



The Longbrake Letter*

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I. Return of Animal Spirits As Markets Shrug Off Britain's Vote to Exit the European Union

Sometimes the behavior of markets defies what logic suggests should happen. After dropping 5.4 percent in the two days following Britain's vote to "Leave" the European Union (EU), the S&P 500 average has rallied 9.1 percent to an all-time high on August 5, 2016. Markets did not expect the "Leave" vote and were unprepared for it which explains the initial violent negative reaction. That response was logical. But if Brexit, as is now the popular term for Britain's pending exit from the EU, is a seminal global event with mostly long-run negative consequences, why are U.S. stock markets ascending to all-time highs contrary to what logic would suggest?

Perhaps, upon reflection, there is a simple and seemingly logical multi-part explanation. First, impacts of Brexit on the U.S. economy will be minor and are not likely to materialize for a long time. Second, monetary policy is likely to remain very accommodative for a long time — the decline in long-term U.S. interest rates to the lowest levels in the nation's history reflects that market assessment. Easy monetary policy means low short-term rates for longer and abundant liquidity. Third, the U.S. economy is on a steady, albeit low, growth trajectory — the June and July employment reports helped quell anxieties. Put this all together and you get a downward shift in the market discount rate and increasing bond and equity values. Risk-on is back in vogue and seems likely to continue, at least until some new shock intervenes.

Does this mean that all is well? No, quite to the contrary. None of the imbalances, including notably weak productivity and feeble growth and widening income and wealth inequality which have been plaguing the U.S. and global economies, has gone away. Indeed, if anything, low interest rates and higher stock prices could well exacerbate these imbalances further.

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Persistently weak U.S. and global economic growth and widening income and wealth inequality, coupled with escalating concerns about negative impacts of immigration, have fed a surge in populism and nationalism in the U.S. and elsewhere in recent months, as evidenced by the British vote to “Leave” the EU and the nomination of Donald Trump as the Republican Party’s presidential candidate.

It seems to me that we are witnessing a gradual erosion of the post-World War II global equilibrium both with respect to how the global economy functions and traditional geo-political relationships. Long-established political elite are focused on stabilizing the old economic and political paradigm and appear not to understand that changing fundamentals require different kinds of policy responses to assure economic well-being and political stability. Policymakers have been able to shore up and maintain the established order for the time being through a variety of policy palliatives. But, as evidenced by increasing economic and financial market volatility and by the rise of populism and nationalism, this strategy of muddling through, although it might endure for a long time, ultimately will not be successful. History tells us that when political and economic systems are unresponsive to societal needs, they inevitably collapse and the collapse is followed by a period of chaos and instability until new political and economic systems are forged that are responsive to societal needs. In other words, we are on a course at the moment where things will probably get worse before they get better.

This month’s letter addresses a variety of topics beginning with a discussion of neoliberalism, which is an economic theory that has guided a preponderance of politicians and policymakers in recent years. The flaws of neoliberalism have contributed to faltering economic growth and escalating income and wealth inequality.

Also included in this month’s letter are discussions the Italian bank solvency challenge and Japan’s floundering Abenomics. These topics are followed by a summary of recent U.S. economic developments and cover GDP, employment, inflation and monetary policy. The **Appendix** contains a detailed update of U.S. and global economic and political developments relative to expectations outlined in December 2015.

II. Neoliberalism

One strand of economic theory, which is referred to as *neoliberalism*, has had substantial impact on policymakers since the 1980s. A recent article, authored by three International Monetary Fund (IMF) economists, Jonathan D. Ostry, Prakash Loungani, and Davide Furceri, describes and critiques neoliberal policies.¹ “Instead of delivering growth, some neoliberal policies have increased inequality, in turn jeopardizing durable expansion.”

There are two main threads to neoliberalism. First, deregulation of markets and permitting both foreign and domestic entities to participate in markets subject to the same regulatory regime increases competition and economic growth. A key feature is unconstrained *movement of capital* across borders.

Second, the role of the state is constrained by imposing strict limits on the size of government budget deficits and the ratio of public debt to nominal GDP. This, too, is expected to increase the role of the private sector and enhance economic growth. The polite term for policies that stems from this aspect of

¹Jonathan D. Ostry, Prakash Loungani, and Davide Furceri. “Neoliberalism: Oversold?” *Finance & Development*, June 2016, pp. 38-41. The authors are members of the International Monetary Fund’s Research Department.

neoliberalism is “*fiscal consolidation*.” The not so polite term is “austerity.”

Neoliberalism has been widely embraced by policymakers and the principles of open borders and fiscal consolidation are expressly core features of current European Union (EU) policies.

Ostry, Loungani, and Furceri reach “three disquieting conclusions.”

- “*The benefits in terms of increased growth seem fairly difficult to establish*”
- “*The costs in terms of increased inequality are prominent*”
- “*Increased inequality in turn hurts the level and sustainability of growth*” — a negative feedback loop

In summary, the benefits of neoliberal economic policies for growth are doubtful but the distributional effects of the populace are negative and adversely affect growth. This is a very damning assessment of the efficacy of neoliberal economic policies.

1. Movement of Capital

In theory removing country-imposed capital controls to permit the free movement of capital enables capital to flow freely to locales and investment opportunities that offer the highest rates of return and the most productive outcomes. But, this is an oversimplification. Capital can flow into either productive or speculative investments, or as Charles Gave has colorfully put it, into “tools” or “jewels.” “Jewels” are pretty to look at and may appreciate in value but have little to no impact on creating sustainable productive economic activity other than jobs for brokers and financiers who are employed in trading and financial services. Historically, investment in “jewels” occasionally leads to unsustainable price bubbles.

Speculative investment in existing assets is typically financed by short-term hot-money capital flows. Modern derivative financial instruments and the globalization of financial markets have greatly facilitated the expansion of speculative short-term financing of “jewels.” The difficulty with short-term financing is that when sentiment changes, funding can be withdrawn leading to a collapse in prices. Worse, the bursting of asset price bubbles is often accompanied by a collapse in currency exchange rates, as well as defaults, and often is followed by a slowdown or recession in economic activity.

Thus, in the absence of capital controls, unimpeded international capital flows are accompanied by increased financial market volatility, which can have adverse impacts on productive economic activity. Revisionist thinking is beginning to take hold that argues that capital controls, which limit short-term speculative capital flows and the potential for financial volatility, are appropriate means to limit the negative consequences of unbridled speculative activity. Thus, as is the case of much of economic activity, regulation of behaviors and markets to provide fairness, predictability and stability has value. However, too much regulation can stifle competition. The balance point between too little and too much regulation is rarely clear cut. But, what is clear is that too little or too much regulation leads to suboptimal economic outcomes over time.

Speculative capital flows into “jewels” in addition to creating greater market volatility also has adverse distributional effects by shifting wealth, thus exacerbating inequality. Inequality is worsened in three ways.

First, price bubbles benefit sophisticated investors. Second, when a price bubble inevitably bursts, the damage inflicted on non-investors, as the productive economy contracts and jobs disappear, is greater than it is on wealthier individuals. Third, there is increasing evidence that unconstrained speculative investment in assets undermines investment in productive assets and that results over time in lower productivity and diminished potential real growth in economic activity.

2. Fiscal Consolidation

It is a basic tenet of neoliberal economic theory that the state is less efficient than private markets in allocating capital. Thus, the theory posits that potential growth will be less in a state that commands a large share of economic resources. In addition, potential growth will be depressed further if the state engages in excessive amounts of deficit financing and if the ratio of public debt to nominal GDP is at an elevated level.

This economic theory is amplified by a politically-based belief that growth in the size of the state results in curtailment of individual freedom.

The policy response to the economic and political beliefs, collectively subsumed in the label “fiscal consolidation” or “fiscal austerity,” has been to reduce the size of government absolutely through reductions in tax revenues. In addition, policymakers impose absolute limits on the size of annual budget deficits and the level of total public debt to nominal GDP. This has been the mantra of mainstream thinking and action in the European Union in recent years and has also underpinned the policy agenda of the Republican Party in the United States.

Fiscal consolidation has guided economic policy for long enough that economists have sufficient data to analyze its consequences. The verdict is not a favorable one — fiscal consolidation leads to lower economic output and greater inequality. Ball, Fuceri, Leigh, and Loungani in a 2013 study concluded: “On average, a consolidation of 1 percent of GDP increases the long-term unemployment rate by 0.6 percentage point and raises by 1.5 percent within five years the Gini measure of income inequality.”²

3. Increased Inequality Depresses Economic Growth

Research substantiates that both unconstrained capital flows and fiscal austerity worsen inequality. But, research also shows that these first order effects are exacerbated by an adverse feedback loop in which deteriorating inequality lowers both the level of long-term economic growth and its “durability.”

Ostry, Loungani, and Furceri believe policies should be designed and implemented intentionally to redistribute income and wealth. They suggest increased spending on education and job training, which would expand equality of opportunity. But, others would add increased government spending on infrastructure to the policy mix. Increased infrastructure spending would have short-term benefits in terms of creating jobs and longer-run benefits in terms of building up the capital stock to facilitate faster productivity growth.

²Laurence Ball, Davide Fuceri, Daniel Leigh, and Prakash Loungani. “The Distributional Effects of Fiscal Austerity,” UN-DESA Working Paper 129 (New York: United Nations), 2013

Evidence continues to build that monetary policy has not been effective in stimulating investment in productive assets but rather has amplified speculative investment in existing assets. As such, monetary policy has aided and abetted the negative impacts of neoliberal economic policies of open capital flows on economic growth and inequality. Collectively, it increasingly appears that these policies are feeding secular stagnation and the low productivity, low growth, worsening inequality outcomes that accompany secular stagnation.

Intentional deployment of fiscal policy to ramp up investment in productivity economic activity has been advocated by many economists. To date little has actually occurred because the policy of fiscal consolidation has held the upper hand. Government investment can pick up the slack that the private market is unwilling to undertake because of low and uncertain rates of return. And, because interest rates are very low, the cost of pursuing this kind of fiscal policy would not be very expensive, at least in the short run.

Say what you may about the Republican Party's and Democratic Party's presidential candidates this year, but it is a promising development that the platforms of both parties emphasize the need for increased government spending on jobs and infrastructure. Of course, that leaves open to question how such increased spending will be financed, whether by increased taxes or debt, and what the economic and inequality consequences might be. That is a topic for another letter.

III. Rise of Global Populist Political Movements — Rejection of Established Political Elites

There is a direct linkage between rising inequality and slower growth in economic activity and the political upheavals that are underway in the U.S. and other nations around the globe. Although the specific characteristics of these political developments differ from country to country, they stem from not only from the consequences of neoliberal economic policies on individuals but also from fragmentation of the established political order including increasing sectarian and religious conflicts and forced mass migrations of minority populations.

Growing income inequality and the hollowing out of the middle class in the U.S., which is its related companion, has been a slowly evolving trend since 1980 but has accelerated in the aftermath of the Great Recession in response to neoliberal economic policies.

In Europe, differences in economic opportunity across member countries have been exacerbated by the absence of a robust fiscal transfer mechanism and the strictures imposed on member countries by the common currency — monetary policy cannot be used by individual members to ameliorate employment challenges. Thus, in low productivity countries, such as Spain, Portugal, and Italy, fiscal austerity and the absence of a robust fiscal transfer mechanism have forced a decline in the standard of living and exacerbated income inequality. This has fueled a resurgence in nationalism and given impetus to populist political movements.

Elsewhere in the world, income inequality has declined as many emerging nations experienced a substantial acceleration in growth due to increasingly efficient global financial markets that provided prodigious

amounts of financing to emerging market economies. Cheap labor in emerging markets economies and China's sheer size and commitment to rapid growth through investment in export-oriented industries and infrastructure development have been powerful drivers of this growth. Now China is nearing the end of its ability to drive high growth and the spillover effects to emerging economies are already evident.

In the same way economic theory argues that capital flows should be uninhibited, theory also argues that national borders should be open because the free migration of people will boost economic growth and the collective well-being of a nation's citizens. Relatively liberal immigration policies have fueled the U.S.'s economic growth and success over many decades. When the European Union (EU) was constituted a key component was the free movement of people without regard to national boundaries, which was embedded in the Schengen Agreement.

But, uncontrolled immigration has always encountered resistance, particularly in times of economic hardship because immigrants typically are willing to work for lower compensation. Resistance occurs because people fear they will lose their jobs and then there is also xenophobia — they are not like us. While immigration works to the overall benefit of the population collectively, it creates hardships for individuals.

In the U.S. and Europe, economic stagnation has heightened angst about immigration and both developments have combined to drive increasingly broad-based political populist movements.

The failure of established political parties to step up to challenges threatening the way of life for many of its citizens has unleashed increasingly widespread popular anger and rejection of the established political elite.

In the U.S., political analysts have been surprised by developments in this year's presidential election campaign. Mainstream Republicans did not expect Donald Trump to poll so strongly that he has now become the Republican Party's presidential nominee. Democratic leaders were surprised at the popular strength of Bernie Sanders, who is an avowed socialist.

Elsewhere around the globe, increasing numbers of voters are rejecting traditional political parties and throwing their support to new or formerly fringe parties who fit the broad rubric of populist parties — some lean to the right others to the left.

On June 23, a majority of British voters rejected the recommendations of the established political elite and voted to "Leave" the EU, despite being warned that Brexit would damage the U.K. economy and undermine the viability of the EU. Thus, a majority of the British electorate chose nationalism over the loftier, yet opaque, goal of pan-Europeanism.

In Germany, The Alternative for Germany (AfD) political party is slowly gathering momentum and is like to poll well in the 2017 German national elections. Although the AfD is unlikely to capture sufficient votes to gain real power, its existence and its strong xenophobic message are fueling populism in Germany and impacting policy choices of mainstream German political parties.

Prior to the Brexit vote the consensus among analysts was that each of these major populist movements — Trump, Brexit, and AfD ascendancy in Germany — had little probability of success. But the Brexit vote destroyed this complacency. We are now on a road that threatens the established global economic and

political order. Ongoing economic stagnation and the inability of established political parties to respond to the significant challenges facing their nations will continue to fuel growing anger and buttress the influence of populist demagogic leaders.

Intellectuals can logically explain all the reasons that populist movements will create worse problems. Does Donald Trump really believe that enacting trade tariffs to combat China's unfair trade competition will have a good outcome? Whether he does or does not is of little consequence. This proposed policy is simply responding to the deep-seated anger of many Americans who have experienced declining living standards and believe China is a villain for their plight.

Populist movements are based on emotion, not reason. When the emotion turns to anger and that anger is widespread, the elements are in place to foster revolution. All that is needed is a spark and a leader. In a different era, Donald Trump would long since have been dismissed as a credible leader. But in an era of intense anger about what has happened to millions of Americans and in an era of intense partisanship in which neither major political party has focused on developing workable responses to improve living standards or opportunities, and in an era in which political inertia and paralysis is the order of the day, emotion trumps reason.

We are in a period of history in which there is great instability in the established global economic, social, and political order. History tells us that instability favors demagogic leaders who appeal to emotion rather than reason and that change will occur eventually, but all too often in an uncontrolled and disruptive manner. Eventually, a new stability will emerge, but from the vantage point of the present it is difficult to discern what it might look like. One can hope that change comes from within rather than from without, that is via revolution. But history indicates that it is difficult to change the old order and typically the old order must be destroyed before the new one can take its place.

When I use the word "revolution" I am not suggesting that the U.S. democratic and constitutional governance system is in jeopardy, What I am suggesting, however, is that the existing political parties and how they function within our constitutional system is in jeopardy.

People are angry for a reason. The existing system is not meeting their needs. We have known this for a very long time through polling results which indicate that a growing number of Americans believes the country is on the wrong track. Patience has frayed; anger has built; circumstance has brought us Donald Trump. We may not end up with a Trump presidency, but regardless of that, we have reached the tipping point for American politics. Our political order will be different in the future and, I hope, will be one that will address effectively and forthrightly the challenges America faces. But, such an outcome is not a given and, therefore, nothing should be taken for granted.

IV. Assessment of the British Vote to "Leave" the European Union

Much has been written about Britain's vote to "Leave" the EU. And, much has already changed politically in the U.K. in the month following the vote. The future is murky and it is far from certain that the U.K. will actually end up leaving the E.U. But what is clear is that the status quo has been broken decisively and events are unfolding in ways that are unpredictable and difficult to discern.

V. Italy on the Brink — Troubled Banks and Constitutional Referendum

Italy has two significant challenges and the clock is ticking on both of them. One is the dismal financial condition of its banks, which are loaded with nonperforming loans and in desperate need of recapitalization. Until a way is found to accomplish that, the Italian economy will be held back by inadequate credit extension to foster economic activity and growth. It is a problem long in the making and the victim of political procrastination and well-intentioned, but counterproductive European Commission (EC) rules contained within the Bank Recovery and Resolution Directive (BRRD), which was implemented at the beginning of 2016.

The second challenge is one of Italy's ruling Democratic Party's own making. Prime Minister Renzi has scheduled a constitutional referendum for October which, if passed, would result in reforms that would provide for a more stable governmental structure. Italy's parliamentary government historically has been unstable with frequent changes in government leadership. It would seem that Italians should prefer greater stability, but passage is far from assured because the reforms would strengthen major parties, such as the Democratic Party. If the referendum does not pass, the status quo will continue. But, just as the Brexit "Leave" vote discredited David Cameron and forced him to resign as Britain's Prime Minister, a defeat of the Italian constitutional referendum will force Matteo Renzi to resign as Prime Minister of Italy, thus setting off a political crisis that likely will lead to new elections. It is widely acknowledged that the referendum is not just about constitutional reform, it is also about confidence in Prime Minister Renzi's leadership.

These two challenges intersect in the following way. Time has run out on Italian bank recapitalization. It cannot be postponed until after the referendum. BRRD rules restrict state recapitalization of banks and require shareholders and debtholders to be "bailed in," which essentially means that shareholders are wiped out and debtholders are either wiped out too or become equity holders of the recapitalized bank, but at a fraction of the value of their debt holdings. Moreover, bail-in can extend also to uninsured depositors, if bail-in of debtholders is insufficient to cover losses on nonperforming loans. Here is the rub — a large preponderance of debtholders in Italian banks consists of families who purchased small amounts of bonds because they yielded more than deposits. It is estimated that families hold approximately one-third of Italian bank debt. Bail-in could result in hundreds of thousands of ordinary Italians losing their life savings. If that were to occur, it would be politically toxic and Renzi would almost assuredly lose the constitutional referendum.

Italy is the EU's third largest economy. If it undergoes a financial, economic, and political meltdown, the existential crisis for the EU that emerges will be much more difficult to contain than was the case for the crises of recent years involving Greece, Cyprus, Ireland, Portugal, and Spain.

1. Italy's Troubled Banking System

On July 29, 2016 the European Banking Authority (EBA) published the results of stress tests conducted on the 51 largest European Banks, each with more than €30 billion in assets. These banks collectively account for about 70 percent of total EU bank assets.

Not surprisingly, Banca Monte dei Paschi di Siena (BMPS), Italy's third largest bank, was the weakest.

There were some interesting names among the weakest banks on EBA's stress test list — Ireland's Allied Irish Bank, Austria's Raiffeisen, Spain's Banco Popular, Britain's Barclays, and Ireland's Bank of Ireland. The stress tests confirmed widespread weakness among Europe's major banks. The problem of undercapitalization and problem loans is a truly significant problem in Italy, but it is also a major problem in other EU countries.

According to ECB data, nonperforming loans in Italy's banks amount to 18.6 percent of total loans. The value of Italian bank nonperforming loans is €360 billion, which amounts to 22 percent of Italy's GDP. Italy's public-debt-to-GDP ratio is 132 percent, which is one of the highest in the world. Adding another 22 percent to this ratio would be very troublesome, but it has to be one of the options on the table.

Only banks in four other countries, none of which is surprising — Portugal, Slovenia, Greece, and Cyprus — have worse nonperforming loan ratios.

Unlike bank problems in Ireland or Spain that were largely the result of lending into a real estate bubble, bad asset problems for Italy's banks stem from years of lackluster, even negative, economic growth. In that regard, Italy's bank problems are a cautionary tale of what can happen to banks when deflationary conditions persist for several years. Real GDP growth in Italy was negative from the end of 2011 to early 2015. Many borrowers' revenues have not grown sufficiently to cover expenses and service their bank loans.

It is estimated that the aggregate embedded loss in Italian banks' nonperforming loans is approximately €40 billion, although some believe it is much higher. Simplistically, it would require an infusion of €40 billion to clean up Italian bank balance sheets.

Often times a solvency problem, such as the one Italian banks face, triggers a liquidity problem, which forces the problem to be resolved, often in a chaotic and dysfunctional manner. Remember what happened in the U.S. after the Lehman failure. This has not happened in Italy and is not likely to happen because the European Central Bank (ECB) is providing unlimited liquidity at a zero rate of interest. Needless to say, collateralization requirements are very liberal.

Nonetheless, Italian bank profitability has been squeezed by the flat yield curve and ECB's negative interest rate policy. The IMF estimates that to reach a workable level of profitability Italian banks need to increase loans by 3.0 percent annually. In fact, loans are shrinking currently at a 2.4 percent annual rate.

2. Policy Response Options

BRRD rules prohibit the state from recapitalizing its banks with taxpayer funds until 8 percent of existing bank liabilities have been bailed in. Italy has 1,400 banks and imposition of this rule would not only wipe out shareholders in many of these banks but also many depositors to whom the banks have sold subordinated debt. This is not just a theoretical risk. Last year it is estimated that 100,000 retail investors were bailed in when four small banks had to be recapitalized. Obviously, following the rules is not an attractive option on a larger scale. The political risk to Renzi and the Democratic Party is simply too great.

