



The Longbrake Letter*

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July, 2010

I. Renewed Pessimism

Quite abruptly it seems optimism about a steady even strong recovery from the Great Recession has evaporated. Paul Krugman, a Nobel laureate economist, who writes a column for the New York Times, wrote on June 27, 2010 that he fears we are in the early stages of the “Third Depression” — the other two were the Long Depression following the Panic of 1873 and the Great Depression punctuated by the financial and banking crises of 1929-31. Others are more sanguine, but there is no question the mood has soured.

The U.S. stock market, that great barometer of sentiment and emotion, peaked on April 23, 2010 after rallying 79.9% from the Great Recession low (note I did not say bottom as a few think it too early yet to make that call) reached on March 9, 2009. Now as I write this on the U.S.’s 235th Independence Day the market is down 16.0% from its recent high.

Emergence of a full blown sovereign debt crisis in Greece in late April caught the world’s attention and appears to have prompted renewed angst. As the Greek crisis escalated and initial policy responses were ineffective, the European Union eventually, with the assistance of the International Monetary Fund, put together an enormous intervention and financial support program. Since then the crisis has abated and it appears, at least for the moment, that intervention has worked as intended. Skeptics, however, point out that measures of financial stress have not yet moderated. And, they also observe that the financial panic of 2007-08 crescendoed in fits and starts from early 2007 to its horrific climax in the fall of 2008 with long interludes when toomakers believed they had contained the problems.

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What the Greek crisis did was to rip away the complacency that governments can engage in fiscal profligacy with impunity. While debt leverage is a useful policy lever, as I described in the *June 2010 Longbrake Letter*, too much of it can create imbalances that threaten economic growth and stability. The challenge of governments is to use fiscal policy — taxes, spending and debt financing — intelligently as an instrument of economic growth and stabilization policy. Unfortunately, when times have been good, policymakers and the public have given short shrift to the potential longer-term impacts of fiscal policy. All too often the result has been over reliance on debt during good times with the consequence that when debt financing is really needed as an economic stabilization tool there is precious little maneuvering room left because debt to GDP ratios have already reached lofty levels.

This is exactly the situation many global governments now find themselves in, the U.S. not excepted, and this is why the Greek wake-up call has had such an outsized impact on the public and policymakers, as epitomized by the concluding G-20 communiqué issued on June 27, 2010 in which the G-20 countries pledged to cut their budget deficits in half by 2013 “tailored to national circumstances”. While it is a pledge without teeth, nonetheless propelled by the emotion of the moment, fiscal consolidation, the code words for debt reduction, is already taking on larger than life proportions, not unlike the kind of group thinking that drove the dot.com and housing bubbles. That is to say, *while fiscal consolidation is important to the long-run health of the U.S. economy, blind pursuit of debt reduction without full appreciation for both the short-run and long-term consequences can lead to policy mistakes that exacerbate, not improve, our economic well being.*

Recent economic data reports have been disappointing and have put an exclamation point on the emerging understanding that it will take the economy a very long time to return to full health and full employment. The enormous imbalances that built up over years will simply take time to resolve — there are no quick fixes. The focus of policy needs to support the convalescence process, while simultaneously avoiding the creation of future imbalances. As long as the economy remains in an extremely fragile state it remains susceptible to new shocks and, very importantly, to policy mistakes.

The Senate’s failure to pass the tax extenders legislation, which among other things would provide for the extension of unemployment benefits and

an additional six months financial support to state governments for Medicaid, could fall into the category of policy mistakes. But, if a revamped and more finely-tuned tax extenders bill is eventually passed, it could turn out to be supportive of a prudent fiscal consolidation policy. The jury is out on this right now and so the worry remains that the emerging crowd psychology will drive the political process to limit fiscal intervention in a still very sick economy that needs it.

The collective human psyche can influence the economy through the decisions of millions of consumers and the actions or non-actions of policy-makers. Just as optimism morphed into irrational exuberance during the stock market and housing bubbles, pessimism can also feed on itself. This has now become a dangerous possibility as fear, angst and frustration build anew and as some feed pessimism as they seek political advantage.

II. Topics Addressed in the July Letter

July's commentary is divided into three parts. The first part explores short-run impacts and long-run consequences of ***government monetary, fiscal and regulatory policies***. What is optimal policy in the short run, if the measure of success is restoration of full employment as quickly as possible, may not be optimal in the long run, if policy initiatives spawn new imbalances that hobble the economy in the future.

U.S. cyclical economic developments are summarized in the second part. For the second month running data reports paint a picture of a struggling economy and flagging recovery. Massive monetary and fiscal policy intervention and inventory restocking spurred an incipient recovery. These favorable impacts are now fading, which was completely foreseeable. However, the expectation, given past experience, was that business investment and consumer spending would revive sufficiently to reignite employment and income growth and initiate a self-reinforcing virtuous circle. But, it is unclear from recent data reports whether the traditional expected handoff from the public to the private sector is occurring. If it is not, either further policy stimulus will be required or a threat of a double-dip recession will become more than the idle musings of a few pessimists.

In the third part of this month's commentary I take a deep dive into

the problems plaguing the *European monetary union*. The question is one of whether policy actions being taken by many member countries and financial intervention to support the euro, member countries' finances and European banks' liquidity and solvency will be sufficient to hold the European monetary union together or whether it is only a matter of time that fundamental flaws in the governance structure of the European Union prove fatal to the monetary union and the euro.

III. Government Monetary, Fiscal and Regulatory Policies — Short-Run and Long-Run Impacts

1. Policy Objectives

Government monetary, fiscal and regulatory policies are intended to achieve desired public objectives, such as, for example, fair treatment of consumers, income security, health care, full employment, an acceptable level of price inflation, safe and sound management of financial institutions, and efficient and fair functioning of financial markets.

It is also the role of policy to foster economic growth and stability. However, policy errors, unexpected shocks and miscalculations about the longer-term impacts of policy actions, either individually or collectively, often result in the accumulation of imbalances that over time have a destabilizing impact on economic activity.

2. Economic Imbalances — Amplitude

When imbalances manifest themselves, such as the bursting of the housing bubble, policy must be adjusted to contain and eventually reverse the adverse economic consequences. The risk, however, is that the adjustments might be insufficient or, worse, may be counterproductive. Moreover, policies judged to be appropriate to address short-term objectives may contain within them the seeds of new imbalances that over time will prove detrimental to economic growth and stability.

There is an important attribute of economic cycles that is not well un-

derstood. As is true in physics amplitude tends to be symmetric — for each action there is an equal and opposite reaction, absent friction. What this means in economics is that larger imbalances have greater negative consequences and, correspondingly, require greater doses of policy intervention. While the intent of policy intervention is to contain the consequences and restore stability, the sheer magnitude of intervention increases the longer-term risk that economic instability will not moderate materially and may even increase.

3. Economic Imbalances — Causes

Another important consideration in policy management is determining the causes of economic dysfunction before crafting policy response. Cutting interest rates and taxes, for example, are blunt policy tools whose effectiveness will depend importantly upon the specific nature of the underlying problems. For example, reducing interest rates in a “normal” cycle reduces the cost of borrowing and stimulates consumer demand for homes and cars. This in turn leads to an increase in manufacturing and home building that creates jobs and income and initiates a virtuous feedback loop.

However, in the current cycle this traditional monetary policy tool has had little impact for two reasons. First, the housing bubble led to substantial overbuilding relative to demand with the consequence that excess inventory of unsold homes is so great that lower interest rates have not been followed by the usual pick up in new housing construction. A second policy tool involving a tax credit for home purchase was intended to increase demand and sop up excess inventory. While it is too early yet to assess the effectiveness of this policy, it was quite costly and early indications are that the policy shifted demand forward in time, but did not increase it.

