Murray's Musings

THE TRANSFORMATION OF THE FIXED INCOME ASSET CLASS

Fixed income is an investment that is a type of loan. A borrower is obligated to make payments of a predetermined amount, and the principal must be paid on the maturity date. The legal predetermination of the payments is the origin of the term *fixed*. In other words, fixed means predetermined. This legal definition will not change.

An exceedingly low level of interest rates changes the character of this type of investment in extraordinary and not so obvious ways. It should be evident that a fixed income investment that pays a coupon of less than 2% is, both before and after taxes, a negative real (after inflation) return instrumentality. For a New York City resident of means, even a fixed income instrument that yields 4% or less, is a negative real return instrumentality. Although there is surprisingly little discussion of this reality, it should be self-evident to investors.

It is less obvious—although nonetheless true—that bonds, in this historically low interest rate period, if sold short, are actually incredibly inexpensive put options. An example will serve to illustrate this point. Consider that the Bank of America 4.44% bonds due January 20, 2048 are now priced, on a yield-to-maturity basis, at 3.31%. They trade well above par value and at maturity must be worth par value. Prior to maturity, which is almost 30 years from now, a variety of circumstances could occur in which these bonds could be worth considerably less than par.

If, for instance, U.S. government bonds for some reason yield 5% instead of the present level of 2.2%, the Bank of America bonds would probably yield 7.45%—even assuming that credit quality does not deteriorate.[1] Quite obviously, the bonds would trade well below par value.

Hence, two possibilities exist for these Bank of America bonds. The first is that interest rates will never increase. As a result, the Bank of America bonds will not be priced at par value until the maturity date of January 20, 2048. The short seller will simply lose the 3.31% annual yield to maturity. A short seller in the 50% tax bracket (Federal, State, and local) will effectively lose half that sum after the benefit of tax deductions. Consequently, one would pay 1.66%—half of 3.31%—for a long-term put option on interest rates. Which is incredibly cheap—just try to price a multi-year put option on long-term interest rates with a broker-dealer.

[1] At the time of this writing, a 30-year Treasury bond yields 2.22%. If the yield of that bond increases to 5%, it would produce 2.25x more yield. Increasing the 3.31% yield of the Bank of America bonds by 2.25x produces a yield of 7.45%. A bond with a 4% coupon that yields 7.45% would trade below par.

The other possibility is that interest rates do increase. In that event, the bonds might trade substantially below par value—depending upon how high interest rates rise. These bonds are effectively a put option for which the premium is the yield to maturity. The potential loss for a bond (absent default), or in this case for a near-30-year put option on the bond, is limited to the yield to maturity. In other words, the loss is limited to the amount of the current price premium for the bond, just as for the option premium for a conventional put option.

This similarity to a put option is problematic on a broader systematic basis, because it changes the incentives for investing in bonds. Consider the matter from the perspective of an investor who might purchase a U.S. Treasury bond due in 2048 that has a yield to maturity of 2.23%. What if, alternatively, that bond were used as collateral to establish a small short position in a Bank of America bond, say a short equal to 10% of the long position. The investor puts $100 into the U.S. Treasury bond yielding 2.23%, then takes $10, or 10%, shorting that amount of Bank of America debt for which they must pay a yield to maturity rate of 3.31%. In terms of that investor's new risk/reward profile, the first aspect of this hedged position is that the net yield on it is actually a positive 1.9% carry.

An investor considering such a trade must contemplate whether or not it is better to sacrifice 33 basis points of annual income in exchange for the possibility that the creditworthiness of Bank of America might deteriorate. If Bank of America creditworthiness deteriorates, as occurred in 2008, the bank's debt might trade at 50% of par value, as it did at that time. A 10% short position with a loss of possibly 60% in price would produce a portfolio-level trading gain of 6%.

One might argue that such a trade is outside of the ambit of a conventional bond investor and therefore unlikely to be made. But it is not outside of the ambit of an investor who would be inclined to sell short Bank of America common stock. The shares now yield 2.17%, so that is a cost of the short sale. Moreover, the shares can appreciate. Thus far, in 2019, the shares have increased in value by 32.67%. That would have been the loss to a short seller.

Why might a short-seller have been attracted to the Bank of America shares? The net income for the first nine months of 2019 was $19.25 billion—a decline of 2.07% versus the comparable period in 2018, when it was $19.657 billion.

What if a hypothetical short seller were sufficiently astute to predict that in 2019, the net income of Bank of America would decline. This hypothetical short seller would have predicted, as well, the bank's difficulty with overnight borrowing in September of that year. Although this investor might reasonably have anticipated that Bank of America shares would decline, what could not have been reasonably anticipated is that its stock would in fact appreciate by 32.67%.

Establishing a hedge against a banking-related issue with systemic dimensions can be very expensive, carry costs aside, in terms trading risk, until the problem finally manifests itself. Selling short a bank bond substantially eliminates the trading or directional risk, since the bond will ultimately mature at par value. That is to say, if an investor is worried about possible banking risks, short sale of bank stock is too blunt an instrument to use as a hedge, there being many circumstances in which bank shares could rise considerably in price, creating an extremely expensive hedge.

Surveying Both Idiosyncratic and Systemic Risks in Low-Yield Bonds

There exist many long-term bonds that, in principle, have high price convexity paired with extraordinarily low yields to maturity. One example might be San Francisco City & County Water 6.95% due November 1, 2050, which trades at a price of 159.21 with a 3.22% yield to maturity. Apart from higher interest rates, variables that could cause the bonds to decline are fluctuations in the creditworthiness of the city or an earthquake that could severely damage the water system, requiring extensive repairs.

