

CHAPTER 19

BOND PORTFOLIO MANAGEMENT STRATEGIES

Answers to Questions

1.

- 1(a). You would generally expect it to be easier to match the performance of a bond index as contrasted to a stock index because of the aggregate homogeneity of the bond market compared to the stock market. As a result you could match the performance of the bond index with substantially fewer issues. As an example, in order to match the performance of the S&P 500 Stock Index, it generally requires anywhere from 300 to 450 issues. In contrast, one could do a fairly good job of tracking a bond index that would include thousands of issues with less than 100 bonds simply because bonds are so heavily influenced by the general movements in interest rates. Therefore, although you might need bonds with different characteristics to match the index (e.g., industry and quality characteristics), it would not be necessary to have numerous issues with each of the desired characteristics.

While it might be possible to match the bond index with fewer issues, the selection and operational process of running the bond index fund would be more difficult. First, it is going to **require more characteristics to derive the desired diversification**. While the equity market only requires serious consideration of capitalization and risk decile, bonds have many characteristics that can effect return including maturity, duration, credit quality, capitalization, coupon, industrial classification, sinking fund, and a call features. Thus, it will be necessary to determine the makeup for each of these characteristics and attempt to match it in the portfolio.

A second factor would be the **difficulty of tracing bonds** as opposed to stocks. In the case of a stock index you are typically dealing with very large capitalization stocks traded on an exchange or involved in an active over-the-counter market. In contrast, the secondary corporate bond market is not nearly as liquid and so it is difficult to buy and sell for the bond index fund.

Finally, there is greater difficulty in **reinvestment of the cash flows** from a bond index fund rather than a stock index. Because of heavier cash flows from a bond index fund you are going to have more frequent buying programs. These can be a blessing because it allows you to change the makeup of the fund, but also it could be difficult to avoid changing the fund with small buying programs. The point is, it is going to require balancing cash flow purchases among all relevant bond characteristics to avoid changing the bond index fund portfolio.

- 1(b). It may be easier to maintain an equity index ETF for many of the above reasons.
2. a. “The Trinity Fund is being managed well.” Disagree. The fund is not managed properly because a pure bond indexing strategy should not deviate significantly from its benchmark.

b. "I expect that, as an active manager, Montego would outperform the index; therefore, the fund should be sold." Disagree. Six months is too short a time frame to evaluate an active bond manager.

3. High-yield bonds have been described as having characteristics of common stocks, such as higher yields and more risks. The higher yield on high-yield bonds (just like common stocks) compensate the investor for assuming various risks such as risk of default, price volatility, liquidity, or uncertainty regarding maturity. Since the characteristics of high-yield bonds are similar to those of common stocks, it is not surprising that high-yield bond returns are more correlated to common stocks returns than to investment-grade bond returns.

4.

- 4(a) In normal market conditions, we expect safer assets to be more liquid than riskier assets. Given the size of the Treasury market, it will be most liquid. High-grade corporate bonds will be more liquid than lower-grade corporate. In times of a credit crisis, a "flight to quality" will maintain liquidity in Treasuries, reduce liquidity for all corporate, while possibly all but eliminating liquidity for low-rated bonds. Market liquidity should be a major consideration when investing in high yield bonds. It has been demonstrated on many occasions that high yield bonds possess substantially less liquidity than Treasury securities and high grade corporate bonds. This lack of liquidity has been very evident following credit problems for several individual issues. Apparently tied to some default announcements, there were days when there was almost no trading at all in the high-yield bond market. Even though high-yield bonds are less liquid than Treasury and high-grade corporate bonds, it is important to recognize that they are still more liquid than corporate bank loans or private placement bond issues in the debt continuum.

The pricing of high-yield bonds has likewise come under some scrutiny from those accustomed to the continuous pricing available in equities, the reasonably good pricing available for Treasury issues, and the frequent quotes typically available for high-grade corporate bonds. Even though some high-yield issues have been listed on either the New York or American exchanges, which implies that there should be more pricing available, it is universally recognized that the volume of bond transactions on the exchanges is only a very limited proportion of total trading since almost all of the large, important trades are done over-the-counter, and these transactions are not reported. Also, there are important differences between quoted prices and the actual price that would be received if an attempt to trade a fairly large block of a high-yield issue was made.

