BOND MATH AND BANKS

BY ERIK FORD

One of the painful (and perhaps unexpected for some) lessons of the rapid increase in interest rates that began in March 2022, when the Federal Reserve began increasing its target Federal Funds Rate, was just how large an effect rising rates could have on the value of bonds. Rates actually began increasing earlier as inflation began increasing sharply, but accelerated with the Fed's action. In our investment portfolios, bonds are theoretically included as a risk modifying and diversifying factor to moderate the historic volatility of equities while providing income to our portfolios. When the Federal Reserve increased its target Fed Funds rate from 0.25% to 5.00% over the course of a year (March 2022 to March 2023), this resulted in a huge negative move in bond prices, greatly reducing bond values. You may think of bonds as an instrument where you collect your interest and then ultimately receive the principal back, however the value of a bond fluctuates during its term based on several factors, and a critical one is the general level of interest rates.

First, let us take a step back to describe how fixed income instruments are valued in the financial markets. As an example, we will use a bond with a ten-year maturity and paying a 4.0% annual interest rate. If the prevailing (market required) interest rate for this obligation is also 4.0% and the bond will return its principal of $1,000 in ten years, then the market value of the bond should be $1,000. You expect your fair return of 4.0% a year and the payment of principal at maturity. Now if the prevailing rate for this bond drops to 3.0%, your contractual interest payment of 4.0% is higher than the market demands, so the market price of this bond should increase above the $1,000 principal amount, as you are being "overpaid" via the contractual interest rate and someone looking for the required 3.0% yield will bid up the price until it results in that lower total return. On the contrary, if the required interest rate for this ten-year bond increases to 5.0%, the contractual rate is not sufficient to generate the required return, so the price of the bond in the market should decline to the point that the total return equates to 5.0%. When taken together, those examples explain the concept of bond prices moving inversely to interest rates.

Thanks to the Fed's actions in 2022 and continuing into 2023, bond values declined precipitously. We all felt that in our investment portfolios as bond investments had one of their worst years in history. Rising interest rates also affected consumers and markets by making loans and capital more expensive, but that is another story for another day.

Following the impact of rising rates on bond investments in 2022, this year brought stress to the banking sector including a few bank failures. While you would think that rising interest rates would benefit banks (they make loans, right?), the speed and degree of the increase in interest rates caught a few banks that were ill-prepared. Besides making loans, banks buy bonds with the deposits they hold. While interest rates were low for so long some investors bought longer term bonds to try to stretch into a higher return. Some of these investors were banks. As higher yields later became available for depositors outside of banks, deposits were withdrawn, and the banks needed to sell some of their bond holdings to provide liquidity. The sharp decline in bond values was exposed and realized. While not widespread, any bank failures are alarming and can create panic.

How big a problem could this be for banks and investors? The value of a ten-year treasury bond purchased just prior to the start of the Fed's rate increases is worth approximately 15% less after one year. That is a big decline in the value for banks which may be counting on being able to sell those assets to raise cash to fund departing deposits. Selling a bond for eighty-five cents will not fund a dollar of withdrawn deposits. The problem is self-evident and banks finding themselves in trouble were simply poorly managed. We will not opine on how the government and regulators intervened.

The lesson for us regular investors is the risk in bonds that is not related simply to the risk of getting paid back. We call this duration risk, and its effects are greatest when rates are very low and move up quickly. For example, a 1.00% increase in required yield for a ten-year treasury bond from 1.00% to 2.00% reduces the value by 9% while the same 1.00% increase from 4.00% to 5.00% only decreases the value by 7.5%. While in the end if may be simple math, it can have a surprising impact on our investments and the economy.

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