However, there is a potential escape route, Article 32 (4iii), in the BRRD rules which permits a "precautionary and temporary" injection of "extraordinary public financial support" into banks under

special circumstances such as the failure of the EBA stress tests. This could be invoked to recapitalize BMPS with state funds, but it leaves open to question whether Article 32 could be invoked for the many other smaller distressed Italian banks. BMPS needs about €5 billion of the estimated total €40 billion. BMPS is already under an EBA directive to reduce non-performing loans by December.

Prime Minister Renzi prefers the Article 32 option, broadly interpreted, of course, to include a lot more banks than just BMPS. When Renzi proposed this approach, it was immediately rejected by EC and German officials, but that does not mean it is dead. Why was this proposal rejected? First, it would violate the strongly held view based on political considerations that existing bank shareholders and creditors should be bailed in. Think about the virulent political reaction to TARP in the U.S. in 2008. Voters recoil at the notion of bailing out “greedy bankers.” But, the alternative is to enforce bail in and that surely will unleash a political firestorm in Italy that could lead to the election of Euroskeptical parties who might just follow Great Britain in leaving the EU. The Five Star movement has shown political strength in recent Italian regional elections. It has talked about the possibility of a referendum on exiting the euro, but has not yet made it a political promise.

Second, the problem of nonperforming loans is pervasive for many banks in EU countries. A gentle bail out rather than a bail in in Italy would establish a dangerous precedent. Again, yielding to bail out would be politically toxic.

The dilemma is one of the proverbial “caught between a rock and a hard place.”

3. Something’s Got To Give

Doing nothing is not an option. The EU’s tried and true option of “kicking the can down the road” is really not available either. My sense is that the EC will grudgingly find a way to interpret Article 32 to help Italy recapitalize its banks. There will be political consequences, of course. But, the lesser of evils is strengthening the populist parties’ crusade against bail outs versus unleashing a potential systemic European financial system crisis that might threaten the existence of the EU in its present form.

But, even if some form of bailout, whether bank by bank or a broader approach involving the Italian banking system, is the option pursued, it will buy more time but will not solve Italy’s excessive public debt problem. It will actually worsen it. Eventually, survival of the EU depends on solving Italy’s debt problem. Treating Italy in the way that Greece was treated is not an option. Whether the EU can pull that off politically, however, is doubtful. Thus, I continue to believe that the EU’s days are numbered. But, that said, events are likely to unfold very slowly.

VI. Japan — As Abenomics Flounders, Leaders Launch Massive New Stimulus

In a very different way, Japan also faces two significant challenges. But, unlike Italy, Japan has a very stable government and its banks are in excellent financial condition. Perhaps the greatest challenge, which seems to receive little notice, is its shrinking working age population, which has declined 5.5 percent in the

last five years and is expected to decline a further 4.1 percent over the next five years. The other challenge is stubbornly embedded deflationary psychology which discourages risk taking. Japan's government has attempted to address both challenges over the past three years through Abenomics with only a modicum of success.

1. Abenomics

Abenomics, based on the name of Japan's prime minister, Shinzo Abe, consists of three arrows intended to reinvigorate Japan's economy and defeat embedded deflation and deflationary psychology.

Arrow One encompasses monetary policy. The Bank of Japan (BOJ) adopted two targets. The first involved abandoning the targeting of the overnight rate of interest and substituted purchases of financial assets, a policy popularly referred to as quantitative easing. Second, the BOJ committed to achieve a 2 percent inflation rate within two years. The program met with initial success as the value of the yen depreciated substantially. Some headway has been made in raising the rate of inflation, but embedded inflationary expectations remain considerably less than 1 percent more than three years after the implementation of Pillar One.

Arrow Two involved using fiscal policy to increase economic growth. This has also met with limited success. Perhaps because of Japan's extraordinarily high public-debt-to-GDP ratio, additional government spending has been timid. Moreover, the increase in the consumption tax turned out to be totally counterproductive.

Arrow Three was intended to include various reforms to increase the supply of labor and foster greater productivity. Due to political resistance and cultural norms, very little progress has occurred in deploying **Arrow Three** initiatives.

Abenomics was intended to increase aggregate demand, both internally and externally. From an internal standpoint, acceleration in aggregate demand was supposed to occur as expectations shifted from deflation to inflation. This was expected to be accomplished by accelerating the timing of spending activity and by boosting spending via the wealth effect as the values of financial assets appreciated. To a certain extent these outcomes have occurred, but to a lesser extent than hoped for. From an external standpoint, a more attractively priced yen was expected to stimulate demand for Japanese exports. This expectation, too, has been realized only partially and has encountered setbacks because of natural disasters and the slowing of China's economy.

In short, the bulk of the workload of Abenomics has resided with **Arrow One** — monetary policy — initiatives. Initially the value of the yen declined considerably from 85 to 125 to the dollar, but as time has passed the yen has retraced half of that decline to about 102 recently. In response the BOJ has increased the size of its monetary easing initiatives several times including most recently a decision to buy 12 trillion yen in exchange traded funds (equity derivatives) over the next two years. Deflation of -0.2 percent is expected in 2016. Forecast inflation for 2017 is 1.0 percent, but the pattern since Abenomics commenced has been that actual inflation has consistently come in under the forecast.

It is becoming increasingly evident that monetary policy is losing its impact. Part of the problem is that to be effective, monetary policy needed comprehensive implementation of **Arrow Two** and **Arrow**

Three policy initiatives. But this has fallen woefully short. But, what seems to be underestimated is the powerful deflationary impact of a declining workforce. In other words, even if all three Arrows had been implemented robustly, the policy objectives of Abenomics would still be difficult to attain because of a naturally shrinking economy.

2. Economic Impact of a Shrinking Labor Workforce

Japan's deflation of the past two decades was not caused by flawed policy but rather by an aging and declining population. We are used to thinking about economic issues in the context of a growing population, not a declining population.

When population ages and declines so, too, does aggregate demand. Internal investment opportunities diminish which forces domestic savers to seek investments in other countries with growth potential. Such an external investment focus and internal price deflation led to a steady appreciation of the yen. Abenomics has intentionally attempted to reverse this natural phenomenon. It should not be surprising that the policy has met with mixed success.

As internal demand shrinks, growth of the economy can be maintained only by adopting an export strategy. Of course, such a strategy was Japan's way of promoting rapid development in the 1960s, 1970s and 1980s. But, over time the steady appreciation of the yen eroded Japan's trade competitiveness. To increase aggregate demand, Japan needed to depress the value of the yen to reinvigorate its historic export strategy.

Abenomics has made some headway in boosting aggregate demand and has pushed inflation up a tiny amount. But Abenomics will not and, in fact, cannot create a higher rate of growth on a sustained basis. The aging and declining Japanese population will prevent this kind of outcome. And since Japan is fundamentally a xenophobic society, it will never embrace an open immigration policy that could counter the economics of population decline.

3. Rethinking Abenomics

On July 10, 2016 the Liberal Democratic Party resoundingly won a majority in the upper house of Japan's parliament in spite of mixed economic results over the past three and a half years. Part of the reason for the Party's success is that there is no well-organized political opposition. Part of the success also seems to flow from the Party's foreign policy agenda of strengthening Japan's sway in Asia in the face of the growing economic and political power of China. This could include amendment of Japan's pacifist constitution, imposed by the U.S. in the aftermath of World War II. Prime Minister Abe now has the political mandate to pursue a more nationalistic foreign policy but has chosen to focus on rejuvenating Abenomics for the time being.

It has become increasingly clear to all that the effectiveness of Arrow One has diminished. Implementation of negative interest rates earlier this year not only negatively impacted bank profitability but more importantly led to the unintended decrease in market expectations that monetary policy would be able to attain its economic growth and inflation goals. Moreover, at its current rate of purchase of government

bonds, the BOJ will own more than half the publically available securities in a year's time. Already the government bond market has been illiquid and price discovery has deteriorated along with diminished liquidity.

At its most recent meeting the BOJ increased its commitment to purchase exchange traded funds but disappointed market participants by not increasing other components of its monetary easing program. Instead, Governor Koroda stated the BOJ's intention to conduct a comprehensive review of its monetary policy initiatives. This announcement naturally has led to a lot of speculation. Some believe that the BOJ will announce significant increases in its quantitative easing asset purchase program and reduce interest rates to an even more negative level. Others speculate that the BOJ will eliminate its unpopular negative interest-rate policy and might even announce a program to gradually taper asset purchases. The later viewpoint is based upon several assumptions. First, further adjustments in monetary policy will have little positive effect. Second, the negative interest-rate policy has been counterproductive. Third, policy emphasis needs to shift to fiscal policy.

Indeed, policy focus has already shifted to providing massive fiscal stimulus. On August 2, 2016 Japan's government approved a comprehensive 28.1 trillion yen stimulus program that includes 13 trillion in fiscal spending, of which 6.2 trillion yen will be new. Much of the spending will be front loaded in the current year. The fiscal spending package includes 2.5 trillion yen in welfare spending, 1.7 trillion yen for new infrastructure, 0.6 trillion yen for smaller businesses likely to be adversely affected by the stronger value of the yen in the aftermath of Britain's Brexit vote, and 2.7 trillion yen for reconstruction in response to the Kyushu earthquake.

Many believe that a significant fiscal stimulus program is exactly what is needed to reinvigorate Japan's economy, and fiscal and monetary policies need to be coordinated to achieve maximum economic benefit and defeat deflationary psychology.

4. Financing Fiscal Stimulus — Helicopter Money?

Of course, there is the issue of how the additional fiscal spending will be financed. There has been much speculation about that but no official announcement. What we do know for sure is that there won't be any tax increases, which means that the spending increase will have to be financed primarily through additional borrowing or by other some other means which is equivalent to borrowing. The question is one of whether the source of funds will occur in the traditional way through issuance of government bonds, or whether the BOJ will devise a means of "printing" money that it "gives" to the government to deploy through various spending programs.

Japan's constitution prohibits outright "printing" of money by the BOJ to finance the government. But, it has been suggested that that legal obstacle could be circumvented by the BOJ buying 50-year non-interest bearing bonds issued by the government. This proposal is not quite equivalent to pure "printing." That would require the BOJ to purchase a perpetual bond (never matures) from the government bearing a zero rate of interest.

Why would "printing" money in this way be more effective than what the BOJ is already doing through its purchase of government bonds? Arguably, both forms of purchase allow the government to spend. The

argument for a difference has a fancy name called the Ricardian Equivalence. The essence of Ricardian Equivalence is that if the monetary authority buys a security from the government with a specific maturity date, taxpayers will presume that when the security matures they will be required to pay taxes to enable the redemption. Because of that expectation, the benefits of additional government spending will be limited by taxpayers setting aside funds to enable them to pay for the additional spending when the bonds used to finance the additional spending mature. A perpetual bond or the outright printing of paper currency eliminates this expectation and negates Ricardian Equivalency.

In a paper currency based economy, printing more money results fairly quickly in boosting inflation. This is what happened in Germany in the 1920s and is what is happening today in Zimbabwe and Venezuela. But, it can also happen in countries with sophisticated financial systems based on fiat currency, if participants are convinced irrevocably that the additional “borrowing” will never be repaid. It remains to be seen whether the Japanese government and the BOJ decide to embed this view in the public’s perception, by devising a financing scheme which is credibly the equivalent of printing paper money, in order to achieve the 2.0 percent inflation target.

But, it is not at all clear that achieving a higher level of nominal spending in Japan’s economy by ratcheting up inflation really accomplishes much when the real problem of Japan’s shrinking workforce remains unaffected. The laws of economics are clear. Increases in real aggregate demand depend upon workforce growth and productivity gains and not on inflation. Printing money can help close a gap between potential and actual aggregate demand. It cannot change the level of potential demand. There is one exception to this truism but for that exception to come into play requires the rest of the world to cooperate. If the rest of the world permits Japan to debase its currency and does not retaliate, then Japan can boost its own aggregate demand at the expense of a loss in aggregate demand in other countries. It is this strategy exactly that has been part of what Abenomics is all about and it has worked to a limited extent and could continue to work. The key to success will be a depreciating, rather than strengthening, yen.

VII. Real GDP

Revisions to real GDP and the “**Advance Estimate**” of second quarter GDP left growth at a disappointingly low 1.7 percent over the last four quarters. Forecasters, who expected second quarter growth to be in a range of 2.5 percent to 3.0 percent, were dumbfounded by the “**Advance Estimate**” of just 1.2 percent. It was quickly pointed out that inventories, an historically extremely volatile number on a quarterly basis, subtracted 1.2 percent and that GDP really grew 2.4 percent when that aberrant number is excluded. But, it’s not as simple as that. Investment was also weaker than expected and this can’t be explained away quite so easily. Also, what no one seemed to want to recognize, at least not publically, is that real GDP growth momentum has been decelerating for the past six quarters.

But, life goes on and the markets barely yawned. Such is the market’s love affair with low interest rates and ample liquidity courtesy of global central banks.

1. Annual Revision to National Income Accounts

Every July the Bureau of Economic Analysis (BEA) revises National Income Accounts' data for the three previous calendar years. Periodically, BEA will do a more comprehensive revision that stretches back more than the three most recent years. This year's revisions to GDP and personal income and consumption are compared with the unrevised data in **Table 1**.

Table 1
Revised and Unrevised Annual GDP Data for 2013, 2014 and 2015

	2013	2013	2014	2014	2015	2015
	Original	Revised	Original	Revised	Original	Revised
Personal Consumption	1.16%	1.00%	1.84%	1.95%	2.11%	2.16%
Private Investment						
Nonresidential	.38%	.43%	.77%	.76%	.36%	.27%
Residential	.27%	.33%	.05%	.11%	.28%	.39%
Inventories	.06%	.19%	.05%	-.14%	.17%	.17%
Net Exports	.20%	.29%	-.18%	-.15%	-.64%	-.71%
Government	-.58%	-.56%	-.11%	-.16%	.13%	.32%
Total	1.49%	1.68%	2.42%	2.37%	2.41%	2.60%
Final Sales	1.43%	1.49%	2.37%	2.51%	2.24%	2.43%
Private	2.01%	2.07%	2.48%	2.67%	2.11%	2.11%
Private Domestic	1.81%	1.78%	2.66%	2.82%	2.75%	2.82%

As you can see, the revisions were generally small. They raised both 2013 and 2015 real “**Total GDP**” by 0.2 percent; 2014 on a rounded basis was unchanged. The changes were even smaller for real “**Private Domestic**” GDP, which nets out inventories, government and foreign transactions. Again, on a rounded basis, there was no change in 2013 or 2015 “**Private Domestic**” GDP growth and 2014 increased by just 0.1 percent.

2. “Advance Estimate” of Second Quarter GDP

As can be seen in **Table 2**, annualized second quarter real GDP growth was 1.2 percent in the “**Advance Estimate**.”

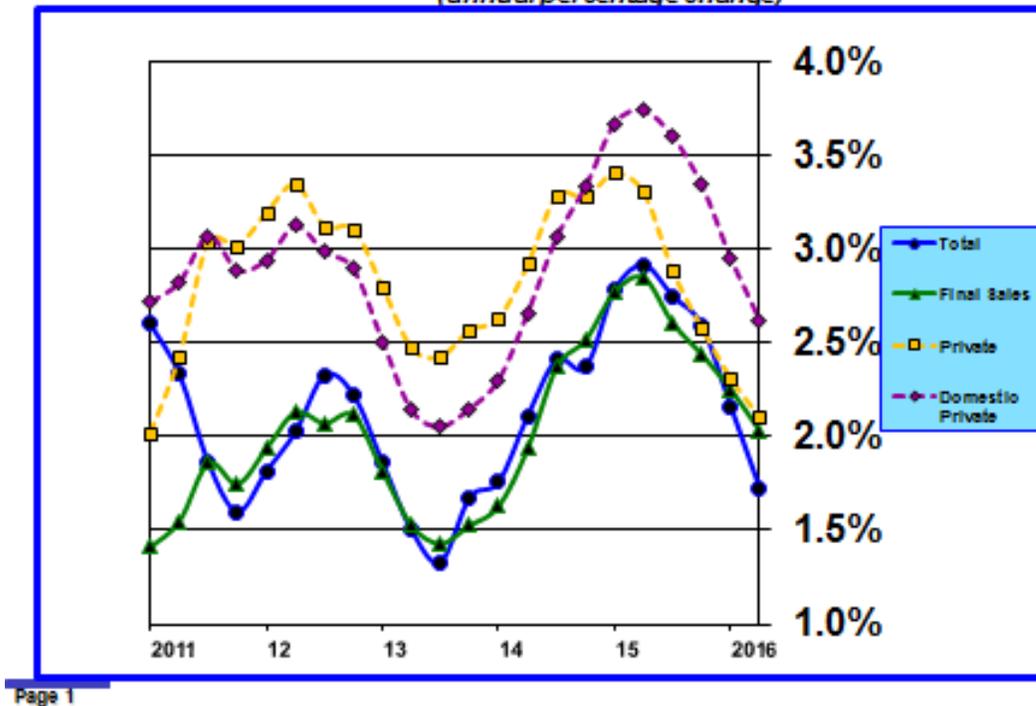
Table 2 and **Chart 1** show several alternative measures of real GDP growth. “**Final Sales**” omits inventory changes which tend to be volatile over the cycle, rising when the economy slows and falling when the economy accelerates.

“**Private**” GDP omits both inventory changes and government. Growth in government expenditures rises during periods of economic weakness and falls during periods of strength or when fiscal austerity is the order of the day. Growth in Private GDP was greater than growth in Total GDP during 2011, 2012, 2013 and 2014, a period when fiscal policy was contractionary. Since 2015 fiscal policy has been mildly supportive of **Total** real GDP growth.

Table 2
Composition of 2016 and 2015 Quarterly GDP Growth

	Second Quarter 2016 Advance Estimate	Second Quarter 2016 Preliminary Estimate	Second Quarter 2016 Final Estimate	First Quarter 2016	Fourth Quarter 2015	Third Quarter 2015
Personal Consumption	2.83%			1.11%	1.53%	1.81%
Private Investment						
Nonresidential	-.28%			-.44%	-.43%	.49%
Residential	-.24%			.29%	.40%	.43%
Inventories	-1.16%			-.41%	-.36%	-.57%
Net Exports	.23%			.01%	-.45%	-.52%
Government	-.16%			.28%	.18%	.34%
Total	1.22%			.84%	.87%	1.98%
Final Sales	2.38%			1.25%	1.23%	2.55%
Private	2.54%			.97%	1.05%	2.21%
Private Domestic	2.31%			.96%	1.50%	2.73%

CHART 1 – Real GDP Growth – Alternative Measures
(annual percentage change)



“**Private Domestic**” GDP omits inventory changes, government and net exports. Since mid-2014 net exports have depressed **Total** real GDP growth. That development is a direct consequence of a stronger dollar and is corroborated by the slowdown in industrial production and manufacturing which are more

directly linked to international trade than other sectors of the economy.

There are three important takeaways from **Chart 1**. First, all four measures of real GDP growth peaked in either the first or second quarter of 2015 and have steadily decelerated since then. Second, “**Private GDP**” growth, which omits government spending and inventory accumulation, had been growing more rapidly but has converged with the “**Total GDP**” growth rate in recent quarters. This is due to growth weakening in the private sector rather than strengthening in the government sector. Third, “**Total GDP**” growth has been consistently dragged down by a higher growth rate in net foreign sales. This differential has worsened in the last two years because of strong dollar appreciation that has boosted domestic demand for imports and depressed foreign demand for exports.

3. Consumption

Personal consumption contributed 2.83 percent to second quarter real GDP growth, which is the strongest quarterly contribution since 3.07 percent in the fourth quarter of 2014. However, this was offset by weak 1.11 percent growth in the first quarter, which was the worst quarterly growth rate since the second quarter of 2013. Many analysts have suggested that a seasonal adjustment problem has developed which artificially depresses first quarter estimates of personal consumption. The quarterly pattern does suggest that there could be a problem with seasonal adjustments. In 2014 personal consumption contributed 1.95 percent to annual real GDP growth (first quarter was 1.26 percent) and in 2015 personal consumption contributed 2.16 percent (first quarter was 1.63 percent).

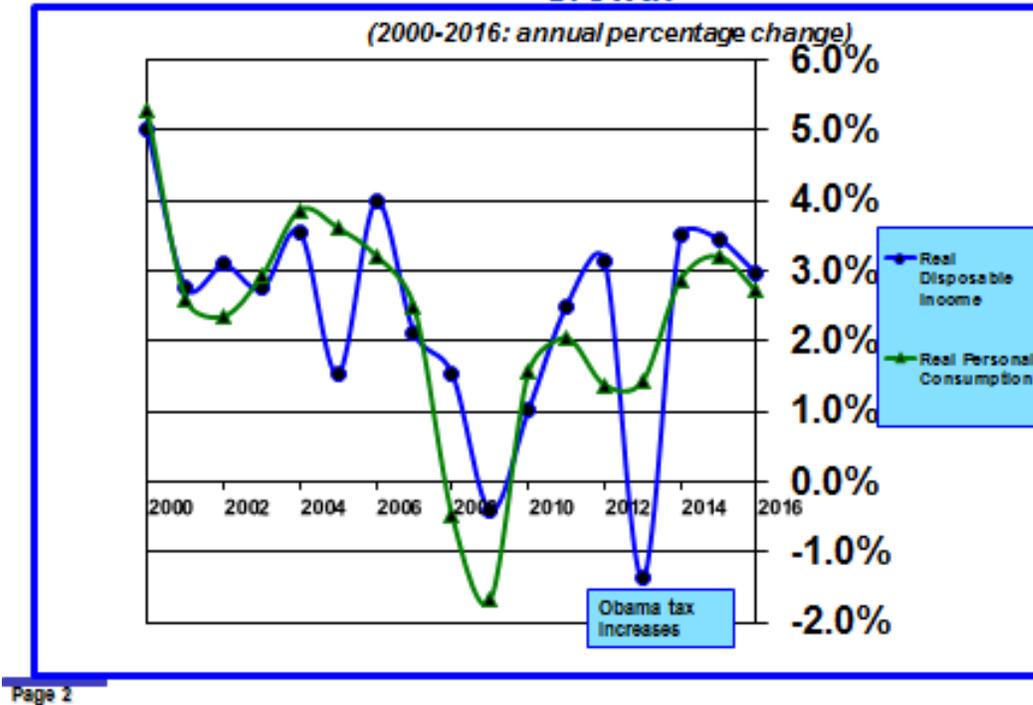
In the long run, growth in nominal disposable income and consumer saving preferences determine growth in nominal personal consumption. Nominal disposable income depends upon a lot of things but the most important ones are the level of employment and wage rates. Slow growth in employment and in wage rates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

Other indicators are sending a similar message of a gradual deceleration in consumer spending growth. Car sales have been soft and dealer inventories have been building. A parallel development is a slowdown in state retail sales tax receipts over the last year.

