OBSERVATION

TD Economics

September 5, 2012

TREASURIES TO AVOID JAPAN-LIKE EXPERIENCE

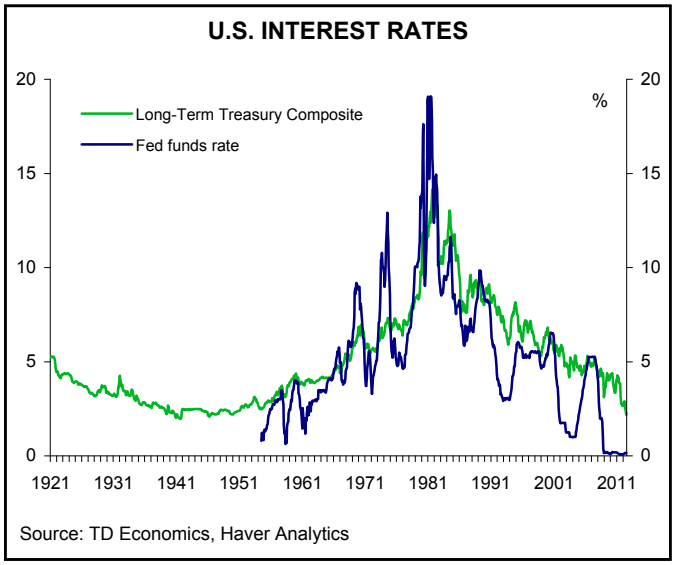
Highlights

- Treasury yields have been trading at historically low levels in recent months. This does not necessarily indicate that the U.S. economy is heading into recession / deflation, or that it is entering into a lost decade as Japan did back in the 1990s.
- Although it is possible to elaborate scenarios that could resemble that situation, the current level of yields is more indicative of the tremendous uncertainty that weighs on financial markets these days than a signal of looming deflation.
- Barring any major shocks, while yields will remain exceptionally low in the near term, the U.S. yield curve should rise and steepen over the next several years, amid a modest, sustained recovery.
- This should be the case even if the Federal Reserve engages in additional quantitative easing and delivers on its guidance to keep the Fed funds rate at the current level through late 2014.

The yields of U.S. Treasuries have been trading at historically low levels in recent months. The average yield on the 10-year Treasury note fell to 1.38% in late July, and a long-term Treasury composite averaged 2.18% that month, its lowest level since 1941. Back then, the U.S. was about to join the Allied Forces in World War II and the Great Depression was still fresh on everybody's minds. Those were extremely uncertain times. Today the global economy is battling the legacy of the Great Recession and, over the last two years, we have been contemplating the possibility that the euro zone could break apart. That shock would not only throw the global financial system into disarray and trip the global economy back into recession, but it would also have dire social and political ramifications. Much like seven decades ago, we are once again living in extremely uncertain times.

If the saying "of all the market forecasters, Mr. Bond gets it right most often" is anything to go by, the outlook is not very promising. Real interest rates extrapolated from 10-year U.S. Treasury yields and inflation expectations derived from inflation-adjusted U.S. Treasury TIPS have been consistently in negative territory since late last year. If this situation persists long enough, negative real rates would discourage savings, which, in turn, would reduce funding for investments. Taken to the extreme, this could lead to disinvestment – i.e., capital destruction – and an ever-contracting economic output. That is clearly unsustainable; but is this really what interest rates are telling us about the future of the U.S. economy? How long can it last?

