Fall 2023

The Term Structure of Interest Rates

The long and the short of it

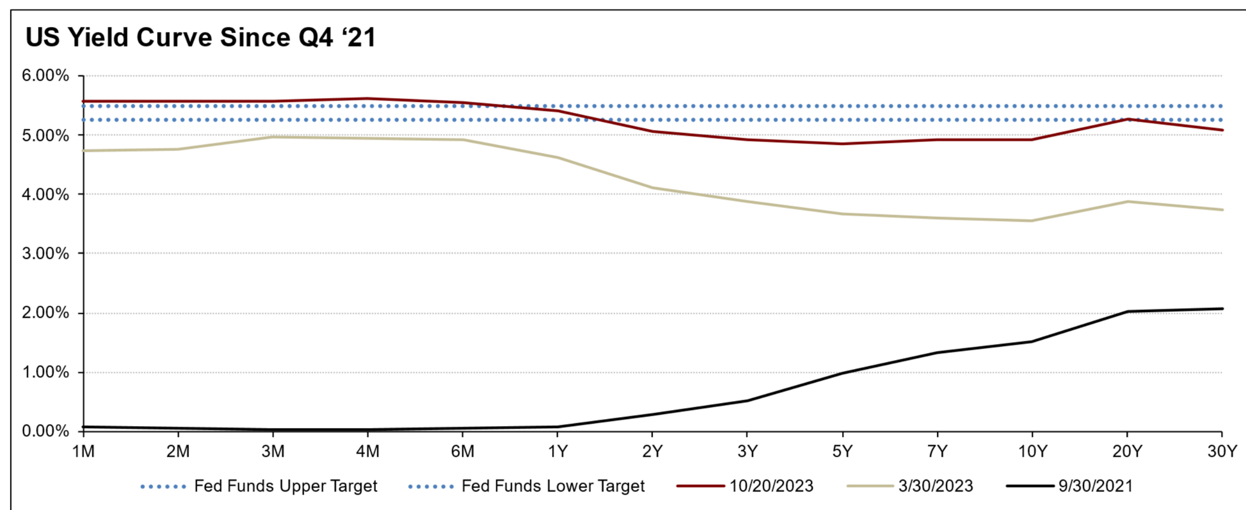
The third quarter of 2023 was a relatively uneventful period for the US Economy. Gross Domestic Product (GDP) grew at a steady pace. Inflation continued to subside, and the job market remained robust. The Federal Reserve (Fed) raised interest rates in June but held steady for the rest of the summer. So why did the stock and bond markets sell off so dramatically in the third quarter? The answer, it would appear, lies in the term structure of interest rates and in investor expectations for inflation.

The term structure of interest rates, also known as the yield curve, is the relationship between bond yields and maturities. Generally, the longer the maturity of a bond, the higher the rate of interest the bond pays. This relationship makes sense, as investors (the bond buyers) would naturally expect to be compensated for the increased risk of tying up their money for a longer period of time. Graphically, this relationship is represented as an upward-sloping ("normal") yield curve. But the yield curve must also take into account investors' expectations for inflation and the future course of interest rates. Since short-term interest rates are largely set by the Fed, but longer-term rates are set in the marketplace, these factors can complicate the picture in a variety of ways.

Earlier this year and through much of last year, short-term rates were higher than long-term rates. This inverted yield curve reflected expectations held by bond investors that short-term rates would decline in the future. Essentially, the logic of the market was that the Fed's restrictive monetary policy would trigger an economic downturn (recession), which would then motivate the Fed to reduce short-term rates. However, the US economy has proven to be much more resilient than expected and has continued to grow despite the higher rates. So, it would appear that investors have become less optimistic about a rate cut in the near future.

This change in investor expectations for interest rates is reflected in the US Treasury Yield Curve (see the chart below). The bottom line (black) represents the level of interest rates on 9/30/2021, before the Fed began raising rates. It depicts an upward sloping, normal yield curve. The middle line (gray) is the yield curve on 3/30/2023. It slides downward, reflecting the impact of the Fed's rate increases, with short-term rates significantly higher than longer-term rates. The top line (maroon) is the current yield curve

(10/20/2023). It shows a modest increase in short-term rates, but then a larger increase in longer-term rates causing the yield curve to flatten.



