Market Insight

The Persistence of Low Long-Term Interest Rates in the U.S.

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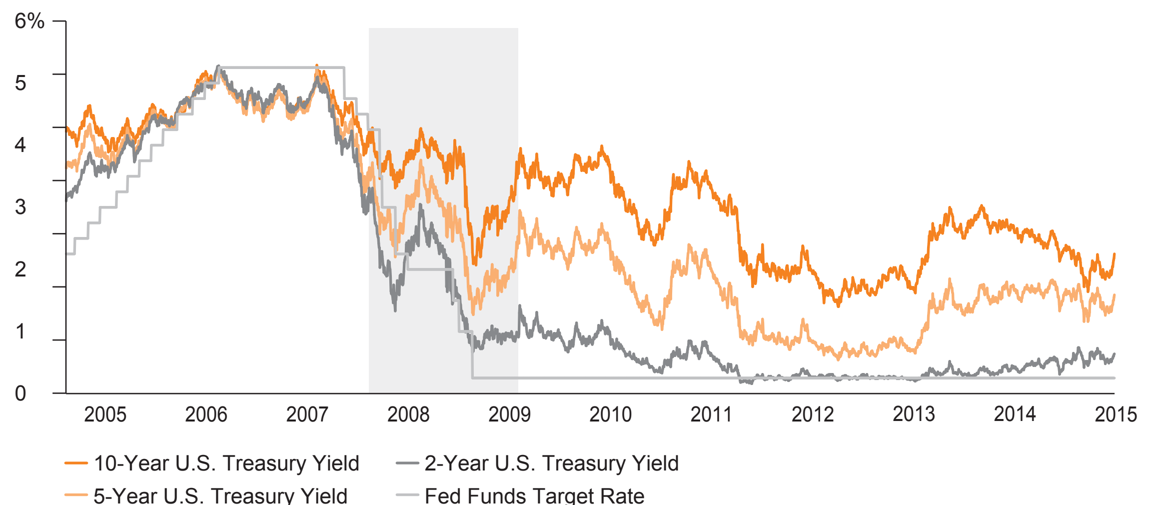
Understanding the evolution of long-term interest rates and their likely future path is important for investors and concerned citizens. This paper attempts to explain why long-term U.S. interest rates, as measured by the nominal yields of U.S. Treasury securities, have been persistently low and whether they are likely to remain low this year.

Fundamental economic forces are the key drivers of long-term rates. Long-term rates depend on Federal Reserve monetary policy, short-term interest rates, actual and expected inflation, economic growth and prospects, and global financial flows. Hence, a careful economic analysis of the economic fundamentals is essential to understand why nominal Treasury yields have stayed so low for so long.

Background: The Economic Recovery

Long-term rates in United States have remained quite low since the Great Recession and global financial crisis. The nominal yield of the ten-year U.S. Treasury note – a widely used gauge of long-term rates – was a bit above 2.0% as of early May (Figure 1). This rate has been persistently low, even though it appears that the Fed has prepared the ground for a hike in the federal funds target range (the policy rate) perhaps sometime later this year.

Figure 1. Long-Term Interest Rates Have Been Remarkably Low Since the Global Financial Crisis



Source: Reuters EcoWin

The U.S. economy has gradually recovered from the abyss of the Great Recession, which resulted in a decline of about 5% of real GDP. Normally, an economic recovery would have spurred a notable rise in rates, but clearly that has not yet occurred. To gain insight into why long-term rates are so low and whether they are destined to remain low, it is crucial to examine the nature of the ongoing economic recovery, lingering areas of weakness and the connections between the U.S. economy and the rest of the world.

The Good News: Ongoing Recovery

The U.S. economy continues to recover gradually despite a disappointing first quarter 2015 during which it registered GDP growth of only 0.2% in the advanced estimate. This weakness was due to severe weather, declines in exports and fixed business investment, and delays associated with labor disputes in major seaports. Looking beyond these transitory setbacks, recovery is ongoing in the labor market, house prices, the stock market, consumption, business fixed investment and federal tax revenues.

The labor market has demonstrated a solid pace of employment growth for four years. The official unemployment rate has been steadily declining from its post crisis peak of 9.6% in 2010 to just 5.5% as of March 2015. The decline of broader measures of labor market slack, such as the U-6 underutilization rate, corroborates that slack in the labor market is diminishing.[1] Even in more normal times the U-6 rate tends to be several percentage points higher than the official unemployment rate. The difference between these two measures of underutilization widened considerably during and immediately after the Great Recession. Both have been declining and the spread between the two measures has also narrowed somewhat even though this spread is still wider than before the Great Recession. At the same time, initial and continuing unemployment claims have been falling for many quarters. Other labor market indicators over the past several years — such as the steady rise in rates of job openings, hires and quits, and the decline in the rates of layoffs and discharges — confirm that the labor market continues to improve.

While house prices, as measured by the S&P/Case-Shiller Home Price Index, are still markedly below their pre-crisis peak, they have been rising for more than two years. The rise has been gradual and steady. The increase has occurred across major metropolitan areas and in almost all regions of the country, though it is more pronounced in some than in others. Over the past 12 months, all of the 20 major metropolitan areas included in the index have seen increasing house prices. The greatest increases have occurred in Miami, Denver, Dallas and San Francisco; cities in other California, Florida and Nevada, which suffered the steepest price declines after the bursting of the house price bubble, also have seen house price appreciation in the past several months.

