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GLOBAL MARKET COMMENTARY

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November 2010

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Wade O'Brien & Lisa Miller

While there are some good reasons that demand for fixed income assets has increased, the subsequent price appreciation has made compelling investments harder to find. However, while we view sovereign bonds from many developed countries as very overvalued, our outlook on credit is more nuanced.

There has been much discussion in recent months about whether a "bond bubble" has formed. The combination of worries about the pace of the global economic recovery, increasing expectations of further quantitative easing, and record demand from investors has pushed yields on a variety of bonds to historical lows. While we enjoy a good debate, to us the issue of whether a bond bubble exists is less important than what current low yields imply about the prospects for future bond returns. Future economic growth may disappoint, and inflation may remain contained, given ongoing deleveraging and the withdrawal of various government stimulus efforts. Bond yields may also be kept down in the short term by actions of central banks in the developed world, as well as by the potential for shifting investor preferences supported by aging demographics and increased risk aversion. Still, there is significant risk that inflation and real economic growth will be higher than the anemic rates priced in to the bond markets, and that investor appetite for bonds may sour. We strongly suspect that sovereign and corporate bonds yielding 1% represent a poor investment. For other types of bonds (such as high yield) our outlook is more nuanced, as elevated credit spreads appear to offer some cushion should a backup in interest rates occur.

What Exactly Is a Bond Bubble, Anyway?

While there is no technical definition of "asset bubbles," we regard three key measures as critical in their diagnosis. The first is that valuations for the asset have become very stretched relative to historical norms. Depending on the asset class and/or valuation technique, this could mean, for example, that equities trade at a record multiple of earnings, or that a commodity trades at a record price per unit of measure. The second (related) feature of a bubble is that high valuations imply there is little chance of an investor seeing a future positive real return on an asset, and in fact a significant chance of incurring a loss. Finally, and related to the first two, bubbles involve overly optimistic sentiment, where investors ignore arguments about exuberant valuations and low projected returns because they believe a new paradigm has arrived and lessons from the past are not as applicable for the future.

The difficulty with identifying a bond bubble through valuation analysis is that bond yields are driven by expectations of future inflation and real economic growth. As nominal yields do not mean revert and economists have a poor track record of predicting such expectations with any accuracy, valuing bonds presents a challenge.[1] This is

[1] One example of this poor track record is the biannual survey conducted by *The Wall Street Journal* of professional forecasters, which asks them to predict where the yield on the ten-year U.S. Treasury bond will be in six months.

different than valuations for assets like stocks, which historically have reverted back to long-term average multiples of metrics such as earnings and book value. Thus, while we can look at equity valuations and get a good sense of the degree of overvaluation by examining how many standard deviations they trade above historical averages, bond valuations are more challenging, as they must factor in the degree to which the market's pricing of future inflation and economic growth expectations is reasonable. And therein lies the difficulty in identifying a bond bubble: while current yields are extremely low relative to historical averages, they could be justifiable if inflation and growth in the future are lower than in the past.

Current Bond Yields Imply Subdued Growth and Inflation Expectations

Sovereign bond yields across many developed markets have recently dropped to historical lows. In the United States, two- and five-year Treasury bonds yielded just 0.3% and 1.2%, respectively, at the end of October, falling even below levels seen at the depths of the credit crisis (Exhibit 1). Meanwhile, yields on ten-year German government bunds and U.K. gilts have recovered somewhat, but remain near the record lows set in August (Exhibit 2). Falling government bond yields have in turn dragged down yields on a variety of bonds to which they are benchmarked, given that credit spreads have remained fairly steady year-to-date. For example, in October, corporate bond yields in the United States reached a record low yield of 3.6%; they have also recently come close to historical lows in Europe and the United Kingdom.

Sovereign bond yield should compensate investors for future inflation and the opportunity cost of not being exposed to real economic growth. This is reflected in the close relationship between the yield on sovereign bonds and the sum of average rates of real GDP growth and inflation over rolling ten-year periods (see Exhibit 3, which is based on U.S. ten-year Treasury yields).

In order for this relationship to continue to hold in the future should interest rates stay near their current levels, growth and inflation in many developed countries will have to drop to levels not seen in decades. For example, U.S. ten-year Treasuries now yield 2.6%. This compares with average annualized consumer price inflation of 3.2% over rolling ten-year periods since 1910; the most recent decade it was below 2% began in December 31, 1957 (Exhibit 4). Even if inflation were to fall to zero (which has not been seen in 70 years), the inability to capitalize on economic growth alone might still suggest sovereign bonds are a poor investment. Real GDP in the United States has grown by an average of 3.3% per year over rolling ten-year periods during the past century. While the ten-year period ending in 2009 did see average growth (1.8%) below 2%, it was for only the second time since 1954.

This subdued outlook for growth and inflation is not shared by several other markets. Inflation-linked bond yields are plunging, for example, as investors try to brace themselves for an uptick in prices. Looking at the United States, breakeven inflation yields have marched steadily upward since the Federal Reserve (Fed) signaled in August its intention to conduct further quantitative easing (Exhibit 5). Outside of the bond market, one widely quoted survey of professional forecasters shows that U.S. consumer price inflation is expected to be 2.3%, on average, per year from 2010 to 2019.

Our analysis shows that the consensus predicts the correct *direction* of the subsequent change less than 40% of the time—a worse-than-random result.

Are These Expectations Reasonable?

Bond investors can make several bullish arguments about why inflation (and growth) may be secularly lower for developed economies in the years ahead. The first of these is excessive debt burdens—consumers and governments in developed markets need to improve their balance sheets. Further, bond bulls argue that quantitative easing will not ignite inflation, as Western countries are in a liquidity trap where consumers and corporations are unwilling to borrow regardless of the price of credit or attractiveness of investment opportunities. The result will be lower spending and higher taxes going forward, which will dampen future economic growth. Inflationary pressures are also unlikely to come via the corporate sector, which faces excess capacity in most countries and a surplus of labor from which to draw necessary additions to its workforce. Finally, in countries such as the United States and some parts of Europe, there is a massive housing overhang, which will lower inflation from rent and dampen sectors like construction for years to come.

We agree with many of the economic arguments provided by the bond bulls. However, bond markets are pricing in a near certainty that severely subdued growth and inflation will persist for a decade, which seems extreme to us, even given current economic uncertainty. There are several reasons to question what has become conventional wisdom in recent months. First is the historical record. The link between financial crises, deleveraging, and the slower growth that typically ensues has been the focus of several studies[2]—while slower growth typically follows financial crises, lower inflation is not necessarily a byproduct. A recent study[3] found that growth can rebound fairly quickly following financial crises, despite massive private sector deleveraging. According to the study's findings, debt reduction after crises is typically facilitated in equal measures by *inflation*, economic growth, and debt reduction (via payback or default).

Second, elevated unemployment in countries like the United States may be less deflationary than commonly thought. This is because while higher unemployment holds down expenditures, it may have a more limited impact on wages for at least two reasons. Some of those currently unemployed may have outdated skill sets, making them unable to compete with (and bring down the compensation of) more highly skilled workforces. And, if some of the unemployed are unable or unwilling to move, given weak local housing markets, they will not compete with or bring down the compensation of nonlocal pools of labor.

Third, arguments that deleveraging in the indebted Western economies will lead to weaker inflation or to deflation also typically overlook the fact that it is not necessarily the quantity of debt that an individual, company, or government owes that impacts spending, but rather its affordability. Thus, despite elevated levels of mortgage debt in countries like the United States and the United Kingdom, low interest rates have meant debt servicing costs compare favorably with historical averages. Morgan Stanley recently estimated that the debt service ratio for Americans with mortgages had dropped to the lowest level in a decade. Of course, the opposite is also true—to the extent that consumers and corporations have not fixed the rate of interest on their liabilities, as is standard for U.K. mortgages, they are vulnerable to increases in interest rates that would make debt burdens more onerous. Who owes the debt is also important, given the disproportionate share of consumption attributed to wealthier citizens. In the United States, for example, where households with incomes greater than $150,000 may

[2] See, for example, Carmen Reinhart and Kenneth Rogoff, "Growth in a Time of Debt," *American Economic Review*, December 31, 2009.
[3] Garry Tang and Christian Upper, "Debt Reduction After Crises," *BIS Quarterly Review*, September 2010.

generate 40% of consumption, a broad-based economic recovery may be less necessary than expected to boost consumption and thus inflation.

What Else Might Explain Current Yields?

Despite low yields, investor interest in bonds has been strong. Investor interest can be measured by a variety of metrics, including soaring demand for fixed income mutual funds in the United States and rising pension fund allocations to bonds in Europe. Since the beginning of 2008, bond funds in the United States have seen inflows of $646 billion, at the same time that $273 billion has flowed *out of* equity funds (Exhibit 6). These equity flows have occurred despite periods of strong performance: in 2009, the S&P 500 returned 26.5%, but equity funds saw net outflows of $9.1 billion. High returns on bond funds, which in some cases have exceeded those of equities, have probably piqued investor interest. U.S. investment-grade debt returned 18.7% in 2009, and another 10.9% year-to-date. High-yield debt, which returned 58.2% in 2009 and another 14.4% year-to-date, also has hardly been a defensive investment. Fixed income has not just outperformed equities in the United States and Europe over the past three years, however (Exhibits 7 and 8)—ten- and 20-year returns also compare quite favorably with those of equities.

Some speculate that demographic changes may be causing investors to increase allocations to fixed income. Between 2000 and 2020, for example, the percentage of Americans over the age of 65 is expected to increase by over 30%, the fastest-growing segment of the population (Exhibit 9). As baby boomers approach retirement age, some believe their desire for capital preservation could result in the sale of investments such as equities, and purchases of more secure assets like Treasury and municipal bonds. The recent credit crisis may even have accelerated this change in investment preferences, though exact data on investment flows by demographics are extremely hard to come by.

Investor preferences could also be changing not just due to demographics, but as a result of the recent credit crisis and steep equity market sell-off. Some investors may have underestimated the volatility inherent in their equity-centric portfolios, and are selling into the subsequent rally in equities to increase strategic allocations to bonds. This may be true of both retail and institutional investors. A 2009 survey from Towers Watson showed, for example, that U.S. corporate pension fund managers planned to move 10% of their assets out of equities and into other allocations. U.K. pension funds, meanwhile, have moved from a less than 20% allocation to fixed income ten years ago to a greater than 30% share today, with most of the increase coming in the last three years, according to data from Morgan Stanley.

Only time (and perhaps a lower yield environment) will reveal the staying power of these buyers, but bonds are also benefitting from another important source of demand: deeply pocketed central banks. Historically, emerging markets and other central banks have invested their foreign exchange reserves in major developed markets sovereign bonds like Treasuries, bunds, and gilts; for example, the Chinese and Japanese are the world's largest holders of U.S. Treasuries (Exhibit 10). Their buying has been supplemented since the crisis began by developed markets central bank purchases of their own sovereign debt (such as the Fed and the Bank of England) to implement policy objectives. Quantitative easing in the United States and the United Kingdom has been significant relative to the overall size of government bond and overall debt markets, pushing down bond yields (Exhibit 11). In the Eurozone, the European Central Bank has used its repo operations to support various types of

government and corporate bonds, including most recently those from peripheral governments (Exhibit 12). While rates are arguably lower today than they would be absent policies designed to keep sovereign rates low, these policies also lower the risk of a sudden and sustained plunge in bond prices, as any such softness in pricing will likely be met with additional quantitative easing, at least in the short-to-intermediate term.

Finally, the shape of the interest rate curve in some countries may also help explain some of the investor interest in bonds. Current yields on money market funds and savings deposits are close to zero in many developed economies. These low short-term rates have caused yield curves to steepen (Exhibit 13), increasing the opportunity cost of investing in cash or short-term bonds versus longer-term alternatives. In the United States, for example, the spread between three-month Treasury bills and ten-year Treasury bonds is now 251 basis points (bps), well above its historical average of 142 bps. This is pushing investors both farther out on the curve in the search for yield, as well as into lower-rated corporate and emerging markets bonds. Issuance of high-yield and corporate bonds has been strong thus far in 2010, as issuers have sought to capitalize on this demand (Exhibit 14), though volumes remain below those seen during the peak of the credit bubble.

