Committee approved repeal in July, but Senate action has yet been scheduled. House Majority Leader McCarthy has indicated that a vote to repeal will be scheduled for the House of Representatives prior to the end of September. The White House has objected to an outright repeal because it believes that the Commerce Department should have the authority to regulate export levels. Senate action is unlikely to occur, because of the 60-vote super majority requirement, until the repeal legislation is satisfactory to the White House.

7. Tax Extenders

By a vote of 23-3, the Senate Finance Committee approved renewal of 52 tax extenders for two years through calendar year 2016 on July 21. Full Senate action is not yet scheduled. Depending upon the outcome of broader-based tax reform, some of these extenders could end up becoming a permanent part of the tax code. In any event, congressional passage of extenders before the end of the year is probable.

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

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

As the year progresses, actual results for many economic Indicators are diverging from beginning-of-the year forecasts, as evidenced by the large amount of red ink, "not tracking," below. In addition, many of the risks have materialized. On balance, U.S. and global economic activity is a little less strong than expected and deflationary risks have increased. These developments are being reflected in tighter financial conditions and increased financial market volatility.

1. **U.S.**

- ***2015 real GDP Y/Y*** growth projections range from 2.7% to 3.5%. The FOMC's central tendency Q4/Q4 projections range from 2.6% to 3.0%. (Q4/Q4 projections are highly dependent upon potential anomalies in Q4 data; therefore, Y/Y estimates, which average all four quarters, are more stable estimates.) Because the substantial decline in oil prices is likely to boost consumption growth more than it depresses investment growth, actual 2015 real GDP growth is likely to be at the high end of the forecast range.

  - The FOMC has changed its Q4/Q4 GDP projection range several times during the year; based on the September projections, the FOMC now expects growth in 2015 to be 2.0% to 2.3%

  - Other Y/Y forecasts are also below the lower end of the original forecast range: GS = 2.5% (Q4/Q4 = 2.3%); B of A = 2.6% (Q4/Q4 = 2.5%); Bill's Steady scenario = 2.55% (Q4/Q4 = 2.4%); Bill's Strong scenario = 2.6% (Q4/Q4 = 2.5%)

- ***Real GDP output gap*** will remain high, but will close rapidly during 2015 from about 3.4% to 2.0%. (The exact size of the output gap will be revised by CBO, probably in February 2015).

  ? CBO revised the output gap down by 1.1 percentage points in February but then raised it by 0.5 percentage points in August for a net reduction of 0.6%

  - Revised output gap should decline to between 2.4% and 2.3% by the end of 2015, which would be a 1.0% to 1.1% decline over the year; this is slightly less than the forecast 1.4% decline at the beginning of the year

- ***Potential structural rate of real GDP growth*** has declined significantly in recent years. I expect potential growth to be about 2.0% in 2014. Long-term potential real GDP growth will edge up in coming years to between 2.0% and 2.3%.

  ? CBO reduced 2015 potential growth from 1.79% to 1.66%

  - Potential growth for my scenarios for 2015 is 1.4%

  + Long-run potential growth for my scenarios is between 1.8% and 2.1%; it is between 1.8% and 2.2% for the FMOC; and it is 2.1% for CBO; all estimates of long-run potential growth have been edging down

- ***Productivity*** should rise during 2015 as growth improves and investment increases, but should still fall well short of the historical 2.1% average.

  + Nonfarm productivity declined 1.1% in the first quarter of 2015, but rose 3.3% in the second quarter; the four-quarter change in productivity rose from 0.0% in the fourth quarter of 2014 to 0.7% in the second quarter of 2015

- ***Employment*** growth should slow during 2015 as full employment approaches and grow about 185,000 per month.

  - Payroll growth has averaged 212,000 monthly over the first eight months of 2015

- ***Employment participation*** will rise slightly during 2015 as the unemployment rate falls, labor market conditions tighten and discouraged workers find jobs. These cyclical factors will more than offset the downward pressure on the participation rate stemming from an aging population.

  - The participation ratio has been relatively stable; it was 62.70% in December and 62.55% in August

- ***Unemployment rate*** should edge down to about 5.25%. A higher rate could occur if substantial numbers of discouraged workers re-enter the labor force.

  + The unemployment rate has fallen from 5.56% in December to 5.11% in August

- ***Nominal consumer disposable income,*** measured on a Y/Y basis will rise about 3.2% (roughly 1.2% increase in hours worked; 1.8% increase in CPI inflation and 0.2% increase in the hourly wage rate — *note: this relationship is mischaracterized because inflation does not factor directly into disposable income growth; disposable income growth is a composite of many sources of income, the largest of which is wage and salary income; growth in salary and wage income depends upon growth in total hours worked and growth in nominal hourly wages, which was 2.1% at the beginning of 2015 and forecast to rise to 2.3% by the end of 2015*).