The U.S. stock market has been quite resilient since the end of financial crisis. The S&P 500 Index and other indices of the stock market have been rising since 2009 and stand at or near all-time highs. Market resilience has been boosted by strong corporate profits, corporate buybacks, gradually improving real output and “animal spirits,” supported by quantitative easing and low interest rates in the U.S. and elsewhere.

Household real net worth (HNW) has recovered strongly in recent years. During the financial crisis HNW, measured in 2009 real dollars, took a sharp hit; it declined from nearly $70 trillion in mid-2007 to about $55 trillion by mid-2009. Since then, HNW has climbed impressively to more than $75 trillion at the end of 2014. The gain is due to both increasing house prices and strongly rising equity prices. For the household and non-profit sector as a whole, housing wealth constitutes about one-quarter of household real net worth, while financial assets constitute most of the remainder.

[1] The U-6 underutilization rate is a broader measure of slack in the labor market because it includes total unemployed, plus all persons marginally attached to the labor force, and those employed part time for economic reasons, as a percentage of the civilian labor force plus all persons marginally attached to the labor force.

Private consumption is primarily driven by households’ and other agents’ real disposable income, but increases in household net worth also affect economic activity. An increase in real wealth raises private consumption: this is known as the “wealth effect.” However, empirical studies of the consumption function show that the effect of an incremental dollar of real disposable income is much stronger than an incremental dollar of real net worth. Studies suggest that the effects of rising real income and rising real net worth on consumer spending are positive and statistically significant. Poterba[2] provides an overview of the connection between stock market wealth and household consumption.

The gradual economic recovery has spurred consumer activity — the labor market and real disposable income are gradually rising, with increasing real net worth providing auxiliary support. Consumption of durable and non-durable goods, as well as services, has risen. Auto sales, which fell sharply following the crisis, have finally begun to rise after several years at subpar levels. The resumption of auto sales has been supported by pent-up demand, gradually rising real income and greater access to credit. The recent decline in gasoline prices also may have supported auto sales.

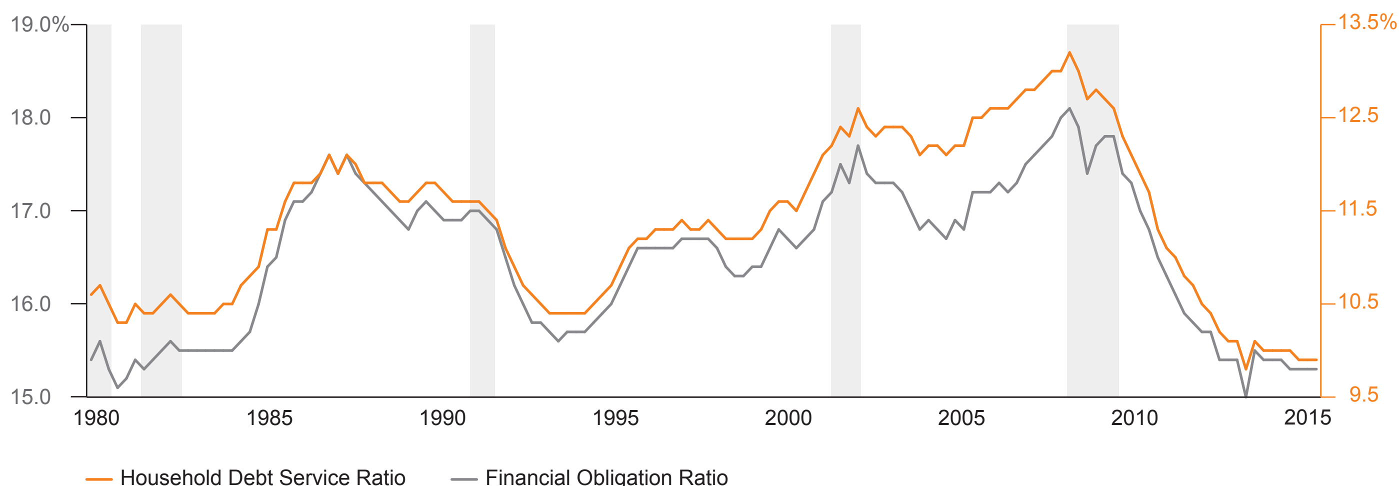
Crude oil prices have fallen drastically since early 2014, resulting in lower gasoline and energy prices. This should benefit consumers in the U.S. and other net oil-importing countries. So far, however, consumers have been cautious about increasing their spending, particularly on durable goods. Nonetheless, stabilization of energy prices is likely to spur increases in spending, particularly if consumers deem that the price declines will persist.

Households have been repairing their balance sheets since the advent of the global financial crisis. As percentages of disposable income, household debt has declined while household net worth has risen. The household debt service ratio and financial obligation ratio[3] have declined due to various factors (Figure 2) such as debt restructuring, bankruptcies that enabled households to start again with a clean slate, low nominal interest rates and more cautious attitudes toward borrowing. It is not clear whether the process of deleveraging is completed, and households are likely to remain fairly cautious in coming years. Moreover, lenders too are likely to be more cautious. Tighter regulations and credit standards should also restrain excessive household leverage.

[2] Poterba, James M. (2000). “Stock Market Wealth and Consumption,” *The Journal of Economic Perspectives* 14(2): (Spring) 99-118.

[3] Debt service ratio is the ratio of total required household debt payments to total disposable personal income, whereas the financial obligations ratio is the ratio of total financial obligations to total disposable personal income. It is a broader measure than the debt service ratio because it includes rent payments on tenant-occupied property, auto lease payments, homeowners’ insurance and property tax payments.