Prospects for Ineffective Monetary Policy

The promise of further quantitative easing from central banks is a powerful tonic for bond bulls. They argue that given fragile confidence in the economy, central banks will have no choice but to further intervene in bond markets to keep interest rates low and to try to stimulate lending and growth. Yet there are critical reasons to question whether central bank buying can continue to anchor low interest rates across the curve, and there are material risks for unintended consequences to arise from the continued and significant intervention in the bond markets. Partially this is due to the record amount of debt that has been—and will continue to be—issued by developed world sovereigns. A greater supply makes keeping yields low increasingly difficult, particularly given the percentage of debt that is owned by foreigners who may not settle for low interest rates. Further, the impact of quantitative easing may be steadily diminishing given the expectations that have already been priced in to the market. Looking at the U.S. Treasury market, a recent study by Deutsche Bank estimated that $100 billion of U.S. Treasury purchases by the Fed would lower long-term rates by just 5 bps. There is also the important calibration problem with extensive quantitative easing—to the extent that excessive intervention in sovereign bond markets reduces their liquidity, the bonds may surrender some of the premium they have accrued over time.

For Bond Investors, Risk Is a Relative Term

The low yields currently offered by many types of bonds present a threat to future investor returns, yet the magnitude of this threat may be more limited than some realize. It is tempting to look at low bond yields and imagine how prices would suffer if rates suddenly backed up, either because of unexpected inflation or sudden lack of buyer interest. Historically, however, periods of rapidly rising interest rates have been relatively rare in developed countries such as the United States (Exhibit 15), and when they have occurred, losses to bond holders have been much more muted than one might expect. Using U.S. data, and looking at all rolling six-month periods since

1971 where the Fed funds rate was hiked by 300 bps or more, investors, on average, just about broke even. This can be explained by several factors. Often, when interest rates rise (hurting bond prices), the large carry on offer cushions the total return to investors. In addition, how the shape of the entire interest rate curve shifts tends to drive returns more than just movements in short-term rates.

To use a historical example, the swiftest increase in U.S. short-term rates over the past 50 years occurred in late 1980, when the Fed hiked rates by 650 bps over six months to fight inflation. Despite this increase in rates, and its anticipated impact, the Barclays Capital Treasury Index posted positive returns for both the full year 1979 and 1980. Even using the worst rolling six-month return over that period, investors would have lost just 7.0%. This was partially because of the carry earned by investors during that period—five-year Treasuries yielded over 13% per year in early 1980. Shifts in the yield curve were also a factor. Despite the move in the Fed funds rate, the yield on ten-year Treasuries increased by less than 200 bps over the period.

Historical data aside, we would be remiss if we did not point out that in a low interest rate environment, some of the lessons described above (such as the importance of carry) do not apply. Currently, bond returns are extremely sensitive to changes in interest rates. For example, if the yield on the Barclays Capital U.S. Treasury Index fell from its current yield of 1.4% to an unprecedented 0%, an investor would see a price return of 8.8%; if its yield rose to 4.0%, a level seen as recently as late 2007 (and still 300 bps below the historical average yield), the price return would be -14.8% (Exhibit 16). While the drivers for a dramatic movement in rates in either direction seem distant on the horizon, and thus rates may be range bound for some time, on balance it seems highly unlikely that interest rates could ever drop to zero. The risk-reward balance for investors is skewed against them.

Our Take on Things … Depends on the Bond in Question

As mentioned above, one sign of a bubble is overly exuberant sentiment on behalf of investors. Given the uncertain economic outlook for much of the developed world, the likelihood of inflation and growth in the months ahead remaining below their historical averages, the promise of further quantitative easing, and the desire/need for some investors to change their investment allocations, it is difficult in some respects to say sentiment is too frothy. Objective ways of measuring sentiment also do not suggest extreme optimism. Based on futures data from the Chicago Board of Trade, net long interest in Treasuries by speculative investors is much lower than at previous heights (Exhibit 17). Surveys of fund managers also do not indicate extreme optimism. In a recent BofA Merrill Lynch survey, a net 71% of institutional investors thought bonds were overvalued.

However, in taking a longer-term view, we go back to the asymmetric risk-reward balance described above when buying bonds with historically low interest rates, and the fact that some government bonds offer yields at historically low levels. Even if rates do not back up rapidly, as some fear, investor upside is capped (by rates going to zero) and downside is potentially unlimited (though of course likely to stay within some bounds). As yields have moved closer to zero in recent months, our reservations have only increased, and thus we are extremely cautious about investing in developed markets sovereign bonds, particularly those from the United States, the United Kingdom, and core European countries, such as Germany.

Further, the very policies designed to keep interest rates down in the short term increase the prospects for high inflation or a riot in the bond markets longer term, as increased sovereign debt issuance and quantitative easing measures raise the prospects for inflation over the long term. While bond markets have been pricing in rising longer-term inflation expectations in recent months, they remain somewhat modest at present.

For other types of bonds, our view is more nuanced. Yields on investment-grade bonds have fallen to record lows in recent months, but spreads over underlying government bonds remain elevated. U.S. investment-grade bonds yielded a record low of 3.6% in October, yet the 168 bp credit spread over Treasuries was well above its historical average. Similarly, although sterling corporate bonds now yield just 5.0%, spreads remain almost a full standard deviation above their long-term average. Corporate bond spreads provide somewhat of a risk buffer relative to sovereign bonds, particularly if interest rates were to rise as the economic outlook improves, as this should also result in falling credit spreads, helping to offset any investor losses. Credit quality is improving, as measured by metrics such as leverage ratios, but strong investor demand is creating several dynamics that we are watching warily. The first is the issuance of short-duration bonds with extremely low coupons; several have been issued recently with yields of 1% or less. Like the sovereigns described above, these bonds present very little upside. The second is the re-emergence of investor unfriendly structures such as corporate hybrids with perpetual (no) maturities. Finally, as with other types of bonds, low yields increase the likelihood of seeing negative real returns in the future.

Moving down the credit spectrum, we are relatively more constructive on high-yield bonds. Spreads on high-yield bonds are above historical averages, though admittedly less so than they were this summer, given the recent surge in risk appetite. For example, the option-adjusted spread on the Barclays Capital U.S. High Yield Index is now 575 bps, compared with 680 bps in August (and its long-term average of 522 bps). However, comparisons to historical averages are not exact, as credit fundamentals have been steadily improving. The annualized default rate for high-yield bonds through the end of September was just 0.3%, and may remain below 2% through the end of 2012. In contrast, the average annual default rate has been over 4% during the last decade. One of the main worries for this asset class has been the so-called wall of maturities that was expected to create refinancing risks for borrowers between 2012 and 2014. Corporations have been able to refinance a significant percentage of this debt; the volume of U.S. high-yielding bonds and loans due to mature between now and the end of 2012 has fallen by about 41% since the beginning of 2009 to about $200 billion. This helps borrowers in two ways: lower interest rates increase debt affordability, and terming out debt farther into the future lowers refinancing risks in the short term. So while it does not eliminate the challenge to issuers, it has made the debt load more manageable.

Portfolio Implications

Since late 2008, many credit investments have handsomely rewarded investors, and sovereign bond positions worked mainly as intended, protecting investors during the 2008 downturn and during bouts of volatility earlier this year. Looking ahead, current low yields make it unlikely (and in some cases impossible) that future returns will echo those of the recent past and reduce the deflation-hedging ability of sovereign bonds. For example, U.S. Treasury yields may not necessarily contract any further, even in the event of a downturn, as slow growth is already priced in and

because of the risk that foreign owners may lose interest in owning such bonds at these pithy yields.

Given this situation, we do believe changes are probably justified to many portfolios. We have long recommended that investors maintain an allocation in their portfolios to high-quality and liquid fixed income securities such as intermediate- to long-duration sovereigns to serve as a hedge against deflation. Such allocations serve as a resource for funding cash needs without selling off equities and other risky assets that can fall sharply during economic contractions or a flight to quality. However, given the overvaluation of many sovereign bonds, particularly U.S. Treasuries, U.K. gilts, and core European sovereigns, and the asymmetric risk-reward of buying such sovereign bonds at low yields, our first piece of advice would be to rebalance deflation hedges back to target. For the remaining allocation, we would advocate moving a portion of sovereign bonds into cash (e.g., T-bills), rebalancing back into longer-duration instruments as yields rise and the risk-reward opportunity moves more into balance. For many months, we had also advised investors to diversify deflation hedges into inflation-linked bonds, as we found them more attractively valued than nominal sovereigns, given their ability to appreciate during periods of subdued growth but also compensate for future inflation. However, as yields on these bonds have plunged in the United States and across many European markets, and as their longer duration makes them highly sensitive to increases in interest rates, we no longer recommend such diversification.

Investors in credits face a more difficult decision. Investment-grade bonds in the United States and Europe have more compelling valuations than sovereigns, given that credit spreads are elevated relative to historical norms. However, investment-grade credits have a mixed history in providing diversification benefits during economic contractions and flights to quality. Investors must decide whether they believe that the diversification benefit presented by investment-grade credit and its higher yield (for example, US$- and euro-denominated corporate bonds yielded just 3.6% and 3.4%, respectively, at the end of October) are enough to compensate for its reduced effectiveness as a deflation hedge. If future growth remains subdued or actually surpasses expectations, investment-grade credit might outperform sovereigns; however, if economic growth slows and a flight to quality ensues, investment grade may see substantial declines.

Finally, relative to other fixed income asset classes, we believe high-yield valuations are attractive, though we note that credit spreads have fallen recently and that more aggressive financing techniques, such as issuance to fund equity dividends, are on the rise. Given its low-quality characteristics, high yield is not appropriate as a deflation hedge, but can provide some diversification relative to equities. This can be offensive, as when valuations are cheap, or defensive, as when investors are looking to reduce equity beta in their portfolio. We have historically focused on the former, but no longer view high-yield bonds as compelling enough to serve as an equity substitute. Conditions today may be favorable for investors looking to hold such bonds for equity diversification. While high-yield bonds should be expected to decline along with equities in an economic downturn, such declines have historically been less severe, even in the sharp market decline of 2008–09. If the economic outlook improves, high yield may underperform equities, though any losses from higher overall interest rates may be offset by gains from lower credit spreads. If economic growth deteriorates beyond current expectations, high yield may underperform sovereigns and investment-grade credit, though its higher credit spread and coupon will provide some cushion. This assumes that defaults rates do not rise sharply, though we acknowledge that the recent trend toward more

aggressive financings could dilute overall credit quality. If conditions remain similar to what they are today, an asset that yields over 7% may prove to be rewarding. For investors looking for a tactical hedge with a similar risk profile but worried about rising interest rates, leveraged loans also may be of some interest.[4]