  - 12-month rate of change in disposable income is 3.4% through July; (total hours worked for all employees were growing at a 2.7% annual rate through August; growth in hourly nominal wages was unchanged through August at a 2.1% annual rate of increase); growth in hours worked is much stronger than forecast which has resulted in stronger than expected growth in nominal consumer disposable income

- ***Nominal consumer spending growth*** on the Y/Y basis will grow slightly faster at approximately 3.5%, but could grew slightly faster if low oil prices persist.

  + 12-month rate of change is 3.6% through July

- ***Household personal saving rate*** will decline slightly as growth in spending exceeds growth in disposable income.

  - Saving rate averaged 5.0% over the first seven months of 2015 compared to 4.8% in 2014

- ***Stock prices***, as measured by the S&P 500 average, should rise between 0% and 5%.

  - Through September 22, stock prices were down 5.6%

- ***Manufacturing*** growth will continue to be relatively strong and the PMI index will exceed 50.

  + The ISM manufacturing index has softened since the beginning of the year but was still at an expansionary level of 51.1 in August; however, the risk of an index value below 50 by year end is increasing

- ***Business investment*** spending growth should remain relatively strong in a range of 4% to 6% as employment and consumer spending growth gathering momentum; however, low oil prices will depress energy investment.

  - Business investment rose at an annual rate of 1.6% in Q1 as energy capital investment plunged; the annual growth rate improved to 3.2% in Q2; forecasts for 2015 have been lowered to 3.6% to 3.8%

- ***Residential housing investment*** should improve over 2014's disappointing level by 8% to 10%; residential housing starts should rise 15% to 20%.

  + Residential investment grew at an annual rate of 10.1% in Q1 and 7.8% in Q2; forecasts for 2015 range between 8.9% and 9.4%

  - Over the first eight months of 2015 total housing starts were 8.6% above and single-family housing starts were 7.2% above the 2014 level and are on a pace to grow 10% during 2015, still short of the 15% to 20% forecast

- ***Residential housing prices*** should rise about 2% to 4% in 2015, more slowly than 2014's projected 4.5% increase.

  - According to the Federal Housing Finance Agency's home purchase price index, housing prices rose 5.07% in 2014 and 5.39% through the 12 months ending June 2015; prices are on track to rise 4.0% or more in 2015

- ***Trade deficit*** should be slightly higher in 2015 as economic growth improves growth in imports and the rising value of the dollar depresses growth in exports. The ***dollar's value*** on a trade-weighted basis should continue to rise.

  ? The trade deficit for goods has been stable; it was 2.89% in December and 2.90% in July

  + The trade weighted value of the dollar rose 9.1% from December through August and is 18.5% higher than August 2014

- ***Monetary policy*** — the Federal Reserve will raise the federal funds rate at its June, or possibly, September 2015 meeting. Because inflation is likely to continue to fall short of the Federal Reserve's expectations, the pace of increases in the federal funds rate is likely to be slow.

  - The FOMC did not raise rates in either June or September; a December increase seems likely but is not assured

- ***Total inflation*** measures (CPI and CPE) will fall sharply during the first half of 2015, reflecting the significant decline in oil prices. **Core PCE inflation**

  + Total CPE was up 0.3% in July compared to July 2014 and is projected to rise only to 0.5% for all of 2015

  + The annual rate of change in core PCE was 1.24% in July and could edge up to the lower end of the forecast range by the end of the year

- The **10-year Treasury rate** is likely to fluctuate in a range between 2.0% and 3.0% in 2015. Faster than expected real GDP employment growth will push the rate toward the top end of the range; greater than expected declines in inflation and/or heightened financial instability will push the rate toward the bottom end of the range.

+ The 10-year Treasury rate was 2.14% on September 22; because of low rates globally and aggressive quantitative easing by the European Central Bank and the Bank of Japan; the 10-year Treasury rate is likely to remain near the lower end of the 2.0% to 3.0% range during 2015

- ***Fiscal policy*** will have limited impact on real GDP growth during both fiscal year and calendar year 2015. The deficit as a percentage of nominal GDP will probably decline from fiscal year 2014's level of 2.75% to 2.50%. The decline could be greater if economic growth and tax revenues exceed expectations or less if Congress increases spending without offsets as it did in approving the tax extenders bill for 2014.

