



The Longbrake Letter*
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I. Introduction

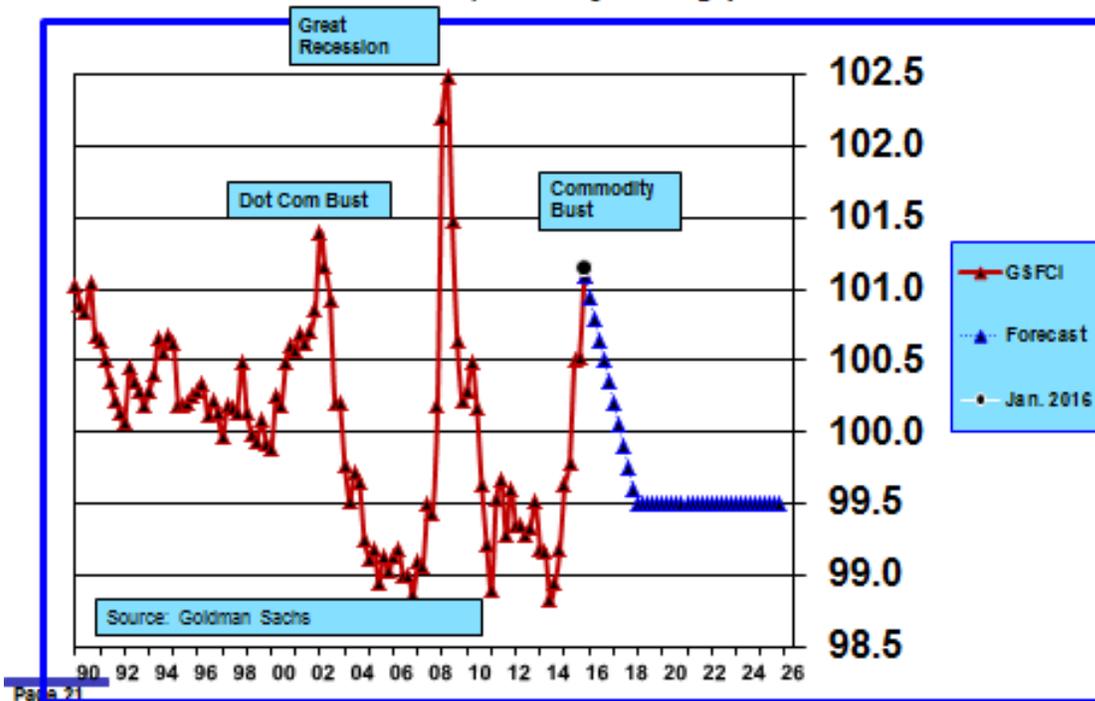
At the beginning of 2016 several developments emerged more or less at about the same time which spooked global financial markets.

- Commodity prices, and in particular oil prices, after having appeared to stabilize at a very low level, dropped precipitously as the new year got underway. Oil prices have plummeted 30.8 percent from the November average.
- Perhaps a precursor of things to come, the 4-week average of both initial and continuing unemployment claims have been inching up gradually over the last couple of months.
- Bond credit spreads have risen, especially in the energy and manufacturing sectors.
- Financial conditions, as measured by the Goldman Sachs financial conditions index and shown in **Chart 1**, have tightened significantly, reaching a level of 101.14 in January, a level exceeded only twice in recent times — just barely and only for two months in the fall of 2002 and by a great deal more during the nine months following the failure of Lehman Brothers in September 2008.
- U.S. corporate profit margins are contracting, which is reducing the rate of return.
- The Federal Reserve has begun to raise the cost of money with the consequence that the spread between the return on capital and the cost of capital is narrowing.
- Capital is flowing out of many emerging markets in near panic fashion and this is pushing up the value of the dollar.

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- China once again surprised the markets with an unexpected devaluation of the renminbi; in addition, the slowdown in the Chinese manufacturing sector has triggered renewed worries about the global consequence of slower growth in the Chinese economy.
- Terrorism and the political fallout from the huge increase in immigrants from Africa and the Middle East have cast a negative pall over the good news of modestly improved growth in the European Union.

CHART 1 – Financial Conditions
(Quarterly Average)



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

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

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

Some seem to think that disaster is always just around the corner, but it rarely really is. So, in times such as these it’s important to take a step back and attempt dispassionately to understand what is going on in the global economy, global financial markets, and global political governance, and how these developments might evolve and intertwine in coming months.

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

II. Recession Watch

Weather buffs know that the word "**Watch**" means that the odds of inclement weather are significant and close attention needs to be paid to the evolving situation. But when the word "**Warning**" is substituted for "Watch" it is time to batten down the hatches and take aggressive action to protect oneself from the ravages of certain foul weather.

It might be a bit of a stretch to extend weather forecasting nomenclature to the economy, but the weather distinction between "Watch" and "Warning" may have some applicability to the current economic situation.

At the beginning of 2016 global financial markets plunged and turbulence returned to levels not experienced since the financial crisis of 2007-2009. If one only watched financial markets' gyrations, it would be reasonable to surmise that recession is at hand or just around the corner. But, at least in the U.S., as the January employment report appears to signal, the real economy is advancing, which is consistent with the preponderance of forecasters' expectations that the economy will grow slowly during 2016 and the output and employment gaps will continue to shrink. Surely, recession will occur sometime in the future, but the preponderance of opinion is not in 2016.

There is no debate that financial conditions are tighter and unsettled. Facts speak for themselves. But, the question is one of whether turbulence and pessimism in financial markets will engulf the real economy in stormy weather that precipitates recession or whether it will turn out that financial markets are overreacting to perceived problems and outcomes irrationally. In recent days the tone of markets has improved. This may reflect either a temporary exhaustion of anxiety to be followed by renewed turbulence in coming weeks or markets may be beginning to realize that the global macro economy is not about to plunge into recession.

On February 12, 2016, *The Wall Street Journal* published a chart on its front page, titled "Dueling Indicators: Economy vs. Markets." The chart showed graphically the ups and downs of two different indicators over a 35-year period that project the probability of a recession in the coming year. One indicator was labeled "Market-based" and the other was labeled "Macroeconomic based." Historically, both indicators have peaked relatively simultaneously at approximately the same time as "official recessions," as defined by the National Bureau of Economic Research's Dating Committee.

Currently there is considerable divergence between the two recession indicators which is unusual. Even more unusual, the market-based indicator is signaling a 50 percent probability of recession while the

macroeconomic indicator is signaling a 25 percent probability, a level that has actually been relatively constant for the last four years. The only other time the market-based recession indicator exceeded the macroeconomic indicator and a recession did not occur was in 1984 at the time of the Continental Illinois banking collapse.

Needless to say, there is vigorous debate about the meaning of these two indicators and whether there is meaningful risk of recession in the U.S. economy. Thus, for now, “*Recession Watch*” is appropriate. Developments in financial markets and in the real economy over the next few weeks will shed more light. However, enough damage has already occurred that, even if recession is not in the offing, slower growth in 2016 than expected at the end of last year seems likely.

Neil Irwin in a recent *New York Times* commentary outlined how a recession might come to pass in the U.S. in 2016.¹ The sources would be end of the super cycle in commodity prices and the end of investors’ 15-year love affair with emerging markets during which time they poured prodigious amounts of capital into emerging markets countries and debt-to-GDP ratios skyrocketed. Now capital flows have reversed. The decline in oil prices has depressed revenues in oil producing emerging economies and slowed economic activity in those countries and elsewhere leading to a negative feedback loop that puts further downward pressure on oil prices. (Note that this negative oil price impact could be offset by a favorable consumption impact in oil-consuming nations.)

As emerging economies weaken, the values of their currencies decline relative to the dollar, which makes it harder to service the huge pile of dollar-denominated debt. This ignites another negative feedback loop which exacerbates capital outflows, depresses currency values further and reinforces the weakening of economic activity.

Optimists dismiss the importance of these global developments to the U.S. economy, citing the small size of the energy sector in the economy and limited exposure to international trade. Pessimists observe that the low level of growth in the U.S. leaves little cushion to absorb global economic and financial shocks and frets that the Federal Reserve has little monetary policy ammunition to intervene and prevent the development of cascading negative feedback loops.

III. Forecasting Is Challenging in Times Such as These

Forecasting is never easy as the rather dismal history of forecasting accuracy demonstrates. Think about how inaccurate the economic projections of members of the Federal Open Market Committee have been.

At times like we are currently experiencing, forecasting becomes even more difficult because of the interaction of financial market developments with decisions being made in the real economy and attempts by policymakers to influence outcomes. The feedback loops are complex. Psychology and sentiment take on much larger roles in shaping decisions and responses. And, in this age of social media and highly integrated global markets, new developments and responses ripple through markets and economies at lightning speed and can have significant impacts.

¹Irwin, Neil. “If There Is a Recession in 2016, This Is How It Will Happen,” *The New York Times*, The Upshot, edited by David Leonhardt, February 4, 2016.

We know from experience that sentiment and emotion have the potential to alter behaviors in ways that become self-fulfilling. In other words, if people expect recession and act in anticipatory ways by curtailing hiring, investing, and spending, there is no doubt the economy will slow. And, as it slows that can spawn negative feedback loops that reinforce downward momentum.

But, the severity of impacts of sentiment and emotion on economic activity depend importantly on whether there are fundamental and significant imbalances extant in the economy.