Conclusion

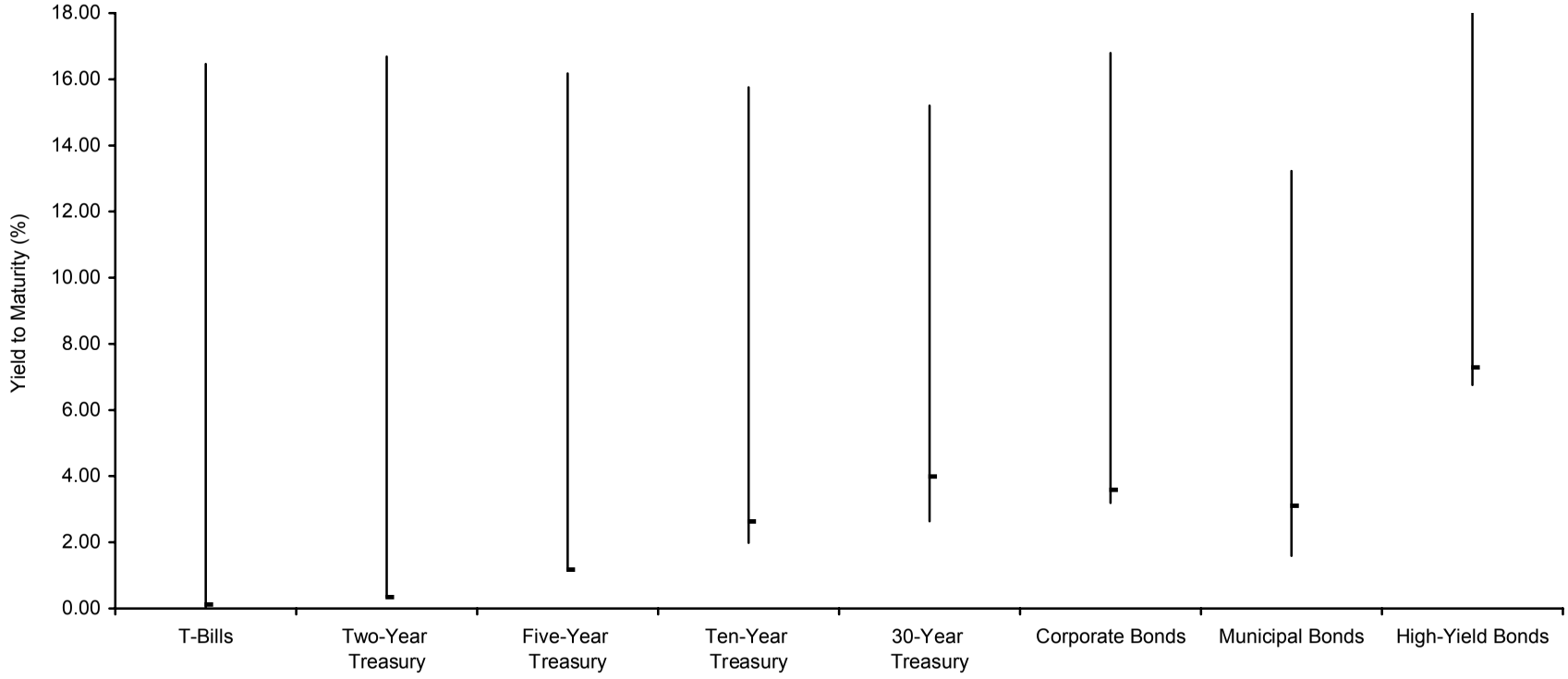
Identifying a bond bubble is a subjective exercise, and from our perspective the evidence is inconclusive. However, we do believe sovereign bonds in a number of developed markets are very overvalued, with little upside return potential relative to the downside risk. Historically, bondholder returns have been cushioned during periods of rising interest rates by yield curve shifts and positive carry. Today, however, low rates mean that carry is minimal and prospects for any cushion provided by curve flattening are modest. Bond investors face the risk that rates could rise from multiple sources, including accelerating growth or inflation, particularly given expansionary monetary policies and high levels of public debt, as well as a softening of foreign interest, a particular risk for U.S. Treasuries. Credit currently offers somewhat better value, but here too rates are at historical lows. Further, those seeking a deflation hedge should consider the degree to which modestly higher yields of investment-grade bonds should compensate for their mixed history of providing a safe harbor in periods of economic contraction. ■

[4] Of course, leveraged loans may underperform high-yield bonds in the event of sharply rising interest rates, should the increase in the cost of servicing debt at higher yields lead to a rise in default rates.

Exhibit 1

Historical U.S. Yield Ranges: High - Low - Current

January 31, 1950 – October 31, 2010



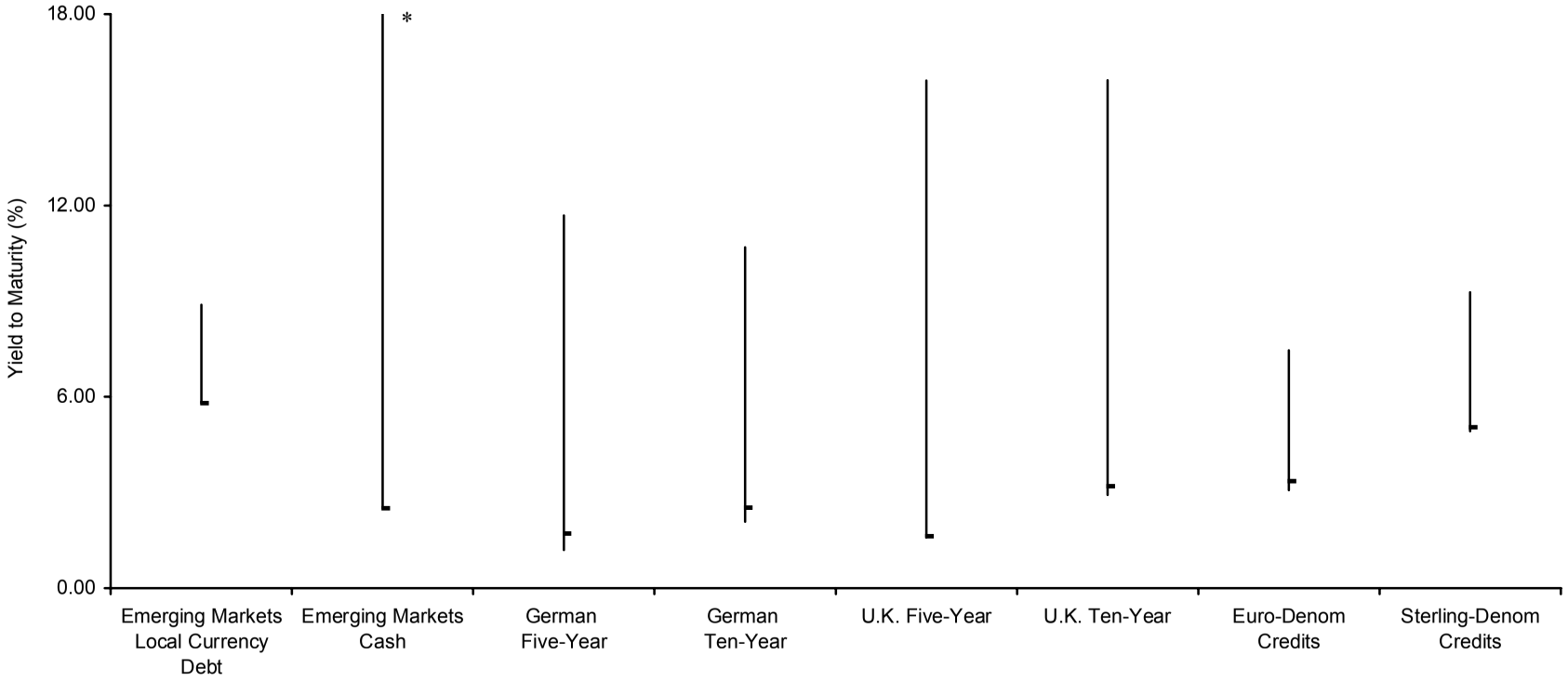
Index Start Date		**01/50**		**01/50**		**01/50**		**01/50**		**04/53**		**01/50**		**01/50**		**01/87**
High	16.46	08/81	16.69	09/81	16.18	09/81	15.76	09/81	15.20	09/81	16.79	09/81	13.23	12/81	21.83	11/08
Low	0.01	11/08	0.34	10/10	1.17	10/10	1.98	01/50	2.64	07/54	3.19	10/54	1.59	01/51	6.76	12/04
Current	0.12		0.34		1.17		2.63		3.99		3.58		3.10		7.28	

Sources: Barclays Capital, Citigroup Global Markets, Global Financial Data, Inc., and Thomson Datastream.
Notes: U.S. Treasury interest rates are represented by Citigroup series from January 1950 through August 1999 and Federal Reserve calculated series beginning in September 1999. The Treasury ceased publication of the 30-year constant maturity series on February 18, 2002, and reintroduced it on February 9, 2006. During that period, the 30-year Treasury yield is an extrapolation of the Long-Term Average Rate series. Corporate bonds represented by the Dow Jones U.S. Corporate Bond Index from 1950 to December 1979 and the Barclays Capital U.S. Corporate Investment Grade Index from January 1980 to the present; municipal bonds represented by the S&P Municipal Bond Index from 1950 to December 1979 and the Barclays Capital U.S. Municipal Bond Index from January 1980 to the present; U.S. high-yield bonds represented by the Barclays Capital U.S. High-Yield Composite Bond Index.

Exhibit 2

Global Yield Ranges: High - Low - Current

January 31, 1980 – October 31, 2010



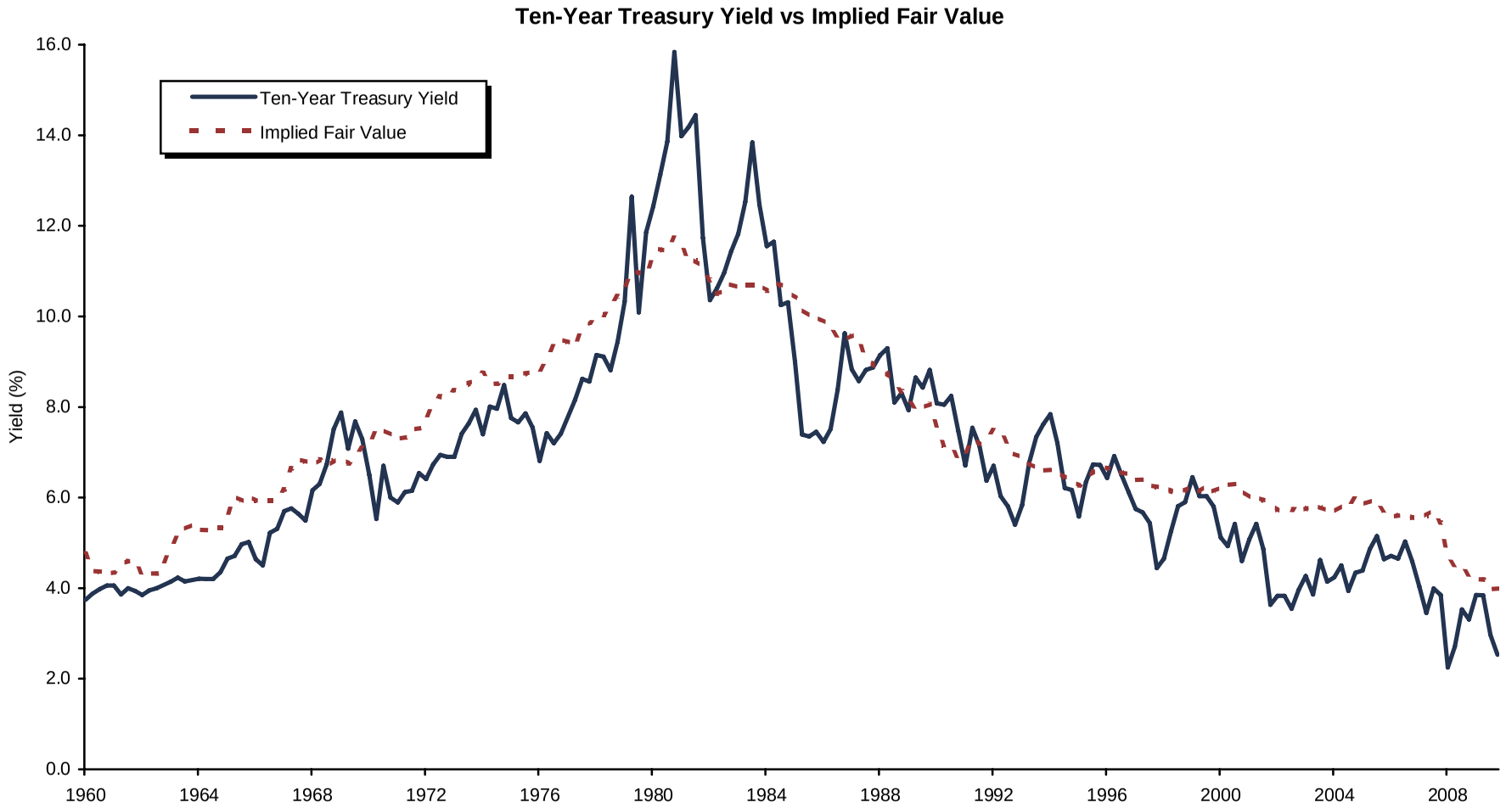
Index Start Date		**01/02**		**12/93**		**01/80**		**01/80**		**01/80**		**01/80**		**12/95**		**12/96**
High	8.89	03/02	36.93	12/01	11.69	08/81	10.69	08/81	15.92	12/81	15.93	09/81	7.46	10/08	9.28	03/09
Low	5.80	10/10	2.50	10/10	1.19	08/10	2.09	08/10	1.60	09/10	2.92	08/10	3.07	06/05	4.92	12/05
Current	5.80		2.50		1.71		2.52		1.63		3.19		3.35		5.04	

Sources: BofA Merrill Lynch, J.P. Morgan Securities, Inc., and Thomson Datastream.
Notes: Emerging markets local currency debt is represented by the J.P. Morgan Government Bond Index Emerging Markets; emerging markets cash by the J.P. Morgan Emerging Local Markets Index Plus; euro-denominated credits by the BofA Merrill Lynch EMU Corporate Bond Index; sterling-denominated credits by the BofA Merrill Lynch U.K. Sterling Corporates Index. Average yield is shown for the J.P. Morgan Emerging Local Markets Index Plus.
* For graphing purposes, scale has been capped at 18%, which does not reflect the high value for emerging markets cash of 36.93%.