To try to answer these questions we look at Japan's economic



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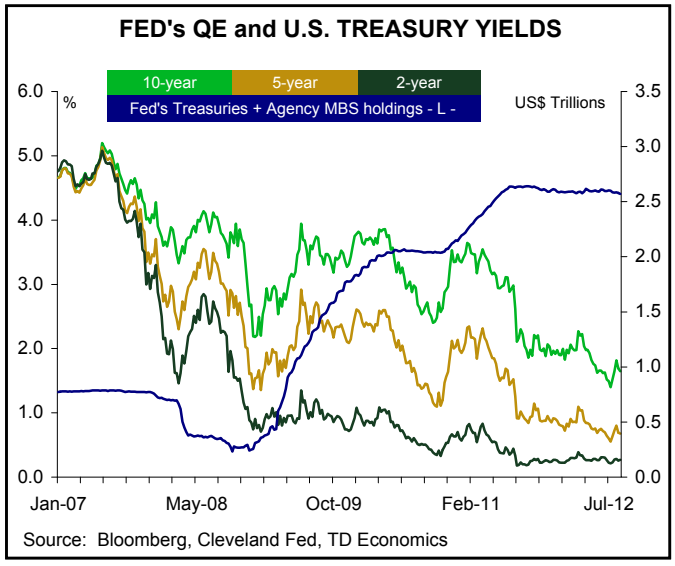


developments over the last two decades. The Asian country is an inescapable reference, not only because it is the only country that has experienced a long spell of ultra-low interest rates in recent years, but also because that period was preceded by a massive asset bubble and real estate market crash. We begin with a description of some stylized facts of Japan's "lost decades", then we describe some aspects of the U.S. Treasury market that may be contributing to low yields, and finally we draw some implications to what all of this could mean for the U.S. interest rate outlook.

Consistent with conventional wisdom, meager economic growth and persistent, albeit mild, deflation helped to keep sovereign yields low in Japan. However, the domestic support for sovereign bonds has played a larger role than the economic backdrop. In turn, comparing the similarities and differences between the current U.S. economic backdrop with the Japanese experience suggests that current U.S. Treasury yields are more indicative of the tremendous uncertainty that weighs on financial markets these days, than a signal of looming deflation. The bottom line is that ultra-low Treasury yields are unlikely to persist. Barring any major shocks, a continued, modest recovery in the U.S. economy should lead to a gradual rise and steepening of the Treasury yield curve, even under the current monetary policy stance.

