



The Longbrake Letter*

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I. Could Current Monetary Policy Lead To Unintended Adverse Consequences In the Long Run?

In previous letters I have explained why **fiscal policy** in the U.S. is not only slowing the pace of economic recovery but may also be contributing to a permanently lower rate of growth in potential real GDP. There is little argument about the negative effects of higher taxes and spending cuts on real GDP growth in the short run. But, the general belief is that once short-run fiscal policy impacts run their course, the structural rate of growth in GDP will return to “normal” levels. However, my expectation is that this will not occur because of permanent reductions in the amount of government investment spending which will lower the rate of productivity growth. The reasons for why I believe this will occur are reiterated below in **Section II**.

Although there has been considerable debate about the most effective tools to employ, there has been broad-based agreement that an easy **monetary policy** is essential to help accelerate economic activity and reduce the sizable output gap. The theory is that the central bank must reduce the market rate of interest to stimulate investment activity and consumer spending on durable goods such as houses and cars. But what if low market interest rates stimulate nonproductive economic activity as well, such as speculation in financial assets, and this leads over time to a systematic misallocation of resources and results in depressing the long-run potential structural rate of real GDP growth? If that occurs, short-term improvements in economic activity would be more than offset by long-term consequences.

In this month’s letter I attempt to examine why monetary policy, as currently structured, may be leading in the direction of lower potential

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structural real GDP growth in the future. The theoretical case for such an outcome is complex and is not part of mainstream macroeconomic theory. While the arguments underpinning the longer-term negative consequences of current monetary policy for economic growth appear to be reasonable from an intuitive standpoint, a more rigorous theoretical framework would serve to substantiate or debunk the hypothesis of a reduced potential structural rate of real GDP growth. This is beyond my capability. So, I will attempt to present the theoretical line of reasoning as cogently as possible and leave to others the task of determining whether it has merit.

Examination of the long-term impacts of monetary policy on potential real GDP growth begins with a discussion of theoretical concepts in **Section II**. The two key concepts are the *potential long-run rate of real GDP growth* and the *natural rate of interest*. What matters is how the natural rate of interest impacts the potential long-run rate of real GDP growth. And it is in that relationship where the design and application of monetary policy becomes important.

In **Section III**, I review how to measure the potential long-run rate of real GDP growth, which I previously covered in the *April Longbrake Letter*. This commentary is updated for significant data revisions in the national income accounts and productivity, which were released in July and August.

Unlike the potential long-run rate of real GDP growth, which can be measured (although not precisely), the natural rate of interest is unobservable. That requires selection of an observable proxy measure. Charles Gave suggests that the nominal GDP growth rate is an appropriate proxy.¹ Note that the rate of growth in real GDP and the rate of growth in nominal GDP differ only by the rate of inflation. All of this is discussed in **Section IV**.

In the remainder of this month's letter, updates are provided about the **U.S. Economic Outlook — Real GDP Growth** in **Section V**, **Consumer Income and Spending** in **Section VI**, **Employment** in **Section VII**, **Monetary Policy, Inflation, and Interest Rates** in **Section VIII**, and **Fiscal Policy** in **Section IX**.

¹Charles Gave. "Of Wicksell And Fed Fallacies." GKResearch, September 4, 2013. This commentary is proprietary and is not available for distribution without permission by GaveKal.

In the *Appendix*, which summarizes prospects for key issues for 2013 and beyond, which I outlined in the *December Longbrake Letter*, I have updated comments to reflect recent developments.

II. Theoretical Concepts — the Potential Structural GDP Real Rate of Growth and the Natural Rate of Interest

Ideally, economic policies should be structured to produce the highest possible long-term potential structural GDP real rate of growth. A higher real rate of GDP growth relative to population growth will result directly in a higher overall standard of living.

1. Potential Structural GDP Real Rate of Growth

The potential structural GDP real growth rate is the sum of **labor supply growth**, typically measured by total hours worked, and **productivity**. For the most part growth in **total hours worked** is driven by demographics and the growth rate tends to vary little over long periods of time. However, policy can influence total hours worked over shorter time periods. For example, the eligible retirement age for pension benefits can change the timing of exit from the labor force. Additional details are examined in **Section III**.

Productivity is the other factor which determines the potential rate of real GDP growth. When productivity is positive, growth in output will rise faster than growth in the labor force and real per capita income will increase. Obviously, the higher the rate of productivity is the greater will be increases in per capita income, that is, in the overall standard of living.

Productivity improvements occur when investments in production inputs — labor and capital — result in increased output relative to a fixed amount of inputs. For example, training and experience results in increased productivity of people. Division of labor and more efficient work processes can also increase the productivity of people. Investment in plant and equipment can leverage labor and increase output.

To realize productivity requires investment. Investment occurs when the expected rate of return equals or exceeds the cost of financing. However, even when this condition prevails investment might not occur for a variety of reasons. In the private sector, regulatory requirements or bureaucratic authorization procedures may discourage or block investment. Work rules can limit labor productivity. Also, heightened uncertainty about the future policy environment can delay investment decisions or even curtail them altogether. Certain types of investments may simply exceed the capacity of private sector firms. Examples include public transportation networks and basic research. Such investments need to be made collectively through government sponsorship.

In the second quarter of 2013 private and public investment accounted for 34.6% of real GDP. (Note that consumption accounted for 68.2%, which, when combined with investment, exceeds 100%. The balancing item was an excess of imports over exports.) Few realize that government's share of investment is greater than the private sector. In the second quarter of 2013 government accounted for 53.4% of total investment. Econometric analysis discussed in Section III indicates that the contribution of government investment to productivity is almost the same as the contribution of private investment to productivity. A 100 basis point increase in private investment contributes 42 basis points to productivity and a 100 basis point increase in public investment contributes 39 basis points. *Both private and public investment expenditures are very important to boosting productivity.*

Technological innovation is also an important driver of productivity but innovation must be financed for its potential to lift productivity to be realized.

Private Investment. Private investment has grown at an average annual rate of 4.37% annually over the last 60 years. However, over the last 9 years the growth rate has been only 0.90%. There is considerable optimism among forecasters that private investment is on the cusp of an upside breakout. But the regulatory and policy environment are arguably less favorable today than they have been in the past. For example, bank capital requirements are higher and underwriting standards are tighter, which limits credit availability. Increased financial regulation has also raised the cost of credit and reduced its availability. New business formation, which historically has been the engine of innovation and employment growth, has declined consid-

erably in recent years. Part of this decline is cyclical in nature, but there appear to be other factors at work that are limiting new business formation.

Public Investment — State and Local. About 60% of public investment comes from state and local governments. State and local spending is no higher currently than it was in the first quarter of 2001. While a cyclical upturn in state and local investment spending seems to be near at hand, there has been a structural change in the political climate which strongly implies that state and local annual investment growth in coming years will fall short of the historical level of approximately 2.0%.

Public Investment — Federal. Federal investment spending growth has been slowing for several years but turned negative in 2010. Sequestration has served to deepen the rate of decline. Given the current political climate, growth in federal government investment spending will remain negative over the next several quarters. And, even if growth manages to resume a positive trend at some future date, the growth rate seems likely to fall short of the historical average.

Short-Sightedness of Public Investment Policy. The nave argument often made is that the private sector is more efficient than the public sector and, therefore, government investment spending should be limited. First, econometric analysis does not support this argument. Private and public investment have both been significant drivers of productivity. Second, there is a small negative correlation between private and public investment growth rates over time. This implies that public sector investment is not crowding out private investment but instead has a small countercyclical impact. Third, when aggregate demand is weak and the output gap is large private investment spending always experiences a substantial cyclical decline. When this occurs, there is plenty of room for public investment to take up the slack and the benefits would be two-fold. In the first order, greater public investment spending when the output gap is large would provide employment and income and bootstrap economic recovery. In the second order, investments in research, education and infrastructure would boost productivity for years to come.

In summary, private and public investment is crucial for realizing potential productivity growth stemming from innovation. Public policy and particularly fiscal policy in recent years has depressed productivity growth and in so doing has diminished the

potential real rate of GDP growth. While there is hope that productivity will return to its historical trend level, the current state of policy weighs against realization of that expectation.

2. Natural Rate of Interest

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. And, as discussed above, 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. 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.² At the same time corporate profit margins have escalated to all-time highs. New job creation is anemic and appears to be related to a low level of new

²Annie 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 Great Recession. The top 1% has "captured" about 95% of the aggregate increase in income since the end of the Great Recession.

business formation and barriers to investment.

III. Measurement of the Potential Structural GDP Real Rate of Growth

Potential real GDP growth is determined by growth in the *labor supply* and *productivity* (the efficiency of the utilization of labor and capital).

1. Labor Supply Growth

Labor supply growth depends in the first order on population growth. However, the potential labor supply is determined by the portion of the population eligible to participate in the labor force. The actual labor supply is smaller than the potential supply because many who are eligible to work choose not to do so. The percentage of those eligible to work, who either are employed or are seeking employment, is referred to as the *labor force participation rate*. The labor force participation rate can change over time because of changes in the demographic composition of the population, such as the aging of the baby boomers; because of changes in cultural patterns, such as greater participation of women or delayed entry because of increases in the number of people pursuing higher education; because of policies, such as retirement age for eligibility for pension benefits; or because of the ease of getting a job — the discouraged worker effect.

Labor supply also depends on the length of the workweek as well as the number of workers. Thus, the best way of measuring labor supply growth is in terms of aggregate hours worked. Over a long period of time the length of the workweek has declined. However, in recent years it appears to have stabilized at about 34.5 hours. While this number of hours may strike the reader as low because we are accustomed to 40-hour workweeks, this measure incorporates the impact of part-time workers, which has grown over time as a proportion of the labor force.

Total hours worked by nonfarm workers is reported on a quarterly basis by the Bureau of Labor Statistics (BLS). Importantly, this measure of labor supply is consistent with the measure of nonfarm worker productivity.

Labor supply growth will average about 0.71% annually between 2018 and 2023, which is substantially lower than the 1.26% average annual growth rate between 1955 and 2013. Slower labor supply growth in coming years is a direct outcome of declining fertility rates. It is an indisputable fact that the number of births per woman declines as societies grow wealthier and become less dependent upon agriculture for employment. ***This development, alone, means that potential real GDP growth will be lower in coming years than it has been in the past.***

It should be noted that the Congressional Budget Office (CBO) estimates that the trend labor supply growth will average a somewhat lower 0.50% annually over the 2013-23 period. If this proves to be more accurate than my expectation of 0.71%, potential real GDP growth will be lower yet.

2. Productivity Growth

Productivity growth involves gains in output relative to labor and capital inputs. Measurement of productivity, however, is not easy. Estimates can either be derived by calculating the difference between total real GDP growth and labor supply growth or by estimating and summing the contributions of each factor of production — labor and capital. The bottom up methodology consists of three components: (1) growth in capital intensity, (2) labor demographic composition and quality, and (3) total factor productivity. Total factor productivity is not a separate factor of production. However, it is a construct embraced by economists and reported by BLS that captures the interaction between the labor and capital factors and incorporates productivity effects that are otherwise not directly measureable.

Although there are various measures of productivity, nonfarm productivity is generally considered to be the most representative measure. However, it is not a comprehensive measure as it does not include government workers who in the national income accounts are arbitrarily assumed to have zero productivity.

Even though nonfarm worker productivity is not a comprehensive measure, it is useful to focus on this measure for two reasons. First, BLS has provided comprehensive data for this measure for 65 years. Second, nonfarm workers currently account for about 93.5% of total workers (ratio of nonfarm workers from the BLS's payroll report to total workers from the

BLS's household employment survey).³ *Nonfarm productivity growth* has been highly variable over time and is difficult to forecast. As can be seen in **Table 1**, productivity growth averaged 2.84% from 1955 to 1973,

Table 1
Comparison of Long-Run Trend Productivity Growth Forecasts

Forecaster	Period	Productivity Estimate
<i>Actual</i>	1950-1973	2.84%
	1974-1997	1.50%
	1998-2004	3.54%
	2005-2012	1.61%
	1889-2012	2.25%
<i>Projections</i>		
CBO (1/2012)	2013-2023	2.1%
President's Economic Report (2/2012)	2011-2022	2.3%
Kahn & Rich (12/2012)	2013-2017	1.8%
Professional Forecasters (Q1 2012)	2012-2021	1.85%
GS (growth method) (1/2013)	2012-2017	2.1%
GS (cross-country method) (1/2013)	2012-2016	1.9%
Byrne-Oliner-Sichel (3/2013)	Trend-Baseline	1.8%
Byrne-Oliner-Sichel (3/2013)	Trend-Alternative	2.5%
<i>Bill's Projections</i>		
Bill Slow Growth (Q2/2013)	2013-2017	1.04%
Bill Slow Growth (Q2/2013)	2018-2023	1.58%
Bill Slow Growth (Q2/2013)	Long-Term Trend	1.87%
Bill Strong Growth (Q2/2013)	2013-2017	1.45%
Bill Strong Growth (Q2/2013)	2018-2023	2.08%
Bill Strong Growth (Q2/2013)	Long-Term Trend	2.24%

fell to 1.50% from 1974 to 1997, rebounded to 3.54% from 1998 to 2004 and

³The ratio of nonfarm workers to total workers from the household survey has risen over the last 65 years. It was about 85% in 1965 and 94% in 2012 and averaged 92% over the period 1965 to 2012. One could use this ratio to derive the productivity of workers other than nonfarm workers. This results in a productivity growth rate close to zero, which primarily reflects the accounting convention of assigning government workers a zero productivity rate.

then receded to 1.61% from 2005 to 2013.

3. Measurement of Labor Supply Growth

Table 2 shows labor supply growth for various historical time periods, as

Table 2
Productivity Growth, Labor Supply Growth and Real Rates of
Private and Government Investment Growth

Period	Productivity	Labor Supply Growth*	Private Investment Growth*	Government Investment Growth*	Potential GDP Growth
1954:4-1973:2	2.78%	1.42%	5.68%	3.31%	3.80%#
1973:3-1997:2	1.50%	1.75%	4.19%	1.97%	3.10%#
1997:3-2004:2	3.54%	.64%	5.56%	2.16%	3.29%#
2004:3-2013:2	1.58%	.04%	.76%	1.26%	2.03%#
1954:4-2013:2	2.17%	1.25%	4.30%	2.31%	3.19%#
Forecast — Slow Growth					
2013:3-2017:4	1.04%	1.34%	3.59%	.09%	1.59%
2018:1-2023:4	1.58%	.78%	2.15%	1.47%	1.86%
2013:3-2023:4	1.38%	1.02%	2.75%	0.95%	1.77%
Forecast — Strong Growth					
2013:3-2017:4	1.45%	1.58%	5.03%	.21%	1.82%
2018:1-2023:4	2.08%	.82%	2.82%	2.13%	2.21%
2013:3-2023:4	1.82%	1.14%	3.74%	1.35%	2.06%

*Changes in productivity lag changes in labor supply, private investment and government investment growth by 2.1, 4.4 and 7.4 quarters, respectively.

CBO has not updated its estimates of potential GDP growth since revised data for the national income accounts and productivity were released in July and August; the CBO numbers are unrevised, but the estimates for my “*Slow Growth*” and “*Strong Growth*” scenarios have been updated.

well as projections for 2013-2023.

Near zero nonfarm labor supply growth from 2005 to 2013 reflects the collapse in the labor market following the Great Recession. Labor supply growth is projected to rebound from 2013 to 2023. Growth rates initially will be boosted above the long-term trend level as labor market slack decreases.

When the labor market returns to full employment I estimate the trend labor supply growth rate will average about 0.71% annually between 2018 and 2023. I do not expect the average length of the workweek to change between 2013 and 2023. Population should continue to grow about 1.0% annually, but labor supply will grow more slowly because of a persistent decline in the participation rate, primarily due to the aging of the baby boom generation.

4. Measurement of Nonfarm Productivity Growth

Revised data indicate that nonfarm productivity growth averaged 2.17% between 1955 and 2013 compared to 2.10% for unrevised data. As shown in **Table 2**, during this 59-year period there have been extended periods of higher and lower productivity rates.

1954:4 to 1973:2. Bursts in technological innovation tend to raise productivity growth for a period of time until innovation benefits are distributed throughout the economy. A surge in manufacturing productivity and massive investment in public infrastructure, such as the interstate highway system and the space program, in the 1950s and the 1960s were principal factors in the extended period of high productivity from 1955 to the middle of 1973. It should be noted that government investment spending was much stronger during this time period than it has been more recently. Private investment growth was also very strong during this period.