We can look back at history for guidance. During the housing bubble easy credit and speculative fever drove housing prices far above levels consistent with household incomes. This was an unsustainable imbalance. This relationship was statistically obvious but market-sentiment ignored hard data and fed on emotion, driving prices ever higher. That is until it became obvious that the housing bubble was really a confidence game. Once that realization began to sink it, sentiment changed abruptly, market turmoil ensued, stock prices collapses, and major companies failed. The sentiment change, when it finally arrived, fed severe contagion that led to the Great Recession. Had not significant imbalances, both real and financial, been in place, the change in sentiment would not have prompted such a severe response.

Here is the point. Sentiment oscillates between optimism and pessimism. Integrated global markets and real-time media communications accelerate and amplify the impacts of sentiment changes on financial markets. Whether this leads then to significant impacts in the real economy depends upon the existence of imbalances and the severity of those imbalances.

Thus, in attempting to understand whether recent pessimism and turbulence in global financial markets is the harbinger of worse to come in the global economies, in other words recession, one needs to consider whether imbalances have been building in real economic activity and the severity of these imbalances.

IV. Distinguishing Short-Term Cyclical Oscillations and Long-Term Global Mega Trends

Before considering the nature and severity of imbalances in the global economy and the threats they might pose, it will help to explore the long-term secular forces and trends that are reshaping the global economic, social and political governance systems and how the actions of policy makers in deploying tools to regulate the economy, with particular intent to moderate the consequences of short-term cyclical oscillations, might be amplifying, either positively or negatively, the evolution of long-term trends.

Although policy is supposed to focus on achieving long-run outcomes, such as full employment and price stability, policy strategies tend to attempt to manage short-term phenomena such as the unemployment and inflation rates. This bias is epitomized by the Federal Open Market Committee's (FOMC) repeated insistence that monetary policy is data dependent. Of course, the data-dependent terminology is intended to be inclusive of both current developments and long-run possibilities, but in practice short-run considerations, reinforced by political and media pressures, weigh more heavily in shaping policy responses.

However, when policy focuses on moderating short-term cyclical oscillations without consideration of longer-term consequences, there is risk that longer-term outcomes will end up being worse rather than better. Short-term gain; long-term consequences.

For example, holding interest rates at a very low level for an extended period of time with the intent to stimulate spending and investment may also protect inefficient firms from the rigors of competition and inhibit innovation. The consequence would be a systematic decline in the potential real rate of growth in the economy over time.

V. Long-Term Global Mega Trends

This section is repeated from the *January 2016 Longbrake Letter*.

There are several global mega trends that are evolving and which will have important impacts on economics and political governance in coming years.

1. Victory of the Market-Driven Economic Model

In 1985 35 percent of the world's population lived in countries with market-driven economies. Today that percentage has risen to close to 100 percent.

Market-driven economies unleash “animal spirits” and result in an explosion in production and feverish competition that propels economic efficiency — in other words, abundance at lower prices.

Prior to 1985, global economic GDP growth did not exceed that of the U.S. But, that has changed dramatically over the last 30 years. This is a double whammy — more people and more rapid growth.

Thus, it is not at all surprising that global aggregate supply is growing more rapidly than aggregate demand. This is intrinsically deflationary.

2. Emerging Markets Economic Model

As emerging-markets countries have embraced the market-driven economic model, initially their abundant and relatively low cost of labor favors a mercantilist economic growth strategy based upon export of cheap goods to more developed economies. This in turn drives infrastructure investment in productive capacity and demand for raw materials — commodities. Prices of commodities inflate globally, but prices of finished goods deflate.

Emerging economies grow rapidly and experience huge catch-up productivity gains. Their populations benefit from substantial and rapid improvements in the standard of living. Think of China over the last 25 years or Japan before that. The emerging markets economic model results in substantial trade surpluses and propels a global glut of saving.

There are two consequences. First, prices of goods fall — deflationary pressures dominate. Second, the global glut of saving depresses global real interest rates because intended saving exceeds intended investment. Thus, both nominal and real interest rates fall.

Eventually emerging economies begin to catch up and mature. As living standards rise, wages do as

well and the price-advantage of exports decreases. Super rapid growth ebbs and emerging economies evolve in response to rising domestic consumer demand. This is what is occurring in China currently.

3. Slowing Global Population Growth

As economies mature, fertility rates decline. This is a systematic consequence of urbanization that accompanies rapid economic growth and the increasing cost of child-raising. In agricultural economies, the labor of children contributes to economic wealth, but in urban consumption-based economies, children cost more to raise than what little revenue they might contribute to household income. The sensible economic decision is to have fewer children and that is exactly what has happened in country after country as economic growth has accelerated.

Indeed, it appears that in many highly developed countries the birth rate falls below the level necessary to sustain the population. Japan, German, Russia, and several other European countries are all experiencing declining population. China's population will peak in 2030 and then begin declining.

Slowing population growth slows economic growth. Moreover, shifts in the demographic age distribution create a host of economic challenges as a shrinking number of younger workers is forced to support a growing number of elderly people.

Countries with slowing population growth can only experience real growth if productivity rises faster than the rate of population decline or, they structure their economies to run a perennial trade surplus by exporting more goods and services than they import. It is not by accident that Germany and Japan, both countries with declining populations, have adopted an export-based economic model, although Japan is struggling while Germany is flourishing.

4. Integration of Global Markets

In recent years enormous efficiencies have evolved in global supply chains. This has benefited from adoption of free trade policies and the work of the World Trade Organization.

Similarly, the rapid development of cheap and efficient telecommunications has contributed enormously to rapid integration of global markets.

This latter phenomenon has been particularly important in propelling integration of global financial markets with two consequences. First, by removing financing frictions, access to capital is cheaper and it is more abundant. This accelerates the financing of economic activity and supports more rapid growth. However, greater financial efficiency comes with a cost. Monetary policies of individual countries increasingly are having direct and relatively immediate impacts on other countries, yet monetary policies generally are structured to impact domestic economic activity without consideration given to their global consequences. For example, the Federal Reserve aggressively pursued quantitative easing in an attempt to lift U.S. economic activity. However, because global financial markets are highly integrated, this U.S. cheap money policy reverberated throughout the entire world. The result has been a high degree of synchronization of global financial markets. This is not absolutely by definition a bad outcome necessarily, but if the monetary policy of a dominant country, such as the U.S., is misguided, it will end up having significant global

consequences because of linkages that now exist.

5. Financial Liquidity and Sophisticated Financial Instruments

Increasingly, the integration of global financial markets and advances in computing power have made possible a plethora of sophisticated financial instruments and derivatives. The upshot is that it is easier than ever before to create debt leverage to finance economic activity.

Convergence of global accounting rules and legal systems has improved the reliability of financial information and the dependability of contract law. With the aid of data processing efficiencies and cheap access to abundant information these developments have facilitated financial analysis and reduced the risks of investing in far flung places.

Again, there are two consequences, one benign, one unfavorable. The benign consequence is that financing is more abundant, easier to access and cheaper because information inefficiencies and trading frictions have been reduced. But, a consequence is that it is now much easier to use debt leverage and to speculate in financial instruments and real assets, such as commodities and real estate. Debt leverage can benefit growth, but as explained by Hyman Minsky, excessive use of leverage, which is not supported by intrinsic cash flows, can lead to financial bubbles and eventual traumatic market collapses.

6. Rise of Nationalism

The political history of the world since agriculture replaced a hunter-gather economic model is dominated by empires and superpowers. This political governance model continued during the transformation from an agricultural to an industrial economic model. But, as global economies shifted from an industrial to an information economic model, nation states, empires and superpowers increasingly are being replaced by smaller governance units based on geography, ethnicity, and culture.

Consider the surge in Scottish nationalism in the U.K. after three centuries of union or the threatened secession of Catalonia from Spain. Add to this the fragmentation of nation-states in the Middle East. Syria and Iraq no longer really exist. Yemen and Somaliland have fragmented. Even the European Union is threatened with fragmentation in coming years.

This devolution to smaller governmental units heightens political fragmentation and increases the frequency of international political crises. Rising nationalism is propelling increased anti-immigration sentiment in country after country. And, it is contributing to the hollowing out of center-right and center-left governments. As the strength of the political center wanes, extreme fringe movements on both the left and the right gain voice and social stability and economic progress suffers. The U.S. is in better shape than many countries around the world but is not immune from this phenomenon.

VI. Thomas Friedman's Musings — “What If”²

On January 20, 2016, Thomas Friedman published a very sobering op. ed. piece, titled: “What If?” He posed the question: “What if a bunch of significant eras are ending all at once?” What if the convergence of these epoch-ending changes unleash potentially very troublesome forces that reshape our world in unpredictable and challenging ways?

- What if China is at the end of 30 years of high growth?

China accounts for about 17 percent of global output. But, China has driven 34 percent of incremental global growth over the last few years and the contribution rises to 50 percent, if the multiplier effect of China's economic growth on emerging economies is considered.

- What if the \$100 a barrel oil price era is over and those countries whose economies and governments coasted on oil revenues have to learn how to structure real economies that produce goods and services people want to buy?

Will social upheaval, political chaos or bellicose interference in the affairs of other nations be part of the fall out?

- What if the era of multi-ethnic nation states is over and political fragmentation becomes the driving force? Consider the U.K., Spain, Syria, Libya, Yemen, and perhaps, Italy.
- What if the rise of robots, software, and automation mean that frail artificial states can't rely on manufacturing to create mass labor anymore, that the products they can make and sell don't compete with Chinese goods, that climate change is pressuring ecosystems, and that neither Russia nor America wants to have anything to do with them because all either one wins is a bill?
- Is the European Union era over?
Will the immigration crisis spark the death knell, or, the U.K. E.U. membership referendum, or, the Italian banking crisis and possible defeat of the constitutional referendum followed by the collapse of the Renzi government? And, how about Greece whose GDP continues its relentless decline and farmers are protesting tax and pension reforms.
- What if the era of Iranian isolation is over, just as the Arab system is collapsing, and the two-state solution between Israel and Palestine is history?
- What if American politics really is being driven by the far right and the far left and the historical two-party system with broad-based membership is over?
- What if monetary and fiscal policies are so constrained that there is no room left to stimulate a troubled economy.