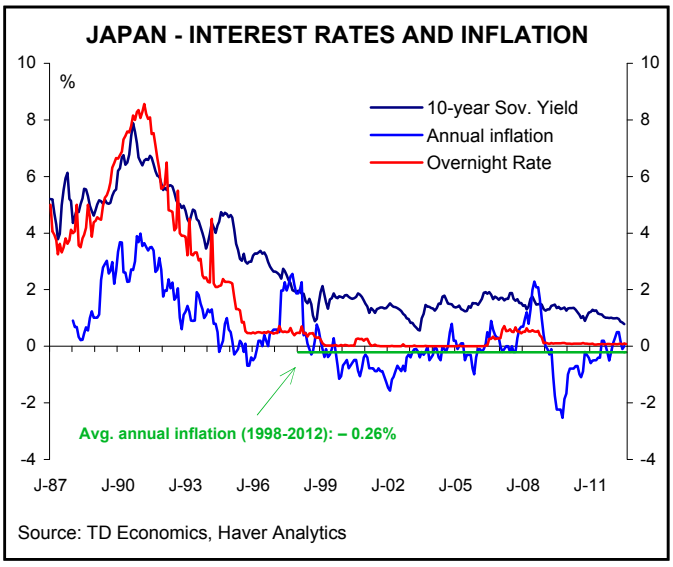
Framing Japan's lost decades

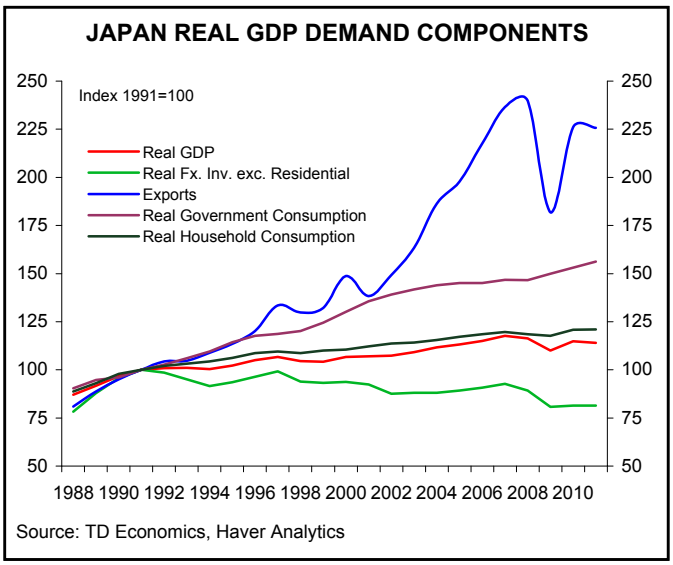
Japan's economy over the 1980s was characterized by a massive run-up in financial and real estate values, which came crashing down in the early years of the 1990s. A sharp ascent in Japanese stocks drove the market capitalization of the Tokyo Stock Exchange from around 40% of GDP in the mid-80s to a peak of 150% of GDP by December 1989. Twelve months later, it had fallen below 95% of GDP and, by the end of 1992, it was down to 60% of GDP. The collapse in real estate prices was also dramatic; for example, commercial land prices declined by roughly 80% from peak to trough.[1]

The two decades that followed the burst of the Japanese asset bubble have been characterized by very low economic growth and persistently low inflation. During the period 1991-2011, Japan's economy expanded on average 0.8% a year. Annual inflation has averaged 0.3% throughout this period, although the average for the last 14 years has been -0.3%.

There are a number of factors that contributed to the protracted recovery, and by extension, low yield environment. One of the most broadly accepted views is that the Bank of Japan (BoJ) was slow to react to the collapse in asset values and the subsequent strain placed on the financial system and households. Indeed, the BoJ reduced the policy interest rate for the first time in July 1991; a year and a half after the stock market had peaked. Then, it took the BoJ almost eight years to formally introduce a zero interest rate policy and ten years to finally engage in quantitative easing.

Thus, few will dispute that long lags in the monetary policy response are partly to blame for the persistence of low trend growth and inflation. However, there were a number of other factors also at play, including fiscal policy errors and poor demographics. For instance, in hindsight, a significant fiscal policy mistake was not tackling the legacy





of bad loans more aggressively. It took the government twelve years after the peak in real estate prices to create a bad-loan resolution company with attributions to write-off bad loans and force bank mergers. Allowing banks to carry non-performing loans on their books for such a long time delayed the corporate deleveraging process, which, in turn, hampered domestic demand. While exports more than doubled in real terms since 1991, business investment in plant and equipment contracted at an average 0.4% annual rate.

Demographics have also hampered economic growth in Japan, particularly during the last decade. Contractions in both hours per worker and the relative size of the working age population, as well as a decline in the labor participation rate, have weighed on production capacity. On the demand side, a declining population has hindered domestic demand.[2]

However, the combination of all these factors does not entirely explain the sustained low yields of Japanese government bonds. The two critical elements that have kept sovereign yields low have been high domestic savings and a home bias by domestic banks and institutional investors favoring Japanese sovereign bonds over alternative investments.

Bank profitability in a sustained low interest rate environment

Japanese banks registered net income losses throughout the 1990s and early 2000s. The legacy of bad loans from the real estate crash, the low economic growth – deflation environment that ensued, and the impact from the 1997 Asian financial crisis and the 2001 Tech bust hindered banks' profitability until 2003. In the subsequent seven years, Japanese banks reported annual net income gains on six occasions. However, profitability was modest. The entire private sector banking system – a total of 111 banks – reported average annual net income gains of ¥2 trillion – US$ 18.9 billion. Furthermore, 60% of these gains were booked by the city banks Mizuho, Mitsubishi-UFJ, and Sumitomo Mitsui. Return on assets and return on equity for the entire banking system were relatively poor. Average ROA between 2004 and 2010 was 0.25% while average ROE was 5.2%. For the city banks, the metrics were slightly better at 0.3% and 6.9%, respectively.