Figure 2. Household Financial Obligation Ratio and Debt Service Ratios Have Declined Markedly



Source: Reuters EcoWin

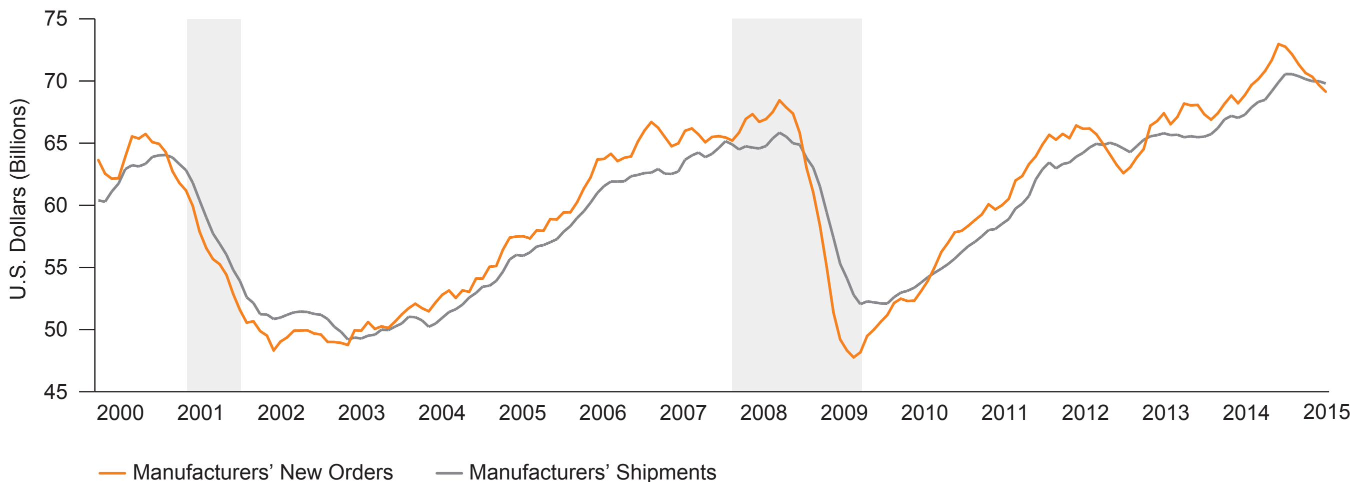
During the Great Recession, businesses pulled back severely on private fixed non-residential investment. Non-residential fixed investment fell sharply both in absolute terms and as a share of real GDP. Non-residential fixed investment has risen gradually since mid-2010 and now represents 13.0% of GDP, near its pre-crisis peak. Shipments and new orders of core capital goods have been rising until recently (Figure 3), suggesting that fixed investment is slowly recovering. Recovery in business fixed investment would undoubtedly be a convincing sign of increased confidence.

Corporate America has been doing well despite the tepid pace of recovery. Domestic profits are buoyant and have been rising for both financial and non-financial industries. Corporations have benefited from restructuring, the low cost of labor and low interest rates. The large fiscal stimulus undertaken in the midst of the crisis put a floor under the potential decline of aggregate demand. Profits recovered thanks to government purchases of goods and services, as well as infusions of capital into failing firms and crippled financial institutions.

Since the end of the crisis, federal tax receipts have risen sharply as the U.S. economy has recovered. Federal outlays rose sharply during the Great Recession due to automatic stabilizers such as progressive taxation and unemployment benefits and also because of discretionary fiscal stimulus; at the same time, federal tax receipts dwindled due to rising unemployment, falling personal incomes and progressivity of the tax system. The result was a widening of the federal deficit. The widening of the federal deficit acts as a useful, if imperfect and limited, automatic stabilizer. However, since 2010, federal outlays largely have been in check, rising tepidly.

With hindsight it is clear that one of the deficiencies in the policy response to the Great Recession was that the federal deficit was not large enough to offset the sharp decline in private sector aggregate

Figure 3. Shipments and New Orders of Core Capital Goods Have Been Rising Until Recently
Nondefense Capital Goods Excluding Aircraft



Source: Reuters EcoWin

demand. Policymakers lacked imagination, resolve, willingness and the political basis to undertake bold steps to foster a quick and substantive recovery. They refused to directly target employment and take proactive measures to boost it. It can be plausibly argued that had the administration undertaken a major initiative to rebuild the country's infrastructure and deploy underutilized labor, the recovery would have been faster. What's more, it would have formed a basis for solid growth, supported by a modern infrastructure. It would have substantially benefited the country. Alas, policymakers…

The Bad News: A Feeble Recovery for the Majority

Despite the ongoing recovery, overall growth in the U.S. remains disappointing. The trend growth rate has declined following the crisis from its post-WWII rate north of 3.0%. Labor productivity growth, measured as the rate of change in real GDP produced per hour of labor, also has slowed sharply in recent years. Lower labor productivity growth bodes ill for raising the standard of living. It also means that income and wage growth are likely to be slow.

Economic growth comes from three key ingredients: employed labor, capital and total factor productivity. Hence, an increase in labor input and capital input, in combination with total factor productivity — i.e., how labor and capital are effectively and efficiently used to produce goods and services — are what drives economic growth. The slowing pace of labor productivity growth and factor productivity growth is worrisome because it suggests that economic growth in the future is likely to be tepid — unless we take serious measures to redress the decline in productivity.