What Friedman is suggesting is that policies and remedies upon which we have relied to manage our social, political, and economic systems in a world of established interrelationships may no longer be effective in a world in which relationships and interconnections are dramatically different.

²Friedman, Thomas L. “What If?” *The New York Times*, January 20, 2016.

VII. Global Aggregate Supply Exceeds Global Aggregate Demand

If global aggregate supply exceeds global aggregate demand over an extended time frame, policies, particularly monetary policies, intended to stimulate aggregate demand will reinforce the long-term consequences of “secular stagnation.”

Larry Summers in a speech at an International Monetary Fund meeting in October 2013 catalyzed the modern debate about the consequences of secular stagnation. Mainstream economists were quick to dismiss Summer’s ideas, but much of what has been happening in the global economy in recent times is consistent with the secular stagnation hypothesis.

Summers posited that the U.S. economy has been in a state of secular stagnation for approximately 15 years. Secular stagnation characterized an economy in which aggregate demand is insufficient to eliminate an output gap. The traditional response to an output gap is to stimulate the economy through fiscal and monetary policies. After initial stimulus during the Great Recession, fiscal policy has not been used in any particularly intentional way to address the output gap. Now, the political feasibility to do so no longer exists. And, with the substantial increase in the federal-public-debt-to-GDP ratio the ability to use fiscal policy to stimulate aggregate demand during the next recession appears to be limited.

Thus, the entire weight of policy intervention has come to rest upon monetary policy. Monetary policy since the Great Recession had provided liquidity and depressed interest rates. This was supposed to stimulate investment in productive assets, thereby increasing aggregate demand.

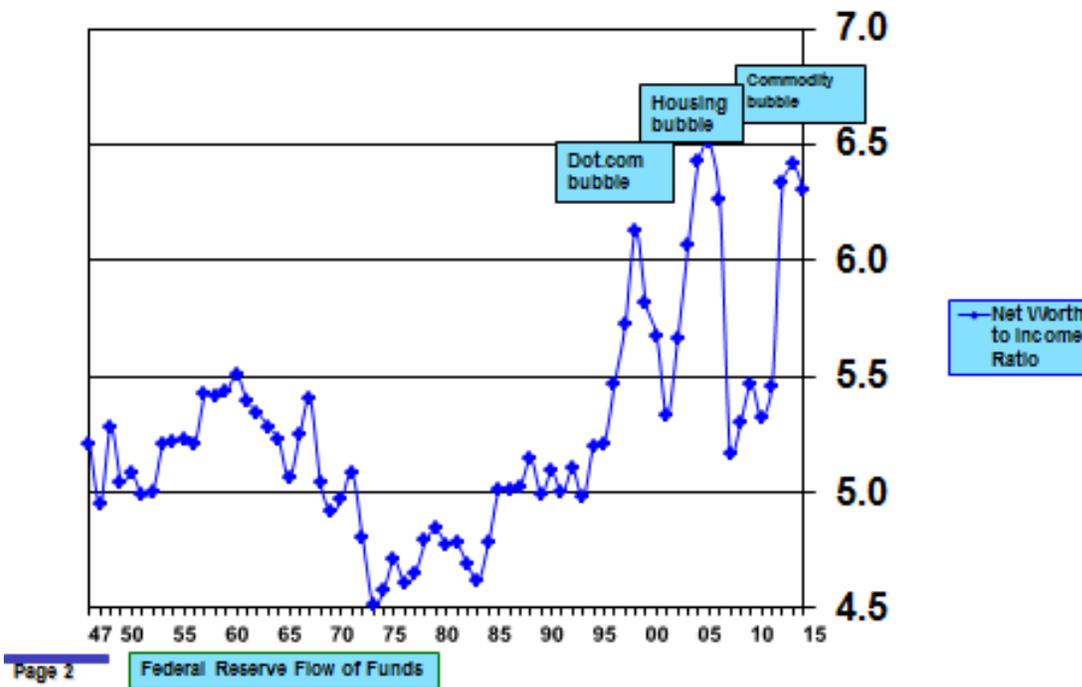
However, what if much of this monetary stimulus actually went into financial engineering and price speculation in existing assets instead? Clearly monetary policy has boosted asset prices and created wealth. Increased wealth spurred additional consumer spending. The financial services and wealth management industries have flourished and created jobs. All of these developments have helped close the output gap. Monetary policy has been successful. Or, has it?

In reality, as can be seen in **Chart 2**, what has happened is the creation of yet another unsustainable price bubble. This most recent bubble is now bursting and wealth is being destroyed, consumer spending is declining, jobs are likely to be lost and the secular output gap may well re-emerge. The dot.com and housing bubbles are visually obvious on **Chart 2**. And, we know what happened when they burst. The latest bubble, which is now bursting, can be attributed to the surge in prices of commodities and financial flows into the economies of emerging markets countries.

Prices of key commodities, such as iron and oil, have declined 70 to 80 percent since late 2014. Emerging economies, which benefited directly or indirectly from the credit-fueled boom in commodity prices, are under intense pressure. China’s slow transition from an investment/export focused economy to a consumer focused economy has served as an amplifier, both during the period of rising prices but now is amplifying the collapse in prices.

In a world in which secular stagnation is the dominant overarching economic paradigm, traditional monetary policy intervention to lower interest rates and increase liquidity fosters a credit boom and transitory increase in aggregate demand with the following consequences:

CHART 2 – Consumer Net Worth to Disposable Income 1947 - 2015



- Low or negative interest rates crowd out low return, risky investments in productive assets; inefficient companies are protected from the rigors of competition; price speculation in existing assets is encouraged
- Sustained low interest rates that are expected to be stable for a long period of time encourage investment in risk assets through debt leverage
- Productivity slows because of diminished investment in new riskier productive assets and the failure to purge inefficient firms
- Growth in real economic activity, GDP, slows
- Incomes rise less rapidly along with slower economic growth and this, in turn, depresses the rate of consumption growth
- A persistent output gap, interrupted only for brief intervals by credit-fueled speculative activity, places unrelenting downward pressure on inflation
- Speculation drives up the prices of existing financial and real assets to levels inconsistent with their intrinsic cash flows
- Asset price speculation benefits the rich and drives income and wealth inequality gaps higher
- Low productivity penalizes the poor by holding down wage increases

Think about it. These attributes of an economy which is mired in secular stagnation well describe recent observed phenomena.

VIII. Are We on the Cusp of Phase 4 of Charles Gave's Deflationary Bust?

Charles Gave has described the four stages of a deflationary bust. Over time the persistence of a condition of secular stagnation leads to a deflationary bust.

Phase 1 — The central bank follows a Keynesian policy of abnormally low interest rates. This period is marked by rising asset prices and rising leverage.

Phase 2 — Abnormally low interest rates lead to massive misallocations of capital causing a structural decline in the growth rate of the economy.

Phase 3 — At some point in this structural decline the rate of return on invested capital falls below the cost of capital and the leverage in the system can no longer be serviced.

Phase 4 — This is the fabled “Minsky Moment,” or “Lehman Moment,” which heralds the deflationary bust. The prices of assets fall precipitously in a violent crisis.

So, are we on the cusp of **Phase 4**, or already in it? As a reminder, the last financial crisis built steadily over nearly two years' time. It built in fits and starts with periods of relative tranquility in between moments of market chaos. To a certain extent the current situation has the feel of early 2008.

But, as is always the case no two cycles are alike. Unlike 2008, there do not appear to be serious imbalances present in the U.S. economy. Rather the imbalances that do exist are concentrated primarily in other parts of the world — emerging market countries, Japan, Italy, China, Europe, and the Middle East. The U.S. financial system, courtesy of the requirements of the Dodd-Frank Act, appears to be well capitalized and well-positioned to weather an international financial storm. But, in an interconnected global economy and financial market place, can the U.S. really be unaffected by trouble elsewhere? The answer today is unclear but we will know better in a few months' time.

IX. Amplifying Role of Debt Leverage

Credit creation can accelerate and raise economic growth. But too much credit can lead to misallocation of capital and to credit booms and bubbles.

The governor between too much and too little credit is the relationship between the natural rate of interest and the potential growth rate of an economy. When the natural rate of interest is below the potential growth rate it stimulates economic activity, but if it is too far below, it fosters price speculation in existing assets. When the natural rate is above the potential growth rate, many investments become unprofitable, economic activity slows, and a recession may follow.

The global expansion in recent years has been fueled by low interest rates, abundant liquidity, and excess leverage. This is the consequence of well intentioned, but misguided, monetary policy.

Reflecting upon the global growth scare that has unfolded in recent months, it is more than a scare. It is about the unwinding of excessive leverage and returning global growth to a lower more sustainable level consistent with insufficient aggregate demand, slowing population growth, and maturing emerging market economies. However, as is always the case in times of transition, the transition will be difficult, perhaps painful, and could unleash unwelcome social and political forces.

Think about Tom Friedman's "What If's."

X. Global Imbalances

While the U.S. economy has been growing gradually, employment and output gaps have been shrinking, and nonfinancial debt leverage has been stable since the Great Recession, as Thomas Friedman has pointed out, a variety of financial, social and political imbalances have been building elsewhere in the world.