Exhibit 3

Treasury Valuations

Fourth Quarter 1960 – Third Quarter 2010

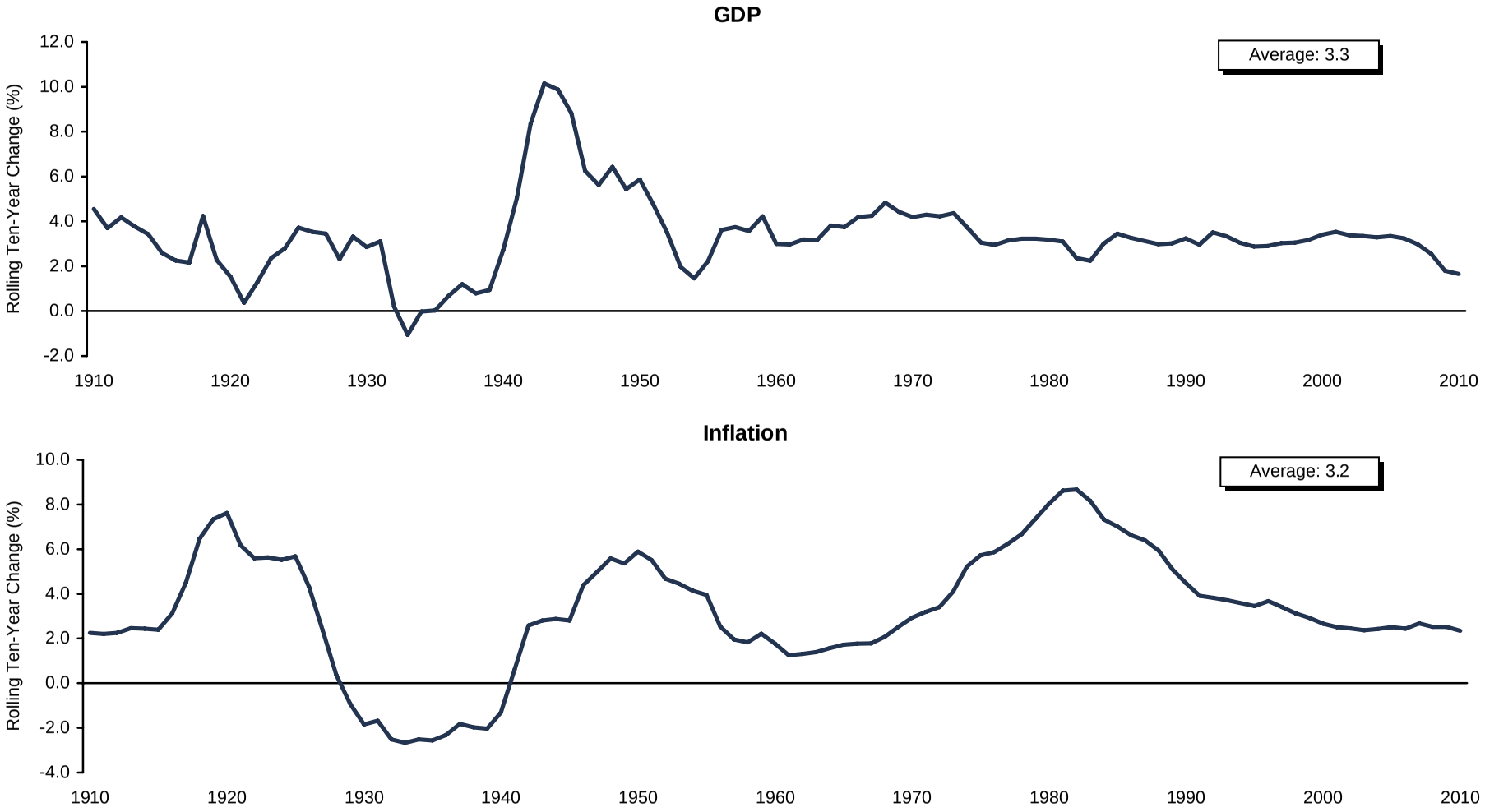


Sources: Global Financial Data, Inc., Thomson Datastream, and U.S. Department of Labor - Bureau of Labor Statistics.
Notes: For more information on how this is calculated and interpreted, please see our March 2009 Market Commentary *The Trouble With Treasuries*. Implied fair value is ten-year average CPI growth plus ten-year average GDP growth. Current GDP and CPI-U data points based on Consensus Economics forecasts for 2010.

Exhibit 4

Rolling Annualized Ten-Year U.S. GDP and Inflation

1901–2010

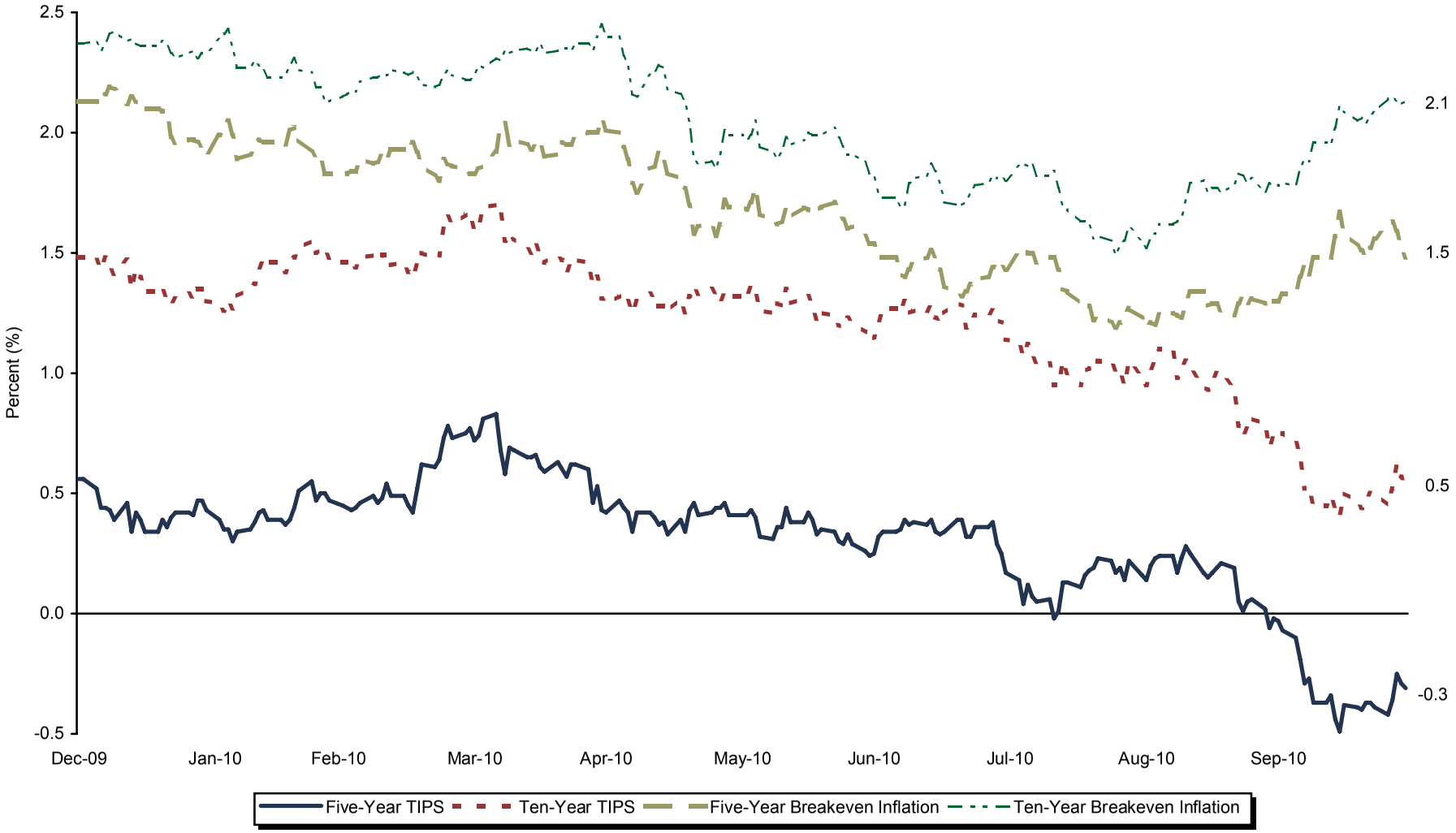


Sources: Consensus Economics, Global Financial Data, Inc., and Thomson Datastream.
Notes: Data are annual. GDP is shown in real terms. Data for 2010 are Consensus Economics forecasts.

Exhibit 5

U.S. Treasury Inflation-Protected Securities (TIPS) Yields and Breakeven Inflation

December 31, 2009 – October 31, 2010

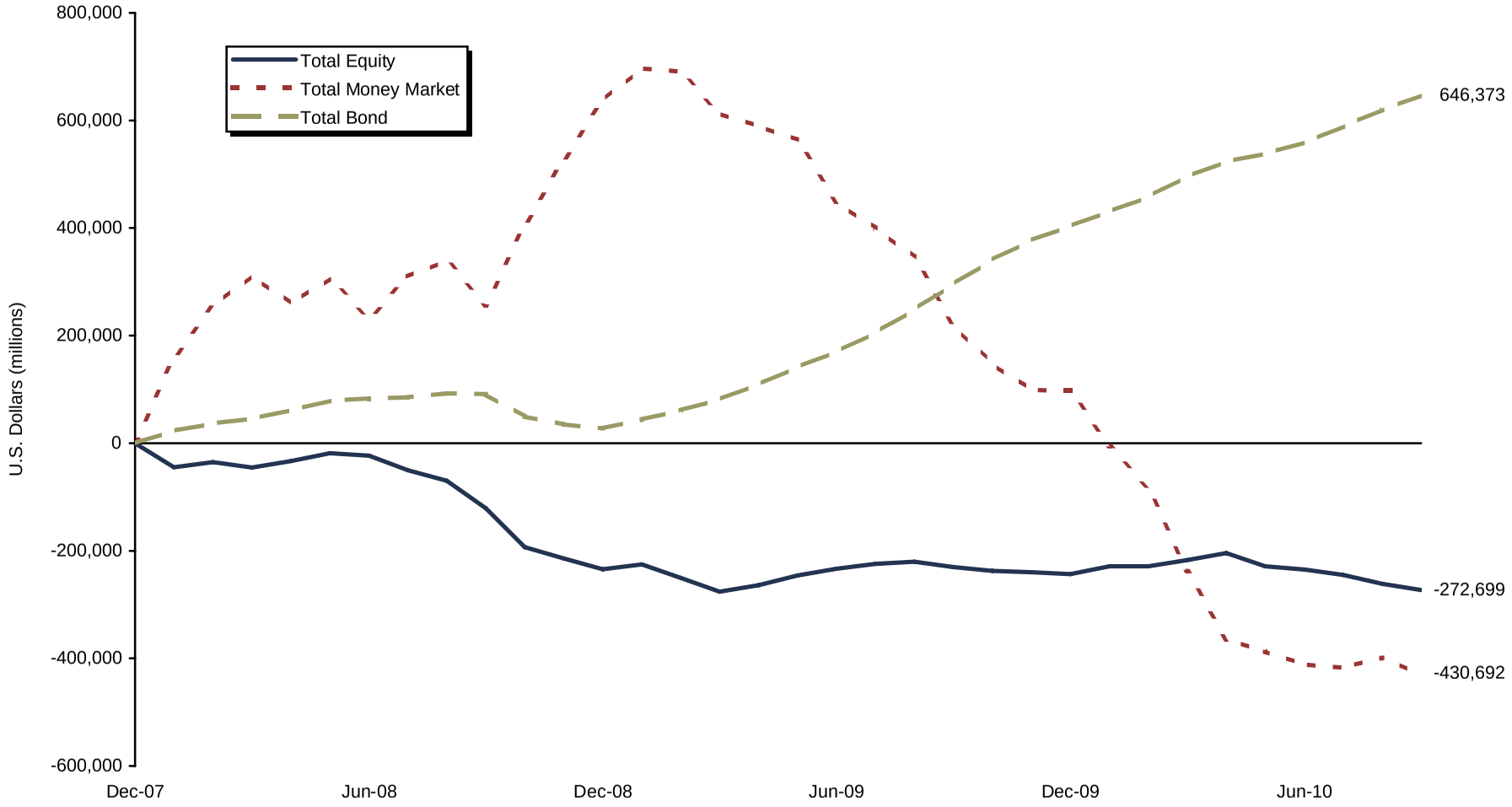


Source: Thomson Datastream.