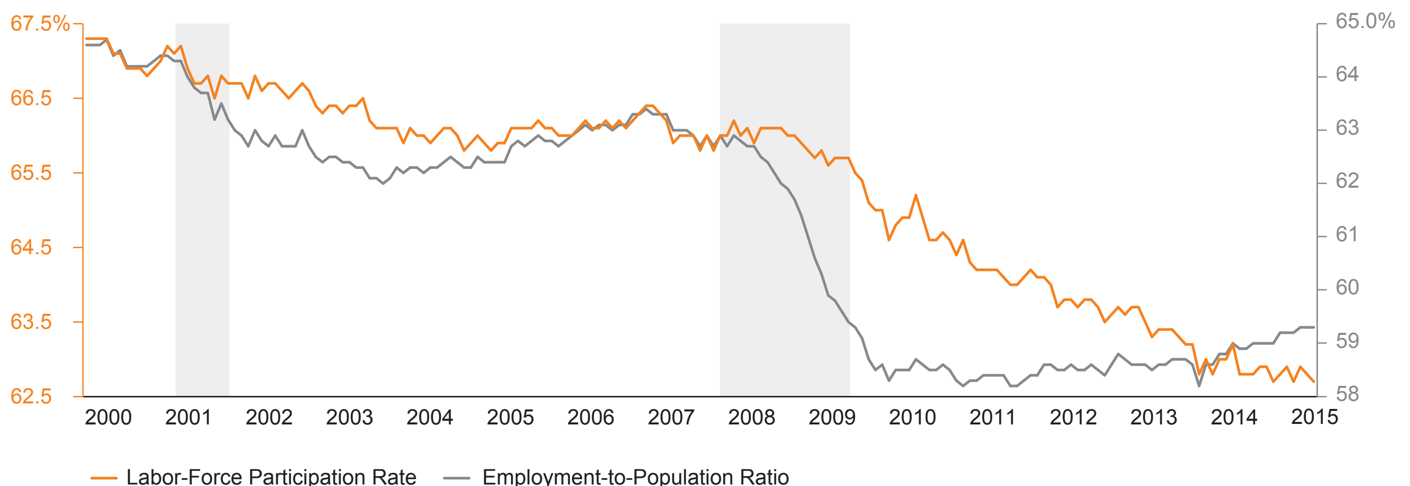
Since the Great Recession, most households have seen little improvement in their economic plight. Real median family income remains below its pre-crisis level. While real income is no by means the sole determinant of living standards and human well-being, it is an important component and key indicator of economic and social well-being, along with health and education. Growth in real disposable income and real personal outlays is still weak. Since the end of the Great Recession, both measures have expanded at a slower pace than before the crisis. In recent months "control" retail sales — i.e., excluding autos, auto parts, gasoline and building materials — have been quite restrained.

Pickup in housing construction activity also has been tepid. Real residential fixed investment remains substantially below its pre-crisis level. This is understandable, because there was excessive building of houses in the boom years. It is surprising, however, that even after so many years, residential investment remains weak. Demographic factors in the U.S. are largely favorable to residential investment. But housing starts and building permits are still soft and well below their pre-crisis levels. The exception to this is multi-family construction, as renting apartments has become more popular due to the realization of problems with home ownership and excess debt, inability to borrow, low real income growth, a still-soft labor market and changing preferences of newer and younger households. Increased indebtedness of college students may have also contributed to slower growth in the demand for single-family homes.

Government expenditure has not contributed to growth at all since early 2010. Indeed, for most quarters since the end of the Great Recession, government spending has been a drag on economic growth. Public sector employment, particularly in state and local government, fell sharply following the recession. While federal government outlays are no longer declining, it is unlikely that government expenditure will contribute strongly to growth in coming quarters due to political conditions in the U.S., which prevent activist fiscal policies to promote growth and public sector employment.

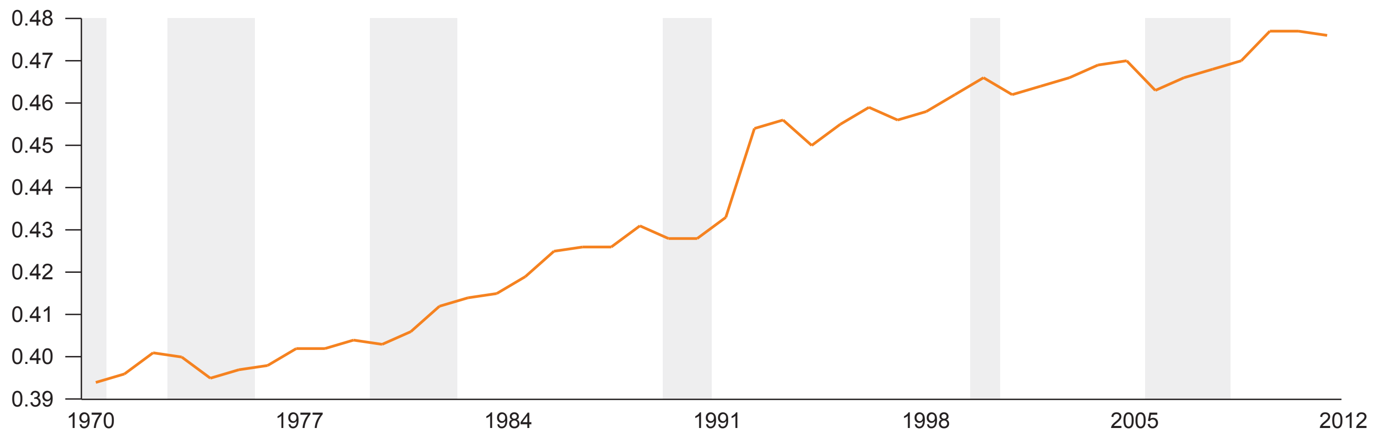
The labor-force participation rate and the employment-to-population ratio are low (Figure 4). The employment-to-population ratio fell sharply during the Great Recession and largely has stayed

