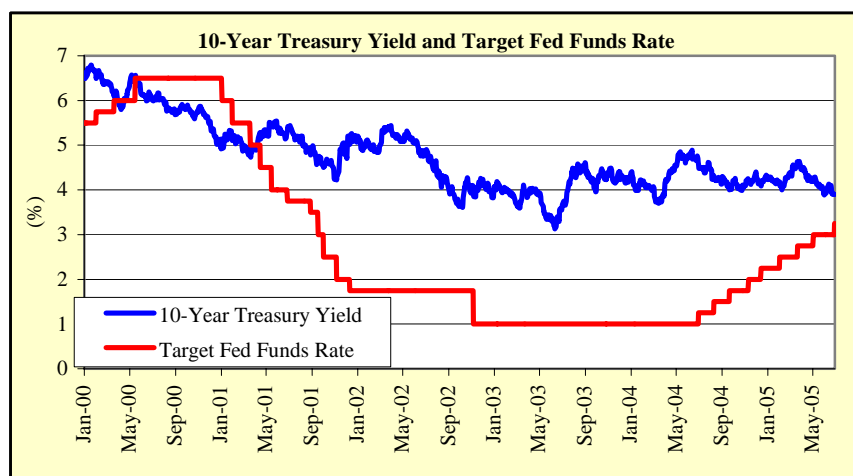


The Interest Rate Conundrum

July 2005

Overview

Long-term interest rates resumed their downward trend in the second quarter. After the yield on the 10-year Treasury bond increased from 4.2% to 4.5% in the first quarter, it fell back to 3.9% in the second quarter. This occurred despite the Fed raising the overnight lending rate twice, from 2.75% to 3.25%. Since the Fed began tightening one year ago, the yield on the 10-year bond has fallen by 68 bps. This change is in stark contrast to history. In prior Fed tightening cycles since 1958, 10-year bond yields increased an average of 125 bps from the first rate hike over the following twelve months.¹ This is the first tightening cycle during which the 10-year bond yield has fallen. Fed Funds futures indicate that we are still in store for two or three more quarter-point rate increases in 2005, which would virtually flatten the Treasury yield curve.



Based on the pricing of TIPS, much of the second quarter decline in yields was attributable to lower inflation expectations. The breakeven inflation rate on the 10-year bond, which represents the difference in the Treasury yield and the real yield on TIPS, declined from 2.7% (4.50% 10-year yield less 1.79% TIPS yield) to 2.3% (3.94% 10-year yield less 1.66% TIPS yield). However, since the beginning of 2000, falling real (after inflation) interest rates have been the driver of contraction in nominal yields. The real yield on 10-year TIPS has declined from 4.2% at the beginning of 2000 to just 1.7%. Expectations for future inflation, as measured by the breakeven inflation rate on TIPS, have increased since the beginning of 2000.

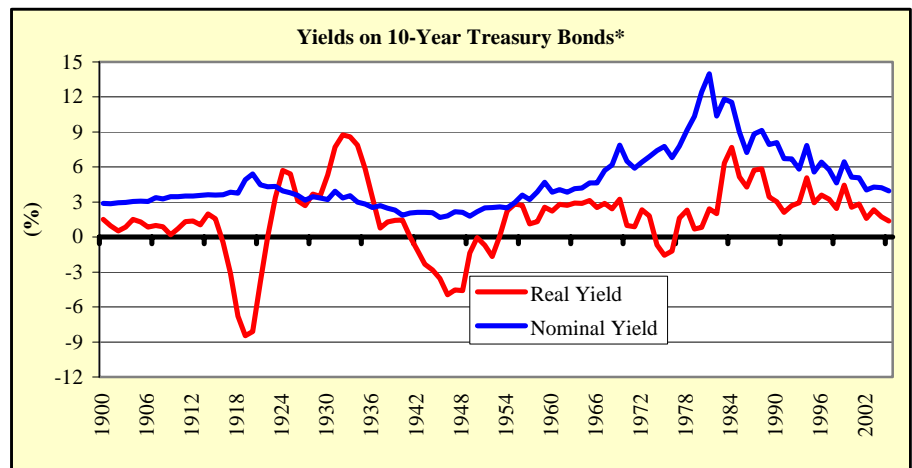
¹ The current cycle also differed from previous cycles in that the 10-year bond yield increased significantly **before** the first rate hike. The yield increased 76 bps in the three months preceding the rate hike. The 10-year bond yield remains above the Spring 2003 trough. (See Hammond Associates' Second Quarter 2004 Research Report.)