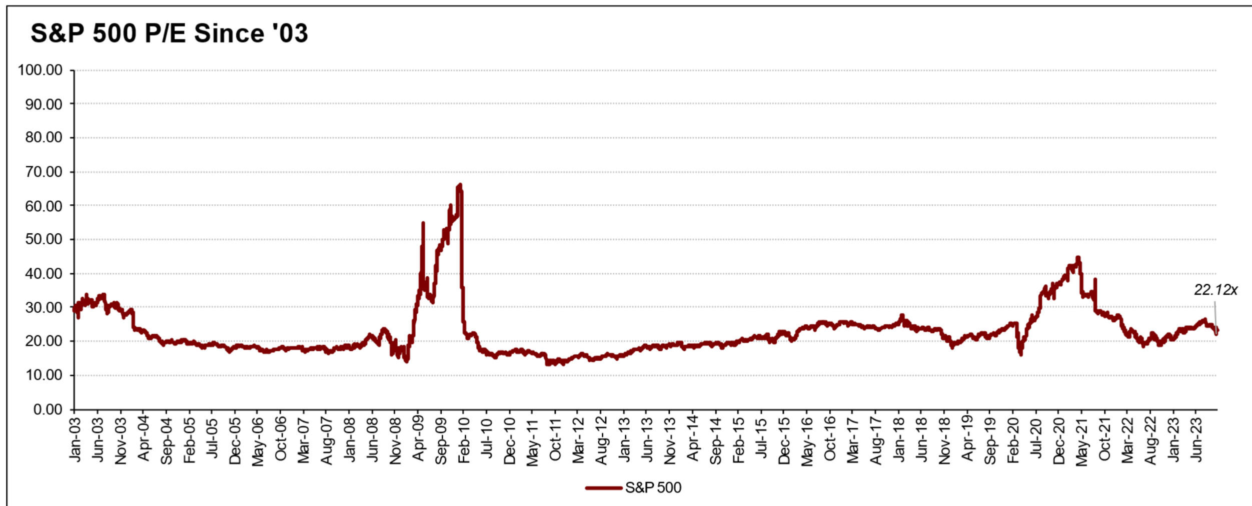
There is a correlation between bond yields and the valuation of stocks. Generally, rising interest rates put downward pressure on stock prices. As interest rates rise, price to earnings (P/E) ratios decline. Rising interest rates impact stock prices in several ways. For companies that use debt in their capital structure, higher rates will increase interest expenses over time. If businesses can't pass along those extra costs to customers, their earnings will be lower. Higher rates also reduce the present value of future earnings streams, as those profits are discounted to the present at a higher rate. At the same time, stocks and bonds must compete for investors' capital, and higher rates make bonds more attractive to investors.

Since the fortunes of companies are variable, stocks are inherently riskier than US Treasury Bonds. Therefore, investors naturally expect a higher return on stock investments as compensation for the greater risk. This difference is referred to as the equity risk premium (ERP). The ERP has varied considerably over time but for the sake of simplicity let's use 2%. When the yield on the 10-year US Treasury Bond was 2%, the required return for stocks hovered around 4%. But with the 10-year now yielding 5%, the hurdle rate for stocks has risen to 7%.

This change in investors' required return is reflected in the earnings yield, which is the inverse of the P/E ratio. For instance, if a stock has a P/E of 20, the earnings yield would be 5%. The earnings yield is essentially the net after-tax earnings per share divided by the stock price. It represents what a shareholder of the company would theoretically receive if the company paid out all the company's profits as dividends. Put simply, if the risk-free rate (the 10-year Treasury Bond) is yielding 5%, and the equity risk premium is 2%, then the earnings yield for stocks would be 7%, the equivalent of a P/E of 14.3.

As the chart below demonstrates, P/E ratios have varied considerably over the past 20 years. The spike in 2009 was caused by the Great Recession, when corporate earnings were decimated. More recently, P/E ratios spiked in the post-pandemic rally but have been generally declining since. Looking at the data, one might conclude that the market as measured by the S&P 500 is overvalued, but a closer examination of the data might argue for a different conclusion. The S&P 500 of today is dominated by seven large stocks dubbed the magnificent seven (Amazon, Alphabet, Apple, Meta, Microsoft, Nvidia, Tesla). Since the S&P

500 is a market cap-weighted index, the high valuation accorded those stocks (and high P/E multiples) has skewed the average. Excluding those seven companies, the P/E of the market would be significantly lower.



Another important factor to consider is that while the interest rate on the 10-year Treasury bond is fixed at issuance, corporate earnings have the potential to grow. Over the past 50 years corporate earnings have grown at a remarkable pace. Although there are periods when earnings have declined (e.g., recessions), corporate earnings have grown at about 7% per year. This means that corporate earnings double about every 10 years. This ongoing growth in corporate earnings is perhaps the most compelling reason to invest in stocks.

In recent years corporate earnings have been highly variable due to the impact of the pandemic. Earnings tanked when the economy was shut down during the early phase of the pandemic but rocketed upward in the post-pandemic recovery. Earnings have been flat to down over the past year but are forecast to start growing again in the third quarter of 2023 and on into 2024.

Ironically, the recent increase in longer-term interest rates makes it more likely that the Fed will be successful in combating inflation, as the higher rates should restrain economic growth. In effect, the bond market is doing the Fed's job for them. Chairman Powell indicated as much in his recent statements, and it appears that the Fed will not raise rates at its November meeting. Inflation is still above the Fed's target of 2% but is trending in the right direction.

We caution that it would be a mistake to put too much emphasis on any one forecast for the financial markets, no matter how compelling it may seem. The past few years have been highly volatile, and the economy is still feeling the aftereffects of the pandemic. In time, if the world ever returns to normal, the markets might look very different from the way they appear today.

Sincerely,

Donald Collins　　Ravi Jain　　Warren J. Isabelle