



## The Longbrake Letter

Reprise of Key Topics and Commentary Included in 2015 Letters\*

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January, 2016

In this month's letter key topics and commentary contained in 2015's letters are summarized with updates added in *bold italics* wherever merited. Generally, the analysis and commentary covering each major topic attempted to explain and examine deep-seated trends that continue to evolve and to shape global economies, markets, social systems and political governance. Developments in the United States received the most attention, but because we are increasingly interconnected globally what happens elsewhere has impacts on what happens in the United States.

### **Agenda of Key Topics**

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

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## I. Components of Economic Growth

*This topic was published in the February 2015 Longbrake Letter. It explains that population growth and productivity determine the real rate of growth in an economy. Both components vary over time and determine the actual reported real rate of growth. However, in every economy demographic trends, cultural norms, government regulation and policy dictate the potential real rate of growth. Actual and potential real growth rarely are the same at any particular point in time. When actual exceeds potential the economy runs hot — demand exceeds supply — and price inflation tends to erupt. The opposite occurs when actual falls short of potential — unemployment rises and prices fall.*

*While demographic trends are relatively stable over long periods of time, actual employment can oscillate considerably over shorter periods.*

*Productivity trends appear to be much more variable over time and are influenced by bursts in innovation but also by policy actions that impact the rate of return on investment relative to the cost of capital. When the rate of return exceeds the cost there is incentive to increase investment which translates over time to higher productivity. However, if policy artificially depresses the cost of capital relative to the return on investment for an extended period of time, thus making leverage cheap, this fosters an increase in speculative investments relative to productive ones and can result in financial market bubbles. Ideally, such an outcome can be avoided if policymakers manage the cost of capital to equal the natural (or neutral) rate of interest —  $R^*$ .  $R^*$  is the real interest rate (nominal rate minus inflation) that prevails when the economy is operating at full capacity — neither above nor below. In practice  $R^*$  is not observable and is difficult to pin down in part because the long-run equilibrium value of inflation is also difficult to determine. Moreover, the value of  $R^*$  oscillates over the cycle so that what is an optimum monetary policy nominal rate of interest in the short run is not necessarily the same as the optimum value in the long run.*

*Sections I — VI explain and explore these basic economic concepts. Data are updated from the time of original writing to December 2015.*

Real economic growth is simply the product of population growth and productivity improvement.

### 1. Population Growth

In the long run the overall rate of population growth matters most in determining how fast the economy can grow. However, other factors can influence the growth rate and cause fluctuations in the growth rate.

For example, labor force participation rates can fluctuate over time depending upon kinks in the demographic age distribution or upon policies affecting the attractiveness of education or retirement. Education, regulations, work force rules, overtime pay requirements, minimum wage rates, tax credits, disability insurance and the like can also impact labor force participation, but can also impact labor force productivity.

## 2. Productivity

While the influence of population growth on real economic growth is relatively stable over time, the influence of productivity can result in substantial variation in real economic growth.

Productivity depends upon investment in capital both human (education) and plant and equipment. It also depends upon accounting and legal systems, rules and regulations, and system frictions.

For example, nations with weak legal systems and a high degree of corruption destroy trust and impede economic activity. Nations with extensive work rules, regulations and licensing requirements impede economic activity. A recent example in the U.S. is the explosion of consumer finance regulation courtesy of the Consumer Financial Protection Bureau. Now, just to be clear — a society must intentionally make choices about the acceptable social consequences relative to economic efficiency. If maximizing productivity results in unfair and deceptive practices for a large segment of the population or in benefiting only a small segment of the population (inequality), then pure economic efficiency does not result in an overall acceptable level of social welfare. In other words, there is a legitimate role for government to manage and control the inherent excesses embedded in a market-driven economy. The question, however, is one of striking a balance between too much and too little regulation.

**Private Investment.** Investment in the private sector depends upon the expected rate of return on an investment relative to the cost of financing it. Theory argues that private investments will occur as long as the expected return exceeds the expected cost.

Although we tend to think in terms of nominal rates, theory is grounded in real rates. Over long time periods, the real rate of return to investors/savers on a relatively riskless investment has averaged just under 2 percent. In recent years, the real rate of return has almost always been below 2 percent or even negative as it is currently. This has been a phenomenon of the glut of global saving but has been accentuated by aggressive monetary policy designed to drive down interest rates. While this policy is intended to encourage investment, it can result in financial speculation rather than investment in productive activity.

There is a clear linkage between the amount of private investment spending and productivity. A 1 percent rate of growth in private investment results in an increase in productivity of 41 basis points with a 5.1 quarter lag. In other words, private investment spending is a powerful driver of productivity and a change in investment spending impacts productivity in a little over a year's time. Thus, when actual investment declines because of low or negative real rates of return, productivity declines and real economic growth also declines. When this relationship is understood it should come as no surprise why U.S. real growth has languished in recent years. The bad news is that even though the U.S. is currently experiencing a cyclical upswing in economic growth, its long-term potential real rate of growth remains very depressed relative to historical experience.

**Government Investment.** What many do not realize is that the government is a very large source of investment and that government investment also impacts productivity and economic growth. Real government investment of \$2.9 trillion actually slightly exceeds real private investment of \$2.8 trillion. A 1 percent rate of growth in government investment results in an increase in productivity of 43 basis points with an 8.7 quarter lag. Thus, there is no practical difference in the impact of private and government investment spending. However, because government investment spending tends to focus on infrastructure

and education, the benefits take about twice as long to unfold.

Unlike the private sector, government investment decisions are driven by political considerations and not by real rates of interest. But, unfortunately, at this time the impact of government investment on productivity, just like that of private investment, is negative. Political considerations have resulted in anti-tax policies that not only limit government spending on social transfer payment programs but also limit investment spending. In spite of calls of many economists, both conservative and liberal, to increase government investment spending, there appears to be little prospect that spending policy will change. Thus, lack of growth in government investment spending will continue to depress productivity and potential economic growth.

## II. Potential Real GDP Growth

*Potential real GDP growth was examined in detail in the June 2015 Longbrake Letter. Data included in this section are updated to December 2015.*

In past letters I have explained that the potential rate at which an economy can grow — its speed limit — is determined by labor force growth and productivity. In this month's letter I include material from previous letters beginning with an explanation of what GDP measures.

### 1. GDP — A Measure of Economy-Wide Expenditures

As most everyone knows, and especially if he/she has had at least one course in economics, an economy's performance depends upon the interaction between supply and demand.

**Aggregate Demand.** In macroeconomics, policy discussion and formulation focuses primarily on influencing demand because supply is presumed to be sticky or fixed in the short run. Measured real GDP is a record of aggregate demand based on spending on goods and services by all economic sectors — consumers, businesses, government, and the rest of the world. Policymakers adjust monetary and fiscal policies with the intent to maximize employment, output, and spending within the context of price stability.

**Aggregate Supply.** Supply consists of resources available to produce goods and services. Components include labor, raw materials, and capital (plant and equipment). Supply also depends upon how efficiently resources can be utilized to produce outputs. Productivity defines the efficiency of the conversion of inputs (resources) into outputs. Elements of supply, such as the number of people eligible to work and the capital stock, are relatively easy to measure. However, whether people actually choose to work and the productivity of the capital stock are not easy to measure. Furthermore, there are uncertainties about labor force growth trends and future technological innovations and investment which make measurement of potential real GDP growth difficult.

**Long-Run Potential Real GDP Growth.** In the long run, how fast the economy can grow consistent with the policy objectives of maximizing employment, output, and spending, while maintaining price stability, depends upon growth in the labor force, growth in private and public investment, and productivity. Growth in the labor force and investment are quantitative measures, while productivity is a qualitative

construct that converts hours worked and investment into greater or lesser amounts of output.

If the labor force, investment, and productivity grow more rapidly, the overall size of the economy will be larger and per capita income and wealth will be greater. There are other benefits of more rapid growth such as increased tax revenues to help fund Medicare and social security and downward pressure on the public-debt-to-GDP ratio. Generally, policies that encourage greater growth have favorable overall economic impacts while slower growth exacerbates existing problems. However, by-and-large, public policy is not focused on promoting higher future growth rates. Rather, the thrust of policy has been to reduce the output gap and the unemployment rate with the intent to return the economy to its full-employment potential as quickly as possible. The recent policy mix appears to be achieving this objective slowly, but it is not one that is likely to foster faster growth in the future.

## 2. Factors Influencing Labor Supply

The Congressional Budget Office (CBO) estimates that the labor market gap, as measured by the U-3 unemployment rate, has closed. The unemployment rate in December was 5.01 percent compared to CBO's full-employment estimate of 5.05 percent.

However, other employment measures indicate that some slack remains in the labor market. For example, the U-6 measure of unemployment, which adds marginally attached and discouraged workers to the U-3 measure, was 9.87 percent in December. As can be seen in **Chart 1**, while the U-3 measure is close to the level that prevailed before the onset of the Great Recession, the U-6 measure is about 1 percentage point above the level that should prevail in the long run consistent with a 5.01 percent level of the U-3 measure. This is not an unexpected result because it takes longer for marginally attached and discouraged workers to find employment during the recovery phase of the labor market.

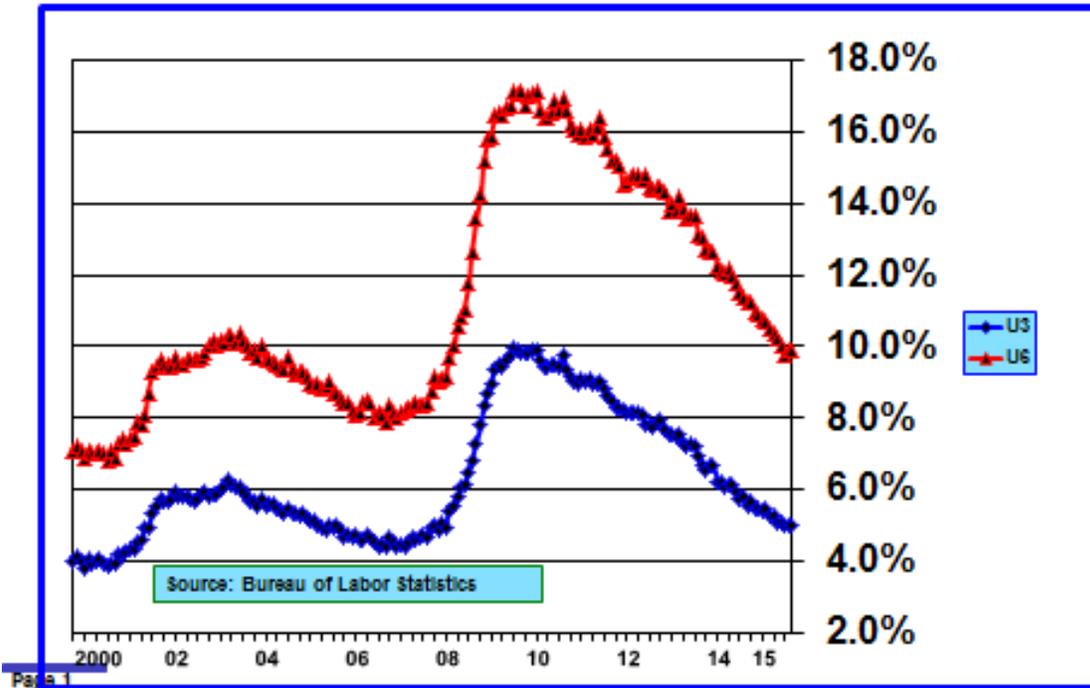
In addition, there is debate about the extent to which there are additional potential workers, not measured by the U-6 unemployment rate, who might re-enter the labor force as the economy continues to improve. This speculation is driven by the substantial decline in the labor participation rate since the onset of the Great Recession — a decline that cannot solely be explained by demographic factors. Thus, ascertaining the “true” employment gap and untangling the details is a daunting task. See **Chart 2**.

Another measure, shown in **Chart 3**, that indicates that some slack remains in the labor market, is the length of time workers have been unemployed. The measure of short-term unemployment has returned to normal levels consistent with full employment; however, long-term unemployment of 26 weeks or longer remains elevated by about half a percentage point.

**Factors Influencing Labor Supply Growth — Labor Force Participation.** The starting point is to count the number of people in the total population who are considered to be “eligible” to be employed. As of December 2015, BLS estimated this number to be 251,936,000 out of a total population of approximately 322.6 million.

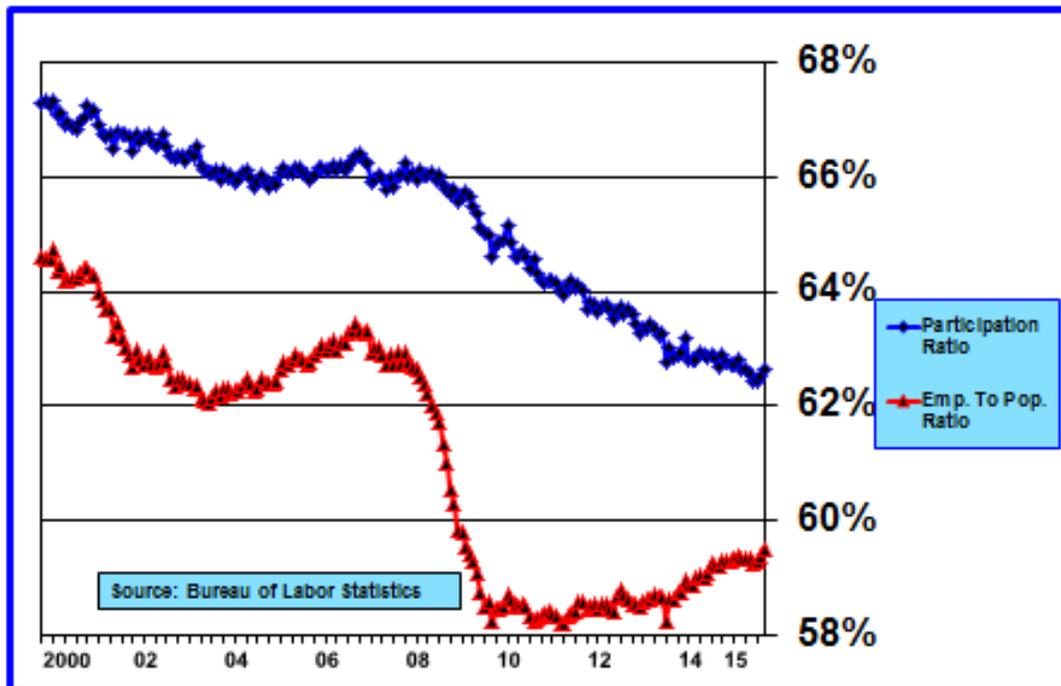
Next, using a monthly survey, BLS constructs an estimate of the number of people who are working and who are willing to work. The difference in the two measures is the numbers who are unemployed. In December 2015, the number willing to work was 157,833,000 (usually referred to as the labor force); the number actually working was 149,929,000; the number unemployed was 7,904,000 or 5.01 percent of

**CHART 1 – U-3 and U-6 Unemployment Rates**



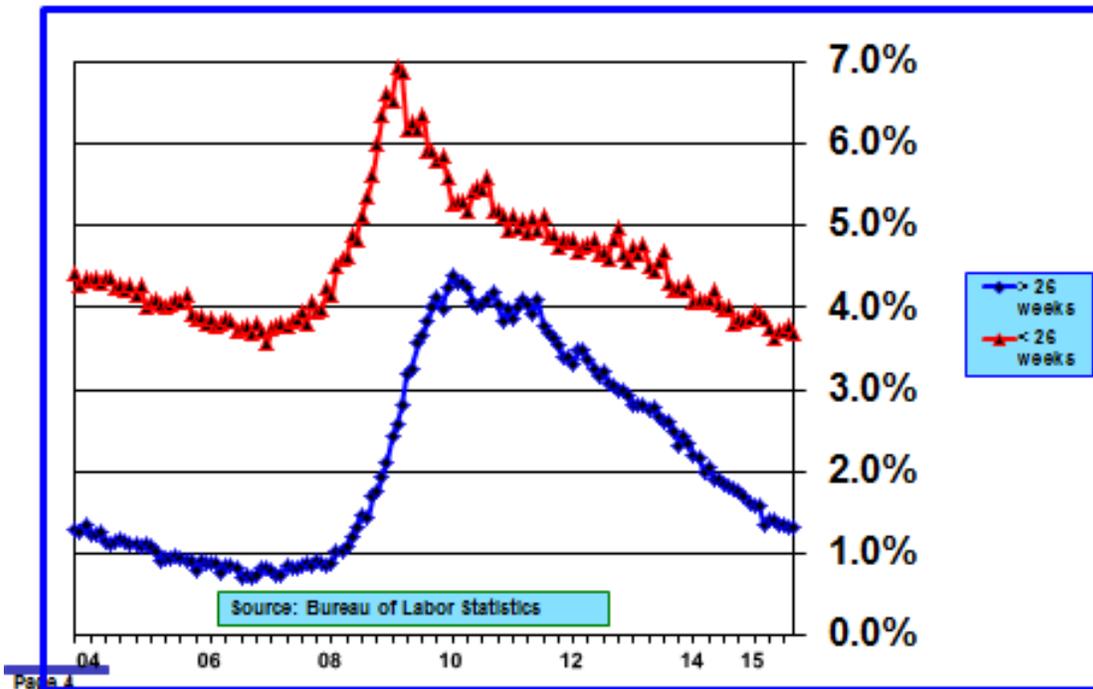
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**CHART 2 – Labor-Force-Participation and Eligible-Employment-to-Population Ratios (U-3 Measure)**



Page 2

**CHART 3 – LT (>26 weeks) and ST (<26 weeks)  
Unemployment Rates**



those willing to work. This is the U-3 measure of unemployment. The **employment-to-population ratio** is the percentage of people working relative the number eligible to work, which was 59.51 percent (149,929,000/251,936,000). The **participation ratio** is the percentage of people willing to work (labor force) relative to the number eligible to work, which was 62.65 percent (157,833,000/251,936,000). See **Chart 2**.

These data taken at face value and accepting CBO's assertion that the natural rate of unemployment currently is 5.05 percent, indicate that the labor market has returned to full employment. CBO and many analysts, however, believe a "**participation gap**" exists because some people have become so discouraged that they have dropped out of the labor force and, thus, are no longer counted among those willing to work. It is argued that these discouraged workers will return to the labor force as the labor market tightens and jobs become easier to find. This would mean that the "true" unemployment rate is higher than the BLS "measured" rate. Nonetheless, the trend in the data indicates that the labor market has improved steadily and is nearing full employment.

**Factors Influencing Labor Supply Growth — Demographic and Cultural Trends.** Over long periods of time demographic and cultural trends can have significant impacts on the participation rate. Until 2000 two factors drove the labor force participation rate up — entry into the labor force of baby boomers and greater participation of women. Now, however, as baby boomers reach retirement age, a reverse trend has set in which is reducing the participation rate by about 0.25 percent annually. This accounts for approximately half of the decline in the participation rate over the last six years. According to CBO, this trend will continue over the next decade.

While there have been shifts in participation in other labor force cohorts, such as decreasing participation among younger workers, some of these changes are probably temporary. Furthermore, there is little certainty that these other trends will continue.

**Factors Influencing Labor Supply Growth — Permanent Structural Unemployment.** CBO cites three drivers of permanent structural unemployment. First, some people have exited the labor force permanently because their skills no longer meet employer needs (this is referred to as *hysteresis* in economist parlance). This outcome could be caused by technology-induced changes in job opportunities or it could result from the atrophy of skills due to extended unemployment. In the wake of the Great Recession, the labor market has been punctuated by an unusually high percentage of unemployed workers who have been out of work for at least 26 consecutive weeks. In December 2015 there were 2.1 million long-term unemployed people compared to an average of 1.3 million before the Great Recession.

Second, CBO cites the possibility that employers shy away from considering long-term unemployed workers for job openings. CBO refers to this phenomenon as “the stigma of long-term unemployment.” Norman Ornstein cites a study by Rand Ghayad that provides evidence of stigma.<sup>1</sup> Ghayad “... *sent fake resumes to employers with job openings and found that better-qualified and experienced applicants who had been out of work for more than six months were much less likely to be called for interviews than less-experienced individuals who only recently lost their jobs.*”

Third, extended unemployment benefits had a small impact on raising the level of structural unemployment — approximately 0.1 percent, according to CBO. This factor is no longer pertinent since extended unemployment benefits expired at the end of 2013

Structurally unemployed workers are unlikely to reenter the labor force in the future. Some structurally unemployed workers are counted in the BLS U-3 unemployment rate. Either they continue to hope to find work or they are going through the motions so they can collect unemployment insurance benefits. CBO also believes that some of the recent decline in the participation rate includes additional structurally unemployed workers who are not counted in the official U-3 unemployment rate.

**Factors Influencing Labor Supply Growth — Policy Impacts.** There is also evidence that government programs and policies contribute to decreasing labor force participation. For example, studies show that disability insurance has depressed participation to a modest extent.

More importantly, a CBO study projected that the Affordable Care Act (ObamaCare) will depress full-time job participation by the equivalent of 2.5 million workers over the next ten years and will reduce aggregate labor force compensation by 1.0 percent. This was a significant increase from CBO’s estimate in a 2011 study of an 800,000 reduction.

**Factors Influencing Labor Supply Growth — Immigration.** Policies governing immigration amplify the rate of growth in the labor force beyond the natural rate which depends upon births and deaths and other demographic considerations. Immigration can have a significant favorable effect on increasing the growth rate in labor supply over time, provided that policies are structured to encourage immigration.

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<sup>1</sup>Norman J. Ornstein. “The Conservative Ideas That Could Solve Chronic Unemployment,” National Journal, January 29, 2014.

There is broad agreement that U.S. immigration policies need to be revamped but there is considerable disagreement about specific reforms and no consensus has yet emerged. President Obama has made immigration reform a key policy objective and encouraged Congress to act. Speaker Boehner of the Republican-controlled House of Representatives proposed broad immigration principles to the Republican House caucus. However, because of considerable resistance from some members of the caucus, congressional action on immigration reform has not occurred.

### 3. Productivity

Productivity is the second factor that determines the potential rate of growth in real GDP. It is measured by the change in the ratio of output to inputs over time. Productivity depends upon application of increasing amounts of capital to the labor input. But, productivity also depends upon qualitative factors, such as improvements in labor skills through education and on-the-job experience, the kinds of innovations that occur, and management skill in deploying enhanced work methods. Productivity is also negatively affected by structural rigidities such as compliance with laws and regulations, limitations on worker mobility, and cultural trends, such as increases in single-parent households. Although hard to quantify, some of the qualitative factors influencing productivity have become less favorable in recent years. It is difficult to assert that any of the qualitative factors have become more favorable. Productivity tends to rise during periods of substantial increases in innovation, provided, of course, that the innovation is financed.

### 4. Factors Influencing Investment — Innovation

In the past, periodic bursts in technological innovations have boosted investment in the capital stock and increased the economy's supply potential. Most would agree that huge advances in computing power, communications technology facilitated by the internet, and cheap communications devices should provide the impetus for substantial additions to the capital stock. The same could be said about advances in biotechnology. Although such potential seems intuitively plausible, investment spending and measured output growth are not reflecting realization of this potential.

### 5. Factors Influencing Investment — Financing

Growth in the capital stock has actually decelerated to just 1 percent in recent years. This means that the potential increase in supply stemming from innovation is not occurring.

Innovation provides the potential for the capital stock to increase but investors must provide financing and so far financing has been insufficient. There are two explanations for the shortfall in financing.

**Private Investment.** The first involves the demand and supply for investment. Demand for investment dollars depends on whether companies expect the return on the investment will exceed the cost of financing (cost of capital). When demand for goods and services is weak, as it was during the aftermath of the Great Recession, the returns on investment dollars are likely to be depressed and more uncertain. Companies may have large stockpiles of cash, but they are reluctant to deploy it in investment initiatives with uncertain outcomes.

Investors are reluctant to supply funding for similar reasons — uncertain and potentially low rates of return. In addition, there is evidence that FOMC monetary policy, by depressing the long-term interest rate, rather than stimulating capital investment, has had the effect of diverting financing into speculation in existing assets. This has the intended effect of increasing the value of existing assets and creating wealth that translates into increased consumption. But, it does not induce investment in new assets.

Private business investment growth, as shown in **Table 1**, appears to be relatively strong since the end of the Great Recession when compared with the nearly 70 year average growth rate of 3.80 percent. However, this cyclical rebound has been insufficient to overcome the severe plunge in private business investment that occurred during the Great Recession. As a consequence, the rate of growth in private investment spending has been decelerating.

**Table 1**  
**Annual Percentage Growth in Private Business Investment**

Time Period	Long-Term	Recession	Recovery
1947:1 — 2015:3	<b>3.80%</b>		
1947:1 — 2007:4	<b>4.13%</b>		
1985:1 — 2007:4	<b>3.54%</b>		
2007:4 — 2015:3	<b>1.21%</b>		
1985:1 — 2015:3	<b>2.95%</b>		
2001:1 — 2001:4	<b>-11.22%</b>		
2002:1 — 2007:4	<b>3.44%</b>		
2008:1 — 2009:2	<b>-21.25%</b>		
2009:3 — 2015:3	<b>7.49%</b>		
2010:1 — 2015:3	<b>6.89%</b>		

Low growth in the capital stock in recent years provides ample evidence of a policy environment that is not conducive to investment.

**Public Investment.** The second involves the role of government in spurring investments that increase the supply potential of the economy. The efficacy of government’s role is well documented from the historical record. Government can invest in high risk initiatives and because its cost of capital is much lower than that of the private sector, it can invest in initiatives with more uncertain and potentially lower rates of return. This has occurred in the past through both major and minor initiatives and has tended to occur counter-cyclically to a degree. That is, when the output gap is large, government investment spending has tended to increase.

This can be seen in **Table 2**. Public investment spending for both federal and state and local gov-

ernments has averaged 2.65 percent annually since 1947. And, if the period beginning with the Great Recession is omitted, the annual growth rate was 3.03 percent.

**Table 2**  
**Annual Percentage Growth in Public Investment**

Time Period	Long-Term	Recession	Recovery
1947:1 — 2015:3	<b>2.65%</b>		
1947:1 — 2007:4	<b>3.03%</b>		
1985:1 — 2007:4	<b>2.09%</b>		
2007:4 — 2015:3	<b>-0.31%</b>		
1985:1 — 2015:3	<b>1.48%</b>		
2001:1 — 2001:4	<b>4.92%</b>		
2002:1 — 2007:4	<b>1.86%</b>		
2008:1 — 2009:2	<b>3.51%</b>		
2009:3 — 2015:3	<b>-1.21%</b>		
2010:1 — 2015:3	<b>-1.37%</b>		

Included in **Table 2** are two recessions — 2001 and 2008-09 — and subsequent recoveries from those recessions. During both recessions growth in public investment spending accelerated to an above long-term trend level — 4.92 percent in 2001 and 3.51 percent in 2008-09, which is evidence of the countercyclical impact of government fiscal policy.