Imbalances ultimately are unsustainable and correct. Usually the experience of correction is not gradual but abrupt and turbulent.

We also know from experience that policy and psychology can delay correction of imbalances and contribute to making them even worse. And, unfortunately, we also know from experience that amplitudes of bubbles tend to be symmetric which means that small imbalance will have limited disruptive impacts when they correct but the disruptive consequences of large imbalances will be much more significant.

Great cataclysms involve the relative simultaneous tipping over and correction of multiple imbalances. Such clustering is almost never anticipated because various imbalances are often viewed as discrete and unrelated. Perhaps the general loss of confidence stemming from an initial disruption in one relatively inconsequential sector becomes a catalyst that triggers doubt more pervasively elsewhere, followed by further seemingly unrelated disruptions that cluster together. This is why Thomas Friedman's musings about "What If" deserve serious attention.

Serious imbalances are not evident in the U.S. economy. That and the U.S. economy's relatively limited international exposure underpin the optimistic view that the U.S. economy will continue to forge ahead, just as it did during the last emerging markets meltdown that occurred in 1997-98.

Current global imbalances appear to be most severe in emerging economies. But, there are also imbalances in China, Japan, Europe and elsewhere that bear close watching.

1. Emerging Market Economies — Key to Potential Severity of Global Challenges

Credit creation can accelerate and raise economic growth. But too much credit can lead to misallocation of capital and to credit booms and bubbles. Emerging market economies were the focus of the most recent credit boom and now find themselves in the early stages of the unwinding of that boom. This may be the

most troublesome global imbalance currently.

Jaime Caruana, General Manager, Bank for International Settlements (BIS), delivered an insightful lecture at the London School of Economics on February 5, 2016.³ In the lecture, Caruana cited three major global economic developments that are central to the turbulence experienced in financial markets at the outset of 2016. These developments have converged and, indeed, are interrelated.

The first development is disappointing global economic growth and downwardly revised projections of future growth. The second is large shifts in currency exchange rates. The third is the substantial decline in commodity prices. Caruana also observes that as these three developments evolve both stocks and flows matter. Thus, not only do flows in the form of capital outflows, particularly from emerging markets economies, matter, but the stock total debt matters as well. A larger stock of debt relative to GDP is of much greater consequence when flows become volatile than when the stock of debt is small.

Caruana also cautioned that policies, which address symptoms but do little to alter underlying vulnerabilities, may quiet markets for a time but permit the stock of vulnerabilities to continue growing larger. This might be a pertinent observation pertinent to the brief but violent market spasms of late last summer and early this year. Once again market expectations of policy intervention, such as the elimination of expectations for any interest-rate hikes by the Federal Reserve during 2016, may help explain markets' fitful migration from turbulence to calm once again in recent days. Caruana might well opine that the markets have been extended a palliative which has treated symptoms but done little to address the underlying disease.

Total debt in the global economy has risen tremendously since the global financial crisis of 2007-08. This has been especially true in emerging markets economies. And, much of the explosion in debt has been dollar-denominated. Private credit as a percentage of GDP has risen from 75 percent in 2009 to 125 percent in 2015. BIS data pegs dollar-denominated debt of non-bank borrowers in emerging economies at a whopping \$3.3 trillion, a truly massive stock of debt relative to the overall size of these economies.

Caruana pointed out in his lecture that expanded leverage would be less consequential if the debt financed productive investments. But much of it has gone into asset price speculation. He added that there are three reasons why market complacency is ill-advised. First, as the stock of debt grows ever larger, the rate of economic growth tends to slow. This is attributable to misallocation of capital to an ever increasing extent into low productivity activities during a credit boom. Second, highly leveraged economies are more susceptible to abrupt cyclical reversals because of the close linkage between risk-taking and the role of credit in amplifying market dynamics. Third, borrowing in a foreign currency, such as the dollar, creates a situation in which the exchange rate can serve as an amplifier.

BIS economists estimate that about 23 percent of dollar-denominated debt finances a "carry trade" in existing assets in emerging markets economies, which has fueled easier credit conditions and facilitated credit booms in these economies. BIS economists further estimate that a 1 percentage point reduction in the value of the dollar has been associated with a 0.6 percentage point increase in dollar denominated debt in emerging markets economies. Unfortunately, this relationship works in reverse as the U.S. dollar strengthens and U.S. interest rates rise. Pressure emerges to shrink the stock of dollar-denominated debt.

³Caruana, Jaime. "Credit, Commodities and Currencies," Lecture delivered at the London School of Economics, February 5, 2016. Posted on Bank for International Settlements website.

This is the exchange-rate amplifier.

Caruana then delineated the challenges inherent in the negative feedback loop between debt deleveraging and currency exchange rate depreciation in emerging markets economies. First, carry trades are no longer profitable and there is pressure to unwind them. As that occurs, capital flows out, exchange rates decline, credit conditions tighten, and, importantly, reinforcing negative feedbacks kick in. Second, as financial conditions tighten, local investment declines and growth in local economic activity and employment ebbs. Caruana added that this pattern of slowing growth would impact all emerging markets economies with large amounts of dollar-denominated debt, regardless of how ample individual country foreign exchange reserves might be. Third, Caruana observed that declining foreign exchange rates also appear to have had a negative impact on sovereign debt credit spreads.

Collapsing commodity prices have also acted as an amplifier. Rather than curtail production, the need to service dollar-denominated debt results in even greater production to replace the cash flows lost to lower prices. This, too, reinforces negative feedbacks. This same phenomenon is at work in the U.S. Although oil production unambiguously exceeds demand, pressures to service energy debt have resulted in very little decline in oil production to date. Eventually, debt defaults and restructurings will occur and the pressure to pump oil to generate cash will abate. But, this will not occur quickly.

Finally, the linkage between the stock of debt and willingness to assume risk can lead to an abrupt change in sentiment that amplifies declining commodity prices and exchange rates, contributes to further debt deleveraging, and slows economic growth.

In recent days the panic that prevailed in the opening days of 2016 has abated. This reversal of sentiment can be traced directly to a small decline in the value of the dollar which, in turn, appears to be linked to a belief that the Federal Reserve will not raise interest rates during 2016 contrary to what it telegraphed in December. This is a perceived policy palliative. The stark reality remains that debt deleveraging in emerging markets economies still has a long ways to go.

Caruana concluded his lecture with a couple of policy suggestions. First, too much has been expected of monetary policy; a more balanced policy regime is needed, which would include structural reforms to remove impediments to growth. Second, policymakers will need to be prepared to manage the consequences of debt deleveraging carefully to prevent the emergence of contagion effects. In theory this is doable, but as the financial crisis of 2007-2008 demonstrated, given the complexity of the international regulatory framework, the lender of last resort function is difficult to deploy effectively in times of panic.

2. China — Muddling Through

China's economy is undergoing a necessary transition from hyper growth fueled by investments in infrastructure and exports to more sustainable growth driven by internal consumption. Many emerging markets economies benefited enormously from China's investment boom, particularly those countries in which exports of commodities have been an outsized portion of overall economic activity. According to one analysis, China's economic transition could cut growth rates in East Asian economies in half. The same analysis argues that the global impact of China's economic transition is also significant and negative because China is experiencing domestic deflation and its currency is weakening.

At the beginning of the year markets reacted badly to an abrupt, but small, devaluation of the renminbi which was not communicated well. The best explanation after the fact of what happened was that the Peoples Bank of China switched from pegging the renminbi to the dollar to a basket of currencies in conjunction with the renminbi's inclusion in the International Monetary Fund's special drawing rights. But the surprise decline in value and the clumsy communication led to concerns that Chinese policymakers might be losing control of China's economic transition and this contributed to increasing worries about the possibility of a hard landing. These worries have diminished somewhat as the dollar's value has ebbed in recent days and as China once-again has actively engaged in exchange-rate management. But there appears to be lasting damage to the market's long-held belief that China's policymakers know what they are doing and are adept at managing China's economy.

There is ample evidence that Chinese policymakers are pursuing a predominantly muddle-through strategy. The articulated official strategy, however, is that China is rooting out speculation and pursuing action to downsize and restructure unprofitable state-owned enterprises. In other words, the rhetoric claims that policymakers are focused on economic transformation. But, simultaneously infrastructure spending has increased recently as reflected by a huge increase in bank loans in January. Reform while simultaneously pursuing additional investment stimulus are seemingly inconsistent policies but reflect the intent of policymakers to move forward with economic restructuring but at a modest pace that maintains economic and social stability.

Powerful vested interests in China's Communist Party block economic transition. Many party officials have benefitted handsomely from the old economic model. Attempts of these party officials to maintain the status quo pose a significant political threat to President Xi's power. So, it is hardly surprising that President Xi has ramped up the anti-corruption investigations. It is primarily about consolidating his political power and eliminating opposition. However, political infighting is probably having negative impacts on economic growth. Until President Xi feels comfortable that he has consolidated his political position, a muddle through strategy will likely persist.

Even though estimates of China's potential economic growth have moderated, they are probably unrealistically high. Most estimates of real GDP growth for 2016 are in a range of 6.0 to 7.0 percent with very modest declines in future years. Much larger declines in future growth than most expect seem likely for at least two reasons. First, the structural reforms necessary to unleash productivity and large gains in economic growth in a consumer-driven economy are occurring in fits and starts and collectively have yet to become significant drivers of economic activity. Second, China's population growth is grinding to a halt and this will lead to much slower employment growth. In this regard, China is headed in the same direction that Japan currently is wrestling with, namely real growth of less than 1 percent and persistent deflationary pressures.