A second reason that monetary policy has had limited impact on demand for homes is the credit granting mechanism which has been more severely damaged in this recession than in the typical recession. This stems directly from the excessive use of leverage. Again, the housing market is illustrative. Housing prices ascended to unsustainable levels during the bubble. Debt was easy to obtain and loan to value ratios systematically rose, not to mention all the exotic mortgage programs that temporarily reduced mortgage payments that were just barely affordable based on current income. But, inevitably housing prices had to come down and that created much larger losses given

default than in past recessions. And, aggressive lending practices increased default rates. Credit losses have been enormous given this double-barreled impact. Capital has been depleted, which has limited the ability of many financial institutions to lend. Also, and very importantly, the bank supervisory community after a laissez-faire approach during the bubble days is now on a safety and soundness crusade to ensure conservative underwriting and lending practices.

While financial distress has abated since the height of the financial panic, it has not returned to “normal” levels and, indeed, has worsened somewhat since the onset of the Greek sovereign debt crisis.

4. Optimizing Policy — Short-Term and Long-Term Impacts and Consequences

As I described in *Components of Economic Analysis*: “A fundamental shortcoming of much of economic commentary and analysis is rooted in a failure to acknowledge complexity which fosters a tendency to oversimplify and to rely uncritically on simple truisms. This approach often results in partial analysis that overlooks important available information and risks reaching conclusions that are misleading, or even wrong, and when extended to policy recommendations and actions, often result in unexpected outcomes and unintended consequences.”

To this thought I should add that media and public attention focus on current issues and press for public responses to those issues. There is little understanding and interest in how whatever responses policymakers choose might affect economic performance over time. Thus, it is difficult enough to “get it right” in the short run, let alone even give much consideration to the longer run.

It should be intuitive that a policy structured to optimize short-term performance, but which results in substantial problems later on, is not an optimal overall policy. Logic dictates that focus should be in determining likely short-term and long-term costs and benefits and then choosing a policy course that maximizes short-term performance subject to an acceptable level of long-term costs.

5. Trade-Off Between Short-Term Optimization and Long-Run Consequences — Public Debt to GDP Ratio Debate

A current policy debate about the size of the federal deficit, the size of the public debt to GDP ratio and fiscal policy illustrates the trade-off between short-term optimization objectives and long-term consequences. In the short-term, with the economy still in fragile condition and at risk of falling back into recession, proponents of more government spending financed by debt argue that the prospective benefits of promoting spending and igniting a virtuous circle greatly outweigh the long-run consequences of a higher public debt to GDP ratio. They argue that there will be time later on once the economy is on more solid footing to attack the debt problem.

Others, however, fear that the “debt problem” will spin out of control and threaten the nation’s solvency. To avoid this outcome the debt to GDP ratio needs to be addressed immediately, not later.

This certainly was the tone struck by the recent G-20 communiqué spearheaded by Stephen Harper, prime minister of the host country, Canada, but enthusiastically supported by the leaders of the United Kingdom and several European countries. The obsession with the public debt ratio is palpable in Europe because of the nontrivial risks that are already on the table for the solvency of European banks and the survival of the European monetary union and the euro.

While the deficit remains very large and the public debt to GDP ratio is growing, the break point, when potential consequences become significant, arguably is some distance away. Thus, proponents of more fiscal stimulus now financed by debt strongly believe that the short-term consequences of restraint greatly exceed the potential long-run consequences of an increased public debt to GDP ratio. While this view may be the more correct one, it begs the issue of whether there will be the political will in the future, once the economy is clearly on the mend, to scale back government spending and reliance on debt financing. This is the task assigned to the President’s Fiscal Commission.

It may well be that the “best” overall policy will be one of more fiscal stimulus now but within the context of iron-clad commitments to reduce future spending. This requires restructuring of Medicare and Medicaid which the Congressional Budget Office (CBO) estimates will grow from 5.5% of

GDP currently to nearly 11.0% by 2035. CBO expects Social Security to grow from 4.8% of GDP to 6.2% over the same time period. The public debt to GDP ratio will climb to a default-threatening level of 80% to 175%, depending upon whether the Bush tax cuts are extended, the statutory increases in the alternative minimum tax continue to be deferred and the “doc fixes” to avoid cuts in Medicare payments to doctors continue.

6. Policy Tools — Monetary Policy

Interest Rates — The Federal Reserve can influence the cost of short-term borrowing by managing the Federal Funds interest rate. In the current cycle, this monetary policy tool has reached the limit of its effectiveness since the Fed cannot push this rate below zero.

Liquidity — Traditionally, provision of liquidity has only involved providing funds to members through the discount window. However, during the recent financial crisis the Fed greatly expanded the provision of liquidity by setting up a number of facilities designed help various securities markets function.

Quantitative Easing — The Fed reduced longer-term interest rate through direct purchase of U.S. Treasury securities and mortgage-backed securities. According to a study conducted by Goldman Sachs, the quantitative easing program reduced the mortgage securities interest rate by 82 basis points relative to what it would have been without the Fed’s intervention and reduced the mortgage/10-year Treasury spread by 70 basis points, which implies that the Treasury rate would have been 12 basis points higher without the Fed’s quantitative easing.

Interest on Reserves — This tool is available to the Fed but its use to date appears to have been passive rather than as an intentional instrument of policy. In theory, by setting the interest rate on reserves relative to other market rates, the Fed can influence the incentives of banks to lend funds versus parking these funds at the Fed to earn interest.

Guarantees — Deposit insurance, explicit credit guarantees by the Federal Housing Administration and now also the credit guarantees of Fannie Mae and Freddie Mac, by virtue of their federal government conservatorship, are some of the most significant examples of this policy instrument.

—lbsubsec7Policy Tools — Fiscal Policy

Taxes — This can take the form of income tax rates, tax credits or allowable deductions.

Spending — The type of spending is important for various reasons — **timing** of impact: unemployment benefits have immediate impact while infrastructure spending takes time to deploy; **multiplier** effect on economic activity: in its simplest form will government funds be spent or saved, but the way in which the funds are spent will also determine the size of the multiplier, e.g., it is generally agreed that unemployment benefits are spent relatively immediately and have a high multiplier.

Debt Financing — Whether spending is funded through tax revenues or borrowing matters. While spending has a positive impact, taxes have a negative and offsetting impact. The net effect could be zero, although many believe that the private sector spends more efficiently than the government which would mean, if true, that the government spending multiplier is negative. However, spending financed by debt results in a positive multiplier, provided that the economy is operating below its full-employment potential level. When the economy is at full employment debt financing for spending (but not the payment of interest on the debt) will result in excess demand over supply and the rate of inflation will increase.

8. Goldman Sachs Global Economics Assessment

Goldman Sachs recently published a study, *Global Economics Paper No. 200, June 30, 2010*, which examines the short-run and long-run costs and benefits of monetary and fiscal policies. In their own words: “*We aim to quantify the trade-off between the cyclical need to support economic recovery and stabilize inflation near 2%, and the risk of “imbalances” such as a large public debt and/or overvalued asset prices.*” The study is carefully constructed and rigorously grounded in econometric analysis. It is well worth studying carefully.

Goldman Sachs concluded that although both fiscal policy and monetary policy have eased enormously since the onset of the Great Recession, *an optimal policy from both a short-term and long-term perspective would involve either further quantitative easing through the*

Fed purchasing additional securities for its balance sheet or additional debt-financed government spending or a combination of both. However, Goldman Sachs recommended that any additional fiscal stimulus "...should be paired with legislation that minimizes longer-term risk to budget sustainability."