During the recovery from the 2001 recession, public annual investment growth averaged 1.86 percent which was considerably below the 1947 to 2007 average of 3.03 percent. However, the story of public investment growth during the recovery from the Great Recession is, indeed, an exceptionally dismal one. Public investment has been contracting at an annual rate of -1.21 percent since the recovery began. The decline is an even worse -1.37 percent, if the last two quarters of 2009 are omitted when the benefits of federal stimulus were still filtering through the economy.

Federal fiscal policy, which has focused on reducing public spending and slowing growth in the accumulated budget deficit, unfortunately has crushed public investment. This is a major reason behind the slow growth in the capital stock and will depress growth in the supply side of the economy over time. Although fiscal policy has now normalized, which should result in an improvement in public investment growth rates, continuing constraints on spending has prevented public investment growth from returning to historical levels.

## 6. Potential Real GDP Growth

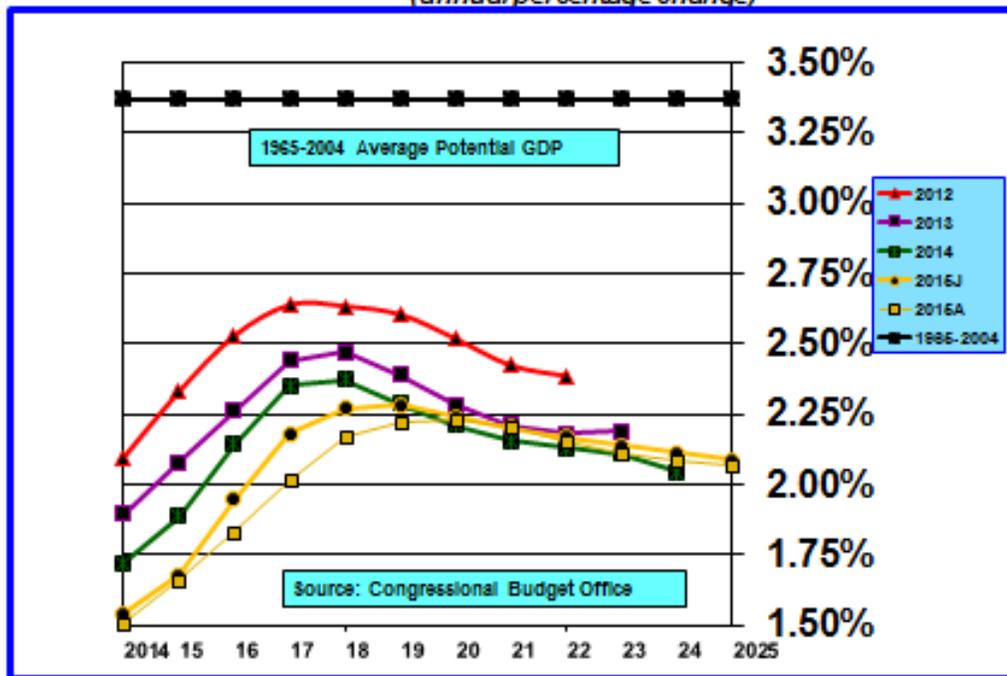
Potential real GDP growth is the product of growth in hours worked and productivity. The “gold standard” for estimates of potential real GDP is provided by CBO. However, CBO’s estimate is just that — an estimate. CBO’s estimate is based upon its assumptions about labor force growth and productivity. Different assumptions for either will result in different estimates of potential real GDP.

In 2007, the year preceding the Great Recession, CBO estimated potential growth to be 2.35 percent. This was well below the historical (1965-2004) long-term potential growth rate of 3.37 percent. However, in the six years since the recovery from the Great Recession commenced CBO estimates that potential growth averaged 1.43 percent. CBO expects potential growth to improve to 2.05 percent by 2025.

As **Chart 4** shows, CBO has repeatedly reduced its estimate of potential GDP growth over the past four years, except for a very small increase after 2019 in its most recent update.

**CHART 4 – CBO Potential Real GDP Rate of Growth**

(annual percentage change)



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My long-term forecast for productivity is 1.53 percent in the “**Steady Growth**” scenario and 1.91 percent in the “**Strong Growth**” scenario. My assumption for labor growth is 0.46 percent for the “**Steady Growth**” scenario and 0.50 percent for the “**Strong Growth**” scenario. The combined effects of labor growth and productivity result in long-term potential real GDP growth rates of 1.78 percent for the “**Steady Growth**” scenario and 2.16 percent for the “**Strong Growth**” scenario in 2025. (Potential real GDP growth is lower than the sum of the estimates of labor growth and productivity because nonfarm business productivity is not a comprehensive measure for the economy as a whole.)

Together estimates of potential real GDP and forecasts of actual real GDP growth define the output gap.

There is now a consensus that potential real GDP growth will not improve materially as the economy heals and the output gap closes. CBO expects potential growth to be 2.07 percent in 2025. Over time FOMC members have become progressively less optimistic. The central tendency of FOMC member long-term anticipated potential real GDP growth has fallen from 2.7 percent in June 2011 to 2.0 percent in December 2015. Diminished expectations are largely the result of a reduction in expected labor force growth, but also lower productivity growth is a factor. Lower productivity is not a foreordained outcome. Policies could be pursued that would amplify productivity prospects. But, political obsession with cutting government spending and monetary policy that has depressed the real rate of interest are having and could continue to have a combined depressing impact on investment activity, which is essential in the long run to boost productivity.

### III. Investment

*Investment, which determines the level of productivity in the long run, was discussed in the January 2015 Longbrake Letter.*

Investment in people, plant and equipment, and technology are keys to long-run potential real GDP growth. Increased investment generally leads to greater capital and labor productivity. Labor force growth and productivity combine to determine an economy's long-term potential rate of growth. Labor force growth is largely determined by long-term demographic trends but can be influenced to a degree by immigration policy.

Productivity is more responsive to policy formulation and implementation that impact education, worker training, workplace rules, compliance and regulation. Productivity is also determined to a very large extent by policies that encourage investment. This can occur in the form of direct intervention through fiscal policy, particularly through incentives embedded in the tax code. Monetary policy, by influencing interest rates and changing the cost of financing investment relative to expected returns, can encourage or discourage investment, particularly by private businesses. In this context low real interest rates, which increasingly characterize the evolving deflationary tendencies of the global economy, probably discourage investment in productive activities and divert funds into asset price speculation and in this respect are an element of secular stagnation. To the extent that this is actually occurring it is a very negative development because it diverts activity away from the kinds of investment that enhance productivity to unproductive financial speculation in financial and real assets. This is the stuff of Larry Summers musings a year ago on secular stagnation and frequent asset price bubbles.

### IV. Productivity

*In the March 2015 Longbrake Letter, I examined the relationship between productivity and potential real GDP growth. Data included in this section are updated to December 2015.*

It is generally understood that the slowing rate of growth in the U.S. population and population demographics, namely ageing, will reduce potential real GDP growth in coming years. The greater than expected decline in the labor participation ratio, apparently due to the exit of discouraged workers from the labor force, if not reversed, will assure a permanent reduction in the level of real GDP, although it should not affect the potential real rate of growth going forward.

What is less well understood is that falling growth in private and governmental investment spending will reduce future productivity gains and this will, in turn, depress the potential growth rate of real GDP.

Over the last few years private investment spending growth has been depressed by the extraordinarily large output gap and weak aggregate demand. Low real rates of return and secular stagnation may also be a factor. Governmental investment spending has been depressed by political factors that favor social spending over investment spending and limit willingness to use taxes and deficit spending to increase investment spending. These political factors appear to be deeply entrenched, which means that increased governmental investment spending seems unlikely.

**Table 3** shows historical changes in the key variables that drive productivity and potential real GDP growth. It should be noted that faster labor force growth directly raises potential real GDP growth but indirectly depresses real GDP growth by reducing productivity. That is why potential real GDP growth in the 1973-1997 period was still above 3 percent, even though productivity was little more than half as great as it was from 1955-1973. The last 11.25 year period from 2004-2015 has been particularly abysmal. Both labor force growth and growth in investment spending was very weak which resulted in poor productivity and real potential GDP growth.

Looking forward, we already know that slowing labor force growth will reduce potential real GDP growth. This is dictated by population growth and immigration trends as well as changing demographics. The projected growth rate in total hours of 0.45 percent to 0.55 percent from 2020-25 may rise or fall a few basis points, depending upon deviations in the labor force participation ratio from the expected trend. But, such impacts, should they occur, are unlikely to be significant.

Assuming that the conclusion that labor force growth will slow significantly is reasonable, then improvement in the real potential GDP growth rate will depend upon productivity and productivity will depend upon investment. My “*Steady Growth*” scenario estimate of productivity growth is 1.56, which results in potential real GDP growth of 1.88 percent. This is near the bottom of the Federal Open Market Committee’s (FOMC’s) 1.8 percent to 2.2 percent range and well below CBO’s 2.13 percent average for the 2020-25 period. Estimates for productivity and potential real GDP growth for my “*Strong Growth*” scenario are 1.85 and 2.17 percent, respectively. My two scenarios now bracket the FOMC’s high and low estimates of potential real GDP growth.

## V. Measurement of Productivity

*In the June 2015 Longbrake Letter, I explained the conventional measurement of productivity and discussed criticism of the measurement methodology. Data included in this section are updated to December 2015.*

**Table 3**  
**Productivity and Potential Real GDP**

	Growth in Hours	Private Investment	Government Investment	Productivity	Potential Real GDP Growth
1954:4-1973:2	1.57%	5.74%	2.46%	2.71	<b>3.85%</b>
1973:2-1997:2	1.70%	3.56%	2.06%	1.46	<b>3.15%</b>
1997:2-2004:2	0.22%	4.16%	2.74%	3.38	<b>3.40%</b>
2004:2-2015:3	0.49%	1.20%	0.19%	1.32	<b>1.79%</b>
1954:4-2015:3	1.27%	3.84%	1.91%	<b>2.04</b>	<b>3.14%</b>
2015:3-2019:4 Bill-Steady	0.67%	2.26%	1.08%	<b>1.16</b>	<b>1.51%</b>
2015:3-2019:4 Bill-Strong	0.83%	3.05%	1.37%	<b>1.33</b>	<b>1.88%</b>
2019:4-2025:4 Bill-Steady	0.45%	2.02%	1.00%	<b>1.56</b>	<b>1.60%</b>
2019:4-2025:4 Bill-Strong	0.55%	2.82%	1.26%	<b>1.85</b>	<b>2.17%</b>
<b>Federal Reserve</b>					<b>1.8-2.2%</b>

The Bureau of Labor Statistics (BLS) measures productivity as the ratio of output adjusted for inflation to total hours worked. Its measure of output is quantitative based on many data sources as well as estimates of qualitative factors, such as the increased utility of something like a computer even as the cost of production declines. GDP is a measure of total expenditures. Although the two measures parallel each other, they are not identical. This can lead to divergences in the growth rates for the two measures over time. Over the past six years, the BLS measure of nonfarm business output has risen at a 2.71 percent annual rate. Real GDP has risen at a 2.13 percent rate over the same six-year period. Part of this differential has to do with the omission of government from the BLS measure of nonfarm business output. Government as a percentage of GDP expenditures has shrunk from 21.4 percent of real GDP to 17.5 percent during this time. This translates into a rate of growth in private real GDP of 2.80 percent, which is only slightly higher than the growth rate of nonfarm business output.

There is a view that BLS is underestimating growth in nonfarm business output because it is not capturing qualitative improvements in software. If this is true BLS's measure of productivity is understated. **GS**, based on an examination of details of how BLS calculates nonfarm business productivity, observes that the recent slowdown is due almost entirely to the contribution from information technology.<sup>2</sup> (**GS** subsequently updated its analysis and this update is summarized in **Section VI** below.) But, **GS** observes that the apparent slowdown may result from statistical mismeasurement of information technology "where

<sup>2</sup>Jan Harzius and Kris Dawsey. "Productivity Paradox v2.0," US Economics Analyst Issue No: 15/21, Goldman Sachs, May 23, 2015.

quality-adjusted prices and real output are much harder to measure than in most other sectors.” As an example of the difficulty of measuring the contributions of technology, GS cites the phenomenon of computing power exploding even as costs plunged. A measure of output based on dollar value would not have captured the enormous increase in the qualitative value of increased computing power.

Statisticians devised measurement methodologies that took the relationship between quality improvements and falling costs into account. This actually involved revising the methodology for calculating inflation — the GDP deflator. This avoided both the understatement of GDP and productivity. However, unlike the adjustments crafted for hardware, statisticians have not devised measurement adjustment methodologies for the explosion in software and the capabilities that enhanced software create. Thus, **GS** believes that inflation is overstated and GDP and productivity are understated. And, this mismeasurement has grown in importance as the mix of information technological output has shifted systematically from hardware to software and digital content. **GS** believes that due to this real GDP is understated by about 0.2 percent annually. This is a big deal when real GDP is growing little more than 2 percent annually.

**GS** does not expect action on the software measurement problem. Based on that belief and its analysis, it has revised its projection for productivity growth down to 1.5 percent and its estimate for potential real GDP growth down to 1.75 percent.

But, others are skeptical of **GS**'s view. JPMorgan economists Michael Feroli and Jesse Edgerton, according to James Pethoukoukis of the American Enterprise Institute, argue that the “conjecture that the recent growth slowdown [in economic growth and productivity] is due to mismeasurement has little empirical support.”<sup>3</sup> The thrust of the counterargument is that the digital economy is not a new phenomenon but the slowdown in growth and productivity is. Moreover, negative quality adjustments are not made for the likes of more crowded airplanes, narrower seats and more frequent delays, which it could be argued offset to some extent the positive quality adjustments that come from more versatile digital software. Another observation is that the productivity slowdown is occurring in other sectors of the economy, not just in information technology and digital software.

It is likely that the debate will continue but that as additional research is conducted greater light will be forthcoming. In the meantime, there is reason to conclude that the productivity and slowdown in potential real GDP growth may stem primarily from depressing impact on investment of the FOMC's intentional monetary policy to drive down the real rate of interest.

## VI. Why Is Productivity So Low?

*In the September 2015 Longbrake Letter, I continued an examination of why productivity is so low compared to historical experience. Data included in this section are updated to December 2015.*

Nonfarm productivity has averaged just 0.59 percent over the last three years and 0.56 percent over the last five years compared to a 61-year average of approximately 2.04 percent. Most blithely have assumed that productivity would return to its historical average once the economy recovered from the

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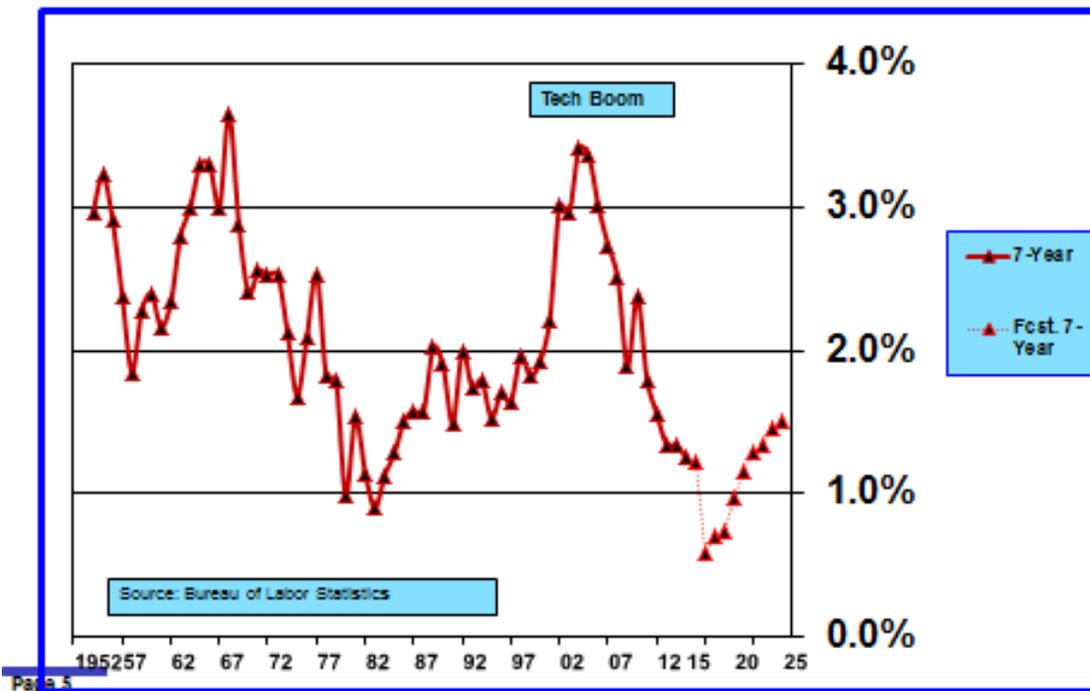
<sup>3</sup>James Pethoukoukis. “Is there really a Great Stagnation? The problem of measuring economic growth in America's digital economy,” American Enterprise Institute, June 12, 2015.

Great Recession. However, the persistent anemic level of productivity in recent years has led to increasing doubts that productivity will return to historical levels and has spurred a search for explanations.

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

Historical productivity trends are easier to discern when a long-term average is calculated. **Chart 5** shows the long-term trend in a seven-year moving average of nonfarm productivity. The recent collapse in productivity to the low level that prevailed in the early 1980s is starkly evident. One more year of productivity less than 1 percent will take the seven-year average to its lowest level in 50 years. The improvement in forecast productivity assumes that productivity growth will rise from its recent annual level of 0.7 percent to about 1.5 percent over the next several years. There is no assurance that this will actually occur.

**CHART 5 – Productivity (Seven-Year Rate of Change)**



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

## 1. Diminished Technical Progress

Robert Gordon, a Northwestern University economic historian, has argued that today's economy, which is based on information and communications technologies, is inherently less susceptible to productivity improvement than previous structural transformations of the economy involving railroads, electricity, and manufacturing automation. This is an argument without robust quantitative analysis to support it. In addition, many find this theory intuitively implausible. Think about how your smart phone with all of its apps has transformed your life and made it easier and less costly to manage your daily activities. As *The Bank Credit Analyst* has observed, these are quality improvements, but the issue is not whether these technologies improve ways of doing existing tasks it is whether they change the quantity of output relative to inputs.<sup>4</sup> GDP measures the dollar value of transactions. It does not adjust for what economists refer to as the utility of transactions. For example, two transactions could have the same dollar value but a consumer could derive greater satisfaction (utility) from one than from the other. GDP measurement methodology does not distinguish between the two transactions and treats them as equal in value.

Or consider Uber. This app enables the existing stock of cars and drivers to be utilized more efficiently. It probably does not increase output but it does decrease inputs. Thus, Uber should contribute to measured productivity. However, unlike other types of innovative technologies that lead to new investment and new production, such as cellular phones, Uber does not stimulate new investment and destroys jobs.

While the debate about the economic benefits of social media continues, generally whatever those benefits might be, if they really do exist, are not captured in the measurement of productivity.

## 2. Inadequate Demand

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

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

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

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<sup>4</sup>"Special Year End Issue: Outlook 2016," *The Bank Credit Analyst*, Vol. 67, No. 7, January 2016.

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

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

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

Forecast productivity in my statistical analysis depends upon three variables — the rate of growth in the labor force, the percentage increase in real private investment spending, and the percentage increase in real public investment spending. The rate of growth in the labor force captures oscillations in productivity that occur over the business cycle. When labor markets are tight (labor force growth is high), productivity declines as employers hire marginal workers. The opposite occurs during and following recessions as employers shed marginal workers and expect remaining employees to cover more work activity. The coefficient of the labor growth variable equals -1.0 and impacts productivity with an average 2.2 quarter lag. What this means is that a 1 percent increase in employment growth will result in a 1.0 percent decline in productivity over about 4.4 quarters (in fact, about 80 percent of the adjustment occurs with 2 quarters and the remaining adjustment occurs over another 22 quarters).

Investment spending has a much greater impact on the level of productivity. A 1 percent increase in real private investment increases productivity by 41 basis points with an average 5.1 quarter lag and a 1 percent increase in real public investment increases productivity by 43 basis points with an average 8.7 quarter lag. The problem is that growth in investment spending has dropped sharply in recent years relative to the 1947-2015 long-term averages. **Table 4** shows the separate and combined effects on productivity of the decline in investment spending growth. The 53-year period from 1947 to 1999 is compared with the recent 16-year period from 2000 to 2015.

**Table 4**  
**Contributions of Private and Public Investment Spending to Productivity Growth**

	1947-1999	2000-2015	Change	Coefficient	Change in Contribution to Productivity Growth
Private Investment	4.53%	1.37%	-3.16%	.414	-1.31
Public Investment	3.18%	0.89%	-2.29%	.431	-1.00
Total	3.72%	1.12%	-2.60%		-2.30

It might surprise you to see that the decline in the real rate of growth in both private and public investment spending between the two periods has been so substantial. It might also surprise you to see that the decline in the real rate of growth in investment is not of recent vintage but has persisted for over 16 years and includes the tail-end of the technology boom. The 2.30 percent decline in productivity between the two periods is huge. Thus, it is not at all surprising that productivity has risen at an annual average of just 0.59 percent over the last three years. Given the public mind set about government spending, there is little hope that real public investment growth will improve from the recent trend level. One can hope that the real rate of growth in private investment spending will improve, but given the headwinds of weak aggregate demand, low inflation, low wage growth and low interest rates, improvement, if it occurs at all, will probably be modest.

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

### 3. Mismeasurement

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

As discussed in **Section V**, **GS** has written extensively on this topic and has assembled evidence to support its belief that productivity has not captured the benefits of advances in software technology and that the gap between reported productivity and actual productivity has been growing as software applications become an ever greater component of overall economic activity.<sup>5</sup>

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

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

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<sup>5</sup>Jan Hatzius and Kris Dawsey. "Doing the Sums on Productivity Paradox v2.0," Goldman Sachs Economic Research, Issue No: 15/30, July 24, 2015.

more than just the nonfarm sector of the economy.

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

Probably the more important consideration is that the GDP price deflator could be overstated by a considerable amount, perhaps by as much as 60 basis points. Since the GDP price deflator has been about 0.9 percent over the last year, an adjustment of this size would put us very close to deflation territory.

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

## VII. Secular Stagnation

*Secular stagnation is an economic concept popularized by Larry Summers in a speech he delivered at an International Monetary Fund conference in October 2013. In the speech he argued that the U.S. economy has been in a state of secular stagnation for at least 10 to 15 years. Generally speaking, secular stagnation characterizes an economy in which aggregate demand is insufficient to eliminate an output gap. Reasons generally cited for persistent insufficient aggregate demand include slowing population growth and declining technological innovation that results in smaller productivity gains.*

*When an output gap exists it is economic policy dicta for the monetary authority to depress interest rates. However, rather than stimulating new productive activity involving additional investment spending and increased spending on durable goods, such as houses and cars, policy leads to lower interest rates that stimulate price speculation in existing assets. Speculative activity creates jobs and for short periods of time reduces or eliminates the output gap and creates the illusion that policy has been effective in returning the economy to full employment. But, what is really happening is that speculative activities lead to an unsustainable bubble and eventual price collapse. When the bubble bursts jobs are lost and the output gap reemerges. We are currently experiencing the collapse of the most recent price bubble that centered on commodity prices.*

*The term "secular" implies that a phenomenon persists over an extended period of time. Most main-stream economists dispute the existence of secular stagnation, arguing instead that the observed phenomenon of low interest rates, which supposedly is one of the indicia of secular stagnation, is a cyclical manifestation of a weak economy in the process of returning to full employment.*

*In the February and June 2015 Longbrake Letters, I discussed why a monetary policy designed to lower interest rates so as to stimulate aggregate demand could be unsuccessful in achieving that policy goal, and worse, might result in negative consequences and reinforce*

*the entrenchment of secular stagnation. Data in this section is updated to the most recent available information.*

Secular stagnation is characterized by a low and declining real rate of interest which reflects an excess of desired saving over desired investment. This condition results in a persistent output gap and/or slow economic growth.

- Low real interest rates crowd out low return, riskier investments.
- Productivity slows because of diminished investment activity.
- Real economic activity grows more slowly.
- Incomes rise less rapidly along with slower economic growth and this depresses growth in consumption.
- A persistent output gap is highly deflationary.
- The excess between desired saving and desired investment goes into speculation and drives price bubbles in financial and real assets.
- Asset price speculation benefits the rich; low productivity penalizes the poor by holding down wage increases, and collectively both phenomena drive increasing income and wealth inequality.

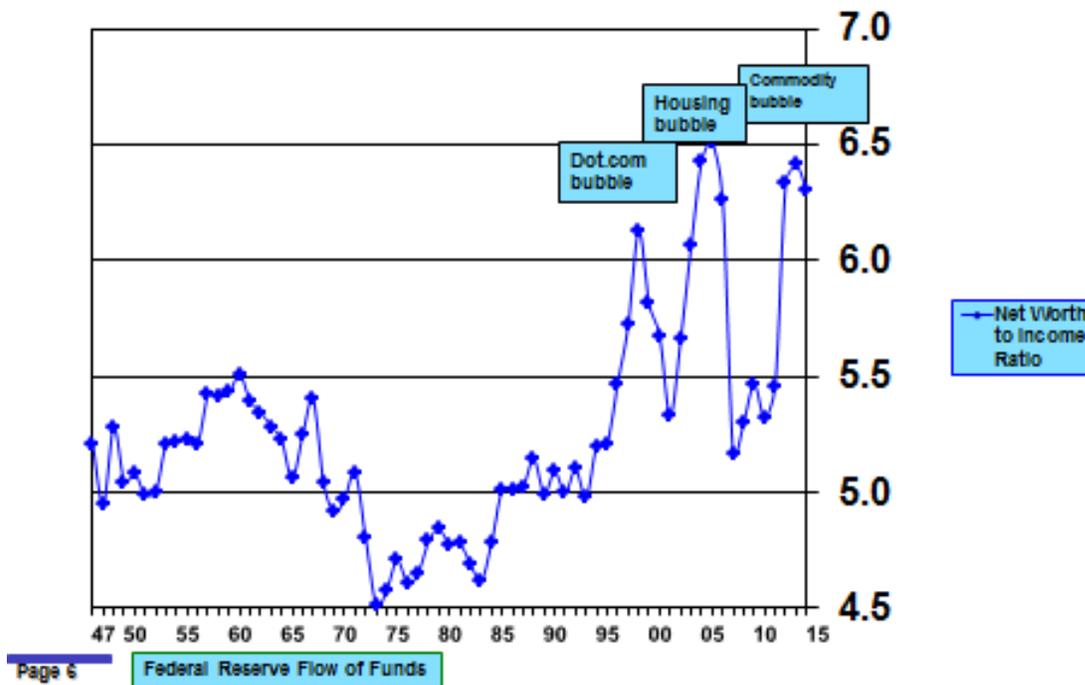
Price bubbles can drive economies to full employment, temporarily. But this outcome is not sustainable, because bubbles are inherently unstable and eventually burst. A pattern of price bubbles and boom and bust will persist for as long as intended saving exceeds intended investment, which is another way of saying “as long as aggregate demand is insufficient to close the output gap.”