1973:3 to 1997:2. By the middle of 1973 the forces which had driven strong productivity gains were abating. The rate of growth in private investment spending dropped by about one-quarter and the rate of growth in government investment dropped by more than one-third. In addition, the entry of less skilled baby boomers into the labor force contributed to depressing productivity growth until the middle of 1997.

1997:3 to 2004:2 — Tech Boom. Productivity surged from the middle of 1997 to the middle of 2004, driven by the dot.com and fiber optic booms and the related strong increase in private investment spending growth. Government investment spending growth also rose a little. Labor supply growth slowed and baby boomers moved into more productive years. All of these factors combined to produce extremely strong productivity gains during this period.

2004:3 to 2013:2. Unfortunately, the investment boom of the late 1990s and early 2000s included many unproductive projects which were financed by an explosion of debt financing. A shake out became inevitable. But, as we know all too well, the collapse of the dot-com bubble did not end debt leveraging. Excessive debt financing shifted into home mortgages and a variety of exotic derivative financial instruments as Wall Street turned into a giant trading casino. Investments in housing and financial engineering proved to have limited productivity potential and the average annual productivity growth rate after mid-2004 fell to 1.61%, little better than the period from 1974 to 1997.

Unlike the 1973:3 to 1997:2 period of low productivity, which was driven by a surge in labor supply growth consisting of less skilled younger workers, low productivity in this period was the result of a collapse in investment spending — particularly private, but also government.

Prospects — 2013:3 to 2023:4 — Slow Growth. CBO expects productivity to return to its long-term average of 2.1% over the next 10 years, but this estimate could change when CBO updates its analysis to incorporate recent data revisions. This seems overly optimistic when consideration is given to prospects for the key drivers of productivity, particularly private and government investment growth.

During the next five years a return to a rate of growth in private investment similar to the long-term average of 4.3% appears quite reasonable as the housing market recovers and a slowly strengthening economy leads to an escalation in business investment spending. My “*Slow Growth*” assumption of 3.59% and my “*Strong Growth*” assumption of 5.03% bracket this long-term average.

But once the output gap has been reduced substantially a return to a lower private investment growth rate, assumed to average 2.15%, seems plausible. Note that this low rate is still considerably above the average of 0.76% that has prevailed over the last 9 years. Slow recovery in aggregate demand, a slowing population growth rate and increasing income and wealth inequality, as the preponderance of productivity gains continue to accrue to the top 1% to 5% of the population, are possible reasons for reduced private investment spending.

While a slower rate of private investment growth is somewhat conjec-

tural, slower government investment growth in an era of fiscal austerity seems probable. Real federal, state and local government investment spending has decreased for 11 consecutive quarters and is likely to continue doing so for several more quarters. While a strong case can be made (see *August 2012 Longbrake Letter*) for increased government investment spending during a period when the output gap is large, the probability of this occurring is nil. Balanced budget requirements and slower growth in revenues have forced state and local governments to pull back. And, at the federal level discussion and policy action has focused entirely on deficit reduction. The automatic spending cuts (sequester) are hitting federal government investment spending particularly hard. As will be discussed below, government investment spending growth has a significant impact on productivity.

Prospects — 2013:3 to 2023:4 — Strong Growth. The bottom panel in **Table 2** shows the effect on potential productivity if both private and government investment growth are stronger in coming years. Annual projected productivity improves from 1.38% to 1.82% over the entire period and is 2.08% by the second half of the period, which is not much different than the 2.17% long-term historical average.

It is clear that investment spending — both private and government — must rise substantially for CBO's assumption of 2.1% productivity growth to be realized. While this is possible, the risks of lower productivity in coming years than what CBO expects seem high to me. This pessimism is reinforced by a dismal statistic — U.S. public infrastructure investment is 2.4% of GDP, approximately half of what it was 50 years ago and half the current level in Europe. In recent years, private investment has been held back by weak aggregate demand. Aggregate demand should slowly improve, but it is not a given that it will return to a level sufficient to stimulate growth in private investment as high as the historical average.

If aggregate demand grows more slowly in the future as seems probable, private investment will also grow more slowly — a negative reinforcing circularity in which weaker aggregate demand leads to slower growth in private investment, which depresses productivity growth, which reduces growth in aggregate demand, and so on. It would seem that the only way to break this negative feedback loop would be for policy to boost private and public investment. There is little of substance under consideration that would attempt to accomplish such an objective as members of Congress

worry more about the deficit than about boosting growth. And, unfortunately, slow growth in private investment could also stem from a monetary policy that persistently sets the market rate of interest below the natural rate.

5. Factors Affecting Nonfarm Productivity Growth

Clearly, the historical record indicates that productivity growth varies considerably over time. This makes forecasting future productivity and, therefore, the potential real rate of GDP growth, very difficult. This is important because if productivity growth has slowed to a much lower level than the historical average, approximating the dismal 2005-2013 average of 1.61%, slow growth in real GDP could close the output gap much more quickly than most expect. This possibility has implications for the conduct of monetary policy. Also, slower productivity growth and slower real GDP growth unambiguously will result in slower improvement in the overall standard of living.

There are two sets of factors that influence the rate of productivity growth.

Innovation. Bursts in technological innovation tend to raise productivity growth for a period of time until innovation benefits are distributed throughout the economy. A surge in manufacturing productivity and massive investment in public infrastructure, such as the interstate highway system and the space program, in the 1950s and the 1960s were principal factors in the extended period of high productivity from 1955 to the middle of 1973. Productivity surged again from the middle of 1997 to the middle of 2004, driven by the dot.com and fiber optic booms.

Academic economists have been debating whether there has been a permanent slowdown in technological innovation. Tyler Cohen argues that the easy technology-based innovations have already been adopted.⁴ Robert Gordon in a recent article argues that the information technology revolution has largely run its course and its impact on boosting productivity from 1997 to 2004 was a temporary phenomenon.⁵

⁴Tyler Cohen. *The Great Stagnation: How America Ate All the Low-Hanging Fruit of Modern History, Got Sick, and Will (Eventually) Feel Better Again.* Dutton, 2011.

⁵Robert J. Gordon. "U.S. Productivity Growth: The Slowdown Has Returned After

In a recent paper published by the American Enterprise Institute, David M. Byrne of the Federal Reserve Board, Stephen D. Oliner of the American Enterprise Institute and UCLA, and Daniel E. Sichel of Wellesley College (Byrne-Oliner-Sichel) conclude that since 2004 information technology "...has continued to make a significant contribution to labor productivity growth in the United States, although it is no longer providing the boost it did during the productivity resurgence from 1995 to 2004."⁶ Using a growth accounting bottom-up methodology, Byrne-Oliner-Sichel estimate that long-term trend nonfarm productivity is currently 1.8% (see **Table 1** above). A somewhat faster pace of improvement in information technology boosts trend productivity growth to 2.5% in their alternative scenario.

Investment Financing. However, bursts in innovation do not automatically lead to higher productivity unless private and public funds are marshaled to finance development and deployment of the new capabilities. As I will show below and as is summarized in **Table 2** above, realization of the Byrne-Oliner-Sichel baseline or alternative productivity trend growth rates will depend on private and government investment spending.

As can be seen in **Table 2**, government investment spending growth was stronger from 1954 to 1973 and 1997 to 2004 than in other periods. The same was true for private investment spending.

Private investment spending collapsed after 2004, well before the financial crisis of 2008-09.

Growth in the real net private capital stock over the last five years has averaged 1.2% annually, which is the weakest in the last 60 years. Manufacturing capacity is no higher than it was in 2006.

Janet Yellen, Vice Chair of the Board of Governors of the Federal Reserve, in a speech delivered on March 4, 2013 at the 2013 National Association for Business Economics Policy Conference, said: "*... the slow recovery has depressed the pace of capital accumulation, and it may also have hindered new business formation and innovation, developments that would have an adverse effect on structural productivity.*"

a Temporary Revival." *International Productivity Monitor*, no. 25, Spring 2013.

⁶David M. Byrne, Stephen D. Oliner and Daniel E. Sichel. "Is the Information Technology Revolution Over?" AEI Economic Policy Working Paper 2013-02, March 27, 2013.

In other words, when demand is weak incentives to invest diminish. The Great Recession resulted in an unusually large output gap, which peaked at 7.5% in the third quarter of 2009. Since then recovery in aggregate demand has been excruciatingly slow. As measured by CBO, the output gap is still at an extraordinarily high level.

Ordinarily, as aggregate demand gradually strengthens, private investment spending should accelerate. However, credit constraints stemming from the Dodd-Frank legislation, more conservative underwriting and stricter supervision are likely to act as inhibitors to acceleration in private investment spending as recovery proceeds.

Add to these negative forces one more — *uncertainty*. If uncertainty has increased, which many believe to be the case, then investors will require a higher expected real rate of return to compensate for the added risk. This implies that investment opportunities with lower expected real rates of return and higher levels of outcome uncertainty will not be undertaken. In the aggregate this would lead to lower private investment spending which appears to be supported by the data.

6. Statistical Analysis of the Impact of Labor Supply and Investment Spending on Nonfarm Productivity

Statistical regression analysis indicates that about 79% of the variation in productivity between 1985 and 2013 can be explained by three variables: variations in labor supply growth, as measured by hours worked; the rate of growth in gross private investment spending, as measured by the Bureau of Economic Analysis' (BEA) national income accounts; and the rate of growth in gross government investment and consumption spending, as measured by the BEA. The equation is:

$$\begin{aligned} \textit{Productivity} = & -1.07 (\textit{growth in hours worked}) + .42 \\ & (\textit{gross private investment growth}) + .39 (\textit{government} \\ & \textit{investment and consumption}) \end{aligned}$$

This equation was estimated using data from 1985 to 2013 and has an R^2 of .79. Coefficients of all three variables have the expected signs and are highly significant.

Growth in hours worked coefficient = -1.07. This coefficient indicates that when the rate of growth in the labor supply increases by 1 percentage point, productivity declines by 1.07 percentage points. It takes approximately 2.7 quarters for the full impact of a change in the rate of growth in the labor supply on productivity to be realized.

There are two phenomena that cause this result. The more important one is the effect of oscillations in the business cycle. In the late stages of recession and early stages of recovery, employers economize on labor, thus driving up measured productivity. During the mature and late phases of economic expansion increased labor supply growth is boosted by inclusion of more marginal workers. This lowers the measured productivity rate. The second factor has to do with demographic trends. For example, when the baby boom generation came of working age in the 1970s more rapid growth occurred in the labor supply. But these workers were less experienced with the effect that productivity slowed down. The aging of the labor force and slowing growth should have the opposite effect in coming years.

Gross private investment growth coefficient = .42. This coefficient measures the impact of the rate of growth in “gross private domestic investment” on productivity. Not surprisingly, a 1 percentage point increase in the rate of investment growth results in a .42 percentage point increase in productivity, but it takes an average of 5.1 quarters between the time investment growth increases and productivity fully responds.

Government investment and consumption spending coefficient = .39. Ideally, this measure should include only government investment spending; however, the BEA reports only a single number which combines both investment and consumption. Like gross private investment, this measure is also gross. Note that it does not include government transfer payments. It also combines federal, state and local data. State and local spending accounts for approximately 54% of the total.

The impact of government investment and consumption spending on productivity is not materially different from the impact of gross private investment spending. A 1 percentage point change in the growth rate leads to a .39 percentage point change in productivity within 7.9 quarters.

There is a very small negative correlation between gross private investment growth and government investment and consumption spending growth.

This means that there is a small substitution effect between the two categories over the economic cycle.

7. Prospects for Nonfarm Productivity Growth 2013-2023

Using the statistical relationship between public and private investment spending and productivity and assumptions about labor supply growth, I have constructed two possible scenarios — “**Slow Growth**” and “**Strong Growth**”. Assumed values for the key variables are shown in **Table 3**.

Both scenarios start from the current situation of a very large output gap and then progress to a long-term stable trend level.

During **2013-2017**, as shown in **Table 3**, economic activity is recovering and the output gap is closing. Employment growth exceeds its long run potential growth as the unemployment rate falls. Private investment spending growth, which was depressed during and immediately following the Great Recession, rebounds at above long-term trend rates. However, government investment is depressed for policy reasons.

Then, during **2018-2023** employment growth gradually settles into its long-term trend level, private investment growth slows, but government spending growth improves as the near-term negative impacts of fiscal policy dissipate.

Also shown in **Table 3** are productivity estimates for **stable trend** values of employment growth, private investment spending growth and government investment spending growth. The key difference between the “**Slow Growth**” and “**Strong Growth**” scenarios is that private investment spending growth is assumed to stabilize at a low 2.50% annual rate in the “**Slow Growth**” scenario compared to a long-term trend level of approximately 4.00% in the “**Strong Growth**” scenario. In both scenarios, government investment spending growth stabilizes at its long-term average of 2.00%.

Thus, the key difference between the “**Slow Growth**” and “**Strong Growth**” scenarios is the assumption of how fast private investment spending grows. Future private investment spending will depend on the strength of technological innovation in the first order. But realization of productivity

Table 3
Simulations of Productivity Depending Upon Labor Supply,
Private Investment and Government Investment Growth Rates

	Labor Supply	Private Investment	Government Investment	Productivity
1955-2013	1.26%	4.37%	1.97%	2.20%
CBO 2013-23 Productivity Estimate				2.10%
Slow Growth Scenario				
Slow: 2013-17	1.41%	3.09%	1.97%	2.20%
Slow: 2018-23	.71%	2.00%	2.10%	1.84%
Slow: 2013-23	1.01%	2.47%	1.40%	1.44%
Strong Growth Scenario				
Strong: 2013-17	1.69%	4.87%	.66%	1.43%
Strong: 2018-23	.71%	2.50%	2.95%	2.39%
Strong: 2013-23	1.13%	3.52%	1.93%	1.96%
Private Investment Varies (Slow Growth)				
	.71%	2.50%	1.50%	1.82%
		3.00%		2.03%
		3.50%		2.24%
		4.00%		2.45%
Government Investment Varies (Slow Growth)				
	.71%	3.00%	1.00%	1.83%
			1.50%	2.03%
			2.00%	2.22%
			2.50%	2.42%

gains from innovation will turn upon the extent to which private investors are willing to provide financing. That willingness will depend upon expected returns to capital and the cost and ease of obtaining financing. High levels of uncertainty about the “rules of the game”, namely government policies and regulation, and high levels of uncertainty about future economic growth dampen willingness to invest. It is for these reasons that the more pessimistic “**Slow Growth**” scenario seems to be the more likely outcome.

8. Prospects for Productivity May Not Be As Good As Many Would Have You Believe

Macroeconomists do not pay a great deal of attention to productivity when making forecasts. Generally, it is presumed that productivity will be relatively constant over a long time period with modest cyclical fluctuations.

However, as I have discussed above over the long term the level of productivity is important in determining the rate of growth in potential real GDP. We know with certainty that labor force growth is slowing because of lower birth rates and aging of the population. Policies can influence incentives to work and can increase or decrease immigration rates and thus modify to a certain extent the impact of natural demographic processes. However, when all is said and done, the labor force will grow more slowly in the future than it has in the past. This means that potential real GDP growth will be depressed by that differential, whatever it turns out to be.

There seems to be a presumption by some that somehow, someday we should be able to get back to the historical 3.2% real GDP potential growth rate. That will not be possible unless productivity in the future is much greater than it has been in the past. This seems unlikely. Indeed, because of weak investment growth, possibly the result of a monetary policy that maintains the market rate of interest below the natural rate of interest for an extended period of time, the risk is that productivity may fall short of its historical level of 2.2%. The FOMC and CBO acknowledge the decline in labor force growth in their estimates of long-run potential GDP growth. The FOMC expects potential GDP growth to be between 2.3% and 2.5%. CBO expects potential GDP growth to be about 2.2% in 2023. Embedded in CBO's potential GDP growth rate is an assumption that productivity increases 2.1% annually, near the historical average rate. In other words, most simply assume that investment growth will track historical averages and so will productivity. Thus, the expected decline in potential real GDP growth is due solely to a slower rate of growth in the supply of labor.