Because high-yield bonds are generally less liquid and are more difficult to price, this should enter into the pricing of these securities (i.e., it is necessary to include a liquidity/pricing premium as part of your required rate of return in addition to the credit risk premium). Second, because of the relative illiquidity, when adding these to a portfolio, it must be recognized that they cannot be used for short-term trading. Alternatively, a portfolio manager may decide that he/she wants to invest in high-yield bonds, but will limit investments to the set of high-yield bonds that enjoy fairly active, liquid markets with relatively frequent pricing.

- 4(b). The reason that Treasury bonds and high-grade corporate bonds are so highly correlated is because the major factor causing changes in their rates of return is aggregate market interest rates (i.e., the yield curve for Treasury securities). In terms of the Capital Asset Pricing Model (CAPM, the fact that these rates of return move together means that they possess very high systematic risk (i.e., all rates of return are being driven by one major aggregate market variable which in this case is market interest rates). The rates of return for high-yield bonds are likewise influenced by market interest rates, but they also have a very large unique component that is the performance of the company and the credit quality of the issue. In terms of the CAPM, this unique risk possessed by high-yield bonds would be described as “unsystematic risk.” Notably, this unsystematic risk can be diversified away in a large portfolio. This implies that while it is essential to diversify a portfolio of high-yield bonds to eliminate the unsystematic risk, it also means that such bonds are good additions to a portfolio with high systematic risk, as described above.

Because the rates of return for high-yield bonds are not very highly correlated with rates of return for Treasuries and high-grade corporate bonds, they would be an excellent addition to such a portfolio because they would help reduce its overall risk. This would be like adding common stocks to such a bond portfolio. In addition, if the expected rates of return on these securities were higher than those on treasuries and high-grade corporates, you could be in a position of not only reducing the overall risk of the portfolio, but also increasing its average rate of return. The fact is, for most of the years prior to 1989, the total rates of return on high yield bonds was consistently higher than comparable returns on Treasuries or high-grade corporate bonds.

- 4(c). The duration for high-yield bonds would be much lower than the duration for high-grade corporates because of the impact of all three of the major factors that influence duration: maturity, coupon and market yield. The average maturity of high-yield bonds is shorter than high-grade corporates simply because of the inherent risk which causes investors to demand shorter maturities - e g, 10 to 15 year maturities for high-yield bonds compared to 15 to 25 years for high-grade corporates. The average maturity for high-yield bonds is lower than for high-grade corporates, and duration is positively related to maturity.

Second, because of the risk of high-yield bonds, they have a higher required rate of return that is reflected in a higher coupon for these securities, and there is an inverse relationship between the coupon and the duration of the security.

Third, not only is the coupon high, but the market yield to maturity on these securities would likewise be high. Again, there is an inverse relationship between the discount rate used to compute duration (i.e., the yield to maturity) and the duration of the bond.

5.

- 5(a). (1). The bond portfolio manager should generally be concerned about the ability of the new portfolio structure to outperform the old in a falling interest rate environment. He

should ask about the degree of negative convexity being added through use of the callable bonds. Treasury bonds will rise more in price, based on a mathematical model, versus a callable corporate. Since the move forecasted is relatively large, convexity will become quite important.

- (2). The bond portfolio manager should ask about the yield calculations being used for the corporate bonds. If it is “yield-to-maturity” and the bonds are selling at a premium, he should ask for spreads on a “yield-to-call” basis. Results from a yield-to-maturity basis - both spreads and calculations - will be unrealistic.
 - (3). The bond portfolio manager may want to encourage the bond group to state the swap on an option adjusted spread basis. This is the most effective approach to describe the characteristics of callable bonds. Each bond is broken into two portions - the non-callable and the option owned by the issuer.
- 5(b). Given the outlook for significantly lower rates, it is important to minimize negative convexity. He should look for non-callable corporates and lower the coupon level of the purchases to accomplish this.