Other findings of the Goldman Sachs study that are of interest include:

- No fiscal tightening should occur until 2013.
- No monetary tightening until after 2015.
- If the unemployment rate remains at a high level for a sustained period of time, structural unemployment will eventually rise, raising the NAIRU (non-accelerating inflation rate of unemployment) at which level inflation will become a problem.
- A higher public debt to GDP ratio leads to slower GDP growth with a lag of about four years. Each 10 point rise in the debt ratio lowers GDP growth by 0.2%.
- Low interest rates during the housing bubble accounted for only one-seventh of the increase in housing prices with the implication that the remainder was due mostly to speculation, product innovation and lax supervisory oversight.
- There is no discernible impact of monetary policy on equity valuations.
- A 10 point increase in the aggregate value of equities relative to GDP lowers GDP growth by 0.1% with a lag.
- A 10 point increase in the housing price to rent ratio reduces GDP growth by 0.1% with a lag.
- *"Policymakers face asymmetric risks, as they have less experience in reversing deflation than in reversing inflation."*

IV. Near-Term U.S. Macro Economic Outlook

1. GDP

Second quarter GDP growth was revised down yet again to 2.7% (originally reported as 3.2%). Real final sales growth, a better measure of underlying GDP growth because it nets out the impact of inventory adjustments, declined to 0.8% (originally reported as 1.6%). Without the estimated benefit of a 2.1% boost to growth from federal fiscal stimulus, real GDP, net of inventories, would have declined -1.3% in the first quarter. Fiscal stimulus should be near 2.0% of GDP in the second quarter and should contribute to about 3.0% real GDP growth. However, fiscal stimulus will decline sharply in the third quarter and is expected to become negative by the fourth quarter. Consequently, without an increase in private final demand, reported real GDP growth is headed toward 1.0% to 1.5% in the second half of 2010.

Table 1: GDP – Forecast Effects of Stimulus

■ GDP Growth – Stimulus Peaked in 2009 Q3 and Diminishes in Coming Quarters Before Becoming Negative in 2010 Q4

Quarter	Bank of America					Goldman Sachs				
	Fore- cast	Stimu- lus	Net	Inven- tory	Net	Fore- cast	Stimu- lus	Net	Inven- tory	Net
2009Q1	-6.4%	0.3%	-6.7%	-2.4%	-4.3%	-6.4%	0.3%	-6.7%	-2.4%	-4.3%
Q2	-0.7%	1.8%	-2.5%	-1.4%	-1.1%	-0.7%	1.8%	-2.5%	-1.4%	-1.1%
Q3	2.2%	3.6%	-1.4%	0.7%	-2.1%	2.2%	3.6%	-1.4%	0.7%	-2.1%
Q4	5.6%	2.3%	3.3%	3.8%	-0.5%	5.6%	2.3%	3.3%	3.8%	-0.5%
2010 Q1	2.7%	2.1%	0.6%	1.9%	-1.3%	2.7%	2.1%	0.6%	1.9%	-1.3%
Q2	3.0%	1.6%	1.4%	0.4%	1.0%	3.0%	1.9%	1.1%	0.6%	0.5%
Q3	2.8%	1.3%	1.5%	0.4%	1.1%	1.5%	0.6%	0.9%	0.4%	0.5%
Q4	2.7%	0.8%	1.9%	0.3%	1.6%	1.5%	-0.5%	2.0%	-0.0%	2.0%
2011Q1	2.4%	0.5%	1.9%	0.0%	1.9%	2.5%	-0.4%	2.9%	0.2%	2.7%
Q2	2.4%	0.2%	2.2%	0.0%	2.2%	3.0%	-0.6%	3.6%	0.1%	3.5%
Q3	2.8%	-0.1%	2.9%	0.2%	2.7%	3.5%	-1.7%	5.2%	0.6%	4.6%
Q4	3.0%	-0.4%	3.4%	0.2%	3.2%	3.5%	-1.5%	5.0%	0.3%	4.7%

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Table 1 shows Bank of American's and Goldman Sach's GDP forecasts quarterly for 2010 and 2011 and nets out the impacts of government fiscal stimulus and inventory accumulation. Bank of America just slashed its forecast for GDP growth. Nonetheless its forecast for the GDP growth in the second half of 2010 still seems optimistic as it appears to be based on

a higher amount of government stimulus than may materialize. Thus, my sense is that the Goldman Sachs GDP estimates for the remainder of 2010 are probably the better ones and even then the risks seem tilted toward slower growth given the recent decline in stock market valuations and greater than expected weakness in employment. However, I wouldn't be surprised that in subsequent revisions Goldman Sachs adjusts its GDP growth estimates for 2011 downward so that they are more in line with Bank of America's estimates.

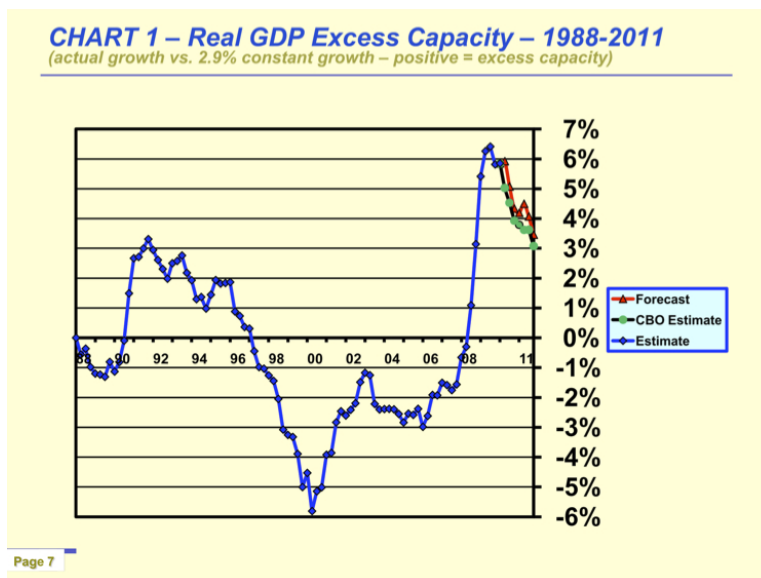
To the extent that the Economic Research Cycle Institute (ECRI) index of leading indicators has real predictive power, it is signaling a nontrivial probability that the economy could slide back into recession later this year. Many economists discount the predictive power of this measure because it is fitted to past data after the fact. If the structure of the economy has changed and if the correlation between measures in the ECRI index and GDP growth has changed, then the ECRI index could very well be giving a false signal.

It is easy to dismiss the warning that the ECRI index is now flashing because that warning is inconsistent with what people believe or want to believe. The index has declined eight consecutive weeks without interruption. Its growth rate is now -7.7%, which in the past has been consistent with 0.8% real GDP growth on average within two quarters. This measure has had a relatively good predictive record up until now. All of this suggests that the consensus forecast of 3.0% GDP growth in the second half of 2010 is wildly optimistic.

In the *May 2010 Longbrake Letter* I discussed how population growth and productivity combine to determine the noninflationary rate of growth in real GDP and how the gap between potential and actual GDP can be measured. A positive output gap imparts deflationary pressures while a negative output gap fuels inflation.

Chart 1 shows how the GDP output gap has fluctuated since 1988 and includes a two-year forward forecast. Measurement is difficult so you should not attribute precision to the data in the chart. However, the oscillations in the output gap over time tell an important story.

I assume that the potential growth rate in real GDP currently is about 2.9% annually. This figure is somewhat, but not much higher, than estimates



of most others. It is derived by combining the contributions of labor force growth and labor productivity.

The story that **Chart 1** tells is that there is substantial excess capacity in the economy and it is much greater than what occurred after the recession of the early 1990's. I calculate the level of excess capacity in the first quarter of 2010 as 5.8% which compares to the Congressional Budget Office's probable estimate of 5.7%. The real story, however, is that it will take a long time to reduce excess capacity.