Just as China's burst of investment-driven growth fueled a global credit boom and rapid growth in emerging markets economies in recent years, China's march toward much slower growth in coming years will have negative consequences for global growth. Unfortunately, as Jaime Caruana has pointed out, the stock of global debt accumulated during the Chinese-fueled credit and economic booms of recent years will pose significant challenges to financial stability in a world characterized by excess capacity, diminished growth, and persistent deflationary pressures.

In short, challenges will be daunting for all policymakers, not just those in China, to steer a monumen-

tal structural transformation in global economies and financial markets while maintaining stability and avoiding the ever-present potential for contagion. The record to date is hardly encouraging because the thrust of policy has been to treat symptoms rather than causes. While stability has been maintained, the burden of the stock of global economic and financial vulnerabilities continues to increase.

3. Japan — Is Abenomics Failing?

Three years ago, Prime Minister Shinzo Abe announced economy policy reforms, now known as Abenomics, intended to end Japan's two-decade long economic malaise. The results to date have been uninspiring. Real GDP grew 0.0 percent in 2014 and was growth was only a slightly better 0.4 percent in 2015. Forecast GDP growth is 0.6 percent and 0.4 percent in 2016 and 2017, respectively.

Abenomics has three components, or arrows. They encompass monetary policy, fiscal policy and structural reforms.

Monetary policy is the most visible arrow and has involved an extremely aggressive program of quantitative easing with the Bank of Japan buying government debt and other types of Japanese securities with the objective of lifting Japan out of persistent deflation and within two years achieving a 2 percent annual rate of inflation. This initiative immediately had the desired effect of weakening the value of the yen and boosting corporate profits. The hope was that these developments in turn would stimulate an increase in business investment and increases in employee wage rates. The policy has been directionally successful but inflation expectations remain well short of the 2 percent target.

Other than depressing the value of the yen, attainment of the other monetary policy objectives was a "confidence game," as one observer has put it. What that means is that quantitative easing by itself was relatively powerless to change corporate investment or employee wage increase decisions. Whether businesses made those choices depended upon whether they believed that inflation would rise and increase profits. It should surprise no one that business leaders were hesitant to take anticipatory action, preferring to wait to see what developed before taking more aggressive action.

Both inflation and economic growth have been very disappointing. This should not come as a surprise given that both the Japanese population and labor force is shrinking rapidly. These forces are inherently deflationary, which means that monetary policy was working against strong natural headwinds.

Unfortunately, the recent decision of the Bank of Japan to implement negative interest rates was announced in an awkward manner. In the matter of a few hours what remained of the fragile confidence game was destroyed. Rightly or wrongly, the market quickly reached the judgment that the Bank of Japan had no effective policy and was acting in desperation. It probably didn't help that the vote to approve a negative interest-rate policy passed by a narrow 5-4 majority. In the wake of this policy decision, the Nikkei stock average plummeted with bank stocks leading the way and the value of the yen soared. In a matter of a few days much of the benefits of quantitative easing were erased with little prospect of reversal.

It appears that the damage to monetary policy credibility in Japan may be permanent. What more can the Bank of Japan do? It could increase the volume of asset purchases and expand the eligible types of assets. But, what would that accomplish. It might stabilize markets for a time but it is questionable whether it would do anything of consequence to stimulate increases in investment and inflation.

In general, monetary policy has had a negative effect on consumer spending by raising the cost of imports. This was supposed to be offset by increases in nominal wages, but the offset has been less than 100 percent. In addition, the ill-fated increase in the value added tax decimated consumer spending and economic growth.

Fiscal policy, the second arrow, probably has had a moderate favorable impact but one that doesn't appear to have been very consequential.

And the third arrow, structural reforms, has had limited impact to date on employment participation and productivity. Theoretically, the potential for significant impact exists, but implementation of structural reforms has occurred very slowly and for the most part those actions that have been taken have been of little consequence.

Looking ahead, prospects for the Japanese economy are dismal. Before the monetary policy disaster, businesses were already signaling reduced willingness to raise wages in 2016. Finally, Prime Minister Abe's popularity has ebbed and flowed with stock prices. With the Nikkei down over 20 percent since the beginning of the year, Abe's popularity is sure to decline and with it his political standing to govern.

Is Abenomics failing? Unfortunately, the answer increasingly appears to be "Yes."

4. European Union — Political Centrifugal Forces Continue to Build Slowly

Europe is beset by many challenges. At the heart of Europe's difficulties is the common currency, the euro, which prevents member countries from addressing economic problems through individually structured monetary policies. A successful currency union requires relatively unimpeded fiscal transfer mechanisms to ease and correct economic imbalances among member countries. In addition, debt mutualization, providing for the support of individual country indebtedness by other member countries, is an essential ingredient of a successful currency union. The European Union's (EU) governance structure provides for very limited fiscal transfers and there is no shared support of debt except under severely onerous bail-out conditions which force fiscal austerity and depress economic activity in those countries unfortunate enough to require bailout.

Open borders is another feature of the EU that was intended to promote economic activity by permitting the free flows of people, goods, and services among members without restriction. This ideal of a free-market economy did not reckon with the severe immigration crisis stemming from the breakdown in political stability in the Middle East and parts of Africa, which has now engulfed Europe. The flood of refugees coupled with economic weakness in many member countries is fostering a building political backlash that is weakening political stability in many member countries and undermining a key construct of the EU.

Most observers agree that the flaws in the EU's governance and monetary structures and economic and social pressures are slowly eroding the stability of the EU's political stability. French Prime Minister Manuel Valls in a speech at this year's World Economic Forum in Davos, Switzerland, said: "Things could fall apart within months."⁴

To date a muddle-through political approach to defusing successive crises coupled with commitment

⁴Morris, Ian. "Why Europe's Great Experiment Is Failing," Stratfor Global Intelligence, January 27, 2016.

of dominant centrist political parties to sustaining the European Project has held the EU together. ECB president Mario Draghi's commitment to do whatever it takes to preserve the euro so far has defused the potential for financial markets to force confrontation with difficult issues. However, as time passes nationalism is building and slowly eroding the political foundation that holds the EU together. And, centrist political parties are losing ground steadily to euroskeptical parties on the left and the right.

For example, Spain used to have a relatively stable two-party system but recent elections resulted in four parties and to date a government has yet to be formed. In addition, Spain is confronted with a secession threat from Catalonia.

There are no real initiatives underway to counter the centrifugal forces that are tearing the EU apart gradually. Increasingly, individual countries are seeking to protect their own interests and have limited interest in cooperating with other members to solve problems. Thus, as Prime Minister Valls has suggested, it is probably only a matter of time before a great upheaval occurs that drastically changes how the EU is structured.

Could the correction of other global imbalances bring about an existential upheaval? It's difficult to see direct linkages, but nonetheless, the potential clustering of seemingly unrelated matters should not be dismissed.

Thanks to a weaker euro, plunging prices of commodities, and easing credit conditions, most EU members have eked out a bit of growth over the last two years. These developments have been sufficient to overcome for the time being the contractionary impact of fiscal austerity and contributed to a false sense of optimism. But, in the long-run, limited or negative population growth in many member countries, high-debt-to-GDP ratios, and barely discernible productivity gains will lock in mediocre economic growth. Low growth and low inflation will continue to elevate the potential for debt crises in individual EU members. Greece's most recent bailout probably will fail because its economy continues its multi-year decline. Italy, the third largest EU economy, as discussed in the next section, may be on the cusp of a significant banking crisis.

5. European Banks Under Increasing Pressure

Prices of European bank stocks have plunged over the last few weeks. There are multiple reasons — all bad.

Negative interest rates are squeezing profitability. The ECB's negative interest-rate policy was supposed to encourage banks to lend rather than letting excess funds remain idle on the books of the ECB. There is little substantive evidence to date indicating the policy's objective is being met. Credit growth remains miniscule. There don't to be at the margin an abundance of lending risks banks are willing to take. In other words, as unwelcome as negative interest rates might be, the expected returns on risky loans are simply insufficient. Thus, the only real accomplishment of the negative interest-rate policy is to depress bank profitability.

New EU regulations requiring creditor and depositor bail-ins heightens risk for bank stockholders.

Crumbling prices of commodities and weakening economies in emerging markets are increasing the

potential for significant negative surprises.

Overall any weakening of the EU economy will elevate the risk of owning banking shares. And, unfortunately, elevated perceptions of risk can become self-fulfilling to the extent that credit conditions tighten and lending activity slows.

6. Italy — Potential Banking Crisis; Constitutional Referendum

Italy's moribund economy has experienced little growth for several years. In addition, Italy's banks are stuffed with a large amount of nonperforming loans. Rather than recognizing losses, which would require substantial capital injections, a policy of "pretend and extend" has been pursued. Problems of this sort can persist for long periods of time providing that depositors and creditors do not create a liquidity crisis by withdrawing funds. ECB president Mario Draghi took this risk off the table several years ago by promising to do whatever it takes to save the euro. This effectively eliminated risk and Italian interest rates declined across the board.

Unfortunately, with the passage of time the Italian banking problems have not improved. Banca Monte Dei Paschi Di Siena (BMPS) has euro42 billion in nonperforming loans equal to 31 percent of its total loans outstanding. It failed the ECB's asset quality review in 2014 and was forced to raise euro3 billion in additional capital. However, since BMPS completed the capital raise in May 2015, its share price has fallen by two-thirds. While BMPS is the worst, many other Italian banks are saddled with severe asset quality problems. Nonperforming loans in Italian banks amount to approximately euro350 billion or about 18 percent of total loans.