As can be seen in **Table 3**, all forecasts of real consumer spending growth are fairly close, although I am a little less optimistic in 2017 and 2018. All indicate a slowing growth rates experienced in 2014 and 2015. The primary culprit in this slowing trend is reduced employment growth. My more pessimistic forecasts reflect my assumptions of slower growth in total employment and wages, which I expect will be held back by weak productivity gains.

Over the longer run growth in real consumer spending follows growth in employment and growth in real wages. Now that the economy is very close to full employment, employment growth is set to slow to match underlying demographic dynamics. This is why all forecasters expect real consumer spending growth to slow in coming years. To a certain extent rising wages will serve as an offset. But if wage growth is weak, as my statistical analysis suggests, then real consumer spending growth could undershoot expectations in

CHART 2 – Real Disposable Income and Consumption Growth



Page 2

Table 3

Real Personal Consumption 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	2019
Actual	1.38	1.43	2.88	3.21				
B of A					2.64	2.53	2.01	1.79
GS					2.60	2.55	2.17	1.89
Bill’s Steady Growth					2.57	1.86	1.52	1.49
Bill’s Strong Growth					2.59	2.00	1.74	1.88

coming months.

Generally, real consumer spending growth is relatively stable over time. However, oscillations do occur but this can be traced to the cyclical components of consumer spending including primarily housing and autos.

Historically, spending on autos grew faster than overall consumer spending because the number of vehicles owned per household steadily rose. That trend appears to have come to an end. Over the past year auto sales appear to have overshoot the long-term trend level based upon employment and income growth,

and the stabilizing trend in the number of vehicles owned per household. June sales on an annualized basis were 16.7 million compared to the market's expectation of 17.3 million. As a result dealer inventories are too high. Thus, auto's contribution to GDP growth is likely to shrink in coming months.

Also, even though the labor market is still very robust, delinquency rates on auto loans have begun to creep up. Delinquencies were 3.44 percent in the first quarter of 2016 compared to the cyclical trough level of 3.16 percent in the third quarter of 2014.

In summary, because of slowing employment growth and deterioration in the cyclical components of consumer spending, the contribution of consumer spending to real GDP growth is likely to decline in coming quarters. In combination with weakening growth in trade and investment, this does not bode well for robust real GDP growth in coming quarters.

4. Investment

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

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

Nonresidential investment (business) growth was crushed in 2015 by the collapse in oil prices. Energy investment has continued to decline in 2016, but investment is down in other sectors as well. As a result, most forecasters now expect nonresidential investment growth will be negative in 2016, followed by a recovery in 2017 and 2018 to a level in 2018 slightly above the trend of the last 17 years. Optimism about investment growth, about which I have been consistently skeptical, has faded to a considerable degree. Slower growth in manufacturing is a contributing factor.

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

B of A is optimistic about the outlook for business investment because it expects that three drivers to improve. Most important is an expected recovery in corporate profits based on better energy company profits due to higher oil prices in recent months. Some skepticism is in order. First, oil prices bounced upward after crashing at the beginning of the year, but have retreated some in the past few weeks. Second, profit pressures appear to be building in other industries. Credit conditions have improved thanks to active easing by global central banks but given the fragility of global financial markets, this improvement could

Table 4
Real Private 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. 1947-2016
REAL PRIVATE INVESTMENT								
Actual	9.78	5.02	5.54	3.90				3.71
B of A					0.31	2.02	2.91	
GS					0.49	2.95	3.87	
Bill’s Steady Growth					-0.09	1.12	2.17	
Bill’s Strong Growth					0.09	2.17	3.03	
REAL NONRESIDENTIAL INVESTMENT								
Actual	8.98	3.50	6.04	2.07				2.07*
B of A					-1.07	1.72	2.77	
GS					-1.01	2.16	3.18	
REAL RESIDENTIAL INVESTMENT								
Actual	13.51	11.88	3.49	11.70				-0.50*
B of A					5.68	3.14	3.41	
GS					6.34	5.79	6.32	

*Average 1999-2016; real private investment = 1.11% for 1999-2016.

reverse at any time.

But a more important potential weakness in **B of A’s** business investment model is possible cumulative negative effects over time of low interest rates and depressed innovation, as reflected in the a slower rate of new business formation.

I continue to expect business investment growth in coming years to be not much different from the 2.07 percent growth rate that has prevailed since 1999. This is partly because of the much slower growth rate in the economy but is also impacted by the continuing shift in the composition of economic activity toward services, which are less capital intensive.

Residential investment growth was very strong in 2015 and 2016 promises to be another good year, although considerably less so than in 2015. Housing inventories are lean and demand is relatively strong, resulting in upward pressure on housing prices. However, oversized housing price increases will eventually dampen single-family residential demand and inventories should improve with the consequence that residential investment growth should slow in coming years. Generally, forecasts reflect this scenario.

5. Net Exports

In the “**Advance Estimate**” net exports contributed 0.23 percent to second quarter real GDP growth. This reversed the negative trend that emerged in 2014 and 2015 as the dollar strengthened (see **Table 1**).

Although the trade deficit in goods and services has been relatively stable, falling slightly from 2.70 percent of GDP in January 2014 to 2.68 percent of GDP in June 2016, the shares of both imports and exports as offsetting components of GDP have declined. Exports have declined from 9.64 percent to 8.11 percent of GDP since January 2014. Over the same period imports have declined from 13.88 percent to 12.12 percent of GDP.

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

6. Government Investment

Government investment subtracted 0.16 percent from second quarter real GDP growth. Federal government spending deducted .02 percent and state and local spending provided the remaining decline of 0.14 percent.

Government spending ceased to be a negative factor for real GDP growth in 2015 as it had been since 2010. And, even though the “**Advance Estimate**” indicates a decline in government spending in the second quarter of 2016, government spending is up slightly over the first six months of 2016, continuing the positive contribution to real GDP commenced in 2015. Government investment spending has grown at an annual rate of 1.56 percent over the last six quarters, largely due to strong increases in spending at the state and local level. This may be about as good as it will get unless Congress abandons the constraints of the Budget Control Act.

Table 5 shows recent growth rates in government spending and forecasts for 2016-2019. Note that **GS** is forecasting that the negative trend in federal government investment spending will continue. However, both Democratic and Republican presidential candidates are talking about increasing federal spending on education and infrastructure, which if Congress agrees, will reduce the projected negative trend or even turn it into a positive trend.

7. Third Quarter 2016 Forecast Update

B of A has reduced its forecast for the third quarter “**Advance Estimate**” of GDP growth from 1.2 to .9 percent, reflecting recent data reports that indicate weaker construction spending, larger inventory destocking, and a greater trade deficit.

Table 5

Growth Rates of Federal and State and Local Investment Spending and Y/Y Forecasts — GS, B or A, Bill’s “Steady Growth” and Bill’s “Strong Growth”

	2012	2013	2014	2015	2016	2017	2018	2019
Federal	-1.86	-5.82	-2.54	0.00				
State and Local	-1.87	-0.81	0.23	2.92				
Total Government	-1.86	-2.86	-0.86	1.79				
GS Federal					0.58	-1.20	-1.51	-0.41
GS State and Local					1.48	1.71	1.94	2.02
GS Total					1.13	0.59	0.64	1.12
B of A Total					1.06	0.60		
Bill’s Total “Steady”					1.06	0.98	1.09	1.01
Bill’s Total “Strong”					1.10	1.17	1.31	1.31

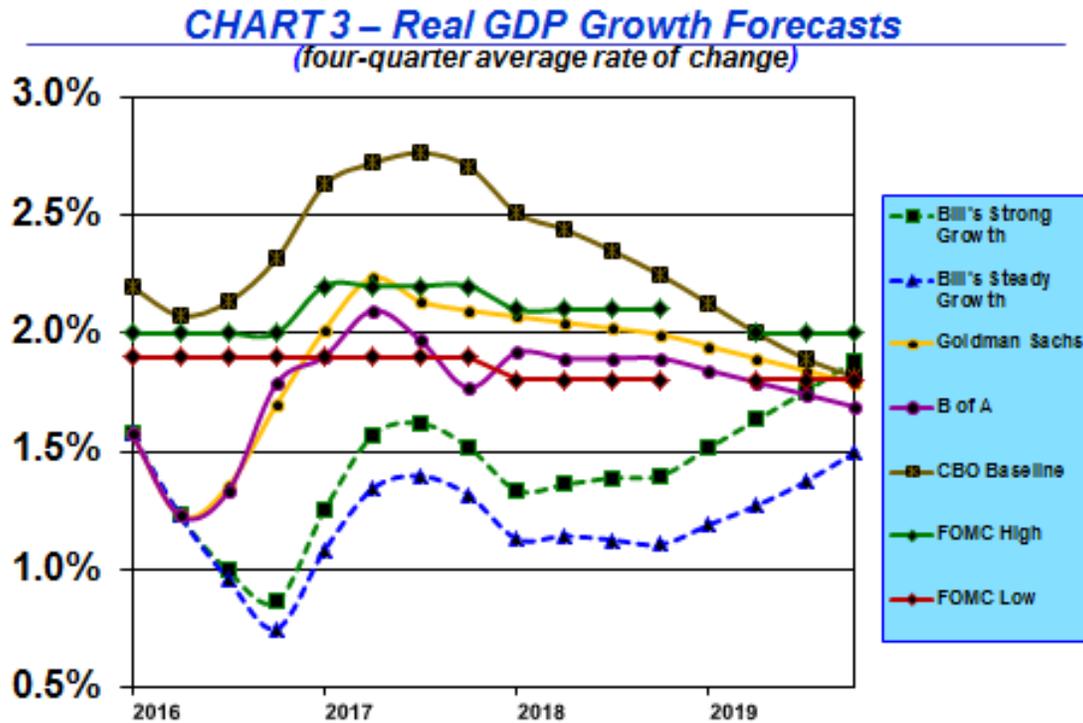
8. Longer-Term Real GDP Forecasts

Chart 3 shows quarterly real GDP growth projections from 2016 to 2019. With the exception of **CBO’s** forecast, which is now stale, and my forecasts, all other forecasts for the next three years are tightly clustered. But, all exhibit a slight deteriorating trend as time passes.

Both my “**Steady Growth**” and “**Strong Growth**” scenarios are on the pessimistic end of the spectrum during 2017 and 2018 but converge to forecasts of others by 2019. **CBO’s** forecasts are at the optimistic end of the range. All other forecasts fall within the **FOMC’s** high and low estimates throughout the 2017-2019 period. My GDP forecasts are depressed by assumptions of rapidly slowing employment growth and continued depressed productivity gains relative to the forecasts of other analysts. While my assumptions may prove to be overly pessimistic, I would suggest to you that the risks are skewed to the downside, and by that I mean that real GDP is more likely to come in under forecasts than over forecast in the next few years.

VIII. What’s Going On With Inventories?

Inventories subtracted 1.2 percent from “**Total GDP**” growth in the second quarter. Inventory growth has been smaller than the previous quarter for five consecutive quarters and actually was negative in the second quarter of 2016. As can be seen in **Table 6**, real inventory accumulation was \$114.4 billion in the first quarter of 2015, \$93.8 billion in the second quarter of 2015, \$70.9 billion in the third quarter of 2015, \$56.9 billion in the fourth quarter of 2015, \$40.7 billion in the first quarter of 2016, and actually declined -\$8.1 billion in the second quarter of 2016. Slowing growth in inventory accumulation subtracts from “**Total GDP**” growth.



Page 3

1. Typical Impact of Inventory Accumulation on Real GDP Growth is Small and Positive

As can be seen in **Table 1**, inventories generally add between 0.1 and 0.2 percent to annual real GDP growth. Based on the historical record, there can be little doubt that Q2 inventory data were anomalous, and the 1.2 percent decline due to inventory de-accumulation in the second quarter painted a picture of weaker “**Total GDP**” growth than seems reasonable.

Thus, a general, but not necessarily analytically sound, reaction is that inventory destocking has been overdone and that restocking must occur and this will boost “**Total GDP**” growth in coming quarters. **B of A** boosted its forecast of third quarter GDP growth from 1.9 to 2.4 percent and its estimate of fourth quarter growth from 1.7 to 2.7 percent, largely on the rationale that inventory restocking will take place. In their words:

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

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

Table 6
Quarterly Real Inventory Data
(most recent data are in red)

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

ISI Evercore periodically conducts a company survey of inventories in which companies are asked whether inventories are “too high,” “a little too high,” “about right,” “a little too low,” or “too low.” Responses are weighted +1, +.5, 0, -.5, and -1. Then companies were aggregated into three groups — retailers, wine and spirit wholesalers, and auto dealers (+.28); homebuilders (.00); and industrial companies (+.18). Survey results were reported on July 11, 2016. Two categories scored inventories as between “about right” and “a little too high.” Homebuilders indicated in the aggregate that inventories were “about right.” These survey results do not corroborate **B of A’s** assertion of “*a dearth of inventory.*” Perhaps even more importantly, this quarterly survey shows only minor improvement over the previous quarterly survey released on April 8, 2016.

2. Quarterly Inventory Accumulation Data Are Volatile and Subject to Substantial Revision

As can be seen in **Table 6**, initial inventory data are crude estimates and are subject to substantial revision over the next three years. This means that the -8.1 billion negative inventory second quarter estimate will be revised at least five more times in the next three years.

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

There are two ways to gain a better sense of the underlying trend in real GDP growth. One way is to omit highly volatile data, especially data that are subject to substantial subsequent adjustment. That is why many analysts report the growth rate in “**Final Sales**,” which omits inventory data, as I do in **Table 2**. “**Final Sales**” has been growing more rapidly than “**Total GDP**” for the last five quarters because of deceleration in inventory accumulation.

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

Year-over-year growth rates give a much better sense of trends but they do not eliminate entirely the potential for oscillations in inventories to skew the observed trend up or down from the underlying unobservable “true” trend. For example, year-over-year growth in “**Total GDP**” peaked at 2.92 percent in the second quarter of 2015 and has since declined to 1.73 percent in the second quarter of 2016. Year-over-year growth in “**Final Sales**” also peaked in the second quarter of 2015 at 2.85 percent but has declined less since then to 2.03 percent in the second quarter of 2016 — a total of 82 basis points versus 119 basis points. Both measures indicate GDP growth is decelerating, but without knowing what the “normal trend” contribution of inventories is to GDP, it is unclear whether the level of GDP and GDP growth are too high, which would be the case if inventories remain above the “normal trend” level, or whether the reverse is the case, which would be the case if inventory liquidation has taken inventories below the “normal trend” level.

3. Has Inventory Destocking Run Its Course Or Is There More To Come?

So, we still are left with the question of whether underlying GDP growth is 2.03 percent, 1.73 percent, or some other number.

And it’s actually even more complicated. While over an entire cycle inventories grow at approximately the same rate as GDP, inventories increase faster during the expansion phase of the cycle and fall quicker during the contraction phase. (As I discuss further below, real-time inventory management systems should lead to inventories growing slightly more slowly than GDP.)

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

Data for inventories were not reported separately in the National Income Accounts until 1999. From 1999 through the second quarter of 2016 “**Total GDP**” grew at an annual rate of 1.7318 percent and “**Final Sales**” grew at an annual rate of 1.7322 percent. This means that inventories grew only slightly slower than the rest of GDP — approximately 1.5662 percent. A slower growth rate in inventories is reasonable because of steady improvements inventory management.

Without going into the details of the math, inventories should have contributed \$37.6 billion to “**Total GDP**” in the second quarter of 2016. The actual contribution of inventories was -\$8.1 billion, which means that inventory accumulation was \$45.7 billion below its trend level in the second quarter. But, by itself, this still does not answer the question of whether the overall stock of inventories was too high or too low in the second quarter.

We can gain a little more insight by looking at the past several quarters. In 11 of the past 13 quarters (the period covered in **Table 6**), inventory accumulation exceeded the trend level. During this 13-quarter period, \$864.4 billion was added to inventories, but a “normal” trend amount would have been only \$477.5 billion, meaning that an excess buildup of \$387.1 billion remains. This probably overstates the excess amount since we are still in the expansion phase of the business cycle when inventories typically accumulate at an above trend rate. But, even so, this rate of inventory accumulation is an average of \$30 billion per quarter, or 79 percent, above the “normal” trend level.

For comparative purposes, a similar 13-quarter cyclical expansionary period occurred from the first quarter of 2004 to the first quarter of 2007. During that period inventory accumulation was \$848.8 billion compared to “normal” trend accumulation of \$413.4 billion, for an excess of \$435.4 billion, or an average excess of approximately \$33 billion quarterly. In this context, recent excess inventory accumulation looks reasonable.

Putting this all together, if you are an optimist, inventory accumulation should return to its trend level of about \$38 billion per quarter. If you are a pessimist, the current expansion is getting a bit long in the tooth, which is to say that GDP growth will decelerate in coming quarters as employment growth and consumer spending slow. If that were to occur, inventory accumulation would probably stay at a below trend level in coming quarters.

Now, given the mechanics of quarterly annualization of changes in inventory accumulation, if the third quarter inventory accumulation returns to the trend level of \$37.7 billion, for a total change of \$45.8 billion, it would add 1.1 percent to third quarter “**Total GDP**.” However, if inventory accumulation returns to \$15 billion in the third quarter, as **GS** assumes, the contribution to “**Total GDP**” would be about 0.6 percent. **B of A** assumes a more modest recovery of inventory accumulation in the third quarter to \$1.9 billion, but a much greater increase in the fourth quarter to \$33.0 billion. **B of A’s** assumptions would add 0.2 to 0.3 percent to third quarter real GDP and 0.7 to 0.8 percent to fourth quarter real GDP. Without these assumptions, **B of A’s** third and fourth quarter real GDP forecasts would be about 2.0 percent. **B of A’s** assumptions are not unreasonable because **B of A** assumes inventory accumulation remains below its long-term trend level and provided that forward momentum in the economy as a whole is great enough to reverse the recent cyclical inventory destocking momentum.

GS and **B of A** present an optimistic, yet not unreasonable, perspective. To summarize the less

optimistic perspective, I quote from a recent GavekalResearch publication:³

“... if inventories fall because businesses are reluctant to add to stockpiles which already appear excessive in an environment of weak demand, then a drop can have ominous implications for future growth, as further destocking will be likely. Unfortunately, ... [this] more pessimistic case looks like a better fit for the US economy today. ... inventory levels have become such a problem for US producers largely because their sales growth is slowing.”

GavekalResearch cites two implications, both negative, of inventory destocking. First, weak demand means that manufacturers have little pricing power, leaving them little choice but to absorb rising costs, such as increases in wages. This means shrinking profit margins, with negative implications for stock prices. Second, once destocking commences it usually continues. As I explain in the next section, there is some evidence that supports the GavekalResearch view.

IX. Are Details of the National Income Accounts Signaling Recession Risk?

In the wake of two successive very strong employment reports and a new all-time high for stock prices, all seems to be well with the U.S. economy. Yes, GDP growth in 2016 so far has been lousy and the second quarter's dismal 1.2 percent growth is now expected to be revised lower. But isn't that just a statistical aberration due to the quirks of annualizing a large, but probably transitory, inventory adjustment? Brexit was not the game changer markets initially feared. And, global central banks have doubled down on soothing language and additional monetary easing. What is there to worry about?

It is interesting to watch how sentiment oscillates and narratives are formed that drive opinion and markets but which often are inconsistent with underlying facts. For example, in the political realm, both Hilary Clinton and Donald Trump are highly distrusted by a plurality of Americans. Polling reveals that 36 percent distrust Hilary and 34 distrust Donald. But, news services, which do rigorous fact checking, find that Hilary's "fibs" fall into the ordinary expected politician mendacity zone, while Donald's "lies" are simply off the charts. Americans do understand that both candidates are manipulating the truth for political purposes, but the popular narrative does not distinguish the degree to which Donald is spinning an unsubstantiated "reality" based on his lies.

In the case of markets, the narrative is that although growth is relatively low, it will persist and that central banks will do whatever it takes to maintain financial market stability. Past experience tells us that a misguided narrative can govern market behaviors for a very long time. Or put differently, the balloon of unreality can keep inflating. But, we also know that continued inflation stretches the balloon to the point that the weakest part of its fabric ruptures and then the balloon bursts immediately. So, too, with sentiment — the current narrative will persist until some event occurs that utterly destroys the prevailing narrative.