GS and B of A both have recently published optimistic analyses of productivity prospects. They begin by acknowledging that productivity has slowed sharply in recent years.

GS correctly pins the primary blame for low productivity on low investment spending. BLS decomposes total productivity into three categories

— labor composition (education and experience), capital intensity (amount of capital per worker) and total factor productivity (the difference between total productivity and the other two categories — what can't be measured directly). GS notes that the recent shortfall in productivity from its long-term expected trend level is entirely due to capital intensity. That shortfall, in turn, stems directly from low capital expenditures in recent years. Based on this analysis, it naturally follows that if business capital expenditures increase, then capital intensity productivity will also increase.

GS's analysis is valid but embedded in it is a leap of faith that business capital expenditures will increase. GS's argument is that business investment historically has been cyclical and that as GDP growth picks up and the output gap shrinks business investment will accelerate. High expected rates of return on investment, easy access to cheap financing, significant pools of cash, strong profitability and diminishing policy uncertainty will combine to push investment and, thus, productivity much higher.

GS acknowledges risks that structural factors may retard productivity improvement but argues that such risks are embedded in total factor productivity and there is no evidence that this source of productivity has diminished in recent years.

B of A also expects productivity to improve substantially in coming quarters. B of A points out that over the last year employment for those with a college education has grown 3.4% compared to 1.0% for those with some college and 0.4% for those with a high school education. Employment has decreased -3.0% for those without a high school education. On the face of it this looks encouraging. But, education is only half of the story. The rest of the story is that higher-skilled jobs need to be available for higher-skilled people. The BLS's employment data do not show that that is happening.

B of A also cites the lack of job turnover as inhibiting productivity improvement. Presumably as the labor market tightens turnover will pick up and so will productivity. There is research to support this expectation but its realization requires substantial improvement in the labor market — an outcome that is taking a long time to develop.

Lower rates of technological innovation would depress productivity. B of A finds there is no evidence that this is occurring and cites fracking, robotics and 3-D printing as examples of significant and far-reaching technological

breakthroughs. So slower technological innovation is not a concern and I agree with that assessment.

B of A agrees with GS that low business spending on capital deepening is the primary culprit behind lower productivity. There are three categories of nonresidential investment — structures, equipment and intellectual property. The National Income Accounts show that investment in structures remains deeply depressed but equipment investment has returned to pre-Great Recession levels. Growth rates for both structures and equipment have been slowing in recent quarters. Notably, the growth rate in equipment spending is considerably below the level that prevailed during the mid-cycle growth period of 2004-2006. Also, compared to that prior period, growth in intellectual property investment is somewhat less.

B of A observes that the outstanding capital stock is growing at the slowest rate in 60 years because new investment is barely exceeding depreciation. However, for reasons similar to those articulated by GS, B of A expresses optimism that the growth rate in the capital stock is poised to accelerate.

Optimism about improving productivity is based on historical cyclical patterns. While some of the analysis appears to support this optimism, there are some critical missing links. For example, more skilled people need to be connected to the right jobs. It is not clear that such a matching process is occurring. Most all of the analysis has focused on private sector investment. But, historically government investment has been extremely important in boosting productivity. Investment at all levels of government is extremely weak and there are no prospects for significant improvement in coming quarters. Finally, the current economic recovery has been extremely weak. Even if growth accelerates a bit in coming quarters, it will still take a long time to close down the output gap. What this means is that aggregate demand will recover slowly and weak demand will continue to take the pressure off the business sector to make capital investments to improve capacity.

Thus, I continue to worry that weak private and government investment spending will continue to depress future productivity. If the economy strengthens, private investment spending is likely to rebound. But, in an era when “deficit” is a dirty word and few politicians are willing to talk openly about increasing government spending for any purpose let alone spending on infrastructure and research, there appears to be limited reason to expect government will play its historic role of engaging in public investment any

time soon. This is very unfortunate because the lack of investment will contribute to lower productivity, slower growth in the overall standard of living and might even contribute to worsening the divide between the “haves” and “have nots”.

9. Potential Real GDP Growth

To reiterate, productivity and labor supply growth determine real GDP growth potential. The level of future potential real GDP growth depends to a large extent on productivity growth because labor supply growth should be relatively stable over the next several years.

My principal conclusion is that the potential structural GDP real rate of growth is likely to be lower over the next several years than most expect. To the extent that occurs, there are several implications — all negative. For example, to name a few of the more important ones, employment will recover more slowly, inflation will be lower for longer, wage gains will be more limited, interest rates will remain at the zero bound for longer, the budget deficit will remain higher and the public-debt-to-GDP ratio will be a more intractable problem.

IV. Natural Rate of Interest and Rate of Nominal GDP Growth

As explained in **Section II**, measuring the natural rate of interest is important, but since it is unobservable an appropriate proxy measure needs to be found. Fortunately, there is a worthy candidate — the potential nominal rate of GDP growth. This measure is not to be confused with nominal GDP growth data that the BEA reports quarterly. The only difference between the potential nominal rate of GDP growth and the potential real rate of GDP is the rate of inflation. I discussed in **Section III** how a reasonable estimate of the potential real rate of GDP growth can be derived.

Growth rates for potential nominal GDP growth and profits over long time periods are identical provided that shares of GDP going to labor and to capital remain stable. Profits, of course, are the returns on investment. In

equilibrium, provided that the market interest rate and the natural interest rate are equivalent, the rate of return on capital and the rate of growth in profits equal the natural rate of interest.

1. Choosing a Market Rate of Interest to Compare to the Nominal GDP Growth Rate

Having chosen a proxy measure for the natural rate of interest, the next step is to choose a market rate of interest and compare the spread between the two rates over time to ascertain whether money is too cheap, too expensive or reasonably equivalent.

There are several candidates. The **federal funds rate** is an obvious candidate because it is the rate that the Federal Reserve directly controls. However, the weakness in using this rate is that when interest rates are at the zero boundary, as they have been for the past several years, it is no longer possible to determine whether the cost of financing is too cheap or too expensive.

Charles Gave of GKResearch prefers the **Baa yield**.⁷ His experience is that whenever the Baa bond yield exceeds the real rate of growth in GDP by 200 basis points recession has always followed within a few months. Recession occurs when financing is too expensive. Gave cautions that the recent back up in interest rates has resulted in a spread between real GDP growth and the Baa yield that is nearing 200 basis points. Gave asserts that money is too cheap when this spread turns negative.

Yet another possible candidate is the **10-year Treasury yield**. Many have noted that over long periods of time the 10-year Treasury yield is almost identical to the nominal rate of growth in GDP. That observation is testable and if it holds, then a negative spread (nominal GDP growth rate - 10-year Treasury yield) would imply that money is cheap and a positive spread would indicate that financing is expensive.

⁷Charles Gave. "Are Interest Rates High Or Low?" GKResearch, September 2, 2013. This commentary is proprietary and is not available for distribution without permission by GaveKal.

2. 10-Year Treasury Rate Historically Is Almost Identical to the Observed Nominal GDP Growth Rate

Over the 45-year period from 1968 to 2013, the nominal GDP growth rate averaged 6.74% and the 10-year Treasury yield average 6.87%, which is very close to parity.

But because there is considerable volatility in both rates from quarter to quarter, it is difficult to determine from the observed spread between the two rates in a particular period whether financing is cheap or expensive. This difficulty can be overcome by estimating what each rate should be in any particular time period based on the variables that determine the level of each rate.

There are three explanatory variables which are the same for the nominal GDP growth rate and the 10-year Treasury yield. Two of these variables — labor supply and productivity — are those that determine potential real GDP growth. The third is the rate of inflation, which translates a real rate into a nominal rate.

Thus, the equations for the nominal rate of GDP growth and the 10-year Treasury yield are identical, except that the coefficients can be different:

$$\text{Nominal GDP} = \alpha_0 + \alpha_1 L + \alpha_2 P + \alpha_3 I$$

$$10\text{Y Treasury Yield} = \beta_0 + \beta_1 L + \beta_2 P + \beta_3 I$$

L = growth rate in nonfarm labor hours

P = nonfarm productivity rate

I = PCE (personal consumption expenditures) deflator

These equations are estimated for 180 quarters from 1968 through 2013. A 24-quarter lag structure for L, P and I is included in the estimating regressions. The results are shown in **Table 4**.

There are two takeaways from these equations. First, the difference between the predicted value of the 10-year Treasury yield (market interest rate) and the predicted value of nominal GDP (natural interest rate) derived from the equations tells us whether money was expensive or cheap. This relationship is shown in **Chart 1**.

Table 4
Coefficients of the Nominal GDP Rate of Growth and 10-Year Treasury Yield Equations

	L (labor)	P (productivity)	I (inflation)
Nominal GDP	1.113	1.362	1.036
10Y- Treas Yield	1.134	.310	1.028
Difference	-.021	1.052	.008

Second, it is evident from the coefficients in **Table 4** that variations in actual labor growth and in actual inflation over time do not affect in any material way the difference in the estimated values for the nominal rate of GDP growth and the 10-year Treasury yield. This implies that only productivity matters in determining the potential structural rate of growth in real GDP.

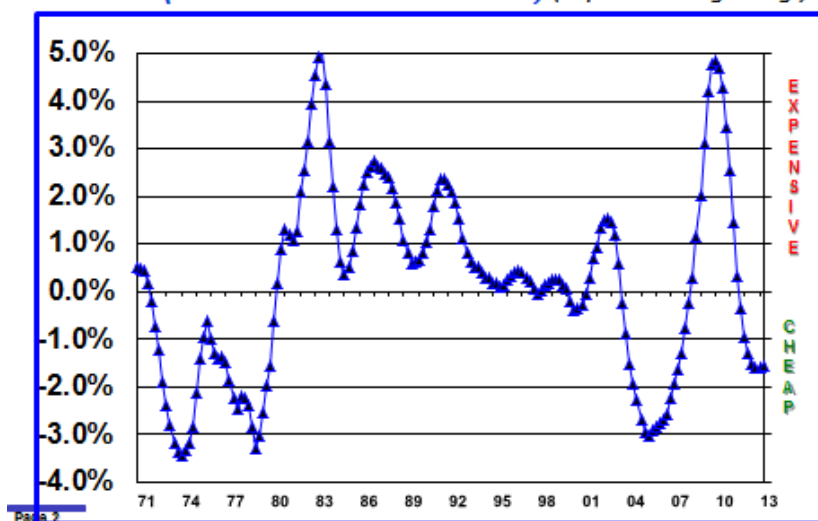
3. Cheap and Expensive Financing — Relationship of the Natural Rate of Interest and the Market Rate of Interest

Chart 1 shows that monetary policy has tended to lead to long periods of time during which the cost of financing was either expensive or cheap. Expensive periods occur when the market rate (10-year Treasury yield) is above the natural rate (rate of growth in nominal GDP). An 8-quarter moving average smooths differences and makes it easier to discern expensive and cheap cost of funds periods.

The cheap money period of the 1970s, which coincided with the development of double-digit inflation, is clearly apparent. When the Volcker Federal Reserve clamped down on inflation the result was an extended period of expensive money until the emergence of the housing bubble in the early 2000s. The Great Recession led to a short period of very expensive money, but over the last six quarters the Federal Reserve's quantitative easing program has resulted in the re-emergence of cheap financing. Without the 8-quarter smoothing, cheap money actually commenced in the third quarter of 2010 and has persisted for 12 quarters.

This analysis is consistent with the hypothesis that monetary policy has been too easy and is diverting resources from being invested in new

CHART 1 – Market Rate (10-Y Treasury Yield) - Natural Rate (Nominal GDP Growth Rate) (8-quarter moving average)



productive assets into speculation in existing assets. That, in turn, suggests that monetary policy is contributing to a downward drift in the potential structural real rate of GDP growth. As the coefficients of the equations above indicate, downward pressure on the potential real rate of GDP growth is a function of declining productivity.

Note that the finding that the cost of financing is still cheap contradicts Charles Gave's finding that the Baa yield spread indicates financing is expensive and is close to a level which in the past has preceded the onset of recession. The difference appears to depend upon the analytical methodology. Gave compares current Baa yields with year over year changes in real GDP. I compare predicted values of the 10-year Treasury yield with nominal GDP growth rates, using an eight-quarter smoothing. All of this points out the difficulty of translating theoretical relationships into measurable analytics that have robust predictive power.

In summary, I believe there is sufficient evidence both theoretical and statistical to justify worrying that monetary policy may be contributing to depressing the potential structural real rate of GDP growth. But I do not think the arguments presented here or

the analysis is conclusive on this matter.

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

Second quarter real GDP growth was revised upward from 1.7% in the “Advance Estimate” to 2.5% in the “Preliminary Estimate”. As can be seen in **Table 5**, nearly all of the improvement was due to a 0.81% increase in net exports. Revisions to other GDP components were minor. The estimate of net exports in the “Advance Estimate” was based off of only one month of actual data and two months of estimates. Thus, it is not unusual for substantial revisions to be made in this GDP category.

Table 5 shows two alternative measures of real GDP in addition to the

Table 5
Composition of 2013 and 2012 Quarterly GDP Growth

	First Quarter 2013 Advance Estimate	First Quarter 2013 Preliminary Estimate	First Quarter Final Estimate	Fourth Quarter 2013	Third Quarter 2012	Second Quarter 2012
Personal Consumption Private Investment	1.22%	1.21%		1.54%	1.13%	1.15%
Nonresidential	.55%	.53%		-.57%	1.13%	.04%
Residential	.38%	.37%		.34%	.50%	.35%
Inventories	.41%	.59%		.93%	-2.00%	.60%
Net Exports	-.81%	.00%		-.28%	.68%	-.03%
Government	-.08%	-.18%		-.82%	-1.31%	.67%
Total	1.67%	2.52%		1.14%	0.13%	2.78%
Final Dom. Sales	1.26%	1.93%		.21%	2.13%	2.18%
Private GDP	1.34%	2.11%		1.03%	3.44%	1.51%

customarily reported comprehensive measure — final domestic sales, which equals real GDP less the change in inventories, and private GDP, which equals final domestic sales less government expenditures.

1. 2013 Q2 GDP — Preliminary Estimate

Personal consumption expenditures, which account for 68.2% of real GDP, contributed 1.21% to second quarter GDP growth. Over the last five quarters, the contribution of consumption expenditures to GDP growth has been in a tight range from 1.13% to 1.54% and has averaged 1.26%. The contribution of 1.54% in the first quarter was boosted by tax-avoidance acceleration of income at the end of 2012. An average GDP contribution rate in consumer spending of 1.26%, if sustained, implies that GDP will grow 1.85% annually. This assumes, of course, that the other components of GDP, which comprise 31.8%, also collectively grow at an annual rate of 1.85% and add 0.59% to GDP growth. If real GDP growth is to reach 2.5% on a sustained basis, consumer expenditures will need to contribute 1.70% to GDP.

Nonresidential investment fell in the first quarter and rose in the second quarter. The net result was that the level in the second quarter was slightly below the level in the fourth quarter of 2012. Nonresidential investment accounts for 12.6% of GDP.

To a substantial extent, a significant improvement in real GDP growth in coming quarters depends upon strong acceleration in private investment spending including residential. Indeed, this is exactly what most forecasters expect to occur. This is a very critical assumption because above trend growth in investment is critical to accelerating employment and income growth, which, in turn are necessary outcomes if consumer spending is to strengthen. Fundamentals, such as growth in corporate profits, are supportive of acceleration in investment spending. This is a bit of a “chicken and egg” problem because stronger consumer spending depends upon increased investment activity to drive employment and income, but increased investment activity depends upon expectations that consumer demand will improve. Thus, improving business and consumer confidence are important. Once investment growth rises a virtuous and self-reinforcing circle will set in with employment, income and spending steadily accelerating.

On balance recent forecasts of rising investment spending have turned out to have been overly optimistic. This was the case during the first half of 2013. If investment activity does not accelerate in coming quarters, then growth in consumer spending is unlikely to improve much and growth in GDP will continue to fall short of expectations.

Residential investment accounts for 3.1% of GDP but contributed 19.9% of GDP growth in the first half of 2013. This sector of the economy has been growing faster than the rest of the economy for the last seven quarters. If growth in residential investment continues at its recent pace, it will add 0.3% to 0.5% to real GDP growth in 2013. GS and B of A are optimistic that housing will grow at about 13% to 14% during the remainder of 2013 compared to a 12.4% annual rate during the first half of 2013. However, the sharp rise in mortgage rates since May has elevated downside risks that growth will be slower.