Figure 4. Employment Metrics Suggest Continued Underutilization in the Labor Market



Source: Reuters EcoWin

Figure 5. Income Inequality Has Been Rising Since the 1970s
Gini Coefficient for Households, All Ethnic Groups



Source: Reuters EcoWin

flat, though it has edged up slightly since late 2013. The labor-force participation rate also fell during the same period but less drastically, as those who lost their jobs during and after the crisis initially remained in the labor force to look for work and collect unemployment compensation. But as prospects for getting back into the labor dimmed and their unemployment compensation lapsed, many left the labor force altogether, utterly discouraged. The aging U.S. population may partly explain the low labor-force participation rate and employment-to-population ratio. But even among those aged 15 to 24 years, the labor-force participation rate remains low. To be sure, youth labor force participation had been steadily falling for many years before the crisis and though stable since 2011 it has not shown any signs of rising. Interestingly, the labor-force participation rates for white men of prime working age — between 35 and 55 years — is several percentage points lower than before the crisis. That the participation rates among these demographic groups have not risen despite the ongoing recovery points to a residual of underutilization in the labor market. Meanwhile, the duration of unemployment spells has stayed elevated.

Employment growth in the past 36 months has occurred mostly in low-wage industries such as food services, retail sales, temporary employment and education/health. Job growth has been far less pronounced in industries that pay well such as manufacturing, construction, mining, financial services, information technology and the public sector. As a result, wage growth has been muted for nearly six years. The labor share of national income has declined sharply and is at an historical low point since the 1950s.

The low share of labor income and feeble economic growth have intensified income inequality in the U.S. and elsewhere.[4] Income inequality has risen sharply since 1970s (Figure 5) as shown by the evolution of the Gini coefficient. A Gini coefficient of 0 indicates complete equality of income, whereas a coefficient of 1 indicates that income in the hands of only one person. A higher coefficient means a more unequal distribution of income. After the crisis household mean real income has risen for the top 5% of the income distribution but has declined for the bottom four quintiles of the income distribution. Tcherneva[5, 6] shows that post-crisis income gains have gone primarily to the top 10% of the income distribution. Such a skewed distribution of income is harmful for two reasons. First, it potentially lowers economic growth, since the marginal propensity to consume is lower for those in the upper end of income distribution than it is for those at the bottom. Second, a skewed distribution of income distorts politics and public policy in favor of the wealthy and thus hampers democratic practices and values of a liberal society.

Low interest rates have important income and distributional consequences. The domestic private sector as a whole is a net lender of funds to the public sector. Of course, within the private sector there are both net lenders and net borrowers of funds. Private sector interest income has been flat since 2010. During the same time, however, private sector interest payments have declined due to lower interest rates and deleveraging.

Inflation in the U.S. remains lower than the Fed's long-term target of 2.0%, as various measures of "core" and headline inflation remain quite low (Figure 6). Import prices are falling due to low goods prices, a strong U.S. dollar and decline in commodity prices. Meanwhile, market-based measures of inflation expectations, such as the yields on Treasury inflation-protected securities (TIPS) and the Barclays five-year/five-year forward breakeven inflation rate,[7] have pulled back from previous levels of 2.0–2.5% to a lower range of 1.5–2.0% (Figure 7), a situation referred to as the "unanchoring" of market-based measures of inflationary expectations.

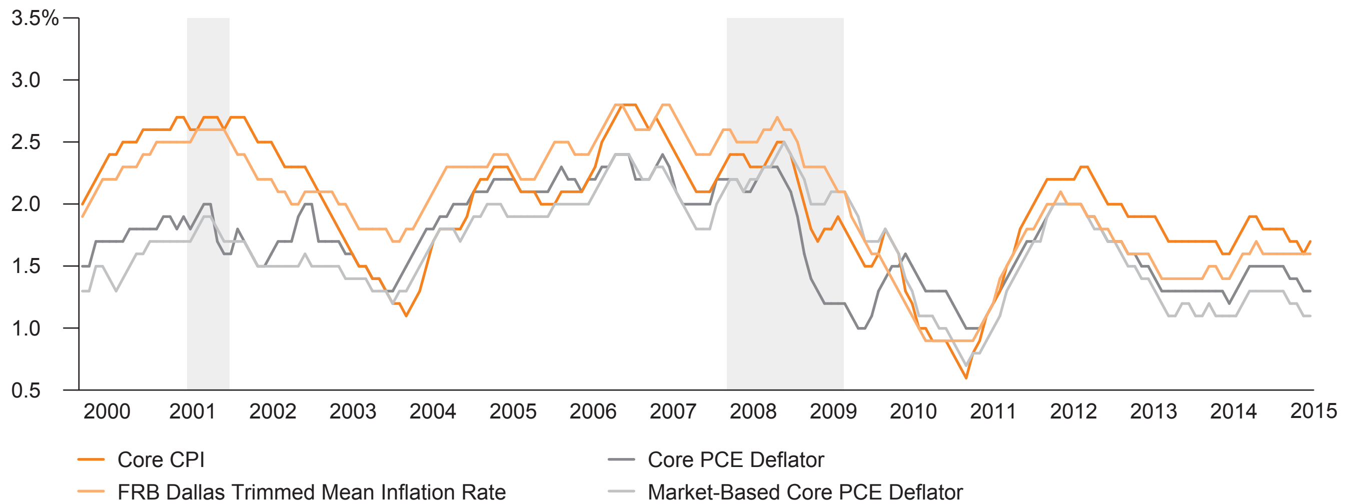
[4] Piketty, Thomas and Goldhammer, Arthur (2014). *Capital in the Twenty-First Century*. Cambridge: Belknap Press.