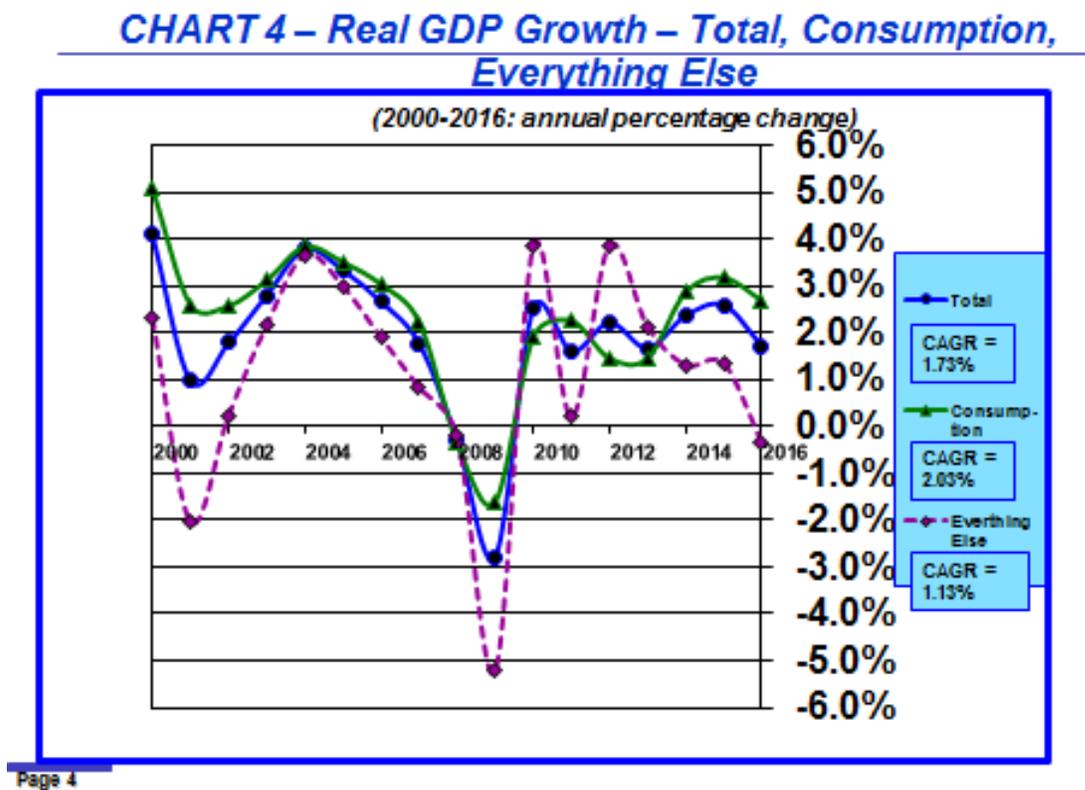
³Ten Kai Xian. "The Baleful Influence of Inventories," The Daily, GavekalResearch, August 2, 2016.

1. A Two-Part Economy

Of course, it is possible that the current economic narrative is indeed based on a realistic interpretation of economic fundamentals. To shed light on whether this might well be the case requires digging deeper into the details of the National Income Accounts.

We can initiate an examination by simply dividing GDP into two components — consumption, which accounts for a little more than two-thirds of output, and everything else — private investment, government investment, and net exports.

Chart 4 shows annual year-over-year growth rates for both of these GDP components for the time period 2000 to 2016, as well as the overall growth rate in “**Total GDP**.” The first observation is that overall GDP growth has averaged 1.73 percent annually over the past 16 years in contrast to the 50-year average annual growth rate from 1949 to 1999 of 3.44 percent. So, overall GDP growth over the past 16 years has been halved. We know the reasons for this story — slower population and labor force growth and lower productivity gains.



But, consumption growth has bucked this downward shift a little, growing at a 2.03 percent annual rate from 2000 to 2016. But since consumption is two-thirds of GDP, this automatically means that the rest of the economy has been growing at a much slower annual rate, which turns out to be 1.13 percent.

There is a second observation embedded in **Chart 4**. Over the past two years growth in the non-consumption part of the economy has diverged from growth in the consumption part. It has fallen from

a peak year-over-year growth rate of 2.25 percent in the second and third quarters of 2014 to a negative -0.33 percent rate in the second quarter of 2016. Notwithstanding consumption's strong performance in the second quarter of 2016, consumption growth also peaked at 3.4 percent year-over-year growth in the second and third quarters of 2015 and has decelerated to 2.69 percent in the second quarter of 2016.

So, both components of GDP are slowing and one is actually negative. The question that comes to mind is whether the trends in these two components are providing advance warning of impending recession. This possibility can be examined by determining whether the non-consumption part of the economy leads the consumption part. In other words, does what happens in the non-consumption part of the economy feed through into the consumption part of the economy with a lag?

This possibility can be explored statistically by determining whether growth in consumption consistently lags growth in non-consumption. To test whether lagged values of growth rates in non-consumption in past quarters explain the change in the consumption growth rate in the most recent quarter, I examined quarterly changes in both components of real GDP from 2000 to 2016.

It turns out that 49 percent of the change in the growth rate in consumption in the current quarter is explained by the growth rate in non-consumption in the same quarter, but 51 percent is explained by the growth rates in non-consumption in the preceding 11 quarters. This result is robust over time. When I separately examined the time period from 1985 to 1999, 51 percent of the change in the growth rate of consumption in the current quarter was explained by the change in the growth rate of non-consumption in the same quarter and 49 percent was explained by the growth rates in non-consumption in the preceding 11 quarters.

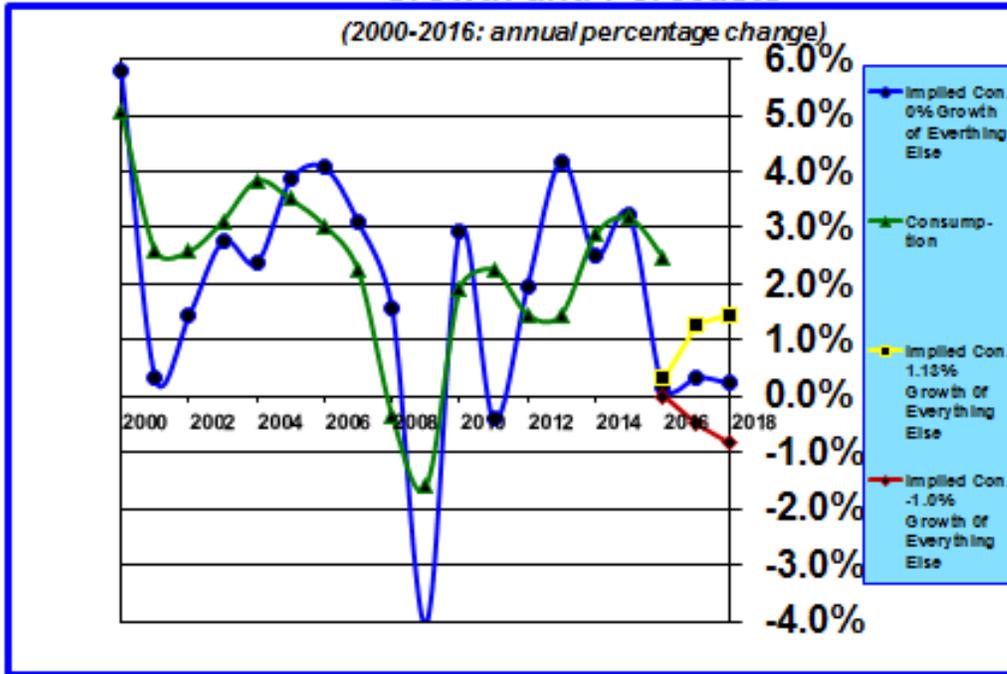
Chart 5 shows actual year-over-year changes in consumption growth and the consumption growth rates implied by the current and past quarterly values of non-consumption. Because there is a lagged relationship between consumption and non-consumption, it is possible to forecast future consumption growth rates by assuming values for future non-consumption. Three scenarios are shown in **Chart 5** for 2016-2018: no quarterly change in non-consumption (blue line, black circles); the trend 1.13 percent annual growth rate in non-consumption (yellow line, black squares); and -1.0 percent annual growth rate in non-consumption (red line, black diamonds).

All three scenarios forecast a sharp drop in consumption growth in coming quarters. Only in the 1.13 percent trend growth scenario for non-consumption does consumption rebound to a 1.5 percent annual growth rate. The other two scenarios forecast near zero or negative consumption growth, which is the stuff of recessions. Even if non-consumption returns to the peak level reached in the third quarter of 2015 and then grows at an annual rate of 1.13 percent, consumption growth still slows to about a 1.75 percent to 2.0 percent annual growth rate in coming quarters.

The implication of this analysis is that consumption growth is highly likely to slow from the second quarter of 2016 growth rate of 2.69 percent and potentially by enough to throw the economy into a recession.

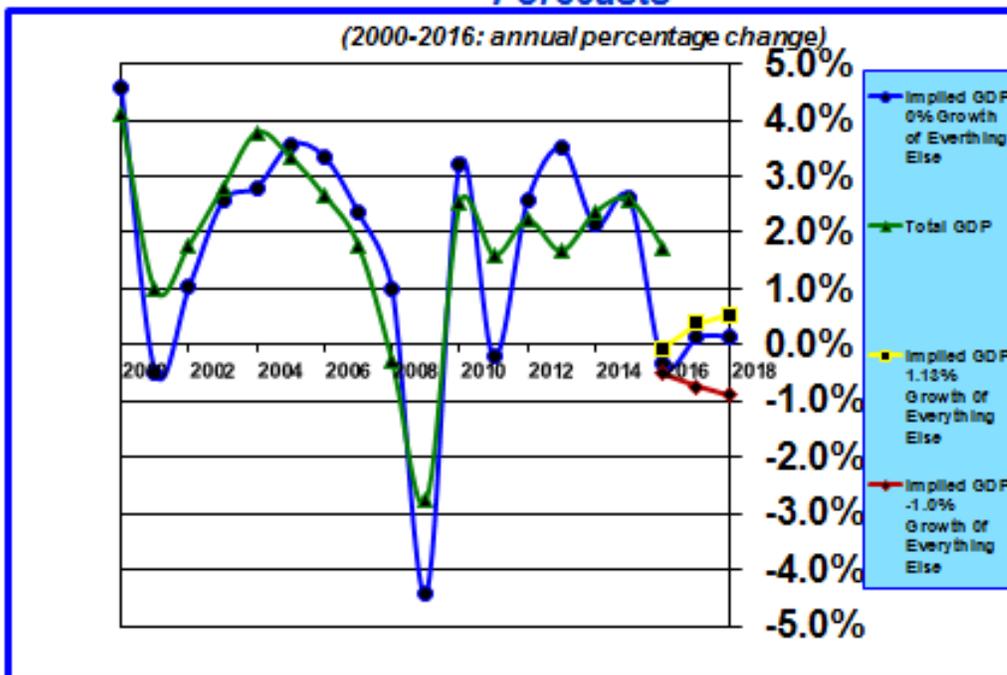
Chart 6 shows the same analysis for GDP growth rates as **Chart 5** showed for consumption growth rates. Unless non-consumption rebounds to an above trend growth rate, real GDP will grow less than 0.5 percent annually over the next two years and might not grow at all or actually decline if non-consumption growth is zero or negative.

CHART 5 – Actual Consumption, Implied Consumption Growth and Forecasts



Page 5

CHART 6 – Actual GDP, Implied GDP Growth and Forecasts



Page 6

Charles Gave of GavekalResearch pointed out in a recent commentary that in every instance since 1958 except 2012 (my data indicate that the exception year was 2011 and the negative growth only occurred if a Q4/Q4 calculation methodology is employed rather than a year-over-year computation, which smooths quarterly volatility) negative growth in the non-consumer economy over the previous 12 months has been followed by an officially-recognized recession.⁴ Ponder whether we're about to experience only the second exception to 60 years of historical patterns or whether the second quarter 2016 negative -0.33 percent year-over-year growth in the non-consumption component of real GDP is signaling an impending overall recession.

B of A recently opined that *"...we see only a modestly higher than normal risk (say 25 %) of an outright recession in the next 12 months. The usual suspects are nowhere in sight. ... our biggest concern is that a random shock occurs and the Fed has very little ammunition to fight it."* **B of A** agrees with the market narrative. Again, ponder whether the market narrative is misguided. If it is, then **B of A's** observation about a random shock, should it occur, would surely pop the bubble and the absence of an effective monetary policy response could lead to an ugly outcome in a fraught election year. Michael Strain of the American Enterprise Institute recently opined: *"The hard truth is that if a recession hits in the near-term, we are in trouble. There is very little room for policy to respond."*⁵

X. U.S. Employment Developments

Following May's abysmal employment report the reports for June and July were very strong and strongly implied that the weak May report was a statistical aberration. On a revised basis, May's job total was a barely discernible 24,000, but June's estimate was 292,000 and July's preliminary estimate was 255,000, bringing the three month average to 190,000 and the year-to-date monthly average to 186,000. Wide swings from one month to another probably have more to do with the relatively large monthly sampling error than with swings in actual employment gains.

Nonetheless, there is an emerging trend that job growth is slowly ebbing. Monthly employment growth have averaged 186,000 so far in 2016 compared to 229,000 in 2015 and 251,000 in 2014. Slowing employment growth is reasonable and not worrisome for two reasons. First, the underlying natural rate of growth in monthly employment, based on labor market demographics, is about 100,000. Second, while a small amount of slack remains in the labor market, the market is clearly very close to full employment based on many traditional measures.

Many other labor market indicators corroborate a gradual slowing in employment growth. Manpower's employment survey and the Philadelphia Fed's employment indicator (lowest level since Great Recession) have weakened in recent weeks. The Federal Reserve's **Labor Market Conditions Index** (LMCI), which is a compilation of 19 employment indicators and which is intended to be a broad measure of labor market health, improved to a still negative -1.9 in June from an upwardly revised -3.6 in May. **GS's Labor Market Tracker** is also declining but remains above a full-employment monthly trend level of 140,000 "payroll equivalents." In contrast, however, Evercore ISI's temporary and permanent employment

⁴Charles Gave. "Recession or Stagnation?" GavekalResearch, August 1, 2016.

⁵Michael R. Strain. "Politics Will Stymie Any Preparation for the Next Recession," American Enterprise Institute blog post, July 11, 2016.

placements surveys remain very strong.

1. Employment Growth

Payroll employment increased 255,000 in July, bringing the monthly average over the first seven months of 2016 to 186,000. The trend in the 12-month rate of growth in payroll employment is now slowing, down to 1.72 percent compared to 1.95 percent in 2015 and the peak rate of annual growth of 2.14 percent in March 2015.

Household employment rose 420,000 in July and now has averaged 139,000 monthly over the first seven months of 2016 (note the discrepancy with the 186,000 monthly average from the payroll report). Monthly estimates of household employment growth are very volatile so a better sense of trend can be gained by looking at average monthly changes in household employment over longer time periods. Over the past 12 months, monthly household employment growth has averaged 211,000 compared to 204,000 for payroll employment. Household employment has grown 1.78 percent over the past 12 months compared to 1.72 percent growth in payroll employment.

Growth in total hours worked by all employees over the last year was 1.63 percent in July. Total hours worked, after growing much faster over the last several years are now growing at approximately the same rate as the other two measures of total employment.

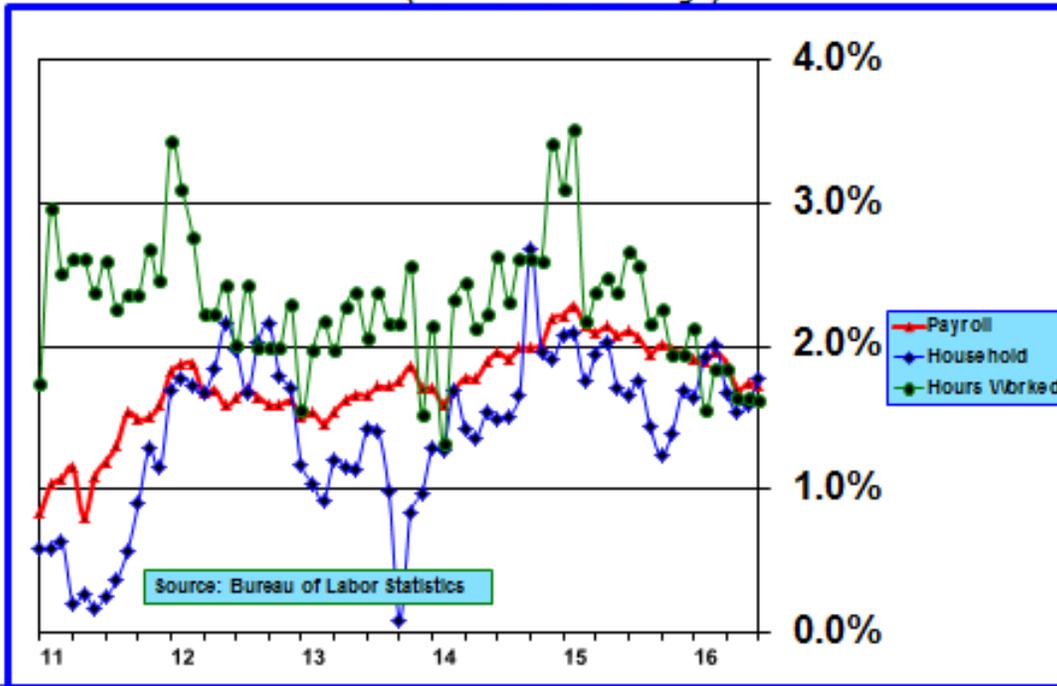
Chart 7 shows the three measures of employment growth — payroll employment, household employment, and total hours worked. Probably the most important things to notice in **Chart 7** are the convergence in the growth rates of total hours worked with those for payroll and household employment and the downward trend in growth of all three measures. This is indicative of a maturing labor market that is at or near full employment. Generally, in the early stages of recovery employers increase the length of the work week of existing workers before hiring new ones resulting in total hours worked growing faster than the other two labor growth measures.

2. Employment Participation

Chart 8 shows the labor force participation rate and the eligible-employment-to-population ratio. The denominators of both measures are the total number of people eligible to work referred to as the employment population. The numerator of the eligible-employment-to-population ratio is the total number of people employed and unemployed who wish to be in the labor force. The numerator of the participation ratio only counts those who are employed.

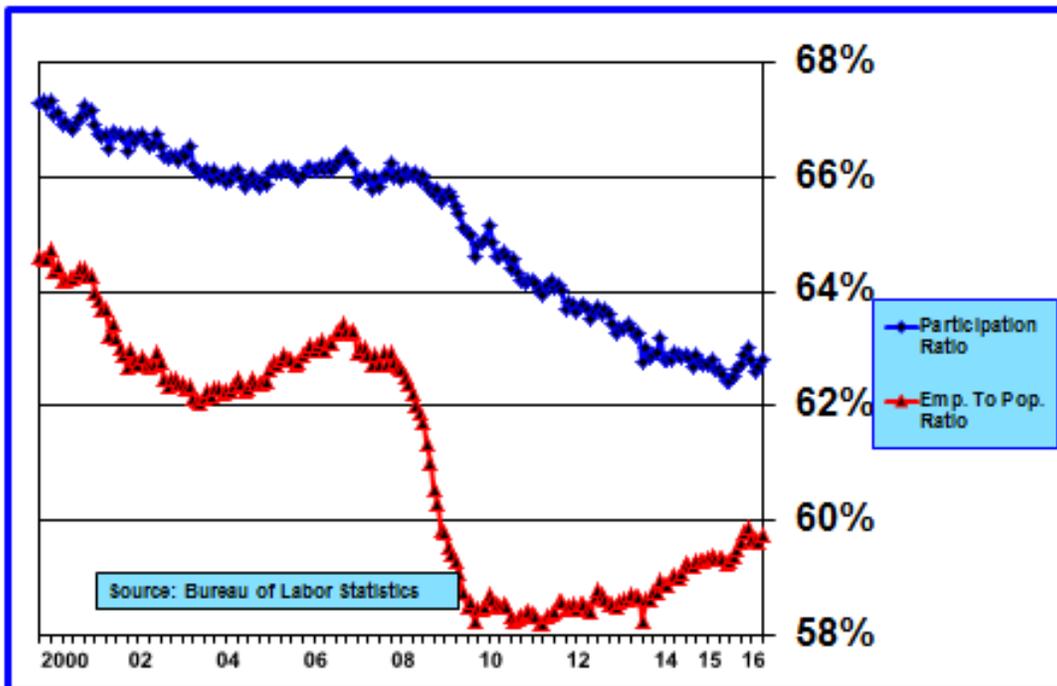
The eligible-employment-to-population ratio plunged during the Great Recession and then stabilized for several years before beginning to rise in 2014. However, the participation rate continued a steady decline until about a year ago. The downward trend in the participation ratio in recent years has been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

CHART 7 – Employment Growth
(annual rate of change)



Page 7

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



Page 8

numbers and whether they would reenter the labor force once the labor market tightened. The increase in the participation rate from 62.42 percent in September 2015 to 62.81 percent in July is suggestive evidence that some discouraged workers have reentered the labor market in the last few months.

B of A examined the cyclical swings in the participation rate for prime working aged individuals (24-55). In past cycles participation for this cohort rose as the labor market tightened and wage growth began to accelerate. This phenomenon probably has helped stabilize the participation rate in recent months but its impact might be more limited going forward than in previous cycles based on other analysis.

The Council of Economic Advisors in a recent report concluded that part of the secular decline in labor force participation is due to declining demand for prime working age men. **GS** studied the decline in participation of prime-age men in the labor force and concluded, as did the Council of Economic Advisors, that demand factors have driven the decrease. **GS** cited three demand factors. First, many who have left the labor force cite retirement, disability, or simply a disinterest in working. Second, nonparticipants generally have lower education or younger men who have chosen to pursue their educations. Third, with changes in the kinds of jobs available some nonparticipants can't find work that matches their skills. These three reasons for decline in participation involve changes in the structure of the labor market, which implies that participation is unlikely to improve much, if at all, as the labor market tightens. However, that might change in part if skills retraining occurs for prime-age men who are willing to work but can't find jobs that match their skills.