**Chart 6** shows the ratio of consumer net worth to disposable income. Historically, the ratio fluctuated between 4.5 and 5.5. However, it rose to 6.25 during the dot.com investment bubble and then to 6.5 during the housing bubble. The ratio has surged once again to 6.5 in the first quarter of 2015, a level consistent with the two previously acknowledged bubbles. As of the third quarter of 2015, the ratio had ebbed a bit to 6.3.

*Markets are off to a distinctly bearish start as 2016 commences. We will most likely know within the next several months whether the latest spike in the consumer-net-worth-to-disposable-income ratio was indeed an indicator of another financial bubble, driven this time primarily by commodity prices and a monetary policy intentionally designed to drive up asset prices by artificially depressing long-term interest rates.*

As emerging economies mature and their growth rates slow as their economies shift toward internal consumption, the problem of a global saving glut (intended saving exceeds intended investment) will gradually diminish. But, this will be a gradual change over many years. In the meantime deflationary forces will remain very powerful and will continue to overwhelm the inflationary attributes of aggressive quantitative easing, money-printing global monetary policies.

**CHART 6 – Consumer Net Worth to Disposable Income**  
1947 - 2014



## 1. Natural Rate of Interest ( $R^*$ )

It is conventional wisdom that when the economy is at full employment and booming the Federal Reserve should raise the federal funds rate. When unemployment is high and the output gap is large the Federal Reserve should lower the federal funds rate. The rationale is that by changing the cost of money, the Federal Reserve can either stimulate or discourage investment and spending and in so doing boost or dampen economic activity. The objective of monetary policy is to promote full employment at low and stable rates of inflation and dampen cyclical fluctuations.

While the federal funds rate is one of many **market rates of interest**, it is the one traditionally that the Federal Reserve manipulates in its attempt to modulate economic activity over the business cycle. Because the level of long-term interest rates depends upon the current short-term interest rate, the federal funds rate, and future expected values of the federal funds rate, the Federal Reserve can influence interest rates across the maturity spectrum by setting the current value of the federal funds rate and signaling its future intentions.

Policy risk arises if the Federal Reserve's implementation of monetary policy results in setting the **market rate of interest** at a level that is above or below the **natural rate of interest**. But because the natural rate is unobservable it is difficult to know when the market rate of interest differs from the natural rate. To understand why divergence between the two rates leads to policy risk, it is important to know what the natural rate of interest is and why, when it differs from the market rate of interest, policy risk is triggered and can build to troublesome levels if the divergence between the market rate and the

natural rate is large and persists for a long period of time.

**Investment, Saving and the Natural Rate of Interest.** The natural rate of interest is that rate of interest at which **intended investment** and **intended saving** balance. This is the same concept as the intersection of a demand and supply curve for a product, such as sugar, which determines its market price.

After the fact, or **ex post** in economic jargon, investment and saving are always equal. But realized investment and saving may not be what investors and savers intended, which is an **ex ante** concept in economic jargon. Because intended investment and intended saving are not directly observable it follows that the natural rate of interest cannot be known with certainty.

According to theory, if the expected return on an investment in a productive asset is greater than the natural rate of interest, that investment should be undertaken. A saver has a choice between current and future consumption. A low interest rate encourages current consumption; a high interest rate encourages saving and a deferral of consumption. The **equilibrium natural rate of interest** occurs at the rate that induces enough savings — **supply of funds** — to fund investments — **demand for funds** — whose expected returns exceed the equilibrium rate of interest.

Since the natural rate of interest is not observable, actual decisions are based upon the market rate of interest. But, if the market rate of interest is different from the natural rate, some decisions will be “incorrect”. This initiates policy risk and its magnitude will depend on the size, direction, and persistence of the divergence between the natural and market rates of interest. *Because the Federal Reserve controls the market rate of interest, it can become the source of policy risk by setting a market rate of interest that is inconsistent with the natural rate of interest.*

**What Happens When the Market Rate and Natural Rate of Interest Diverge?** When the market rate of interest is set below the natural rate of interest, money is said to be cheap and investments will be funded whose expected rates of return are below the natural rate of interest but above the market rate of interest. While this is intuitively obvious, the macroeconomic implications are less obvious.

Economic growth depends upon investment in new productive assets. When money is too cheap investment will occur not only in productive assets but also in less productive assets such as building roads and bridges to nowhere. But when money is cheap it will also flow into existing investments with the result that the prices of existing assets are bid up. This can happen directly into real assets, such as real estate, or indirectly into financial assets, such as stocks and bonds. Prices of existing assets, then, inflate above “fair” value.

This is the phenomenon that **Hyman Minsky** described in his **financial instability hypothesis**. A market rate set below the natural rate leads to speculation and in the extreme to Ponzi finance and unsustainable bubbles. As a reminder, Minsky’s financial instability hypothesis posits three levels. The first level is “**normal finance**” where investments are made based on expected cash flows from the investment sufficient to cover payment of principal and interest on the debt that finances the investment. This is the level that is consistent with a market rate of interest that equals the natural rate of interest. The second stage is “**speculative finance**” where investment cash flows are sufficient to cover principal repayment but insufficient to cover interest payments, thus requiring perpetual refinancing. The third stage — the bubble stage — is “**Ponzi finance**” where cash flows from investments are insufficient to cover both principal and

interest. Asset prices are bid up to unsustainable levels which eventually lead to a bust.

Cheap money and debt leverage are a deadly combination as we have seen from experience. They combine to facilitate speculative and Ponzi finance. Profits accrue to speculators rather than to investors in new productive assets with the result that funds are diverted into existing assets and away from new productive assets. A quick buck can be made through speculation while returns on productive investments are uncertain and are only realized over a long period of time. This misallocation of profits is contributing to a worsening of income inequality. Moreover, it should not come as a surprise that private investment growth, as measured in the national income accounts, began to decline in 2006 well before Lehman collapsed in September 2008. The 2006 to 2008 period was clearly one in which Minsky's "Ponzi finance" held full sway.

Thus, a market rate of interest that is below the natural rate of interest will lead over a period of time to the misallocation of funds into speculative activity involving existing assets. Investments in new productive assets will be neglected with the consequence that growth in the stock of capital will slow or even decline. Growth in the stock of capital is necessary to raise productivity. So, it follows, that slower growth in the capital stock or even shrinkage in the capital stock will depress productivity. Lower productivity results in decreasing the structural potential real rate of GDP growth.

When bubbles burst, asset values fall back to levels consistent with the natural rate of interest. But the nominal value of debt remains unchanged. This forces bankruptcies. The provision of copious amounts of liquidity by the Federal Reserve at cheap market rates can forestall contagion and a downward and lethal debt-deflation spiral. But, this kind of market stabilization intervention can also slow the process of right-sizing the stock of nominal debt relative to the stock of assets fairly valued at the natural rate of interest. Or, put differently, the process of economic renewal through creative destruction is impeded because fewer inefficient business are forced into bankruptcy. The overhang of too much debt serves as a barrier to new investment. This phenomenon is probably an explanation, at least in part, for the on-going depressed level of new business formation. In any event, debt overhang is correlated with depressed or negative growth in the stock of capital. And, slower growth in the capital stock or shrinkage depresses productivity and the structural rate of real GDP growth.

**Monetary Policy Can Contribute to Reducing the Structural Potential Real Rate of GDP Growth.** Monetary policy's role is to drive the market rate of interest down when the economy is underperforming. The objective is to stimulate investment and consumer spending. But, if the market rate is set too low and is maintained at too low a level for too long, it will prompt misallocation of investment into price speculation involving existing assets. This policy risk is not trivial and is inherent in the Federal Reserve's recent monetary policy. **The question worth pondering is whether monetary policy has migrated from serving as a cyclical stabilizing influence to contributing to a permanently lower level of potential real GDP growth.**

Recovery in real economic activity and employment following the Great Recession has been disappointingly lethargic given the Federal Reserve's exceptionally easy monetary policy. And, recovery has been accompanied by some troublesome trends. For example, income equality is worsening according to an updated study by Emmanuel Saez and Thomas Piketty.<sup>6</sup> At the same time corporate profit margins

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<sup>6</sup>Annie Lowrey. "The Rich Get Richer Through the Recovery," *New York Times*, September 10, 2013. The share of income of the top 1% was 22.5% in 2012 compared to 19.7% in 2011 and matched the highs that preceded the Great Depression and

have escalated to all-time highs. New job creation is anemic and appears to be related to a low level of new business formation and barriers to investment. *And developments over the course of 2015 and early 2016 confirm that a massive global commodity price bubble is in the process of violent collapse.*

## 2. Observations of Charles Gave

Charles Gave of GavekalDragonomics observes that manipulation of interest rates and currency exchange rates by policy makers creates false signals. Since these prices influence all other prices manipulation of these prices causes market participants to make economically flawed decisions. If manipulation is significant and extends for a long time, economic imbalances develop and bubbles build. Eventually, imbalances and bubbles are unsustainable and reverse, usually quickly with severe consequences.

### Gave's Central Banker Postulates.

- The future is unknowable.
- The amount of risk in the system is constant over time, which means that policies that attempt to reduce risk simply result in fueling behaviors that lead to greater risk later.
- The greater the difference between the natural rate of interest and the market rate of interest is, the bigger will be the subsequent booms and busts.
- A false price for the cost of money increases the risk in the system exponentially.
- A false price for interest rates leads to a false price for the exchange rate (think about the recent strength in the trade-weighted value of the U.S. dollar).
- False prices lead to sharp rises in asset prices which are amplified by leverage.
- Do not protect bankers — put them in jail. Protecting bankers encourages moral hazard (risk taking) and prevents loss taking which slows the healing process and depresses growth.

### Gave — What Central Bankers Should Never Do.

- Never give forward guidance — extracting uncertainty, encourages risk taking, leverage and speculation, which amplifies booms and busts.
- Prices of all assets rise.
- Assets are held by rich people, which means that rich people get richer relative to poor people.
- Rich people buy (speculate in) existing assets rather than new assets (capital investments), which have more uncertain cash flows and returns.

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Great Recession. The top 1% has “captured” about 95% of the aggregate increase in income since the end of the Great Recession.

- As a result, the stock of productive capital rises less rapidly.
- Productivity falls.
- The structural potential real growth rate of the economy falls.
- The poor get poorer relative to the rich.
- Inequality worsens.
- Society becomes increasingly unstable.

### Why Are Central Bankers Manipulating Prices and Giving Forward Guidance?

There are several possibilities. Perhaps central bankers believe they can forecast and control the future. History indicates that this is a fatal conceit. Or, perhaps central bankers have been captured by Wall Street and the financial elite, who love copious amounts of liquidity and inflating asset prices. Or, perhaps they are mesmerized by a deeply flawed political project, e.g., the European Union and the euro. Or, perhaps they are just plain stupid.

## VIII. Forces Driving Slower Economic Growth

*In the June 2015 Longbrake Letter, I extended the discussion of the negative impact of secular stagnation on long-term economic growth to include other contributing factors*

There are three potential culprits behind the emerging long-run trend of slower growth in the U.S. economy. The first is secular stagnation. It involves very low or negative real rates of interest. Secular stagnation is characterized by a persistent output gap and/or slow economic growth. A second culprit is lack of private business and governmental investment spending. It is related to the first but can also be driven by noneconomic forces such as political agenda and uncertainty. A third culprit is a change in expectations about the future that leads to a change in behaviors on a current basis. Such changes can be self-fulfilling. For example, an expectation of low or declining inflation may be interfering with the tendency of wages to rise when the labor market tightens. Employers lack pricing power and resist wage increases. Employees become less demanding for increases in nominal wages because they are less concerned about losing inflation-adjusted spending power.

Another development whose long-run consequences are not yet fully evident is the effect of excess global capacity and super-loose global monetary policies involving quantitative easing, which has forced U.S. interest rates down to levels that would probably not otherwise prevail.

## IX. Monetary Policy and Financial Instability

*In the May and June 2015 Longbrake Letters, I discussed the potential risks that a monetary policy intentionally designed to depress interests pose to the stability of financial markets in the long run. Data in this section are updated to the most recently available information.*

## 1. Financial Markets — Risk Mispriced

Monetary policy has intentionally depressed interest rates since late 2008 with the objective of stimulating consumption and investment. Artificially depressed interest rates can lead to speculation in assets rather than new productive investment. But, there is another consequence.

Administered interest rates, particularly when the zero bound is binding, as it has been since 2008, provide a high degree of certainty to investors and extract risk from the marketplace. The Federal Reserve's quantitative easing program, by purchasing large quantities of long-duration U.S. Treasury and mortgage backed securities, not only depressed long-term interest rates, it also reduced duration risk. By reducing the supply of low risk long-duration securities, the Federal Reserve forced investors to search for yield and this depressed the credit spreads on riskier categories of long-duration securities. In short, risk has systematically been underpriced.

In today's financial markets, replete with a plethora of derivatives that are intended to help investors manage risk but also increasingly serve as direct investments, mispricing of risk can create serious potential problems. Measurement of risk for volatility derivatives, such as VIX or the CBOE Volatility index, have become distorted by the Federal Reserve's extended period of zero-interest-rate policy (ZIRP). When risk measures are depressed artificially, value at risk models permit greater use of leverage. This is not a problem until the mispricing of risk corrects, as it surely will once the Federal Reserve begins to normalize monetary policy. What is potentially troublesome is that investors might not be able to adjust hedge ratios quickly enough as policy normalizes and this could prompt extreme market volatility and perhaps even forced liquidation of positions at a loss — the classic fire sale phenomenon that characterizes bursting bubbles.

*Given the market turmoil that has broken out in January 2016, we may know soon whether the mispricing of risk reached a significantly great enough level that reestablishment of "true" risk pricing will entail severe adjustment consequences.*

## 2. Financial Markets — Lack of Liquidity

Related to the mispricing of risk is reduced market liquidity in traditionally highly liquid securities. Liquidity has been reduced not only by the Federal Reserve's large scale asset purchase program, i.e., quantitative easing, it has also been reduced by the liquidity requirements imposed by the Dodd-Frank Act on financial institutions. The problem is especially severe for mortgage backed securities because the outstanding stock of mortgages has declined \$1.2 trillion to \$9.5 trillion (peak \$10.7 trillion — 2008 Q1; trough \$9.4 trillion 2013 Q1 through 2015 Q2; current \$9.5 trillion 2015 Q3) since the housing bubble burst.

In addition to a reduced supply of liquidity and the mispricing of risk, the institutional structure of the dealer market is much weaker than prior to the Great Recession. Simply put dealers are less willing today to perform the traditional market making role of supporting risk. The implication of this is that when volatility strikes there may be little ability of the private market to perform a stabilizing role. Not all would be lost as the Federal Reserve can serve as lender of last resort. But, Federal Reserve intervention would invoke the "Fed Put" and perversely that would encourage potentially imprudent risk taking.

My sense is that financial markets are more fragile today than commonly understood or acknowledged. As the Federal Reserve normalizes monetary policy the risk of potentially violent market spasms is not trivial.

*Given the market volatility in early 2016, we will likely know in a few months whether market structural changes created potential volatility rather than containing it as intended.*

## X. Long-Term Interest Rates

*Over the course of 2015 I discussed determinants of interest rates and rates of return on various kinds of investments. The January 2015 Longbrake Letter (Section X) began this discussion with an explanation of the principal factors that determine the long-term rate of interest. I provided an estimate of the long-run natural rate of interest ( $R^*$ ) in the June 2015 Longbrake Letter (Section XI). The discussion was extended in the October 2015 Longbrake Letter (Section XII) to explore the impact of macroeconomic trends on long-term rates of return on investments. Data and charts are updated to reflect the most recently available data.*

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

Long-term rates can also be depressed by an intentional quantitative easing bond buying policy by the central bank. Quantitative easing usually results in depressing the value of a country’s currency. That has been an intentional part of Japan’s Abenomics and became an intentional aspect of the ECB’s monetary policy in early 2015. Because the U.S. ended quantitative easing in October last year, the U.S. is now on the receiving end which is evidenced in the rising value of the dollar. This has a relatively immediate effect of transmitting lower foreign long-term interest rates to the U.S. through purchases of U.S. treasury bonds. It also has a longer term effect of depressing U.S. exports and slowing the rate of real GDP growth. This is the phenomenon of currency wars in which each nation attempts to avoid the deflationary consequences of excess aggregate supply relative to aggregate demand by devaluing its currency. The overall result is that that country’s deflation is simply exported to other countries. Where this evolving international policy mix takes us in a deflationary setting is uncertain, but the odds are that the consequences will not be nearly as benign as many expect.

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

If the real rate of interest is depressed below its “natural level” because of the perceived need to stimulate the economy, this could have the unintended consequence of depressing investment, slowing growth and

adding to disinflationary and deflationary pressures which, in turn, would drive nominal rates even lower. This is the condition of the world that we currently find ourselves in. The risks are high that outcomes over time will not be favorable.

So what should the 10-year rate be today? If one simply adds the real rate of return to an expected inflation rate and ignores the nuances of all the other factors that influence long-term rates, the rate should be about 3.0 percent, assuming expected inflation is 1.5 percent and the real rate of return is 1.5 percent. That is why most conventional forecasts expect the 10-year rate to be between 2.75 percent and 3.00 percent by the end of 2015. A current 10-year Treasury rate of 1.90 percent (*January 2015 average*) barely covers inflation and leaves little real return. Inflation would have to drop a lot from a 1.5 percent level to justify today's 1.90 percent rate and provide an acceptable real rate of return. Either the recent level of rates is the result of temporary factors and rates will soon return to a higher level or today's low rates reflect forces afoot that are not transitory and which will have significant consequences.

*As we begin 2016, the 10-year Treasury rate has averaged 2.12 percent so far in the month of January. It seems probable that "forces are afoot that are not transitory." Either inflation or the real rate, or perhaps both, seem likely to be less than a combined 3.0 percent over a long period of time.*

## XI. Estimates of the Natural Rate of Interest ( $R^*$ )

*In the January 2015 Longbrake Letter, the 10-year Treasury note rate was cited as a proxy for the long-term natural rate of interest. However, the 10-year rate includes a term premium, a real rate of return, which depends in the long run population growth and productivity, and a component compensating for the long-run expected rate of inflation. An alternative measure of the natural rate is the long-term equilibrium value of the federal funds rate when the economy is at full employment and inflation is stable at its policy target level. This measure excludes the term premium. The Federal Reserve in recent months has talked increasingly about the long-term natural rate of interest  $R^*$  as a policy target. Members of the FOMC estimate a value of  $R^*$ , which is the long-term stable value of the federal funds rate, each quarter and these estimates are disclosed along with estimates of other key economic variables. In December 2015 the median FOMC value for  $R^*$  was 3.50 percent and the range was from 3.00 percent to 4.00 percent.*

*Data in this section are updated to December 2015.*

Although the natural rate of interest is difficult to determine at any particular moment in time, it is possible to ascertain its approximate value in the long-run when the economy is at full employment. The full-employment equilibrium level of the natural rate depends on just two factors — the long-term expected rate of inflation and the level of productivity. (*Note that the June commentary omitted the importance of population growth, which was added in the October 2015 Longbrake Letter.*)

However, it is not as simple as adding the two values together.

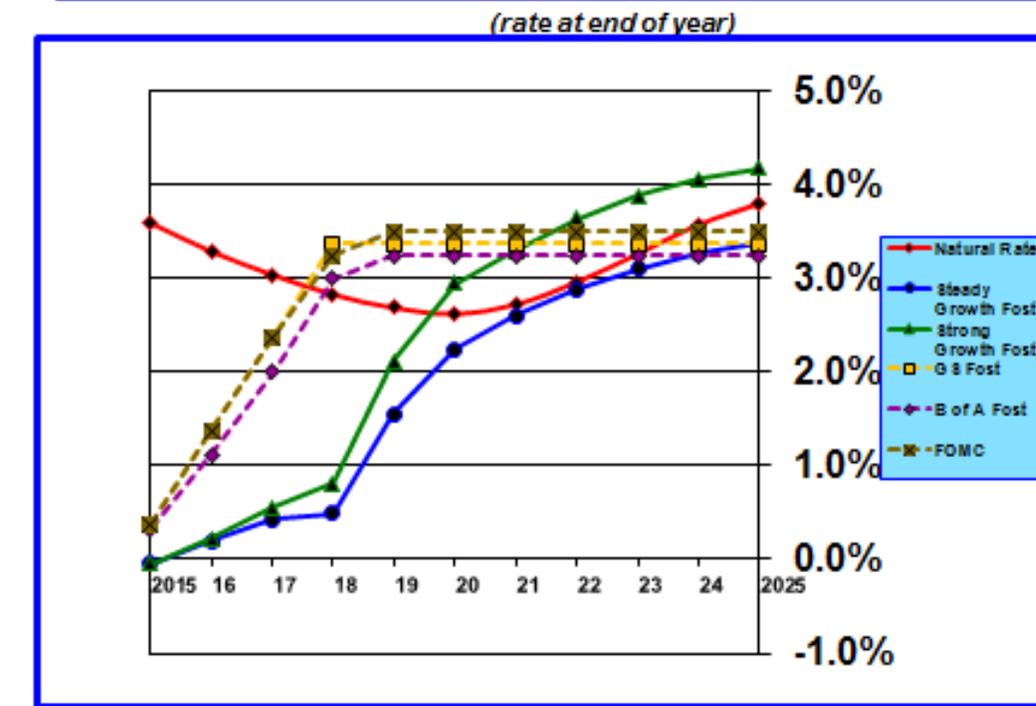
**Inflation.** The natural rate of interest tracks the level of inflation, rising when inflation increases and

falling when inflation declines. However, the impact of inflation on the natural rate is greater than one. Most economists do not pay any attention to this relationship but it is an obvious one in a world in which nominal interest returns are taxed. In a world of taxes, as inflation rises, the natural rate must rise more to maintain the same level of real return on capital. The inflation coefficient, thus, is approximately 1.2 rather than 1.0.

**Productivity.** Increases in productivity raise the natural rate of interest directly but decrease it indirectly by depressing expected inflation.

In a world of low inflation and falling productivity, the natural rate of interest will fall. However, as inflation rises toward the 2.0 percent target and productivity improves, the natural rate will rise. **Chart 7** shows various forecasts for the actual federal funds rate, the FOMC’s median projection for 2016-2018 and the FOMC’s median long-term equilibrium rate thereafter, and my estimate of the natural rate.

**CHART 7 – Natural Rate and Forecasts of Market Rates**



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Several comments are in order to explain the contents of **Chart 7**. First, the red line and black diamonds are my estimate of the natural rate of interest. For the next several years it is in a gradual declining trend as the lagged effect of slowing productivity and low inflation filter slowly into the natural rate.

Second, all other interest rate projections in **Chart 7** are forecasts of the market rate of interest at various points in time. Because all estimates presume an eventual return to full employment and a steady level of inflation in the vicinity of 2.0 percent market interest rates converge over time to the presumed underlying equilibrium natural rate of interest. Note that all market rate forecasts converge to my estimate

of the natural rate of interest in the long-run.

Third, in the near future the natural rate of interest is much higher than the market rate of interest. This occurs because considerable slack remains in the economy and because monetary policy is geared intentionally to keep the market rate of interest depressed.

## XII. Impact of Macroeconomic Trends on Long-Term Rates of Return on Investments

*Data in this section are updated to the most recently available information.*

Assumptions about long-term rates of return on investments are important to structuring investment portfolios and also are essential inputs into crucial decisions fiduciaries must make to assure that promises/legal commitments fiduciaries make to beneficiaries can be met over the long term.

It goes without saying that investment returns are volatile over the short run in response to fluctuations in the business cycle and oscillations in investor sentiment. However, if returns are stable over very long periods of time the risk that a fiduciary will not meet promises/legal commitments will diminish considerably. An important issue, then, is whether investment returns, indeed, are stable over long periods of time. If they are not, but fiduciaries assume that they are, significant and serious problems could develop in the ability of fiduciaries to meet contractual obligations or satisfy expectations. The problem is that a sustained structural change in rates of return on investments often is not recognized until several years have passed and by then serious damage has already occurred.

### 1. Rates of Return Vary With Inflation and Economic Growth

Analysis conducted by the Pension Consulting Alliance, Inc. clearly shows that rates of return on investments vary systematically with differences in the rates of inflation and economic growth. **Table 5** summarizes the environments that prevail for the combinations of high and low inflation and low and high growth.

**Table 5**  
**Growth/Inflation Environments**

	Low Growth	High Growth
High Inflation	Suppresses global demand and profits	Allows for pricing power and high returns
Low Inflation	Stifles economic activity	Improves economic stability and uncertainty

Source: Pension Consulting Alliance, Inc., September 2013

**Table 6** shows historical returns for different asset classes for the four growth/inflation environments.

The data in **Table 6** are based on actual historical returns. Note that embedded in the median return is a fixed mix of five asset classes — fixed income, public equities, private equities, real estate, and tangible assets. The median return would be different for alternative mixes of these five asset classes.

**Table 6**  
**Rates of Return on Investment Categories for Different Growth/Inflation Environments**

Asset Class	Long-Term	Low Inflation Low Growth	High Inflation Low Growth	High Inflation High Growth	Low Inflation High Growth
Public Equity	8.75%	6.30%	3.50%	12.70%	12.40%
Fixed Income	3.50%	3.40%	4.70%	4.30%	2.00%
Real Estate	8.00%	1.20%	13.00%	11.30%	9.00%
Private Equity	11.75%	7.40%	10.30%	15.60%	14.60%
Tangibles	6.80%	4.60%	6.20%	9.50%	7.40%
Median Return	7.20%	4.40%	6.10%	10.40%	8.90%

Source: Pension Consulting Alliance, Inc., September 2013

It is very clear that low growth environments lead to lower returns, as do low inflation environments. The worst combination is “low inflation/low growth;” the best environment is “high inflation/high growth.”

All four environments have persisted for short periods of time over the last 70 years. But, importantly, over the very long run the returns in the “Long-Term” column of **Table 6** have prevailed.

What is pertinent for fiduciaries is the answer to the question of whether future returns will conform to the historical pattern or whether they will track one of the growth/inflation environments on a persistent long-run basis.

As I discuss in the commentary that follows, growth and inflation have been slowing systematically for several decades. This is a secular trend. It means that it is highly unlikely that the long-term “historical returns” will repeat in the future. Although this secular trend has been underway for a very long time, its impact on rates of return has been masked by declining discount rates, which boost the value of assets. Declining discount rates result from a shift from a high to a low inflation environment. Once the shift is complete, discount rates will not fall any further and the transition boost to asset values will end.

This transition effect has lulled fiduciaries into complacency that higher historical rates of return are likely to persist in the future. Disappointment or worse is a highly probable outcome once the transition has run its course.

## 2. Rates of Return — Methodologies for Developing Assumptions

There are two ways to derive estimates of long-term rates of return on investments. The most common is to look at the distribution of historical returns over a very long period of time and calculate the geometric mean. The alternative is to develop a robust estimate by determining and summing the values for the components of an expected stable long-term rate of return. There are three components — a real rate of return, the rate of inflation, and a risk premium that is specific to each asset class.

