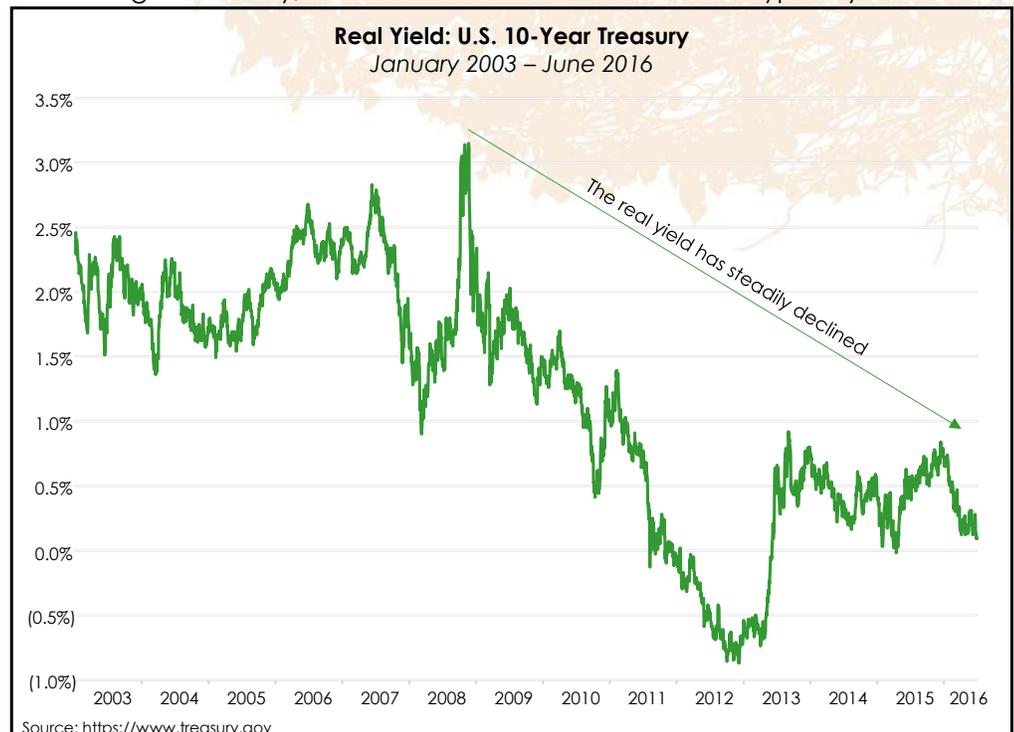


July 2016

CAPITAL MARKETS UPDATE | United Kingdom voters shocked global markets with their historic 52/48 decision on June 23rd to leave the European Union (referred to as Brexit). Markets expected the opposite. In the weeks preceding the referendum, global equity markets rallied on expectations the UK would remain in the EU. Equity markets reversed sharply in the two days after the vote before finding their footing and closing the quarter with a solid recovery. The fairest market assessment of the Brexit vote is to consider asset price movements for the month of June since this washes out the run up before and sell off after the vote. In that regard, global equities were nearly break even with the U.S. flat, International modestly lower (-3.4%) and Emerging Markets modestly higher (+4.0%). Post Brexit uncertainty looms large. The UK expects to elect a new Prime Minister this fall. It is then up to Parliament to formally declare the UK's decision to exit the EU which then starts a two year period to negotiate a final settlement. No one knows what the outcome will be. We can be confident that political uncertainty will remain high and not just in the UK and EU. All in all, asset markets were largely positive for the second quarter. U.S. Large Cap (+2.5%) and U.S. Small Cap (+3.8%) led the way for stock markets while International (-1.5%) and Emerging Markets (+0.7%) lagged. Commodities (+12.8%) and Real Estate (+7.0%) surged higher while the U.S. bond market benefitted from lower yields (+2.9%).

MARKETS CHANGE | The extraordinary thirty-five year bull market in bonds is well documented in the financial press. The yield on the U.S. 10-Year Treasury has declined from over 15% in the summer of 1981 to 1.5% this June. As yields fall, the price of fixed rate bonds rises. Fixed income investors have enjoyed decades of handsome returns and modest volatility. Less discussed, however, is how the U.S. bond index has changed since the Global Financial Crisis in 2008. The Barclays U.S. Aggregate Bond Index is a market value weighted index of investment grade fixed rate bonds that pay taxable interest. As budget deficits ballooned during the recession and continue in modest amounts today, issuance of new government bonds has surged. Consequently, the index is now much more tilted toward the lowest yielding components: bonds issued by the U.S. government and its agencies. Discussed below are two vastly different features of today's U.S. bond index.