Italy's government has been working on the problem. Last year it made bad loan write offs tax deductible but this has turned out to be insufficient incentive to entice secondary market investors. This year the Italian government has decided to establish a special purpose bank, or "bad bank," to purchase and resolve nonperforming loans. But, losses will have to be realized by someone. Losses far exceed the capacity of Italy's Deposit Guarantee Insurance Fund which is funded by loans from Italy's banks that are guaranteed by the state bank Cassa Depositi e Prestiti.

Five banks were restructured in late 2015 by bailing in bondholders and funding from the Deposit Guarantee Insurance Fund. In one case the bondholders were solely retail investors who ended up losing their entire investment. It is estimated that bank bonds make up as much as 40 percent of Italian household bond portfolios.

At the beginning of 2016 the depositor bail-in regulations of the EU Bank Recovery and Resolution Directive was extended to include depositors as well as bondholders. Implementation of these resolution threatens to unravel market complacency about the potential for creditors and uninsured depositors in Italian banks to realize losses.

Coming out of the Cyprus sovereign debt and banking crisis, the EU adopted new bank resolution rules that are now effective. Although the rules are complex, the key component is that creditors and depositors are "bailed in" to cover losses in the event that equity capital is depleted. This is troublesome because if the jig is up and embedded losses are likely to be realized no one wants to be the last one holding the bag. The race for the exit will be on and a monumental liquidity crisis will develop very quickly. A construct of

the EU that has been in place for a very long time is that anyone can move funds to any bank domiciled in a EU member country. This construct has been broken only twice in the case of Cyprus and Greece, both of which now have capital controls in place on withdrawals.

To make matters worse, many Italian creditors, who could end up being “bailed in,” are small retail customers who were enticed into investing in higher yielding debt in lieu of deposits.

The potential ugly scenario is that complacency could be replaced by panic. A run on one or more banks would ensue and creditors and depositors would be forced to absorb losses. This would be politically devastating to Prime Minister Renzi. The popularity of Renzi’s Democratic Party has already fallen from 40 percent to 31 percent of the electorate over the last year.

But there is more. Renzi pushed a constitutional amendment through parliament last year that would change governance rules with the intent to create a more stable central government. The Italian electorate must vote to approve this constitutional change. The referendum is scheduled for the fall of 2016. Right now polls indicate that the proposed change would be approved. But, if there is a banking crisis before the vote occurs, all bets about the outcome are off. Then, if Renzi loses the referendum, it is probable that he would be forced to resign and political chaos could engulf the Italian government. At the moment such a scenario is conjectural and judged to have low probability. But it is indicative of fragility and how important ongoing stability depends upon the maintenance of confidence. Japan’s recent experience in that regard provides little comfort.

But, ECB president, Mario Draghi, recently suggested that the ECB might accept Italian nonperforming loans as collateral for liquidity extensions. Of course, this would not deal with losses but it could buy time by preventing a liquidity crisis in an Italian bank from fomenting contagion in the rest of the banking system.

7. Potential European Sovereign Debt Bail-In

A proposal, which may have the support of Germany’s Finance Ministry and the Bundesbank, has emerged recently that would bail-in sovereign debt bondholders to cover losses before funds from the European Stability Mechanism could be used. This proposal probably won’t become official EU policy any time soon, if ever. However, it doesn’t have to be policy for the idea to create damage. The damage is uncertainty about the possibility of bail-in, which elevates sovereign debt bondholder risk. The consequence would be higher interest rates for weaker sovereign credits, thereby undoing some of the “good” accomplished in lowering interest rates on sovereign debt by Mario Draghi’s promise to do whatever it takes to preserve the euro.

While such ideas are not likely to become policy any time soon, they are indicative of the worry that abounds in Germany that it will be forced to bear losses others created. It is an indirect acknowledgement by the Germans that the benefits of its EU membership might one day be overwhelmed by Germany being forced to absorb other countries’ losses.

8. U.K. — European Membership Referendum

During the last U.K. parliamentary election Prime Minister David Cameron promised to hold a public referendum on U.K. membership in the EU, if the Conservative Party was returned to power. The promise was a political move to mollify euroskeptics in the Conservative Party and also to offset the strident campaign rhetoric of the U.K. Independence Party that promised to take the U.K. out of the EU.

The political role of the U.K. today is greatly diminished from what it once was during the days of the British empire. The U.K.'s ambivalence about EU membership has a great deal to do with its sense of its identity in the global order and the its reluctance to cede sovereignty. It is also about preserving the U.K.'s historic preeminent role as a global financial services powerhouse. As the EU has struggled in recent years with the euro crisis and the irritations of EU regulations have built, political support for EU membership has ebbed.

On February 19, 2016, U.K. Prime Minister, David Cameron, and European Council President, Donald Tusk, announced that the U.K. and the European Council had reached an agreement on a “special status” for the U.K. within the EU.

Cameron called a cabinet meeting the next day and scheduled a long-promised public referendum on U.K. membership in the EU for June 23, 2016. He said he would support a “Yes” vote, but six cabinet members indicated they would campaign for a “No” vote. The battle is now joined with the fate of the U.K.'s membership in the EU squarely on the table. One poll taken after announcement of key features of a proposed agreement but before a final detailed agreement was reached and announced indicated a 9 percentage point gap in favor of U.K. exit from the EU or “Brexit” as it is popularly referred to. Another poll indicated a 41-41 tie with 18 percent undecided.

Regardless of the outcome of the vote, the deal weakens the EU and makes the long-term goal of substantive European political and economic integration highly unlikely. The deal is yet another attempt to salvage the European Project in the face of growing nationalism and preservation of sovereign rights in many EU member countries.

If a “No” vote prevails, it would have serious economic consequences for the U.K. and could bring Scottish secession back into play. The Scottish National Party and a preponderance of the Scottish electorate wish to remain in the EU.

Cameron achieved some significant concessions from the EU but Euroskeptics in the U.K. are sure to criticize the “deal” as not going far enough. First, the U.K. will be exempt from the EU's principle of “ever closer union.” Belgium initially opposed this concession.

Second, non-eurozone EU members (countries that have retained their own currencies) will be able to delay enactment of new laws proposed by eurozone members. This would give the U.K. time to attempt to negotiate favorable amendments. Cameron considered this concession as key to preserving London's financial center standing. France initially opposed this concession.

Third, employment benefits for migrants can be restricted for up to seven years.

The first and second concessions will require renegotiating EU treaties; the third does not. The U.K.

received a “hard commitment” that the first and second agreements will be honored the next time treaties are opened for revision.

The betting is that when it comes down to the wire, a “Yes” vote will carry the day, just as it did for the Scottish independence referendum. This sentiment is based primarily on overwhelming logic that the U.K. would suffer enormously economically if it leaves the EU. But, in an era of growing nationalism and populism and increasing paranoia about the perceived consequences of immigration, it is far from certain that hard logic will prevail.

Among the more important consequences of Brexit for the U.K. are:

- Negative impact on real U.K. GDP growth
- Uncertainty about trade and regulatory agreements
- Potential withdrawal of Scotland from the U.K.
- Major financial institutions might desert London headquarters for EU financial centers
- A potential disorderly revaluation of the pound
- Negative collateral impact on Ireland

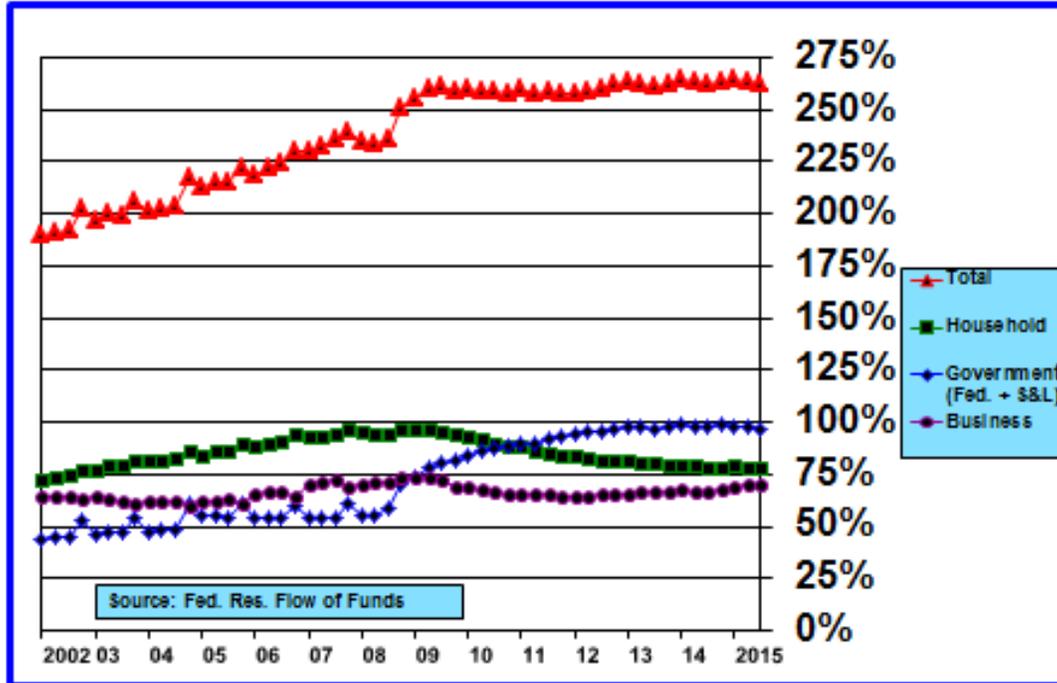
XI. Is the Significant Deterioration in Financial Conditions in the U.S. Signaling Imminent Recession?