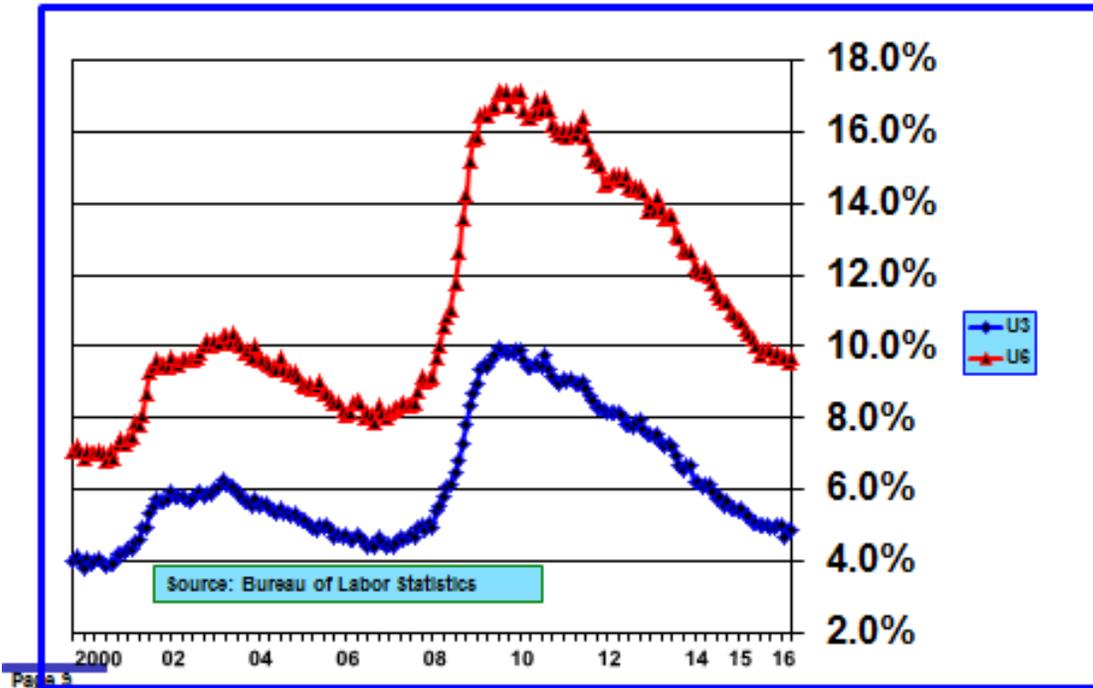
3. Measures of Unemployment Reflect a Labor Market With a Modest Amount of Slack

As can be seen in **Chart 9**, the U-3 unemployment rate has fallen to 4.88 percent and matches the level attained prior to the Great Recession. The July U-3 unemployment rate was slightly above **CBO's** full employment (NAIRU) estimate of 4.83 percent.

The U-6 measure of unemployment, which adds those working part time who would prefer full-time employment and those marginally attached to the labor force to the U-3 measure, has fallen to 9.71 percent but as can be seen in **Chart 10** is 0.7 percentage points above the pre-Great Recession 2005 difference between the U-3 and U-6 unemployment measures when the labor market was at full employment. The U-6 measure of unemployment has fallen 0.65 percent over the last 12 months compared to a 0.37 percent decline in the U-3 measure, which underscores an improving labor market. Both unemployment measures reflect a tightening labor market with a modest amount of remaining slack.

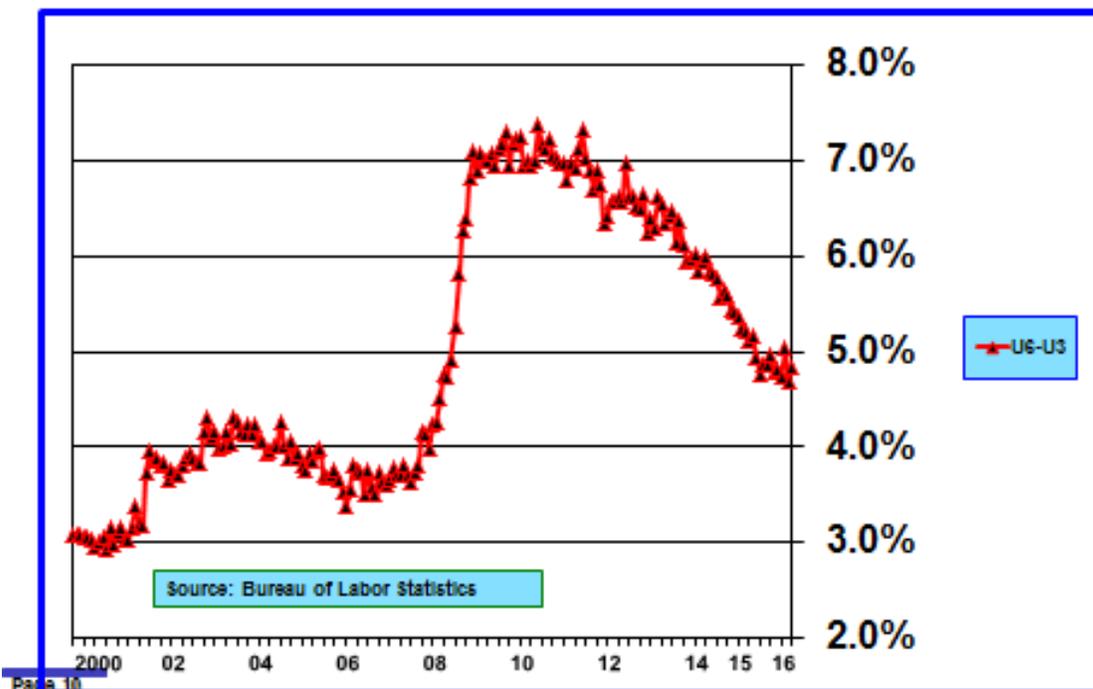
Long-term and short-term unemployment rates are also indicators of labor market tightness and are shown in **Chart 11**. The short-term unemployment has returned to the low level that prevailed prior to the Great Recession. The long-term unemployment rate has declined from over 4 percent in the aftermath of the Great Recession to 1.27 percent in July. It is still about 0.4 percent above the low level reached in 2006 just prior to the onset of the Great Recession.

CHART 9 – U-3 and U-6 Unemployment Rates



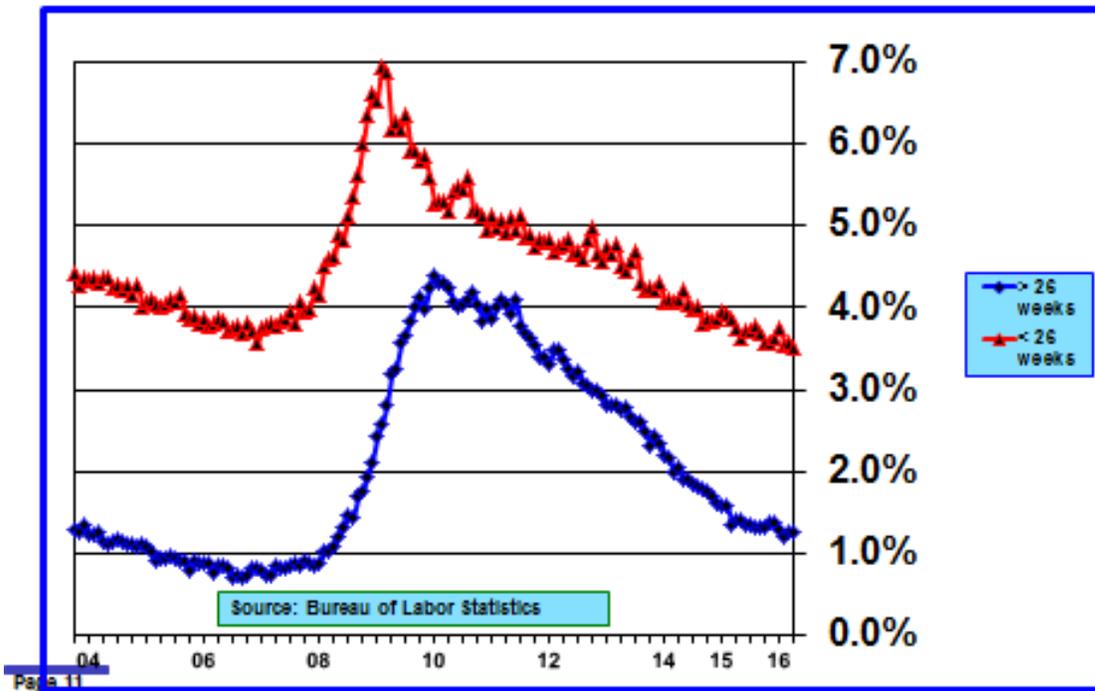
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CHART 10 – U-6 Minus U-3 Unemployment Rates



Page 10

**CHART 11 – LT (>26 weeks) and ST (<26 weeks)
Unemployment Rates**

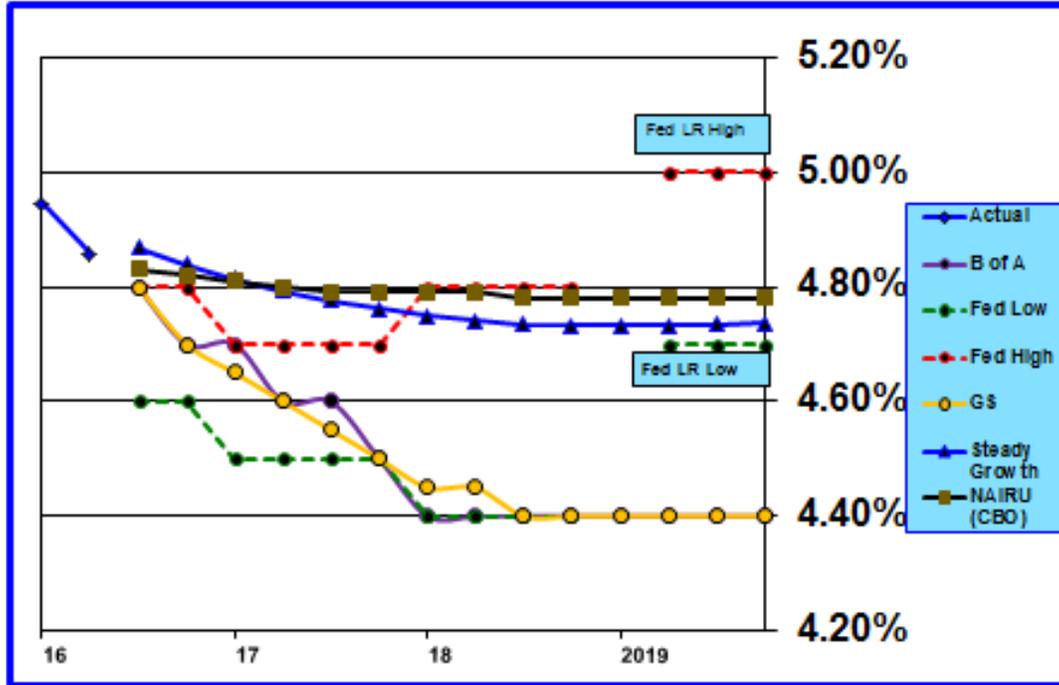


4. Forecasts of the U-3 Unemployment Rate

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

Chart 12 shows U-3 unemployment rate forecasts for **B of A**, **GS**, **FOMC** high and low range, and my “**Steady Growth**” scenario. **CBO's** estimate of NAIRU is also shown in **Chart 8**. All forecasts project that the unemployment rate will fall below NAIRU over the next three years. **GS** and **B of A** are the most optimistic and anticipate that the unemployment rate will fall to 4.4 percent by 2018. My “**Steady Growth**” scenario tracks **CBO's** NAIRU estimate and the upper end of the **FOMC's** projection range.

CHART 12 – NAIRU and Unemployment Rate Forecasts
(quarterly average)



Page 12

5. Wage Growth Is Finally Discernible and Appears To Be Gathering Momentum

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

For quite some time FOMC members have been expecting the rate of growth in wages to pick up and boost inflation. Although slow to develop, evidence is finally emerging that wage growth is beginning to accelerate.

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

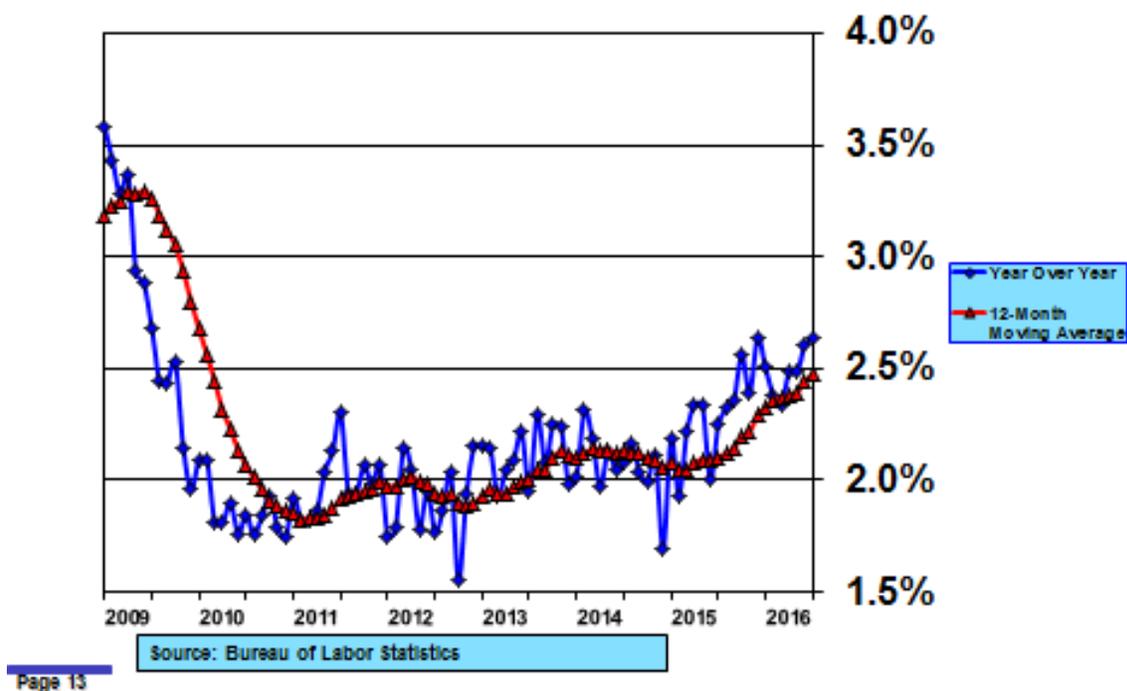
a. BLS-Compiled Wage Measures — Employment Situation Report

There are three primary broad-based measures of labor compensation that provide information about compensation trends. All are compiled by the Bureau of Labor Statistics (BLS). One is released monthly as part of the monthly labor situation report and includes both hourly and weekly wage rates for all workers, but includes no information about benefits which comprise approximately 30 percent of total

compensation. A second measure, the employment cost index (ECI), is released quarterly and consists of wage and salary, benefits, and total compensation indices. The third is also released quarterly as part of BLS's report on output, total hours worked, and productivity.

Although all three 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. Average hourly wages (12-month moving average) of all employees are rising 2.48 percent annually currently compared to 2.11 percent a year ago (see **Chart 13**). However, there is definitely upside momentum as indicated by the year-over-year increase of 2.64 percent.

CHART 13 – Hourly Wage Rate Growth – All Workers
(annual year over year and 12-month moving average rates of change)



Page 13

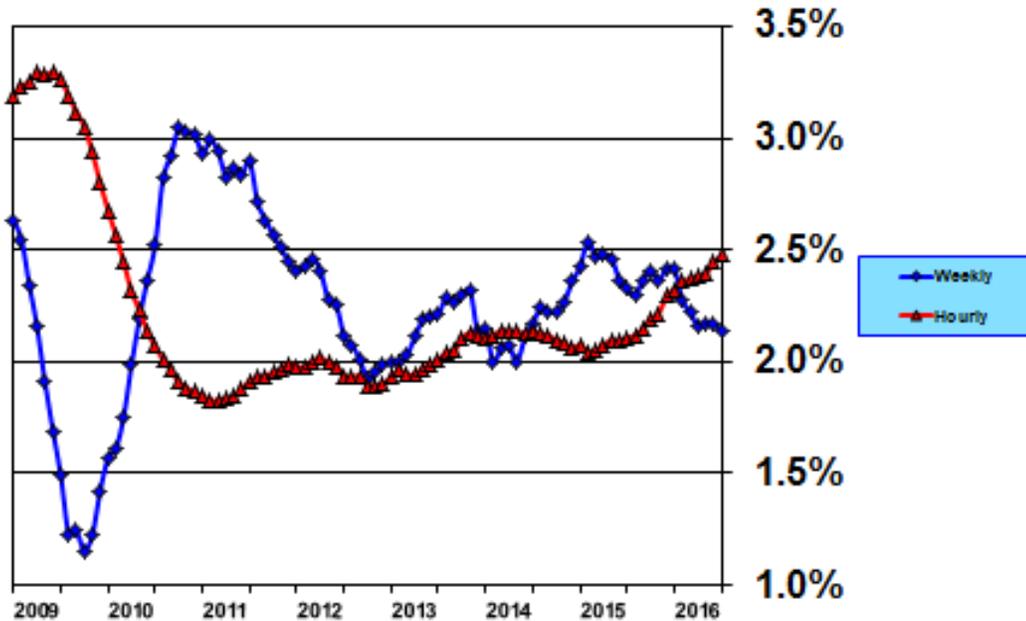
b. Weekly Versus Hourly Wage-Rate Growth

But perhaps focusing only on hourly wages is a bit misleading. If one looks at growth in average weekly earnings, which factors in the length of the workweek, rather than the hourly wage rate, growth in weekly wages for all employees has fallen from 2.33 percent a year ago to 2.14 percent in July 2016 (see **Chart 14**). This outcome reflects a modestly shorter average number of hours worked per week. Disposable income depends upon growth in total weekly earnings rather than growth in the hourly wage rate. This means that deceleration in the growth rate in average weekly wages will depress growth in disposable income and correspondingly growth in consumer spending.

However, the effect of a slowing rate of increase in weekly wages is not yet evident in consumer spending data. Although nominal consumer spending growth was weak in the first quarter of 2016, increasing just

CHART 14 – Hourly & Weekly Wage Rate Growth – All Workers

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



Source: Bureau of Labor Statistics

Page 14

\$62.4 billion, or 0.5 percent, spending rebounded strongly in the second quarter, rising \$190.9 billion, of 1.5 percent. The second quarter rebound exceeded trend growth by approximately \$80 billion (my statistical analysis indicates that this deviation amounted to a +1.25 standard deviation, a large but not overly significant deviation from trend). We will have to wait for data revisions and consumer spending data in months to come to see whether a slowing in total hours worked will depress consumer spending growth.

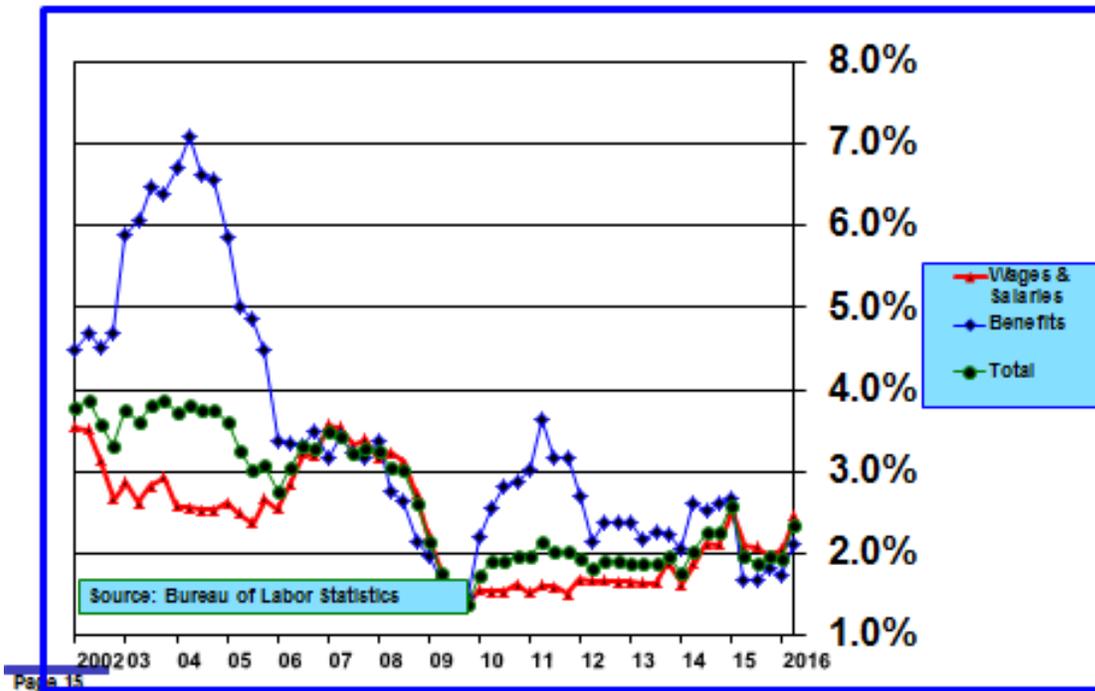
c. BLS-Compiled Wage Measures — Employment Cost Index (ECI)

The growth rate in the wage and salary component of ECI, which had been lagging other measures of wage acceleration, caught up in the second quarter of 2016, rising 2.45 percent (see **Chart 15**).

The more comprehensive measure of ECI, which includes benefits, rose at a slightly slower rate of 2.34 percent, reflecting a subdued rate of increase in benefits in recent years.

All-in-all the information contained in the ECI measure corroborates the story of accelerating wage growth, but suggests that the accelerate remains relatively modest.

CHART 15 – Employment Cost Index
(annual rate of change)



d. Private Sector Wage Tracking Measures

Other measures of wages indicate some upward pressure is developing. For example, **GS's** wage tracker, which is based on four measures of wage rate growth and is intentionally constructed to forecast changes in wage rate growth, has risen to 2.8 percent. **GS** expects wage rates to rise over the next two years to a range of 3.0 percent to 3.5 percent and then stabilize at that level.