## 3. Historical Rates of Return

Managers of pools of investment funds, such as pension funds, foundations, and college endowment funds, generally rely on historical rate of return information for asset classes to guide investment management policies. When historical information is relied upon fiduciaries make the implicit assumption that the world is stable over long periods of time. In other words, the future will mirror the past. Based on the experience of the last 70 to 80 years and taking a very long view, this assumption has been reasonable. That might continue to be the case. But, investment returns depend on economic growth, inflation, and risk. If any of these components changes and the change is sustained for a very long period of time, reliance on historical return information may turn out to be misleading. In other words, when a permanent structural change reshapes the macro-economy, reversion to the mean, which is assumed when historical information is the basis for establishing investment management policy, will not occur.

## 4. Investment Management Policies

There are two sets of policies that guide how fiduciaries manage investment portfolios.

**Portfolio Composition.** The first has to do with how an investment portfolio is structured — what asset classes are included in what proportions. In developing this policy the fiduciary will consider risks and returns on different asset classes and will determine an investment allocation strategy based on the fiduciary's risk appetite. Risk is customarily measured as the volatility in returns over time. But risk also depends upon liquidity — the ability to convert an asset into cash at the manager's discretion without suffering a loss explicitly because of the act of selling the asset. Typically, asset classes with higher risk should have higher expected rates of return over long time periods to compensate for the great degree of risk.

**Spending Policy — Draws on Portfolio Assets to Meet Needs/Obligations.** Another set of policies has to do with taking draws or spending some of portfolio assets to cover beneficiary contractual obligations or needs.

In the case of *pension funds* spending is dictated by the contractual terms of a beneficiary's pension. But, at the macro fund level, expected life spans of pensioners must also be considered because the present value of payments to all members of a pension plan, usually referred to as "plan liabilities," must at least equal the current market value of assets under management. Unfortunately, there is a dependency between measurement of the present value of plan liabilities and the expected returns on plan assets over time because funding of pension plans includes not only contributions from sponsors and beneficiaries but also

depends on expected investment performance. The assumption of the investment rate of return typically guides determination of sponsor and beneficiary contributions. Thus, if the investment return assumption is higher than actual experience over time, the pension plan will become underfunded and will not be able to meet plan liabilities over time. Conversely, a return assumption that proves to be too low will result in an overfunded pension plan. The risk of an underfunded or overfunded plan will be substantially reduced if the long-term historical return data used to determine sponsor and beneficiary contributions is stable over long periods of time.

In the case of *foundations and college endowments*, investment earnings fund charitable causes and operations. But an important objective also is to maintain the inflation-adjusted purchasing power of portfolio assets over time. When the prices of goods and services are rising over time, the corpus of the investment portfolio needs to rise commensurately. In theory this can be accomplished by forecasting the long-term rate of return on the portfolio of investment assets and the rate of inflation. The draw rate, then, should be equal to the difference in these two forecasts. Again, all is well and good if investment returns and inflation over long periods of time are stable and past experience is a reliable indicator of future expected outcomes. But if historical data are not a reliable guide for the future, purchasing power of portfolio assets could either grow or diminish over time. The assumption of stability is especially critical for organizations that depend on spending a fixed percentage of investment assets each year to fund operations.

## 5. Alternative Measure of Rate of Return — Determining and Summing Values of Components of Rates of Return

Rates of return on each asset class are the sum of three components — the potential real rate of growth in profits, the expected rate of inflation, and a specific risk premium for each asset class.

$$\textit{Expected Return} = \textit{Real Rate} + \textit{Nominal Inflation} + \textit{Risk Premium}$$

As I explain below, the real rate depends on the combination of labor force growth and productivity.

### a. Expected Potential Real Rate of Growth in Profits (Expected Real Rate of Growth in Potential GDP)

Over very long periods of time the expected real rate of growth in profits equals the expected real rate of growth in potential GDP. This is a true and reliable relationship as long as the labor and capital shares of real GDP (and its twin — GDI) are constant. Note that GDP equals GDI. GDP is gross domestic product and measures total expenditures made by all participants in an economy over a period of time, customarily measured on a quarterly or annual basis. GDI is gross domestic income and measures total income received by all participants in an economy over a period of time. GDP and GDI are equivalent because everyone's spending is someone else's income.

In recent years labor's share of GDI has fallen relative to capital's share. If this trend is a permanent structural change, then the potential real rate of growth in profits would exceed the real rate of growth in GDP, but only during the time period when the labor and capital shares of GDI were changing systematically. Once a new proportional relationship between the labor and capital shares was re-established, the

future growth rates of both real profits and real GDP would once again be the same.

In the commentary that follows I assume that both real rates of growth in profits and GDP are the same. This simplifies the examination of the potential real rate of growth by focusing only on macro-economic data for real GDP.

The expected real rate of growth in potential GDP is determined by two variables. The first is population growth and, specifically, labor force (total hours worked) growth. The second is innovation, which is typically measured by nonfarm productivity.

## b. Nominal Rate of Inflation

If we can assume that the Federal Reserve will be successful over a very long period of time in achieving its policy objective for the rate of inflation, then the value for this component of an investment return will be 2 percent. Historical data indicate that the realized rate of PCE inflation, the Federal Reserve's preferred measure of inflation, is much higher than 2.0 percent. Indeed, the geometric mean of PCE inflation over the last 57 years has been 3.23 percent. The mean has been 1.98 percent over the last 26 years. This means that a historical return distribution that spans a period longer than the last 26 years will not meet the assumption of stable inflation equal to 2.0 percent.

If a 57-year time period serves as the reference historical period (see **Table 7**), the inflation component of the expected rate of return will be overstated. But the overstatement is actually worse than the difference between 1.98 percent and 3.32 percent. That is because when the inflation rate rises, rates of return rise by an even greater amount. That occurs because returns on investment are taxed. What this means is that nominal rates of return must rise more than inflation when taxes are considered to maintain the same real rate of return. The relationship between the increase in nominal GDP and the increase in inflation is approximately 1.2. Thus, to maintain a stable real after-tax rate of return when inflation rises from 1.98 percent to 3.32 percent, the nominal rate of return would have to rise 1.61 percent rather than 1.34 percent.

**Table 7**  
**Total PCE Inflation — Geometric Mean**

	Number of Years	Annual Inflation Rate (Geometric Mean)
1959-2015	57	3.32%
1959-1990	31	4.45%
1990-2015	26	1.98%

### c. Natural (Neutral) Rate of Return Equals Potential Real Rate of Growth Plus Inflation Rate

The natural rate of return is the return on a riskless asset. An approximation of the natural rate is the full-employment federal funds rate. Generally, the rate on a longer-term riskless asset, such as a 10-year Treasury note, has a small upward bias because of a liquidity or term premium due to a degree of uncertainty about the stable long-term rate over such a long period of time.

### d. Risk Premia

Risk premia are specific to each asset class. In the analysis that follows, I do not attempt to estimate risk premia for various asset classes. However, there is good reason to believe that risk premiums for each asset class vary systematically with both the underlying real rate of return on a riskless asset and the nominal inflation rate. Risk premiums should be a positive function of both of these components. What this means is that if both the real rate of return and the nominal rate of inflation decline on a long-term basis, as I expect will be the case in coming years, risk premia should also decline. What is uncertain is the exact relationship for each asset class between its risk premium and the underlying potential real rate of return and expected nominal inflation rate.

## 6. Historical Trends — Potential Rate of Growth — Labor Force Growth (Total Hours Worked)

Factors influencing labor force growth over time include:

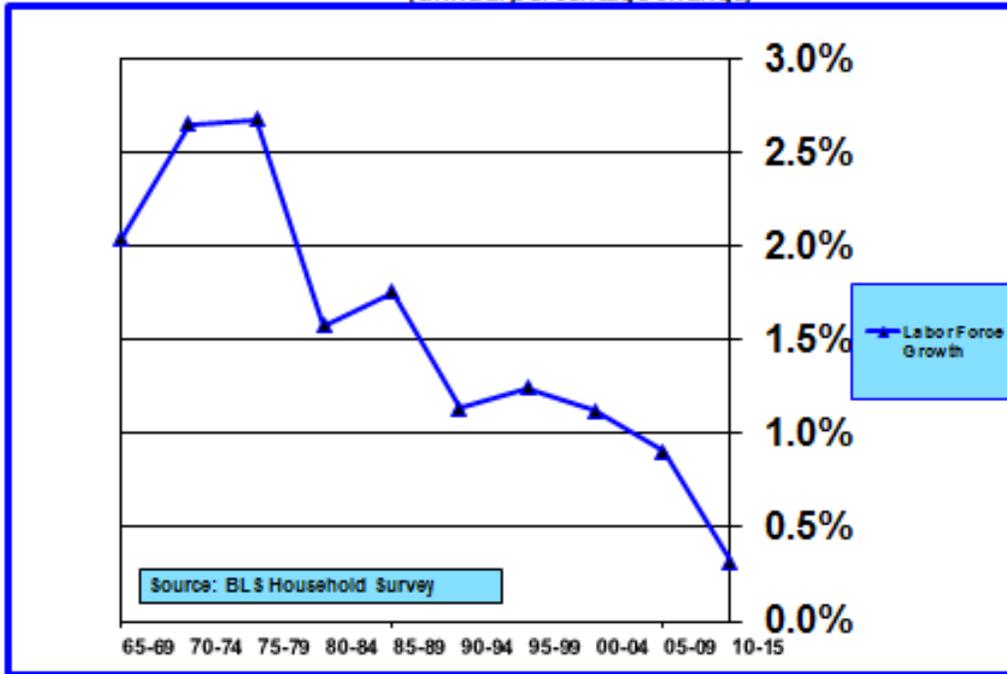
- Population growth — both natural (births minus deaths) and immigration
- Demographics — labor force participation rate, e.g. baby boomer retirement
- Cultural influences — two-wage earner families, e.g., women in the work force, percentage of young people attending college

Labor force growth has been declining steadily over the last 50 years and is expected to decline further over the next 10 years. **Chart 8** shows the steady decline in labor force growth over the last 50 years from an annual growth rate exceeding 2.0 percent to less than 0.5 percent over the last five years from 2010-2014.

**Chart 9** shows the change in the labor force participation rate over the last 50 years. It rose over most of the period primarily because increasing numbers of women joined the labor force. However, the participation rate has now turned down because the participation rate of women is no longer increasing, the baby boomer demographic bulge is now retiring, and fewer younger people are entering the labor force.

### CHART 8 – Historical Labor Force Growth

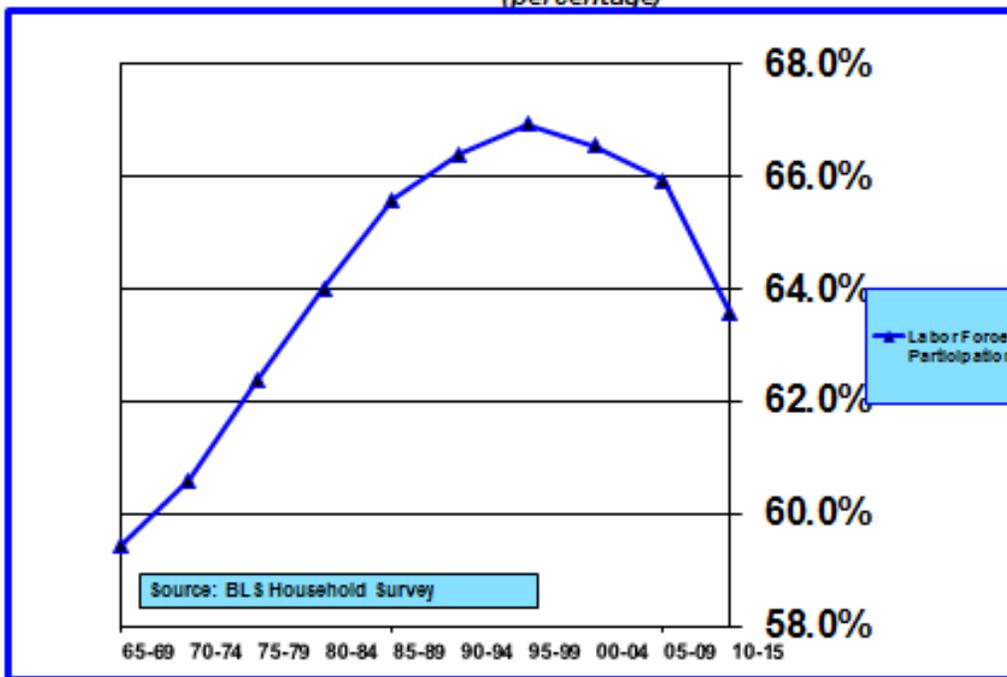
(annual percentage change)



Page 3

### CHART 9 – Historical Labor Force Participation Rate

(percentage)



Page 3

## 7. Historical Trends — Potential Rate of Growth — Productivity

Factors influencing productivity include:

- Capital investment — for example, the benefits of applying hardware and software to production processes
- Technical progress — innovations
- Labor skills — impact of education
- Business process improvement

Historically, productivity growth, as measured by nonfarm business productivity, has been highly variable. Variability over time appears to depend upon major innovations, such as railroads, electricity, computers, fiber optics, and so forth. Productivity, as discussed in previous *Longbrake Letters*, also appears to depend on the relationship between the expected return on investment relative to the cost of capital. When the expected return on investment exceeds the cost of capital, more investment should occur and productivity should improve. The opposite should occur when the return on investment is less than the cost of capital. Some, most notably Charles Gave, believe that the latter is the case because of monetary policy aimed at depressing interest rates. Also, the systematic retrenchment in government investment spending may also be contributing to a decline in productivity.

The question is whether the negative effects of both monetary policy and fiscal policy in depressing productivity growth in recent years is temporary or reflects a sustained structural change. CBO in its ten-year economic projections derives a bottoms-up estimate of productivity. That estimate is 1.5 percent, which is well below the long-term historical average of 2.1 percent. **Chart 10** shows historical productivity over the last 50 years in 5-year increments. Productivity in the most recent five-period period covering 2010-2015 is at its lowest level in 50 years.

## 8. Historical Trends — Potential Rate of GDP Growth — Combining Labor Force Growth and Productivity

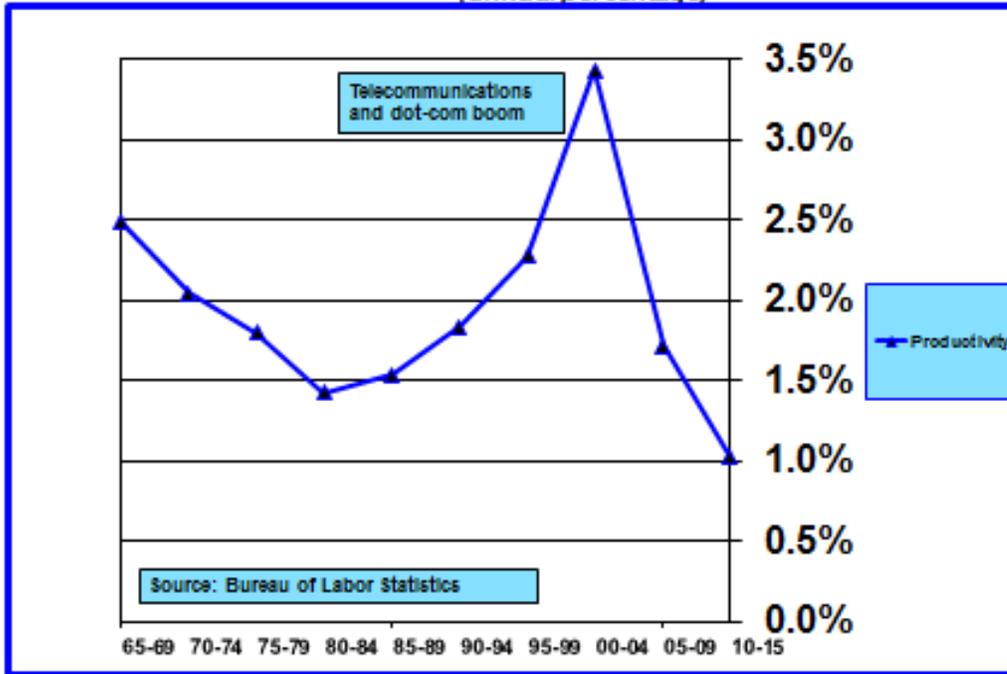
**Chart 11** shows potential and actual real GDP growth in five-year segments over the last 50 years. The divergence of the two series reflects fluctuations in the business cycle. What is clearly evident in **Chart 11** is that both actual and potential real GDP have declined steadily over the last 50 years and the decline has accelerated over the last 10 years. This outcome is a direct consequence in the decline in both labor force growth and productivity.

## 9. Forecast Trend in Potential Rate of GDP Growth — 2015-2025

CBO in preparing its analysis of federal revenues, expenditures and deficits over the coming ten years, projects a variety of economic variables. **Chart 12** shows how CBO's estimates of potential real GDP growth, which are shown in **Chart 4** in **Section II** of this letter, have changed over the last several years.

### CHART 10 – Historical Nonfarm Productivity

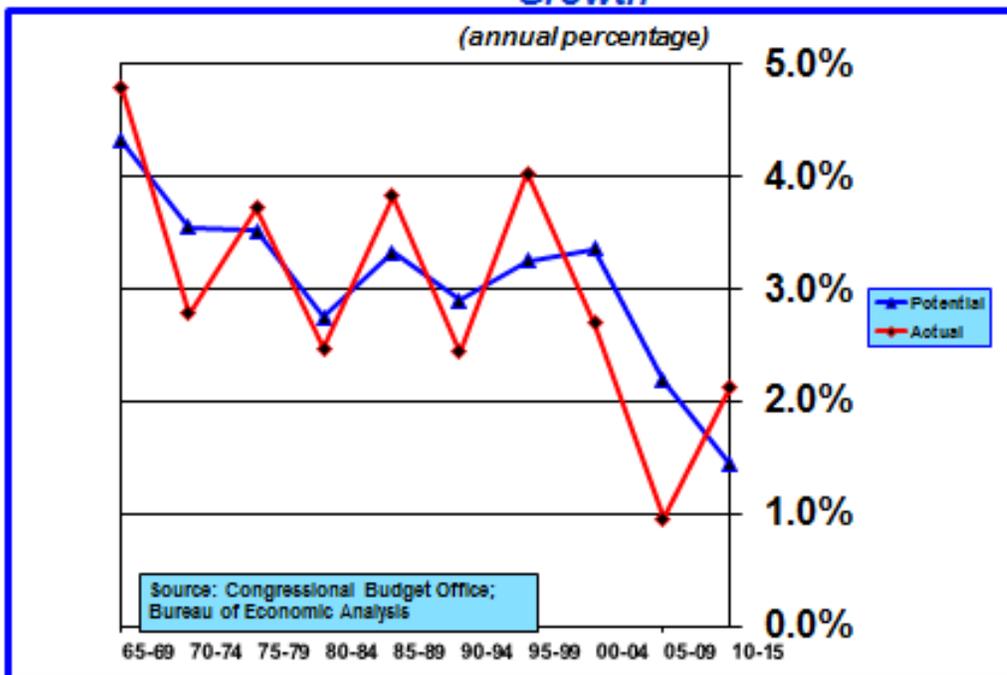
(annual percentage)



Page 10

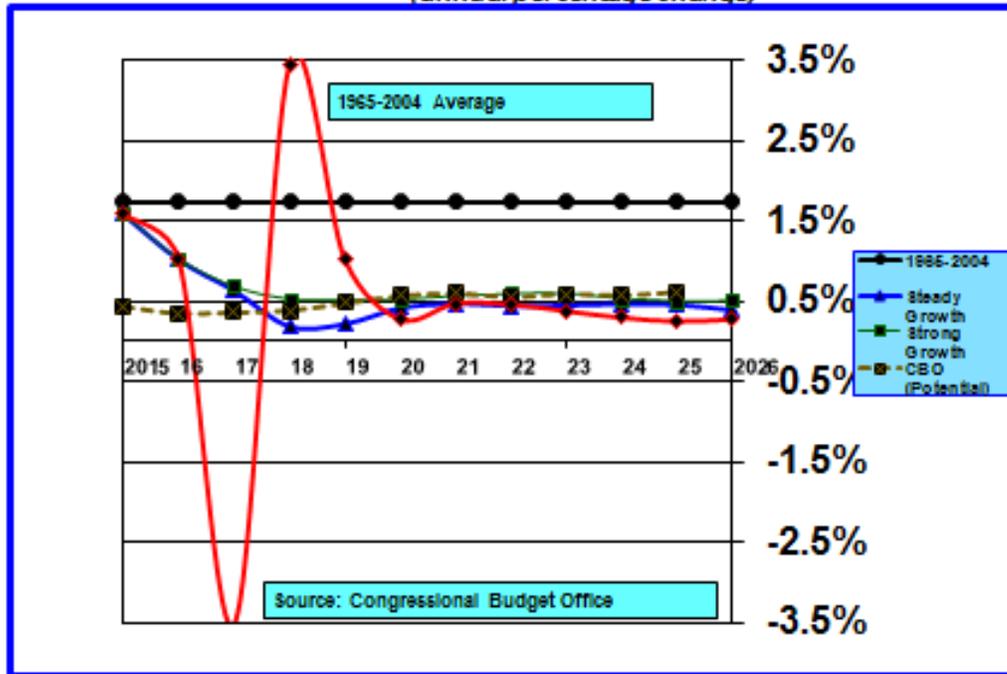
### CHART 11 – Historical Potential and Actual Real GDP Growth

(annual percentage)



Page 11

**CHART 12 – Employment Growth (Hours Worked)**  
(annual percentage change)



Page 12

There are several important takeaways in **Chart 4**. First, CBO has become progressively more pessimistic about potential growth over time. That is the direct result of CBO's increasingly pessimistic outlook for productivity. Second, potential growth improves in the near term as the economy emerges from the devastating consequences of the Great Recession. But, third, the improvement peaks in 2018 and then potential growth gradually declines thereafter. That outcome is a direct consequence of slowing labor force growth. Fourth, potential growth over the next ten years isn't even remotely close to the 3.4 percent 40-year average that prevailed between 1965 and 2004 and declines to 2.1 percent by 2025.

*CBO will released an update of its potential GDP and forecast GDP estimates in late January or early February 2016.*

## 10. Forecast Trend in Labor Force Growth — 2015-2025

CBO forecasts a sharp deceleration in labor force growth over the next ten years due to:

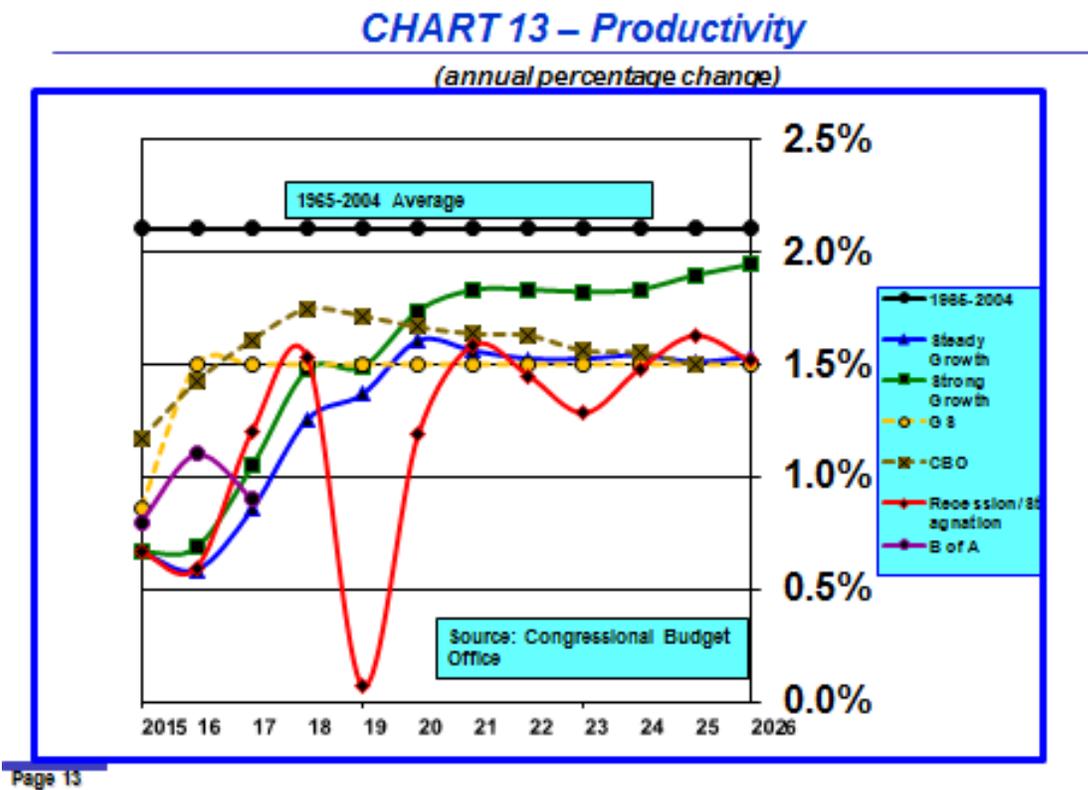
- Declining fertility rate
- Declining participation as the labor force ages

As can be seen in **Chart 12**, CBO projects that labor force growth will fall to 0.5 percent to 0.6 percent annual growth compared to an annual average of 1.74 percent over the 40 years from 1964 and

2005. My employment growth scenarios are more pessimistic over the next four years but converge to CBO's estimates by 2020.

### 11. Forecast Trend in Productivity — 2015-2025

As can be seen in **Chart 13**, CBO expects productivity growth to improve from exceedingly low recent levels to 1.7 percent by 2018. However, CBO expects productivity to move lower to 1.5 percent after that by 2025. These estimates are significantly lower than the 1965 to 2004 40 year average of 2.1 percent. Estimates of productivity growth in my “*Steady Growth*” scenario are very similar to those of **GS** and CBO. The slightly higher estimate of productivity in my “*Strong Growth*” scenario is driven by an assumption of stronger investment growth.



There are several theories for why productivity growth has been so low in recent years including a slowdown in technological innovation, weak capital investment because of low aggregate demand, and understatement because of failure to properly account for quality improvements in software. If either or both of the first two reasons are valid and are sustained, productivity will remain lower in the future. To the extent that mismeasurement might be the culprit, it would also mean that inflation is overstated. This is important because the improvement in productivity growth by removing mismeasurement seemingly would boost the potential rate of real growth and thus the rate of return on investments as well. But, the decline in inflation would take all of this away. So, whatever the cause of lower measured productivity might be, if it persists over the next several years, the rate of return on investments would be permanently

reduced.

Will productivity return to its higher 2.1 percent historical average? CBO doesn't think so. Artificially-depressed rates of return due to monetary policy activism may continue to divert investment from productive activities to financial engineering, e.g. stock buybacks and trading in derivatives, which is the essence of the secular stagnation theory. Continuing diversion of funds into existing assets and away from new productive capital investments presumes that risk-adjusted returns stemming from debt-leveraged financial engineering will continue to exceed risk-adjusted returns on investments in plant and equipment.

## 12. Historical Trend in CPE Inflation

Factors influencing inflation include:

- Employment and output gaps — large gaps depress inflation; both gaps were very large following the Great Recession but are now closing
- Monetary policy — highly stimulative policy should boost inflation, but the opposite outcome may be occurring if policy is depressing capital investment spending
- Fiscal policy — depressed federal, state and local investment spending reduce aggregate demand and put downward pressure on inflation
- Global excess supply — the explosion of investment in China and other emerging economies in recent years has created enormous supply relative to demand, which is inherently deflationary, i.e., supply exceeds demand and depresses prices

**Chart 14** shows the level of core PCE inflation in five-year increments from 1965 to 2015. Over the last 20 years, PCE inflation has been consistently below the Federal Reserve's 2.0 percent target.