Profitability was not generated by net interest income. Unsurprisingly given the low interest rate environment, a declining net interest margin (NIM) has offset increases in the volume of loans and securities investment over recent years. In fact, the NIM for Japanese banks has been falling consistently since 1994. As a result, net interest income has been essentially flat since 2004. Neither has non-interest income – trading fees, commissions, etc. – contributed to net income gains, nor have extraordinary profits, which were minimal.

Profits over the period 2004-2010 were generated primarily by declining operating expenses. Falling interest expenses did contribute to profits booked in 2009 and 2010; however, the majority of the profits between 2004 to 2010 came from "other expenses". The latter includes loan loss allowances, loan impairment, goodwill impairment, etc. Thus, the reduction in "other operating expenses" was likely achieved via declining write-offs of bad loans related to the three previous financial crises.

Recent analysis by the BoJ pointed to low profitability of core banking operations as a major hurdle to consistent bank profitability. The Japanese central bank also indicated that expense ratios among the banks are still generally very high relative to banks' interest margins. Therefore, profitability could be improved through further consolidation of the banking sector in order to lower overhead operating expenses.

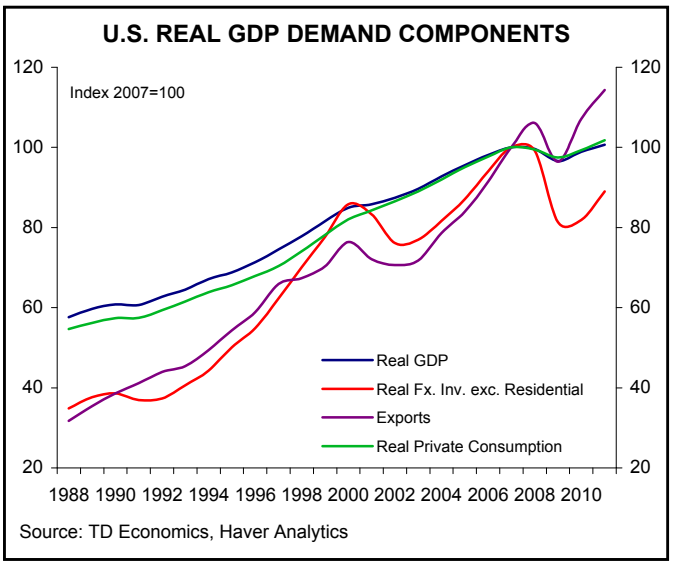
Overall, the performance of Japan's banks in terms of profitability falls squarely with what one would expect from low economic growth, mild deflation, and a low interest rate environment. Namely, meager nominal GDP growth, private sector deleveraging, and poor demographics beget stagnant growth in financial intermediation volumes. Adding the compression of interest margins that result from a flat yield curve at very low interest rate levels means that the only way left to generate profits is through efficiency gains, expense reduction, and economies of scale. In other words, such an environment would likely lead to industry consolidation and fewer players.

Since 1991, the Japanese private sector has saved enough to not only finance domestic capital spending, but to also cover an average annual fiscal deficit of 5.1% of GDP and to provide funding to the rest of the world by an amount equivalent to 2.9% of Japanese GDP. As a result, only 8.3% of total outstanding Japanese government debt is held abroad; Japanese banks hold around 43% of the total outstanding JGBs, insurance companies 20%, public pensions 12%, and the BoJ 8%.

This draws the natural question as to why Japanese households are satisfied with low returns on bond yields, and whether the same behavior is occurring in the U.S. It is important to note that despite the very low JGBs yields, the fact that the country has sustained mild deflation means that, on average, a Japanese citizen investing in JGBs has obtained a positive real rate of return. For 10-year bonds, this rate of return has exceeded the rate of growth of nominal GDP. This has provided a strong enough incentive for Japanese households to maintain the home bias on their investment portfolio.