Declining real interest rates have had a spillover effect on other assets. The liquidity created by low rates has pushed asset prices higher and expected returns lower. There is a clear link between falling interest rates and ballooning residential real estate prices. Corporate bonds (both investment-grade and junk) and emerging market debt have benefited not only from lower Treasury rates, but also from a contraction in the credit spread to Treasuries as investors reach for yield. Real estate investment trusts, with their fat (albeit shrinking) dividend yields, have surged 126% since the Fed made the first cut in the overnight lending rate in January 2001. Despite the bear market, equities are still trading at high valuations. Low real interest rates are supporting the high valuations. Of course, assets that were fueled by interest rates as they fell could be dragged down in the event of a reversal.

Today's Interest Rates Relative to Historical Levels

A common perception is that Treasury bond yields are significantly below normal. This is undoubtedly influenced by the experience of the 1980s and 1990s. The median yield on 10-year Treasuries over these two decades was 7.8% nominal and 3.3% real. However, when compared to the rest of the 20th century, these two decades were abnormal. From 1900 to 1979, the median nominal yield on Treasuries was 3.5%, and the real yield was only 1.3%. For the full century, the median nominal yield was 3.8%, and the real yield was 1.9%. A current real yield of 1.7% on 10-year TIPS is not too far from the median level of the 20th century.

Are the 1980s and 1990s or the long-term experience more indicative of the future? The reason for higher than normal rates in the 1980s and 1990s was the Fed's efforts to reduce inflation. Inflation exceeded 12% in 1980, which prompted the Fed to lift overnight lending rates to double digits. It required higher than normal real interest rates to reduce inflation to the low levels reached by the late 1990s. Inflation is now fairly well contained, so there is no need for the Fed to keep real interest rates as high. The high real yields bondholders enjoyed during the last two decades of the 20th century will likely prove to be an aberration.



*We estimated real yields on the 10-year Treasury by applying trailing inflation to the yield. Prior to 1950, we used trailing 5-year inflation. Trailing 3-year inflation was applied from 1950 to present.

What is an appropriate level for interest rates? In a normal environment, a 1.7% real yield on the 10-year bond may not be unreasonable. However, the current environment seems anything but normal because of the current account deficit. The current account deficit, which now exceeds 6% of GDP, is symptomatic of our over consumption. We are spending \$750 billion per year more than we are producing. That money must be borrowed from foreign investors. The natural state in this

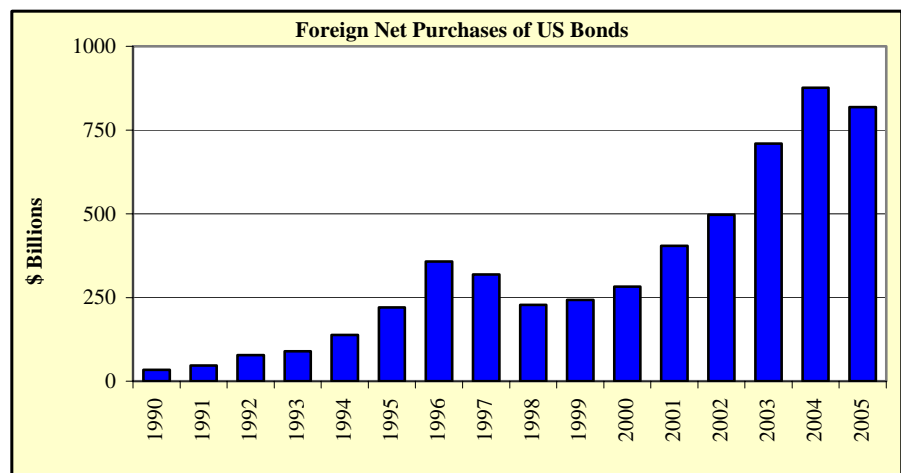
environment would be higher than normal real interest rates, which should be necessary to attract the foreign capital to offset the deficit. A consequence would be the reduction of consumption growth and an increase in savings. This would eventually help to correct the deficit.

Why Aren't Interest Rates Higher?

While bond yields don't appear that low when compared to history, the current account deficit argues for higher than normal yields. Why aren't yields higher? There are three common reasons cited for low interest rates—bond purchases by foreign central banks, weakening economy, and a lower inflation risk premium.

Willingness on the part of Asian central banks to invest in US bonds seems a likely contributor to low real interest rates. Asian countries, particularly China, are flush with cash from their massive trade surplus with us, and have been willing to recycle their receipts into US bonds. This keeps their currencies from appreciating against the dollar, which would dampen export growth. Asian central banks appear to have made the choice of accepting a low interest rate and the potential for losses from currency depreciation to improve employment growth.

The amount of foreign assets going to domestic bonds is staggering. We must attract sufficient foreign capital to offset the current account deficit (\$750 billion and growing) plus net purchases of foreign securities by US investors. All told, the US now requires about \$1 trillion of foreign capital per year. Since the equity market bubble burst, foreign investors have been avoiding equities and purchasing bonds. In the first quarter of 2005, foreign investors purchased an annualized \$816 billion of US bonds, the bulk of which was Treasury and agency securities. As a result of massive overseas buying, foreign investors hold 50% of outstanding Treasury debt and more than a quarter of corporate and agency debt. Bill Gross of PIMCO figures the yields are as much as 100 basis points below equilibrium levels because of purchases by foreign investors.