## 13. Forecast Trend in CPE Inflation — 2015-2025

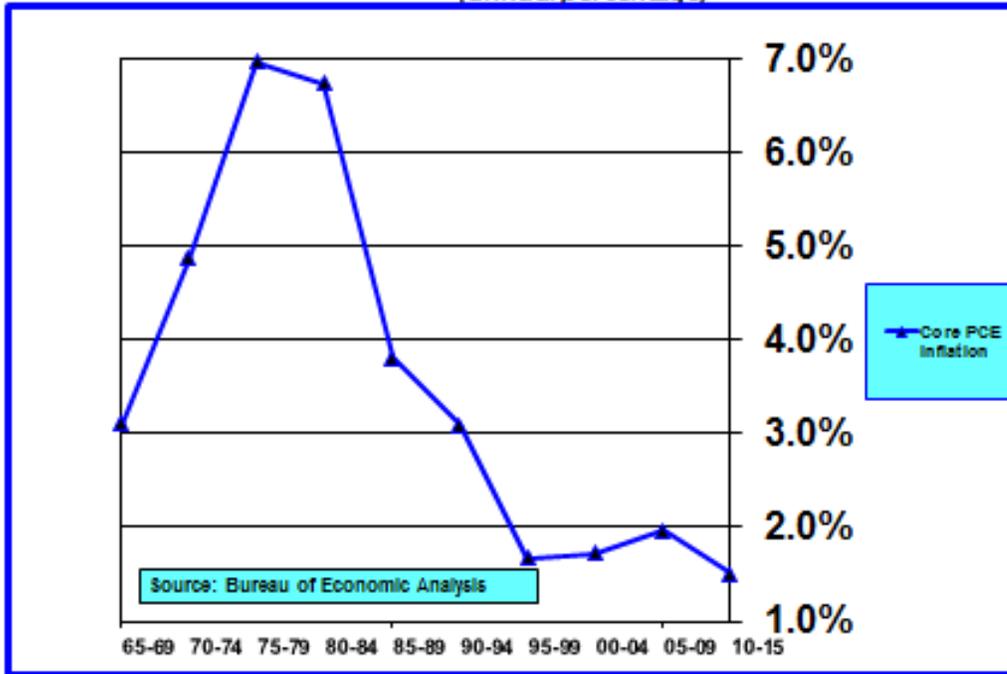
Core PCE inflation is currently very depressed at an annual rate of 1.3 percent. CBO and the Federal Reserve expect PCE inflation to return to the 2.0 percent target level over the next three years. This expectation seems to fall more in the realm of wishful thinking rather than hard analysis. This belief appears to be embedded in faith that monetary policy can control inflation over time and produce the desired outcome of 2.0 percent. This line of thinking neglects to consider that there are other economic forces that influence inflation and presumes that these are unimportant because monetary policy can offset whatever they might be. This seems overly simplistic and the failure of PCE inflation to meet the Federal Reserve's 2.0 percent target for 20 years is not a ringing endorsement of a belief in an all-powerful Fed.

**Chart 15** shows the consensus view (**CBO, GS and B of A**) with core PCE Inflation converging to 2.0 percent by 2018 and remaining at that level thereafter. My scenarios forecast a decline in core PCE inflation over the next two years and then a gradual increase thereafter, reaching 2.0 percent by 2023.

My scenarios are driven by the following factors:

### CHART 14 – Historical Core PCE Inflation

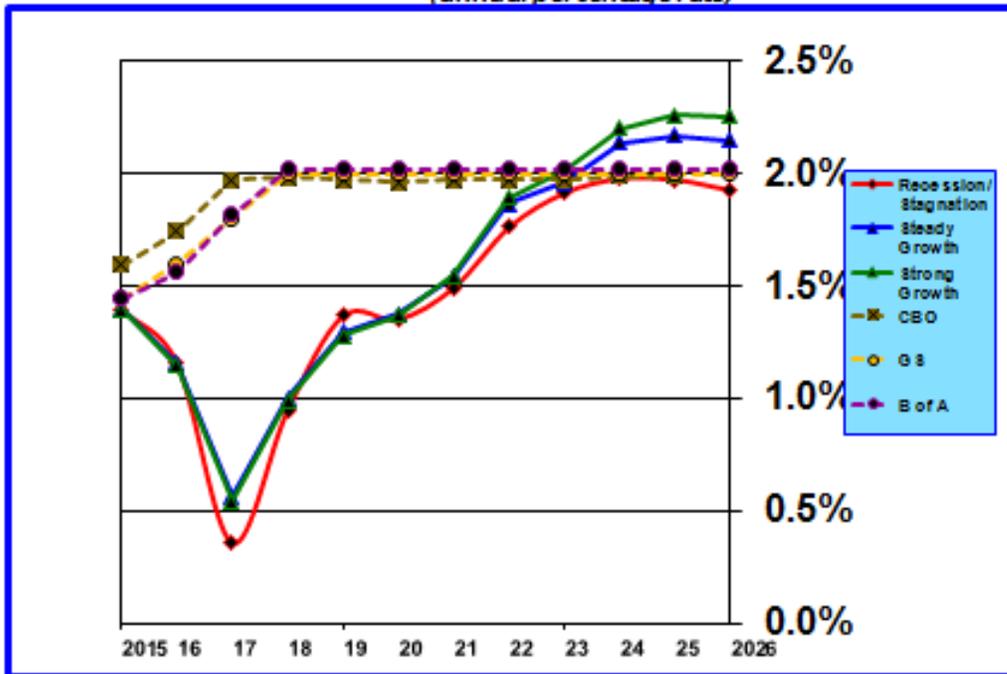
(annual percentage)



Page 14

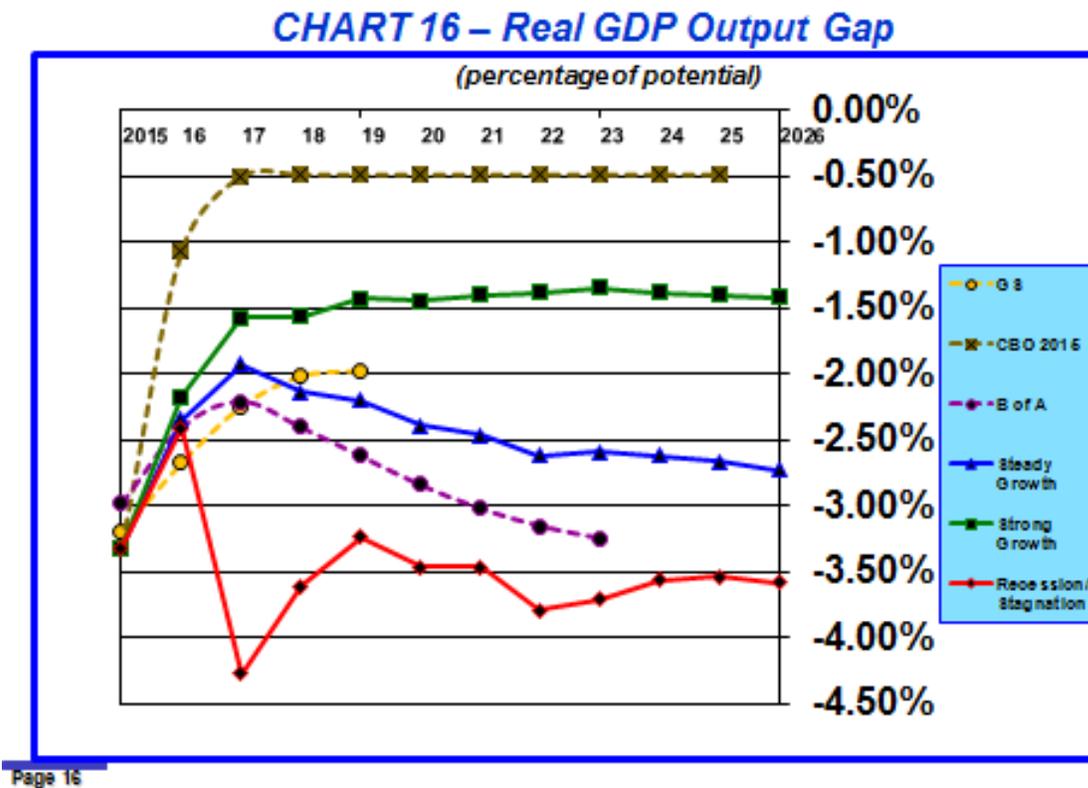
### CHART 15 – Core PCE Inflation

(annual percentage rate)



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- Large output gap which will persist for longer than expected due to slow growth (see **Chart 16**); estimates of the output gap are likely to fall for **B of A**, **GS**, and **CBO** when CBO updates its estimate of potential real GDP growth.
- Limited upward pressure on wage rates
- Strong dollar which is depressing import prices and putting downward pressure on growth in production due to declining exports
- Global excess capacity — slowing global growth due to falling demand and excess supply revealed by falling commodity prices



#### 14. Rates of Return — Historical and Prospective Trends

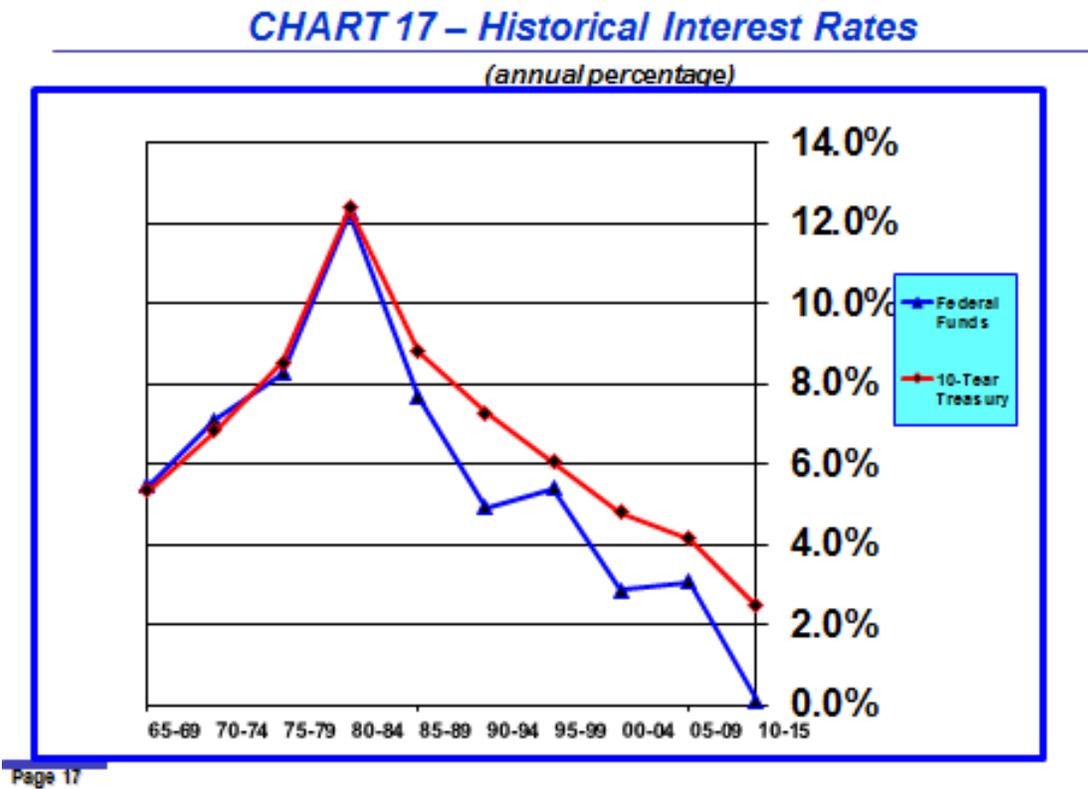
To reiterate, rates of return for an asset class depend upon the potential real rate of growth of GDP (proxy for real rate of growth in profits), inflation, and a risk premium.

Because both the real rate of growth and inflation have decreased over the last 50 years, it follows directly that nominal rates of return have also decreased.

Moreover, the real rate of growth will continue to decline in coming years because of the slowdown in growth in the labor force. The real rate of growth may decelerate further if productivity remains at recent

very low levels. The nominal rate of PCE inflation has averaged about 2.0 percent for the last 25 years but is currently 1.3 percent. If inflation does not return to the 2.0 percent but remains instead at recent low levels over the next several years, rates of return will decline further.

**Chart 17** shows that both the federal funds rate and the 10-year Treasury rate have declined steadily since peaking in the early 1980's. **Chart 7** in **Section XI** indicates that the natural rate (full-employment real rate plus expected inflation) should stabilize in a range of 3.5 percent to 4.0 percent by 2026. My scenarios project the federal funds rate to reach the same range of between 3.5 percent and 4.0 percent by the end of 2026. These estimates of the long-term equilibrium interest rate, or natural rate, are similar to those of the FOMC and other analysts.



**Table 8** shows the implied natural rate of return on a riskless investment.

## 15. Conclusion

Low inflation has persisted for the past 25 years. There is little chance that inflation will be higher in coming years. In spite of the optimism expressed by policy makers and others that inflation will move back to 2.0 percent, this is not assured and the recent level of approximately 1.5 percent could persist for many years.

Of greater consequence is that real growth is slowing to 2.0 percent or less and could remain at a low level for a long time.

**Table 8**  
**Rate of Return on Riskless Investment Given Changes in Potential Real Rate of Growth and Expected Nominal Inflation**

	Potential Real Growth	Nominal Inflation	Nominal Inflation Adjusted for Taxes*	Total Return (Natural Rate)	Federal Funds Rate	10-Year Treasury Rate
	A	B	C	= A+C		
1959-2015	<b>3.13%</b>	3.32%	<b>3.58%</b>	<b>6.71%</b>	5.28%	6.42%
1959-1990	<b>3.58%</b>	4.45%	<b>4.94%</b>	<b>8.52%</b>	7.05%	7.85%
1990-2015	<b>2.59%</b>	1.98%	<b>1.98%</b>	<b>4.57%</b>	3.17%	4.87%
2025-CBO	<b>2.07%</b>	1.99%	<b>1.99%</b>	<b>4.06%</b>	3.25%	4.15%
2025-BILL	<b>1.76%</b>	2.17%	<b>2.20%</b>	<b>3.96%</b>	3.38%	4.12%

\*Assumes inflation adjustment for taxes = 0 when inflation = 2.0%

Low inflation and low growth will push down long-term investment returns. The “Low-Inflation/Low Growth” historical environment portfolio rate of return of 4.40 percent (**Table 6**) could well become the new norm.

*Indeed, The Bank Credit Analyst believes that a balanced portfolio composed of 65 percent equities and 35 percent fixed income will earn a total annual average return before inflation over the next decade of just 4.5 percent. (See Table 9.) This is 2 to 3 percentage points less than most fiduciaries are expecting.*

Pension funds that assume a considerably higher portfolio rate of return will face the risk that portfolio assets over the long run will be insufficient to meet contractual pension obligations to beneficiaries.

Endowments with spending policies geared to a 5 percent annual draw will be at risk of eroding principal over time. And, if inflation is anywhere close to 2.0 percent, the real purchasing value of investments will erode. High investment management fees will do further damage.

By and large, fiduciaries do not expect and therefore are not prepared for the possibility, indeed the probability, that portfolio investment returns will be persistently lower in the future.

### XIII. Monetary Policy Objectives and Mechanisms

*In the January 2015 Longbrake Letter (Section XIII) I explained monetary policy objectives and implementation mechanisms. Then in the June 2015 Longbrake Letter (Section XIV) I discussed the implications of lower real GDP growth for monetary policy.*

**Table 9**  
**Market Returns for the Coming Decade**

<b>Asset Class</b>	<b>1982-2015</b>	<b>2015-2025</b>	<b>Portfolio Weight</b>
<b>Equities US</b>	<b>11.2%</b>	<b>4.5%</b>	<b>35%</b>
<b>Equities Developed Markets</b>	<b>9.2%</b>	<b>6.0%</b>	<b>24%</b>
<b>Equities Emerging Markets</b>	<b>12.0%</b>	<b>8.5%</b>	<b>6%</b>
<b>10-Y Treasuries</b>	<b>8.2%</b>	<b>2.3%</b>	<b>25%</b>
<b>Corporate Bonds</b>	<b>8.2%</b>	<b>4.0%</b>	<b>10%</b>
<b>Total Portfolio - Nominal Return</b>	<b>9.7%</b>	<b>4.5%</b>	<b>100%</b>
<b>Inflation</b>	<b>2.7%</b>	<b>2.0%</b>	
<b>Total Portfolio - Real Return</b>	<b>6.9%</b>	<b>2.5%</b>	

*Source: The Bank Credit Analyst, Outlook 2016, Vol. 67, No. 7, January 2016*

By law, monetary policy's objectives are to maximize employment consistent with maintaining price stability. When the labor market is weak, as it has been since late 2007, the FOMC eases monetary policy in an attempt to stimulate aggregate demand.

There are four ways in which the FOMC can implement monetary policy.

- First, historically, the FOMC's primary policy instrument has been changing the federal funds rate. Changes in this rate affect interest rates and the cost of capital. By easing monetary policy through reductions in the federal funds rate, the FOMC expects to stimulate business investment spending and consumer spending on durables such as homes and cars.
- A second transmission mechanism involves boosting financial wealth and stimulating additional consumer spending.
- A third transmission mechanism is to change market and household expectations through policy statements. This is where the credibility of the FOMC's communications becomes important. If communications lack credibility, this transmission mechanism will not work as intended.
- A fourth mechanism is prudential supervision of the activities of financial firms and markets. This fourth mechanism was seldom used while Alan Greenspan was Fed chairman. Its efficacy has been restored in the aftermath of the Great Recession, but it is too soon to tell yet whether this policy mechanism will be deployed effectively. To be effective, prudential supervision must be tied to incentives. When incentives are lacking prudential supervision will probably be ineffective. For example, jawboning banks to make more loans did not result in them actually making any more loans. Banks simply continued to make loans based on borrower demand and risk considerations. Moreover, there is reason to be concerned that revised capital and liquidity regulations and credit

underwriting supervision, in an attempt to promote financial stability and reduce the potential for financial panics, might reduce risk appetite to an extent that depresses the potential real rate of GDP growth.

When interest rates hit the zero boundary in early 2009, the primary policy instrument of cutting the federal funds rate ceased to be effective. In an attempt to overcome this problem the FOMC implemented nontraditional policy tools including large scale asset purchases, calendar-based guidance, and projections of economic variables.

Nontraditional tools have been studied in theoretical academic papers and analyzed using econometric models. However, when they were first implemented their real world impacts were untested. Behaviors in the real world are not tidy in the ways that models usually assume. The effectiveness of nontraditional tools relies to a considerable extent on what market participants expect the tools to accomplish. This highlights the importance of the FOMC providing clarity about the intent of the tools. However, the economy is dynamic and ever changing, which is why forecasters don't do a very good job in predicting the future beyond a few quarters. FOMC members are no better forecasters than anyone else. For that reason they feel it imperative to retain flexibility to adjust policy to changing conditions, thus the "data dependency" policy. Unfortunately, flexibility to adjust policy is at odds with providing policy clarity. Basically, it puts the FOMC in a no-win position.

Such a dilemma again faces the FOMC. The labor market continues to improve, although weaknesses remain. In the past the FOMC would be poised to begin tightening monetary policy to make sure that accelerating economic activity didn't initiate a hard to control inflationary process. For that reason there is plenty of talk about the need for the FOMC to begin raising interest rates, perhaps as soon as the June meeting. (*It didn't happen until December.*) However, inflation remains well below the FOMC's target of 2.0 percent and plunging commodity prices and bond yields threaten to drive inflation even lower, notwithstanding accelerating economic activity. The FOMC's dilemma is one of how to manage market expectations. Should it respond to the threat of lower inflation or the prospect of faster growth? And, what if neither outcome actually occurs — inflation doesn't fall and growth slows down. Premature signaling of what the FOMC intends to do and when could unintentionally result in counterproductive responses. Thus, the prudent course, which is the one the FOMC has taken, is to emphasize that monetary policy is data dependent and that the FOMC will consider how to adjust policy as new information is received.

## XIV. Implications of Lower Real GDP Growth for Monetary Policy

There are two implications of lower potential real GDP growth for monetary policy.

### 1. Smaller Output Gap

CBO has progressively over the past few years lowered its estimate of potential real GDP growth as it has revised down its estimates of labor force growth but particularly as it has decreased its expectations for productivity. This has had the immediate effect of reducing the measured size of the output gap. (*Note: CBO's August 2015 revision of economic assumptions resulted in increasing the size of the*

*output gap. This now looks like a mistake that the CBO will reverse when it updates economic assumptions in late January or early February.)* This means that going forward it will take less growth in real GDP to close the gap. When the gap is closed risks escalate that aggregate demand will exceed supply and set off an inflationary spiral. Moving to tighten monetary policy too late will heighten inflationary risks. However, if the output gap is actually larger than CBO's measure tightening monetary policy prematurely will run the risk of depressing economic activity before full employment is reached.

*The FOMC finally raised the federal funds rate 25 basis points in December. As the new year started global financial markets sold off sharply and volatility increased leading some commentators to opine that perhaps the FOMC's action to start raising rates had been a big mistake.*

## 2. Lower Natural Rate of Interest

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

Thus, with these considerations in mind, FOMC member commentary about increasing the federal funds rate gradually should be taken seriously as reasonable policy. The only caution is that this is contingent on inflation remaining well behaved and not becoming unanchored. While this appears to be reasonable in terms of increasing inflation, it may be less so in terms of falling inflation given a global economy in which aggregate supply greatly exceeds aggregate demand.

## XV. May — Structural Unemployment Rate

*In the May 2015 Longbrake Letter, I explained the concept of the structural unemployment rate and its importance in the conduct of monetary policy. Data are updated to the most recently available information.*

CBO's structural unemployment rate currently has a value of 5.38 percent. (*CBO updated its assumptions in August 2015. As of December 2015, CBO's estimate of the structural unemployment rate was 5.05 percent.*) Economists also refer to this value as the nonaccelerating inflation rate of unemployment (NAIRU). CBO expects NAIRU to fall to 5.17 percent by 2025. (*CBO updated the long-run stable value of the structural unemployment rate in August to 5.00 percent, which is reached by mid-2017.*) Also, the FOMC expects NAIRU in the longer run to be between 5.0 and 5.2 percent. (*The FOMC's estimate of NAIRU was revised to 4.8 to 5.0 percent in its December 2015 economic projections.*) The Fed staff's supply side macroeconomic model pegs the structural rate of unemployment currently at 5.0 percent.

NAIRU is important for the conduct of monetary policy. When the observed unemployment rate is above NAIRU, labor market slack exists and there is limited upward pressure on wages and inflation. The

reverse occurs when the unemployment rate falls below NAIRU.

If NAIRU is 5.1 percent, the midpoint of the FOMC range, just 500,000 more jobs above the natural rate of employment growth from an expanding labor force would be required to reach NAIRU. The monthly natural growth rate is 150,000 currently. Thus, if employment growth averages 200,000 per month, which is close to this year's average monthly increase in payroll employment, NAIRU would be reached in 10 months.

This suggests that because monetary policy works with a lag of 12 to 18 months the FOMC should begin to tighten monetary policy soon.

However, the aging of the workforce may well push down NAIRU. Research conducted by Chicago Federal Reserve Bank economists indicates that the aging of the population has already driven NAIRU down to 4.9 percent and will result in a value for NAIRU of 4.5 percent by 2020. This translates into 800,000 jobs today and 1.4 million by 2020 that must be absorbed before NAIRU becomes binding and boosts inflationary pressures.

In addition, there are a great many people who are not counted as unemployed who are likely to reenter the labor force as the economy improves and the labor market tightens.

## XVI. Employment — Wage Growth

*Based upon historical experience, most analysts have expected wages to begin growing at a faster rate as slack in the labor market diminishes. Based on CBO's estimate of the structural rate of unemployment, full employment was achieved by late 2015. However, there are only very tentative signs of upward pressure on wage growth. This has perplexed many who expected more definitive evidence of rising wage growth as labor market slack diminished. In the November 2015 Longbrake Letter I explored possible reasons why wages are not rising as expected or in line with historical experience.*

*Data are updated based on the Bureau of Labor Statistics' December 2015 employment report.*

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

If the labor market really is approaching full employment, albeit at a much lower number of employed workers than expected, theory and past experience indicate that growth in wages should be accelerating. That is what is supposed to happen when excess supply disappears and demand is increasing. But in spite of ample anecdotal commentary, acceleration in wage growth is barely discernible in aggregate statistical data.

For quite some time FOMC members have been expecting the rate of growth in wages to pick up and boost inflation. That has yet to happen convincingly. FOMC members are not the only ones with poor forecasting track records. Private sector economists have forecast acceleration in wage rate growth for

some time now as the amount of slack in the labor market gradually declined. To date there is only limited evidence, and it is mixed, that wage increases are accelerating. However, the expectation that acceleration should occur is so embedded that missed forecasts simply get pushed forward in time.

## 2. Broad-Based Measures of Labor Compensation

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

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

Although both sets of measures are highly correlated over time, because compilation methodologies differ for each set of measures, percentage changes over fixed time periods will not necessarily be in sync. This is the case currently. Hourly wages for all employees, based on a 12-month moving average, are rising 2.24 percent annually, but this is only 18 basis points higher than the 2.06 percent rate of increase that prevailed in December 2014. However, emerging upward pressure is now visible as indicated by a 2.52 percent year-over-year rate of change in hourly wages in December.

The wage and salary component of ECI, which had been relatively stable at a 1.5 percent annual rate of growth between 2009 and 2013 began edging up in 2014 and was 2.07 percent in the third quarter of 2015. The more comprehensive measure of ECI, which includes benefits, has risen only 1.88 percent over the last year. In fact, growth in the wages and salaries component of ECI has been stable over the last year while growth in benefits has fallen considerably.