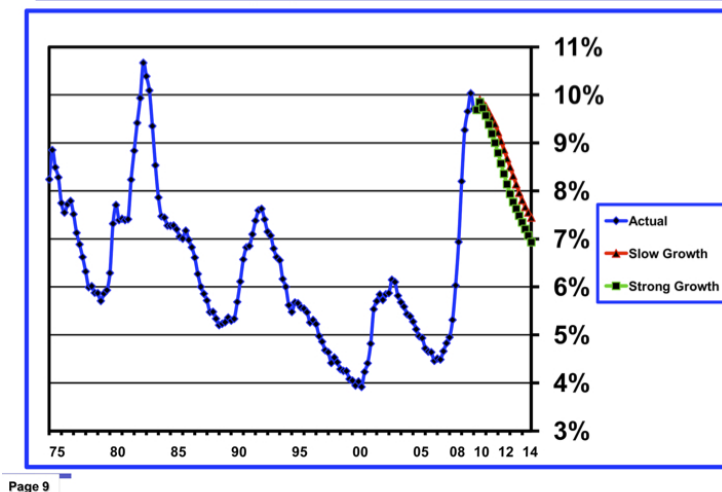
2. Employment

The June employment report released on July 2, 2010, was a huge disappointment for the second month in a row. In recent months the top line employment number has been skewed by temporary Census Bureau workers. Because of that economists have focused on change in private employment rather than total employment, which includes government workers, to gage to what extent the labor market is recovering. From January through April private employment increased 477,000 with each month's total being greater than the previous month. This seemed to validate expectations of an incipi-

ent turnaround. However, private payroll gains plummeted to 33,000 in May and weren't much better at 83,000 in June versus a consensus expectation of 110,000.

There was further disappointment buried in details of the report. Average weekly hours worked by private employees dropped from 34.2 in May to 34.1 in June. Customarily in a reviving labor market average weekly hours expand before the total number of employees grows. That pattern has occurred since average weekly hours bottomed at 33.7 last October. So this reversal is not a hopeful sign. In addition, the average weekly wage for all private employees fell \$.02 from May and is increasing at a new cyclically low annual rate of 1.67%. The labor force participation rate fell back to 64.7% just barely above this cycle's low of 64.6% reached in December.

CHART 2 – Unemployment Rate



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Unemployment and the unemployment rate fell. But this is a case where good news may really be bad news because the labor force fell 652,000 in June and those employed, according to the household survey, dropped 302,000. That is a lot of discouraged workers leaving the workforce. Note that the number of unemployed includes only those who are looking for work who can't find it. If they can't find work and become discouraged and drop out of the labor force, they are no longer counted as unemployed. If the labor force participation rate remained at the 1997-2010 average level of

66.4% instead of 64.7% there would be 4 million more unemployed and the reported unemployment rate would be 12.1%, not the actual reported rate of 9.5% in June.

The June employment report makes it reasonably clear that the labor market has stabilized. That is the good news. The bad news is that rapid recovery is unlikely and that unemployment will remain at an extremely high level for a long time to come. And, because discouraged workers will gradually reenter the labor force as the economy recovers, it is likely that the unemployment rate will fall very gradually as shown in **Chart 2**.

3. Consumers

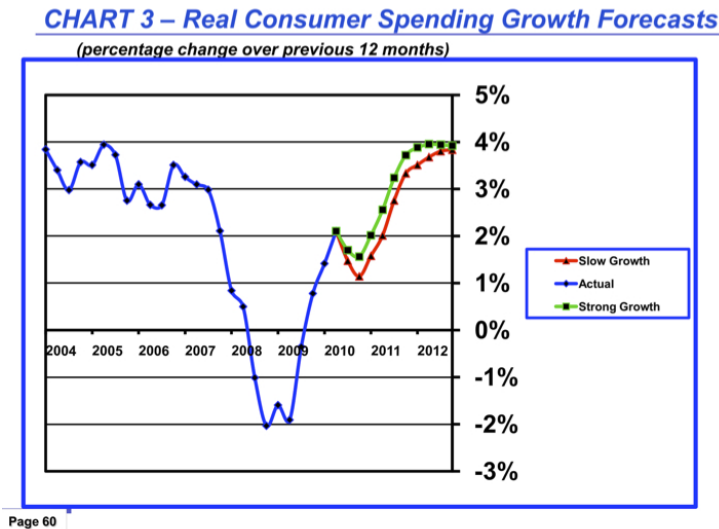
Consumer spending accounts for approximately 70% of GDP, so it bears close scrutiny. Consumer spending depends on earned income, investment income, government transfer payments, pensions and an ability to monetize wealth. At an economy wide level, aggregate consumer spending also depends upon the number of employed workers, average hours worked and the average hourly wage rate.

In normal times growth in real consumer spending growth is fairly stable, averaging about 3.1% annually over the last 25 years. This is derived from a 0.9% annual rate of increase in the labor force and a 2.0% gain in real incomes due to productivity growth. Real disposable income growth has averaged 2.8% annually over the last 25 years. Spending growth has exceeded income growth because consumers through much of the last 25 years were able to tap wealth through access to credit. A steady decline in the consumer saving rate during most of the last 25 years was a direct result of a spending growth rate that exceeded the disposable income growth rate.

Since the onset of the recession in December 2007, this has all changed. Real disposable income, in spite of a significant increase in government transfer payments, has grown only 0.7% annually. Real consumer spending has actually declined at a -0.1% annual rate over the same period as consumers have retrenched and paid down debt and increased savings. The saving rate over that period has increased from 1.4% to 4.0%.

Here is the surprise. Over the last six months real disposable income has increased at an annual rate of 1.6% but spending has increased 2.3%.

Is the consumer returning to old habits? I think not. And, if I am right, the acceleration in consumer spending over the last few months is a temporary phenomenon and in all likelihood spending over the second half of the year will track real income growth or even lag real income growth. That is certainly what the forecast in **Chart 3** suggests is likely. June's drop in consumer confidence, the decline in stock prices and the reemergence of negative trends in the housing market all point to such an outcome. Thus, if consumer spending is to continue to be a positive driver of GDP growth it will have to come from growth in income. And, as we have seen, that prospect is not a particularly good one given a faltering labor market and resistance to additional fiscal stimulus.



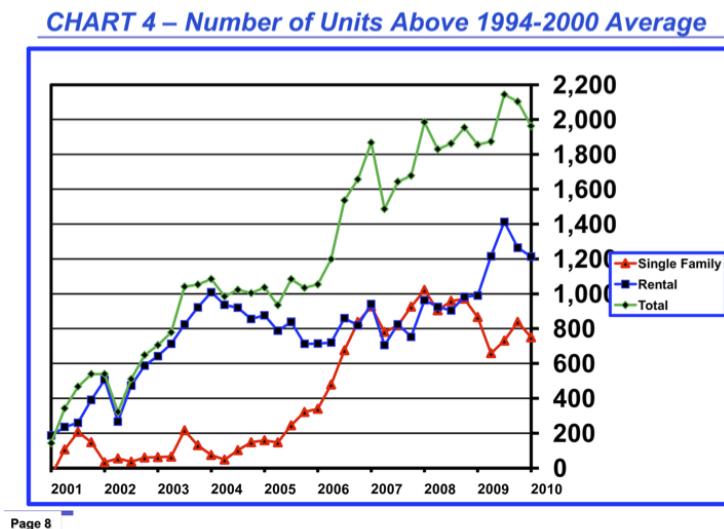
Goldman Sachs arrives at a similar conclusion in a different way. Goldman calculates discretionary household cash flow which is the sum of disposable income adjusted for noncash items plus consumer credit growth less spending on essentials. Goldman expects discretionary cash flow to decelerate moderately during the second half of the year due to diminishing tax refunds from the Making Work Pay credit, reduced access to credit, some increase in nondiscretionary spending and slower income growth as temporary Census jobs come to an end.

Over the longer run aggregate consumer spending will depend on the

level of unemployment and that will depend in turn on the overall health of the economy. Since employment growth is likely to occur slowly and wage growth will remain under pressure the odds strongly imply that spending growth will be relatively weak as consumers continue to reduce reliance on debt, which is another way of saying that they will focus on increasing savings.