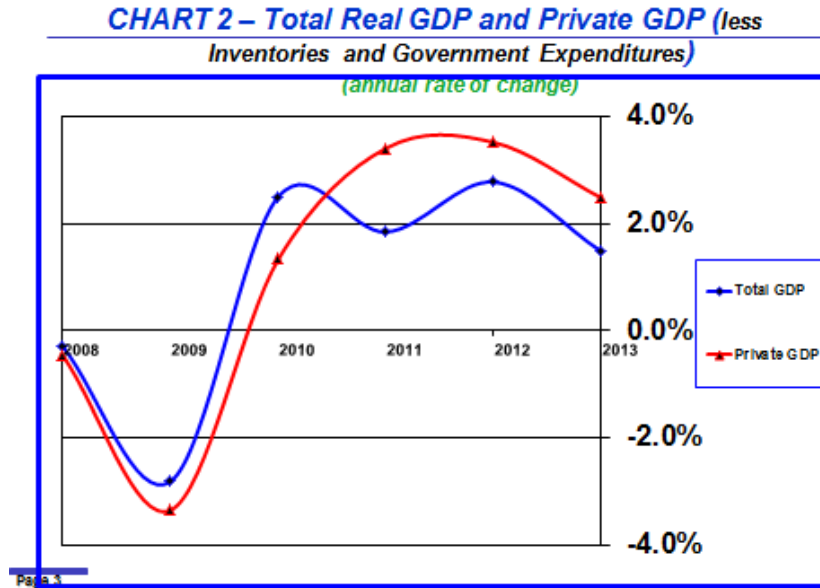
Government expenditures fell much less than expected during the second quarter. Government expenditures comprise 18.5% of real GDP. The rate of decline in state and local government expenditures is approaching zero and may turn into a modest positive in coming quarters. However, the full impact of federal sequestration does not yet appear to have occurred. Thus declining federal government expenditures will continue to be a significant negative contributor to GDP growth during the remainder of 2013. During the first half of 2013, government expenditures declined at an annual rate of 2.6%. Forecasts range between a decline of 1.5% and 3.0% during the second half of 2013. Government expenditures probably will continue to decline during 2014, but the rate of decline should diminish.

Net exports had no net effect on GDP growth in the “Preliminary Estimate”. While this GDP component tends to be extremely volatile from quarter to quarter, over longer time periods its contribution to real GDP growth is close to zero.

2. Longer-Run Trend in Total Real GDP and Private GDP

Chart 2 compares total real GDP growth from 2008 through the second quarter of 2013 with a measure of private sector real GDP growth, which is derived by subtracting changes in inventories and government spending from total GDP. (Also, see the last line in **Table 5**.)

There are two takeaways from **Chart 2** — one good, and one troublesome. The good story is that private sector real GDP growth was about 3.5% in both 2011 and 2012. However, this measure decelerated to 2.5% in the first half of 2013 compared to the first half of 2012 and reflects the negative effects of higher personal and payroll taxes.



Although the recent decline in private GDP growth is troublesome, as the shock effect of higher taxes on personal income wanes in 2014 there is reason to be hopeful that real private GDP growth will return to the 3.5% level. It is this expectation along with acceleration in investment spending that underpins forecasters' consensus that real GDP growth will accelerate to an above trend level in 2014.

3. GDP Forecasts for Q2, Q3 and 2013

Recent data reports covering the **second quarter** do not point toward a significant revision to the "Preliminary Estimate" of 2.5%.

Although most forecasters have expected growth to pick up during the second half of 2013, recent data reports indicate that it is unlikely **third quarter** growth will meet that expectation. **Chart 3** and **Table 6** show GDP forecasts/projections for the third and fourth quarters of 2013 and for the full years 2013 through 2016.

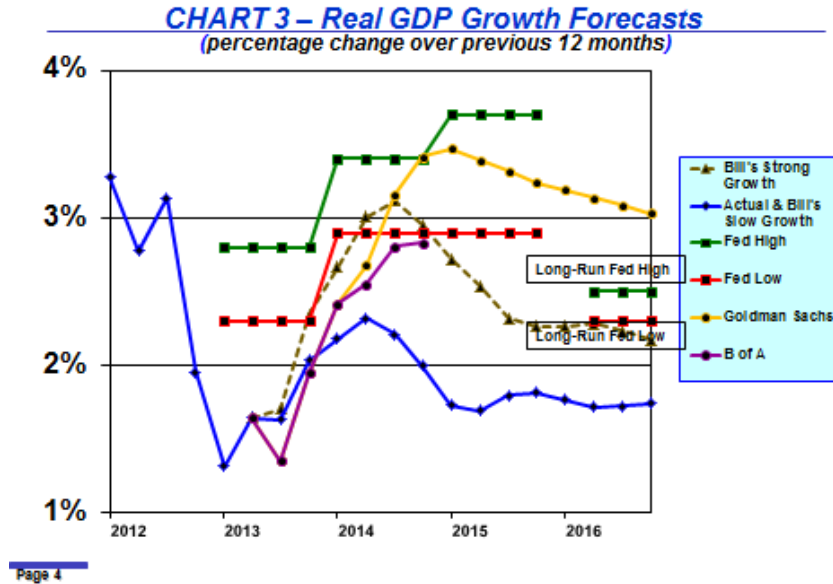


Table 6
Real GDP Growth Forecasts — B of A, GS, Global Insight, Economy.com, Blue Chip Average, Bill’s “Slow Growth”, Bill’s “Strong Growth” and FOMC High and Low Projections

	2013:3	2013:4	2013 Q4 to Q4	2013 Y/Y	2014 Y/Y	2015 Y/Y	2016 Y/Y
B of A	1.6	2.5	2.0	1.6	2.8		
GS	1.7	2.5	2.0	1.6	2.9	3.3	3.1
Global Insight	2.3	2.4		1.5	2.7	3.5	3.1
Economy.com	2.6	2.8		1.7	3.3		
Blue Chip	2.3	2.7		1.5	2.6	3.1	2.9
Bills Slow Growth			2.0	1.7	2.2	1.8	1.7
Bills Strong Growth			2.3	1.8	2.9	2.5	2.2
FOMC — High				2.6	3.5	3.6	
FOMC — Low				2.6	3.0	2.9	

B of A expects 1.6% growth in the third quarter and 2.5% in the fourth quarter as fiscal drag diminishes. Its forecast for 2013 GDP fourth-quarter-

to-fourth-quarter (Q4/A4) growth is 2.0% and 1.6% year over year (Y/Y).

GS's forecast for the remainder of 2013 is nearly identical to B of A's forecast — 1.7% Q3, 2.5% Q4, 2.0% Q4/Q4, and 1.6% Y/Y. GS's current activity index, a proxy for real GDP growth, was 2.9% in August and has been improving steadily in recent months.

Third quarter forecasts prepared by Global Insight, Economy.com and the Blue Chip Average, which are shown in **Table 6**, appear to be too high based upon incoming third quarter data.

Fourth quarter projections for all forecasters indicate an expected improvement in the range of 2.5% to 2.8%.

Bill's "**Slow Growth**" Q4/Q4 forecast shown in **Table 6** is 2.0% and 1.7% Y/Y. Bill's "**Strong Growth**" Q4/Q4 forecast is 2.3%, reflecting a strong finish to the year, but Y/Y growth of 1.8% would be only slightly higher.

As **Table 7** shows, the FOMC's real GDP growth projections have been persistently overly optimistic. Even with the slight reduction in the top end of the range for 2013 at the June meeting, the revised estimates appear to be unattainable unless the economy encounters a strong growth spurt in the fourth quarter.

Note that by the time this letter is published the FOMC will have met and released revised projections for GDP, inflation and the unemployment rate. GS expects the FOMC's central tendency GDP projections to be reduced slightly for 2013, 2014 and 2015.

4. Impact of Financial Conditions and Uncertainty on GDP Growth

Recent economic research conducted by GS has established a strong linkage between changes in financial conditions and subsequent changes in real GDP growth.⁸ Such a linkage has long been understood to exist, but GS has established and tested models which link conditions in financial markets to

⁸Jan Hatzius and Sven Jari Stehn. "A Taylor Rule for the Goldman Sachs Financial Conditions Index," Goldman Sachs US Economics Analyst, Issue No: 13/28, July 12, 2013. Also, see Jan Hatzius, Goldman Sachs US Daily: "Better Data vs. Tighter Financial

Table 7
FOMC Central Tendency Real GDP Growth Projections
Compared to Actual Results — 2011 to 2015

Meeting Date	2011	2012	2013	2014	2015	Long Run
Jan 2011	3.7	3.95	4.0			2.7
Apr 2011	3.3	3.65	4.0			2.7
June 2011	2.75	3.1	3.75			2.7
Nov 2011	1.7	2.9	3.35	3.6		2.6
Jan 2012		2.55	3.1	3.55		2.6
Apr 2012		2.55	3.1	3.6		2.6
June 2012		2.05	2.85	3.4		2.6
Sep 2012		1.8	2.9	3.4	3.35	2.6
Dec 2012		1.8	2.6	3.4	3.35	2.6
Mar 2013			2.5	3.2	3.15	2.5
June 2013			2.3	2.9	3.05	2.5
Actual Q4 to Q4	2.01	1.95	1.9*	3.4*	3.2*	
Actual Y/Y	1.85	2.78	1.6*	2.9*	3.3*	
Long Run Potential						2.2-2.5#

*GS forecast

#Bill's "Slow Growth" long-run potential = 2.06%; Bill's "Strong Growth" long-run potential = 2.44%

subsequent developments in the real economy. These models measure both the magnitude and timing of changes in financial conditions on real GDP growth.

Financial conditions tightened in late May and June as fears surged that the Federal Reserve would begin "tapering" purchases of securities. Financial conditions improved briefly in July but tightened again in August. If financial conditions neither improve nor deteriorate further and if no other factors intervene, GS now estimates that the tightening in financial conditions will subtract 0.3% from GDP in 2014 compared to adding 0.3% in 2013. This is a total swing of 0.6% year over year.

Conditions," June 25, 2013, Shuyan Wu, Goldman Sachs US Daily: "Another Look at Financial Conditions vs. Growth," July 11, 2013, and Shuyan Wu and Jan Hatzius, Goldman Sachs US Daily: "How Big a Risk from Financial Conditions," August 22, 2013.

However, GS recently updated its analysis to include the effects of uncertainty as well as financial conditions.⁹ Higher uncertainty leads to reduced risk appetite and delays in hiring and investment activity. Various measures indicate that uncertainty has declined considerably since late 2012. This is a favorable development for economic activity. In fact, GS finds that the effects of reduced uncertainty largely offset the effects of tighter financial conditions over the next several quarters.

One thing that could disrupt this benign conclusion would be a return of greater uncertainty in coming weeks, if Congress has extreme difficulty in dealing with fiscal policy issues, including the fiscal year 2014 budget, sequestration and raising the debt ceiling.

5. GDP Forecasts for 2014 and Beyond

As **Chart 3** shows, most forecasters expect GDP growth to accelerate in 2014 and 2015 as negative fiscal drag diminishes and unemployment gradually declines (also see **Table 6**).

Both B of A and GS forecast strong residential investment growth as the housing market continues its recovery. While this is clearly possible, the recent sharp increase in mortgage rates, if sustained, could result in slower growth in residential construction.

B of A's and GS's forecasts for private nonresidential investment, which is nearly four times larger than residential investment, appear to be extraordinarily optimistic compared to historical trends and recent weakness. GS projects nonresidential investment will rise at a 7% to 8% annual real rate from the second half of 2013 through 2015 because of high corporate profit margins, high real rates of return relative to cheap funding, easier access to credit and declining policy uncertainty. B of A is projecting slightly slower growth of 5.5% to 6.5%, but this, too, appears to be optimistic.

If GS's and B of A's views are correct, nonresidential investment would add approximately 1% to real GDP growth in each of the next three years. This largely accounts for the difference between GS's forecasts for 2014-2016 and B of A's forecast for 2014 versus my "**Slow Growth**" forecasts

⁹Jan Hatzius and Sven Jari Stehn. "Reduced Uncertainty and the Move over the Hump," Goldman Sachs Economics Analyst Issue No: 13/36, September 6, 2013.

for 2014-2016. (See **Chart 3**.) My “**Strong Growth**” forecast assumes a much faster rate of investment growth similar to that of GS and B of A and, thus, the forecast for that scenario is more optimistic in 2014. There is still a divergence in 2015 and 2016. That is because after 2014, private fixed investment growth in my “*Strong Growth*” scenario reverts to historical averages, but GS continues to assume high investment growth in 2015 and 2016.

Although FOMC forecasts have been overly optimistic in the past, most forecasters are only slightly below the bottom end of the FOMC’s range for 2014 and are well within the range for 2015. Notably, my forecasts are generally lower, primarily because of my pessimistic outlook for investment and productivity growth.

6. GDP Output Gap

CBO has not updated its measures of potential GDP to reflect recent comprehensive data revisions. When that occurs, I will include a discussion of the output gap and how rapidly it might close depending on the forecast for GDP growth.

VI. Consumer Income and Spending

Personal income, consumption expenditures and saving have been very volatile in recent months. This was caused primarily by timing of income recognition in late 2012 to optimize tax burdens in anticipation of changes in fiscal policy. This led to a substantial increase in reported income in late 2012. Also, there appears to be some seasonality in the data in conjunction with timing of certain types of incentive compensation. The monthly data are not seasonally adjusted.

1. Percentage Changes in Personal Income and Disposable Income 2011, 2012 and 12 Months Ending in April, May, June and July 2013

Because the recent data volatility makes it difficult to discern trends, I have included **Table 8** which compares percentage changes for 2011 and 2012

Table 8
Percentage Change in Personal Income and Its Disposition for 2011, 2012 and 12 Months Ending January, February, March and April 2013

	2011 Pct. Change	2012 Pct. Change	Pct. Change Apr 12- Apr 13	Pct. Change May 12- May 13	Pct. Change Jun 12- Jun 13	Pct. Change Jul 12- Jul 13
Personal Income	4.63%	7.94%	2.76%	3.12%	3.09%	3.28%
Compensation	2.81%	6.80%	2.61%	3.16%	3.28%	3.14%
Proprietors' Inc.	11.05%	5.07%	10.74%	9.53%	8.17%	8.82%
Rental Income	19.44%	7.28%	9.61%	9.20%	9.03%	10.00%
Asset Income	4.59%	18.90%	2.84%	3.30%	3.67%	4.94%
Government Transfers	0.17%	4.06%	2.85%	3.54%	3.46%	3.35%
Less: <i>Personal Taxes</i>	4.50%	9.47%	13.42%	14.21%	14.42%	14.00%
Disposable Income	3.63%	7.52%*	1.66%	1.96%	1.90%	2.18%
Less: <i>Consumption</i>	4.13%	3.73%	2.57%	2.81%	3.25%	3.00%
Personal Saving	-4.40%	74.14%	-14.41%	-12.87%	-20.87%	-13.09%
Personal Saving Rate	5.67%	5.61%	5.20%	5.14%	5.03%	4.97%

and the 12-month periods ending in April, May, June and July 2013. The 12-month periods simply take the difference between data for a month in 2012 and the same month in 2013. This method omits the anomalies in the year-end 2012 data. By showing four successive 12-month periods, one can get a sense of the underlying trend in various income categories. However, as a caution, the data will be revised many times in the future. So, what appears to be a trend now may be revised away later on.

Growth in personal income and disposable income has been weaker so far in 2013 than it was in 2011. However, the growth rate appears to be edging up slowly.

Slower growth in “Proprietors’ Income”, “Rental Income” and “Asset

Income” are contributing factors and more than offset the improvement in “Compensation” and “Government Transfers”. In addition, growth in personal taxes is sharply higher in 2013 reflecting increases in personal income tax rates for the wealthy and higher payroll taxes. This latter development depressed growth in disposable income to a sub-2% rate during the first half of 2013. This phenomenon will continue to depress disposable income growth through the rest of 2013, but will end in January 2014. During July disposable income growth edged above 2% as growth in personal taxes slowed slightly. This is an encouraging development, but it is too early to conclude that the worst of the fiscal squeeze on incomes has passed.