Expert opinion acknowledges that tighter financial conditions are slowing real GDP growth but argues that much of the impact is already embedded in the U.S. economy. In other words, tepid growth of approximately 2 percent in 2016, not recession, is probable. **GS** estimates that tighter financial conditions already subtracted 1.7 percent from real GDP growth in the fourth quarter of 2015 and, assuming no further tightening going forward, should reduce real GDP growth by about 1 percent on average during 2016 with the impact diminishing as the year progresses. **GS** is sticking with its forecast of 2.0 percent real GDP growth in 2016. **B of A** has an identical forecast.

This optimism is based on the absence of significant imbalances in the U.S. economy and the existence of some spare capacity in the labor and output markets. A stable debt-to-GDP ratio is also cited as evidence of a credit boom and excessive debt leveraging. **Chart 3** shows that the total nonfinancial-debt-to-GDP ratio has been stable in a tight range between 260 and 265 percent since the end of the Great Recession. The business debt ratio has also been relatively stable, while an improvement in the household debt ratio has been almost exactly offset by a deterioration in the government, both federal and state & local, debt ratio.

The negative impact of tighter financial conditions is expected to be offset partially by a fiscal policy boost embedded in last years federal budget compromise that raised spending and lowered taxes.

All of this seems reasonable, yet experience suggests that one should be careful not to dismiss downside risks to the U.S. economy that could develop as global economic imbalances unwind.

CHART 3 – Nonfinancial Debt to Nominal GDP

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So what could happen that might trash this relatively benign outlook. An obvious possibility is a sharp decline in consumer and business optimism resulting in reduced spending and investment. If this were to happen, it would set in motion reinforcing negative feedback loops. What might be the source of a significant confidence decline? Stock prices, which are still overvalued, are a prime suspect. Technical analysis suggests that the recent improvement in stock prices is a relief rally in an on-going bear market trend and that much lower stock prices are in the offing later in the year. Profit margins are already under pressure. Slowing sales revenues would add pressure in addition to the small amount of pressure that is already coming from slightly higher wages.

Rather than stabilizing, financial conditions could get a lot worse if it turns out that the U.S. financial system is not as well protected from energy and emerging market credit problems as most currently believe. Remember that market participants in 2007 did not grasp how extensive contagion effects would be as the subprime mortgage market began to unravel. Is the absence of a credit boom in the U.S. providing a false sense of security? Are U.S. financial markets truly insulated from the unwinding global credit boom?

And, what about the U.S. dollar? While the dollar's trade-weighted value has retreated a bit from its recent high, this trend could reverse abruptly and significantly, if there is a dollar squeeze and a global stampede for dollar safety. According to the Bank for International Settlements, there was \$3.33 trillion in dollar-denominated credit outstanding in emerging market economies at the end of the third quarter of 2015. Declining revenues to service dollar-denominated debt, rising dollar exchange rates, and capital outflows are a toxic combination which could spin out of control and create a global financial crisis that would drive the dollar much, much higher and directly depress U.S. exports and indirectly depress growth

elsewhere in the economy.

XII. Reasons Behind Global Decline in Productivity

Following the financial crisis and 2007-2009 and the Great Recession productivity growth in many developing economies has been disappointing and surprising low. This is not simply just a U.S. phenomenon. Low productivity in the U.S. is a topic I have discussed several times in the past year. A variety of opinions have been offered. When the phenomenon is repeated in many countries it is difficult to dismiss the result as an aberration.

In December 2015 the Bank for International Settlements released a working paper, “Labour Reallocation and Productivity Dynamics: Financial Causes, Real Consequences,” which, based upon thorough econometric analysis, found that the culprit for the systematic decline in productivity is misallocation of capital.⁵

In their study, Borio et. al. included data for 21 countries and six time periods spanning 1979 to 2009. The findings were robust and highly significant statistically. First, the authors found that “... credit booms tend to undermine productivity growth as they occur largely through labour reallocations towards lower productivity growth sectors.”⁶ This results seems intuitively logical as resources during credit booms move to the low-productivity financial services sector.

Second, and more surprisingly, Borio et. al. found that “... labour reallocations that occur during a boom, and during economic expansions more generally, have a much larger effect on subsequent productivity if a crisis follows ... misallocations beget misallocations.”⁷ The authors added that this knock on effect dominates all others. They do not, however, attempt to explain this very strong statistical finding.

However, the explanation seems to me to be straight forward. The misallocation of capital prompted by a credit boom continues even after the credit boom unwinds and, indeed, is even more severe if a financial crisis accompanies the unwinding of the credit boom. The question is why should the misallocation persist and even intensify. The answer lies in inadequate aggregate demand, a sustained output gap, and low-interest rate monetary policies, as explained above in **Section IX “Amplifying Role of Debt Leverage.”** The natural rate of interest is far below a now depressed potential growth rate in the economy. Capital continues to be misallocated following a financial crisis with much going into creating a new credit boom that supports price speculation in existing assets rather than financing new productive assets.

There is a *chilling implication* of the Borio et. al. study and the secular stagnation hypothesis. If secular stagnation persists, then low interest rates, which are well below a depressed potential rate of economic growth, will also continue to persist, misallocation will continued unabated, and productivity will not recover. This would mean that even the depressed long-run potential real GDP growth estimates of 1.7 to 2.0 percent are too high and that actual growth will be much lower in coming years. Unfortunately, low growth, deflation, credit problems, income inequality and a host of other problems are linked.

⁵Borio, Claudio; Kharroubi, Enisse; Upper, Christian; and Zampoli, Fabrizio. “Labour Reallocation and Productivity Dynamics: Financial Causes, Real Consequences,” BIS Working Paper No 534, December 2015.

⁶Ibid.

⁷Ibid.

From a policy standpoint, policymakers need to give much more serious consideration to developing policies that will boost productivity growth. The current policy regime appears to be creating an ever growing problem instead.

XIII. Monetary Policy

There is little that the FOMC can do to prevent the ongoing misallocation of capital or to stimulate productive investment and boost sustainable, as opposed to transitory, increases in aggregate demand. By itself, the FOMC cannot close the output gap. Monetary and fiscal policy need to be coordinated to accomplish this objective. But, political gridlock has curtailed the ability of fiscal policy to complement monetary policy in dealing effectively with the output gap. This problem is not unique to the U.S. It is also endemic to the European Union and its members.

Although monetary policy by itself is unable to boost aggregate demand and eliminate the output gap on a sustainable basis, the choice of monetary tools can aggravate long-run outcomes by fostering and amplifying credit booms which reinforce misallocation of capital. Increasingly, the evidence suggests that quantitative easing has had this kind of negative consequence with the knock on effects of exacerbating income inequality and depressing productivity and potential economic growth.

Recently, the notion of imposing negative interest rates has gained sway. One analyst has gone so far as to estimate a 20 to 25 percent probability that the FOMC will adopt a negative interest-rate policy within the next year. This tool has already been activated in Europe and recently was adopted by the Bank of Japan. As the theory goes, negative interest rates will force banks to lend idle cash reserves. But, will this simply reinforce asset price speculation and compound the problem of capital misallocation? We are in uncharted territory with no idea about what the long-run consequences of administered interest rates might be. We know that prices govern behavior which means that bankers will attempt to avoid the consequences of negative interest rates by lending. But if lending stimulates additional asset price speculation, little will be accomplished, and, perhaps worse, the fragility of the financial system will escalate.

Notwithstanding all of this, if the U.S. economy founders or worse, falls into recession, expect the FOMC to attempt to ease monetary policy. Possible policy responses include reversing December's increase in the federal funds rate, initiating another round of quantitative easing or implementing negative interest rates. Unfortunately, none of these potential actions, in my opinion, is likely to be particularly helpful and some could have long-run consequences.

Perhaps a more important role for the Federal Reserve in coming months, should the U.S. economy fall into recession, is its lender of last resort responsibilities. This is an important role to exercise quickly and decisively when there is a crisis in confidence and trust breaks down among financial market participants. Unfortunately, the Dodd-Frank Act placed restrictions on the Federal Reserve's crisis management flexibility that could prove troublesome should a crisis develop. Although the Federal Reserve insists it has the necessary tools to exercise its lender of last resort responsibilities effectively, we will not know whether this is the case with absolute assurance until we experience an actual real time test.

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. have been amplified by unexpectedly weak data reports during the opening weeks of 2016. Consequently, many forecasters have lowered their estimates of economic activity during 2016, but few expect recession.

Expect a good deal of red ink in the updates below because the 2016 outlook was prepared in December when there was more optimism about the outlook than prevails now.