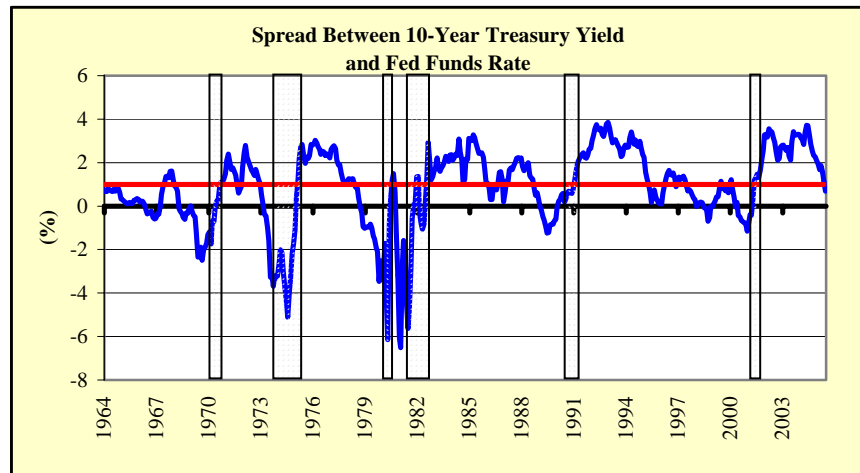


If the supply of foreign capital is the primary cause of low interest rates, can we rely on it to continue? Over the short-term, there is little reason to expect a change. This system can be viewed as favorable over the short-term for both the US and Asia. The US can continue to over consume, becoming more indebted to foreign creditors, without paying the higher interest rates profit-motivated creditors would demand to compensate for risk (which in this case is a secular decline in the value of the dollar). However, it cannot be sustained forever. The longer it lasts, the greater our debt service burden will be (even at discounted interest rates). Eventually, it will become too much to bear. Furthermore, Asians will eventually desire to increase

consumption and standards of living, rather than save. It's impossible to say whether this will occur within a couple of years or a couple of decades.

Another possible explanation for low interest rates is that the bond market has caught a whiff of economic trouble down the road. US consumers have relied on the housing market (fueled by the Fed's easy money policy) and tax cuts to support spending in the face of stagnant wage growth. The stimulatory effects of the tax cuts are long past, and the housing market appears increasingly at risk of a slowdown or worse. The removal of these effects, combined with the household debt overhang and imbalances in the global economy, may make the bond market expect the economy is heading for rougher sledding. In this case, the current tightening cycle would come to an end, and another easing cycle could ensue.

Historically, the yield curve has been one of the more accurate predictors of recessions. In normal environments, the yield curve slopes upward, meaning that longer maturity obligations provide a higher yield. **In six of seven instances when the yield curve has inverted since 1969 (short-term rates exceeded long-term rates), recessions have followed, and no recessions have occurred without the yield curve first inverting.** Of course, the yield curve *is not* currently inverted. The 10-year Treasury yield exceeds the Fed Funds rate by 69 bps, compared to the mean differential over the past 50 years of 100 bps. Current expectations are for the Fed to lift the Fed Funds rate to 3.75% or 4% by year-end, which could mean an inverted curve. However, current credit spreads on low-quality corporate bonds are inconsistent with the argument that the bond market expects a weaker economy. High yield bonds are trading at a spread to Treasuries of less than four percentage points, which is about 30% below the historical average. If bond investors expected the economy to weaken significantly, high yield spreads should be trading at much higher levels.



Lower risk of inflation is another potential explanation for the fall in nominal yields. Low inflation risk should lower the maturity premium for nominal bonds because part of the maturity premium represents an inflation risk premium (which is separate from *expected* inflation). If the perceived risk of inflation is lower because of Fed credibility or other factors, the compensation investors require for the possibility that inflation exceeds expectations should fall. In the 19th century when secular inflation was not considered a risk, short-term rates were typically higher than long-term rates. Investors preferred long-term bonds due to their fairly stable yield over the highly variable yields of short-term securities. The purchasing power of future interest payments and principal was secure because the country was on the gold standard. The 19th century, in fact, was deflationary. Prices fell by 0.4% annualized

over the 100 year period.² The abandonment of the gold standard brought inflation risk and an upward sloping yield curve.

If the risk of inflation is lower, the yield curve could be permanently flatter. The inflation breakeven rate on TIPS suggests that the bond market has little concern about inflation. The breakeven inflation rate should include expected inflation plus an inflation risk premium. This rate on 10-year TIPS stands at only 2.3%. Extending to 30 years, this rate is only 2.5%.