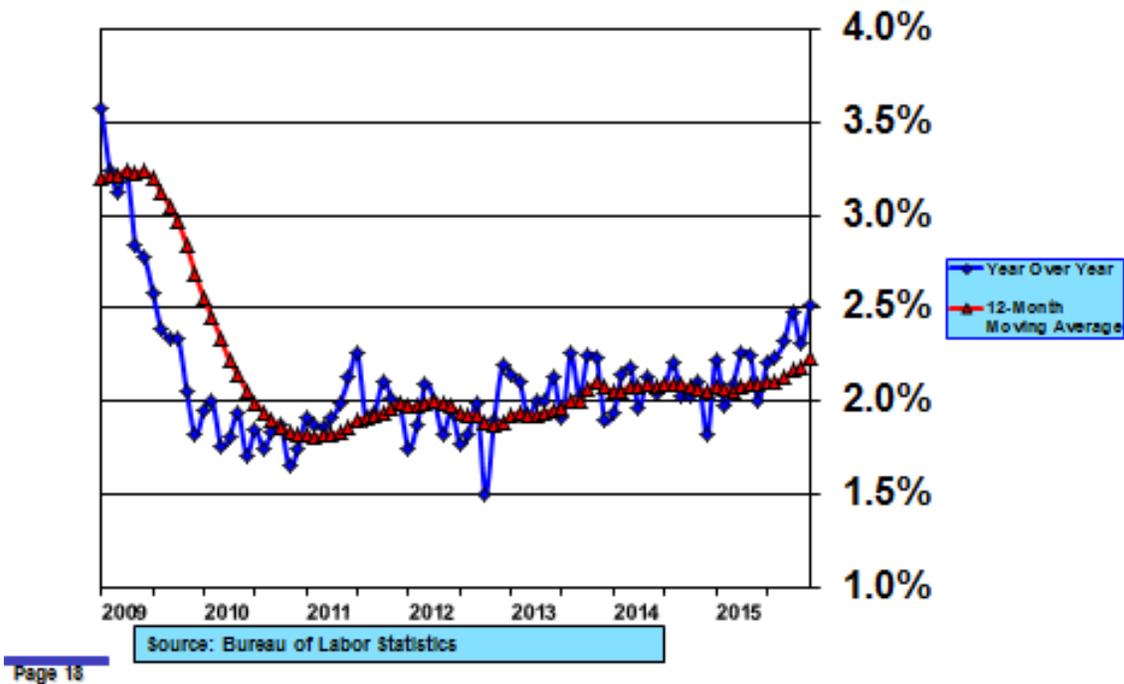
## 3. Hourly and Weekly Wage Trends

As can be seen in **Chart 18**, the rate of growth in hourly wages for all workers fluctuated in a narrow band in the vicinity of 2.0 percent for the last six years and only very recently has begun to edge up. Over the last year wage growth has inched up 0.18 percent to 2.24 percent and over the last six months the annual growth rate has been 2.33 percent. Thus, there are tentative signs of acceleration in wage growth but the increases are surprisingly low given how much labor market slack has diminished.

## 4. Employment Cost Index

**Chart 19** shows trends in wages and salaries, benefits, and total compensation. The recent short-lived acceleration in ECI during the first quarter of 2015 apparently was not the result of a firming trend in compensation growth but a compositional anomaly due to one-time reporting of nonproduction bonuses

**CHART 18 – Hourly Wage Rate Growth – All Workers**  
(annual year over year and 12-month moving average rates of change)



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in a few industry sectors. When these one-time compensation elements are discounted, ECI tells basically the story of no substantive acceleration in employment compensation.

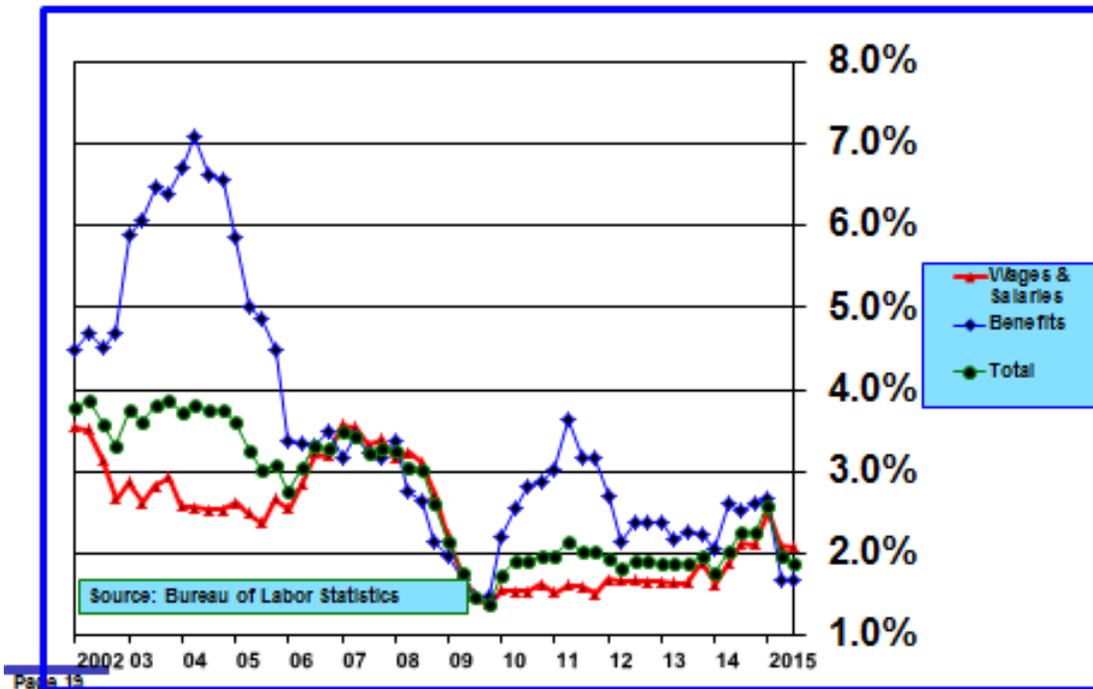
## 5. GS's Wage Tracker

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

Nonetheless, GS still expects the wage tracker to rise to between 2.50 percent and 2.75 percent by the end of 2015, although its confidence in its forecast appears to have wavered. *As of the third quarter of 2015, GD's wage tracker was 2.3 percent, so the pattern of downward adjustments in expected wage growth continues.*

In a separate analysis of trends in wage growth at the state level, GS did find evidence supporting modest wage rate acceleration in states with less labor market slack. *In another separate analysis GS concluded that global labor markets have little impact on wage rates in companies dependent upon trade for a large share of their sales.*

**CHART 19 – Employment Cost Index**  
(annual rate of change)



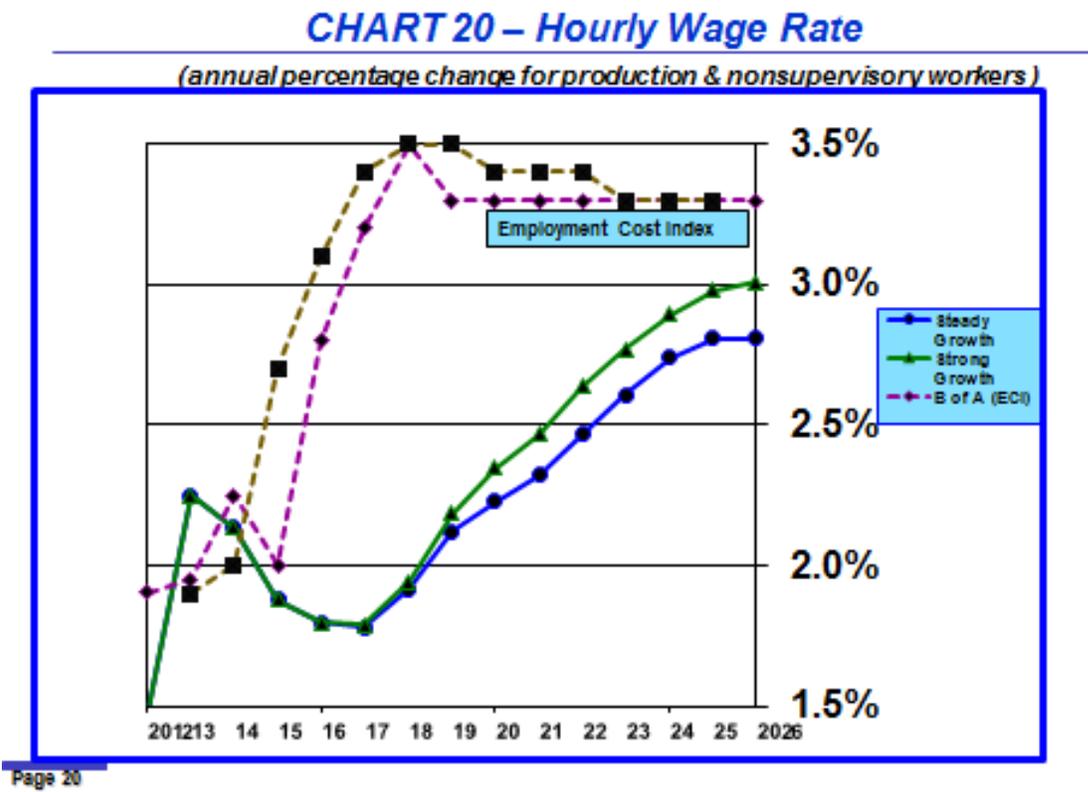
While **GS's** wage tracker forecasts are based on its statistical analytics, intuitively, even though **GS** has lowered its expectation, the forecasts still seem optimistic to me. There is an embedded assumption that U.S. labor force composition is stable. If, however, the composition is shifting toward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

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

## 6. Prospects for Acceleration in the Growth Rate in Wages

As the labor market continues to tighten, economists continue to expect wage rate growth to accelerate. The laws of supply and demand support this expectation. So, the real question is one of just how much faster wages should grow in an economy at full employment.

As can be seen in **Chart 20**, **B of A** expects the nominal wage growth component of ECI to move up from its recent level of 2.1 percent in the third quarter of 2015 to 3.5 percent in 2018 before stabilizing at 3.3 percent thereafter. *CBO also expects ECI to rise to a peak of 3.5 percent in 2018, but it projects wage acceleration to be a bit faster than B of A. Like B of A, CBO then expects ECI to slow to 3.3 percent but it takes a little longer to get there.* These projected increases are consistent with the historical record which indicates that growth in wages peaked at 3.6 percent in 2007 just prior to the Great Recession. However, the question that should be asked is whether this apparently moderate increase, which emulates the historical pattern, is likely to occur. My own statistical analysis suggests otherwise and is graphically very apparent in **Chart 20**.



Contrary to consensus expectations my statistical analysis suggests wage rate growth for production and nonsupervisory workers, which has averaged 2.00 percent in 2015, will slow to about 1.75 percent by mid-2017 and then rise gradually to 2.8 percent in 2025, based on assumptions embedded in my “**Slow Growth**” scenario. The projected level is a slightly higher 3.0 percent in 2025 in my “**Strong Growth**” scenario.

Forecast wage rate growth for production and nonsupervisory workers is based on four variables: core PCE inflation rate, productivity, the long-term U-3 unemployment rate (greater than 26 weeks), and the rate of growth in total hours worked. The short-term U-3 unemployment rate and the unemployment gap (difference between total U-3 unemployment rate and CBO’s full-employment rate) were not statistically significant. **Table 10** shows the coefficients of each of these four variables and the average lag time in months between a change in the value of each variable and a change in the rate of growth in wages.

**Table 10**  
**Factors Affecting Growth in Wage Rates for Production and Nonsupervisory Employees**

	ASSUMPTIONS				
	Coefficient	Average Lag in Months	Slow Growth 2017	Slow Growth 2025	CBO 2025
Core PCE	.350	9.0	0.91%	2.12%	2.00%
Productivity	.224	59.1	.43%	1.57%	1.50%
Long-Term Unemployment Rate (>26 weeks)	-.613	55.0	2.82%	0.96%	0.81%
Growth Rate in Total Hours Worked	.609	27.1	1.79%	.46%	.59%

**Table 10** also shows the assumed values in the right three columns for each of the four variables for three scenarios: “**Slow Growth-2017**,” “**Slow Growth-2025**,” and **CBO-2025**. **Table 11** shows the contributions of each of these four variables to wage growth for each of the three scenarios, as well as the total estimated rate of growth in nominal wages.

**Table 11**  
**Wage Rate Growth Forecasts for Production and Nonsupervisory Employees**

	CONTRIBUTIONS			
	Coefficient	Slow Growth 2017	Slow Growth 2025	CBO 2025
Constant		2.02%	2.02%	2.02%
Core PCE	.350	.32%	.74%	.70%
Productivity	.224	.10%	.35%	.34%
Long-Term Unemployment Rate (>26 weeks)	-.613	-1.73%	-.59%	-.50%
Growth Rate in Total Hours Worked	.609	1.09%	.28%	.36%
<b>Wage Growth Rate Estimate</b>		<b>1.80%</b>	<b>2.81%</b>	<b>2.92%</b>

The coefficients in **Table 10** indicate that the wage rate increases as inflation, productivity, and growth

in total hours worked rises and falls as long-term unemployment rises. The lagged impacts of productivity and long-term unemployment take nearly five years to impact wage rate growth fully, which explains why wage rates respond so slowly to improving economic conditions. The growth rate in total hours worked has a very significant impact and takes a little over two years to take effect. A one percentage point increase in the rate of growth in total hours worked will increase wage rate growth by about 61 basis points with a 27 month average lag.

As can be seen in **Table 11**, wage rate growth approaches 3.0 percent in 2025 if CBO's assumptions prevail on a sustained basis. Wage growth in 2025 in my "**Slow Growth**" scenario reaches 2.8 percent, just 11 basis points lower than CBO's implied estimate of wage rate growth based on my econometric analysis.

**Based on my econometric analysis, B of A's and CBO's forecast ECI wage and salary growth rates appear not only to be too high but reach that high level too quickly.** It is important to point out that my analysis includes only production and nonsupervisory workers which is a subset population of all workers. Workers in this subset generally have lower incomes. My analysis is based on production and nonsupervisory workers because data are available for a much longer time period than for any other wage rate measure. Thus, there is an apples-to-oranges comparison risk, if wage rate growth behaves differently in the two populations. But, it appears that the risk goes in the direction of reinforcing the conclusion that **B of A's** ECI forecasts are too optimistic. During 2007, at the peak of the last business cycle, wages of production and nonsupervisory workers rose 4.0 percent while the ECI measure of wages and salaries rose 3.5 percent.

## 7. Relationship Between the Rate of Growth in Wages and Inflation

Research indicates that increases in the rate of growth in wages *follow* increases in inflation; *they do not lead*. Moreover, the relationship is a weak one and the lag between a change in the inflation rate and a change in wage growth rates is considerable. My analysis of changes in wage rates for production and nonsupervisory workers indicates that only 35 basis points of a 1.0 percent change in inflation pass through to a change in wage rate growth and this takes an average of 9.0 months to occur. Like others I find no significant relationship in which a rise in wage rates precedes an increase in inflation.

## XVII. Charles Gave's Musing About Possible Recession

*Plunging commodity and stock prices in global markets in early 2016 has prompted discussion of the possibility that the U.S. economy might find itself in recession in coming months. Historically, recessions usually have occurred after the Federal Reserve has pursued a tight monetary policy for a substantial period of time often foreshadowed by short-term interest rates rising above long-term interest rates. Those historical conditions are not present yet in the U.S. economy. The Federal Reserve only began raising interest rates in December 2015 and even though long-term interest rates are very low, they are still much higher than short-term rates. So, what could trigger a recession? Section XVII (July 2015 Longbrake Letter) summarizes the musings of Charles Gave in that regard and Section XVIII (November 2015*

*Longbrake Letter) delineates the developments that could lead to recession.*

Charles Gave periodically writes investment commentary for GavekalDragonomics. He is a disciple of Knut Wicksell, a 19th and early 20th century Norwegian economist, who wrote about capital investment theory and the natural rate of interest. The simplified characterization of Wicksell's theory is that when the market rate of interest for debt exceeds the natural rate, this makes an increasing volume of investment activity unprofitable, chokes off growth and, if this relationship persists, leads to recession. When the opposite is true and the natural rate exceeds the market rate of interest, this market condition is typically accompanied by an abundance of liquidity that induces leveraged financing and speculation in the prices of existing assets to the detriment of investment in risky new productive investment projects.

Thus, mispricing of interest rates in general has economic consequences. High market rates lead quickly to recession, but the underpricing of credit relative to the natural rate, if it persists for a long period of time, has serious and insidious risks that do not lead necessarily to quick resolution and can cause enormous imbalances to build in the economy. The FOMC's ZIRP (zero interest-rate policy) unfortunately in Gave's opinion is just such a manipulation of interest rates and has disrupted normal market functioning with the consequence that capital has been consistently misallocated and has fostered the condition of secular stagnation which is characterized by underinvestment, low productivity, a decline in the potential rate of real GDP growth and increasing income inequality.

By keeping interest rates below the natural rate, the process of creative destruction, which weeds out inefficient companies, is impeded. In other words, because of cheap financing costs, inefficient firms can survive. This results in excess capacity which depresses profits of more efficient companies because excess supply depresses prices. This in turn discourages additional capital spending and contributes to the decline in productivity.

Of course, the conventional view held by most economists and certainly embedded in FOMC monetary policy is that interest rates need to be low to stimulate spending and investment and promote an increase in productive activity that absorbs economic slack.

Conventional monetary policy and Wicksellian theory appear to be at odds. If the FOMC permitted interest rates to rise to the natural rate, would this curtail the consequences of secular stagnation or, alternatively, would it lead to renewed recession and even greater economic slack? Economists have not worked through the complexity of this and thus there is no consensus about the consequences of current monetary policy or what a more appropriate alternative policy might be. I would offer that a better policy mix might be a monetary policy that involves higher interest rates sooner than later but that is accompanied by more aggressive federal deficit spending directed specifically toward investment activity until such time as the private sector has worked through the disruptive effects that higher interest rates will have in stimulating creative destruction. But, we know that the fiscal policy option is not politically viable. Thus, we are left only with flawed ZIRP monetary policy that appears to be slowly eliminating economic slack, which perhaps is only a temporary phenomenon because many of the jobs being created are linked to policy-induced speculative activity which will disappear when the bubble bursts. But, ZIRP may simultaneously be facilitating embedding the attributes of secular stagnation — anemic investment, low productivity, slower economic growth, and greater income inequality.

But, Charles Gave's concerns go further and now involve a rising threat of recession. His argument is that low interest rates bring forward in time spending. Most economists agree with this and view this

as necessary to kick start an economy with considerable slack. But Gave's argument is that companies, knowing that future demand has been brought forward, will be less inclined to invest in additional capacity that might well be underutilized in the future when interest rates are higher and demand shrinks. Also, businesses will attempt to keep costs under control by being stingy with wage increases. In turn consumers, seeing the actions of businesses and fearing job losses in the future will increase saving. But, as the paradox of saving teaches, greater saving, and thus lower spending, will lead to slower economic and employment growth. Thus, Gave argues that low interest rates are distinctly deflationary in impact and not inflationary as many believe. In other words, low interest rates, when sustained for an extended period of time, depress economic activity.

Is recession around the corner? Charles Gave has constructed a diffusion index of 16 publicly available indicators. He has established rules for each indicator to determine whether to assign a value of +1, favorable to economic expansion, or -1, unfavorable to economic expansion. Index values can range from +16 to -16. Historically, whenever the index has fallen into negative territory, the U.S. economy has entered into recession within a few months' time. Until the beginning of 2015 the index had been at a level of +10 for most of the past four years except during the summer of 2011 when it dipped to +2 temporarily during the U.S. treasury securities default scare. In July 2015 the index was "0". Whenever the index has reached zero in the past, with the exception of 1985, it has continued to fall and recession has followed.

*By the beginning of 2016 Gave's index had fallen to "-9" which Gave believes is strongly foreshadowing an imminent recession in the U.S. economy.*

From my vantage point, I have difficulty in pinpointing the exact nature of the imbalances that could tip the U.S. economy into recession. So, I must admit to skepticism about the reliability of Gave's quantitative analysis. Is it the canary in the coal mine or is it a statistical quirk that has been correlated with past economic cycles but is lacking in explanatory content about today's economic circumstances? As an aside, the index of leading economic indicators always fits the historical data well but has been less useful in foreshadowing the next recession. This certainly was true a couple of years ago for the Economic Cycle Research Institute's leading index of economic activity, which repeatedly forecast a recession that never occurred.

Rather than dismiss Gave's concerns because they don't fit the established belief system and are pessimistic, they deserve attention and monitoring. As is always the case, we'll know the real story later on when we can look back at what was going on in full knowledge of the actual realized consequences.

## **XVIII. Potential Route to Recession**

There are two potential imbalances that could derail an otherwise slow, but relatively benign, U.S. economic expansion. One has to do with administered interest rates and substantial quantitative easing. The other has to do with global dollar liquidity and the possibility that a severe dollar squeeze could develop which would push the value of the dollar sharply higher resulting in pushing down economic growth and unleashing powerful deflationary forces.

Each of these possibilities is explored in this section. Summaries of each possibility and its consequences for the economy are drawn from the writings of Charles Gave of GavekalDragonomics Global Research. I

have not formed my own opinion about the seriousness of these threats, so I am neither agreeing with nor rejecting Charles Gave's logic. But I would offer that the logic is well reasoned and should not be dismissed out of hand. *Moreover, recent global developments are providing evidence that is consistent with Gave's analysis and concerns.*

## 1. Typology of a Deflationary Bust

On July 23, 2015, Charles Gave published a research commentary that articulated the four phases of a deflationary bust:<sup>7</sup>

- **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 in the financial system.”*

Conventional wisdom (Keynesian theory) posits that economic recessions are caused by insufficient aggregate demand and too much saving. The policy antidote is to drive interest rates lower to discourage saving and encourage demand. For much of the last seven years the real rate of interest has been negative and probably is still near zero. Gave, citing Knut Wicksell, observes that *“... the optimum allocation of capital takes place when the marginal return on capital is equal to its marginal cost.”* What this means, according to Gave, is that short-term interest rates should equal the nominal rate of growth for capital, which he equates as equal to the growth rate in nominal GDP.

- **Phase 2** — *“The abnormally low interest rates lead ... to massive misallocations of capital, causing a structural decline in the growth rate of the economy.”*

Nominal short-term interest rates have been substantially below nominal GDP growth for over six years. This is fact. During this time economists have lowered estimates of the structural potential growth rate in the economy. The primary driver of these reduced forecasts of potential growth is a steady decline in expected productivity. A significant decline in actual productivity over the last six years is fact. The decline is a direct result of the “misallocation of capital” that Gave refers to. Massive injections of liquidity into the economy have gone into existing assets, driving up their prices creating speculative bubbles, and not into new productive investment — thus the decline in productivity.

- **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.”*

Gave puts the process that develops during Phase 3 succinctly: *“A low cost of capital leads ... to higher prices for existing assets sporting lower marginal returns, so encouraging the buyers of existing assets to leverage up in order to capture the difference between the low cost of money and the meager, but nonetheless higher, return on capital of existing assets.”* This leads progressively to a lower rate of real GDP growth as productivity is depressed. It diverts wealth to the rich and exacerbates wealth (income) inequality. It

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<sup>7</sup>Charles Gave. “The Typology of a Deflationary Bust,” GavekalDragonomics Global Research, July 23, 2015.

interferes with the natural working of creative destruction by enabling inefficient companies to survive by relying on cheap debt. It artificially depresses the value of the dollar and transmits imbalances to other economies. This last phenomenon has reversed over the last year and a half with a strengthening dollar. But this should not be regarded as contradictory evidence because it is the direct result of other major economies pursuing even more aggressive monetary easing, particularly Europe and Japan.

Gave believes that the U.S. is nearing the end of Phase 3.

- **Phase 4** — *“This is the fabled Minsky Moment’ which heralds the deflationary bust. The prices of risk assets fall precipitously in a violent crisis . . . . From there we move into . . . [a] secondary depression’ which can last anywhere between five and 10 years.”*

Panic erupts when financial leverage has built to a level that makes servicing debt difficult. The trigger event would probably be a rise in short-term interest rates. This is exactly what the Federal Reserve appears ready to commence. However, because the Federal Reserve has signaled its intent to “normalize” rates gradually, it is likely that nothing dramatic will occur immediately. And, it is also possible that if the tightening process is gradual and extends over a long period of time imbalances might be ameliorated without triggering a panic.

## 2. On the Road to a Deflationary Bust

For a while during August and September it looked like panic might seize global markets. However, the moment passed as policymakers worked to calm global markets. This development should be considered to be a reprieve rather than a cure as liquidity and sentiment improved but underlying fundamentals continue to worsen. In other words, we are still in Phase 3. Phase 4 has yet to commence.

*Events since the beginning of 2016 eerily seem to be tracking Gave’s Phase 4 description. A global dollar liquidity squeeze, discussed below, which drives up the value of the dollar precipitously, might also be in the early stages of unfolding.*

Fundamental developments include:

- Global growth is slowing and leading indicators presage further deceleration.
- Recent U.S. data reflect a slowing in private investment spending.
- Increasingly, businesses are moving from positive to negative cash flow, which increases prospective vulnerability as short-term interest rates begin to rise.
- Widening corporate credit spreads reflect growing solvency concerns and reduced risk appetite.
- Much lower commodity prices are here to stay. ***Indeed, they have fallen further and sharply in recent weeks.*** Solvency issues have yet to emerge but this is a matter of when, not if. Venezuela is on the verge of economic collapse. Widening credit spreads particularly in the commodities and energy sectors may well turn out to be leading indicators of an increase in bankruptcies in coming

months. Solvency risks have yet to emerge because equity holders have absorbed the losses to date. But this will change when debt holders are forced to absorb losses. This is probably coming.

- The stronger dollar is beginning to depress exports.
- Leading indicators of inflation point to lower inflation. Various measures of inflation expectations continue to edge downward contrary to Federal Reserve assertions and the expectations of many forecasters that inflation will return to the target level of 2.0 percent by 2018.
- Over the long run stock market returns and corporate profits grow at the same rate. This seems intuitively obvious. Over shorter periods, the relationship often breaks down but has always eventually returned over the longer run. Relative to the grow rate in corporate profits, U.S. stock prices are currently overvalued by approximately 25 percent.<sup>8</sup> This overvaluation is a direct consequence of misallocation of liquidity into existing asset price speculation. *Even worse, incoming data make it clear that profits and profit margins of many U.S. companies are now shrinking.*

In addition, there is open discussion about the ability of central banks to fight further deflationary pressures with interest rates at the zero bound in many countries and bloated central bank balance sheets.

### 3. Tightening Global Liquidity and Potential for a Dollar Squeeze

Global liquidity has been tightening. At first blush this would appear to be an oxymoron given the expansive quantitative easing being pursued by the Bank of Japan and the European Central Bank. But, much of this liquidity has found its way into leveraged debt as investors seek to squeeze higher returns in a very-low return world.

Dollar liquidity is especially important because of the dollar's roll as a global reserve currency and also because the dollar finances a substantial portion of trade and international financial activity. Insufficient dollar liquidity has been building since the Federal Reserve ended its quantitative easing program a year ago. When the Federal Reserve begins to raise rates, this will further limit dollar liquidity.

There have been some offsets, especially from the collapse in the price of oil, which is calibrated in dollars. The decline in oil prices has freed up between \$400 and \$500 billion in trade credit liquidity. The stronger dollar will eventually result in greater liquidity by widening the U.S. trade deficit. This has not yet begun, but should help in coming months.

Most economists feel that the rise in the value of the dollar has run its course. But a tighter monetary policy in the U.S., and looser policy in Europe and perhaps also in Japan, could lead to a further strengthening of the dollar. These impacts are referred to as "flow" impacts because the value of the dollar fluctuates on the basis of interest-rate differentials and policy differences among central banks.

*In times of global market volatility, dollar denominated assets are often sought after as a safe haven. Recent market volatility has triggered this response with the consequence that the value of the dollar is rising and U.S. interest rates are falling.*

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<sup>8</sup>Charles Gave. "Philosophical Dominance, Profits and Stocks," GavekalResearch, September 23, 2015.