Exhibit 6

Cumulative Net New Flows into U.S. Equity, Money Market and Bond Funds

January 1, 2008 – September 30, 2010

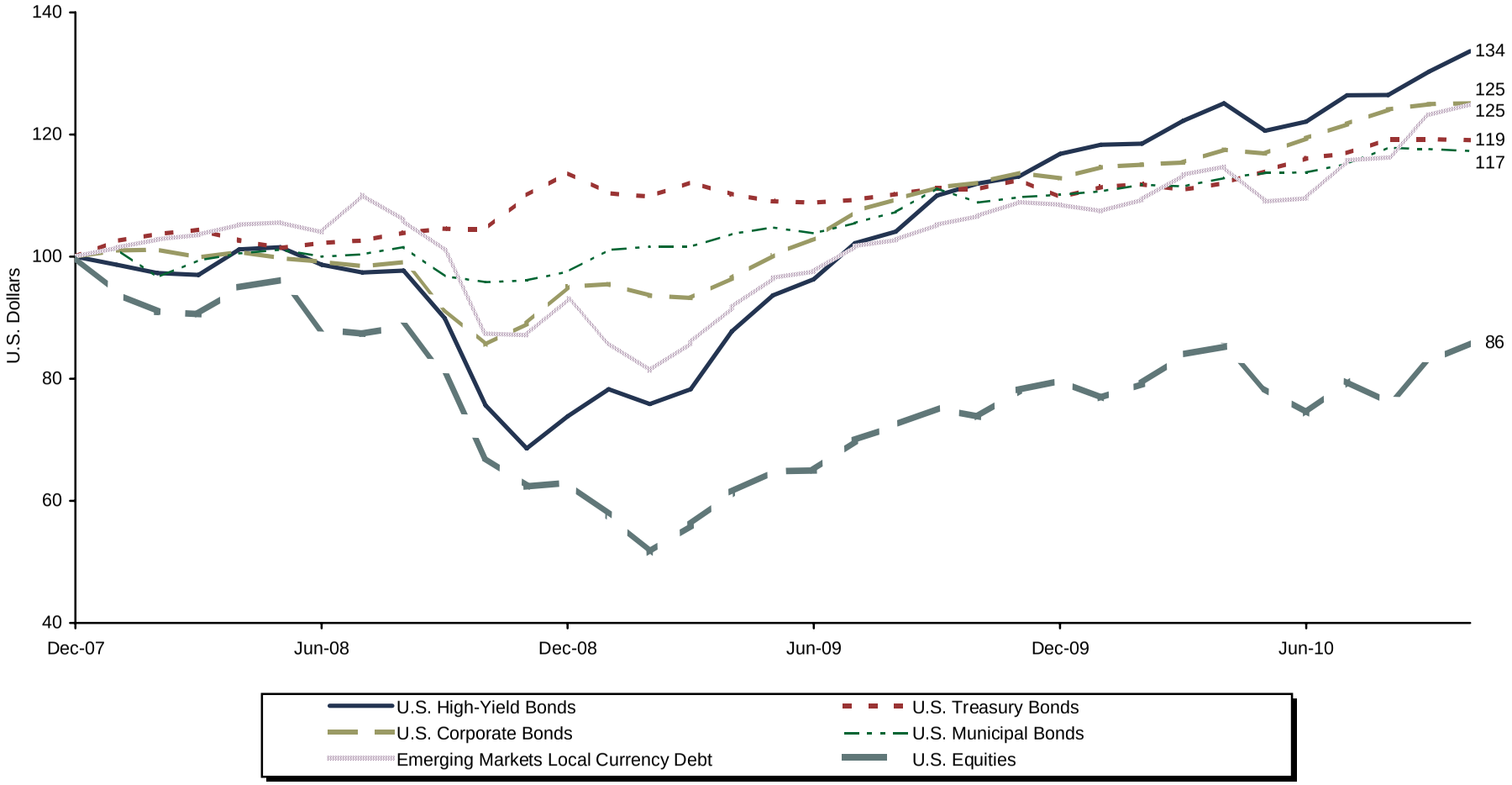


Sources: Investment Company Institute and Thomson Datastream.
Note: Data are monthly.

Exhibit 7

Cumulative Wealth: U.S. and Emerging Markets Indices

January 1, 2008 – October 31, 2010 • Rebased to 100 at December 31, 2007

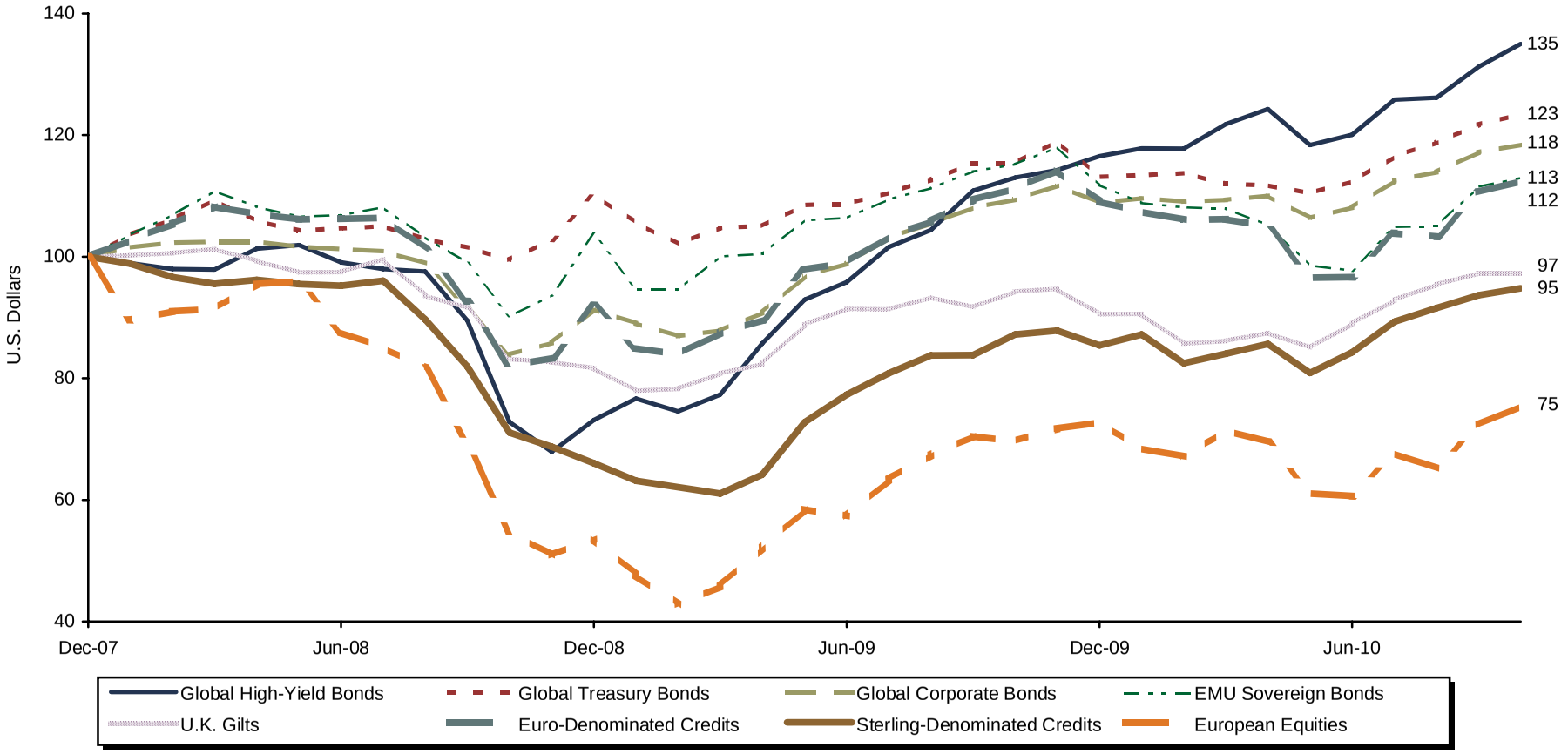


Sources: Barclays Capital, J.P. Morgan Securities, Inc., Standard & Poor's, and Thomson Datastream.
Notes: U.S. high-yield bonds represented by the Barclays Capital U.S. High-Yield Composite Bond Index; U.S. Treasury bonds by the Barclays Capital U.S. Treasury Bond Index; U.S. municipal bonds by the Barclays Capital U.S. Municipal Bond Index; U.S. corporate bonds by the Barclays Capital U.S. Corporate Investment Grade Bond Index; emerging markets local currency debt by the J.P. Morgan Government Bond Index Emerging Markets; and U.S. equities by the S&P 500.