July personal income data for government employees were depressed by furloughs. This negative will diminish in August and largely disappear altogether in September. This could mean that “Compensation” growth will move up in coming months.

2. Consumption

Data in **Table 8** indicate that a decelerating trend in consumption growth commenced in 2012 and is continuing in 2013, although June and July data hint that an upturn may be at hand.

Except for the one-time boost in personal income at the end of 2012 consumption growth has exceeded income growth in recent years. This means that households are reducing their saving rate to sustain consumption. In the longer run this is not sustainable. Either consumption growth will have to slow or income growth will have to accelerate.

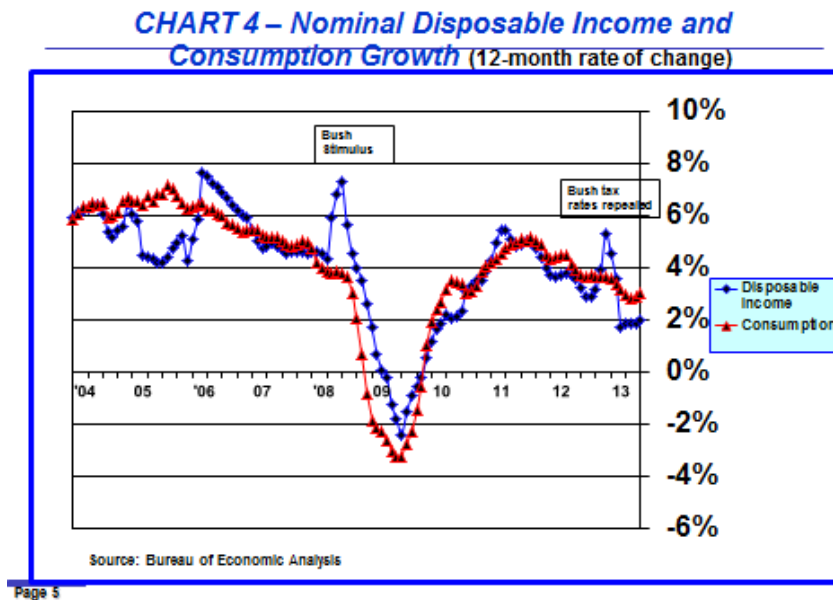
Prospects for acceleration in income growth in coming months will depend primarily upon employment growth and the types of new jobs and to a lesser extent on wage rate growth. While employment growth has been good, it has not been great. Moreover, a disproportionate amount of new jobs have been in the part-time and lower wage categories.

This implies that because consumption growth exceeds income growth, the risks remain tilted in the direction of slower consumption growth. Those risks can be offset either through stronger income growth or further declines in the saving rate. But, if consumers decide to increase their savings rate, spending growth would slow and set in motion adverse feedbacks that would

depress economic activity. At the moment that risk appears to be remote because employment is improving slowly, wage rate growth is stable and may be on the cusp of improving, and credit for consumer goods, especially autos, is readily available.

3. Disposable Income and Spending

Chart 4 shows the nominal rate of growth in disposable income and con-



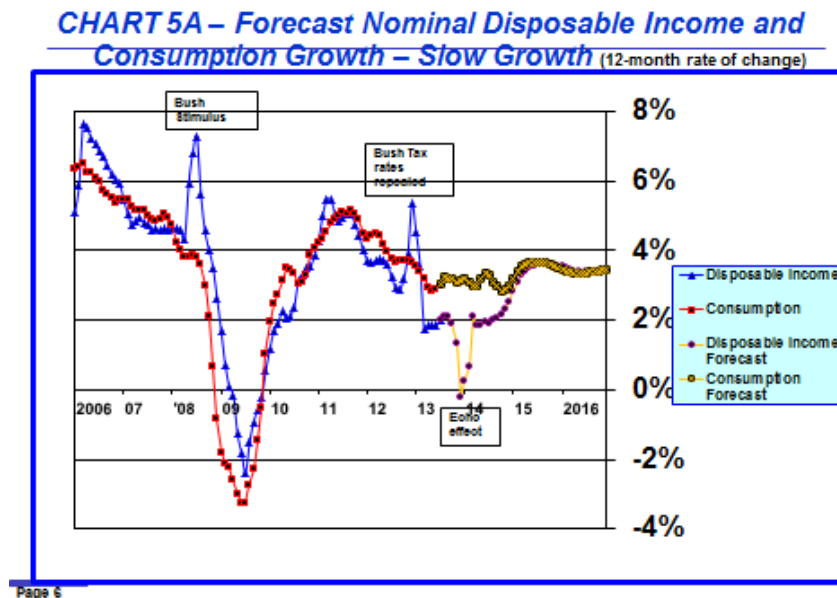
sumer spending from 2004 to the present. Growth rates are calculated as changes in quarterly averages year over year. This method smooths timing anomalies to a certain extent, although major events such as occurred at the end of 2012 will still impact the observed trend for the following 12 months.

The annual rate of growth in disposable income began slowing in early 2011 and declined from 5.5% in April 2011 to 2.9% in September 2012, but then surged to 5.4% in December, followed by a resumption of the decline to 2.0% in July.

Chart 4 shows that growth in consumer spending, after peaking at 5.2% in September 2011, slowed to about 3.7% in July 2012, remained at that level until December 2012 and has since declined further to 3.0% in July 2013.

4. Outlook for Nominal Disposable Income and Spending

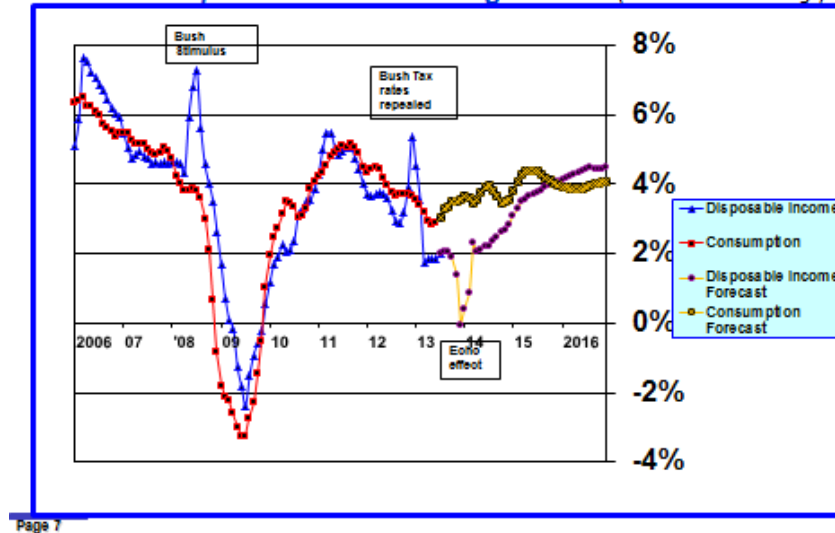
As can be seen in **Charts 5A** and **5B**, I expect nominal consumer dispos-



able income growth will slow in coming months. This trend is not in doubt because of the 12-month moving average calculation method. However, recovery in income growth in my econometric analysis does not occur until 2015, which is at odds with other forecasts. This outcome, which is derived from forecasts of falling spending growth and a declining saving rate, needs to be treated with skepticism.

There is less certainty about how higher taxes will affect consumer spending since consumers have the choice to try to maintain spending by dipping into savings or alternatively to maintain savings by cutting spending. The result is likely to lie somewhere in the middle, but the question is where. The

CHART 5B – Forecast Nominal Disposable Income and Consumption Growth – Strong Growth (12-month rate of change)



extent of any pullback in consumer spending will affect real GDP growth and the speed with which labor market conditions improve.

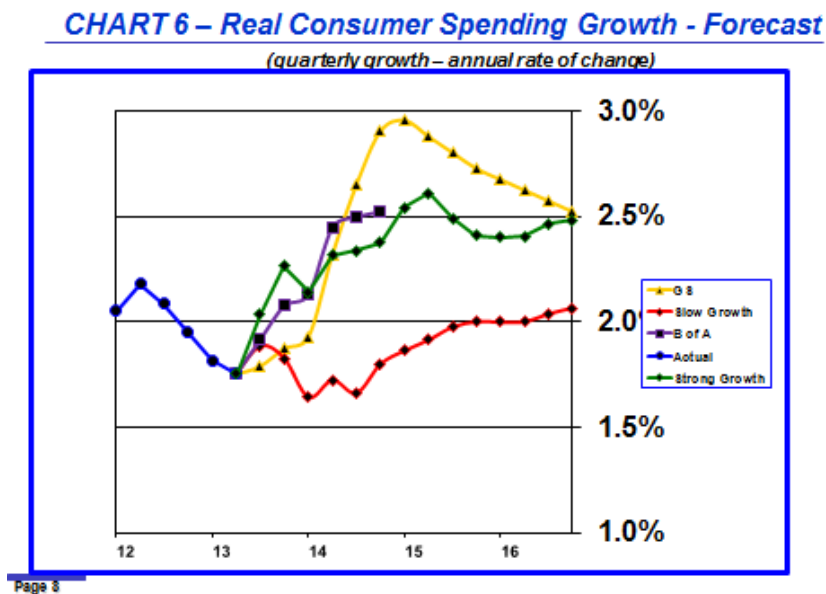
Chart 5A shows my “*Slow Growth*” scenario forecast for growth in nominal consumer disposable income and consumption through 2016. The story **Chart 5A** tells is not a strong one. It is a story that is consistent with low labor force growth, paltry productivity gains, low inflation and meager increases in wages and salaries.

Chart 5B shows my “*Strong Growth*” scenario forecast for growth in nominal consumer disposable income and consumption through 2016. Higher rates of growth in employment and productivity in the “*Strong Growth*” scenario lead to stronger growth in nominal disposable income and consumption on an escalating basis during 2014-2016. Importantly, most of the effect of the faster growth in employment on inflation in this scenario is offset by the benefits of increased productivity. This means that the improvement in real income and consumption growth is nearly the same in the “*Strong Growth*” scenario as the improvement in nominal income and consumption growth.

Notice that in **Chart 5B** nominal disposal income growth exceeds nominal consumption growth in 2016. This means that the saving rate, based upon the assumptions underpinning the “*Strong Growth*” scenario, will increase in 2016.

5. Real Consumer Spending Forecasts

Chart 6 shows forecasts for quarterly real consumer spending growth at an



annualized rate. B of A and GS expect consumer spending growth to rise to a 2% or greater annual rate during the remainder of 2013. Bill’s “*Slow Growth*” forecast indicates growth of 1.86% for the two remaining quarters in 2013.

My “*Slow Growth*” scenario forecasts much weaker real consumer spending growth in 2013 and 2014 than either GS or B of A. My “*Strong Growth*” forecast tracks B of A’s forecast through 2013 and converges with GS’s forecast by the end of 2016.

6. Consumer Confidence

Measures of consumer confidence generally have edged lower since mid-summer. However, the University of Michigan's consumer sentiment index fell sharply in September to 76.8 from 82.1 in August. Its recent peak was 85.1 in July. Both the current conditions and expectations sub-measures declined in August and September. Expectations are now at the lowest level since January when the year-end fiscal follies had unsettled consumers.

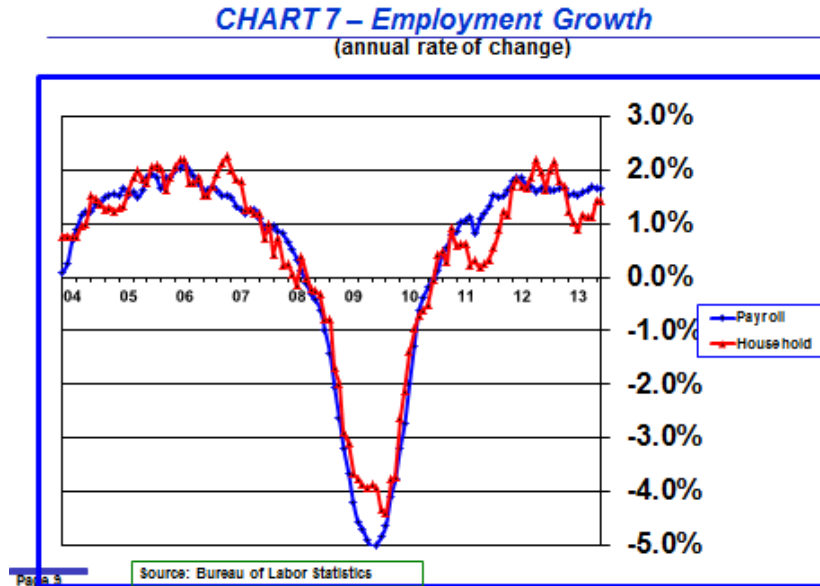
ISI's company surveys have been relatively stable over the last three months. Its diffusion index peaked at 52.3 in the week of June 7, edged down slightly to 51.3 in the week of August 2 and rose a tad to 51.9 in the week of September 13th.

Overall, consumer confidence measures are not particularly robust, which reflects the on-going lethargic improvement in employment and incomes. Confidence measures do not suggest acceleration in economic activity but more of the same — an economy muddling along but showing gradual improvement. September's Michigan sentiment index hints at a possible slowing in consumer spending, which could be realized if the impending congressional fiscal policy debate turns ugly. Or, put differently, the downside risks outweigh the upside risks.

VII. Employment

Employment growth continues to plod along at a rate that is slowly bringing down the unemployment rate and reducing the size of the employment gap. While headed in the right direction, the labor market remains extremely weak and the official unemployment rate creates the misimpression that the labor market is healing faster than it really is.

Chart 7 shows growth trends in employment for the payroll and household surveys. Over the long-run the employment growth rate in the two surveys is generally the same. Over shorter periods of time, growth rates in the two surveys often diverge. The household survey, from which the unemployment rate is calculated, is based on a monthly survey of 60,000 households and is never revised. The payroll survey is based on data from large employers and supplemented by extrapolation of recent trends for small



employers. Payroll data are periodically updated based on detailed employment information from state-level employment statistics.

Employment growth over time will approximate growth in the working age population with adjustments for demographic and life style trends. Currently, the working age population is growing at about 1.0% annually. Demographic and life style trends are depressing this figure to some extent to between 0.7% and 0.8%. The labor force — those in the working age population who are working or looking for work — is growing at an annual rate of about 0.5%. The implication of these three sets of growth rates is that some people are dropping out of the labor force for reasons other than long-term trends in demographic and life style considerations. These are “discouraged” people who have given up looking for work, but who most likely would re-enter the labor force if jobs were easier to find. I discuss the discouraged worker phenomenon in greater detail below.

Chart 7 indicates that payroll employment is growing at an annual rate of approximately 1.6% and household employment is growing at an annual rate of about 1.4%. Both growth rates are above the trend level of 0.7% to 0.8% which means that the health of the labor market is improving.

Yet, the labor market is still extremely weak. There are 1.9 million fewer people employed than in January 2008 according to August's payroll data and 2.2 million fewer according to the household survey. The unemployment rate is 7.3% versus a pre-Great Recession low of 4.4%. But, if approximately 2.0 to 2.3 million discouraged workers are counted, the current unemployment rate would be in the vicinity of 8.6%. According to CBO, full employment will be reached when the unemployment rate falls to 5.5%, which would require 2.8 to 4.8 million additional workers to be employed currently, depending upon how many discouraged workers actually exist.

Policy stimulus is warranted as long as substantial underemployment persists. However, fiscal policy has been contractionary for the past two years and its impact is even more negative in the current year because of higher tax rates and mandatory cuts in federal spending.

While monetary policy has been accommodative, the short-run policy issue for the FOMC as the labor market slowly recovers is normalization of monetary policy. If the normalization process is delayed for too long there is risk that inflationary pressures will emerge; but if normalization occurs prematurely there is an opposite risk of slowing economic recovery. This is the FOMC's challenge: how to adjust policy — not too much tightening too soon versus not too little too late. The FOMC rightly has focused on the health of the labor market as its guide. But its selection of the deeply flawed household survey-based unemployment rate as a guidepost is problematic. While FOMC members understand the shortcomings of this measure and emphasize that many other labor market measures enter into policy setting, this introduces considerable complexity into attempting to understand the timing and extent of policy normalization. Market participants have difficulty dealing with the opaqueness of complexity and appear to be more comfortable with simple decision rules. This means that the flawed measure of the unemployment rate and perceptions about how the FOMC might adjust monetary policy in response to improvements in this measure have had greater impact on interest rates and financial conditions than the FOMC desired.

