

PDV OBSERVATIONS

A Quarterly Newsletter for PDV Clients and Friends

Comparing Bond Yields:

There's more (a lot more) than meets the eye

The stampede out of stocks and into bonds continued at a ferocious pace this past quarter. Burnt by their recent experience with equities, investors are quite content to retreat to low-yielding bonds, even though stocks have become increasingly attractive as prices decline. Much of this money is finding its way into US Treasuries, in a flight to safety. This tremendous demand has caused Treasuries of all stripes to rise to unsustainable price levels, and we advise that you look elsewhere for your fixed-income investments at this point.

In addition to Treasuries, there are many other types of fixed-income investments that you can consider, such as agencies, mortgage-backed securities, asset-backed securities, and corporate bonds of varying creditworthiness, from AAA-rated all the way down to so-called "junk bonds." These different types of bonds are not inherently good or bad – it depends on their pricing. There are times when you are not paid sufficiently to take on additional default risk, and should stick with Treasuries; other times, like now, you are paid handsomely for assuming such risk. The risk/reward scales with respect to certain corporate bonds tilt in your favor right now.

Thanks for your referrals!

As we conclude our eighth year of publishing *Observations*, we would like to take this opportunity to express our gratitude and appreciation to all our clients and friends for their client referrals over the past year. We always welcome the opportunity to be of service to relatives, friends and acquaintances of our clients. As many of you know, we do not market our services to people with whom we are not acquainted. Our business has grown over the past eight years primarily due to satisfied clients adding business and through their referrals. We hope you'll think of us if you come across anyone who would benefit from our services. Thanks again!

With the economy improving, albeit slowly, corporate bonds rated among the lower end of the investment grade spectrum are especially attractive, as they yield considerably more than Treasuries and higher-quality corporate bonds of comparable maturity. The considerably higher yield you will be getting from the lower-rated corporate bonds should more than compensate you for the added default risk. In fact, after several tough years, "junk bonds" are now one of the most attractive bond classes around, as their yield over Treasuries (a.k.a. "spread") is at historically wide levels. With credit defaults appearing to top out, the extra yield, plus the

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likely capital appreciation when spreads narrow due to improving economic conditions, should result in out-performance by junk bonds in the next 12-18 months. **However, it is important to invest in junk bonds through a diversified vehicle, such as a mutual fund, if you are not in a position to evaluate single issues thoroughly via credit analysis.**

When evaluating competing corporate bonds that are available in the attractive segments of the bond market described above, it is important to have a disciplined method to determine relative valuation and attractiveness. For this purpose, we have reprinted portions of several articles PDV published back in 1996. We hope you find this information useful in your search of bond investments for your portfolios.

“Imagine having to decide between two different bonds, A and B. Bond A has a *coupon yield* of 7% and B offers a *yield-to-maturity* of 5%. Which one is the better investment? The answer, as you might expect, is not as simple as choosing the one with the 7% coupon yield. The appropriate response depends on a whole host of factors, which will be discussed in [this]...article, using the above example for illustration.

[The first part]...of this article will describe the various ways to measure bond yields, and the significance of each in evaluating the attractiveness of competing bonds. [The second and third parts]...will discuss other factors that impact bond yields, such as credit and interest rate risks, prevailing interest rate levels and the outlook for the future direction and level of interest rates. No analysis comparing the attractiveness of two competing bonds would be complete without evaluating these factors.

There are essentially three basic ways to describe the yield offered by a bond: 1) *coupon yield*, 2) *current yield*, and 3) *yield-to-maturity*. The coupon yield is set at and does not change after bond issuance, and is quoted as a percentage of the *par value* of a bond. Most bonds have a par value of \$1,000 each. So for example, if a corporation issues a bond with a coupon yield of 5%, it means the bond will pay 5% of \$1,000 or \$50 in interest per year (usually in two semi-annual installments).

After bond issuance, the coupon yield by itself is not a particularly helpful measure for judging the attractiveness of a bond. This is because the coupon yield fails to take into account the price you would have to pay for the bond, which after bond issuance is almost certain to be different from its par value. Nevertheless, the coupon yield does allow you to calculate the total amount of income payments you will receive each year, by multiplying the coupon yield by the par value of a bond.