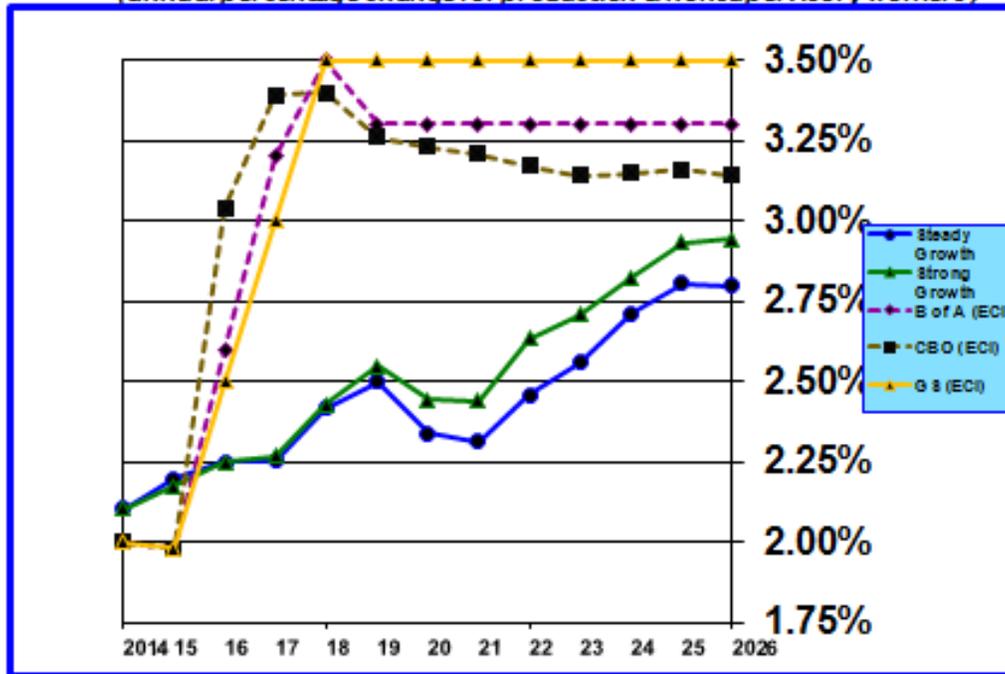
Another frequently cited wage tracker is published by the **Atlanta Federal Reserve Bank**. It measures wage increases for workers who have been employed a year or longer. This wage tracker indicated a 3.6 percent annual increase in wages for such workers as of June. It overstates the rate of aggregate wage rate increase because it is a selective measure that leaves out a large share of people who have been in a job for less than a year. Typically, replacement employees start out at lower wage rates than the previous incumbent earned. But, the **Atlanta Federal Reserve Bank** tracker does give a reasonable sense of wage growth momentum in a tight labor market.

e. Hourly Wage Forecasts

Chart 16 shows my projections for wage growth for production and nonsupervisory workers over the next ten years and **CBO's**, **GS's** and **B of A's** projections for growth in the wage and salary component of ECI over the same time period. A couple of explanations of details shown in **Chart 16** are in order.

CHART 16 – Hourly Wage Rate Forecasts

(annual percentage change for production & nonsupervisory workers)



Page 16

First, the data series for all employees only began in 2006 while the data series for production and nonsupervisory workers goes back to 1964. Thus, the data series for production and nonsupervisory workers contains a lot more historical information which is useful for constructing robust forecasts. In the long run growth rates in wages for all employees and for production and nonsupervisory workers are highly correlated.

Second, **CBO**, **GS** and **B of A** forecast wage rate growth only for ECI. Although the methodologies for constructing these different wage data series differ, the directionality of all is highly correlated over time, even if the levels aren't precisely the same.

Looking at **Chart 16**, which includes various forecasts of wage growth rates, the major takeaway is that my forecasts indicate gradual upward pressure on the rate of increase in nominal wages, rather than a rapid acceleration for the next two years followed by stabilization, as indicated by **B of A's**, **GS's** and **CBO's** forecasts for ECI wage and salary growth rates. In the long run the gap between my wage rate forecasts and those of others narrows, but not entirely.

f. Who's Right?

Who is right? That is unclear and we will have to wait for time to pass to give us the answer. Contracting profit margins may increase employer reluctance to raise raises. However, a tight labor market would have the opposite effect by eliminating employer pricing power. But, a slowdown in economic activity could

weaken the labor market and depress employee wage bargaining power. In addition, poor productivity gains and low inflation could retard acceleration in wages. However, broad-based implementation of higher minimum wages will cut in the other direction. As you can see, there are quite a number of factors at work which will have a bearing on to what extent wage growth will rise and how quickly that will occur.

Historically, there is very little correlation between rising wage rates and inflation. There is, however, a reverse relationship. Rising inflation influences wage rate acceleration. About 18.4 percent of the acceleration in inflation lifts wage rate growth within 12 months, with another 3.1 percent filtering into greater wage growth much later. About 21.3 percent of productivity gains filter into wage increases, but it takes five to six years for this to occur. Since productivity has been decreasing for several years, my statistical analysis indicates that this will depress wage gains for the next two to three years.

There are important forecasting implications of slower than expected acceleration in wage growth. If nominal wages do not rise as rapidly as most expect, nominal consumer spending will not grow as fast and upward pressure on inflation will be less. Also, there will be less need for the FOMC to raise interest rates to avert the buildup of inflationary pressures.

6. Concluding Observations

U.S. employment is nearing or perhaps already at full employment. The U-3 unemployment rate of 4.9 percent is at full employment, but the U-6 rate is still about 0.6 percent away from full employment. However, according to a **GS** study, the Affordable Care Act might have raised the U-6 rate by 0.8 percent.⁶ In the same study, **GS** found that when the labor market reaches full employment, employment growth slows, but not dramatically. In other words, cyclical momentum will continue to drive the unemployment rate down to a level below that of full employment.

XI. Importance of the Neutral Rate of Interest In Guiding Monetary Policy

In recent months there has been considerable discussion among economists and members of the FOMC about the unobservable value of the neutral rate of interest, r^* . This discussion is important because whatever the value of r^* is, that value serves as a guide to the long-term equilibrium value of the federal funds rate. That is why FOMC members provide an estimate of the long-term equilibrium value of the federal funds rate in the quarterly updates of economic variable projections. This is the rate that monetary policymakers believe should prevail when the economy is operating at full capacity and inflation is anchored at the long-term target value of 2 percent.

⁶David Mericle. "US Daily: The Payrolls Slowdown: Supply or Demand?" Goldman Sachs Economic Research, June 9, 2016.

1. The Monetary Policy Conundrum

Today's federal funds policy rate is 25 to 50 basis points. The median value of the FOMC's projection for the long-term equilibrium value is 3.0 percent. The employment market is very near to full employment, but measured inflation, which is approximately 1.6 percent based on the FOMC's preferred core PCE inflation measure, is below the long-term 2.0 percent target.

These facts ordinarily would imply that the FOMC should be moving forward to move the actual policy rate toward the long-term equilibrium level of 3.0 percent. Based upon historical experience, moving too slowly to close the gap, when the economy is near full employment, risks letting inflation become unanchored with the eventual consequence that inflation rises to a level well above the 2.0 percent target.

But, we do not live in a closed economy. Disinflationary, even deflationary, forces have engulfed much of the developed world's economies. Thus, it cannot be taken for granted that U.S. inflation will move to the target level of 2.0 percent over time. Indeed, market measures of inflation expectations in the U.S. have exhibited worrisome hints of becoming unanchored to the downside.

There is yet another piece to the policy puzzle. Although the median FOMC member view is that the long-term equilibrium value of the federal funds rate should be 3.0 percent, this view is based on assumptions that may not hold up. If the estimate of the neutral rate is too high, moving too quickly to that level could well throw the U.S. economy into recession. Given the weakness of the global economy currently, this would have seriously negative knock on effects. Or put somewhat differently, the risks of moving too quickly to the long-term equilibrium level of the federal funds rate are much greater than the risks of moving too slowly. The risks of moving too slowly would be a higher rate of inflation than the long-term target of 2.0 percent. However, measured inflation tends to change slowly over time. If it becomes clear sometime in the future that inflation is at risk of becoming unanchored and global economic activity is robust, then there would be room for the FOMC to raise rates aggressively to anchor inflationary expectations.

Because of the asymmetry of risks when nominal interest rates are close to zero and global economic and financial conditions are fragile, the FOMC has adopted a cautious monetary policy of gradual increases in the federal funds rate. Timing of increases are now dependent on thorough examination of incoming economic activity and inflation data and close vigilance of global economic developments and risks and the fragility of financial conditions in financial markets.

2. Determinants of the Neutral Rate of Interest, r^*

There are two components to r^* , a real rate of return and an inflation premium, which when added to the real rate defines the nominal neutral interest rate. The debate has focused on the real rate of return because everyone presumes that the FOMC will ultimately be successful in achieving its 2.0 percent target rate of inflation, so the inflation premium is taken for granted as being known.

However, based on the FOMC's favorite measure of inflation, core PCE, inflation have averaged 1.60 percent over the last five years. PCE inflation over the last 12 months was almost exactly the same at 1.57 percent in June. So, for starters, the 2.0 percent inflation target should not be taken for granted in

estimating the nominal value of r^* .

Determination of the real rate component of r^* is even more daunting. Theory says that the real rate component should depend upon the economy's potential rate of growth and whether the economy is operating below, at, or above its full non-inflationary potential. The output gap, however, can only be measured once there is an estimate of full, noninflationary potential economic activity. So the quest for enlightenment must start there.

3. Real Long-Term Potential Economic Growth Rate

As I have explained in past letters, potential real GDP growth depends upon growth in the **labor force**, which is primarily a function of population growth, and **productivity**.

Slowing **labor force growth** and much lower **productivity gains** have combined to reduce the potential real rate of growth. If U.S. productivity remains at the 0.9 percent average of the last ten years and if labor growth slows to CBO's forecasts of approximately 0.6 percent, potential real GDP growth will be 1.4 percent, which is quite a bit lower than the FOMC's long-term expected range of 1.8 to 2.0 percent. Implicitly, the FOMC's range assumes that productivity will recover to between 1.4 and 1.6 percent. So, if you are inclined toward a pessimistic view about the likelihood of improving productivity, you should expect the FOMC and others to ratchet down their estimates of real potential growth over time.

4. Long-Term Natural (Neutral) Nominal Interest Rate and the Expected Level of Real Potential Growth

When the FOMC began publishing its projections for the various economic variables several years ago, it included estimates of both the long-term real rate of GDP growth and the equilibrium nominal federal funds rate. As time has passed, the FOMC has reduced the projected values of both of these measures. It should be clear from the discussion above that as labor force growth and productivity decrease, potential real GDP also decreases.

But theory also posits that the nominal value of the long-run rate of interest should decline with decreases in both the labor force growth rate and productivity. Thus, decreases in labor force growth and productivity will result in declines in both potential real GDP growth and the long-term neutral nominal rate of interest. My econometric model provides estimates of the long-run stabilized neutral rate and substantiates theoretical expectations.

Each 10 basis points change in productivity results in approximately an 8 basis points change in both the federal funds and 10-year Treasury rates. However, a 10 basis points change in the labor force growth rate has a 13 basis points impact on the federal funds rate but a smaller 7 basis points impact on the 10-year Treasury rate.

Values of the long-term neutral federal funds rate and the 10-year Treasury rate are shown in **Table 7** for various assumed values of labor force growth and productivity, along with the long-term potential real GDP growth rate implied by the assumed values of labor force growth and productivity.

Table 7

Long-Term Potential Real Rate of GDP Growth for Various Assumed Values of Labor Force Growth and Productivity and Corresponding Nominal Long-Term Natural (Neutral) Interest Rates for Federal Funds and 10-Year Treasury Rates
 (assumes nominal rate of inflation = 2.0% and output gap is zero)

	Assumptions		
Potential Real GDP	1.40%	1.82%	1.99%
Productivity	.9%	1.4%	1.6%
Labor Force	.6%	.6%	.6%
	Neutral Rate		
Federal Funds	1.44%	1.84%	2.00%
10-Year Treasury	2.43%	2.86%	3.02%

	Assumptions		
Potential Real GDP	1.59%	2.01%	2.17%
Productivity	.9%	1.4%	1.6%
Labor Force	.8%	.8%	.8%
	Neutral Rate		
Federal Funds	1.69%	2.09%	2.26%
10-Year Treasury	2.58%	3.00%	3.17%

The top panel of **Table 7** holds labor force growth constant at 0.6 percent annually and shows the impact on neutral federal funds and 10-year Treasury rates for assumed productivity values of 0.9, 1.4, and 1.6 percent. The only change in the bottom panel of **Table 7** is in the assumed value of labor force growth, which is raised to 0.8 percent.

Collectively, FOMC members have steadily reduced the median estimate of the long-term nominal value of the federal funds rate from 4.25 percent to 3.00 percent. However, based upon my model, as shown in **Table 7**, my sense is that the FOMC's median projection for the federal funds rate is still higher than is consistent with its estimate of long-term real GDP growth of 1.8 to 2.0 percent. My model indicates that a long-term nominal federal funds rate of 1.85 to 2.00 percent is a more likely level for the long-term neutral rate and it could be as low as 1.45 percent, if productivity remains at the dismal level of 0.9 percent that it has averaged over the last ten years. This also means that the real neutral interest rate, assuming inflation is 2.00 percent, would be slightly negative.

5. Other Empirical Estimates of the r^*

Determining the value of the real rate component r^* empirically is hardly straightforward. There are other methods besides my custom-crafted one. Many analyses exist, but there is little consensus, other than all agree that the real rate is very low in today's economic environment.

There are two mainstream models. One is referred to as the dynamic stochastic general equilibrium model (DSGE) developed by Federal Reserve staff. The other has been popularized by the work of a team of Federal Reserve economists including Kathryn Holston, Thomas Laubach, and San Francisco Federal Reserve Bank President John Williams (HLW), which differs somewhat from a predecessor model known as the Laubach-Williams model.⁷

Both models estimate a current real neutral rate close to zero. But their historical estimates of past real neutral rates differ considerably. Real rates in the DSGE model are quite volatile over the cycle, while HLW estimates change little over time. The difference has to do with construction of the different models, but I would guess that the DSGE model is capturing changes in the short-term neutral rate while the HLW model is capturing changes in the long-term neutral rate.

The HLW model simultaneously estimates the neutral rate, the potential growth rate, and the output gap based on historical data for GDP, inflation, and the federal funds rate. DSGE models take a somewhat similar approach. The difference appears to lie, at least in part, to HLW's methodology of handling volatility in the historical data.

Both models forecast a rising neutral rate of interest as the output gap closes and inflation approaches the 2.0 percent target. However, the HLW model approaches a range of 0.5 to 0.75 percent while the DSGE model's estimate is closer to 2.0 percent.

I expect the discussion will continue. There will be more research that might narrow the range of estimates. And, of course, time, data, and experience will provide further insight.

If the HLW model serves as a guide and a 1.6 percent inflation rate is assumed, then the neutral rate at full economic capacity would range from 2.1 to 2.35 percent, which is closer, but still a bit above my estimates in **Table 7**.

6. Whither Monetary Policy?

My suggested takeaway from all of this commentary is twofold. First, the FOMC has now come to a consensus to raise the federal funds rate gradually and to error on the side of doing so too late rather than too soon. Second, the long-term projected equilibrium nominal federal funds rate of 3.0 percent is still too high and is likely to be reduced in coming FOMC meetings to a lower level. If inflation does not move convincingly toward a stable level of 2.0 percent, and if productivity does not rebound as expected (secular stagnation proves to be a limiting force⁸), the long-term equilibrium federal funds rate could end up not

⁷Kathryn Holston, Thomas Laubach, and John C. Williams. "*Measuring the Natural Rate of Interest: International Trends and Determinants*," Federal Reserve Bank of San Francisco Working Paper Series, Working Paper 26-11, June 2016.

⁸In past letters I have described Charles Gave's view that administered low interest rates will depress capital spending, leading to a decline in productivity and the potential growth rate. A byproduct is an enormous increase in income and wealth

even reaching the 2.0 percent level.

Given these considerations and combine them with the fact of low global interest rates and strong global disinflationary forces, a reasonable outlook is that interest rates, both short-run and long-run, will remain very low for a very long time. The market has come around to this view and it is a view that I cannot fault. See **Chart 18**.

XII. Inflation and Interest Rates

1. Core Inflation

Core PCE inflation was 1.57 percent in June and has risen 26 basis points from its recent low of 1.31 percent in July 2015. Total PCE inflation, which continues to be depressed by the plunge in oil prices and lower import prices, was 0.88 percent in June, up from the 0.56 percent rate of increase that prevailed at the end of 2015.

As can be seen in **Table 8** (**Chart 17** shows historical core PCE price index data and data from **Table 8** in graphical form), forecasts of the core PCE inflation index indicate that inflation will increase modestly during 2016. Over the longer run, **B of A** and **GS** expect core PCE inflation to rise gradually, reaching 2.0 percent sometime during 2018. **B of A** recently revised its forecast to 2.3 percent in 2019, reflecting its belief that the FOMC will intentionally let inflation exceed the 2.0 percent target to assure that real GDP growth is sustained. FOMC projections also reflect a gradual rise.

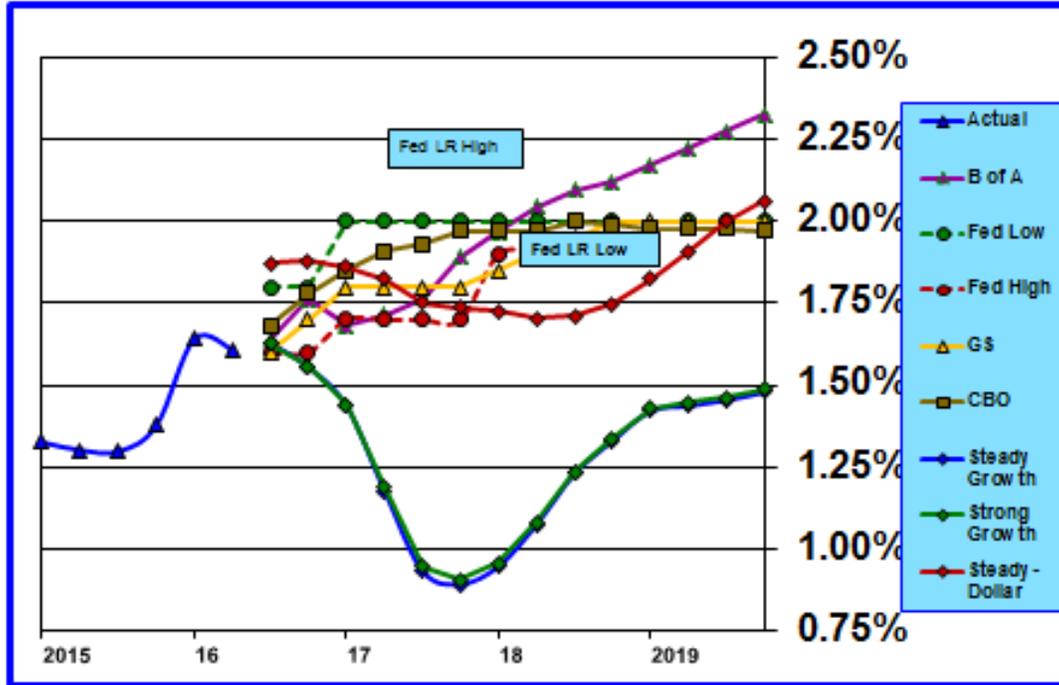
Table 8
Core PCE Inflation Forecasts — B of A, GS, Bill’s “Steady Growth”, Bill’s “Strong Growth” and FOMC High and Low

Core CPE	2013	2014	2015	2016	2017	2018	2019
Actual	1.55	1.50	1.39				
B of A				1.7	1.9	2.1	2.3
GS				1.7	1.8	2.0	2.0
Bill’s Steady Growth				1.5	0.9	1.3	1.4
- Impact of Dollar				1.8	1.6	1.6	1.8
Bill’s Strong Growth				1.5	0.9	1.3	1.4
FOMC — High				1.8	2.0	2.0	
FOMC — Low				1.6	1.7	1.9	

In looking at **Chart 17**, it is obvious that my forecasts for core PCE inflation differ substantially from those of other analysts and FOMC members. I make no claims to have a better forecasting model.

inequality which contributes to political instability. Charles Gave. “A Fundamental Assault On Freedom,” GavekalResearch, July 12, 2016.

CHART 17 – Core PCE Inflation
(annual percentage rate)



Page 18

It might be simply that my statistical analysis is methodologically flawed or that historical impacts of various economic variables on inflation have undergone profound structural changes which my model has not captured correctly. An important variable explaining variation in historical inflation is change in the value of the dollar. It is possible that the model has not captured the impact of the dollar correctly or that the relationship between the dollar and inflation has changed. In any event, a large part of my forecasted decrease in inflation is due to the lagged effects of the substantial decline in the dollar’s value over a year ago. When I eliminate the effect of the dollar on inflation from my “**Steady Growth**” scenario forecast of core PCE inflation, my forecast is much closer to those of others. However, my core PCE inflation forecast still does not rise to 2.0 percent quite as quickly.

Table 9 shows contributions, based on my econometric model, of various economic variables to forecast core PCE inflation for two periods of time — 2016-2020 and 2021-2026. The starting point is the 1.57 percent rate that prevailed in June. By the end of 2020 core PCE inflation falls to 1.48 percent (2.01 percent when the effect of the dollar is omitted) as the positive impact of tight labor markets is more than offset by negative impulses from low productivity (depresses the equilibrium real rate of inflation as well as the measured level of inflation), a strong dollar (negative impact on U.S. manufacturing and lower import prices), and decelerating gains in housing prices, which is a proxy for the rent and owners equivalent rent components of the core PCE inflation index.