  + The 2015 fiscal year deficit is on track to equal 2.35%; the 12-month deficit through August was 2.33%

- ***State and Local investment*** spending growth rises slightly from 0.5% in 2014 to 1.0% in 2015, which is still well below the long-term average of approximately 1.4%.

  - State and local investment declined at an annual rate of -0.8% in Q1, but rose 4.3% in Q2; forecast for all of 2015 has been revised to 1.4%

2. **Rest of the World**

- ***Global growth*** is likely to improve to 3.7% in 2015 from 3.2% in 2014. Risks are tilted to the upside because of the substantial decline in oil prices.

  - Global growth forecasts have been lowered to 3.2%; improvement in Europe has been more than offset by slower growth in China, Japan, the U.S. and emerging markets; risks are tilted to the downside during the remainder of 2015

- ***European growth*** will be positive but will is likely to fall short of the consensus 1.2%.

  - Europe's growth forecast has been raised to 1.6%

- ***European inflation*** will continue to decline and may even turn into outright deflation. Quantitative easing, assuming it occurs, may be too late and have too limited an impact to deflect emerging deflationary expectations. Europe may well be headed to the kind of deflationary trap Japan has been in for the last 20 years.

  + Consumer prices in Europe are expected to rise only 0.1% during 2015

- ***European financial markets*** may face renewed turmoil. Markets expect the ECB to begin purchasing large amounts of securities, including sovereign debt, by March. This presumes that legal hurdles and German opposition will be overcome. Assuming that quantitative easing actually occurs, its impact is likely to disappoint.

  + The ECB's massive bond purchase initiative has provided a stable backdrop for financial markets; however, volatility has emerged from time to time (during the spring when speculative positions, which had driven interest down to nearly zero, were unwound; and more recently in conjunction with the crisis in Greece, followed by China's growth slowdown); credit conditions have eased

- ***European political dysfunction, populism and nationalism*** will continue to worsen gradually. Countries to watch include the U.K., Greece, Spain, Italy and Portugal.

  + Centrists lost the Greek election in January, however, the replacement government disintegrated and new elections are scheduled for September; the National Front party is gaining

ground in France; recent regional elections indicate that centrist parties may lose the Spanish elections scheduled for late 2015; the Conservative Party won an outright majority in the UK parliamentary elections but political fragmentation grew as the Scottish National Party won 56 seats

- ***U.K. growth*** is expected to slow from 3.0% in 2014 to 2.6% in 2015; however, political turmoil, should the May parliamentary elections be inconclusive, could drive growth lower.

  + Expected 2015 real GDP growth is on track to hit 2.6%

- ***China's GDP growth*** will slow below 7% and gradually moved toward 6% as economic reforms are implemented and the shift to a consumer-focused economy gathers momentum.

  + Year over year growth in the second quarter of 2015 was 7.0%; however, growth is slowing during the third quarter

- ***China's leadership*** will focus on implementing ***economic reforms*** and will overcome resistance and maintain stability.

  + Chinese reform policies are being implemented more slowly than expected; the anti-corruption campaign continues and has had a chilling impact on speculation in commodities; in spite of stock market turmoil, political stability has been maintained

- ***Japan's*** economic policies may be successful in defeating deflation, but GDP growth will be hard pressed to achieve the expected 1.6% rate in 2015 if Abenomics' third arrow of economic reforms fails to raise the level of potential growth sufficiently to overcome the effect of negative population growth on labor force growth.

  + Japanese expected growth has been lowered to 0.8%; the Bank of Japan is likely to fall short of its goal to raise inflation to 2.0% - expected inflation currently is 0.8% for 2015 and 1.4% for 2016

- ***India*** should experience an improvement in real GDP growth to 6.3% in 2015.

  + 2015 growth is expected to exceed 7% and perhaps be as high as 7.8%

- ***Emerging market countries*** that are energy consumers will experience greater growth, as long as the U.S. does better in 2015; energy producing. countries and those heavily dependent upon commodities exports for growth will do less well.

  + Data indicate that slower growth in China, Japan and the U.S. is dragging down growth in emerging markets

3. **Risks** — stated in the negative, but each risk could go in a positive direction.