4. Housing Investment

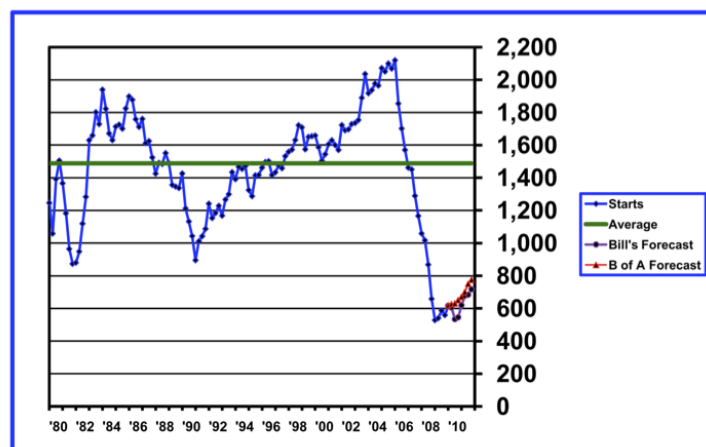
Housing construction is a typical driver of economic recovery. That is not the case this time. Overbuilding during the bubble years lead to far greater than normal inventories of vacant homes and apartment units. **Chart 4** shows that inventories are nearly 2 million units above normal levels and have moved down only slightly over the last two quarters.



New residential homes sold in May fell to an annual rate of 300,000, which is the lowest level ever reported by the Census Bureau since it began keeping records in 1963. New residential building starts were 468,000 in May. These are extraordinarily low numbers and the fact that sales continue to fall short of new starts does not bode well for significant inventory reduction. Since 1975 new housing starts, which also include rental units,

have averaged about 1.5 million units annually. As **Chart 5** shows, the bottom probably has been reached but no recovery seems likely until 2011 and then the improvement will be barely discernible.

CHART 5 – Housing Starts (quarterly average)



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5. Manufacturing

The Institute of Supply Management (ISM) manufacturing index has been one of the few rays of sunshine from the private sector. Strength in manufacturing over the last year has had two drivers. I have already mentioned the first which is inventory restocking, which was the inevitable result of cutbacks in production that greatly exceeded declines in demand during the free-fall days in late 2008 and early 2009. It was inevitable that as demand recovered modestly depleted inventories would have to be restored. But that process is nearly over as the fall in the June ISM index to 56.2 from 59.7 in May signals. New orders fell sharply to 58.5, still indicating healthy growth but decelerating nonetheless.

The second driver of manufacturing strength has been exports. China's aggressive infrastructure investment has been an important contributor as has a significant revival in international trade, which is analogous to the domestic inventory cycle. But, China's rate of growth is slowing a bit and

the increase in the value of the dollar is beginning to take a bite out of exports. Europe's move towards austerity will slow its growth and perhaps even result in a double-dip recession there. The continuing financial stress emanating from Europe will keep the value of the dollar strong. All of these developments at the margin are unfavorable for U.S. manufacturing.

There is good reason to believe that the manufacturing index will fall to about 50 in coming months. A value of 50 means that manufacturing is moving sideways — it is neither contributing to, nor subtracting from, growth. In the past an ISM index of 50 generally has been consistent with real GDP growth of about 1.5%.

6. Government Spending

As I discussed in the GDP section, federal fiscal spending has prevented negative GDP growth as the private sector has contracted. The contribution of federal government spending to real GDP growth, as shown in **Table 1**, is scheduled to fade in the third quarter and will become negative in the fourth quarter. The Senate's failure to pass the extenders bill, although a slimmed down version still seems likely to pass eventually, means that fiscal restraint will begin sooner and be somewhat greater than most economists have been forecasting.

State and local governments have experienced sharp contractions in revenues since the onset of the Great Recession. State and local spending, as a consequence, contracted 4.3% in fiscal 2009 and another 6.8% in fiscal 2010 (state fiscal years run from July to July). Importantly, state revenues, and therefore spending, lag behind overall economic activity. Rainy day funds and accounting adjustments have cushioned the blow but those are short-term solutions that are no longer available.

A study authored by Jeremy Gerst and Daniel Wilson of the San Francisco Federal Reserve Bank entitled *Fiscal Crises of the States: Causes and Consequences*, June 28, 2010 is instructive of the severity of the crisis facing state and local governments. They reported that the gap between revenues and state general fund budgets amounted to \$200 billion heading into fiscal 2010, or approximately 30% of revenues. Most of that gap was closed and fiscal 2010 ended on June 30. Goldman Sachs estimates that the unfunded gap for fiscal 2011 ranges between \$100 and \$125 billion, depending upon

what the U.S. Congress decides to do about aid to the states for Medicaid expenditures.

Unlike the federal government, which can indulge in deficit spending, balanced budget requirements force states to raise taxes and reduce spending to eliminate budget gaps. Thus, the failure of the U.S. Congress to approve an additional \$25 billion in Medicaid funds for the second six months of fiscal 2011 is an enormous negative setback. Unfortunately, there is almost no chance that Congress will reconsider this decision. The full year impact in fiscal 2012 will be a \$50 billion reduction.

Some states, such as Oregon, have actively worked to balance their budgets. Other states, like California and Illinois, have been gripped by paralysis and are teetering on the edge of insolvency. Illinois reportedly simply has stiff-armed many recipients of state funds to the tune of \$5 billion.

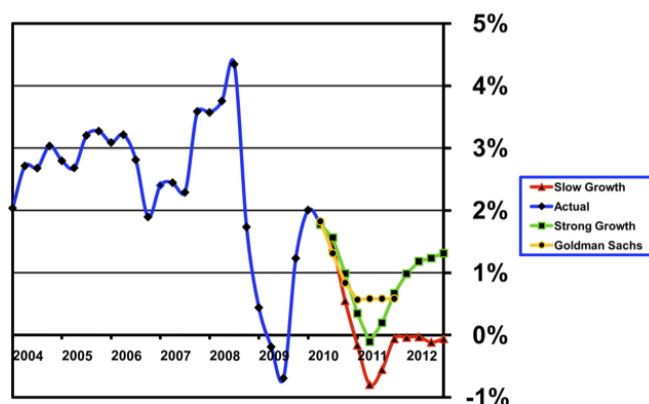
State revenues were up 2.4% in the first quarter of 2010 compared to the first quarter of 2009. However, if tax increases are netted out, revenues would have been down 2.1%. To date the fiscal drag from state and local governments has only partially offset federal stimulus. This is set to change dramatically, however, as federal fiscal stimulus fades and state revenues continue to fall substantially short of spending obligations. The prospects of a renewed slowdown in consumer spending and faltering recovery in the labor market are very unwelcome as either, if they occur, will further depress tax revenues and maintain upward pressure on spending.

7. Inflation

It stands to reason that the enormous output gap that currently exists will continue to put downward pressure on inflation for some time to come. Inflation is a lagging economic variable, which means that it will still continue to decline for a while after the economy has reversed course and is improving. That can be seen in **Chart 6**, total PCE inflation, and **Chart 7**, core PCE inflation.

The forecasts shown in these charts are ones that I derive from my own statistical analysis. For those of you who follow the forecasts of others closely, you will note that over the next 18 months inflation declines more in my forecast than in the forecasts of most others. That is not to say that my

CHART 6 – PCE Inflation Forecasts
(percentage change over previous 12 months)



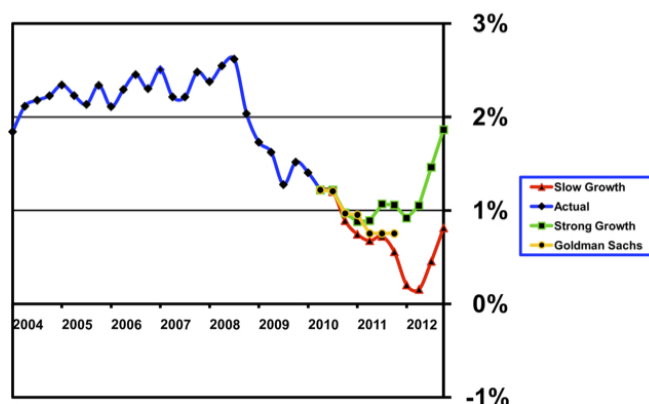
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statistical analytics are any better than anyone else's. Mine could be worse in the sense that actual inflation could be sticky to the downside, which would mean that I am overforecasting the extent of a decline in inflation. I don't think the amount that inflation declines in the next few months is as important as the fact that it will decline, and of that I am absolutely certain.