There have been many other potential contributors to the low level of rates raised. The shift of defined benefit pension plans to match the duration of liabilities seems the most likely contributor. For years, most pension plans have operated at an asset/liability mismatch. The duration of their liabilities (in the form of obligations to future retirees) has been much longer than the duration of their bond assets. This was especially damaging to funding levels in the early part of this decade because their liabilities increased since they were being discounted at lower interest rates, and their assets didn't keep pace due to the bear market for equities. This has led many pension plans to be more mindful of their asset/liability mismatch, which, in turn, has led to higher fixed income exposure with a longer duration. This shift towards longer duration is another factor that may explain the flatness of the yield curve.

Implications for Other Assets

Real interest rates should directly influence prices for risky assets. In theory, investors make investment decisions based on the expected return and risk of an opportunity versus what can be received on a risk-free basis over an equivalent horizon. Risky assets' expected returns should include a premium over the real riskless interest rate based on the level of risk. All else equal, it follows that when real interest rates fall, the required return for other asset classes should also fall. Lower required returns mean that assets trade at higher prices.

We've witnessed the effects of falling real interest rates in investment markets and residential real estate. Low interest rates have increased the purchasing power of home buyers, helping them to bid up prices to seemingly unsustainable levels. Low real interest rates have also reduced valuation pressures on equities, allowing them to trade at higher P/E ratios. It is also apparent that investors are accepting more risk in trying to eke out additional return. (Unfortunately, return *needs* have not fallen along with return expectations.) Credit spreads on corporate investment-grade and high yield debt remain well below historical averages.

If current real interest rates represent a new paradigm (or perhaps more accurately, a return to an old paradigm), there are significant implications for security markets. Equity markets that previously appeared overvalued don't look so unreasonable. In our asset allocation model, we assume equities should provide a 2.5% risk premium to long-term TIPS. We currently assume a 2.5% equilibrium real interest rate on long-term TIPS; therefore, stocks have a required earnings yield of 5% and should trade at a normalized P/E ratio of 20 (1/5%). With a current normalized P/E ratio of 24, the equity market is overvalued by about 20% under these assumptions. On the other hand, if long-term TIPS remain at the current 1.7% yield for the foreseeable future, stocks only need to provide a real return of 4.2% to provide the same 2.5% risk premium, which translates into a fair value normalized P/E of just less than 24. Under this assumption, the S&P 500 is trading at fair value.

² There were periods of sharp inflation within the period, such as during the Civil War. However, periods of inflation were followed by periods of deflation.

Fair valuation on stocks as a result of lower real interest rates is probably small comfort for investors. **A real return of less than 2% on bonds and 4% for stocks makes it challenging to earn a typical 5% real return to offset spending for endowments and foundations.** Under this scenario, institutions eventually will need to learn to live on less or be willing to accept more risk to achieve their return needs. Defined benefit plan sponsors, who must value their liabilities and set their contributions based on these low rates, are in an even more precarious position. They will also be under pressure to lower their seemingly unrealistic actuarial assumed returns (often 8.5% nominal, or 6% real). Funding pension plans must increasingly occur through contributions from cash flow, rather than earnings on investments.

The alternative scenario also has unappealing implications for asset markets. If real interest rates rise, which arguably needs to occur to reduce our current account deficit, asset prices will fall. Falling residential real estate prices could send the economy into a recession. Moreover, P/E ratios on equities would come under renewed pressure. From a long-term perspective, higher real interest rates would be positive for investors, but it would mean short-term pain. The surge in interest rates and stagnation in equity prices in the last half of the 1970s set up a 20-year bull market for stocks and bonds.

Conclusions

Current real interest rates are near long-term historical norms. From that perspective, one can argue that the decline in interest rates experienced over the last five years (actually, the last 24 years), represents a return to the norm. Nevertheless, higher real rates are necessary to reduce the current account deficit to sustainable levels. Higher rates would help to reduce consumption growth and increase savings. However, the willingness of Asian central banks to lend trade receipts back to us could keep real interest rates low for an extended period. Eventually, higher than normal real interest rates are likely, but it's hard to say when "eventually" will come.

If real interest rates stay at current levels for the foreseeable future, it will present challenges to investors. Low real interest rates should mean low expected returns for other asset classes as well. A low cost of capital world is unfavorable for investors. Endowments and foundations will have trouble meeting their typical 5% spending rate while preserving purchasing power. Defined benefit pension plan sponsors will be forced to fund more of their pension benefits through cash flow from operations. Baby-boomers will need more savings to replace pre-retirement income. Despite the short-term pain it would cause, long-term investors, even those invested substantially in bonds, should welcome an increase in real interest rates.

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