The current yield is the total amount of interest payments from the bond each year divided by the price you pay for the bond. The current yield equals the coupon yield only

if the bond is trading at par (which usually only happens at bond issuance). So for example, if a \$1,000 par value bond with a 5% coupon yield is now trading for only \$900, then the current yield will be \$50 (total amount of annual interest payments) divided by \$900, which equals 5.56%. Unlike the coupon yield, which remains unchanged after being set at bond issuance, the current yield will fluctuate in response to the changing value of the bond. *Current yield is a better way to measure the attractiveness of a bond than the coupon yield because it takes into account not only the interest income that will be generated by the bond, but also the price you have to pay to generate that income stream.*

The third way to measure the attractiveness of a bond is by its **yield-to-maturity** (“YTM”). YTM is an even better yield measure than current yield, because it takes into account the impact on bond yields from compound interest and realization of any capital gains or losses at bond maturity if the bond is held to maturity. YTM addresses the compound interest issue by assuming that the periodic interest payments received by the investor is reinvested at a rate equal to the YTM.

Of course, YTM’s accuracy depends on whether the assumptions on which it is based turn out to be true. To the extent that you do not hold a bond to maturity, or the periodic interest payments are not reinvested at the YTM rate (which is quite likely since you may choose to spend the interest payments or invest them in stocks, or be forced to reinvest at different interest rates), the YTM will not give an accurate yield projection. Despite these limitations, generally the YTM is still the best yield measure to use when comparing the relative attractiveness of bonds with different characteristics.

In the above example, it is therefore necessary to compare the YTM of Bonds A and B. Comparing the coupon yield of Bond A with the YTM of Bond B is misleading. However, the analysis should not only compare the respective YTM of the bonds, but also evaluate whether any yield differences are justified by several other significant factors that will be discussed in [the second and third parts]...of this article.

[Next we turn to examining]...the most significant bond features that 1) affect bond yields, and 2) may account for yield differences among competing bonds.... Continuing with our example, let’s assume that Bond A has a 5.1% YTM. Since this exceeds Bond B’s YTM by 0.1% (or 10 basis points in bond parlance since 1% equals 100 basis points), Bond A *appears* to be the more attractive bond, *all things being equal*. But this is only the beginning (and not the end) of the inquiry.

The next question is whether the 10-basis point difference in YTM can be explained by any difference in the respective features of the two bonds. This involves examining the bond features that are the primary determinants of bond yields: credit rating, maturity, liquidity and special features such as call protection and sinking funds.

First, the creditworthiness of most bonds is rated by rating agencies such as Stan-

Standard & Poor's and Moody's. These ratings are very important to the entities issuing the bonds because they are heavily relied upon by investors. Getting high ratings from the agencies means lower borrowing costs for the bond issuing entities as they are able to offer lower yields on their bonds. This is because investors are willing to accept lower yields from creditworthy companies that are more unlikely to default....

Second, under normal economic circumstances, longer term bonds generally yield more than shorter term bonds. Investors demand higher yields for tying up their money for a longer time and accepting greater exposure to possible increased inflation or higher interest rates in the interim.

Third, bonds that have big *floats* (i.e. those issues that have a large amount of bonds outstanding and usually are actively traded) tend to have lower yields. Investors must be tempted with higher yields before they are willing to buy bonds which they may have more difficulty unloading should they decide to sell before maturity. Illiquid bonds also tend to be unpopular with institutional investors, thereby reducing demand and increasing yields.

Fourth, special bond features such as sinking funds, as well as put and call options will also impact bond yields. For the purpose of this article, let's discuss the most significant of these, which is the nature of the call protection, if any, for the bond.

When a bond is callable, it means the bond issuer has the right under certain circumstances to repay the bond prior to its maturity. This will usually occur at a time of declining interest rates, when it is unfavorable for you since you have to reinvest the bond repayment at lower interest rates. To induce investors to accept this risk, issuers of callable bonds have to offer higher yields than issuers of non-callable bonds.

To properly evaluate the relative merits of Bonds A and B, it is necessary to determine whether the 10-basis point difference in YTM is caused by any of the above factors. For example, Bond A may not be the more attractive investment if its higher yield is due to inferior credit quality, liquidity or call protection, or a longer maturity. Any of these features would make Bond A an inferior bond, and the question then becomes whether the 10-basis point yield increase is enough to compensate you for accepting the inferior bond characteristics.