The charts also show the difference in inflation's trajectory depending upon whether the economic recovery that is underway gathers momentum, the "strong growth" scenario, or stumbles along, the "weak growth" scenario. In the weak growth scenario PCE core inflation bottoms out at about 0.1% in early 2012 compared to Goldman Sachs' estimate of 0.7%. The rise thereafter is much less certain and has a great deal to do with two assumptions — the speed with which the output gap shrinks and how rapidly the federal government budget deficit shrinks.

If, however, economic growth is weak, there is a chance that core PCE inflation could fall to near zero or even turn into deflation for a while about 18 to 24 months from now. This is not an outcome I expect but it is a possibility I cannot rule out.

CHART 7 – Core PCE Inflation Forecasts
(percentage change over previous 12 months)



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V. Whither the Euro and the European Monetary Union — Is Survival Possible?

For several years the euro appreciated in value against the U.S. dollar. During that time the European Union expanded its membership and absorbed many of the former Soviet Union satellite countries. A number of these countries also joined the monetary union, which required them to retire their own currencies and replace it with the euro. Today 27 countries comprise the European Union and 17, the latest one being Estonia, are members of the monetary union and use the euro as their currency.

For a while all seemed happiness. Countries like Greece, Ireland, Portugal and Spain enjoyed prosperity as they were able to benefit from uninhibited access to a large market. The broad umbrella of the European financial system enabled members to borrow at low rates of interest as former country risk premiums melted away.

But then the global Great Recession hit with a vengeance and exposed serious flaws in the system. Although Greece has considerable company, its policies and the financial excesses they lead to, were the first to trigger a financial debt crisis. For a while toward the end of April and into early May

it appeared that Greece might not be able to borrow needed funds and would have little choice but to default on its debt obligations. However, default was unthinkable for a couple of reasons. If the monetary union permitted one member country to default, surely other members, most likely Ireland, Portugal and Spain, would quickly be put to the test with the very real possibility that a destabilizing chain reaction of defaults would ensue.

Second, nearly half of the Greek sovereign debt, amounting to approximately \$420 billion, is held by European financial institutions and default would erode their capital adequacy and perhaps even jeopardize their solvency, if contagion set in. Thus, the crisis was not just about sovereign debt, it was also about bank solvency and ultimately it was about the ability of the European financial system to function. The potential for panic similar to what ensued in the U.S. in the fall of 2008 was significant. Indeed, the survival of the euro itself was at stake.

Under the circumstances, a “bail out” of Greek debt was inevitable. It took a couple of harrowing weeks for the European Union to appreciate this reality and craft, with the help of the International Monetary Fund, an enormous rescue plan amounting to \$957 billion. The rescue package was comprised of 440 billion euros (\$560 billion in new loans) to be provided by 27 European Union member countries, 60 billion euros (\$76 billion) from an existing balance of payments stabilization program, and a pledge of 250 billion euros (\$321 billion) from the International Monetary Fund. However, the core fund of 440 billion euros is a special purpose vehicle that will raise funds by issuing debt guaranteed proportionally by European Union member countries. This fund expires after three years and has yet to be activated. In addition, the European Central Bank agreed to buy government and corporate debt, but insisted that such purchases would be for liquidity purposes only. In other words, any purchases would be “sterilized” in monetary policy parlance to avoid a quantitative easing impact on monetary policy.

As part of the package, Greece agreed to reduce its budget deficit from 14% of GDP to 3% of GDP by 2012, raise its retirement age and implement other austerity measures, particularly in the labor market.

In the aftermath of the crisis an uneasy calm has returned. But the problems that led to the crisis remain and financial stress, as reflected in interbank lending rates, remains elevated.

Since the crisis other European countries have joined the austerity bandwagon. Even the United Kingdom's new Conservative-Liberal government has joined the austerity parade, even though the U.K. is not a member of the European Union. A recent significant rollover of Spanish debt occurred without incident, but it is really only a matter of time before the next chapter of the crisis emerges.

To understand why the problem is neither fixed nor contained and why further crisis episodes are likely, let me explore the structural flaws in the European monetary union and how social welfare policies, demographic trends, reliance on debt leverage and banking system weaknesses are a toxic mix that will not be easily managed.

1. Differences Between the European Monetary Union and the United States

If the United States had remained a confederacy rather than adopting the constitution that now governs us, we might have long since experienced the kinds of challenges that are now facing the European monetary union.

The U.S. has a single currency as do 17 of the 27 members of the European Union. A single currency facilitates trade and reduces the costs of doing business by increasing efficiencies. It deepens and broadens financial markets and reduces funding costs.

But that is where the similarity ends. In a trade union with a common currency economic activity will flow to the least cost location. From time to time in the U.S. a region has become cost ineffective and the region has experienced dramatic readjustment pains. For example, in the 1980's New England lost much of its manufacturing base as companies shifted production to cheaper locations. Over time New England restructured its economy by investing in new businesses — primarily high tech — in which it could be cost competitive. This kind of dynamic adjustment requires labor mobility. Labor mobility in Europe is very limited because of significant ethnic geographic concentrations, language differences, and cultural barriers.

There is another important difference. In the U.S. states are required to balance their budgets. Debt financing for other than capital projects and anticipated tax revenues is not possible. (I would note, however, that when

it comes to public pension fund management, many states have failed to fund them fully, which amounts to a disguised form of deficit financing — there is no debt, but there is a future unfunded obligation that someday will have to be met.)

European Union members retain the same rights to manage and finance their budgets, including deficit financing, as they did before they became members. The European Union realized that this freedom would always pose risk to the stability of the monetary union and so as a part of the Economic Growth and Stability Pact that prospective members are required to sign there is a stipulation that a country may not run a deficit in excess of 3% of GDP except under exigent circumstances and even then it must return to the 3% limit within a reasonable period of time. In addition, countries must limit their public debt to a maximum of 60% of GDP. Unfortunately, Greece violated that part of the Stability Pact with some financial gimmickry, aided and abetted by some of the large investment banks, and through false accounting. Greece's deficit ballooned to 13.6% of GDP in 2009 and its debt to GDP ratio is approximately 115% currently. That this occurred so easily reflects the lack of enforcement power within the European Union to discipline its members short of the “nuclear” option of ejecting a country from membership.

2. Impact of Default on European Banks

What makes the Greek sovereign debt crisis especially toxic is that a very large portion of its \$420 billion in debt is held by European banks. Thus, it is hardly encouraging that the credit markets are pricing in a 75% probability that Greece will default on its debt by 2015. S&P recently downgraded Greek debt to junk status and warned that in the event of default losses might amount to 50%. This estimate probably doesn't reflect any in depth analysis. It is simply the average loss rate that has occurred on other sovereign debt defaults in recent years. However, based on a study by Moody's Investor Service of sovereign debt defaults and recovery rates which occurred between 1983 and 2009, the loss could be as high as 70%. This estimate is an interpolated value based on the post default and restructuring average external debt to GDP ratio of 35%. It would require a 70% haircut of Greece's current 115% debt to GDP ratio to reach the 35% level.

The concern is that a Greek default, absent a clearly understood and

operational support mechanism, would translate immediately into a run on European banks holding large quantities of sovereign debt in the most troubled countries — Portugal, Spain, Ireland and perhaps Italy. This is not a trivial concern. European banks hold \$193 billion in Greek debt, nearly half the total outstanding, and more than \$1 trillion in debt of Portugal, Spain and Ireland.