[5] Tcherneva, Pavlina R. (2014). "Growth for Whom?" Levy Economics Institute One-Pager No. 47 (October).

[6] Tcherneva, Pavlina R. (2015). "When a Rising Tide Sinks Most Boats: Trends in U.S. Income Inequality," Levy Economics Institute Policy Note No. 4.

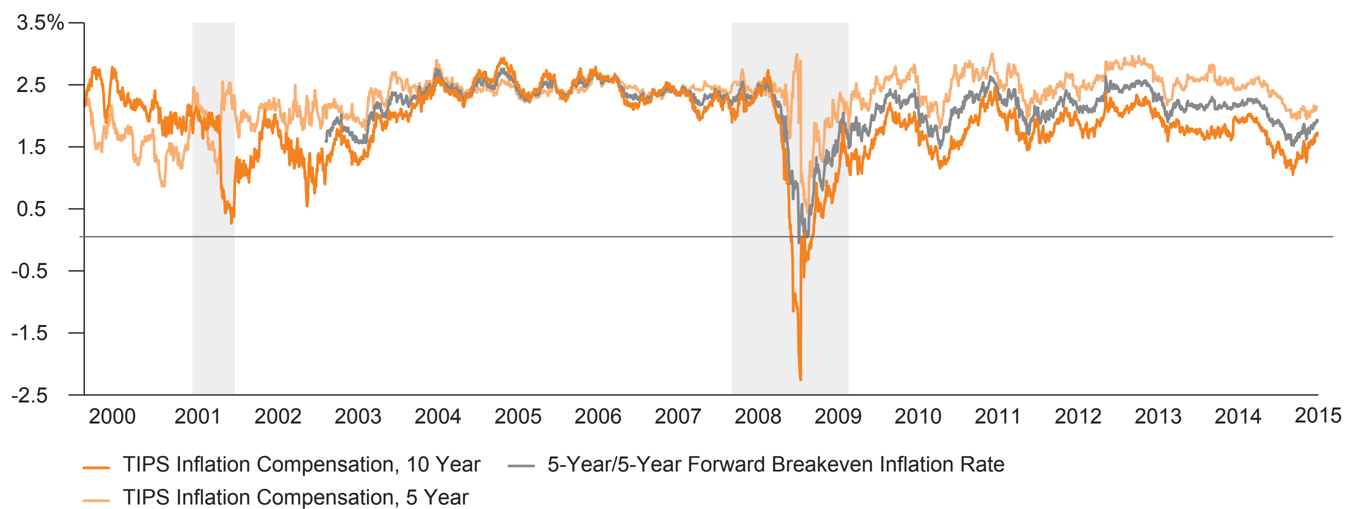
[7] The Barclays five-year/five-year forward breakeven inflation rate is a measure of expected inflation derived from "nominal" Treasury securities and their "real" counterparts (TIPS).

Figure 6. Core Inflation Remains Low



Source: Reuters/EcoWin

Figure 7. Market-Based Measures of Inflationary Expectations Appear Unanchored



Source: Reuters/EcoWin

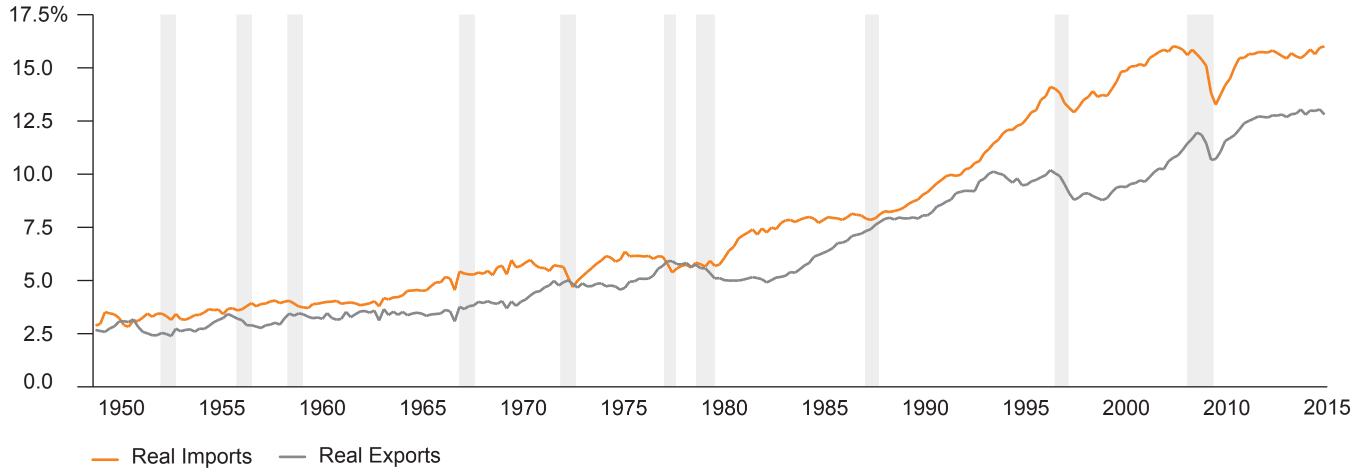
The U.S. Economy and the Rest of the World