Occasionally, however, the global stock of dollars matters if the need for dollars to finance trade and other international financial transactions exceeds the availability of dollars. In this case it becomes a matter purely of supply and demand and “flow” impacts fall by the wayside. When the supply of dollars is insufficient to meet demand for dollars, the value of the dollar will increase, and perhaps very substantially. Were this to occur, U.S. interest rates would fall sharply and inflation would decline and perhaps even turn to deflation. U.S. exporters would be clobbered and domestic economic activity would slow considerably.

Such a development currently seems unlikely but it is not implausible. *Recent global market developments point in the direction of “plausibility.”*

In a zero-interest rate world, there is not much the Federal Reserve could do to arrest a soaring dollar other than to return to quantitative easing. But, how effective would this really prove to be when central banks of other major economies are engaging in similar actions. Read Charles Gave’s “Typology of a Deflationary Bust” again to understand why such a policy response would only buy time but would end up exacerbating matters over the longer run.

#### 4. Summary

While few believe the global risks of deflationary bust and inadequate dollar liquidity are significant or probable, we really won’t know for sure for a considerable time period and not until after the Federal Reserve has pursued a tighter monetary policy for several quarters. Even if the probability is very low, it is not zero. Thus, it will be prudent to monitor developments closely. And, for those who are inclined to be more risk adverse and who choose to emphasize capital preservation over return, it might make sense to structure investment portfolios to emphasize long duration U.S. Treasury securities and high quality corporate equities whose profits will be resilient to a slowdown in economic activity and a fall in inflation.

*There is increasingly doubt about the validity of the “considerable time” conclusion. To reminisce, when the unraveling of financial markets started in early 2007 with problems in the sub-prime mortgage market, few at that time foresaw that this was the proverbial tip of the ice berg. The depth of the imbalances that had built up was not understood and policy makers and others confidently predicted that the sub-prime mortgage problems would be contained and resolved without leading to contagion. Of course, we now know just how wrong this belief was. Could it be that we are in the early stages of a market meltdown that will eliminate excesses and imbalances that built up over the extended period of zero interest rates and aggressive quantitative easing? Will it turn out that administering interest rates to artificially low levels promoted speculative activity which was aided and abetted by abundant cheap debt leverage? If so, the deflationary bust is at hand. Underlying all of this is a global economy in which supply greatly exceeds demand and intended saving exceeds intended investment. We may soon find out that attempts to boost demand through monetary policy only created a speculative bubble and a lot of debt but did not fundamentally rebalance global supply and demand.*

## XIX. Global Mega Trends

*In Sections XXI — XXV, I discussed global economic and political trends and developments in various 2015 Longbrake Letters. Sections XXI (February) and XXII (September) examined significant global trends, while Section XXIII (April) focused on the sustainability of the European Project, Section XXIV (July) discussed the Greek bailout financial and economic crisis, and Section XXV (July) explored the implications of the transition in China's economy.*

*Global mega trends were summarized in the February 2015 Longbrake Letter.*

People tend to focus myopically on the here and now. They rarely look beyond recent developments and policy actions. Typically, there is little understanding of how recent developments are the consequence of deeply entrenched mega trends that are reshaping the global economic and political systems. As a consequence, policies frequently are forged based on historical paradigms that may no longer be valid, with the consequence that the policy is ineffective, or worse, counterproductive.

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.

## **XX. We Have Become a Global Economy But Policy Making Has Yet to Understand the Implications**

*In the September 2015 Longbrake Letter, following the Greek bailout and Chinese stock market crash episodes, I discussed the impact of global economic and political developments and trends on the U.S. Data referenced in this section is updated to December 2015.*

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

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

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

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

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

and is confronted with diminishing demand. This is the stuff of deflationary busts.

Now, the U.S. economy is plugging along on a steady if uninspiring trajectory and many believe the U.S. economy is relatively insulated from global developments. Unemployment is down to 5.0 percent, a level that in the past has been indicative of full employment. Nonetheless, there is an uneasy mood. The Federal Open Market Committee (FOMC) acknowledged its own uncertainty by declining to raise the federal funds rate at its September meeting and by emphasizing the importance of monitoring the impacts on the U.S. economy of unfolding global developments.

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

*Note that with the benefit of additional data through the end of 2015, CBO's output gap appears to be much too large and is likely to be reduced when it updates its economic projections in February 2016.*

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

It is normal for humans to assess phenomena based on their experiences. This works as long as historical experience describes well the range of current and future possible outcomes. But, it will not necessarily work well if there have been fundamental changes in cause and effect relationships. For example, models of inflation forecast an acceleration in inflation as employment and output gaps diminish. Such an outcome is consistent with the basic notion that prices will respond as the relationship between supply and demand changes, with price increases accelerating when demand exceeds supply. Although this concept is fundamental, how it operates depends on how markets are structured. It can be argued persuasively that labor bargaining power has declined in recent years. This would not eliminate the tendency of wages to rise more rapidly as unemployment falls, but it could lengthen response times and moderate feedback loops that contribute to acceleration. Even if domestic labor markets are tight, structural changes that have increased global competition could limit labor bargaining power.

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

However, most market systems are imperfect because participants seek political power to establish and

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

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

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

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

In addition, many other emerging economies, although some will be adversely impacted by the unwinding of China's investment boom, will continue to take advantage of investment opportunities to grow rapidly and to take advantage of significant productivity gains. India immediately comes to mind. This means that the persistence of excess global supply will not abate quickly. It also means that secular deflationary pressures should continue to outweigh transitory cyclical inflationary pressures that might prevail in developed economies, such as the U.S., as they approach full employment.

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

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

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

## XXI. The European Project Is In Jeopardy

*In the April 2015 Longbrake Letter, I discussed the state of the European Union (EU). I have described in past years the EU's deeply flawed governance structure. The flaws, if not resolved, which have not happened to any significant extent so far, will eventually result in either the collapse of the EU or a significant transformation in it, probably involving realignment around several separate blocs of countries. I have erred in my past commentaries by expecting the defining moment to occur relatively quickly. That has not happened. What has happened is that the unraveling of the European Project is progressing very slowly, but it is progressing. The investment by established political parties in sustaining the project is formidable. But the centrist political establishment in many EU member countries is slowly being hollowed out by the ongoing divergence in economic performance of member countries and more recently by significant immigration issues that are challenging the open borders commitment that is an essential political and economic component of the EU.*

*Member countries of the EU had their best year economically in 2015 in a long time thanks in particular to the aggressive monetary policies of the European Central Bank (ECB), which has weakened the euro, and the collapse in oil prices. Also, the easing in austerity policies and the improvement in financial conditions have been positive contributors.*

### 1. Optimism on the Rise

ECB president Mario Draghi has undertaken the aura of savior for the apparent success of his bold quantitative easing monetary policy. Those who remember how Alan Greenspan was vetted as the "Maestro" only subsequently to be heavily criticized for contributing to the housing bubble, financial crisis, and Great Recession might counsel that it will take time to determine whether Draghi's monetary policies are a stroke of genius or whether he has set Europe on a disastrous course. Of course, financial markets love quantitative easing because it floods an economy with liquidity and depresses interest rates. Financial asset prices soar. This is exactly what is happening in Europe. So, for now, good feelings prevail and Draghi is the darling of financial markets.

This upwelling of euphoria and sense that better days are ahead have been reinforced by several other favorable developments including a plunge in the value of the euro, the collapse in oil prices, sharply easing credit conditions, and the ebbing of fiscal austerity. The expectation is that Europe is now on a course of sustained and improving growth.

## 2. Greece — the Skunk At the Party

Europe's long nightmare seemingly would be over were it not for the on-going Greek financial crisis, although the third Greek bailout, arranged during the second half of 2015, put the potential consequences of this crisis on the backburner for a while.

Nonetheless, Greece remains the canary in the coal mine. Its condition and crisis is the direct result of deeply embedded flaws in the EU and the economic policies of its most prominent member, Germany.

*Greece's situation is discussed in more detail in Section XXIV.*

## 3. Consequences of the European Project's Structural Flaws

In spite of much talk in recent years, the fundamental flaws in the governance, economic policies, fiscal policies and monetary policy remain largely unaddressed. As a consequence it is only a matter of time before the European Project endures a great cataclysm. Because the stakes are so high, ongoing attempts will be made to band-aid the beast just as has been the case over the last several years. This will buy more time, but without fundamental governance changes, the EU and euro cannot survive indefinitely in their current forms. This is a risk that few see and fewer believe could happen. And, the recent economic improvement has created the appearance that all is well.

Policy actions to bail out peripheral nations and establish bailout facilities, coupled with the ECB's stated intention "to do whatever it takes," have eased financial conditions considerably. These policies muted the negative economic consequences of the German-inspired policy of sovereign budget austerity which led to restrictive fiscal policies across the EU. Nonetheless, the damage from austerity has been cumulative in the form of higher unemployment and zero inflation.

While the rate of economic decline has exhausted itself in the European peripheral countries that bore the brunt of austerity, their economies remain mired in depression with stunningly high rates of unemployment. The social contract in those countries is eroding and with it social stability. Political stability is also ebbing. For the time being policy palliatives have created a sense that all is well. But, the cancer has not been cured and continues to spread. At some juncture a flash point will be reached when the palliatives no longer work. Although the moment of truth is probably not yet at hand, it is getting closer.

Centrist political parties committed to the European Project still rule the roost in most EU countries, but euro-skeptic parties on both the right and the left are gaining momentum just about everywhere. Inevitably, this puts pressure on ruling parties to avoid losing votes and perhaps power by embracing popular aspects of fringe party policy issues. Thus, the political trend is unambiguously evolving in the direction of nationalism and this will increasingly undermine the glue that holds the EU together.

#### 4. Reasons Why the European Project, As Currently Structured, Is Fatally Flawed

There are many reasons why it is likely that the European Project, as currently designed, will eventually fail. In my opinion the most important reasons are crippling design flaws in the governance structure of the EU and Germany's economic policies.

**Incomplete Political and Economic Integration.** The U.S. federal/state system and constitution, which have been the foundation of U.S. economic success and ascendancy for over two centuries, rightly provide a model of the governance structures required for a successful and durable union. The EU has some of the necessary governance structures, but lacks others.

Essential governance components include political union, economic integration, fiscal consolidation and a common currency. The euro area has a common currency, but the remainder of the governance structures, which extend to all EU countries, do not strike the necessary balance for long-term success between central authority and individual country sovereign prerogatives.

For example, all EU member countries must agree to a treaty change before it becomes effective. The U.S. constitution only requires of the states to ratify amendments.

There is no ability for the EU to tax citizens of member countries directly and there is no provision for fiscal transfers from countries with strong economies to countries with weak economies except through onerous bail-out agreements complete with intrusive, and often counterproductive, conditions. Fiscal transfers are essential to address differentials in economic performance. Such transfers occur automatically in the U.S. with little fanfare.

While there is ample tension between the federal and state governments in the U.S., the ability of the federal government to forge national policies and to enforce them is clear. The EU does have a limited ability to forge common policies and to enforce them. However, the EU's sway does not extend to any significant degree to matters of finance and commerce, which is partly why the financial and economic situations spun out of control in Ireland and Cyprus.

The European Project will remain fundamentally flawed until its governance structures are modified to align to a greater extent with those that have made the American union successful. It is not mysterious as to what needs to be done. Doing it, however, given the strong allegiance to individual country sovereignty, has a probability close to zero.

There have been a few somewhat helpful modifications, such as the shared bailout facilities and the establishment of a banking union. However, the banking union, while providing for common regulation of the largest European banks, has yet to incorporate fully the unified approach to deposit insurance and resolution of insolvent banks that has worked so well in the United States through the Federal Deposit Insurance Corporation.

**Banking Union.** One of the features of the EU is free and uninhibited capital flows. This is an essential governance component for successful union, but unfortunately its operation is flawed because of an imperfect a banking union.

An effective banking union has three components. First it has a common set of rules and a single

supervisor. Second, it has a universal deposit insurance system. Third, it has a centralized resolution facility to manage failures of individual financial institutions. All three components exist in the U.S. The only component that exists in the EU today is a common set of rules and regulations for the largest banks with the ECB serving as the single regulator. Other rules, for example those governing the granting of credit, are left to the determination of individual countries. This absence of unified rules and oversight contributed to the unsustainable financial imbalances that built up in Ireland and Cyprus.

Common supervision of European banks has been limited in two ways by Germany. First, Germany gained acceptance of EU members to limit unified supervision to the 150 largest financial institutions, leaving thousands of smaller banking and financial institutions to be supervised by their home country. Second, more recently Germany convinced EU members that the next time treaty revisions are considered, one of the revisions should be a clear separation of the ECB's monetary and supervisory responsibilities. While such a clarification appears to be reasonable, many view this development as a German tactic for delaying implementation of a more all-encompassing banking union.

Preliminary steps have been taken toward centrally coordinating deposit insurance and resolution. One of the working resolution principles is to "bail in" creditors. This principle, coupled with the free flow of capital among EU members, assures that creditors will flee a troubled bank at the first whiff of trouble, that almost assuring a liquidity crisis in that institution. This is a very real threat and impacted Greek banks hard and quickly when the ECB closed access of Greek banks to its emergency liquidity facility during the height of the third Greek financial crisis in the summer of 2015.

There is implied deposit insurance for the first euro100,000 of bank deposits. This implied guarantee was violated in the initial Cyprus bailout proposal. The subsequent proposal restored the implicit guarantee but also forced conversion of "uninsured" deposits into equity which is estimated will result in at least a 50% to 60% loss.

Now ponder this. If you can move euros freely to any financial institution in any EU member country and there is doubt that your deposits are guaranteed, why would you keep them in financial institutions that are perceived as weak or that are located in EU countries that are potential candidates for bailouts replete with conditionality. The Cyprus solution remains dangerous because knowledgeable depositors will move their funds to safer places at the first hint of trouble. This is the stuff of contagion. This risk was mitigated to a certain extent by implementing capital controls, which limited the ability to withdraw funds from Cypriot banks. Capital controls were also applied to Greek banks during 2015 and remain in place.

In the long run the best way to prevent the potential for contagion is not through selective capital controls but through a banking union that covers all financial institutions and provides for a unified approach to deposit insurance and resolution.

**Unwillingness to Forge a Fiscal Union and Mutualize Sovereign Debt.** Losses must eventually be borne by someone. When individual institutions fail, the losses are borne by the creditors. But, because this usually triggers panic and a meltdown in the financial system, nations generally step in and bailout creditors. This solution works only as long as the nation itself remains solvent. If the obligations of bailing out creditors become too great as it has in Greece, Ireland, Portugal and Cyprus, either the nation must declare bankruptcy or it must be bailed out by other countries.

As we know, the solution to date to avert bankruptcy of individual EU members has been to provide

bailout loans with conditions that ostensibly are intended to return those nations to solvency over time. We also know that these policies not only are not working but they are making matters worse and spreading economic decline to other EU nations.

Issuance of euro bonds, which would mutualize sovereign debt, would spread losses to all EU member countries, which collectively are in a position to backstop individual country insolvencies. But this means that strong EU countries would end up paying for the sins of weak countries. To date this solution has been unacceptable and is particularly politically toxic in Germany.

Embedded in the ECB's quantitative easing program is a limited amount of debt mutualization. The program provides for the purchase of most sovereign bonds by a country's national central bank. However, the ECB may purchase a limited amount directly for its own account. Since all member countries stand behind the ECB this constitutes a form of debt mutualization. Greece's sovereign debt is not eligible to be purchased in the ECB's quantitative easing program. This enables German politicians to state categorically that German taxpayers are not on the hook for making good on Greek sovereign debt should Greece default. Default could be avoided by restructuring existing Greek debt to reduce debt service payments or by extending new loans. Because Greece lacks the ability to repay its debt under just about any conceivable scenario, such actions would constitute a form of debt mutualization. But, the alternative of Greek default would force immediate realization of losses. Nearly all Greek sovereign debt is currently held by the ECB, the IMF and European bailout facilities.

**Cultural and Language Differences and Limitations on Population Mobility.** Although the Schengen Agreement among EU members mandates the free movement of people with EU citizenship, cultural and language differences limit population mobility. In the U.S. when a particular geographic area is afflicted by an economic downturn many people leave the area to seek employment opportunities in regions with stronger economies. Language and cultural differences make labor mobility stickier in the EU. As a result, it takes longer for depressed areas to recover.

What mobility does exist primarily involves immigration of people from different cultural and religious backgrounds. In the wake of higher unemployment political opposition to unrestricted movement of people across borders has escalated and nurtured expansion of fringe anti-immigration parties. During 2015 immigration, primarily from war-torn Islamic countries, exploded as a major political issue within the EU. In response, politicians, while giving lip service to the principles embedded in the Schengen Agreement, scurried to find ways to limit immigration. As we enter 2016, immigration policy is a major issue driving political fragmentation and nationalism.

**Aging and Declining Population Growth and Low Potential GDP Growth.** Most EU countries either have low population growth or negative population growth. The problem is much worse in peripheral countries whose economies have suffered most from austerity. Emigration, particularly of young able-bodied workers, has escalated in those countries, particularly in Spain and Greece. Though not usually pointed out, emigration reduces the unemployment rate and gives the appearance of improving economic conditions.

Population growth is a critical component of potential GDP growth. When population growth is negligible or negative, potential GDP growth depends entirely on productivity gains. But, productivity growth has collapsed in EU countries, just as it has in the U.S., since the Great Recession.

Potential GDP growth is important because the higher it is the easier it is to grow out of an excessive sovereign debt problem.

In addition to the low potential GDP growth posed by limited or negative population growth, an aging population stresses social welfare pension and health systems. EU nations collectively have extensive social safety nets which will lead over time to increasing amounts of government expenditures. At the same time, as work forces shrink, revenues will also shrink. Declining and aging populations inherently create potential future budget deficits in nations with extensive social welfare programs.

This problem is one that is gathering momentum gradually. While not an immediate consideration in most EU countries, it will make policy resolution more difficult as time passes.

**High Levels of Sovereign Debt.** While I have argued that sovereign debt is not bad in and of itself, too much of it relative to the size of a nation's economy creates enormous risks. The EU has established a 60 percent target maximum for the sovereign-debt-to-GDP ratio. This appears to be a reasonable upper bound to avoid the potential for insolvency risks to become significant. Unfortunately, most EU members have higher ratios. And, even when they have lower ratios, as was the case for Ireland and Cyprus, the need to backstop the financial system resulted in an immediate and substantial escalation in their debt ratios to levels greatly in excess of 60 percent.

At first blush it might seem that a sensible solution to high debt ratios would be curtailment of government spending. Such a fiscal austerity policy is exactly what the EU has pursued. But, when economies are already weak, we have seen that austerity depresses economies and results in rising, rather than falling, debt ratios. The alternative solution of growing out of the problem is limited by adverse population dynamics and poor productivity.

Unfortunately, the more probable solution longer term is restructuring of sovereign debt through bankruptcy or other means. This requires forcing creditors to absorb losses. So far this has been a policy alternative that has been totally off the table.

In the long run, write down of sovereign debt, either directly or through the issuance of euro bonds, appears to be inevitable. Write down has already occurred in the case of Greece, but in a way that permitted Greece to remain a member of the EU. Private creditors experienced losses but public creditors did not. The consequences for Greece of the bailout solution now in place have been disastrous.

Ultimately, EU nations with high debt to GDP ratios will not be able to work their way out of the problem. Debt restructuring, either voluntarily or involuntarily through default and exit from EU membership, can be postponed only so long. Since Greece is in the most extreme, whatever happens to resolve Greece's untenable debt situation will set precedents for how debt difficulties in the face of insufficient growth will be handled by other EU members. Unfortunately, the third Greek bailout involved no debt forgiveness and doubled down on austerity conditions. While all is seemingly quiet for the moment, Greece's economy continues to spiral downward and the next political crisis is probably not far distant. The Greek problem remains unresolved and will surge to the fore once again sometime in the future.

For countries who are not members of a monetary union, the solution to debt problems is straight forward and resolutions have occurred repeatedly throughout history. The over indebted country defaults, restructures its debt and devalues its currency. This relieves it from an unbearable debt servicing burden

while simultaneously making its exports competitive. The result almost always is a renaissance in economic growth. In a monetary union, currency devaluation is not an option, so a country cannot restore competitiveness in this fashion. Default is an option but requires other member countries to embrace this solution. So far the default solution in the EU has been anathema, particularly in Germany, for political reasons and also for fear that once a precedent has been established many other EU countries will demand similar treatment of their sovereign debt.

## 5. Germany's Economic Model and Policies

While the rest of Europe struggles economically, Germany is enjoying low unemployment. Germany's success is rooted in reforms it undertook in the 1990s following the union of East and West Germany which improved competitiveness tremendously. But, success is also the result of Germany's intentional policy to emphasize manufacturing and exports. Its competitiveness and prowess in manufacturing have resulted in the creation of jobs and large trade surpluses. Germany's economic strategy and success are a cause of economic problems in other members of the euro area.

Germany enacted significant economic reforms between 2003 and 2005 based on Gerhard Schroeder's Agenda 2010. At the time Germany's economy was sputtering and Germany was sometimes referred to as "the sick man of Europe."

Agenda 2010 entailed large cuts in corporate income tax rates; reductions in public medical insurance, pensions, and unemployment insurance; and significant labor market reforms, which prioritized employment over high wage rates.

Ten years later Germany is an economic powerhouse with low unemployment and reasonable growth, given the extensive difficulties in the rest of the Eurozone. Germany also has transformed its balance of payments from chronic deficits to enormous surpluses, which continue to grow ever larger. This development stemmed directly from the Agenda 2010 reforms which resulted in a substantial competitive advantage for the German economy. This advantage was amplified by its participation in the Eurozone and the shared common currency, particularly because the deutsche mark was undervalued at the time of its conversion into the euro.

Unfortunately, Germany's success has contributed to weakness in some other European countries. Ordinarily, a growing competitive advantage would cause the value of the country's currency to rise and that would increase the price of its exports offsetting the competitive advantage. But this cannot occur when the currency is shared with countries with less competitive economies. Consequently, not only did Germany's competitive advantage result in a trade surplus, the surplus grew larger year by year.

Suffice it to say that because Germany is a net exporter, other euro area countries are forced to be net importers. This shifts jobs from those countries to Germany. Were it not for the common currency, such imbalances would melt away over time through adjustment in currency exchange rates. This is not possible in the euro area. Thus, adjustment can only occur through internal devaluation which entails eliminating competitive disadvantages with Germany by driving down labor costs, among other things. For example, internal devaluation has been forced on Greece. It has worked because wages in Greece have fallen 25 percent so that Greece's exports are now competitive. However, it has come at the cost of a 25 percent

unemployment rate and a 25 percent shrinkage in the size of the Greek economy.

Germany has forced internal devaluation in euro area members by mandating fiscal austerity. This is enforced directly through bailout agreements but also indirectly through the Fiscal Pact which establishes budget deficit targets with enforcement to be carried out through the European Commission. Unfortunately, as well intentioned and as fiscally prudent as these policies might appear to be, in practice they have been a disaster. That is because fiscal multipliers in weak economies have turned out to be greater than one. What that means is that tax increases and spending cuts intended to reduce the public-debt-to-GDP ratio actually end up raising it because economic activity falls too much. Unfortunately, Greece is the poster child for this phenomenon.

One country's trade surplus must be offset by trade deficits in other countries. By running a consistent trade surplus, Germany transferred production and jobs from trade-deficit countries to Germany. That was good for German growth and German employment but hurt growth and employment in trade-deficit countries.

Germany could have reduced its competitive advantage by using fiscal policy to stimulate consumer spending. This would have resulted in moderate increases in inflation and somewhat higher wage increases, but would also have reduced Germany's competitive advantage.

But, Germany did the opposite. Having engaged in belt tightening to become more competitive and then benefiting from those sacrifices, the German public felt that austerity was not just a matter for German workers to endure but that the government should live within its means as well. Thus political pressure emerged for Germany to have a tight fiscal policy and to balance the budget. This, unfortunately, kept inflation low and, rather than moderating Germany's competitive advantage, the competitiveness gap grew even larger.

In a U.S. Treasury Department report on foreign economic and currency policies, Germany was sharply criticized for its huge balance of payments surplus which the report cited as creating "... a deflationary bias for the euro area, as well as for the world economy."

It has been German policy to demand that members of the Eurozone reduce budget deficits. In Germany austerity policy works because of its export-based economic model and its competitive advantage. However, in less competitive countries austerity depresses economic activity, engenders recession and, in the case of Greece, has fostered a lengthy and ugly depression.

Germany could transfer some of its accumulated wealth to other Eurozone countries through fiscal transfers or by agreeing to replace sovereign country debt with Eurobonds. But Germany has adamantly opposed such proposals. That is because it would be suicidal to pursue such a policy in light of passionate public opinion opposition.

Unfortunately, rebalancing of the Eurozone economies cannot occur until Germany adjusts its economic model. No one is openly talking about the need for Germany to do so. To the contrary, Germany is applauded for its economic success and other countries are encouraged to follow the German model to achieve economic success. But this is not possible for every country because the sum of all countries' trade surpluses and deficits must be zero. Thus, as long as Germany continues to pursue its economic policies, and there is little to no pressure for them to do otherwise, the integrity of the EU will continue to erode

slowly — the weak will continue to stagnate and suffer high unemployment. No amount of austerity will change this outcome and could worsen it.

This leaves countries with weak economies in a hopeless situation. Unrelenting pain and absence of hope are a toxic combination politically. The political process has unfolded slowly, but the consequences are now visible and the trend is troublesome. In democracies, political parties that do not deliver prosperity lose elections. It starts first with erosion of the political power of centrist parties that support the European Project. It continues in time to the election of parties that focus on national priorities and resist the dictates of the European Commission, the ECB, and the IMF — formerly referred to as the “troika,” now referred to as the euro group.

Greece, having suffered more than any other EU country, is now governed by Syriza, a left-leaning coalition that rejects the mandates of the euro group, although the requirements of the third bailout agreement have forced Syriza to accept EU mandates. Political fragmentation is evolving in other EU countries, including Spain, Italy, France, and the U.K. and support for the EU is simultaneously eroding steadily.

What we have learned over the last several years is that the promise of liquidity by the ECB has taken investor risk off the table. This means that financial markets will not be the catalyst for forcing rebalancing. Rebalancing will eventually occur, but it may take a very long time to unfold. The catalyst most likely will be slowly escalating social unrest in economies with high unemployment rates and the gravitation over time of voters to political parties on the right and the left that do not have a stake in the preservation of the EU.

## 6. Where Are the EU and Euro Area headed?

When I review the fundamental flaws inherent in the EU and euro area governance structures and consider demographic trends and political constraints, I am hard pressed to see an outcome that preserves the EU and euro area in their current forms. But European political elites are committed to the European Project and will continue to struggle to preserve it. This means that the unraveling process is likely to be an extended affair. However, deterioration is proceeding and damage is accumulating. Social unrest is building and legitimacy of the ruling political elite is slowly eroding. In short, the crisis is far from over. Indeed, more and worse episodes are ahead.