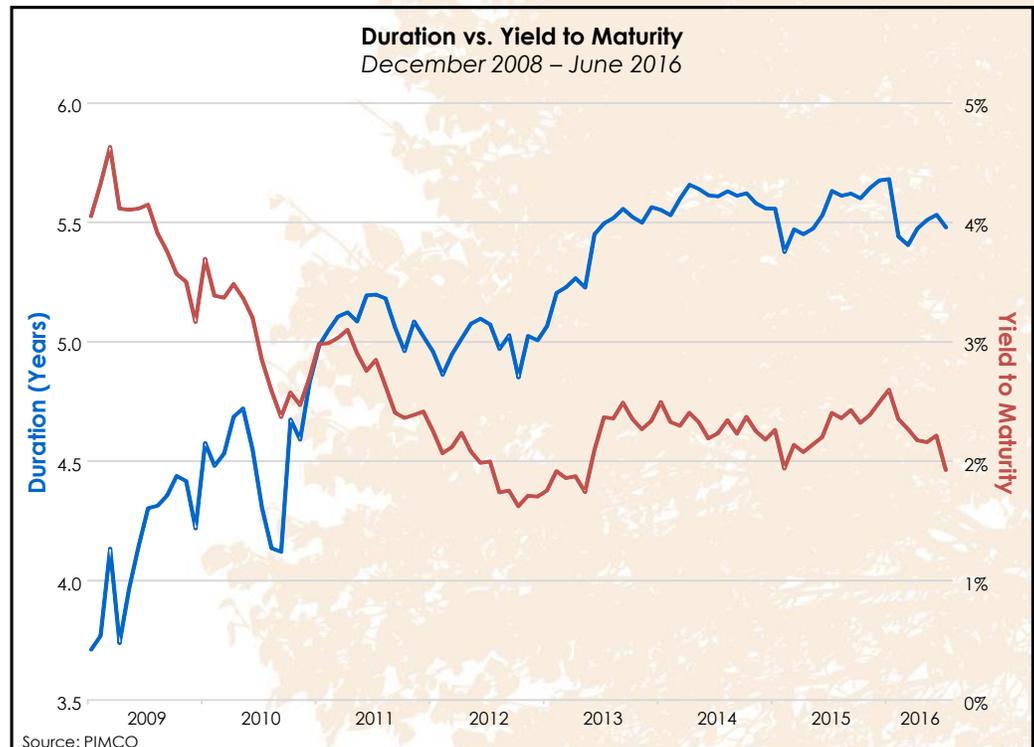
REAL YIELDS ARE REALLY LOW | Bond investors have two objectives: earn income and add stability/diversification to the portfolio. Throughout history, the income from U.S. Treasuries has typically exceeded the rate of inflation. In other words, the real yield (the interest rate earned minus inflation) was positive. Positive real yields are good since investors expect to gain purchasing power by earning more than inflation takes away. Since 2008, the major central banks aggressively reduced short-term rates and purchased large amounts of bonds to reduce borrowing costs, encourage investment and spending and thereby boost economic growth. As bond yields plumb historic lows across the globe, the real yield has declined dramatically. The chart at right depicts the real yield for the U.S. 10-Year Treasury since 2003 (the earliest data available from the U.S. Treasury).



In the first six years, the real yield averaged 2.01%. Since 2008, the real yield has averaged a much lower 0.54% and is currently only 0.09%. The real yield for both the 5-Year and 7-Year U.S. Treasuries closed the quarter in negative territory. Since government and agency bonds dominate the U.S. bond index, we can expect little to no real yield if we buy the index.

LOWER INCOME, HIGHER RISK | The risk/return profile of the index has also changed since 2008. The chart below plots the Duration (expected interest rate risk) and Yield to Maturity (expected return) on a monthly basis for the Barclays U.S. Aggregate Bond Index. Duration estimates how much the price of the portfolio will decrease (increase) if the market yield increases (decreases) by 1%. Yield to Maturity is the weighted average expected return if you held the bonds in the index to their final maturity.

At the end of 2008, the expected risk and return were fairly balanced: the duration was 3.7 years and the yield to maturity was 4.0%. If yields increased 1%, the market value of the portfolio would decline approximately 3.7% or just less than the average return for one year. Over the last 7½ years, the duration of the index increased 50% while the yield to maturity was nearly cut in half. Now, a 1% rise in yields brings an expected price decline of 5.5% or nearly three times the average return for one year. Buying the index offers an asymmetric payoff: the investor earns little income and bears significant interest rate risk when yields rise.



INVESTMENT IMPLICATIONS | To be clear, we are not calling the end of the bond bull market. Could U.S. bond yields go lower still? Absolutely. Compared to the nearly \$12 trillion in government bonds overseas with negative yields (before inflation!), U.S. Treasury yields look juicy. Since foreign investors now own 50% of U.S. Treasuries, yields in the U.S. are strongly influenced by yields abroad. As disciplined long-term investors, we simply observe that times have changed for bond index investors. In the good old days, buying a fund that tracked the U.S. bond index was a great deal: low fund expenses, attractive real yield and a balanced risk/return profile. However, buying the index today offers little real yield and disproportionate interest rate risk. Only owning the index also excludes many opportunities not in the index that may be more attractive: inflation linked bonds, non-agency mortgages, floating rate securities and municipal bonds. Accordingly, in today's low yield environment, we recommend utilizing a variety of instruments to capture return and reduce portfolio risk: actively managed bond funds (flexibility to be different from the index), short term bonds, floating rate securities and alternative investments (low correlations to stocks and bonds).

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