As discussed earlier in this letter, while easy monetary policy in the short run may promote faster employment growth, there may be reason for concern that an easy monetary policy, which depresses the market rate of interest below the natural rate of interest for an extended period of time,

could reduce the economy's potential long-term growth rate and result in smaller real wage gains and extend the time to reach full employment.

In summary and putting aside longer run concerns about the economy's potential growth rate, the good news is that the labor market is healing gradually. It appears to be weathering reasonably well intensely negative fiscal policy. The bad news is that the labor market remains unusually weak and has a long ways to go to return to robust health.

Let's explore details of recent developments.

1. August Payroll Report

Employers added 169,000 jobs in August, slightly below expectations of 180,000. However, revisions to June and July jobs subtracted 74,000 jobs, resulting in a net increase of only 95,000. This brought the recent three-month average monthly increase down to 148,000 compared to a 12-month average monthly growth of 182,000.

There continued to be limited evidence in the report to indicate that mandatory cuts in the federal budget are having a significant impact on employment levels.

2. August Household Jobs Report

After increasing 1.0 million between March and August, household employment declined 114,000 in August. Over the first eight months of 2013 household employment growth has increased 108,000 monthly compared to 201,000 in 2012.

Average weekly hours worked rebounded to 34.5 in August after dipping to 34.4 in July. The 12-month average of hours worked is 34.47, which indicates that the length of the workweek is quite stable. When the length of the workweek is stable it generally indicates an absence of pressure to retain workers as output slackens (declining length of the workweek — weak labor market) and an absence of pressure to resort to overtime work (lengthening workweek — tight labor market).

3. Discouraged Workers or Structural Unemployment?

Household employment remains 2.21 million below the pre-Great Recession peak. The question of whether people are too discouraged to look for work in today's difficult labor market or whether they have chosen to leave the labor force permanently is of paramount importance to the conduct of monetary policy.

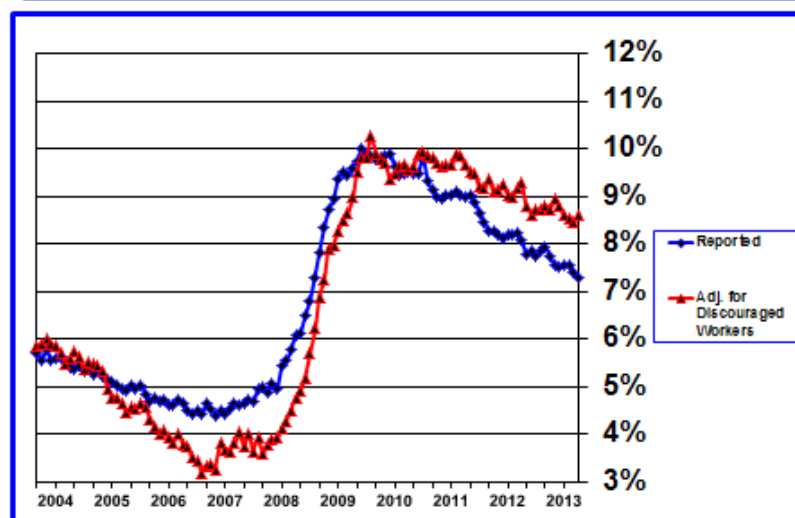
Unemployment fell to 7.3% of the labor force in August — the number of unemployed workers declined by 198,000, while 312,000 left the labor force — those eligible and willing to work. The participation rate (those willing to work — includes both employed and unemployed workers — relative to those eligible to work) declined from 63.40% to 63.22%. The employment-to-population ratio, which measures the number of people who have jobs relative to the number eligible to work, fell from 58.71% to 58.62%.

In recent months the unemployment rate declined more than expected, partially because employment growth was a little stronger but also because more workers dropped out of the labor market than was expected. But in August the drop in the unemployment rate was not good news as both employment and unemployment fell. The drop in the unemployment rate in August was due entirely to discouraged workers leaving the workforce. As shown in **Chart 8**, my alternative unemployment measure, which adjusts for discouraged workers, rose from 8.45% to 8.60% in August at the same time that the official unemployment rate fell from 7.39% to 7.28%.

What is important from a policy standpoint is whether workers who are dropping out of looking for jobs will reenter the job market when jobs become more plentiful or whether their exit is permanent because there are no jobs that fit their skills and there won't be any in the future.

This issue is important because it bears on implementation of monetary policy. If discouraged workers re-enter the labor market as unemployment falls this will retard the speed with which the unemployment rate falls. Put differently, it would take longer for the unemployment rate to fall to the policy guideline of 6.5%. To date the preponderance of the analysis supports the expectation that many discouraged workers will re-enter the labor force as labor market conditions improve.

CHART 8 – Reported Unemployment Rate & Adjusted for Discouraged Workers



Page 10

4. Labor Market Slack — Goldman Sachs Estimate

In a recent study GS concluded that current labor market slack equals about 4% the labor force plus marginally attached workers, or approximately 6.3 million (July data).¹⁰

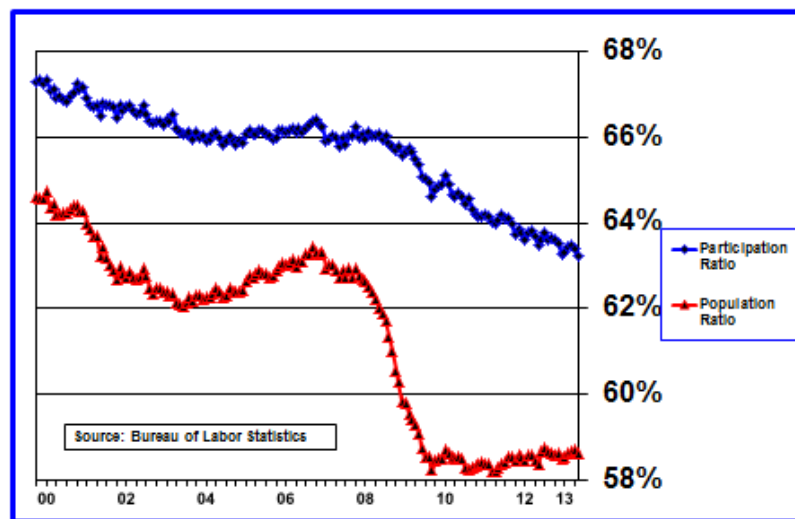
GS arrived at the 4% estimate employing two different analytical approaches. The first approach combined the conventionally-measured employment gap (difference between the reported 7.27% unemployment rate and CBO's full-employment 5.5% rate) and its estimate of the participation gap. The second approach combined data provided in the BLS employment report for the (1) employment gap plus (2) the involuntary part-time (those working part-time for economic reasons) gap plus (3) the marginally attached (those not employed or looking for work, but willing to work) gap. The values of the second and third gaps were determined by comparing recent data to historical averages.

¹⁰David Mericle. Goldman Sachs US Daily: "Looking Beyond the Unemployment Rate," September 9, 2013.

5. Labor Force Participation and Employment-to-Population Ratios

While the focus of debate has been on discouraged workers and the labor force participation ratio, another important measure of the health of the labor market is the employment-to-population ratio which measures the percentage of people eligible to work who have a job. Trends in both the **labor-force-participation ratio** and the **employment-to-population ratio** are shown in **Chart 9**. The denominator of both ratios is the same —

CHART 9 – Labor Force Participation and Employment-to-Population Ratios



Page 11

total number of people eligible to work. The difference in the numerators of the two ratios is the number of unemployed workers — those who say they are looking for work.

When the Great Recession hit, the employment-to-population ratio plummeted from 62.9% in December 2007 to 58.2% in December 2009. What is troubling is that this ratio has not recovered to any significant extent. It was 58.6% in August 2013. What this means is that almost all the new jobs created since December 2009 have only been sufficient to accommodate new entrants into the labor force. Or putting this differently, few jobs lost during

and just following the Great Recession have been recovered.

6. Labor Market Slack — Bill’s Estimate

If the employment-to-population ratio were the same today as it was in early 2000, about 64.5%, there would be 14.5 million more Americans employed today, which would be approximately 10% more than the actual number employed currently. GDP, personal income, consumer spending and tax receipts would all be higher by roughly 10%, the unemployment rate would be about 3.75%, and the federal deficit would be much lower.

Putting 14.5 million to work is not particularly realistic because of demographic changes in the workforce such as aging and later entry of younger people into the labor force. These changes account for about 3.2 million which lowers the number from 14.5 million to 11.3 million, which is still a very large number.

Further, while getting back to a 3.75% unemployment rate would be outstanding, CBO’s estimate of the long-run non-accelerating inflation rate of unemployment (NAIRU) is 5.5%. The difference between the 3.75% early-2000 rate of unemployment and 5.5% would subtract an additional 4.6 million, leaving 6.7 million as the “optimal” number of additional workers. That 6.7 million is composed of 4.4 million who are currently looking for work (difference between 7.3% and 5.5% rate of unemployment) and 2.0 to 2.3 million discouraged workers.

Note that the small difference between my estimate of labor market slack of 6.7 million and GS’s estimate of 6.3 million is the result only our alternative methodologies for estimating the decline in the participation rate due to discouraged workers dropping out of the labor force. Thus, I believe my alternative unemployment rate of 8.6%, shown in **Chart 8**, is a reasonable estimate of the “true” unemployment rate pursuant to “normal” labor market conditions.

7. Implications of Substantial Labor Market Slack

What does all of this mean? First and foremost, the collapse in the employment-to-population ratio means that the U.S. economy is a lot smaller

than it could be based on historical relationships. That means there is less income per capita and less wealth. Americans are not as well off as they could be if a greater proportion of them were employed.

Second, the U.S. has no unemployment objectives other than “full employment”. We are not even sure how to measure what “full employment” is. We do not know how to determine whether someone is discouraged. We do not have any objective for what the employment-to-population ratio ought to be. Therefore, we have few specific policies aimed at creating jobs.

The question is: should policy be focused on finding jobs for GS’s 6.3 million or my range from 6.4/6.7 million to 14.5 million or some other number?

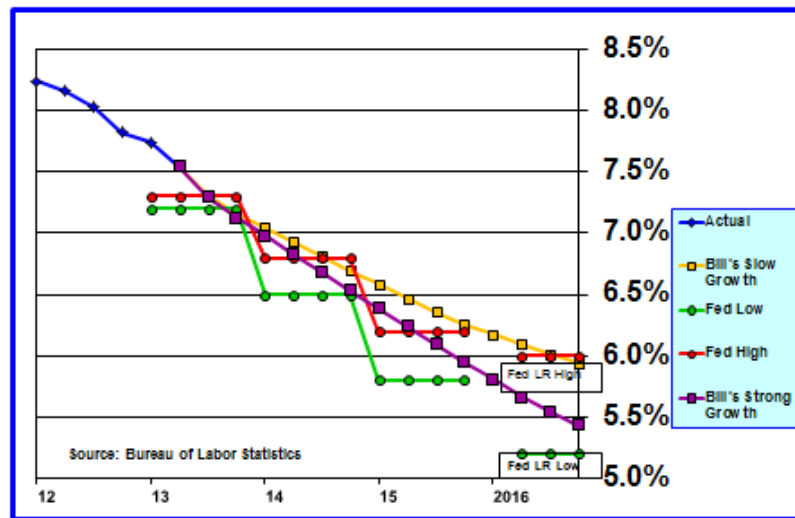
8. Unemployment Rate

Because the FOMC has linked monetary policy explicitly to the BLS’s U-3 unemployment rate, it is important to track this data point and various forecasts of when the unemployment rate is expected to reach 6.5%, which is the FOMC’s stated threshold for considering whether to raise the federal funds rate. And, as was discussed in the previous sections, the discouraged worker phenomenon and its impact on the participation rate is critically important in ascertaining just how meaningful the 6.5% unemployment rate guideline, as conventionally measured, is. The evidence, such as it is, suggests that the labor market will probably still be quite weak even when the U-3 6.5% rate is penetrated.

According to BLS, the number of unemployed workers is down 890,000 since 2013 began. The unemployment rate fell to 7.28% in August. Over the last year since August 2012 unemployment has decreased 1.2 million and the unemployment rate has decreased from 8.07% to 7.28%.

Chart 10 shows the FOMC’s high (red line and circles) and low (green line and circles) unemployment rate projections for 2013, 2014 and 2015. The FOMC’s projections imply that the first increase in the federal funds rate will occur in late 2014. That presumes, of course, that as soon as a 6.5% unemployment rate is reached the FOMC would start raising the federal funds rate. That, however, is far from certain, particularly since the labor market is considerably less strong than the current 7.3% unemployment rate

CHART 10 – Unemployment Rate
(quarterly average)



Page 12

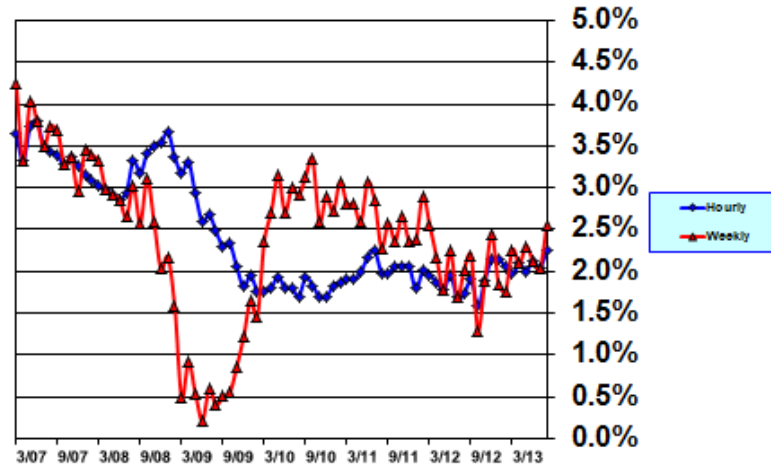
implies.

I have included in **Chart 10** unemployment rate forecasts for both my “*Slow Growth*” (yellow line and squares) and “*Strong Growth*” (purple line and squares) scenarios. The “*Slow Growth*” unemployment rate projection is slightly above the upper end of the FOMC’s range and the “*Strong Growth*” unemployment rate tracks slightly above the lower end of the FOMC’s range. The unemployment rate forecast in the “*Strong Growth*” scenario reaches the 6.5% threshold in early-2015. However, the unemployment rate in the “*Slow Growth*” scenario does not reach 6.5% until mid-2015.

9. Growth in Wages

Growth in hourly wages is an important measure of labor market strength. An increasing rate of growth would be evidence of a strengthening labor market in which labor, particularly in scarcer job categories, is gaining more bargaining power. As can be seen in **Chart 11**, the rate of growth in hourly

CHART 11 – Hourly and Weekly Wages
(annual rate of change)

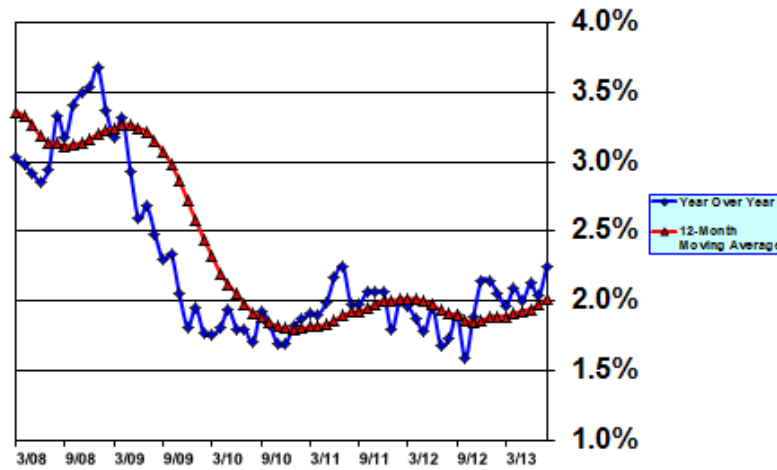


Page 13

wages has fluctuated in a narrow band in the vicinity of 2.0% for the last three and a half years. This is good news because the large output gap and high unemployment rate, which have persisted for several years, have not put further downward pressure on wage rate growth. Hourly wage growth has deviated little from 2.0% over the last four years.