By this time, you might be quite surprised that bond investing sounds a lot more complicated than you may have been led to believe. Your feeling would be warranted. Bond investing appears deceptively straight-forward, but in reality is quite complicated. Among other things, it necessitates understanding different yield measures, comparing YTM's, and evaluating whether differences in bond features justify different YTM's.

For simplicity sake, let's assume that Bonds A and B are similarly rated, have

comparable liquidity and maturities, and neither is callable. Now, you might conclude that Bond A has to be a better investment because it's comparable in all significant aspects to Bond B, and yet has a higher YTM. But wait. It turns out that there are also important macroeconomic and market factors that impact bond yields. Because these factors exist independent of features that are peculiar to the bonds themselves, it is important to broaden one's analysis to include macroeconomic and market conditions. We will do this ...[below].

Continuing with our example, let's assume Bond B has a *coupon yield* of 4% and *current yield* of 4.7%. Since Bond B's current yield exceeds its coupon yield, it means Bond B is selling at less than the *par value* of the bond (i.e. less than \$1,000 per bond). In bond parlance, Bond B would be considered a "**discount bond**" or a bond "**selling at a discount.**"

Further, assume Bond A has a *current yield* of 5.70%. Because Bond A's current yield is less than its coupon yield, Bond A must be selling at a price greater than its par value (i.e. more than \$1,000 per bond). Bond A would be considered a "**premium bond**" or a bond "**selling at a premium.**"

Whether a bond is selling at a discount or premium has very important ramifications with respect to the amount of 1) interest payments generated; 2) capital appreciation/loss experienced; and 3) taxes owed. As you will see from the following discussion, these ramifications mean that a bond with a lower yield-to-maturity may nevertheless be the more appropriate bond under certain circumstances.

First, assuming yield-to-maturity, call features, liquidity, maturity and credit quality of a premium bond (e.g. Bond A) and discount bond (e.g. Bond B) are very similar, the premium bond will generate a **higher** level of interest income each payment period, though this benefit is offset by the *capital loss* that would result if the bond is held to maturity (since the premium price you pay will drop to par when the bond is repaid at maturity.) Conversely, the discount bond pays a **lower** level of interest income each payment period, although this disadvantage is offset by the *capital gain* that would result if the bond is held to maturity (when the discounted purchase price will rise to par.)

For an investor trying to maximize income to fund living expenses, the premium bond (i.e. Bond A) may be more appropriate because it generates more income (even if we reversed our example and postulated that Bond A has a slightly lower yield-to-maturity). Avoiding the capital loss that would occur if the bond is held to maturity becomes a secondary consideration for this type of investor.

Second, premium and discount bonds react differently to interest rate changes. Premium bonds tend to react less than discount bonds to the same change in market interest rates. When interest rates rise, all bonds will drop in price, but premium bonds

will drop less in price than discount bonds. Conversely, when interest rates fall, premium bonds will appreciate less than discount bonds.

For an investor who is more concerned with the capital gain/loss component rather than the income component of a bond, she should buy discount bonds (i.e. Bond B) for their capital appreciation potential if she thinks interest rates are likely to drop, while premium bonds (i.e. Bond A) would be more defensive (and therefore attractive) if she anticipates interest rates to rise. In a declining interest rate environment, Bond B may be more attractive because of its greater capital gain potential (despite its slightly lower yield-to-maturity).

There are also opportunities to seek out certain bonds with *specific sizes* of discount/premium to try to maximize the beneficial impact from anticipated interest rate movements, but that subject is beyond the scope of this article.

Third, premium and discount bonds can produce different tax consequences for you. Remember, *all other bond features being comparable*, taxable premium bonds (e.g. Bond A) generate higher interest income (which would subject greater income to taxation during the life of such bonds). Taxable discount bonds (e.g. Bond B) subject lower income to taxation during the life of such bonds at ordinary income rates, while the capital gain at maturity would be taxed at the capital gains rate. Therefore, investors in a tax bracket higher than 28% may enjoy a tax advantage owning such discount bonds. The tax implications of tax-exempt bonds selling at a discount/premium are different...[and beyond the scope of this article.]

To conclude our article on comparing bonds, relative yield is only one of many important factors to consider. It is also necessary to evaluate any differences in the features particular to the competing bonds, as well as the existence of any discount or premium and what ramifications any such discount/premium may have on your own tax and in-