The U.S. is not cut from the same cloth

Several differences stand out between Japan's post-bubble experience and that of the U.S. after 2007. First, the correction in real estate prices in the U.S., although very significant, has been smaller than in Japan, and its effect on net wealth has been in part offset by the recovery in stock market capitalization. Second, inflation expectations have remained well anchored in positive territory in the U.S. Third, the demographic shift faced by Japan was more severe than the current trend in the U.S., which combined with better U.S. labor productivity, translates into higher potential U.S. GDP. And lastly, corporate non-financial balance sheets are in significantly better shape in the U.S. than



what they were in Japan, even 15 years after the Japanese crisis. This means that when uncertainties abate, the U.S. is in a far better position to unlock pent-up demand for capital investments and hiring.

In all, although one cannot preclude future shocks or policy missteps, these elements suggest that, in principle, it would be unlikely for the U.S. economy to replicate Japan's lost decades. So, if the U.S. economy is not headed into deflation, why are U.S. Treasury yields this low?

Many factors have kept Treasuries yields low

The first element to consider when analyzing the low level of U.S. Treasury yields is the broad-based demand that Treasuries garner from the global reserve currency status of the U.S. dollar. It is remarkable that in the aftermath of a global financial crisis originated in the U.S., the massive increase in U.S. sovereign debt issuance was matched by both strong domestic and external demand. Indeed, Federal

SHARE OF TOTAL U.S. TREASURY DEBT (%)

	2006	2007	2008	2009	2010	2011	* Avg. 1945-2008
Federal Reserve Banks	16.0	14.5	7.5	10.0	10.9	16.0	13.8
Foreign Official Holdings	32.1	34.1	37.9	37.0	35.5	33.0	11.3
State/Local Governments	10.4	10.3	7.5	6.3	5.4	4.3	8.8
Banks/Credit Institutions	2.3	2.4	1.6	2.5	3.2	2.4	20.1
Households and Mutual Funds	13.6	12.7	16.6	19.6	20.3	19.0	26.0
Foreign Private Sector	11.7	12.5	13.5	10.2	11.4	11.6	4.2
Fedrl/State/Local Govt. Ret. Funds	4.8	4.5	4.1	3.8	3.4	3.2	3.5
Private Pensions	2.7	3.3	2.9	4.0	4.2	4.2	2.8
Insurance Companies	4.1	2.8	2.7	2.9	2.7	2.5	4.8

Source: Federal Reserve Flow of Funds data, *: Krishnamurthy et al. (see end note 5)

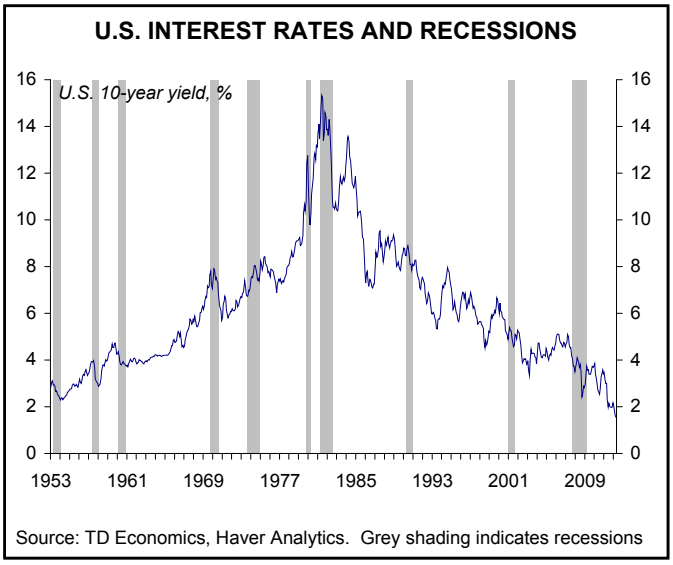
Reserve purchases of Treasuries due to quantitative easing have been paralleled by foreign central banks' accumulation of foreign exchange reserves in an effort to prevent the appreciation of their domestic currencies caused by the expansion of the Fed's balance sheet.[3] Although recent research has attributed a significant portion of the decline in U.S. sovereign bond yields to the effects of the large asset purchase programs carried out by the Fed,[4] other elements have also been at play. Most notably, the escalation of the European sovereign debt crisis, the uncertainty regarding the U.S. fiscal cliff, and the global economic slowdown of the last three quarters, have led investors to sacrifice yield in search for the refuge provided by the safety and liquidity of U.S. Treasuries.