During the 2021 to 2026 period core inflation rises to 2.22 percent (1.86 percent when the effect of the dollar is omitted) and converges with most other forecasts which anticipate that core PCE inflation will match the FOMC’s 2.0 percent target in the long run. The primary boost to inflation during this period

Table 9
Changes in Core PCE Inflation
(Basis Points)

	Labor Growth	Labor Gap	Productivity	Dollar	Housing Prices	Total
2016-2020	-16	76	-20	-35	-21	-15
2021-2026	2	5	-20	89	-2	74
2016-2026	-14	81	-40	54	-23	59

comes from a weakening dollar.

2. Inflation Expectations

There have been two major global financial shocks so far in 2016. The first occurred in January and February as financial panic gripped global financial markets when oil prices plunged and concerns about China and emerging markets blossomed. The second occurred in late June in the immediate aftermath of Britain's vote to "Leave" the European Union.

In response to both shocks, interest rates declined. The 10-year U.S. Treasury note yield fell from 2.27 percent on December 31, 2015 to 1.59 percent on August 5, 2016 (low for the year so far was 1.37 percent on both July 5 and 8. in contrast, U.S. stock prices have broken out to all-time highs (S and P 500 index was 2182.87 on August 5, 2016, compared to the 2015 high of 2130.82 reached on May 21, 2015).

After both of these global shocks, the market decided that interest rates would remain lower for longer. This was validated by the decline in inflation expectations embedded in market interest rates. The market now places less than a 50 percent probability of one 25 basis points increase in the federal funds rate during 2016. This probability does not exceed 50 percent until the spring of 2017.

There are several possible explanations for extremely low long-term interest rates, which I discussed above. One I did not discuss involves a decline in long-term inflation expectations.

Forecasts of future inflation embedded in Treasury Inflation Protected Securities (TIPS) have declined during 2016 and these securities now embed a negative inflation risk premium. TIPS are forecasting inflation averaging less than 1.5 percent over the next five years, which is at odds with the FOMC stated policy objective.

Survey-based measures of inflation expectations, such as the University of Michigan's 5-10 year expected inflation rate, have weakened a little but not to the same extent as market-based measures. This survey measure of long-term inflation expectations fell from an average of 2.9 percent over the past several years to 2.6 percent in June and July. The Survey of Professional Forecasts has also edged down a tiny amount.

Perhaps other factors have depressed the market measure of inflation expectations, which would mean that it is not necessarily a reliable indicator of future inflation. **GS** has cited two reasons that this may well be the case. First, limited liquidity and heightened demand for TIPS, which have nothing to do

with inflation expectations, may have depressed yields on the benchmark security relied on to tease out a measure of market-based inflation expectations. Second, the price of the benchmark security has tended to fluctuate in lockstep with the price of oil, which has been very volatile. The price of oil may be a poor indicator of general trends in inflation because fluctuations in its price are reflecting unique aspects of the dynamic interaction of supply and demand for oil.

Some of the decline in the market-based measure of inflation expectations is the result of a decline in the inflation risk-premium rather than in an actual decline in the future expected rate of inflation. Most of the rest of the decline is due to a smaller “term premium,” which compensates long-term investors for prospected future rate volatility. If rates are expected to remain low for a very long time, “term premium” compensation is less necessary. To the extent this is a valid conclusion it implies that the market expects inflation to remain relatively low for a long-period of time with little volatility around the long-term expected level.

Another explanation is that global monetary policies structured to force long-term rates lower have interfered with the discovery process of future inflation expectations intended to be revealed by comparing TIPS and ordinary Treasury securities of like duration without inflation protection. Long-term interest rates for all developed economies have moved lower. In that sense lower U.S. interest rates have paralleled broader global developments. But that begs the question of why global interest rates have moved lower. Many would acknowledge that the reasons are slowing global growth and the existence of powerful deflationary forces. But by extension, can U.S. inflation really move higher on a sustained basis if the rest of the world is moving in the opposite direction? Perhaps the decline in inflation expectations embedded in U.S. Treasury security prices is not wholly due to non-germane factors.

3. Financial Conditions

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

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

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

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

That brings us to the short-lived global financial panic at the beginning of the year. Measures of financial conditions, which appear to capture well emerging financial system instability, at least in the latter stages of their development, began to escalate during the summer of 2015. Indeed, the FOMC in response delayed the first federal funds rate hike that had widely been expected to occur in September 2015. When a degree of calm returned to markets during the fall, the FOMC proceeded to initiate monetary tightening in the U.S. at its December meeting. Financial conditions began to tighten again and full-scale panic ensued in January. Again, the FOMC responded by pulling back and the crisis passed or, what may turn out to be the case, simply went into hibernation.

This is not to argue that the FOMC was wrong to begin tightening monetary policy. After all, the labor market is near full employment and the risk of rising inflation, although not necessarily the reality that inflation will actually increase, exists. The FOMC now finds itself in the difficult position of attempting to satisfy its full employment and price stability mandates without aggravating the financial instability that is already at an elevated level in the global financial system.

Financial conditions tightened briefly in the immediate aftermath of the Brexit vote, but markets were quickly soothed by central banks promise of providing liquidity. Financial conditions quickly resumed an easing trend and stock prices headed higher. There has been one exception. Short-term dollar funding rates have risen recently, but this appears to have been caused by the impending enforcement of mutual fund reforms rather than a more general tightening of financial conditions.

GS calculates and publishes a financial conditions index. Moreover, **GS** has conducted extensive empirical research which demonstrates that tighter financial conditions slow economic growth over the next few quarters. That intuitively makes sense because tighter financial conditions reflect elevated perceptions of risks and cause market participants to act with a greater degree of caution. Riskier loans are not made and more speculative investments are deferred or avoided altogether.

GS recently included a financial conditions variable in its version of the traditional Taylor Rule, which provides guidance for calibrating monetary policy to attain full employment and price stability. **GS** posits that the effects of financial conditions on the policy interest rate are not necessarily independent of the employment and inflation components of the Taylor Rule. Because of the interactive effects, **GS** believes that a more gradual rate of monetary policy tightening in the U.S. is prudent policy. In this regard, **GS** has ratified through a model a policy that the FOMC has already embraced.

But, a gradual tightening policy may maintain a semblance of financial stability for the time being, but such a policy is not directed to dealing directly with the sources of financial instability. In that regard, such a policy is palliative, not curative. And, cynics will continue to observe, with merit, that every time that the market has a convulsion, the FOMC pulls back and, perversely, this encourages more risk-taking which worsens, rather than ameliorates, underlying financial market instability.

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

4. Interest Rates — Federal Funds Rate

Most forecasters now expect the FOMC to raise the federal funds rate one more time during 2016. But it is a close call. The strong June and July employment reports and calm in international financial markets have raised probability estimates but to a much lesser degree than might have been expected, given recent stronger economic data in the U.S. Market-based expectations for rate increases remain close to nonexistent for a long time. Almost all professional forecasters disagree with the market sanguine expectations.

B of A has revised its forecast to only one increase in the federal funds rate during 2016 and pegs the most likely date as December. **B of A** expects two 25 basis points increases during 2017 and two more in 2018, which would bring the target federal funds rate range to 1.00 percent to 1.25 percent by the end of 2017 and 1.50 percent to 1.75 percent by the end of 2018.

GS has changed its forecasting approach to focus primarily on the timing of the next 25 basis points increase in the federal funds rate. **GS** now also expects only one more increase during 2016 and assigns a 25 percent probability to September, a 40 percent probability to December (combined 65 percent probability of an increase by September), and a 35 percent probability an increase sometime in early 2017. **GS** includes three additional increases in its 2017 macro forecasts, but it has ceased to place any emphasis on this forecast, preferring instead to focus on the probable timing of only the next rate increase.

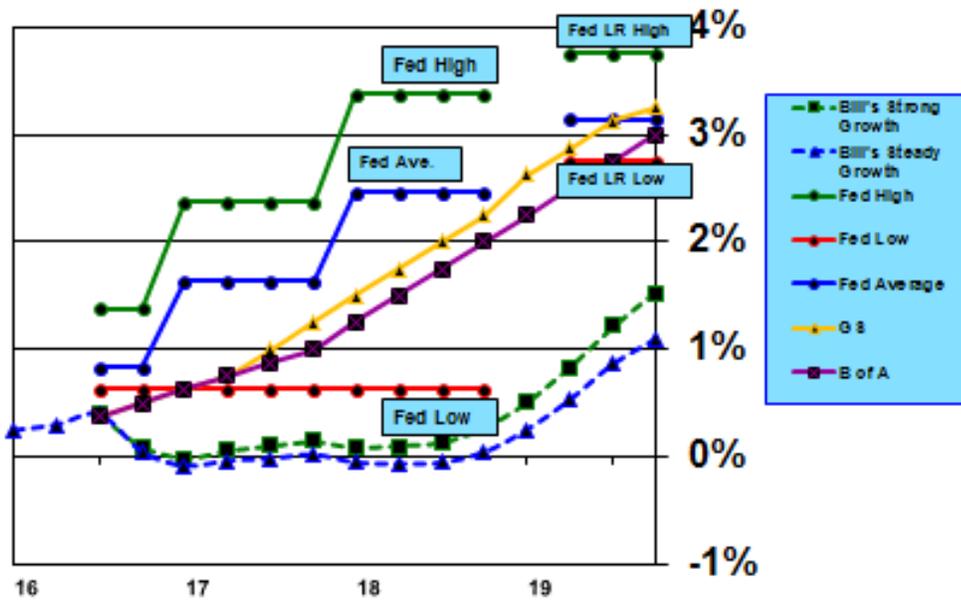
Evercore ISI updated its rate forecast following release of July's strong employment report. It pegs a September increase at 35 percent and a December increase at 70 percent. It expects an additional two rate increases in 2017 and is skeptical of the market's forecast of less than one increase in 2017.

Chart 18 shows the quarterly progression in the federal funds rate from the present through 2019 implied by the FOMC's projections. It also shows forecasts for **B of A**, **GS**, and my "**Steady Growth**" and "**Strong Growth**" scenarios.

My forecasts continue to be outliers relative to other forecasters but now track market-based expectations fairly closely. My forecasts are driven by my expectation that inflation will remain lower for longer than others expect and also by an even smaller expected value for the real rate of interest than the 1.0 percent level now embraced by a majority of the FOMC. Short-term rates have a low probability of increasing more than 25 basis points until 2019. The market's projection of the long-run stable federal funds rate is considerably lower than the downwardly revised FOMC median projection.

My view is that January's panic and June's Brexit panic were warning shots across the bow. The weaker dollar and lower interest rates were essential and necessary to defuse that panic January panic, particularly with respect to emerging markets. The June panic was defused even more quickly and appears to have been driven by the market's belief that the FOMC will not raise interest rates materially.

CHART 18 – Federal Funds Rate Forecasts



Page 19

5. Interest Rates — 10-Year Treasury Note Yield

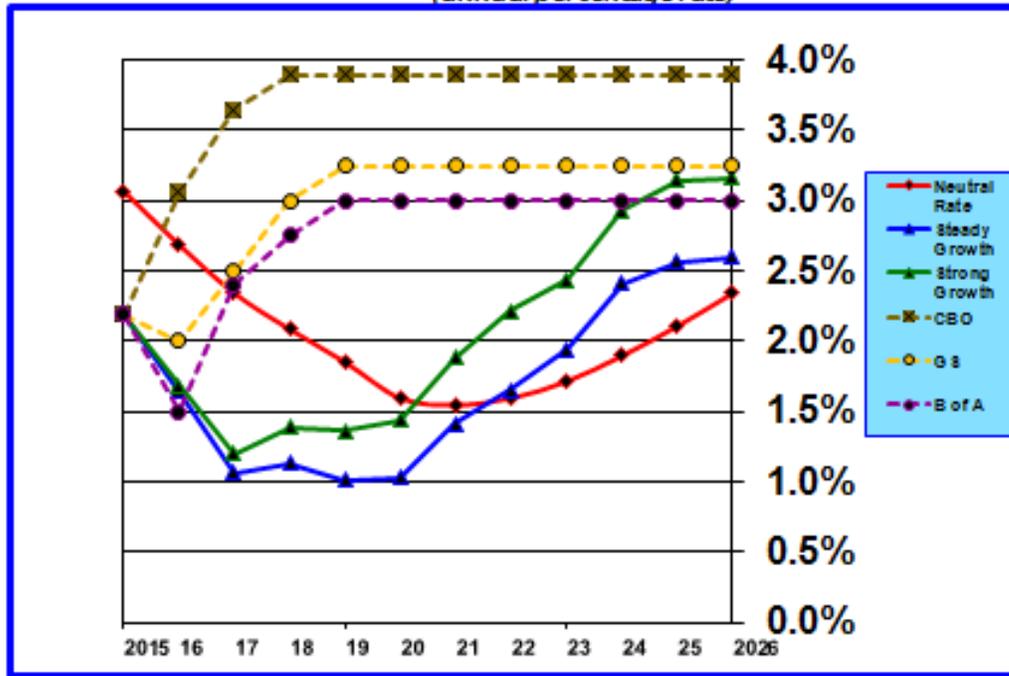
Chart 19 shows forecasts for the 10-year Treasury note yield over the next ten years. Analysts continue to reduce their forecasts for the ten-year yield. Partly this is a mark-to-market exercise driven by the persistent decline in this yield in opposition to expected increases. Analysts still expect long-term rates to rise from the current level, but not to as high a level.

B of A's revised long-term ten-year yield forecast seems a bit odd since the 3.0 percent level is exactly the same as its 3.0 percent forecast for the federal funds rate. Longer term interest rates include a positive term premium. This implies that **B of A** is forecasting a negatively sloped yield curve, net of the term premium, in the long run, which customarily is indicative of expected very low inflation or even modest deflation. However, **B of A's** long-term inflation forecast is 2.0 percent. That implies that the long-term real rate of interest is just 1.0 percent. However, **B of A** has suggested that there is a good chance that the long-run level of the federal funds rate could be lower than 3.0 percent. That would address the apparent inconsistency in **B of A's** current long-run forecasts of 3.0 percent for both the federal funds rate and the 10-year Treasury rate.

My estimate of the nominal long-term neutral rate for the 10-year Treasury in my “**Steady Growth**” scenario dips to about 1.0 percent in 2019 and 2020 before rising to 2.6 percent in 2026, which implies a real rate that is negative over most of the forecast time period, assuming that the FOMC is successful in pushing the inflation rate to 2.0 percent.

CHART 19 – Ten-Year Treasury Yield

(annual percentage rate)



Page 20

Over the next five years my model forecasts that the 10-year yield will decline 66 basis points from its recent level 1.64 percent to 0.98 percent (see **Table 10**). Slowing labor force growth contributes 91 basis points to the decline. However, tighter labor market conditions raise the yield by 26 basis points. Thus, the total impact of changes in the labor market contributes 65 basis points to the decline. Rising productivity adds 16 basis points while easier financial conditions subtract 59 basis points. Inflation adds 47 basis points.

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

	Labor Growth	Labor Gap	Productivity	Inflation	Financial Conditions	Other	Total
2016-2020	-91	26	16	47	-59	-9	-71
2021-2026	-11	-6	53	128	-9	0	155
2016-2026	-102	22	69	174	-69	-10	84

After 2020, inflation in my model moves rapidly toward 2.0 percent and this adds 128 basis points to the 10-year yield by the end of 2026. What is important to note is that even though my inflation forecast eventually matches that of others, the 10-year yield rises in the aggregate by only about 100 to 150 basis points from its recent low level. Other forecasters expect the 10-year yield to rise 150 to 175 basis points

and that is expected to occur within the next three years rather than in eight to ten years' time.

XIII. July FOMC Meeting

As expected the FOMC did not change monetary policy at its July meeting.

1. FOMC Monetary Policy Statement

In the **first paragraph** of its statement, the FOMC summarizes recent economic developments with particular emphasis on employment and inflation.

The **second paragraph** begins with a statement of monetary policy objectives and then articulates the Committee's expectations about evolving economic developments. In the past, the second paragraph included an assessment of the balance of risks, which was interpreted by market participants to signal whether the FOMC had a neutral, tightening, or loosening bias. More recently, the FOMC has emphasized that monetary policy is data dependent and dropped the balance of risks assessment from the second paragraph.

Specific monetary policy decisions reached at the meeting are summarized in the **third paragraph**.

The **fourth paragraph** is instructional. It describes what the FOMC considers in formulating monetary policy. It also states explicitly that adjustments in policy will be gradual and will depend on "*... the economic outlook as informed by incoming data.*"

In the **final paragraph**, the FOMC states its balance sheet management strategy. This paragraph was added to the statement when the FOMC first began to engage in large scale asset purchases, otherwise known as quantitative easing. The wording of this paragraph has not changed for many months.

2. Economic Activity

In the July statement, the FOMC upgraded its assessment of overall economic activity, noting that "*... the labor market strengthened and that economic activity has been expanding at a moderate rate.*" The FOMC specifically noted the strong June employment report and mentioned that consumer spending was growing strongly. The only downbeat reference was to soft business fixed investment. References to housing and net exports were not included.

3. Inflation

There was little change in the discussion of inflation. The FOMC continued to acknowledge that inflation is below its 2 percent longer-run objective. In the June statement the FOMC mentioned the decline in "*market-based measures of inflation compensation.*" In the July statement the FOMC substituted the words "remain low" for decline.

4. Monetary Policy Objectives

The only change to the policy objectives paragraph was the addition of the following sentence: “*Near-term risks to the economic outlook have diminished.*” This was interpreted by some to increase the odds of a rate increase, perhaps as soon as at the September FOMC meeting. However, market reaction was muted and market-based probabilities of a rate increase did not change materially.

There were no other changes in the FOMC statement. The general post-meeting assessment is that the FOMC remains patient and data driven and is in no hurry to raise rates. However, if data reports continue to be strong and risks remain low, the odds of a rate increase at the September meeting will rise. In that regard, the strong July employment report could have raised the probabilities of a September rate increase. Longer-term rates firmed a bit on August 5, but the probability of a September rate increase remained well below 50 percent and the market remains ambivalent about any rate increase in 2016.

APPENDIX

Outlook — 2016 and Beyond — Forecast Summary for the U.S. and the Rest of the World, Highlights of Key Issues, and Identification of Risks

Observations about the 2016 U.S. and global economic outlook and risks to the outlook are listed below.

Financial markets started the year off in ugly fashion with stock prices plunging in all global stock markets, prices of commodities in free fall, and long-term bond yields heading toward zero in many global markets. Concerns about slowing global growth and potential recession in the U.S. were amplified by unexpectedly weak data reports during the opening weeks of 2016. Consequently, many forecasters lowered their estimates of economic activity during 2016, but virtually none expected recession.

Market sentiment reversed rather abruptly in late February and data reports since then have generally been more upbeat, particularly in the U.S. Thus, it is not at all surprising that recession fears faded into the background.

In late June the British vote to leave the European Union reverberated through global financial markets. Although Brexit is likely to result in significant consequences, particularly for the U.K. and E.U. economies over time, the market quickly determined that interest rates would remain much lower for longer and reverted to “risk-on” dynamics, driving U.S. stock prices to an all-time high and U.S. interest rates to the lowest level in the 240-year history of the nation.

Nonetheless, the 2016 the U.S. and global growth outlooks generally are shaping up to be less favorable than when forecasts were prepared in December 2015.

1. U.S. — July Assessment: weak, but relatively steady growth

- ✓ *The Federal Reserve’s Beige Book report for June 2016 reflected an economy that is growing slowly with no real directional momentum.*
- ✓ *The Citi Economic Surprise Index rose to a very high level of 43.1 in late July compared to its recent 12-month average of -20.4*
- ✓ *The Chicago Federal Reserve National Activity Index was 0.16 in June, only the fourth time in the past 14 months that it has been positive*

- **2016 real GDP Y/Y** growth projections range from 2.3% to 2.5%. The FOMC’s central tendency Q4/Q4 projections range from 2.3% to 2.5%. (Q4/Q4 projections are highly dependent upon potential anomalies in Q4 data; therefore, Y/Y estimates, which average all four quarters, usually are more stable estimates.) Risks are tilted to the upside because of the substantial federal tax reductions and spending increases Congress enacted at the end of 2015.