1. U.S.

- **2016 real GDP Y/Y** growth projections range from 2.3% to 2.5%. The FOMC's central tendency Q4/Q4 projections range from 2.3% to 2.5%. (Q4/Q4 projections are highly dependent upon potential anomalies in Q4 data; therefore, Y/Y estimates, which average all four quarters, usually are more stable estimates.) Risks are tilted to the upside because of the substantial federal tax reductions and spending increases Congress enacted at the end of 2015.
 - *Both B of A and GS have reduced their estimates of 2016 year-over-year growth to 2.0%; my estimates now range between 1.8% and 1.9%; risks are now tilted to the downside because of slowing global growth, tightening financial conditions and financial markets' volatility*
- **Real GDP output gap** will remain high, but will close rapidly during 2016 from about 2.6% to 2.0%. (The exact size of the output gap will be revised by CBO, probably in February 2016; I expect CBO to reduce the size of the gap).
- **Potential structural rate of real GDP growth** has declined significantly in recent years. I expect potential growth to be about 1.4% in 2016. Long-term potential real GDP growth will edge up in coming years to between 1.8% and 2.1%.
 - *B of A reduced its estimate of long-term potential growth to 1.7%; GS's estimate is 1.75%*
- **Productivity** should rise during 2016 as growth improves and investment increases, but should still fall well short of the historical 2.1% average.
- **Employment** growth should slow considerably during 2016 as full employment is reached and slow growth in the labor force becomes binding; payroll growth should average 130,000 to 165,000 per month.
 - ? *January payroll employment increased 151,000, but the most recent 3-month average was 231,000*
- **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 edged up to 62.73% in January from 62.64% in December

? However, according to GS's estimate the participation gap is still about 0.9% to 1.0%

- **Unemployment rate** should edge down to between 4.6% and 4.8%.

? Unemployment rate edged down to 4.9% in January slightly above the long-term structural rate of 4.7%, according to GS

? The overall full employment gap is about 1.1% (unemployment gap = 0.2% and participation gap = 0.9%)

? Unemployment claims appear to have bottomed and have both initial and continuing claims have edged up ever so slightly so far in 2016, but remain consistent with above trend employment growth

- **Nominal consumer disposable income**, measured on a Y/Y basis should slow as employment growth slows; this will be offset partially by an increase in average hourly wage rates; growth should be in a range of 2.2% to 2.5%.

- **Nominal consumer spending growth** on the Y/Y basis will be relatively stable in a range of 3.3% to 3.5%.

- Nominal spending growth in 2016 will be considerably lower because the sharp decline in energy prices in early 2016 will depress total inflation and because of the negative wealth effect stemming from the decline in stock prices

? Consumer sentiment measures in January were stable and did not yet reflect any negative response to the deterioration in stock prices; however, Evercore ISI's weekly company surveys have been edging down and have fallen from 52.6 to 48.6 over the last 12 months

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

- **Stock prices**, as measured by the S&P 500 average, should be between 5% higher or lower, reflecting the slowing growth in profits and rising short-term interest rates.

- Stock prices are down 6.2% 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 48.2 in January compared to 48.0 in December, indicating moderate contraction

+ The PMI service index declined unexpectedly to 53.5 in January from 55.8 in December, but still reflects moderate expansion

+ The NFIB optimism index for small businesses fell to 93.9 in January from 95.2 in December, reflecting soft growth

+ GS's business conditions index plummeted to 39.9 in January from 48.6 in December, marking the 10th consecutive month below 50 and its lowest level since 2012

- **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.

- GS expects business investment growth to be negative in the first quarter of 2016, reflecting energy investment cutbacks, and then rebound, rising 1.3% overall during 2016; an industry estimate forecasts somewhat lower growth of 1.0% in 2016

- **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%.
? January housing starts were slightly below the 2015 average level
- **Residential housing prices** should rise more slowly in 2016 in a range of 2% to 4% in 2016.
- **Trade deficit** should rise in 2016 as the increase in the value of the dollar continues to depress exports and increase imports. The **dollar's value** on a trade-weighted basis should rise slightly.
? The trade-weighted value of the dollar rose 1.2% in January but the dollar has weakened during February
- **Monetary policy** — the Federal Reserve will raise the federal funds rate two to three times during 2016 in 25 basis point increments.
- The market expects no increase in the federal funds rate during 2016; however, many forecasters still expect two to three increases during 2016
- **Total inflation** measures (CPI and CPE) will rebound sharply in 2016 as the depressing effects of 2015's collapse in oil prices passes out of the indices.
- **Core PCE inflation** will be relatively stable in a range of 1.2% to 1.6%, reflecting global disinflationary trends offset somewhat by the closing U.S. employment and output gaps. Core PCE inflation will remain well below the FOMC's 2% objective at least through 2018 and perhaps much longer.
- Because of the further strong decline in energy prices, forecasters expect only a modest increase in total inflation from about 0.6% in 2015 to 0.8% during 2016
? There have been no changes in core PCE inflation forecasts
- 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 1.76% on February 19
- **Fiscal policy** will have a positive impact on real GDP growth during both fiscal year and calendar year 2016, raising real GDP growth by 0.4 to 0.6%. The deficit as a percentage of nominal GDP will increase substantially from fiscal year 2015's level of 2.46% to a range of 3.25% to 3.50%. Stronger than expected growth would push the deficit toward the lower end of the range.
- **State and Local investment** spending growth should range between 1.5% and 2.0%.

2. Rest of the World

- **Global growth** is likely to improve to 3.4% in 2016 from 3.1% in 2015. Risks are tilted to the downside.
- Global growth forecast has declined to 3.2% in 2016; risks are tilted toward further reductions
- **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; risks are tilted toward further reductions

- **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 has been reduced to 0.2%*
 - *The ECB is slowing losing its battle to push inflation to 2.0% as reflected in market long-term inflation expectations, which have declined to 1.5%*
- **European financial markets** should be relatively stable with periodic episodes of volatility prompted by specific events.
 - *European stock markets have declined broadly in early 2016; bank stocks have plunged 45% since their recent peak to a level not experienced in 30 years*
- **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 election was inconclusive and the four parties have yet to forge a governance arrangement*
 - + *Italy's banking crisis has the potential to erupt and could derail Renzi's fall constitutional referendum — a no vote would force Renzi to resign and political instability would escalate*
 - + *Greece's third bailout is increasingly in jeopardy of failing; bond rates are rising; farmers are protesting tax and pension reforms*
- **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.
 - *U.K. growth forecast has declined to 2.3% in 2016; risks are tilted toward further reductions*
 - *Prime Minister Cameron reached a general agreement with the EU responding to reforms the U.K. has demanded; however, recent polls indicate that a 9% margin still favors the U.K.'s exit from the EU*
- **China's GDP growth** will slow below 6.5% and could be as low as 6.0% by the end of 2016 as economic reforms are implemented and the shift to a consumer-focused economy gathers momentum.
- **China's leadership** will continue to be slow in implementing **economic reforms** but financial and political stability will be maintained.
- **Japan's** economic policies will continue to fall short of achieving the 2.0% inflation target; inflation is expected to rise from 0.5% in 2015 to 1.0% in 2016. GDP growth will also continue to fall short of the policy target, but should rise from 0.7% in 2015 to 1.2% in 2016. Population decline and slow implementation of market reforms will continue to weigh heavily on both growth and inflation.
 - *Japan's economy shrank at an annual rate of 1.4% in the fourth quarter, which will reduce full year growth below 0.7%; forecasts for 2016 are likely to be reduced below 1.2%*
 - *Japanese markets responded very negatively to the Bank of Japan's attempts to ease monetary policy further*
 - *Evidence is increasing that Abenomics is failing*

- **India** should continue to experience relatively strong real GDP growth in a range of to 6.0% to 7.0% in 2016.
- **Emerging market countries** should experience better growth in 2016 than in 2015 when falling prices for commodities depressed economic activity in many countries.
- Further declines in the prices of commodities and capital outflows will depress growth in most emerging market economies in 2016
- **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

3. **Risks** — stated in the negative relative to the forecast.

- **U.S. potential real GDP growth** falls short or exceeds expectations; falling short is the more serious risk
- **U.S. employment growth** is slower or faster than expected; slower growth is the more serious risk
- **Employment participation rate** rises rather than remaining stable or falling modestly
- **U.S. hourly wage rate growth** falls from its 2015 level of 2.2% or rises much more rapidly than expected; falling wage growth is the more serious risk
- **U.S. Unemployment rate** falls less than expected
- **U.S. productivity** remains below 1%
- **Real U.S. consumer income and spending** increase less or more than expected; less than expected increases are the more serious risks
- **U.S. stock prices** fall more than or rise more than the expected range of -5% to +5%
+ Risk likely to be realized to the downside
- **Growth in U.S. residential housing investment and housing starts** are less than or more than expected; below expectations is the more serious risk
- **U.S. residential housing price increases** are less than expected
- **U.S. private business investment** does not improve as much as or more than expected; falling short of expectations is the more serious risk
- **Oil price declines** that occurred in 2015 trigger bankruptcies and cause tighter financial conditions with negative implications for economic activity and growth
+ Risk is process of being realized
- **U.S. manufacturing growth** contracts or expands more than expected; contraction is the more serious risk
- **U.S. trade deficit** does not widen as expected;
- **Value of the dollar** rises substantially
- **U.S. monetary policy** spawns financial market uncertainty and contributes to financial instability

+ *Risk appears to have been realized*

- *U.S. inflation* falls, rather than remaining stable or rising as expected
- *U.S. interest rates* fall or rise more than expected

+ *Risk realized*

- *U.S. fiscal policy* is more expansionary than expected
- *Federal budget deficit* increases more than expected
- *U.S. state and local spending* does not rise as fast as expected
- *Global GDP growth* does not rise as fast as expected

+ *Risk realized*

- *European growth* is considerably less than expected
- *ECB's* quantitative easing program is not successful in raising inflation and stimulating the European economy
- *Europe* — financial market turmoil reemerges

+ *Risk realized*

- *Europe* — political instability and social unrest rises more than expected threatening survival of the Eurozone and the European Union
- *Chinese* leaders have difficulty implementing *economic reforms*
- *China's growth* slows more than expected
- *Japan* — Abenomics and monetary policy are unsuccessful in raising inflation to the 2 percent target and economic growth continues to be below expectations

+ *Risk appears to have been realized*

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

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