Increasingly, the economic plight of the rest of the world matters for the U.S. The share of real exports and real imports, as a percentage of real GDP, has risen notably since the 1990s (Figure 8). Even though the U.S. is a still a more closed economy than other major advanced countries, it is more open than in the past. Interdependence has increased. The U.S. runs deficits with its major trading partners, including China, the euro zone, Japan, Mexico and Canada. Tepid growth in the U.S. implies that the country's capacity to support growth overseas will be limited. Meanwhile, a stronger dollar could hurt export prospects for producers in the U.S. Soft global trade and industrial production further dampen export prospects for the U.S.

Growth in major areas of the world such as China, the rest of Asia, the U.K. and the euro zone was generally soft in 2014. Recent purchasing managers' index data suggest conditions in the euro zone could improve, though industrial production has yet to accelerate. Economic activity in most emerging markets is still weak. Growth in China has slowed down notably. Industrial production in Russia and Brazil are feeble. At this time, India is essentially alone among the major emerging markets, as an economy that appears to have good momentum — at least for the near term!

Amid an uncertain global economic outlook and deflationary risks overseas, foreigners continue to be net buyers of U.S. assets, particularly U.S. Treasury securities, which are deemed the safest assets in the world. The rest of the world's strong demand for U.S. assets undoubtedly has contributed to the persistence of low long-term interest rates in the U.S.

Figure 8. The U.S. Share of Real Exports and Real Imports Has Risen Notably Since the Early 1990s
U.S. Exports and Imports as Share of Real GDP



Source: Reuters/EcoWin

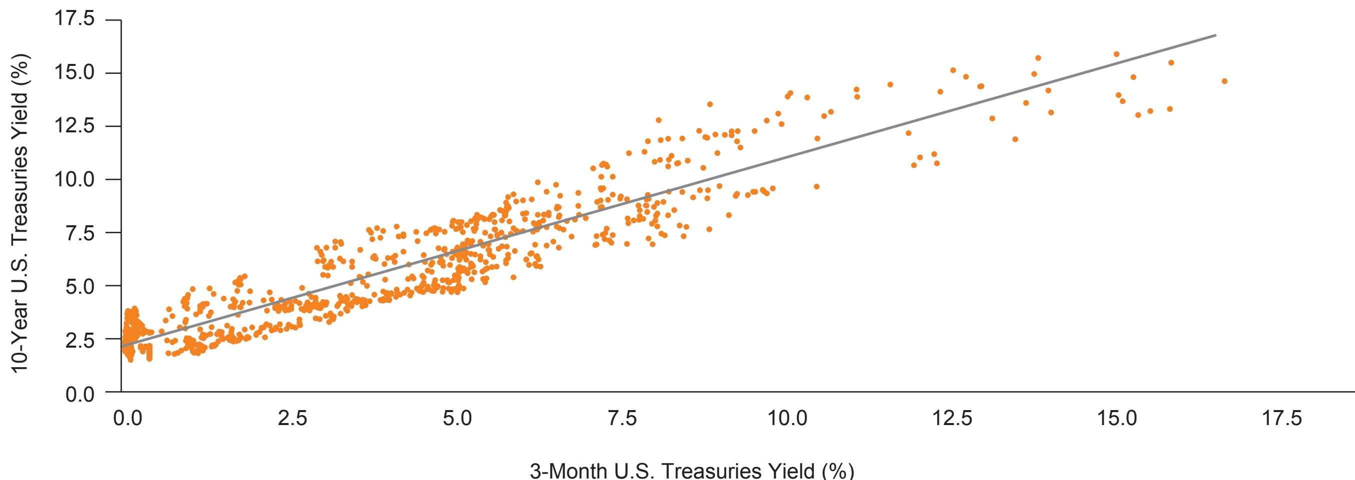
The Outlook for Monetary Policy and Long-Term Interest Rates

Though there are many reasons for low long-term interest rates, it is useful to classify them into two sets: domestic factors and international factors. The main domestic factors are low short-term interest rates, low inflation and low inflation expectations, contained volatility in financial markets, tepid rates of economic activity and the increased size of the Fed's balance sheet. The main international factors are low overseas interest rates, low inflation and deflationary expectations abroad, quantitative easing in major advanced economies and slow growth in the rest of the world. Domestic factors are the primary drivers of low interest rates in the U.S., while international factors have provided additional impetus.

It is well established that long-term interest rates are strongly correlated with short-term interest rates (Figure 9), a relationship that has been understood since at least the middle of the 20th century.[8] Short-term interest rates are principally driven by the central bank's policy rates and other monetary tools. The Fed has kept the fed funds rate below 25 basis points since December 2008, resulting in extremely low short-term interest rates, as indicated by the low yields of three-month and six-month U.S. Treasury bills.