- Based upon GDP revisions and Q2 “Advance Estimate,” B of A and GS have reduced their estimates of 2016 year-over-year growth to 1.5%; my estimate is now 1.2% (note that my lower estimate results from slowing employment growth and low productivity); the FOMC reduced its 2016 Q4/Q4 projection range from 2.3%2.5% to 1.9%2.0% in June prior to recent data updates; IMF forecast 2.2% growth in early July prior to data updates

- *The advance real GDP estimate for Q2 was a shocking 1.2%, but would have been 2.4% without a surprisingly large decrease in inventories; Q4 2015 was revised down from 1.4% to 0.9% and Q1 2016 was revised down from 1.1% to 0.8%; as a consequence the year over year growth rate collapsed to 1.2% for the four quarters from Q2 2015 to Q2 2016*
- **Real GDP output gap** will remain high, but will close rapidly during 2016 from about 2.6% to 2.0%. (*CBO revised potential GDP assumptions in January and this reduced the output gap from 2.6% to 2.1%; revisions to GDP data reduced the gap an additional 0.1% to 2.0%; accordingly, the revised forecast is for the output gap to close to 1.4% during 2016. Other analysts believe the current output gap is smaller than CBO's estimate.*)
 - *OECD's U.S. output gap estimate is 1.8% at the end of 2016 and 1.2% at the end of 2017*
 - *My current estimate of the output gap at the end of 2016 is between 2.4% and 2.5%, reflecting below potential growth in the first and second quarters of 2016*
- **Potential structural rate of real GDP growth** has declined significantly in recent years. I expect potential growth to be about 1.4% in 2016. Long-term potential real GDP growth will edge up in coming years to between 1.8% and 2.1%.
 - + *My current estimate of potential growth in 2016 remains at 1.4%*
 - *B of A reduced its estimate of long-term potential growth to 1.7%; GS's estimate is 1.75%; JPMorgan's 1.5% long-run estimate is even more pessimistic.*
 - + *CBO's updated long-term potential estimate is 2.0%; and the FOMC's central tendency range is 1.8%2.0%*
 - + *My long-term potential estimate is between 1.8% and 2.1%, but this range assumes that long-run productivity gains will be between 1.4% and 1.7%, which increasingly looks to be overly optimistic*
- **Productivity** should rise during 2016 as growth improves and investment increases, but should still fall well short of the historical 2.1% average.
 - *Nonfarm productivity was 0.5% in 2015; the five-year average was 0.4%; my current productivity projection for 2016 is 0.0% to -0.1%; B of A's is 0.2%*
- **Employment** growth should slow considerably during 2016 as full employment is reached and slow growth in the labor force becomes binding; payroll growth should average 130,000 to 165,000 per month.
 - *Payroll employment increased an average of 186,000 per month over the first seven months of 2016*
- **Employment participation** will be relatively stable during 2016 as labor market conditions tighten and discouraged workers find jobs, offsetting the demographically-embedded decline stemming from retirements of baby boomers.
 - + *Participation was 62.81% in July compared to 62.65% in December and up slightly from its low of 62.42% in September 2015*
 - ? *Prior to the July payroll report, GS estimated that the remaining participation gap is about 0.3% or approximately 800,000 workers; this translates into a gap of 0.5% in the U6 unemployment rate, of which 0.2% is a shortfall of full-time employees, 0.2% is due to higher than normal involuntary part-time employment and 0.1% is due to higher than normal marginally attached workers*

- **Unemployment rate** should edge down to between 4.6% and 4.8%.
 - ? *Unemployment rate was 4.88% in July slightly above the long-term structural rate of 4.83%, according to CBO*
 - ? *Based on the U-3 measure, the economy is very close to full employment*
 - ? *U-6 unemployment rate, which adds marginally attached workers and those working part-time for economic reasons to the number unemployed but looking for work, was 9.71% in July, which is about 0.6% above the full-employment level*
- **Nominal consumer disposable income**, measured on a Y/Y basis should slow as employment growth slows; this will be offset partially by an increase in average hourly wage rates; growth should be in a range of 2.2% to 2.5%.
 - *Disposable income growth in June was 3.6% ahead of the year earlier level due to strong employment gains during the last year; growth is projected to fall to 3.3% by the end of 2016 provided that employment growth and total hours worked slow*
- **Nominal consumer spending growth** on the Y/Y basis will be relatively stable in a range of 3.3% to 3.5%.
 - + *While nominal spending growth over the past year as of June was rising at a 3.4% annual pace, I project nominal spending growth in 2016 to be approximately 3.7%*
 - ? *Growth in consumer spending was weaker than expected in the first quarter, but was very strong in the second quarter; however, ISI's survey of state tax revenues indicates that sales tax collections, which are heavily influenced by auto sales, are declining, which suggests that consumer spending growth will slow down over the second half of 2016*
 - ? *Consumer sentiment measures have been mixed but relatively soft in recent months: University of Michigan's index declined to 90.0 in July from 93.5; it was 96.1 a year ago; the Conference Board's measure was 97.3 in July compared to 97.4 in June, 92.4 in May, 94.7 in April, and 96.1 in March, and was down slightly from 99.8 a year ago; Evercore ISI's weekly company surveys index has been edging down and has fallen from 52.4 to 50.6 since March 2015, but it is up from the recent low of 47.7 in late April*
- **Household personal saving rate** will decline slightly as growth in spending exceeds growth in disposable income.
 - ? *In July the Bureau of Economic Analysis revised the saving rate sharply higher for the last several years*
 - *The revised saving rate was 5.81% over the first six months of 2016 compared to the revised 2015 average rate of 5.80% (prior to revision the 2015 saving rate was 5.12%) (nominal income growth has exceeded spending growth so far in 2016)*
- **Stock prices**, as measured by the S&P 500 average, should be between 5% higher or lower, reflecting the slowing growth in profits and rising short-term interest rates.
 - ? *Stock prices are up 6.8% since the beginning of the year*
- **Manufacturing** will continue to be weak with the PMI index just slightly above or below 50.
 - + *The PMI manufacturing index was 52.6 in July compared to 53.2 in June, 51.3 in May, 50.8 in April, 51.8 in March, 49.5 in February, 48.2 in January and 48.0 in December, reflecting a moderate improving trend that now indicates modest growth; however, other manufacturing indices indicate ongoing weakness*

+ *The PMI non-manufacturing index was 55.5 in July compared to 56.5 in June, 52.9 in May, 55.7 in April, 54.5 in March 53.4 in February, 53.5 in January, and 55.8 in December, reflecting modest, but stable growth in services;*

+ *The NFIB optimism index for small businesses rose to 94.5 in June from 93.8 in May, 93.6 in April, 92.6 in March, 92.9 in February, 93.9 in January, and 95.2 in December, reflecting stable but moderate growth; however, this index remains below its recent cyclical peak of 100.3 reached in December 2014*

+ *The Wall Street Journal/Vistage Small-Business Confidence Index fell to 93.6 in June, the lowest level since 2012 and down from its high of 115 in 2015.*

+ *Manufacturing production has risen a paltry 0.4% over the past year*

+ *GS's business conditions index fell back into contraction territory at 47.1 in July compared to 55.5 in June. Monthly index values in 2016 were 48.6 in May, 44.9 in April, 46.5 in March, 40.4 in February, 39.9 in January, and 48.6 in December; this indicator has been above 50 only once in the last 16 months (a value of 50 indicates trend growth; thus, business conditions were below trend for 14 months until June)*

- **Business investment** spending growth should edge down slightly and be in a range of 2.0% to 3.5% as employment and consumer spending growth slows.

- *Business investment fell at an annual rate of -2.8% in the first half of 2016, reflecting in part energy investment cutbacks; however, investment in non-energy areas has fallen short of expectations*

- *GS expects business investment to rise at a rate of 2.0% in the second half of 2016, but fall -1.0% overall during 2016; B of A expects business investment to decline -1.1% in 2016*

? *An Evercore ISI mid-2016 survey indicates that U.S. capital spending plans have moderated during 2016 and global capital spending plans have turned negative for the first time since the survey began in 2010*

? *An Evercore ISI mid-2016 survey indicated that inventories are above optimal levels, particularly for industrial companies*

- **Residential housing investment** should remain relatively strong in a range of 6% to 8%, but should edge down a bit from 2015's level; housing starts should rise 10% to 15%.

? *Residential housing investment rose 7.8% in Q1 but fell -6.1% in Q2; growth is currently expected to be 3.1% to 5.8% in 2016*

- *Over the first six months of 2016 housing starts are 4.3% above 2015's average, but 7.9% above the first six months of 2015, which is somewhat below the expected growth*

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

? *B of A recently raised its forecast of housing prices to increase 3.6% in 2016 instead of 1.8%, but commented that risks are in the direction of an even greater rate of increase; GS expects prices to increase 3.8%*

? *The Federal Housing Finance Agency's purchase only price index rose 5.7% over the 12-month period through March 2016*

? *CoreLogic's housing price index increased 5.8% year over year in June but downward revisions are likely as well as slowing in price gains over the remainder of 2016*

+ *The University of Michigan June survey reported a decline in the net percentage of respondents believing it is a good time to buy a home to 38% and an increase to a net 18% those who believe that it is a good time to sell — these shifts in sentiment indicate that prices have moved high enough to depress demand — longer run a slowing in price increases is likely*

- **Trade deficit** should rise in 2016 as the increase in the value of the dollar continues to depress exports and increase imports. The *dollar's value* on a trade-weighted basis should rise slightly. *(Trade data were revised for the last several years in April 2016, which reduced the size of the deficit, with reductions being greater in more recent months)*
 - *The trade deficit has fallen slightly over the last 12 months from 2.75% to 2.68% in June*
 - *Through July the trade-weighted (major currencies) value of the dollar has fallen 3.5% since December*
- **Monetary policy** — the Federal Reserve will raise the federal funds rate two to three times during 2016 in 25 basis point increments.
 - *In the aftermath of Brexit, the market places a low probability on rate increases in 2016 and 2017; the FOMC median, which was published prior to Brexit, projected two increases in 2016, but six of seventeen members expected just one increase; B of A expects a 70% probability of one increase by December, and GS has a probability of 65% for an increase by December; my econometric model indicates no additional increases for at least another two years, which is consistent with current market expectations*
- **Total inflation** measures (CPI and PCE) will rebound sharply in 2016 as the depressing effects of 2015's collapse in oil prices passes out of the indices.
 - + *B of A expects CPI to rise from 0.7% in 2015 to 1.4% in 2016 and PCE to rise from 0.6% to 1.1%*
- **Core PCE inflation** will be relatively stable in a range of 1.2% to 1.6%, reflecting global disinflationary trends offset somewhat by the closing U.S. employment and output gaps. Core PCE inflation will remain well below the FOMC's 2% objective at least through 2018 and perhaps much longer.
 - *Core PCE inflation forecasts have been raised to 1.6%1.7%; FOMC's June projection range for 2016 was raised to 1.6%1.8%*
- The **10-year Treasury rate** is likely to fluctuate in a range between 2.25% and 2.75% in 2016. Faster than expected real GDP and employment growth would push the rate toward the top end of the range; greater than expected declines in inflation and/or heightened financial instability would push the rate toward the bottom end of the range.
 - *The 10-year rate was 1.59% on August 5*
- **Fiscal policy** will have a positive impact on real GDP growth during both fiscal year and calendar year 2016, raising real GDP growth by 0.4 to 0.6%. The deficit as a percentage of nominal GDP will increase substantially from fiscal year 2015's level of 2.46% to a range of 3.25% to 3.50%. Stronger than expected growth would push the deficit toward the lower end of the range.
 - *With GDP revisions, the 2015 calendar year fiscal deficit was 2.62%; both growth and the deficit are rising less rapidly than forecast; the 12-month cumulative deficit to GDP ratio was 2.84% in June 2016 compared to 2.41% in June 2015 but is expected to rise to approximately 3.07% by the end of 2016*

- **State and Local investment** spending growth should range between 1.5% and 2.0%.
 - ? *The Bureau of Economic Analysis revised state and local investment growth much higher in 2015 from 1.36% to 2.92%*
 - + *State and local investment spending grew at an annual rate of 1.1% in the first half of 2016, but is expected to increase 1.5% for all of 2016*
2. **Rest of the World: July Assessment:** current activity has picked up a bit from the recent slowing trend; however risks are tilted to the downside
- ✓ *The Citi Global Economic Surprise Index improved to 13 in late July from -2 in June as did the Goldman Sachs global economic growth indicator*
 - ✓ *OECD index of leading global indicators declining and at lowest level since euro crisis in 2012*
 - **Global growth** is likely to improve to 3.4% in 2016 from 3.1% in 2015. Risks are tilted to the downside.
 - *Global growth forecast has declined to 3.0% in 2016 (IMF July forecast is 3.1%)*
 - *The global manufacturing index is in a declining trend and at 50.0 in May indicates no growth*
 - *The OECD leading indicator declined to its lowest level since the Great Recession early in 2016 but improved slightly in May*
 - **European growth** will be positive but will likely fall short of the consensus 1.7% as the benefits of 2015's fall in the value of the euro wane and social and political disruptions occur.
 - *European growth forecast has declined to 1.5% in 2016, but could come in lower because of Brexit fallout (IMF July forecast is 1.6%); growth is expected to decline to 1.1% in 2017*
 - **European inflation** will rise from 2015's 0.1% but will probably fall short of the expected 0.9%.
 - *Final 2015 European inflation was 0.0%; 2016 forecast is 0.2%*
 - *The ECB is slowly losing its battle to push inflation to 2.0% as reflected in market long-term inflation expectations, which have declined below 1.5%*
 - **European financial markets** should be relatively stable with periodic episodes of volatility prompted by specific events.
 - *European stock markets declined broadly in early 2016; bank stocks plunged 45% since their recent peak to a level not experienced in 30 years; however, stock prices rallied vigorously in March as panic subsided and the ECB ramped up monetary easing; nonetheless, bank stocks continue to underperform and underperformance worsened after the Brexit vote, a worrying development*
 - *German business expectations fell sharply in June to the lowest level since the euro crisis in 2012.*
 - **European political dysfunction, populism and nationalism** will continue to worsen gradually. Countries to watch closely include Greece, Spain, Italy and Portugal.
 - + *Political fragmentation is worsening slowly; the immigration crisis is hollowing out centrist political parties*

+ *Spain's new election was inconclusive, although this time a government is likely to be formed*
+ *Italy's banking crisis is heating up and could contribute to a defeat of Renzi's late October constitutional referendum, followed by Renzi's resignation and probable new elections*
+ *Greece's third bailout is increasingly in jeopardy of failing; however, Greece's parliament has enacted spending cuts and tax increases necessary to meet the requirements for disbursement of funds under the current bailout agreement; debt relief is necessary according to the IMF — creditors have promised to consider that possibility in 2018 after the next set of French and German elections*

- **U.K. growth** is expected to remain a solid 2.5% in 2016 compared to 2.4% in 2015; some risk to this outlook could evolve from the proposed referendum for the U.K. to leave the European Union.

- *In the aftermath of the Brexit "Leave" vote, U.K. growth forecast has been reduced to 1.5% in 2016 and 0.2% in 2017 (IMF forecast is 1.7% in 2016 and 1.3% in 2017)*

- *U.K. consumer confidence plunged following the Brexit "Leave" vote*

- *Both the manufacturing and services purchasing managers indices fell into contraction territory in July; the composite measure fell from 52.4 in June to 47.5 in July*

- **China's GDP growth** will slow below 6.5% and could be as low as 6.0% by the end of 2016 as economic reforms are implemented and the shift to a consumer-focused economy gathers momentum.

- *China reported year-over-year real GDP growth of 6.7% through the second quarter of 2016*

+ *China's 2016 GDP growth is forecast to be 6.4% (IMF July forecast is 6.6%)*

? *The difference between reported results and forecasts is that policy makers have deliberately taken actions to boost housing construction and public investment, which has resulted in a short-term boost to the economy; however, this force-feeding of economic growth could worsen future economic performance as debt leverage continues to grow faster than economic output*

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

+ *President Xi's anticorruption campaign and centralization of power is smothering the consensus governance approach in place for the last 30 years and may be creating latent political instability*

- **Japan's** economic policies will continue to fall short of achieving the 2.0% inflation target; inflation is expected to rise from 0.5% in 2015 to 1.0% in 2016. GDP growth will also continue to fall short of the policy target, but should rise from 0.7% in 2015 to 1.2% in 2016. Population decline and slow implementation of market reforms will continue to weigh heavily on both growth and inflation.

- *Japan's economy grew 0.6% in 2015; the 2016 growth forecast has been revised down to 0.6% (IMF July forecast is 0.3%)*

- *Japanese markets responded very negatively to the Bank of Japan's imposition of negative interest rates early in 2016; the yen has strengthened; the Bank of Japan disappointed markets again in July with a more modest easing of monetary policy than expected*

- *Inflation is now expected to be -0.2% in 2016*

- Evidence is increasing that Abenomics is failing: only 36% of businesses surveyed by Evercore ISI in the second quarter expect conditions to improve compared to 83% in the first quarter; the yen continues to strengthen, which will depress profits, thus only 36% expect to increase prices compared to 58% in the first quarter

- There is increasing skepticism that the Bank of Japan can do much more to boost inflation and economic growth

- Abe's political position was strengthened by the outcome of the recent elections in the Upper House

- A substantial fiscal stimulus program has been announced, which includes significant infrastructure spending and Kyushu earthquake recovery spending; though there is much talk about helicopter money, the Bank of Japan is legally prohibited from outright "printing" of money and has taken few additional monetary policy easing steps, but more is expected

- **India** should continue to experience relatively strong real GDP growth in a range of to 6.0% to 7.0% in 2016.

+ IMF is forecasting 7.4% GDP growth

? Prime Minister Modi has had difficulty getting parliament to pass economic reforms, which has held back growth potential

- **Emerging market countries** should experience better growth in 2016 than in 2015 when falling prices for commodities depressed economic activity in many countries.

- Declines in the prices of commodities and capital outflows have depressed growth in most emerging market economies in 2016; however, easier U.S. monetary policy and rebounding prices of commodities have averted a potential meltdown

- 2016 GDP forecast has been revised downward from 4.3% to 4.0% and is 2.8% if China is omitted

- **Brazil, Russia, and Venezuela** will continue to struggle the consequences of the steep decline in the prices of commodities and particularly in the price of oil.

+ Economic and political conditions continue to deteriorate in all three countries; escalation of political tensions and the potential for social disruption is greatest in Venezuela; political instability is building in Brazil with the impeachment of President Dilma Rousseff

+ Russia's 2016 GDP forecast has been revised from -1.0% to -1.8%

+ Brazil's 2016 GDP forecast is -3.5%

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

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

+ Forecasts of actual 2016 growth have been reduced; lower than expected productivity, if sustained, will depress potential growth

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

- Employment growth over the first six months of 2016 has been slightly above the upper end of the expected range

- **Employment participation rate** rises rather than remaining stable or falling modestly
 - *The participation rate has been relatively stable*
- **U.S. hourly wage rate growth** falls from its 2015 level of 2.2% or rises much more rapidly than expected; falling wage growth is the more serious risk
 - *Risk not realized; average hourly wages of all employees have risen slightly from 2.30% in December to 2.44% in June (12-month moving average); however, the rate of increase in weekly average wages has fallen from 2.42% in December to 2.17% in June as the length of the workweek has decreased; other measures of wages indicate a slight acceleration in the growth rate*
- **U.S. Unemployment rate** falls less than expected
 - *Risk not realized, unemployment rate is slightly above the year-end expected range*
- **U.S. productivity** remains below 1%
 - + *Productivity rose at an estimated annual rate of 0.4% in the first half of 2016 and has risen only an estimated 0.1% over the last four quarters; little improvement over the remainder of 2016 seems likely*
- **Real U.S. consumer income and spending** increase less or more than expected; less than expected increases are the more serious risks
 - + *Income is rising faster than forecast and spending is rising about as expected*
- **U.S. stock prices** fall more than or rise more than the expected range of -5% to +5%
 - + *Stock prices are up 6.8%*
 - ? *The Wilshire index of stock prices is 122% of nominal GDP, which is an extremely high level last experienced during the dot.com bubble peak in 2000, suggesting that stock prices are significantly overvalued*
- **Growth in U.S. residential housing investment and housing starts** are less than or more than expected; below expectations is the more serious risk
 - *Housing investment growth is within the expected range*
 - + *Housing starts are rising more slowly than expected*
- **U.S. residential housing price increases** are less than expected
 - *Risk not realized; prices are rising faster than expected, although the rate of increase is expected to slow during the remainder of the year*
- **U.S. private business investment** does not improve as much as or more than expected; falling short of expectations is the more serious risk
 - + *Business investment declined during the first half of 2016 and is expected to be negative for the entire year*
- **Oil price declines** that occurred in 2015 trigger bankruptcies and cause tighter financial conditions with negative implications for economic activity and growth
 - *Early in the year it appeared that this risk might be realized; however, the rebound in the price of oil has delayed, perhaps prevented, realization of potential problems*
- **U.S. manufacturing growth** contracts or expands more than expected; contraction is the more serious risk
 - *Risk not realized*

- **U.S. trade deficit** does not widen as expected
 - + *Deficit has declined slightly*
- **Value of the dollar** rises substantially
 - *Risk not realized; value of the dollar has declined slightly since December*
- **U.S. monetary policy** spawns financial market uncertainty and contributes to financial instability
 - *Risk was realized briefly at the beginning of the year but has abated due to less aggressive monetary policy and a weaker U.S. dollar; financial conditions tightened only modestly following Brexit*
- **U.S. inflation** decelerates, rather than remaining stable or rising as expected
 - *Risk not realized; inflation rising a bit more rapidly than expected*
- **U.S. interest rates** fall or rise more than expected
 - + *Risk realized; rates have fallen much more than expected*
- **U.S. fiscal policy** is more expansionary than expected
 - *Risk not realized — increase in spending about as expected*
- **Federal budget deficit** increases more than expected
 - *Risk not realized deficit slightly less than expected*
- **U.S. state and local spending** does not rise as fast as expected
 - *Risk not realized — spending expected to increase near the bottom end of the forecast range*
- **Global GDP growth** does not rise as fast as expected
 - + *Risk realized*
- **European growth** is considerably less than expected
 - + *Risk realized — modest reduction in forecast growth*
- **ECB's** quantitative easing program is not successful in raising inflation and stimulating the European economy
 - + *Risk realized — inflation forecast is 0.1% for 2016; IMF estimates a 35% probability that Europe is headed to deflation*
- **Europe** — financial market turmoil reemerges
 - *Risk realized temporarily early in the year; ECB's monetary policy has been successful in maintaining financial market stability; bank stocks continue to perform poorly relative to other industries, reflecting continuing investor concerns about profitability and problem loans; markets appear to have taken the Brexit "Leave" vote in stride*
- **Europe** — political instability and social unrest rises more than expected threatening survival of the Eurozone and the European Union
 - + *Risk realized — euroskeptic parties continue to gain ground and are forcing centrist parties to take policy positions that feed centrifugal forces eating away at the cohesion of the European Union*
- **Chinese** leaders have difficulty implementing *economic reforms*

+ Risk realized — reforms have been delayed in favor of economic stimulus implemented primarily through debt leverage via state-owned banks and the municipal bond market

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

- Risk not realized — policy makers are pulling out all the stops to hit the target growth rate; this will eventually backfire, but not during 2016

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

+ Risk realized — yen has strengthened, profits are eroding, wage increases are being scaled back; a new major fiscal stimulus initiative has been announced

- **New Risk — Political risk is building in Russia**

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

? Consequences of Japan's Kyushu earthquakes appear to have been confined to Japan

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