Exhibit 8

Cumulative Wealth: Global Indices

January 1, 2008 – October 31, 2010 • Rebased to 100 at December 31, 2007

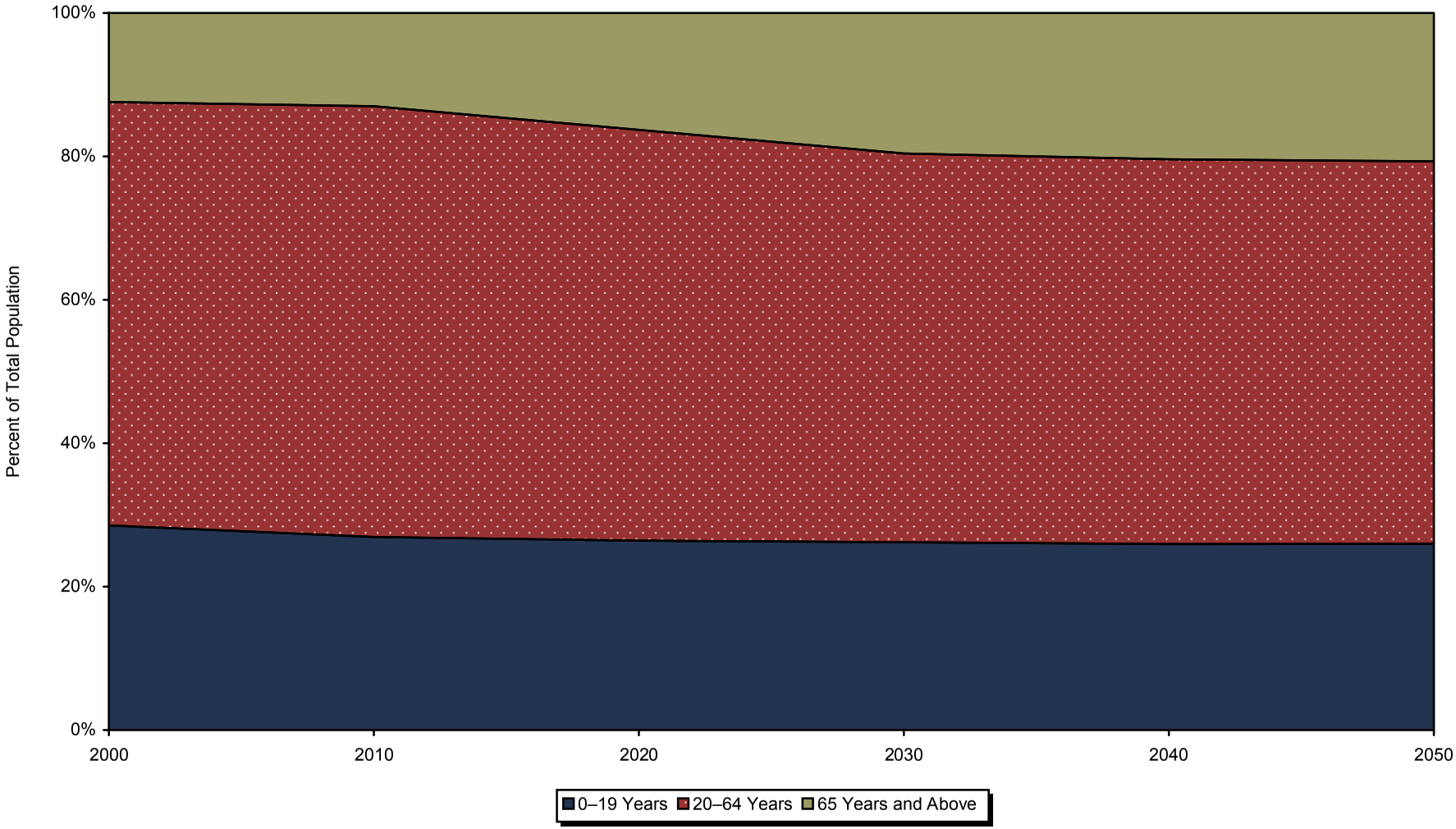


Sources: Barclays Capital, BofA Merrill Lynch, MSCI Inc., and Thomson Datastream. MSCI data provided "as is" without any express or implied warranties.
Note: Global high-yield bonds represented by the Barclays Capital Global High-Yield Bond Index; global Treasury bonds by the Barclays Capital Global Treasury Bond Index; EMU sovereign bonds by the BofA Merrill Lynch EMU Direct Government Bond Index; U.K. gilts by the BofA Merrill Lynch U.K Gilts Index; euro-denominated credits by the BofA Merrill Lynch EMU Corporate Bond Index; sterling-denominated credits by the BofA Merrill Lynch Sterling Corporate Bond Index; global corporate bonds by the Barclays Capital Global Aggregate Corporate Index; and European equities by the MSCI Europe Index, with total returns net of dividend taxes.

Exhibit 9

U.S. Population Projections by Age Group

2000–50

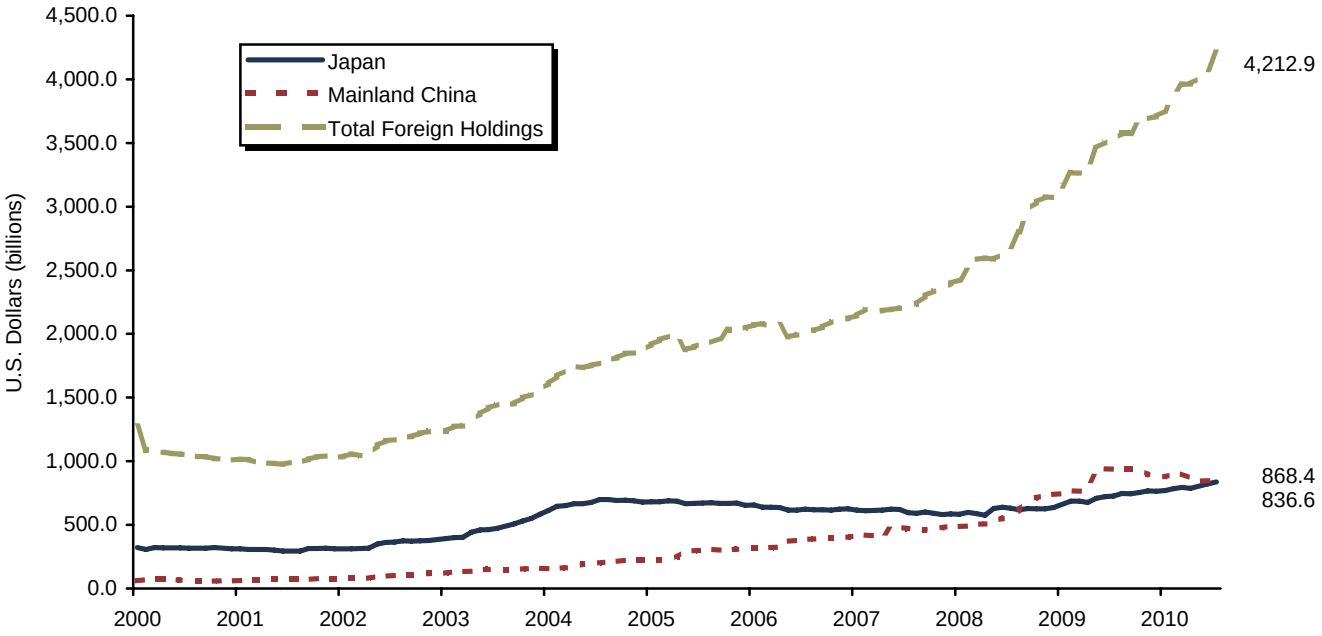


Source: U.S. Census Bureau.
Note: Projections are as of July 1, 2010.

Exhibit 10

Foreign Holdings of U.S. Treasury Securities

February 29, 2000 – August 31, 2010



Percentage of Total U.S. Treasury Securities (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Japan	10.7	11.8	15.4	17.5	16.1	14.4	12.9	10.8	10.6	10.0
Mainland China	2.6	3.7	4.4	5.7	7.4	9.2	10.6	12.6	12.3	10.4
Total Foreign Holdings	35.0	38.6	42.6	46.9	48.8	48.7	52.1	53.3	50.9	50.3

Percentage of Total Foreign-Held Treasury Securities (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Japan	30.6	30.6	36.2	37.3	32.9	29.6	24.7	20.4	20.7	19.9
Mainland China	7.6	9.6	10.4	12.1	15.2	18.9	20.3	23.6	24.2	20.6

Annual Growth in Holdings (%)

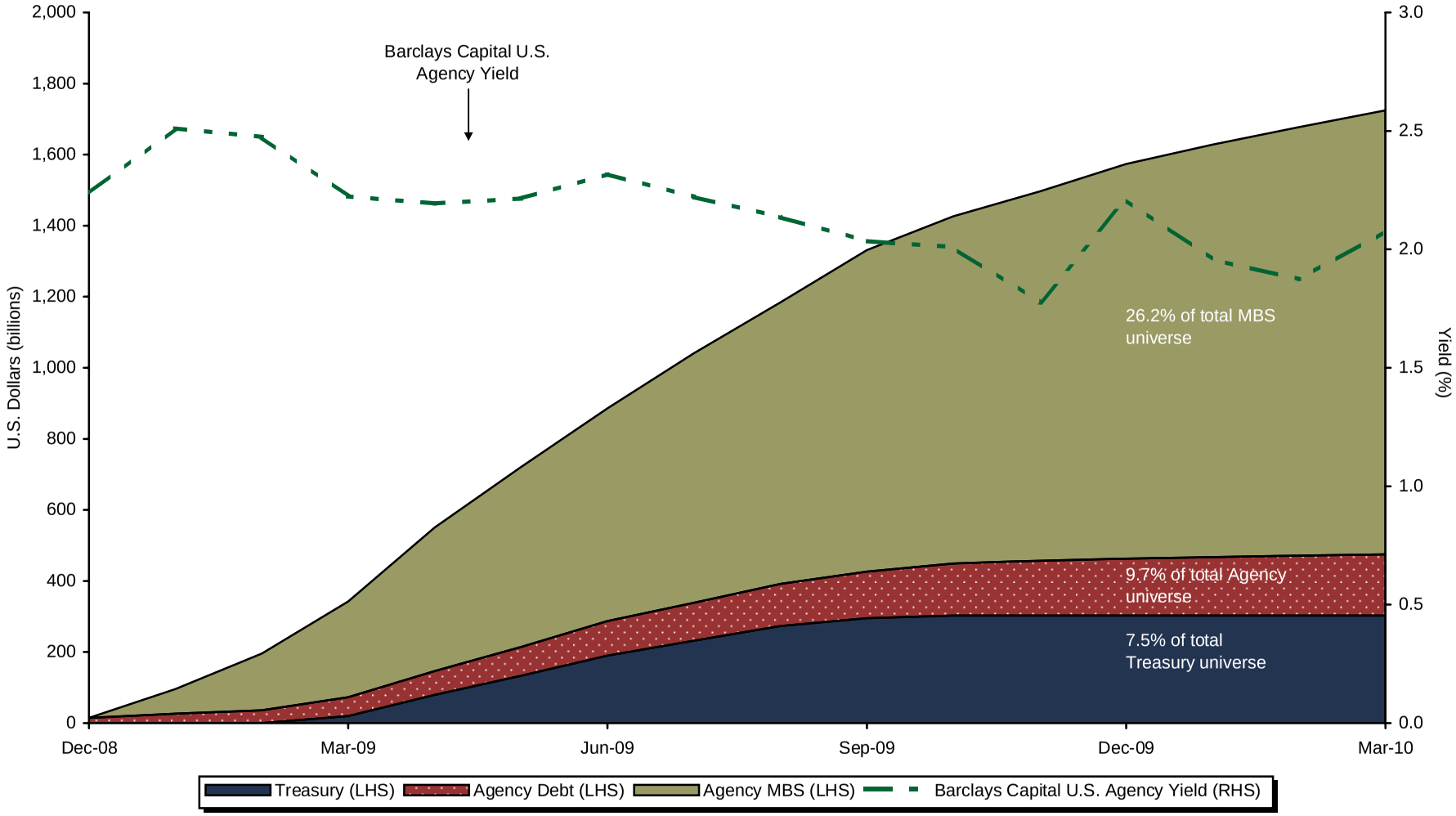
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Japan	0.1	18.9	45.7	25.3	-2.9	-7.0	-6.7	7.7	22.3	9.3
Mainland China	30.3	50.6	34.3	40.2	39.1	28.0	20.3	52.3	23.0	-3.0
Total Foreign Holdings	2.5	18.8	23.3	21.4	10.0	3.4	11.9	30.7	20.0	14.1
Total U.S. Treasury Securities	0.0	8.0	11.5	10.3	5.6	3.8	4.5	27.8	25.6	15.6

Source: U.S. Department of Treasury.
Notes: Estimated foreign holdings of U.S. Treasury marketable bills, bonds, and notes reported under the Treasury International Capital reporting system are based on annual surveys of foreign holdings of U.S. securities and on monthly data. Percentage growth figures represent annual data as of December 31. Data for 2010 are year-to-date through August 31.
700m