Long-term interest rates are likely to stay low as long as short-term rates remain low. The recent, moderate selling trend in two-year U.S. Treasury securities implies that investors expect the Fed to hike its target rate. However, rates on three- and six-month T-bills have not risen much, suggesting that while an imminent rise in long-term

Figure 9. Long-Term Interest Rates Are Strongly Correlated With Short-Term Interest Rates
Interest Rates on 3-Month and 10-Year U.S. Treasuries, 1934–Present

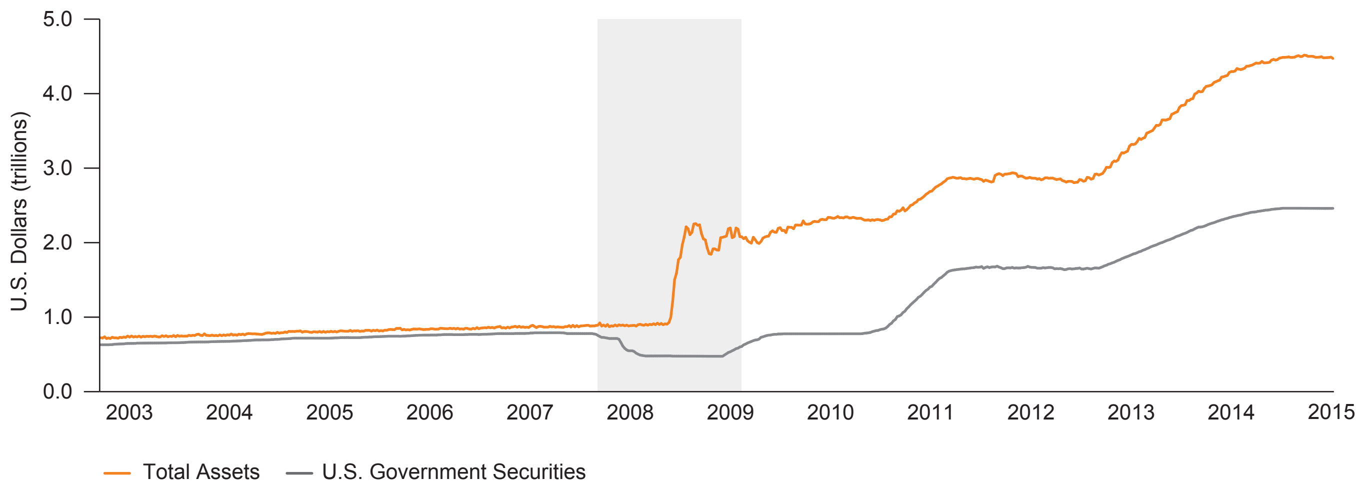


Source: Reuters/EcoWin

[8] Keynes, John Maynard (1930). *A Treatise on Money* (in two volumes). London: Macmillan.

Figure 10. The Fed Balance Sheet Is Greatly Expanded and Likely to Remain So

Fed Assets and Treasury Holdings



Source: Reuters/EcoWin

rates is not yet priced, investors are pricing in a modest rate hikes afterward. Observed inflation and inflationary expectations also are important drivers of government bond yields. Low core inflation suggests that long-term rates will stay low.

Volatility in financial markets also affects long-term rates. The VIX and MOVE indices — measures of volatility for the stock market and the government bond market, respectively — have stayed fairly low. Volatility in the government bond market has increased a bit recently but is still low by historical standards. The size of the Fed's balance sheet and Fed monetary policy actions can have substantial effects on long-term rates. While the large-scale asset purchase program has ended, the Fed will remain a large holder of U.S. Treasury and agency residential mortgage-backed securities even after it begins to hike (Figure 10). This large stock of Fed holdings is likely to restrain upward pressures on long-term rates by limiting the market supply of these securities.

International factors also have restrained long-term rates. Global price pressures are feeble. Inflationary pressures in the major advanced countries are subdued. Long-term rates are low in advanced countries such as Japan, the U.K. and Canada. Interest rates on short-term and intermediate-term government debt instruments are often negative in the euro zone and Switzerland. Japan has experienced long-term rates of less than 2% since the late 1990s. Compared to long-term rates in the major advanced countries, U.S. Treasury yields are markedly higher! What's more, the European Central Bank and the Bank of Japan are likely to remain in quantitative easing mode at least for the rest of the year, if not beyond. Foreign demand for U.S. Treasury securities is extremely strong — China and Japan, for example, continue to hold large portfolios of U.S. Treasury securities for mercantilist and other purposes — and there is no reason to think that this will change anytime soon.

Summary

The combination of domestic factors and international factors supports our view that low long-term rates will persist. The U.S. economy continues to improve, albeit at a slow place. Job growth has been decent for the last few years and the unemployment rate has declined steadily. Auto sales have picked up. Crude oil prices have fallen dramatically from the elevated levels of recent years, to the benefit of consumers. Rising equity and house prices have enabled households to repair their balance sheets. Businesses have started to invest in equipment and software and building.

Nevertheless, the pace of growth is still disappointing. Labor productivity growth has been weak. Recovery in housing construction has been slow. Wage growth is tepid, as job growth has occurred in low-productivity sectors and industries in which wages tend to be low. Real median income for U.S. households is still below peak. Income inequality continues to increase. Labor's share of national income is at a low point. Post-crisis income gains have been confined to the very top of the income distribution. Global conditions for growth are still unfavorable, which matters to the U.S. not only for trade but also for capital flows and migration. Slower growth abroad will diminish the prospects for exports.

The Fed, meanwhile, is likely to be cautious and gradual in raising the policy rate, and its balance sheet will stay expanded. The Fed has communicated that monetary policy will stay accommodative for a long time even after an initial rate hike and a few subsequent moves. The combination of tepid economic growth and low inflation domestically, weak global economic growth, strong demand for safe assets and the accommodative stance of the Fed could lead to the persistence of low long-term interest rates in the U.S. for much of this year.

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