At least part of the blame for the size of the sovereign debt problem can be pinned on the policies of the European Central Bank (ECB). European banks could buy sovereign debt of weaker member countries at somewhat higher interest rates than prevailed on the debt of stronger member countries. Then, banks financed (in technical parlance “swapped”) these purchases at full value by borrowing from the ECB at low rates of interest, collecting a generous arbitrage spread in the process. The lending subsidy provided by the ECB made it easy for member countries to finance deficits and diffused the effectiveness of bond market discipline. Does this sound a lot like the flaws in the implicit guarantee of Fannie and Freddie debt issuance?

Thus, it is hardly surprising that financial stress has reemerged. Lack of clarity about which European banks are most exposed to the debt of countries which might eventually be forced to default and restructure their debt has prompted banks to avoid making short-term loans to one another or to do so only on a very short-term basis at elevated interest rates.

This uncertainty has prompted a call for bank stress tests along the lines of those conducted on U.S. banks by bank regulators in early 2009. The belief is that such tests will remove uncertainty just as it did in the U.S. and pave the way for capital remediation in banks with inadequate capital to withstand an actual stress outcome. Stress tests certainly would provide greater clarity because they involve conducting a standardized and transparent analysis of risks across all key banking institutions. But, it does not automatically follow that stress tests by themselves would reduce the extent of financial stress as they apparently did in the U.S.

There are a couple of reasons for caution and not to view stress tests as a panacea. First, the timing of the U.S. tests may well have been serendipitous in the sense that disclosures were made at about the same time that it began to become apparent that policy intervention had stopped financial Armageddon, avoided the possibility of depression and paved the way for

recovery.

Second, and importantly, the U.S. had in place a statutory support mechanism. Hated as it was, TARP could provide capital to banks if they were unable to raise it in the private marketplace. There is no similar mechanism in place in the European Union today. The special purpose vehicle intended to support the sovereign debt financing of member countries is still concept, not reality. But perhaps more to the point is the question: where would the funds come from, if they are unavailable from the private sector to recapitalize banking institutions that stress tests reveal to be undercapitalized? They would have to come from the member countries. But, with debt to GDP levels already at dangerously high levels the solution could merely aggravate the magnitude of the sovereign debt problem.

3. Level of Debt to GDP Ratio That Triggers Escalating Probability of Sovereign Debt Default

As I have described in previous Letters, debt leverage reduces policy flexibility. At some level of debt leverage, the ability of policy intervention to engineer a soft landing no longer is possible and default becomes the only remaining option. Carmen M. Reinhart, professor of economics at the University of Maryland, and Kenneth S. Rogoff of Harvard University in their seminal work, *This Time Is Different*, found that external debt to GDP ratios averaged about 70% over the last 40 years when sovereign debt defaults occurred. Some defaults occurred at much lower levels, but these involved a “willingness to pay” decision rather than an “ability to pay” problem. In another study, Paolo Manasse of the University of Bologna, Nouriel Roubini of New York University and Axel Schimmelpfennig of the International Monetary Fund determined that an external debt to GDP ratio of 50% is a key level when debt default becomes possible. The numbers in these two studies are not necessarily incompatible — the 70% figure is an average for countries that actually defaulted while the 50% figure indicates that a country has entered into a zone where the possibility of default exists. There are substantial differences in the composition of external debt and public debt. External debt is all debt issued by entities within a country, including the government, which is held by foreigners. In the case of the U.S. external debt is \$13.77 trillion which is close to 100% of GDP. Net public debt is comprised only of debt issued by the government and assets are netted out

to obtain a sense of effective exposure. Net public debt is held by domestic or foreign entities, except that government debt held by the government itself, as is the case for the U.S. social security trust fund, is not counted. While measurement difficulties plague the calculation of debt to GDP ratios, the debt ratios of many developed countries are perilously close to the 70% level. Based on data compiled by the International Monetary Fund the net public government debt to GDP ratios, which I believe are the more relevant measures of sovereign default risk, are shown in **Table 2**.

Table 2 — Net Public Debt to GDP Ratios for Selected Countries

Country	Net Public Debt to GDP Ratio
United States	58%
France (EU)	68%
Germany (EU)	64%
Italy (EU)	113%
Greece (EU)	115%
Ireland (EU)	36%
Portugal (EU)	73%
Spain (EU)	46%
Canada	29%
United Kingdom	62%
Japan	113%

EU: denotes member country of the European Union

Source: International Monetary Union data as of 2009 Q4

There are a couple of surprises in the list — Ireland and Spain have low debt to GDP ratios, yet they are troubled. In the case of Spain, the cause of its difficulties is clearly traceable to its loss of cost competitiveness. The challenge facing most of these countries, including the U.S., is that huge increases in deficit financing to combat the consequences of the Great Recession are raising debt ratios at a rapid rate. If the Rogoff and Reinhart historical record is a fair reflection of the tipping point, then many countries are rapidly running out of policy maneuvering room.

4. Options To Defuse a Sovereign Debt Crisis

A sovereign debt crisis occurs when a country has lost its international cost competitiveness resulting in a chronic balance of payments deficit and when its debt to GDP ratio has climbed to a level that causes lenders to fear default. What ensues is an inability of the country to rollover existing debt and finance new debt. For example, Greece's wage and price competitiveness relative to the strongest members of the European Union declined about 30% in recent years, resulting in its current account deficit rising to an annual level exceeding 12% of GDP.

The classic response to a sovereign debt crisis has been for the country to default and restructure its debt and simultaneously devalue its currency. Frequently, but not always, these actions will also be accompanied by austerity measures, such as wage freezes or reductions and/or cuts in social benefit programs, to improve the country's competitiveness.

Debt default and restructuring immediately reduces the debt burden and lowers the cost of debt servicing. The negative consequence is that the country will find it difficult, if not impossible, for a period of time to borrow any new funds. This forces the country to live within its means. However, the pain of adjustment can be assuaged through substantial devaluation of its currency. At a single stroke this cheapens the cost of its exports and increases the cost of its imports. Devaluation improves the country's balance of payments problem quickly, limiting the need to seek external financing. It also improves competitiveness without having to resort to more painful internal austerity measures involving substantial cuts in wages and government spending.

However, this traditional response is unavailable when a country gives up its own currency and becomes part of a currency union. It can default on its debt and remain in the union, but only with the blessing of other members. But it is impossible to devalue its currency because it has none. Short of defaulting on its debt, the country's only option is implementation of draconian austerity measures to close its competitiveness gap. During the time it takes to accomplish this other members of the union must guarantee or otherwise support the rollover of its debt and necessary new debt issuance.

5. Consequences of the Austerity-Only Option

The most obvious consequence of restoring competitiveness through austerity is that it may not work politically. Austerity involves dramatic cuts in government spending. It involves reducing health and pension entitlements. It involves firing enormous quantities of government workers.

In the case of Greece, it is required by the terms of the European Union-International Monetary Fund (EU-IMF) agreement to reduce its budget deficit, which equaled 13.6% of GDP in 2009, by 5 percentage points in 2010 and approximately an additional 1 to 1 1/2 percentage points in following years, which would achieve the target of 3% by 2014. Over the first five months of 2010 Greece has already reduced government expenditures by 35% and is on a course to achieve a deficit ratio of 8.1% by the end of 2010, which would put it ahead of the EU-IMF target for 2010. In addition to cuts in government spending, pension and labor market reforms are in the process of implementation.

While on the surface this seems like good news and a hopeful sign that austerity will work in Greece, EU-IMF assumptions about the consequences of these measures on the Greek economy are almost certainly overoptimistic. For example, Greek GDP is assumed to decline 4.6% in 2010 and another 2.6% in 2011 before resuming modest growth. Simple math suggests that at a minimum the decline should be at least the amount of the cut in the deficit, and that assumes there is no multiplier impact on the rest of the Greek economy. No one really seems to know exactly what the multiplier is, but it is probability greater than 1.0. Desmond Lachman of the American Enterprise Institute suggests that the multiplier is 1.2, while Daniel Gros, a euro-zone economist based in Brussels, believes the multiplier is 2.5.