In fact, empirical research has shown that, over the period 1926-2008, investors were willing to pay a price premium for these liquidity and safety attributes that translated into an annual average reduction of 72 basis points in Treasury yields vis-à-vis other assets with comparable credit quality or maturity characteristics.[5] Furthermore, the safety and liquidity of Treasuries have made them a dominant type of collateral used in market-based financing activities, also known as the shadow banking system.

Large institutional cash pools, such as pension funds, insurance companies, sovereign wealth funds, national central banks, mutual funds, and hedge funds, extract some of that "safety and liquidity" value by lending U.S. Treasury securities in repurchase agreements – repo transactions. In that way, they become the providers of "source collateral" to securities brokers, primary dealers, and hedge funds, which in turn re-pledge the Treasuries in subsequent repo transactions to obtain funding or use them to close short positions, etc. To provide some reference as to the significance of these activities, total repos and reverse repos outstanding in the inter-dealer repo market, which comprises primarily government bond repo transactions, are estimated at around US$ 2.1 – 2.6 trillion in the U.S.[6]

Repo transactions enhance the returns obtained from investing in Treasuries. At the same time, they also assist investors in performing vital technical and tactical functions such as cash flow management, hedging, etc.[7] Therefore, for large institutional investors, Treasuries have a much broader scope than that of an asset being held-to-maturity. This partly explains why investors can temporarily accept low levels of yields.

Furthermore, this good-quality collateral attribute has



Source: TD Economics, Haver Analytics. Grey shading indicates recessions

likely reinforced the impact of quantitative easing on Treasury yields. By buying large amounts of Treasuries (e.g., in 2011 the Federal Reserve System absorbed 60% of the total Treasuries issuance), the Fed has reduced the availability of Treasuries that could be used as "source collateral" in the shadow banking system. All else equal, this increases the "convenience yield" of U.S. Treasuries vis-à-vis other assets deemed to be of lower quality, and this effect gets stronger during times of market turmoil and high uncertainty.

Therefore, the Fed has not only impacted yields directly through its purchases, but also indirectly by reducing the supply of "source collateral". As a digression, note that the latter might also carry a detrimental effect, because it has removed financial lubrication from the system, which might have detracted from the overall easing impact of its quantitative easing efforts.

In all, these elements will remain in full play in the coming 3-6 months, fueled by uncertainties stemming from Europe's sovereign debt crisis and the fiscal outlook in the United States.

Heavy calendar of events to impact Treasuries

Among the list of upcoming events, if a third round of asset purchases by the Fed is announced next week, its initial impact on yields would depend on the modalities to be implemented. Market consensus sees the Fed opting for mortgage backed securities purchases.

September will also be a critical month for the euro zone. European authorities will have to decide whether to grant some flexibility to Greece, given that the country will miss most of its adjustment targets due to a deeper-

than-expected recession and the policy impasse caused by the June elections. Other items on the agenda include Germany's constitutional court voting on the constitutional status of the European Stability Mechanism. A review of Portugal's adjustment program (which will likely require modifications) is also on the docket. Any setbacks on these events will send Treasury yields lower again. Alternatively, if European policymakers show some progress, risk assets will benefit and yields will edge higher.

In November, the outcome of the U.S. Presidential elections will likely have some impact on Treasury yields, given the potential implications for future fiscal policy. Unless Congress acts to stop it, a mix of spending cuts and tax increases worth 5.1% of GDP will take place at the beginning of 2013. We believe the full extent of the fiscal cliff is likely to be avoided, even if Congress remains gridlocked after the election. But, some fiscal consolidation is unavoidable. We expect the fiscal drag will subtract 1.5 percentage points from growth in 2013. This will most likely limit the near-term rise in Treasury yields.