Exhibit 11

Cumulative Bond Market Purchases by the Federal Reserve and Treasury

December 31, 2008 – March 31, 2010

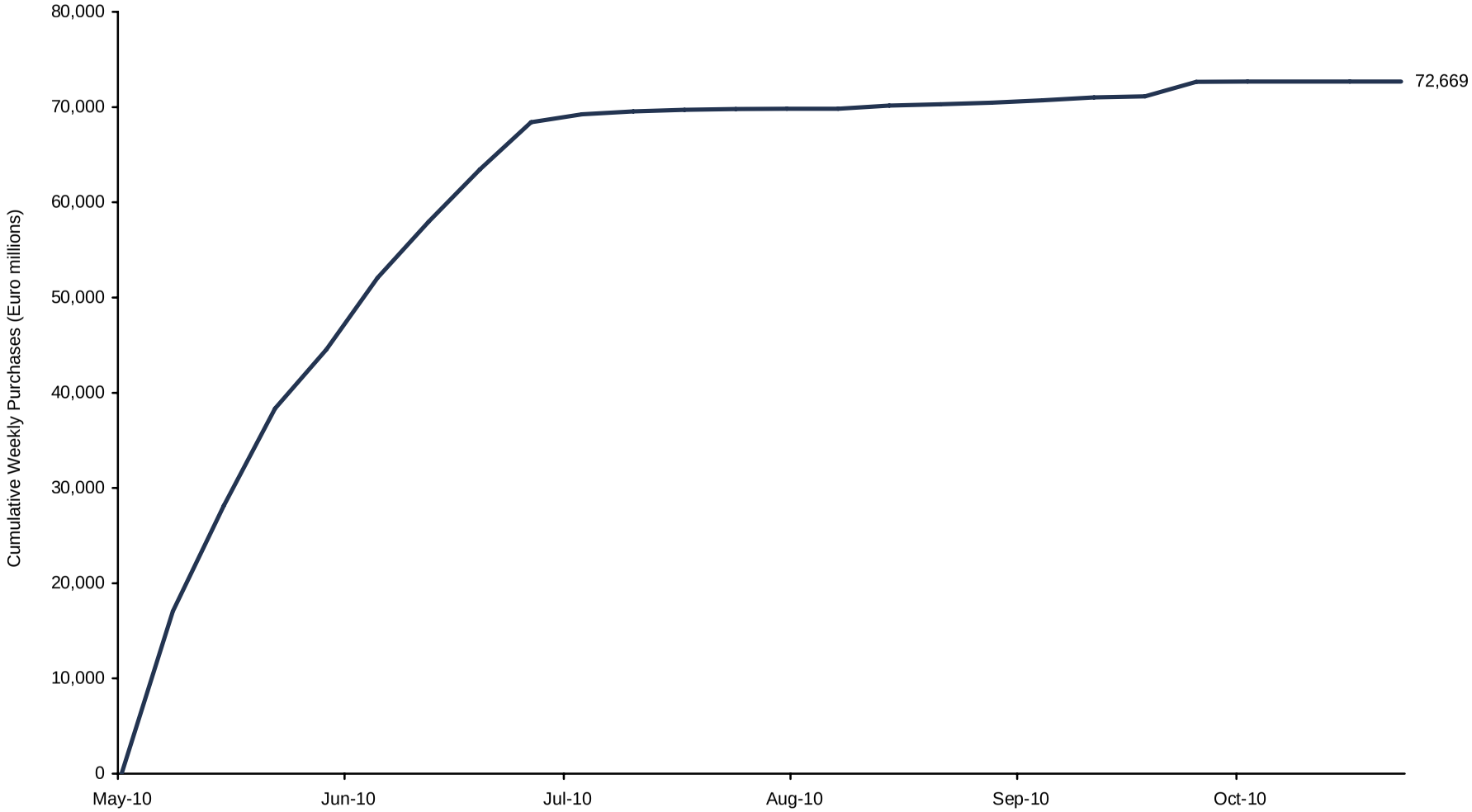


Sources: Barclays Capital and SIFMA.
Note: Yield to worst is shown for the Barclays Capital U.S. Agency Index.

Exhibit 12

European Central Bank Securities Market Programme: Cumulative Purchases

May 14, 2010 – October 29, 2010

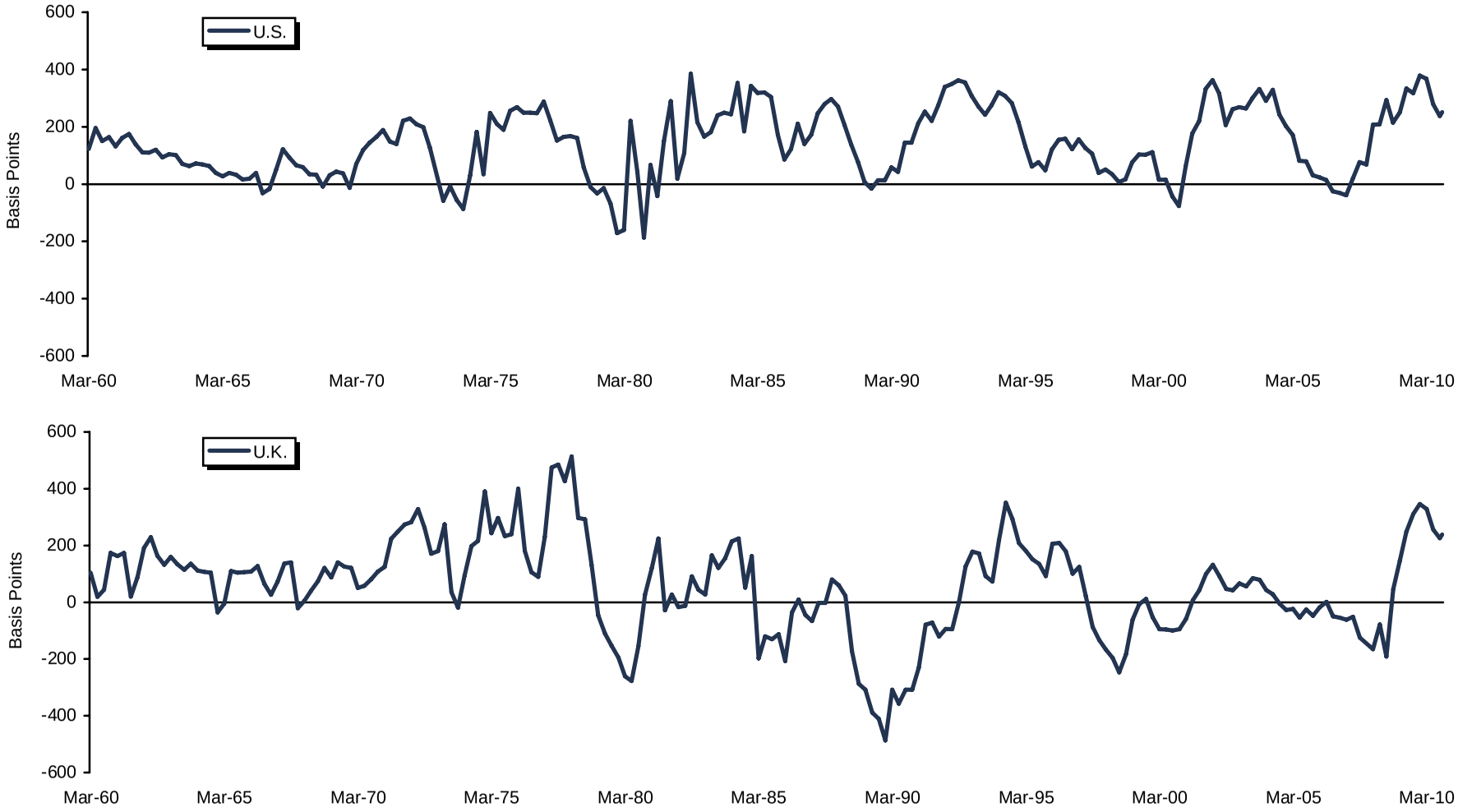


Source: European Central Bank.
Note: Data shown on a weekly basis.

Exhibit 13

U.S. and U.K.: Spread Between Ten-Year Sovereign Bonds and Three-Month T-Bill Yield

March 31, 1960 – October 31, 2010

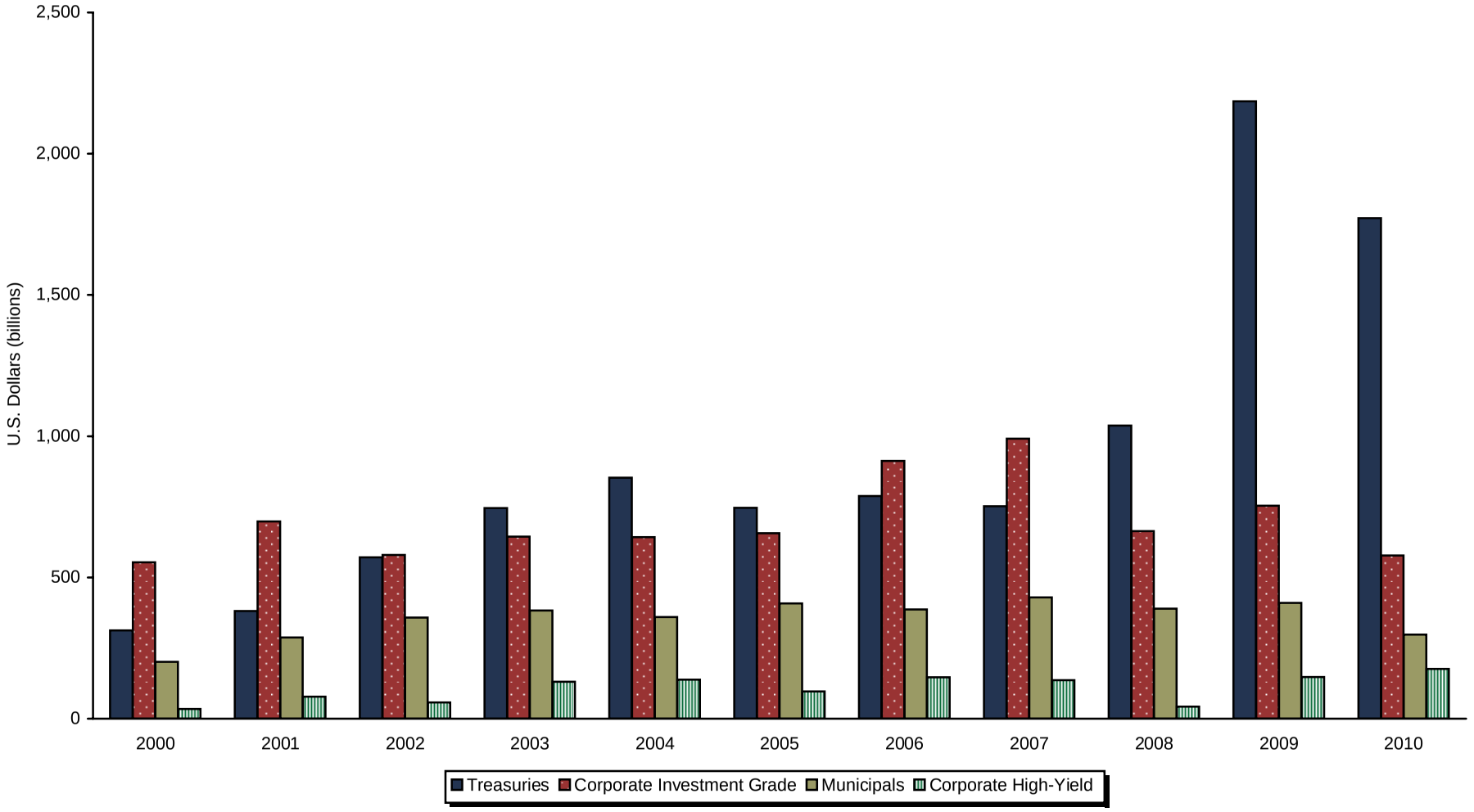


Sources: Global Financial Data, Inc. and Thomson Datastream.
Note: Data are quarterly, with current quarter as of October 31, 2010.