However, **Chart 11** shows a slight improvement in the 12-month moving average rate of growth from 1.85% in November 2012 to 2.02% in August 2013, but the growth rate was also 2.02% in April 2012. The 12-month rate of change in weekly wages rose to 2.55% in August. The comparable measure for hourly wages was 2.25% in August (**Chart 11**). While August's increase may indicate that wage growth is finally beginning to accelerate, **Chart 12** shows a similar acceleration in early 2011, which did not gain traction. We can hope that the recent acceleration will be sustained.

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



Source: Bureau of Labor Statistics
Page 14

10. Good News From Small Businesses

Small businesses, and specifically newly started small businesses, historically have been the main drivers of job growth. The National Federation of Independent Businesses (NFIB) reported a 7 point jump in small business hiring plans to 16% in August, approximately equal to the historical average during good economic times. Hiring plans have not been close to this level since the onset of the Great Recession.

However, this is only part of what needs to happen to spur faster employment growth. The other necessary ingredient is a substantial increase in new business formation, which has been severely depressed in recent years. Although established small businesses have not cited access to credit as a significant problem, it seems probable that tight credit availability has constrained new business formation. In a recent study, GS concluded that as credit standards continue to ease small business employment growth will pick up in coming quarters but will still underperform historical norms.¹¹

¹¹Kris Dawsey. "Small Business, New Business, and the Recovery," Goldman Sachs Economics Analyst Issue No: 13/35, August 30, 2013.

New businesses not only have been the primary source of employment growth historically, they have also been engines of productivity growth. Thus, a substantial increase in small business formation would have favorable effects on employment, income and productivity. While this may occur naturally as the economy continues to heal, there remains the question of whether structural changes in the economy and potential adverse consequences of macro fiscal and monetary policies will dampen new business formation.

VIII. Monetary Policy, Inflation and Interest Rates

By the time this month's letter is published, the FOMC will have held its September meeting and we will know whether it initiated tapering of quantitative easing, as a vast majority of market participants expect.

As time passes and based on studies, it increasingly appears that large scale asset purchases have had little direct sustained favorable impact on interest rates or economic activity. All it took was the suggestion that the time had come to consider tapering large scale asset purchases and the market reacted by pushing long-term interest rates up over 100 basis points.

A recent study by San Francisco Federal Reserve Bank economists Vasco Curdia and Andrea Ferrero concluded that *“Asset purchase programs like QE2 appear to have, at best, moderate effects on economic growth and inflation. . . . Moreover, the magnitude of LSAP [large-scale asset purchases] effects depends greatly on expectations for interest rate policy, but those effects are weaker and more uncertain than conventional interest rate policy. This suggests that communications about the beginning of federal funds rate increases will have stronger effects than guidance about the end of asset purchases.”*¹²

Based on a recent study authored by Arvind Krishnamurthy and Annette Vissing-Jorgensen, GS examined the effects of forward guidance, Treasury purchases and mortgage backed securities (MBS) purchases on mortgage

¹²Vasco Curdia and Andrea Ferrero. “How Stimulatory Are Large-Scale Asset Purchases?” Federal Reserve Bank of San Francisco Economic Letter 2013-22, August 12, 2013.

rates and financial conditions.¹³ GS reached three conclusions: (1) forward guidance has larger and more persistent impacts on financial conditions and mortgage rates than purchases of Treasury securities; (2) purchases of current coupon MBS have greater effects on the mortgage rate than reductions in the term premium on Treasury securities; and (3) high coupon MBS purchases have limited impact on mortgage rates and financial conditions.

Thus, research appears to have established the greater effectiveness of guidance language relative to direct purchases of securities in favorably influencing financial conditions and boosting economic activity.

1. Consensus Expectations for FOMC September Meeting

Most expect the FOMC to initiate tapering at the September meeting but to limit decreases in monthly purchases from the current \$85 billion to about \$70 to \$75 billion. A few, including notably B of A, do not expect tapering to begin in September.

When tapering commences it is likely to focus initially on reduced purchases of Treasury securities. Mortgage rates are about 120 basis points above springtime lows and threaten the emerging housing market recovery. Reduced Fed purchases of mortgages could have the undesirable effect of pushing mortgage rates up further.

There is less agreement about whether the FOMC will signal a schedule for phasing out large scale asset purchases. A schedule would provide clarity and reduce uncertainty, but would result in a loss of policy flexibility for a data-dependent FOMC.

Recent research indicates that guidance language is more effective than asset purchases in influencing interest rate expectations and, thus, is more effective in driving easier financial conditions, which are an essential outcome if monetary policy is to be effective when short-term interest rates are at the zero bound.

Many expect the FOMC will provide stronger guidance language. That might involve returning to date-specific language for raising the federal funds

¹³Sven Jari Stehn and Marty Young. Goldman Sachs US Daily: "Treasury vs. MBS Purchases: A View from Jackson Hole," August 27, 2013.

rate, although this seems unlikely. Or, it might involve defining more precisely labor market and perhaps other metrics that must be met before the FOMC will consider raising the federal funds rate. It is possible that the 6.5% unemployment rate guidance could be dropped to 6.0%. Or, greater emphasis could be placed on a broader array of labor market indicators.

Alternatively, the FOMC might provide qualitative guidance concerning rate policy after the 6.5% rate has been reached. To date Chairman Bernanke has emphasized that reaching 6.5% does not mean the federal funds rate will be raised immediately. Rather, it is a threshold when consideration of raising the federal funds rate would become an active part of policy deliberations. Another possibility would be to link the unemployment rate and inflation rate. Guidance language could state that if the unemployment rate falls below 6.5%, but the inflation rate is still well below the 2.0% threshold, the FOMC would not raise the federal funds rate.

As much as some FOMC members might like to provide greater clarity, which could limit a potential further tightening of financial conditions, the lack of agreement among members and the difficulty of coming up with simple but reliable metrics argue against improved transparency. Unfortunately, as recent events have shown, lack of transparency has led to market uncertainty, higher long-term interest rates and tighter financial conditions which collectively have blunted the intended effect of monetary policy.

2. Updating FOMC Economic Projections

FOMC members will have another challenge at the September meeting. Some of the economic projections made in June are inconsistent with economic trends that have evolved since then. Near-term GDP projections are too optimistic, inflation projections for 2013 will be increased slightly and the unemployment rate will be reduced to reflect the recent decline in that measure.

It seems likely that the 2013 projections will be marked to market, but that could send mixed messages if the FOMC decides to begin tapering. It will be interesting to see how the FOMC resolves these challenges or whether the lack of clarity that accompanied the June FOMC meeting and confused the markets repeats again in September.

3. Global Impacts of U.S. Monetary Policy and Market Response

We tend to think that U.S. economic activity and financial markets are driven exclusively by what happens within our own borders. In an increasingly interconnected world that is a gross oversimplification. What happens in the U.S. affects what happens in other countries and what happens there, in turn, feeds back into the U.S. economy and financial markets. The sharp increase in long-term interest rates since May has been a global phenomenon. Financial conditions tightened not just in the United State but around the globe as well.

From a financial markets perspective, the long period of low nominal interest rates and negative real interest rates in the U.S. spawned “carry trades” in foreign currencies, particularly those of emerging economies. But, as interest rates have spiked in the U.S. real yields have risen considerably and diminished the financial attractiveness of carry trades.

This has occurred at the same time as it is increasingly apparent that the Chinese economic model really is in transition to more of a consumer focus and less of an investment focus. Emerging economies have benefited enormously over the last several years from insatiable Chinese demand for commodities. That demand has now subsided as indicated by falling prices for commodities. Thus, growth prospects have changed for those economies heavily dependent on China.

One of the consequences of normalization of interest rates is that financial capital is being withdrawn from selected emerging economies with significant structural imbalances. Indonesia and India have already been severely impacted because both countries run large trade deficits and are highly dependent upon favorable capital flows which are now drying up. Consequences for these two countries will involve slower economic growth and higher inflation. India’s central bank has been forced to defend its currency by raising short-term interest rates. As a result the yield curve has inverted. At the very least it appears that growth will slow substantially in India just as it did in Brazil earlier this year.

Emerging economies with large trade surpluses are not dependent upon capital inflows because most have built up large currency reserves. However, many of these economies are tied to the strength of China’s economy

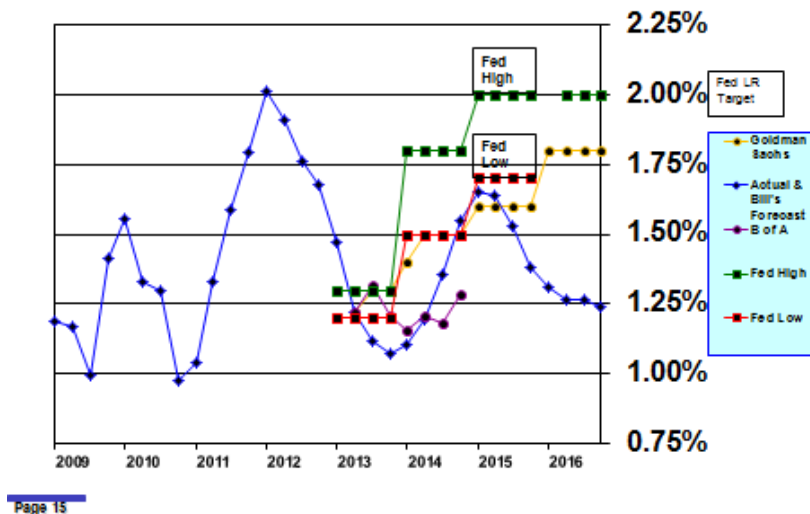
and those of developed countries. China's economy is slowing. In spite of optimism about the end of recession in Europe, this remains a glimmer in the eyes of the beholder. In the U.S. the expected acceleration in economic activity may fall short of expectations. However, recent data indicate a slight improvement in the collective growth rate for emerging economies. So, maybe there is no need for concern.

Remember from the experience of the mid-2000s that risks can be hidden from view and appear to be minimal. But the accumulating underlying economic and financial market imbalances slowly and inexorably build until the dam bursts. This is not to assert that we are approaching such a moment once again. But, it is to suggest that vigilance is warranted.

4. Prospects for PCE Inflation

Core PCE inflation was 1.20% in July. Total PCE inflation was 1.39% in July (see **Chart 13**). The total PCE measure of inflation is much more

CHART 13 – Core PCE Inflation Forecasts
(percentage change over previous 12 months)



volatile and has been negative for short periods of time in the past. For that reason the FOMC prefers to focus on the core PCE inflation measure.

PCE inflation is well below the FOMC's target level of 2% and is not much above the lows experienced briefly in mid-2009 and late-2010 when the FOMC was concerned about the threat of deflation. However, until the July meeting FOMC members, with the exception of James Bullard, had not expressed concern about the below target level of inflation. Instead, previous FOMC policy statements expressed the view that the low level of inflation was temporary. At the July 31 meeting the FOMC amended its policy statement as follows: *"The Committee recognizes that inflation persistently below its 2 percent objective could pose risks to economic performance, but longer-term inflation will move back toward its objective over the medium term."* Thus, the FOMC remains relatively unconcerned about the current low level of inflation. Nearly all forecasters expect inflation to edge back up but many don't expect that to occur as quickly as implied by FOMC member projections of inflation rates.

As can be seen in **Table 9** (**Chart 13** shows historical core PCE price

Table 9
Core PCE Inflation Forecasts — B of A, GS, Bill's "Slow Growth", Bill's "Strong Growth" and FOMC High and Low and Total CPI Inflation Forecasts — Global Insight and Economy.com

Core CPE	2013	2014	2015	2016
B of A	1.2	1.3		
GS	1.4	1.5	1.6	1.8
Bill's Slow Growth	1.1	1.6	1.4	1.2
Bill's Strong Growth	1.1	1.6	1.4	1.4
FOMC - High	1.3	1.8	2.0	
FOMC - Low	1.2	1.5	1.7	
Total CPI	2013	2014	2015	2016
Global Insight	1.4	1.4	1.7	1.9
Economy.com	1.5	1.9		

index data and data from **Table 9** in graphical form), all forecasts of the core PCE inflation index indicate that inflation should rebound from its July

level of 1.2% to 1.3% to 1.6% in 2014, which is generally consistent with the lower bound of the FOMC's central tendency range for 2014. However, GS's forecast of core PCE inflation moves up only a little in 2015 and 2016 and my forecasts move down. The slight decline in core inflation in my forecasts occurs because of the large and persistent gap between actual and potential real GDP.

None of these forecasts moves into deflation territory but they are not consistent with the FOMC's longer-term projections or claims that current low inflation is a transitory phenomenon.

All measures of inflation have been trending down for several months. This is a global phenomenon. Initially, declining inflation stemmed from substantial excess global supply capacity which was reinforced by slack aggregate demand following the financial crisis of 2007-09. More recently, three deflationary forces have been reinforcing the downward trend — lower commodity prices, the European recession, and Japan's aggressive yen devaluation and reflation policies, which is transferring Japan's deflation to the rest of the world.

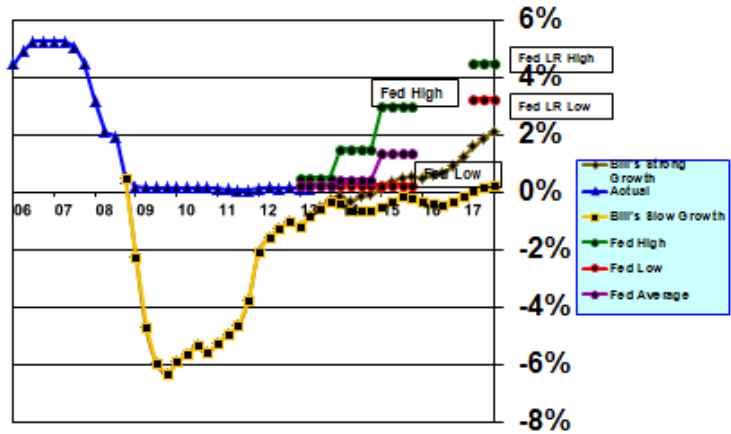
5. Federal Funds Rate

Chart 14 shows the FOMC's central tendency range for high and low projections for the federal funds rate for 2013, 2014 and 2015. The purple line (circles) is the average of projections for the 19 FOMC members (7 governors and 12 presidents). The projections imply that the first increase in the federal funds rate will take place either very late in 2014 or in early 2015.

B of A expects the first federal funds rate increase to occur in the summer of 2015 and GS puts the timing in early 2016.

Bill's "**Slow Growth**" and "**Strong Growth**" forecasts are shown by the yellow line (squares) and brown line (diamonds). My "**Slow Growth**" forecast indicates that the federal funds rate is not likely to increase until early 2017, which is inconsistent with FOMC guidance and my forecast that the unemployment rate should fall below 6.5% in early 2015. In my "**Strong Growth**" forecast, the first increase in the federal funds rate occurs in early 2015 but rises more slowly than FOMC projections.

CHART 14 – Federal Funds Rate Forecast



Page 16

IX. Fiscal Policy

As we entered 2013 there were three significant fiscal policy issues in play — implementation of automatic spending cuts, referred to as “sequestration”, increasing the federal debt ceiling and passing a budget or, alternatively, a continuing resolution to fund the government. The expected contentious political fights in Congress between Republicans and Democrats did not materialize. What happened instead was that Congress took no action on sequestration so it became effective on schedule. The debt ceiling was suspended until May 18. And, a continuing resolution was passed to fund the government through the end of the fiscal year on September 30.

As always seems to happen, when deadlines are moved nothing happens until the new deadlines are at hand. Thus, all three matters remain unresolved and the clock is ticking. The key date for sequestration and the budget, which are now linked, is the beginning of the government’s new fiscal year on October 1, 2013. The deadline for raising the debt ceiling is October 15, 2013. So, for all intents and purposes, all three fiscal matters have the same deadline. That is because, Congress can easily pass a con-

tinuing resolution that will fund the government through October 15, 2013, but it can't quite as easily do a temporary extension of the debt ceiling.

As of this writing, Congress has made no substantive progress on any of these fiscal issues. Stalemate prevails. And, there is significant risk that September 30 could pass without any kind of resolution in which case part of the government would have to shut down. My sense is that neither Republicans nor Democrats have any desire to actually let that happen based on past experience. Politically speaking, shutting down the government, alienating the American public and scaring financial markets is a losing proposition for both parties. Thus, either a last minute deal or a "kick the can down the road" continuing resolution seems to be the likely outcome.