Indirect evidence exists that the actual multiplier is probably somewhere between the 1.2 and 2.5 estimates. Latvia and Ireland have nearly a two-year head start on implementing draconian austerity measures. Already nominal GDP has fallen 20% in Latvia and 10% in Ireland. So, it certainly is well within the realm of possibility that nominal Greek GDP will fall by 15 to 20% over the next two years, with downside risks exceeding upside potential. For the EU-IMF assumptions to prevail, Greece must be able to grow its way out of its problems. However, because of its lack of cost competitiveness and inability to devalue its nonexistent currency, this seems totally impossible to accomplish. Deflation in wages will eventually restore competitiveness,

but this is not likely to happen within as short a timeframe as the EU-IMF assumptions imply. And, wage deflation will certainly assure a powerful negative multiplier effect on nominal GDP.

6. Greece Will Not Be Able to Resolve Its Sovereign Debt Problem Through Austerity and Deflation — The Math Simply Doesn't Work

Key Concepts and Measures

Before exploring how the math works let me begin by defining key concepts and measures.

Total Deficit: The total annual budget deficit includes interest on the outstanding stock of publicly-held debt and the net difference between annual tax revenues and expenditures.

Primary Deficit (P): The primary deficit omits interest payments on the outstanding stock of debt, so that it is measured as the difference between annual tax revenues and expenditures.

Government Debt Held by the Public (D): This measure eliminates government debt issued to government trust funds or other governmental entities. As such it may underestimate the scope of fiscal exposure. This measure also ignores the extent of unfunded obligations, which could in time have a significant impact on fiscal solvency.

Primary Deficit to GDP Ratio (P/GDP): A desirable level for this ratio is zero. That is because a level greater than zero will tend to increase the debt to GDP ratio overtime.

Public Government Debt to GDP Ratio (D/GDP): This is the key ratio that measures vulnerability to potential default. A value exceeding 50% marks entry into the risk zone and a value of 70% has been associated, on average, with past sovereign debt defaults. Generally speaking, the public government debt ratio will be constant when the primary deficit is zero, increasing when it is positive and decreasing when it is negative. This relationship exists because the average interest rate on public debt tends to track the level of nominal GDP growth closely over time.

Interest Rate on Government Debt (i): Generally, this rate is presumed to be the risk-free rate. But that changes when the risk of default rises.

Growth Rate of Nominal GDP (g): The growth rate of nominal GDP depends on inflation, demographic trends in population growth and input (labor and capital) productivity. In the U.S. the nominal growth rate in GDP is about 3% plus the rate of inflation. It is lower in countries, like Germany and Japan, which have declining populations. It is higher in countries, like China and India, which have high productivity rates. Countries with a lower value of g will have much greater difficulty in reducing the government debt to GDP ratio (D/GDP), as their ability to grow out of their problems is constrained by factors beyond their control.

($i-g$): If the interest rate on the debt exceeds the nominal growth rate in GDP, then the debt ratio (D/GDP) will increase and, of course, the opposite occurs when the interest rate on the debt is less than the growth rate in nominal GDP. As long as market participants believe that the government will be able to fund its debt, interest rates will remain low and closely track the nominal growth rate in GDP. In other words, this measure will have a value close to zero. However, as the debt ratio rises solvency concerns will emerge and will rise in proportion to increases in the debt ratio. This risk can now be tracked for various countries through the pricing for country-specific credit default swaps.

In the case of Greece, its debt ratio is about 115% compared to 58% in the U.S. and its current budget deficit, prior to recent austerity measures, was 13.6% of GDP in 2009 compared to 10.2% for the U.S in 2009 (calendar year). Once the debt ratio reaches a certain level, the interest costs tend to accelerate and $i-g$ becomes increasingly positive. The rate of growth in the debt ratio and solvency concerns act as an accelerant because interest rates rise along with solvency concerns.

Mathematics of Austerity

EU-IMF Assumptions — The Bank of America scenario in **Table 3** replicates approximately the EU-IMF assumptions for the impact of Greek austerity policies on nominal GDP growth and the public debt to GDP ratio. The debt ratio rises from 115% currently to a maximum of 149% in 2013 and

Table 3 — Impacts on Greek Nominal GDP Growth and Debt to GDP Ratios for Various Scenarios

Scenario	Nominal GDP in 2015	Nominal GDP	Nominal GDP	Debt/GDP In 2015	Debt/GDP	GDP
		Maximum Change	Year of Maximum Change		Maximum Change	Year of Maximum Change
Bank of America	5.8%	-5.6%	2011	139%	149%	2013
Multiplier = 1.0	1.9%	-5.8%	2012	145%	149%	2013
Multiplier = 1.2	5.6%	-8.0%	2012	158%	158%	2015
Multiplier = 1.5	-16.0%	-16.0%	2015	178%	178%	2015
i = 7%; Multiplier = 1.2	-5.6%	-8.0%	2012	173%	173%	2015
GDP decline matches Primary Deficit reduction; Multiplier = 1.2	-17.4%	-17.4%	2015	182%	182%	2015

then a large negative primary deficit brings the ratio back down to 139% by 2015. Note that the maximum decline in nominal GDP is 5.6%, which is considerably less than the 11% decline in the primary deficit. This occurs because the EU-IMF assumptions incorporate an underlying positive GDP growth trend, which offsets partially the negative impact of the reduction in government spending.

Base Case — This reflects my attempt to replicate the EU-IMF assumptions. I am missing information about the interest rate on debt and there may be some timing issues in the simple model I built to test changes in assumptions. Nonetheless, the simple model should be sufficient to demonstrate how changes in key assumptions affect nominal GDP growth and the debt ratio.

Other Scenarios — In all other cases when the multiplier is greater than 1.0, or when the interest rate on debt does not decline from the current level of 7.0%, or when the decline in GDP is assumed to equal the decline in the primary deficit ratio (no underlying offsetting growth trend), the decline in nominal GDP is greater than under the EU-IMF assumptions and the debt ratio continues to increase steadily throughout the five-year time period.

This exercise shows that the EU-IMF assumptions are optimistic, even heroic. There is absolutely no margin for error. Simply increasing the multiplier from 1.0 to 1.2, a seemingly reasonable, even benign assumption, tips the debt ratio over so that it never declines.

7. Prospects for the Euro and the European Union

My sense is that long-term prospects for survival of the euro and the European Union in their present forms are not good. Other knowledgeable people are of a similar opinion. Thus, what is likely is that the crisis will erupt again sometime in the future, most likely triggered by information that is inconsistent with the optimistic case laid out by the EU-IMF.

Eventually, some kind of restructuring of Greek debt will probably be necessary. But when this occurs, the potential for contagion effects on other European countries with weak finances and many large European banks will need to be dealt with simultaneously; otherwise the potential for another financial panic, this time focused on Europe rather than the United States, will become a nontrivial risk.

Other the last two months fiscal consolidation has become a firmly entrenched policy across the European Union. This will reduce GDP growth and it seems hard to conclude that Europe can now avoid a double-dip recession. While fiscal consolidation will help improve the finances of stronger countries such as Germany and France, it cannot help but worsen the condition of weaker countries, such as Portugal, Spain, Ireland and Italy. Debt problems are more easily resolved when economies are expanding than when they are contracting. The policies now being pursued will impart a deflationary shock. The consequences are as yet not fully clear, but what is clear is that downside risks have risen.

In the longer run, the survival of the European Union itself is in jeopardy. It may have to retreat to its original form as a trading union — the Common Market — and abandon the currency union. It is difficult to discern how effective governance structures can be put in place which can ensure the monetary union can operate successfully throughout the entirety of the economic and weather and adjust to all manner of shocks.

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