He also should take a close look at the option adjusted spreads received on any corporate to see if it is worth reducing convexity in a bull market. There may be some doubt if this is realistic.

If he does proceed with corporate bonds, they should insist on adhering to the use of utilities where event risk is lower. While maturity is a major determinant of volatility, credit spreads can also add significant risk to the duration. Utility bonds are less likely to be subject to this.

6. Investment horizon a year later = 3
Duration of portfolio a year later = 3.2

While the term-to-maturity has declined by a year, the bond’s duration will decline by less than one year since duration declines more slowly than term to maturity (see, e.g., the “Duration versus Maturity” exhibit graph in Chapter 18). This means that, assuming **no changes in market rates**, the portfolio manager must rebalance the portfolio to reduce its duration to three years.

7. Several characteristics of duration make it impossible to set a duration equal to the initial time horizon of a portfolio and ignore it thereafter. First, because duration declines more slowly than term-to-maturity, even if one assumes no changes in interest rates, the portfolio manager must periodically rebalance the portfolio. Second, if there is a change in market rates, the duration of the portfolio will change. If the deviation becomes large compared to original duration of the portfolio, the manager will again have to rebalance. Third, the technique assumes that when market rates change, they will change by the same amount and in the same direction. Since this is not true of the real world, the manager must assure that the portfolio is composed of various bonds with durations that bunch around the

desired duration of the portfolio. Finally, developing the portfolio can be a problem since there can always be a problem of acquiring the desired bonds in the market.

8.

- 8(a). Interest rate risk comprises two risks - a price risk and a coupon reinvestment risk. *Price risk* represents the chance that interest rates will differ from the rates the manager expects to prevail between purchase and target date. Such a change causes the market price for the bond (i.e., the realized price) to differ from the expected price. Obviously, if interest rates increase, the realized price for the bond in the secondary market will be below expectations, while if interest rates decline, the realized price will exceed expectations.

Reinvestment risk arises because interest rates at which coupon payments can be reinvested are unknown. If interest rates change after the bond is purchased, coupon payments will be reinvested at rates different than that prevailing at the time of the purchase. As an example, if interest rates decline, coupon payments will be reinvested at lower rates than at the time of purchase and their contribution to the ending wealth position of the investor will be below expectations. Contrariwise, if interest rates increase there will be a positive impact as coupon payments will be reinvested at rates above expectations.

- 8(b). A portfolio of investments in bonds is immunized for a holding period if the value of the portfolio at the end of the holding period, regardless of the course of interest rates during the holding period, is at least as large as it would have been had the interest rate function been constant throughout the holding period. Put another way, if the realized return on an investment in bonds is sure to be at least as large as the computed yield to the investment horizon, then that investment is immunized. As an example, if an investor acquired a portfolio bond when prevailing interest rates were 10% and had an investment horizon of four years, then the investor would expect the value of the portfolio at the end of four years to be $1.4641 \times$ the beginning value. This particular value is equal to 10% compounded for four years.

A bond manager would want to immunize the portfolio in the instance where he/she had a specified investment horizon and had a definite required or promised yield for the bond portfolio. In the case where this required or expected yield was below current prevailing market rates, it would be worthwhile for the bond managers to immunize the portfolio and therefore “lock in” the prevailing market yield for this period. Put another way, it is when the bond portfolio manager is willing to engage in non-active bond portfolio management and accept the current prevailing rate during the investment horizon.

- 8(c). As set forth by a number of authors, the technique used to immunize a portfolio is to set the duration of the portfolio equal to the investment horizon for the portfolio. It has been proven that this technique will work because during the life of the portfolio, the two major interest rate risks (price risk and reinvestment risk) offset each other at this point in time. The zero coupon bond is an ideal immunization instrument because, by its very nature, it accomplishes these two purposes when the maturity of the zero coupon bond equals the investment horizon because the duration of a zero coupon bond is equal to its maturity period. In contrast, when you match the maturity of the bond to the investment horizon,

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/888001054013006042>