   - ***U.S. potential real GDP growth*** falls short of expectations

     + Reductions in estimates of long-run potential GDP growth by CBO, FOMC and other analysts indicate this risk has been realized

   - ***U.S. employment growth*** is slower than expected; the ***participation rate*** is stable or declines rather than rising modestly

     + Participation rate has fallen slightly

     - Employment growth above expected level through the first eight months of 2015

   - ***U.S. hourly wage rate growth for all employees*** does not rise materially over its 2014 level of 2.1%

+ Through August this risk is being realized — wage growth, measured as a 12-month year over year rate of change, remains unchanged at 2.1%; however, the six month annualized rate of change has risen from 2.0% in December 2014 to 2.4% in August 2015; the employment cost index is stable at an annual rate of 2.0% through the second quarter of 2015

- ***U.S. unemployment rate*** falls less than expected

  - Through August the unemployment rate has fallen more than expected

- ***U.S. productivity*** remains low in the vicinity of 1%

  + Productivity over the last 12 months has been 0.7%

- ***Real U.S. consumer income and spending*** increase less than expected

  - Data through July indicate that consumer disposable income and spending are rising slightly more than expected

- ***U.S. financial asset prices*** rise more than expected posing increased bubble risks

  - Bond prices are at the low end of the expected range

  - Stock prices have declined

- ***Growth in U.S. residential housing investment and housing starts*** is less than expected

  + Housing starts are below expectations

  - Residential investment is on track to meet expectations

- ***U.S. residential housing price increases*** slow more than expected

  - First and second quarter data indicate that home prices are rising more than expected

- ***U.S. private business investment*** does not improve as much as expected

  + Private business investment growth is slightly below the lower end of the expected range

- ***Oil price declines*** in the U.S. trigger bankruptcies and cause tight financial conditions with negative implications for economic activity and growth

  + Energy-related investment reduced real GDP growth during the first half of 2015 by about 0.5%; consumer spending has not risen as expected to offset this drag

  - There is no evidence of significant financial market disruptions stemming from the fall in oil prices, but this may change with the recent further decline in oil prices

- ***U.S. manufacturing growth*** slows as the value of the dollar rises and global growth slows

  + ISM manufacturing index remains above 50 but has softened considerably and might move below 50 by the end of the year

- ***U.S. trade deficit*** widens and the ***value of the dollar*** rises more than expected

  + The value of the dollar has risen more than expected at the beginning of the year

  - The trade deficit has been stable

- ***U.S. monetary policy*** spawns financial market uncertainty and contributes to financial instability

  - Volatility has increased considerably and financial conditions are the tightest they've been in four years; Goldman Sachs estimates that tighter financial conditions, if sustained, are equivalent to an increase in the federal funds rate of 75 basis points

- ***U.S. inflation*** *falls, rather than rising, and threatens deflation*

  + Core PCE inflation has been slightly softer than expected and with recent further declines in commodity prices and a stronger dollar is unlikely to rise by year end

- ***U.S. interest rates*** fall *or* rise more than expected

  - Long-term interest rates are at the lower end of the expected range

- ***U.S. fiscal policy*** is more restrictive than expected and the ***budget deficit*** falls more than expected

  +Tax receipts have been stronger than expected; with one month remaining in the fiscal year, the deficit is likely to be slightly lower than originally expected

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

  + Through the first half of 2015 state and local spending is on track to rise slightly faster than expected

- ***Global GDP growth*** does not rise as fast as expected

  + The global GDP growth forecast has been reduced from 3.7% to 3.2% and the balance of risks tilts to a further slowing

- ***Europe*** slips back into recession

  - Growth is improving in Europe because of the decline in the value of the euro, lower commodity prices, easier financial and credit conditions, and less fiscal drag

- ***ECB*** does not engage in quantitative easing or the quantitative easing program it decides to pursue lacks market credibility

  - This risk did not materialize because the ECB initiated a massive quantitative easing program which is expected to continue until September 2016 and perhaps beyond

- ***Europe*** — financial market turmoil reemerges

  - Speculation drove interest rates in the spring on long-term bonds too low and was followed by a short but relatively violent correction; however, that turmoil was short-lived; however volatility has reemerged because of concerns about the impact of slowing Chinese growth

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

  + Political fragmentation is building slowly but does not yet threaten the survival of the Eurozone and the European Union; the Greek threat has been contained for the time being

- ***Acute political turmoil*** engulfs the **U.K.**

  - The Conservative Party won an outright parliamentary majority and political stability is the order of the day for the time being; however, political fragmentation is increasing slowly

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

  + mplementation of reforms is proceeding more slowly than expected; at least one of the reforms involving opening up participation in the stock market led to a rapid escalation in prices followed by a crash in prices and extreme volatility

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

  - While year over year growth through the second quarter met the 7.0% target, growth appears to be slowing during the third quarter

- ***Japan*** — markets lose faith in Abenomics

  ? This risk has not materialized; however, both real growth and inflation have been considerably less than expected, Prime Minister Abe's approval ratings have dropped below 50%

- Severe and, of course, unexpected ***natural disasters*** occur, which negatively impact global growth

  - This risk has not materialized

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