Beyond 2012, our base case scenario sees the Fed on hold until late 2014, while economic growth gradually improves. This is likely to lead to a modest rise in Treasury yields and a steepening of the U.S. yield curve. However, the absolute level of yields will remain low by historical standards.

As the economic recovery gains more traction beyond 2014, a gradual rebalancing of monetary policy is in store. Accordingly, over the long term, 10-year Treasury yields should return to 4% or modestly higher, based on inflation expectations of 2%, and projections for potential GDP trending at close to 2.4%.

In other words, the U.S. will experience Japan-like rates in the near term, but they will not last indefinitely.

Final Remarks

The current low levels of Treasury yields do not necessarily indicate that the U.S. economy is heading into recession / deflation, or that it is entering into a lost decade as Japan did back in the 1990s. Although it is possible to elaborate scenarios that could resemble that situation, the current level of yields is more indicative of the tremendous uncertainty that weighs on financial markets these days. Barring any major shocks, while yields will remain exceptionally low in the near term, the U.S. yield curve should rise and steepen over the next several years, amid a modest, sustained recovery. This should be the case even if the Federal Reserve engages in additional quantitative easing and delivers on its guidance to keep the Fed funds rate at the current level through late 2014.

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Endnotes:

1 Japan also had to deal with the consequences of external shocks, such as the 1997 Asian crisis and the Tech bust of the early 2000s. As a result, stock market capitalization never reclaimed its 1989 level. It reached a high of 123% of GDP in May 2006, but in the post – Lehman era it has been hovering around 65% of GDP. National wealth declined by three times Japan's 1989 GDP in the fifteen-year period following the asset crash. This compares to a loss equivalent to 100% of 1929 GDP in the U.S. during the Great Depression. See "Does Central Bank Independence Frustrate the Optimal Fiscal-Monetary Policy Mix in a Liquidity Trap? ", Paul McCulley and Zoltan Pozsar, March 2012.

2 "Deleveraging and Growth: Is the Developed World Following Japan's Long and Winding Road?, Masaaki Shirakawa, Governor of the Bank of Japan, January 10, 2012. Mr. Shirakawa reckons that "In the 1990s, low growth was mainly brought about by the deleveraging associated with the unprecedented bursting of the bubble. In the 2000s and thereafter, the major causes of low growth in Japan have been rapid population aging and population decline."

3 See "The Effect of Quantitative Easing on Interest Rates: Channels and Implications for Policy", Krishnamurthy, Arvind and Vissing-Jorgensen, Annettte (2011). NBER Working Paper, No.17555, and the references therein.

4 At the end of 2011, the stock of outstanding U.S. Treasury debt had increased by roughly 65% with respect to its level at the end of 2008. The Federal Reserve System absorbed roughly 29% of the additional supply of Treasuries through its quantitative easing programs. However, support for U.S. government debt has been broad-based. At the end of last year, foreign official investors held a third of the total outstanding stock of U.S. government debt. U.S. households and mutual funds held 19% of the total, and foreign private investors held 11.6%. In turn, the Federal Reserve System Treasury holdings amounted to 16% of the total. This compares to an average 14% share for the period 1945-2008.

5 The Aggregate Demand for Treasury Debt, Krishnamurthy, Arvind and Annette Vissing-Jorgensen, 2010

6 "Securities Lending and Repos: Market Overview and Financial Stability Issues", Financial Stability Board, 27 April 2012

7 See "Institutional Cash Pools and the Triffin Dilema of the U.S. Banking System", Pozsar, Zoltan, IMF Working Papers, August 2011, and "The Nonbank-Bank Nexus and the Shadow Banking System", Pozsar, Zoltan and Manmohan Singh, IMF Working Papers, December 2011.