Exhibit 14

U.S. Debt Issuance

2000–10

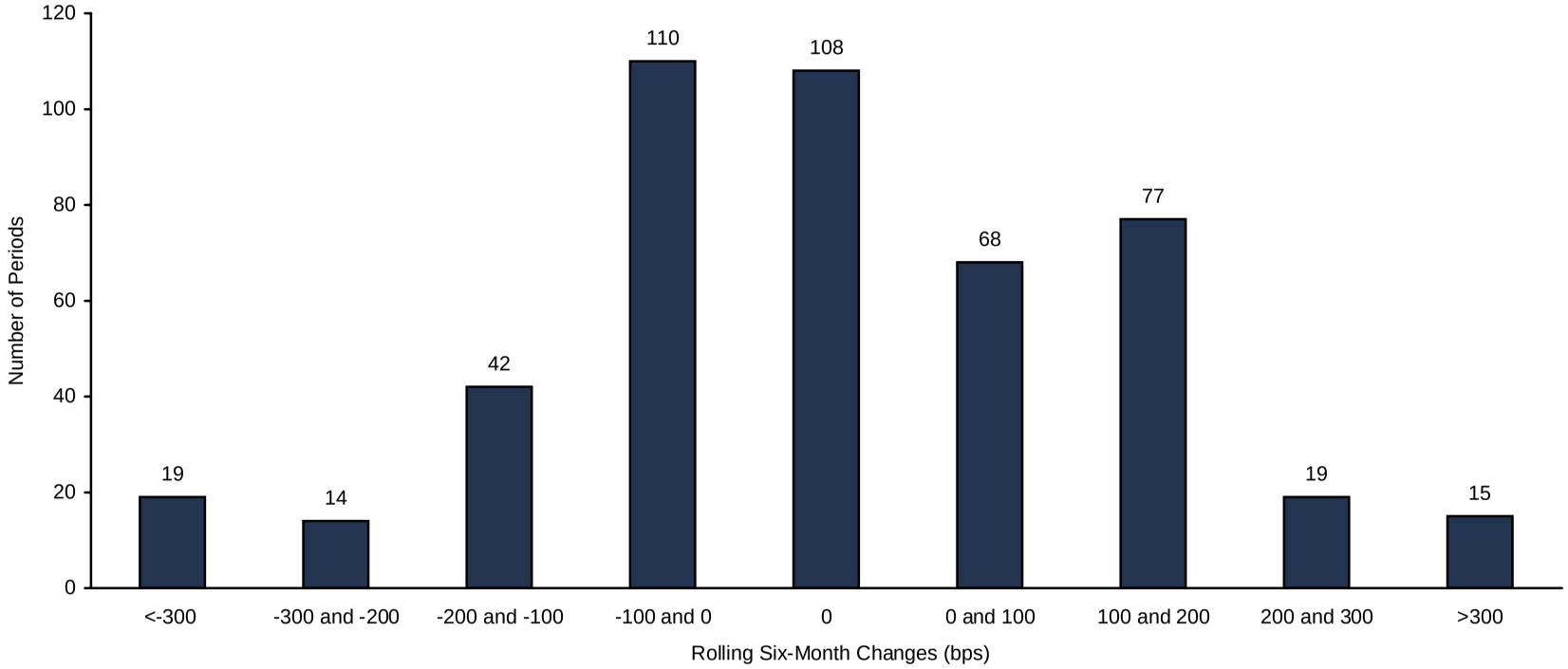


Source: Securities Industry and Financial Markets Association.
Note: Data for 2010 are through September 30.

Exhibit 15

Rolling Six-Month Changes in Target Fed Funds Rates

July 31, 1971– October 31, 2010



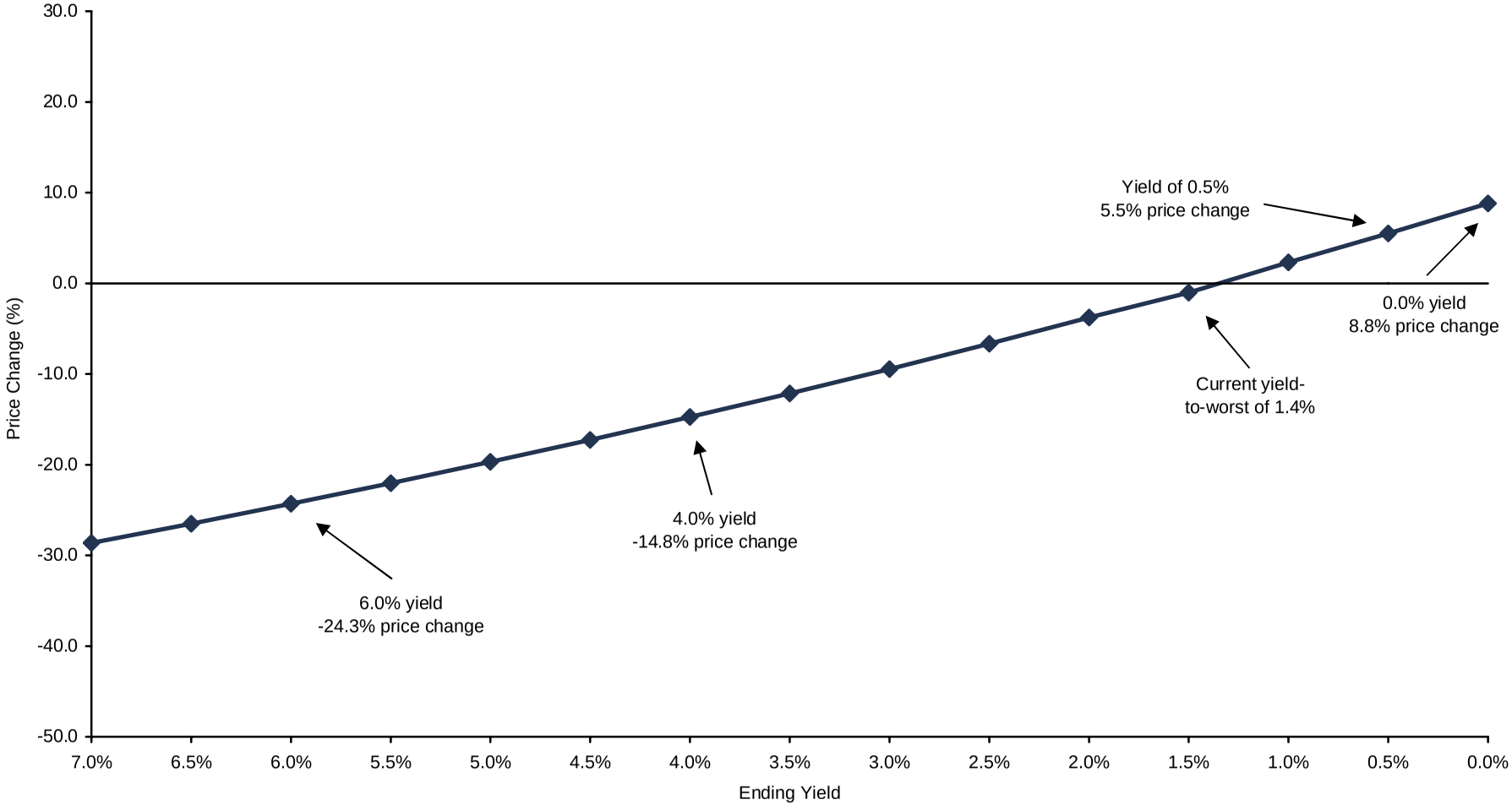
	Average Return (Mix/Max)								
Five-Year Treasury	10.9 (-3.0/22.3)	7.6 (1.9/15.7)	6.8 (-2.0/15.3)	5.0 (-2.7/14.9)	3.9 (-2.8/13.2)	2.2 (-4.5/11.2)	0.9 (-4.6/5.8)	0.2 (-9.7/4.0)	-0.7 (-8.4/7.5)
Ten-Year Treasury	11.6 (-3.6/28.4)	7.6 (-0.5/19.5)	7.6 (-4.3/22.5)	5.6 (-5.0/25.0)	4.3 (-8.5/17.7)	1.6 (-8.8/15.3)	0.9 (-9.3/8.9)	-1.3 (-14.7/4.0)	-2.5 (-13.0/5.4)
B.C. U.S. Aggregate Index	10.2 (-1.4/24.1)	6.6 (0.0/17.1)	5.9 (0.0/16.9)	4.8 (-3.6/16.3)	4.1 (-1.6/11.1)	2.4 (-4.0/11.4)	1.3 (-4.5/7.0)	-0.6 (-12.5/3.8)	-1.6 (-11.5/4.9)
B.C. U.S. Treasury Index	10.8 (-0.9/20.6)	7.1 (1.5/15.3)	6.7 (-1.6/15.5)	5.0 (-2.9/17.3)	3.9 (-4.3/12.3)	2.3 (-4.5/11.2)	1.3 (-4.6/6.5)	0.8 (-7.0/3.6)	0.2 (-5.9/7.4)

Sources: Barclays Capital, Global Financial Data, Inc., and Thomson Datastream.
Notes: Five- and ten-year Treasury represented by Global Financial Data, Inc., total return series from 1971 to May 1980 and Thomson Datastream total return series from June 1980 to the present. Data for Barclays Capital U.S. Aggregate Bond Index begin January 1976. Data for Barclays Capital U.S. Treasury Bond Index begin January 1973. All other data begin July 1971.

Exhibit 16

Barclays Capital U.S. Treasury Bond Index: Estimated Price Change at Various Ending Yields

As of October 31, 2010



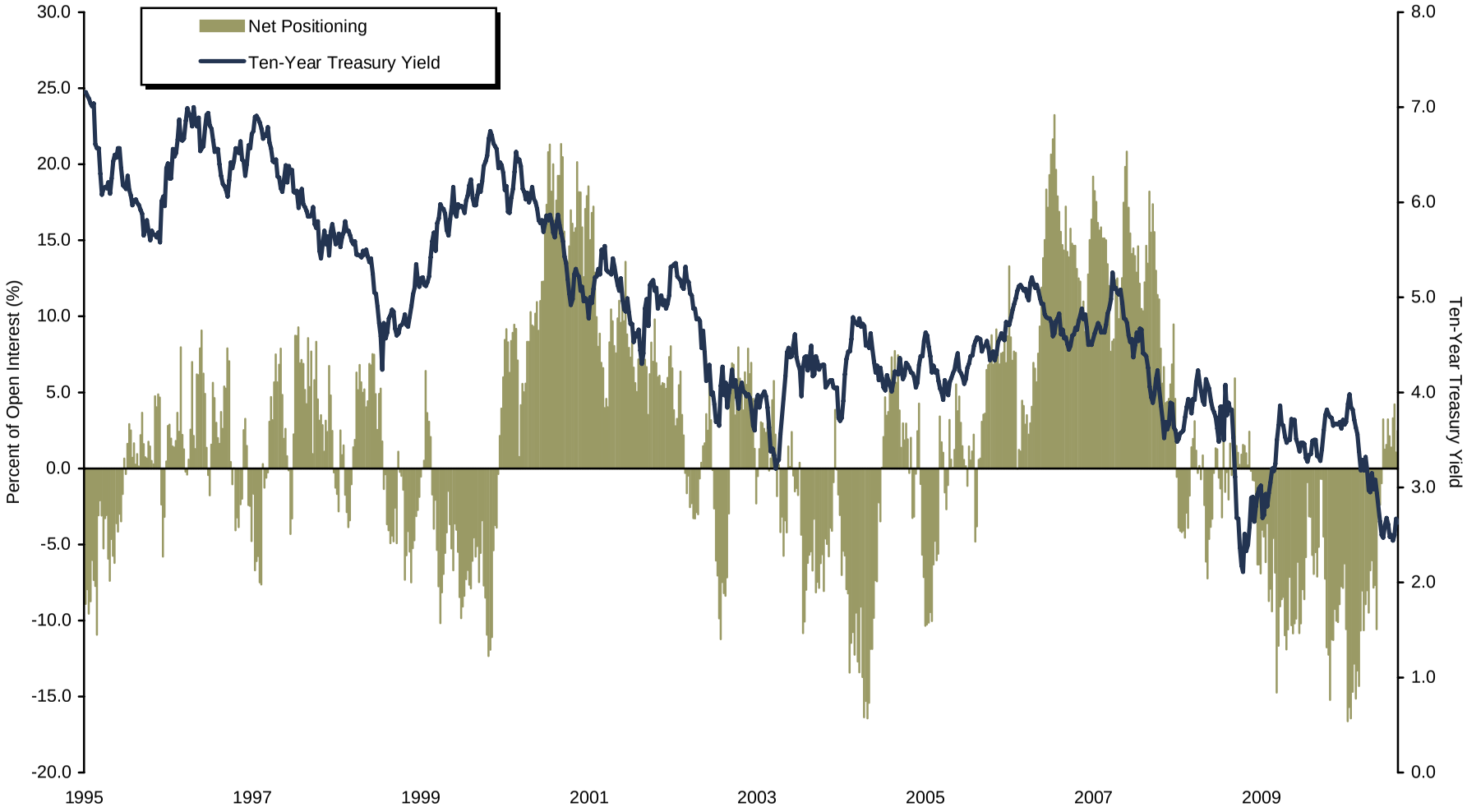
Source: Barclays Capital

Note: Average maturity and duration of the Barclays Capital U.S. Treasury Bond Index on October 31, 2010, are 6.7 and 5.4, respectively.

Exhibit 17

Net Interest in Treasury Futures by Non-Commercial Investors

March 21, 1995 – November 2, 2010



Sources: Thomson Datastream and U.S. Commodity Futures Trading Commission.
Note: Data are weekly.