The disparities in economic performance among the EU member countries are substantial. For long-term survival of the EU, such disparities must diminish. That requires creating governance and fiscal structures that provide for greater integration. It also would require the strongest economy — Germany — to modify its current export-driven economic model. While there has been a lot of talk about what is needed, little of substance has taken place and there is little reason to expect further action of consequence to occur short of an outright existential crisis. The weakening of centrist parties that support the European Project virtually assures that policies necessary to assure long-term survival of the EU will never occur.

So, if you thought all is well in Europe and things are getting better, that is hardly the case in several key countries. The fundamental problems that are tearing the EU apart have not been addressed. Unlimited liquidity from the ECB can engineer improved economic momentum and hold things together for a while

longer, but it is not a lasting solution. Indeed, as Charles Gave of GaveKal Dragonomics has opined, there are many parallels to what the ECB is currently doing through its quantitative easing program and the South Seas bubble. And, we know from history that the South Seas bubble eventually burst and exacted a terrible toll.

## **XXII. European Union Forces Greece To Accept Unconditionally Terms of a Third Bailout**

*In the July 2015 Longbrake Letter, I discussed Greece's financial crisis and the response of the EU. Ultimately, the solution was one that "kicked the can down the road." So, while the crisis is now dormant, it has not been resolved.*

In every sense events that unfolded in Greece and the EU during the summer of 2015 were a mind numbing and unmitigated tragedy that could have been avoided or at least tempered but were not. Much has been written and many opinions from multiple perspectives have been voiced. If there are common themes in the cascade of commentary, one is that the draconian depression already gripping Greece will get much worse and last for a long time, the other is that deep structural flaws in the design of the EU have been exposed for all to see and the ability to forge political solutions does not exist.

Unyielding creditor demands driven by Germany's belief in the efficacy of austerity and the necessity to follow rules of behavior set out in the Maastricht Treaty ultimately forced Prime Minister Tsipras to capitulate. It was a no-win situation for the prime minister. If he did not accede to the demands, Greece would have quickly been forced out of the euro, its banks would have collapsed and the Greek economy would have ground to a halt in short order. But by accepting the creditors' conditions the future for Greece's economy is little better. The damage is now so great, the uncertainty so severe and financial assistance so limited that even the optimistic International Monetary Fund (IMF) expects Greece's economy to contract for the next two years and unemployment to remain at stratospheric levels for years to come. In short there is little hope for the Greek economy. Significant out migration for those who can and a sharply lower standard of living for those who remain seem certain.

So, is it all about Greece? Will all be well if Greece is pushed out of the EU as the Germans suggested could happen? The answer to both questions, unfortunately, is a resounding "No." The European Project and the monetary union may limp along for a considerable period of time but ultimately the divergent economic policies of its members, particularly Germany, an incomplete political union that elevates the sovereign rights of its individual members above the collective interests of all members of the union, an incomplete fiscal union and open antipathy to transfers of resources from rich to poor members, and open borders but without the lubrication of a common language and challenged by the flood of immigrants stemming from Middle East and African political chaos collectively pose such difficult challenges that they are far beyond the ability of true believers in the European Project to fix.

I have discussed the reasons for this pessimistic view in previous letters, beginning with the July 2015 Longbrake Letter in which I stated unequivocally that the first Greek bailout would fail. I have not changed my views, but I have come to appreciate that oftentimes it takes a very long time for arrangements that are deeply flawed to fail when there is intense political and emotional commitment to maintaining the

status quo.

In the *July 2015 Longbrake Letter* I looked at the crisis in Europe from four perspectives: as an economist, as a creditor and investor, as a governmental policy analyst and as a politician. When all four perspectives are understood, it is easier to understand that solutions that exist in theory, which could make the EU and the monetary union work, are not possible to implement.

## 1. Economist's View

Trained economists have repeatedly pointed out two sets of economic relationships from the very onset of the EU crisis in 2010 that are pertinent to the long-run economic wellbeing of member countries and the ability of individual countries to make fiscal adjustments.

**Balance of Payments.** If one member of the EU runs a substantial and consistent trade and current account surplus and another runs a consistent deficit, imbalances will accumulate over time. This is because the country which benefits from a surplus must lend money to the deficit country to enable the deficit country to pay for the net import balance. If each country has its own currency, the deficit country can devalue its currency relative to the surplus country thus reducing the cost of its exports and increasing the costs of its imports. The reverse will happen in the surplus country. In this way the balance of payments problem will moderate and could even be eliminated.

However, in a currency union, individual countries no longer are able to make exchange rate adjustments, so the customary means of resolving imbalances is unavailable.

This problem can be overcome and it has been a successful feature of the U.S. economy since adoption of the constitution. The solution involves adoption of a transfer union under which rich states pay more in taxes than they receive in spending benefits. However, a transfer union really only works if it is combined with a political union and a fiscal union, both of which exist in the U.S. This requires members to yield sovereignty over many matters to a federal government. While the EU has a parliament and the EC, located in Brussels, is the EU's administrative arm, the EU does not have a constitution. Rather relationships among its members are governed by treaty and sovereignty over most matters is retained by individual member states.

Germany proudly and intentionally has adopted economic policies that result in a large balance of payments surplus which has been growing rapidly. By definition this means that Germany is a large creditor and the debts owed to Germany by other EU countries are growing rapidly. Why would Germany engage in policies that create a cumulating problem for other members of the monetary union over time? Part of it is probably culture. But, a country that exports more than it imports is able to create jobs for its population. Of course, this, too, transfers jobs from deficit countries to surplus countries. Germany embarked on this policy course following reunification of East and West Germany in 1989 as a way of accelerating economic integration of the underperforming East German economy.

Germany's unemployment rate has fallen to very low levels and the German people are proud of their country's economic achievements. There is no understanding that the low unemployment Germany enjoys results in higher unemployment in other countries.

While the focus is on Greece because it has more debt than it can possibly service, the economic performance of many other European countries has been depressed as well. The magnitude of the impact is simply not as great. Indeed, France, the second largest economy in the EU, is a deficit country. Its growth has lagged Germany's and its unemployment rate is much higher. The gap between the two countries is growing steadily and this is troublesome in the long run because large differences in economic performance will exacerbate political relationships.

This potential political divergence was visible in the events that unfolded during the current Greek crisis. President Hollande took Prime Minister Tsipras under his wing and guided the crafting of Greece's ESM application for bailout assistance. France then championed Greece's application. However, ultimately Germany's much more stringent conditions carried the day. Although public criticism of Germany's unyielding stance was muted anger was palpable in other member countries, particularly those in the EU periphery.

The unwillingness of Germany to reduce its balance of payments surplus will continue to drive a wedge between its economic performance and that of other member countries. Unless balance of payments imbalances are addressed seriously by all EU members, economic performance will continue to diverge. Underperforming countries will be beset by internal political unrest and eventually political change will result and the day of reckoning for the survival of the EU in its current governance form will come.

**Austerity.** The second set of economic relationships that most economists agree about is that it is often easier to resolve over indebtedness by growing revenues rather than by raising taxes and cutting spending. It seems to be embedded in human nature that those who overspend and accumulate too much debt should mend their ways and live a more frugal life. While this is good counsel for individuals it is not necessarily good economic policy for a country. That is because when a country's economy is operating at less than full employment fiscal multipliers typically are greater than one. What that means is that if taxes are raised by 1 percent, tax revenues will fall by more than 1 percent, so the net effect of the tax increase is negative.

When the IMF helped craft the first Greek bailout in 2010 it assumed that the fiscal multipliers would be less than one. But that assumption was dead wrong and the IMF owned up to this assumption error later on in the face of much worse economic growth in Greece than it had forecast. The existence of fiscal multipliers greater than one was also validated by IMF research studies.

That is why the IMF is now insisting on debt relief for Greece. Substantial debt relief would reduce the amount of the third bailout substantially because most of the assistance will be committed to debt service, both interest and principal payments. The size of the required primary surplus would also diminish if debt servicing requirements were substantially diminished. And, in so doing this would make more money available to help the economy recover.

Bankruptcy laws for individuals and companies are intentionally designed to restructure debts and provide debt relief because it is well understood that at some level of debt, the borrower's ability to service the debt from income simply becomes impossible. This is just as true for countries. Debt relief should have been provided to Greece long ago and should be provided now. But, debt relief is not on the negotiating table for political reasons.

So, the EU is trying to solve serious problems with bad policies that will only serve to make the problem

worse. No organization can long survive practices that are progressively harmful to its members.

## 2. Creditor's View

The creditor's view is simpler and straight forward. A borrower should pay back what is owed and suffer any amount of pain that doing so causes. Also, if there are losses to be taken a creditor tries to find someone else to bear the burden. For example, Ireland socialized losses in its banking system by assuming the banks' debts. This was done because policy makers feared that the economic consequences stemming from the bankruptcy and collapse of its banking system would cause more harm than simply assuming the banks' debts and keeping them open. This kind of governmental response is typical in major financial crises. The U.S. was not immune from making similar policy decision during the Great Recession.

In the current Greek episode, creditors were adamant throughout the spring that Greece should accept onerous creditor requirements. This view was driven primarily by the belief that the borrower needs to play by the rules and a companion belief that Greece was playing fast and loose. Creditors generally do not have the same appreciation or understanding of longer run economic consequences. Their perspective is short term and what they care about is the functioning of financial markets on a relatively immediate basis.

In the case of Greece, creditors clearly saw that in the event of default there would be immediate and severe consequences for the Greek banking system and thus for the health of the Greek economy. In a monetary union deposits can move anywhere within the EU to any financial institution at par and without notice. Because of this arrangement, if depositors for any reason fear that access to their deposits will be restricted or they might be forced to take a loss on the face value, the sensible thing to do is to move deposits to a bank in a totally safe country, such as Germany, at the first hint of trouble. Indeed a large amount of deposits has long since fled Greece which is why the ECB's emergency liquidity facility for Greek banks has risen to euro90 billion.

However, not all depositors can leave easily. This is particularly true for businesses that have a high volume of daily cash transactions.

When Prime Minister Tsipras decided to miss the June 30 deadline and hold a referendum on the creditors' terms, the ECB under its rules had no choice but to freeze the amount of emergency liquidity assistance to Greek banks. But by calling for a referendum, Prime Minister Tsipras heightened economic uncertainty and deposit withdrawals would have escalated quickly well above Greek banks' ability to accommodate them. Insolvency and economic chaos would inevitably have followed. So Tsipras having made the choice to hold the referendum was forced to close Greek banks and impose capital controls on withdrawals. This in turn quickly crippled the functioning of the Greek economy.

Thus, the decision to hold a referendum dealt the Greek economy a severe blow which will not easily be reversed any time soon. Creditors could see that outcome very clearly ahead of time and were adamant that Greece should accept creditors' original terms and did not understand the stupidity of Greek politicians.

Even though the referendum vindicated his view, Prime Minister Tsipras realized immediately following the referendum the severe problems created for Greek businesses and the enormous damage that capital controls imposed on the Greek economy. He was also advised by the French that the results of the

referendum were totally irrelevant so far as Greece's creditors were concerned. Thus, Tsipras caved into the lesser of evils by deciding to apply for ESM bailout assistance, but incalculable and irreversible damage had already been done.

Was Tsipras' decision irresponsible? Given the response of creditors the answer would appear to be "Yes." But, if creditors had fully understood the fundamental economic analysis described above and agreed to debt relief, Tsipras' negotiating ploy would have been a responsible one.

In any event, the outcome was that Greece ended up in a much worse condition and creditors, insisting that all debts must be repaid, escalated the severity of assistance terms to compensate for the deterioration in Greece's economy and fiscal position.

### 3. Government Policy Analyst's View

Governmental policy analysts view the Greek crisis not just in terms of what it means for Greece but what it means for the integrity of the EU and more broadly what the spillover effects might be on other geopolitical relationships.

Their view presumes that EU policy makers are fully aware that the imposition of harsh austerity terms on Greece would not enable any kind of meaningful economic recovery. But if policy makers agreed to provide debt relief, it would establish an unwelcome precedent that could be seized upon by other debtor members of the EU, notably Spain and Portugal ... perhaps Italy as well in the longer run, to argue for similar treatment. While these countries' economies seem to be moving in the right direction at the moment, that might not continue to be the case in another year, if the current positive momentum turns out to be transitory due to ECB quantitative easing, low oil prices and the significant decline in the value of the euro.

But, by taking an inflexible hard line to avoid establishing a troublesome precedent, EU creditor nations may have strengthened the appeal of euro-skeptic political movements in member countries. It remains to be seen what impact Greece's ultimate capitulation in the face of even more onerous conditions will have on political movements within other EU member countries. The now presumed impossibility of negotiating debt relief could re-enforce the acceptance of compliant centrist political parties. Alternatively, the prospect of never-ending economic depression could strengthen euro-skeptic parties. The Greek referendum outcome suggests that under extreme duress the public will choose the path that puts them back in control of events no matter how awful the consequences might be for a period of time.

Surely, had Greece chosen to exit the euro, rather than capitulating to creditor demands, the consequences would have been terrible but not necessarily on an indefinite basis. In other words, Greece's exit from the euro could, but might not, lead to Greece becoming a failed state.

Greece has alternatives, assuming it chose to default on its debt and leave the euro. One would be to look to Russia for stopgap financing to provide the time necessary to sort through the consequences of withdrawing from the euro and restarting the Greek economy. Such a move would have long-term implications for NATO and American and European political relationships with Russia. China might be another alternative. Though China does not yet seem ready to play the international role of spoiler, it does harbor ambitions to increase its international sway and China could decide that becoming Greece's rescuer

might be worth the cost of international opprobrium that would come with China's intervention. A less likely, but theoretically feasible alternative, would be hedge funds providing funding to Greece. The risks would be great, of course, but a successful turnaround of the Greek economy could prove very profitable. The reason this alternative is unlikely is that feasibility would require a consortium of hedge funds and it is hard to imagine how a group of independent investors could collaborate effectively both to negotiate a deal and to oversee and enforce terms and conditions.

Consider, also, Germany's long-run objectives. It needs to sustain its export-based economic model and the free trade zone and the euro are essential components. Greece is of no consequence in this regard. But, agreeing to do what is necessary to preserve Greece's EU membership establishes dangerous precedents which could become troublesome if other EU members, whose EU membership is much more vital to the ongoing success of Germany's economic model, press Germany for debt relief. In this context, Germany's hard line that Greece must pay all its debts in full, but its temporary exit from the euro should be considered, makes total sense. Thus, it is not about preserving the EU for altruistic reasons; it is about preserving the free trade zone that is coterminous with the EU that is essential to Germany's economic prosperity.

Formation of the EU originally was conceived as a way of forging interdependence of French and German economic and political interests with the intent to ending a century of intense rivalry that led to three devastating wars. This worked so long as the economic power of France and Germany was relatively well balanced. But, this balance is disappearing as France's economy stagnates and Germany's barrels ahead. The growing tension between the two countries became more visible during the crisis when France attempted to promote Greece's case and Germany used its enhanced economic power to brush off France's approach and force an outcome that served German economic and political interests. Although Germany was able to control the outcome it looks to have come at the cost of undermining its relationships with other European countries — in particular, France, Italy, and Spain.

The Greek crisis is really indicative of systemic crisis for the EU. Stratfor summed up the substance of the crisis as follows:<sup>9</sup>

*The events in Greece have shown the extent to which a currency union without a fiscal union leads to conflict in Europe. The Greek government has presented the conflict as an attempt to weaken Greece's democracy, which is an incomplete explanation. The Eurozone is a club of 19 democracies with their own national interests, priorities and constraints. Each actor has to pursue its own goals, all the while fettered by domestic politics.*

*The Greek government promised to end austerity, remain in the Eurozone and achieve debt relief, which ultimately proved impossible. The German government needs to protect its export markets — and therefore the currency union — while making sure taxpayer money is not squandered. The French and Italian governments want to lead Mediterranean Europe while protecting their political ties with Germany. Bailout countries, such as Spain, Portugal and Ireland, are terrified that leniency with Greece would strengthen anti-austerity political forces at home. And small northern and Baltic nations, where the economic downturn was particularly severe during the early stages of the financial crisis, reject the idea of having to compromise their national wealth to help a country on the other side of the Continent.*

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<sup>9</sup>Stratfor. "The Greek Crisis Deepens Europe's Fault Lines," July 12, 2015.

*Things would probably be easier if Europe were a federation, but history and geography make it impossible. What began as a technical debate about the fiscal situation of a peripheral country has escalated into a conflict that is stripping the structural weaknesses of the European Union.*

Thus, from the perspective of governmental policy analysts no good solutions exist that assure the long-run survival of the EU. EU members will stumble along trying to fix problems as they occur for as long as possible. But, a slow unraveling of the EU seems inevitable.

#### 4. Politician's View

Politicians in a democracy are beholden to their constituents. While they care about doing the right thing for their countries, they also develop policy platforms that appeal to voters and help get them elected. Policy platforms sometimes are less than fully thought through and often play to the baser emotions and anxieties of voters. Whether policy platforms are sound or flawed, politicians frequently feel compelled to adhere to commitments they have made even in the face of developments that suggest that a pragmatic change of course is merited in the best interests of the country.

George Bush's "read my lips, no new taxes" comment followed later by a deal with congressional Democrats to raise taxes contributed to his one-term presidency. That outcome is repeated again and again to emphasize the perils of making bold statements and later pursuing a course of action inconsistent with the statement.

In the case of Prime Minister Tsipras, he and the Syriza party were elected on the platform to reverse the damaging austerity policies that creditors had imposed. Again, as the fundamental economic analysis indicates, this was a reasonable policy position and it certainly resonated with Greek voters. Having been elected on the basis of this commitment and believing firmly in its rationality Tsipras stuck to his guns in the face of unflinching creditor rejection. Ultimately Tsipras was unsuccessful and Greece is and will pay a heavy price for not acquiescing sooner to creditor demands. But notwithstanding the ugly outcome, Greek voters continue to admire Tsipras courage. That is certainly the manage that the landslide victory in the referendum conveyed and Tsipras popularity has held up in its aftermath. That may not continue to be the case in coming days.

But, inflexible creditor demands were also driven by political commitments. German politicians crafted a narrative of shiftless Greeks out to take advantage of German prudence by forcing Germans to pay for Greek laxity, corruption and inefficiency. This narrative played well in the disciplined German culture and favored politicians who took a hard stance on the virtues of frugality and the importance of always playing by the rules and meeting commitments. This narrative is now so deeply embedded in German culture that a plurality of voters agreed with Wolfgang Schauble's suggestion that Greece should temporarily exit the monetary union until such time as its house was in order and it could meet its obligations.

Thus, having crafted this narrative and having been successful in embedding it deeply among the German electorate, German politicians lost all flexibility to consider a compromise involving debt relief. And because of its economic power and first among equals position within the EU, Germany has been able to dictate its view and force other EU members to accept its terms for the third Greek bailout.

## 5. Summary

What has happened in Greece is an awful tragedy that could have been avoided. That it has happened, indeed that it is getting even worse, is a signal that the dream of European integration has begun to unravel. It will take a long time to reach the final stages of collapse. But the long run economic consequences of balance of payments imbalances, which cannot be corrected easily in a monetary union, and that cause ever widening gaps in economic performance among members, governance flaws in the design of the EU, and entrenched political policies and dogma that are not amenable to pragmatic solutions of complex problems assure the eventual demise of the EU and its monetary union. What this means in the long run for European countries and for geopolitical relations more broadly remains to be seen. In the short run Germany is in the cat bird's seat. But, in the long run Germany will pay dearly for its myopia and intransigence. As one investor wisely put it, beware of being long German assets when the day arrives that borrowers default on their German debts. Or, as another commentator put it, the Germans apparently have learned nothing from the disastrous World War I Versailles Treaty that imposed unpayable reparations.

## XXIII. China

*In the July 2015 Longbrake Letter, in the wake of China's stock market crash, I discussed policy and economic developments and their impact on China's future.*

### 1. China's Economic Growth

China has experienced phenomenal economic growth over the last 30 years which is typical of an emerging economy which boot straps its economic growth through cheap labor and favorable currency exchange rates. In addition, China has benefited from aggressive state-financed infrastructure investment which has had a classic accelerator impact.

However, as an emerging economy matures, as has been China's case, this model of economic growth is not sustainable. Wages rise, external pressures mount to curtail the favorable management of currency exchange rates and, very importantly, continued emphasis on infrastructure investment leads to overcapacity and negligible or negative rates of return and can also foster financial instability because many investment projects do not generate sufficient cash flows to service the loans taken out to finance them. An investment driven economy also requires financial repression of consumers who are forced to save a large share of their incomes and receive below market rates of return.

Chinese policy makers were well aware that maintaining economic momentum and avoiding a potentially severe and regime threatening financial crisis required a significant transformation in the Chinese economy from over reliance on investment to one which increased the portion of economic activity devoted to consumption. With the ascension of President Xi Jinping to power a broad-sweeping program of reforms was announced with the intent of transforming the economy to one driven more by market forces and less by state direction. Implementation of reforms is proceeding but at a slow pace. Political resistance exists because shifting power from party officials to the market negatively impacts their ability to benefit financially. Thus, the program of reforms has also been accompanied by an aggressive anti-corruption

campaign which is intended to centralize and consolidate the power of President Xi while also eliminating political resistance to implementation of market-based reforms.

*This is the benign interpretation of the anti-corruption campaign. The less benign interpretation is that President Xi is more interested in sustaining the power of the Communist Party than he is in promoting market reforms to regulate the economy.*

Investment spending, which had averaged a 15 percent annual rate of increase between 2002 and 2011, rose just 6.6 percent in 2014. It is expected that investment growth will slow a bit further in 2015.

One consequence of China's economic transformation, which actually is a necessary one, is that the real rate of GDP growth is falling as the unsustainable benefit of the investment accelerator on growth is intentionally diminished. As the economy matures it will be driven in the future more by labor force growth and productivity just as is the case in all mature economies. Because China is still in "catch up" mode, productivity gains will continue to be outsized, but should gradually diminish. This means that as the economy shifts toward consumption and increasingly becomes more like other developed-country economies, the rate of real GDP growth will gradually diminish.

China's economy grew 6.8 percent during 2015. Although this disappointed those expecting 7.0 percent growth, it is probably actually a little higher than is optimal in the longer run. This implies that the shift from infrastructure focus to consumption focus is not progressing quite as rapidly as it should. In any event, real GDP growth should continue to slow, but in the interests of preserving Communist Party governance stability it seems probable that the decline will be gradual. A real rate of growth closer to 6 percent in the next couple of years seems likely and a continued decline to 4 percent within the next decade is plausible, perhaps probable.

Chinese policy makers can achieve higher real GDP growth than is optimal but only through aggressive expansion of credit. The efficiency of a unit of credit in generating growth has diminished sharply in recent years and overuse of credit to maintain a higher growth rate will assure financial instability.

## 2. Market Reforms

Progress is occurring and is most visible in three areas — bureaucratic reforms, fiscal reforms, and financial market reforms. Bureaucratic reforms involve the elimination of redundant rules and streamlining approval processes. Fiscal reforms are focused on transforming the financing of local governments from a reliance on land sales to a liquid bond market. Financial liberalization has the long-run objective of transforming the renminbi into a global reserve currency. Steps being taken consistent with that objective involve liberalizing China's historic reliance on detailed capital controls.

Reform of state owned enterprises has lagged, slowing the realization of potential benefits from market-based competition. Aggressive response to eliminating excess capacity in coal and raw materials industries has yet to be forced on state owned countries. Apparently having state owned enterprises continue to serve government and Communist Party goals remains more important. But, this delays the restructuring of the Chinese economy which is essential to its longer run health and efficiency.

### 3. Housing

Housing has been a significant driver of infrastructure investment and growth in China in recent years. While sales and prices improved some during the spring of 2015, unsold inventories remain high and consequently new construction activity is lethargic. Also, reform of local government finance has diminished the incentive for local governments to raise revenue through land sales, which should help moderate the tendency toward overbuilding that has prevailed in recent years.

In the longer run, there is still significant need for affordable housing to accommodate the migration of labor from rural to urban areas. However, while housing demand remains substantial the growth rate has flattened out and eventually decline after population growth peaks. Thus, housing will not be the driver of outsized GDP growth as it has been in the past. Growth in demand for construction materials and machinery has slowed to near zero. This means that a large segment of manufacturing no longer has the need to invest in increasing capacity, so there is knock on impact on investment spending beyond the slowdown in direct housing construction spending.

### 4. Financing Local Governments

Chinese policy makers launched a local government bond market in 2015 with considerable success. Bonds have been issued by all 17 of China's provinces and are trading at respectable and uniform yields similar to those for central government bonds, apparently reflecting the expectation that the central government will back the creditworthiness of these bonds even though there is no explicit guarantee. This development has provided regional governments a dependable source of funds in place of land sales that created social issues, fostered corruption, and aided housing development speculation.

### 5. Liberalizing Capital Controls

China's desire to have the renminbi accepted as a global reserve currency requires that the currency be stable but for cross-border capital flows to be relatively unrestricted. In the words of central bank governor Zhou Xiaochuan, "*The capital account convertibility China is seeking to achieve is not based on the traditional concept of being fully or freely convertible. Instead, drawing lessons from the global financial crisis, China will adopt a concept of managed convertibility.*" What this means is that as long as markets are well-behaved the renminbi will be fully and freely convertible but that the central bank reserves the right to intervene if stability is threatened. This policy requires that domestic capital markets will gradually be opened up to foreign investors. Preference is likely to be given to long-term investors — the newly developed long-term bond markets for local financing is an especially important opportunity. Additionally, existing restrictions on Chinese citizens moving money outside of China will probably be relaxed but coupled with close monitoring. The net upshot of these reforms will be to increase capital flowing to and from China but within careful monitored limits.

## 6. Renminbi Becomes an International Currency

In November the IMF approved including the renminbi in its basket of currencies for special drawing rights.

China, which for years had pursued a policy of tying the renminbi exchange rate to the dollar, apparently in response to IMF requirements, de-linked the exchange rate in August. However, the Peoples Bank of China (PBOC) did not explain clearly why it allows the renminbi to decline in dollar terms and the market reacted badly, thinking that China's economy might be in serious trouble. This episode passed relatively quickly because the PBOC reinstated its dollar pegging policy.

However, as 2016 commenced, the PBOC once again let the renminbi depreciate in dollar terms, again without a clear explanation of its reasons for doing so. It appears that now that the renminbi is an international currency, the PBOC's policy is to let the value of the renminbi track a basket of international currencies. However, the PBOC's failure to explain its policy resurrected fears about the health of China's economy and unleashed yet another global financial markets firestorm.

## 7. Foreign Policy and Investment in Neighboring Countries

As China's domestic economy continues to grow, its historical interest in investing in the economies of neighboring countries is rising. Also, China is increasingly committed to a proactive foreign policy that serves its long run economic and security interests. The expectation is that as other countries become more economically dependent upon China, its geopolitical and foreign policy leverage will rise.

With those objectives in mind, China has launched the "Belt and Road Initiative" which is intended to forge a "community of shared destiny" in which the prosperity of other countries is linked to that of China. The strategy is to develop a web of economic linkages facilitated by Chinese investment. Chinese policy makers are relying on State Owned Enterprises to implement the "Belt and Road Initiative."

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