For a while it looked like the Syrian crisis would greatly complicate matters, but with the emergence of a diplomatic resolution, courtesy of President Putin, Congress will now be able to devote its undivided attention to fiscal issues.

There is a little wrinkle in timing, however. The House is scheduled to recess the week of September 23. This recess, of course, could be canceled.

1. Current Law and Republican and Democratic Positions

Ordinarily each fiscal year constitutes a fresh start for the budget. However, the Budget Control Act of 2011, which established mandatory spending cuts for fiscal 2013, also established additional spending cuts of \$21 billion for fiscal 2014, but \$90 billion lower than the intended spending caps for 2014 established in the January fiscal legislation that dealt with personal income tax rates. The additional cuts are divided equally between discretionary domestic and defense spending.

Most House Republicans want to maintain the additional 2014 spending cuts but want the cuts to apply entirely to discretionary domestic spending. Senate Democrats want to get rid of the additional \$91 billion in spending cut requirements altogether. In addition, many House Republicans are insisting they will only vote on budget legislation if it is accompanied by defunding of Obamacare. This possibility should not be dismissed as an idle threat as this is a "line in the sand" for many Tea Party Republicans.

Congress needs to pass 12 appropriation bills. To date the Senate has passed none and the House has passed 4. The Republican House majority has been unable to pass several appropriations bills because of opposition from a few Republican House members.

Divisions among Republicans became visible during the summer when the Republican House leadership withdrew the Transportation-Housing and Urban Development (THUD) appropriations bill from floor consideration. The problem arose because Republicans wanted to restore defense spending to pre-sequestration levels but maintain overall spending caps. This would require deeper spending cuts in discretionary programs than required by sequestration. But, some Republicans balked at cutting an additional \$4.4 billion in the THUD appropriations bill. So, the Republican House leadership withdrew the bill because it didn't have the votes to pass it.

Over in the Senate an alternative version of the THUD appropriations bill, which would raise spending above the sequestration-mandated level, was blocked by a Republican filibuster.

Ideally, sequestration should be replaced with more thoughtful spending reductions, tax reform, and entitlement reform. This has been an obvious solution for a long time but deep philosophical differences between the parties have prevented serious consideration. This remains an option now, but time is short and the political divide is as great as ever.

2. 2014 Fiscal Budget

As mentioned above, pertinent congressional committees have been working on specific appropriations bills over the past few months. Passage of such bills is an essential component of adopting a budget. However, it is possible for Congress to act in a piecemeal fashion by passing individual appropriations bills without adopting a comprehensive budget. Such an approach, however, will require a continuing resolution to be passed for those budgetary areas for which no appropriations bill is passed. To date no appropriations bills have been passed by both the House and the Senate. While there is still time for that to happen, it is more likely that Congress will opt for some type of continuing resolution.

So, not only are Democrats and Republicans far apart on an approach to

crafting a 2014 fiscal budget and accompanying appropriations bills, neither the Senate nor the House appear to be able to pass anything at the moment.

As Congress adjourned for its summer recess stalemate was the order of the day and deep pessimism prevailed about the ability of Congress to bridge the chasm by the end of September. Congress is now back in session and will the issue of military action in Syria postponed, budget issues will dominate the headlines for the next month.

3. Debt Ceiling

On May 18, 2013, the debt ceiling, which had been temporarily suspended, went back into effect at \$16.699 trillion. As of August 31, 2013, the reported deficit was \$16.738 trillion. Treasury cannot extend net additional debt until Congress raises the debt ceiling. As in the past, the Treasury has postponed the day of reckoning through a variety of short-term adjustments. But Treasury Secretary Jack Lew officially informed Congress on August 26 that the date final date is October 15, 2013. At that date the Treasury should still have an operating cash balance of approximately \$50 billion which might enable it to muddle through for a few more days, but many payments due to be made on November 1 will not be possible without an increase in the debt ceiling.

4. Potential Consequences of Rapid Fiscal Consolidation

We seem to be experiencing a Goldilocks situation in which the federal deficit is falling much more rapidly than expected but there have been no acutely severe consequences for economic activity that are directly traceable to the sequester or tax increases. The economy did not fall off the cliff. But, data revisions confirm that fiscal austerity is retarding economic growth.

Government furloughs in July reduced personal income at an annualized rate by \$7.7 billion. Fewer furloughs were scheduled in August and none are scheduled in September. However, if sequestration continues into fiscal year 2014, furloughs will be necessary. Over a longer period of time, employment cuts should gradually replace furloughs. Such cuts would happened more quickly if sequestration is scrapped and replaced with specific spending limits

in appropriations bills. Federal employment cuts are likely to aggregate to at least 100,000 over the next few quarters, but because this is less than 0.1% of total employment the impact on the economic will not be very noticeable.

Nonetheless, reduced government spending will have negative consequences for economic activity. When household incomes are reduced, as is occurring for those who are caught in the cross hairs of sequestration through job furloughing, it takes time for the financial consequences to cumulate. Initially, households dip into savings, which is what the aggregate data confirm is happening. But as time passes and savings are depleted the consequences grow. So, we are not yet out of the woods and optimism about acceleration in consumer spending later this year and in 2014 may prove to be overly optimistic.

But the greater possible consequence in the near term is the potential for a sharp decline in consumer and business confidence that could be engendered by fractious congressional debate and acute brinksmanship. Worse, though tolerable, would be a temporary government shutdown. But, the killer would be failure to raise the debt limit and partial default on payments. Congress is well aware of the risks and knows from experience the negative consequences of brinksmanship. Nonetheless, the ideological divide is great and passions are intense. So the unthinkable outcomes, while obviously not likely, should not be dismissed out of hand.

APPENDIX: Outlook — 2013 and Beyond — Summary and Highlights of Key Issues

Observations about the 2013 U.S. and global economic outlook and risks to the outlook were contained in the *December Longbrake Letter* and are included below without any changes. As events unfold during 2013, this will enable the reader to track my analytical prowess. Current assessments follow each item with the following identifiers: “+” tracking forecast; “-” not tracking forecast; “?” too soon to know.

1. U.S.

- *Q4 real GDP* growth projections range from 0.5% to 1.8%; tracking estimates based on October and November data are consistent with growth of approximately 1.0%.

✓ - *“Final Estimate” was +0.14%; weaker than expected*

due to data anomalies.

- **2013 real GDP** growth projections range from 1.5% to 3.0% but with a preponderance of the forecasts falling in the lower end of the range. The drag from tighter fiscal policy will offset gradual improvement in the household and business sectors. Growth should improve gradually over the course of the year. The balance of risks, particularly U.S. fiscal policy but also global growth, is weighted toward slower GDP growth.
 - ✓ + *First quarter GDP growth was a much weaker than expected 1.14%; the advance estimate of second quarter growth was 2.52%; forecasts for all of 2013 are clustered between Y/Y 1.5% and 1.8%; the Federal Reserve continues to be more optimistic with an expected Q4/Q4 range of 2.3% to 2.6%.*
- **Real GDP output gap** will remain very high and close little, if at all, during 2013.
 - ✓ + *The output gap was 5.80% in the first quarter a little higher than the level in the first quarter of 2012. (Because of substantial GDP data revisions, CBO will revise need to revise its estimates of the output gap; this has not occurred yet).*
- **Employment** should grow about 125,000 per month, somewhat more slowly than in 2012.
 - ✓ - *Data revisions indicate that employment grew 183,000 monthly in 2012; employment growth will be much stronger than 125,000 monthly in 2013; over the first eight months of 2013 payroll growth has averaged 180,000 per month.*
- **Unemployment rate** should edge down to about 7.5%. A lower rate is not very likely unless more discouraged workers exit the labor force.
 - ✓ -/+ *The unemployment rate has edged down from 7.85% in December to 7.28% in August, but a substantial number of additional discouraged workers has dropped out of the labor force, bringing the labor force participation rate to 63.22%, the lowest level since August 1978.*

- *Consumer disposable income and spending growth* will remain weak and could decline from 2012 growth rates if employment growth slows and wage and salary increases remain under pressure. Growth will be a lot weaker if Congress permits the payroll tax cut and extended unemployment benefits to expire.
 - ✓ + *Through July both disposable income (7.52% in 2012; 2.18% in 2013) and consumer spending growth (3.73% in 2012; 3.00% in 2013) have been much weaker than in 2012.*
- *Household personal saving rate* will probably continue to decline gradually; however, it could rise if employment and income prospects worsen materially.
 - ✓ + *The saving rate rose at year end primarily because of acceleration in capital gains realization to avoid higher tax rates in 2013, but the saving rate has been sharply lower over the first seven months of 2013 (4.30% in 2013 vs. 5.61% for all of 2012).*
- *Export and import* growth will probably continue to slow gradually due both to slower U.S. growth but also due to deepening recession in Europe.
 - ✓ + *The 12-month moving average measure of the trade deficit fell from 3.26% of GDP in December to 2.94% in July; both export and import growth rates are slowing, but import growth is slowing more rapidly.*
- *Manufacturing* growth will be subdued reflecting recession in Europe and slower growth in the U.S. The order backlog index was a very low 41.0 in November.
 - ✓ - *Purchasing managers index moved from weak to strong expansion in July and rose further in August.*
- *Business investment* spending has slowed sharply because of fiscal cliff concerns and could rebound if there is a satisfactory resolution of major fiscal issues. Capital expenditure plans are cautious based both on concerns about growth and political uncertainty.
 - ✓ + *Business investment growth was very strong in the fourth quarter, no growth occurred over the first six months of 2013, key fiscal issues remain unresolved.*

- **Housing investment** is one of the brighter prospects. However, increased activity is likely to be concentrated in multi-family rather than single family. Housing starts are likely to increase 25% in 2013 to approximately one million. Housing prices should rise between 2% and 3%.
 - ✓ + *Starts averaged 912,143 over the first six months of 2013, up 16.5% from 783,170 in 2012; multi-family starts account for 57.4% of the increase, but only 33.1% of total starts.*
 - ✓ - *Housing prices are rising much, much faster, but the recent sharp rise in mortgage rates probably will slow the rate of increase or stop it altogether.*
- **Monetary policy** — the Federal Reserve has committed to purchase \$85 billion in securities every month including \$40 billion in mortgage backed securities and \$45 billion in U.S. Treasury securities.
 - ✓ + *Monthly purchases of \$85 billion are likely to continue until September at which time the Federal Reserve may begin to taper the amount of monthly purchases.*
- **Inflation** will remain below the Federal Reserve's 2% objective at least through 2015. Concerns about increases in inflation in the long-term are misplaced.
 - ✓ + *July PCE inflation was 1.39% and core PCE inflation was 1.20%.*
- **Federal Funds rate** is not likely to increase before mid-2015 and might not increase until late 2016 or early 2017.
 - ✓ ? *Too early to tell, but sometime between early-2015 and early-2016 appears most likely at this time. My models suggest the federal funds rate will not be raised until late 2016 or early 2017.*
- **Fiscal policy** will be contractionary in 2013, but will become less of a factor in ensuing years.
 - ✓ + *Fiscal policy was more contractionary during the first half of 2013 than most had expected because Congress permitted automatic spending cuts to take effect as scheduled on March 1; fiscal policy is now*

expected to subtract -2.0% from GDP in 2013 and -0.5% in 2014; the deficit is shrinking more rapidly than expected and could be only 3.8% to 3.9% for fiscal 2013.

- *Potential structural rate of real GDP growth* has declined significantly and could decline further in coming years unless a concerted public initiative is undertaken to invest in education, research and public infrastructure.
 - ✓ ? *Too early to tell, but I remain firm in my conviction; productivity fell at an annual rate of -1.7% in the first quarter (revised data) and rose 2.3% in the second quarter; however, productivity is up only 0.3% over the last year.*

2. Rest of the World

- *European financial markets* are likely to remain relatively calm thanks to the activist role of the European Central Bank.
 - ✓ + *To date calm has prevailed but political uncertainty is rising in Italy and Spain; the Cyprus bailout/bail-in was a significant negative development; however, the crisis passed without apparent consequences.*
- *European recession* is spreading to stronger countries and worsening in peripheral countries.
 - ✓ -/+ *Eurozone countries collectively eked out small positive GDP growth in the second quarter; however, peripheral countries and Italy are still in recession; fundamental structural problems have not been addressed Europes crisis is quiescent for the moment but far from over.*
- *European banking union* will do little to solve deep-seated European and Eurozone structural problems.
 - ✓ + *The EU has issued a policy paper but no action is expected anytime soon.*
 - ✓ *Germany has persuaded other EU members to eventually amend treaties to require a separation of the ECBs monetary and supervisory responsibilities this move is seen by some as a delaying tactic on the part*

of Germany; insurance protocols have been recommended, but no action is likely any time soon.

- European political dysfunction, populism and nationalism will continue to worsen gradually.
 - ✓ + *Coalition governments in Italy and Greece appear increasingly fragile; Portugal, Ireland and Greece may need another bailout in 2013; German parliamentary elections are scheduled for September 22 and the an anti-European Union party may win seats in the new parliament.*
- *China* appears to have achieved a *soft landing* and economic activity will strengthen modestly.
 - ✓ + *Soft landing achieved early in the year, slowing occurred in mid-year, but recent data suggest growth on track to meet lower end of target.*
 - ✓ + *Second quarter year-over-year growth was 7.5% at lower bound of expectations.*
- *China's new leadership* understands the need to design and implement *economic reforms* and avoid repeating a massive infrastructure spending program.
 - ✓ + *Accumulating evidence that transition toward a more consumer-focused economy has begun.*
 - ✓ + *Implementation of reforms not expected until late 2013 after the Third Plenum of the 18th Central Committee meets in November; however, there are indications that the current leadership is preparing the way for significant reforms.*
- *Global growth* is likely to be fairly steady in 2013 but will depend on developments in the U.S. and Europe.
 - ✓ + *Global growth is trending at last years level of about 3%, slowed a bit in the second quarter, but appears to be firmer in the third quarter.*

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

- *U.S. fiscal policy* tightens more than expected.

- ✓ + *Automatic spending cuts kicked in on March 1 and were not modified during fiscal year 2013.*
- ✓ + *The federal budget is falling much more quickly than expected.*
- ✓ + *Another budget crisis is imminent given the September 30 deadline to pass a fiscal year 2014 budget or a continuing resolution and the October 15 deadline to raise the federal debt ceiling.*
- *Europe's recession* deepens more than expected; financial market turmoil reemerges; political instability and social unrest rises more than expected threatening survival of the Eurozone.
 - ✓ - *Economic data indicate that the recession has been worse than expected, however Eurozone countries collectively posted a small positive increase in GDP during the second quarter; structural problems largely remain unaddressed; Eurozone countries are likely to muddle along for a while, but strong recovery seems unlikely and resumption of crisis is still a distinct possibility.*
 - ✓ - *financial markets have remained calm and weathered the Cyprus episode surprisingly well; however, bank credit is difficult to obtain; new political instability and/or additional bailouts in 2014 could reignite a financial markets crisis.*
 - ✓ ? *political instability and social unrest are not yet serious, but trends are unfavorable in several countries Italy, Greece, Spain, Cyprus, Portugal.*
- *Chinese* leaders have difficulty implementing *economic reforms*; growth slows more than expected.
 - ✓ - *Too early to tell about implementation of reforms, but early signs are encouraging that reforms will be announced late in the year.*
 - ✓ + *Growth forecasts are being revised lower.*
- *Global growth* slows more than expected.
 - ✓ ? *The trend in global growth is about the same as last year, but slightly slower growth occurred in the second quarter which is expected to be offset by slightly*

- stronger growth in the third quarter B of A revised its global growth forecast for 2013 from 3.2% to 3.0%).*
- ✓ *+ Brazils economy slowed earlier this year and India and Indonesia are experiencing capital outflows and slower growth.*
 - Severe and, of course, unexpected *natural disaster* occurs.
 - ✓ *? Nothing of any consequence has happened so far this year.*
 - *Disruption of Middle East oil supply*, stemming from hostile actions involving Iran and Israel, occurs.
 - ✓ *? Political turmoil in Egypt contributed to a recent increase in global oil prices, although no disruptions to supply have occurred.*
 - *New North Korea attacks South Korea*, which shakes global financial markets.
 - ✓ *? There has been a lot of saber rattling, but nothing has happened yet; the crisis has now dropped out of sight.*

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