All U.S. bonds trade in relation to Treasury bond yields. Yet, with less than a 100-basis point spread over Treasuries, it is clear that municipal bonds, project finance bonds, or corporate bonds have unique risks that are not being priced into them. For example, consider the Comcast 4.00% Notes due November 1, 2049, trading at 110.82 with a 3.41% yield to maturity. Major changes are clearly evident in Comcast's delivery of content to subscribers and in the company's ability to sell advertising. Although no investor is in a position to predict the financial conditions of Comcast over the 30-year life of this bond, the valuation is predicated upon the belief that there is no realistic possibility of a significant deterioration in its financial position.

The same statement might be made about AT&T, which is actually a fairly leveraged enterprise. Its 5.7% bonds due March 1, 2057—a 38-year life—are priced at 125.38 with a yield to maturity of 4.32%.

Universities are now issuing debt, despite their huge endowments, because the cost of debt capital is so low, while the likelihood is high that the university will ultimately repay the debt in inflated dollars. As an example, Princeton University 5.70% bonds due March 1, 2039 trade at 139.32 with a yield to maturity of 3%. Similarly, Harvard has issued a 4.875% bond due October 15, 2040 now trading at 130.80 with a yield to maturity of 2.9%.

If one sells short the Princeton or Harvard bonds, all one needs for a substantial profit is a modest rise in interest rates. A rise in long-term Treasury yields of perhaps 150 basis points for any reason would cause the Harvard bonds to trade at par value. A 30-year U.S. Treasury now yields 2.2%; 150 basis points higher, and it would yield 3.72%. If the Harvard bond were to trade a yield spread of 115 basis points above the Treasury, it would be priced at par value almost 31 points lower. In fact, because any meaningful rise in interest rates would

probably severely reduce the market value of the Harvard endowment, the assessment of Harvard's creditworthiness would probably be reduced as well, such that the spread to Treasuries would probably rise as well.

The State of Texas 5.52% bonds due April 1, 2039 are priced at 138 with a yield to maturity of 2.82%. Surely, one could envisage a diminution of creditworthiness if, for some reason, extraction of fossil fuels were to be prohibited in the United States. In a less extreme scenario, the same outcome might be achieved by a severe reduction in oil and gas prices. The bond market does not appear very concerned about this possibility, at least judging by the present yield of the State's debt.

If the production of coal were to be forbidden in the U.S., it would negatively impact the fortunes of Union Pacific Corporation (UNP). Union Pacific managed to issue a 4.375% bond due November 15, 2065 which now trades at 109.85 with a yield to maturity of 3.91%. In fact, even a severe recession could lower an investor's perception of the credit worthiness of Union Pacific. The company also issued 3.84% bonds due March 20, 2060 presently trading at 102.32 with a yield to maturity of 3.73%.

Altria Group, Inc. (MO) managed to sell 6.20% bonds due February 14, 2059, presently trading at 117.33 with a yield to maturity of 5.16%. The mere existence of such a bond is more than a statement about the long-term real rate of return on bonds. It is effectively a statement that large-scale smoking in the U.S. will continue past the year 2059.

Here is where it becomes yet more interesting.

The University of California issued 4.77% bonds due May 15, 2115, now priced at 126.36 with a yield to maturity of 3.75%. It is virtually a certainty that the person buying this bond will not live to the maturity date. Ohio State University managed to sell 4.80% bonds due June 1, 2111, now trading at 129.45 with a yield to maturity of 3.68%.

Guardian Life Insurance Company of America has issued 4.85% bonds due January 24, 2077. they trade at 124.87, a yield to maturity of 3.78%. A life insurance company is an interesting case relative to long-term bonds. If interest rates increase, it would surely have a negative impact on the market values of the debt. On the other hand, if rates *decrease* sufficiently from this point, the company might experience difficulty earning enough from its bond portfolio to pay its annuity liabilities. Viewed from the perspective of the bond buyer, the best-case scenario is that interest rates remain at present levels and neither materially increase nor decrease for many decades.

If an investor buys a 57-year bond from a life insurance company whose entire investment portfolio is comprised almost entirely of long-term bonds, and if one of the many long-term

bonds in its investment portfolio loses value, then the collateral for your bond will lose value, as well.

These bonds are only a small sample of many that have a similar character. The common denominator is that the rate of compensation above that of Treasury bonds is less than 200 basis points per annum and sometimes even less than 100 basis points, despite the fact that many of the bonds have maturity dates far longer than the 30-year Treasury. The University of California bond will mature in 91-years or 3x the maturity of the longest-term U.S. Treasury bond. It does not appear that much, if any, marginal compensation is paid for the extra 60-year life of the bond. In the light of such pricing, there is no room for any rise in interest rates or any deterioration of credit quality. Yet, history demonstrates that such eventualities frequently occur.

The expense of selling such bonds short is small relative to the reward possible if history repeats itself. Ergo, such bonds and many others are now effectively low-cost, low-risk put options with heretofore unimaginably lengthy times to expiration.

If shorting, I prefer to sell short bonds—not stocks—because they are a much more reasonable hedge against uncertainty. There is a limit to how much money one can lose, and one knows what that limit is—as opposed conventional hedge instruments, in which the potential loss is infinite.

Q: I have a hypothetical question relative to the circumstance of a 75-year-old investor who expects to live ten additional years and who invests in long-term bonds that yield 4.8% with good credit, as with the University of California issue. Playing devil's advocate, what would be wrong with that, if rates stay roughly the same over that period?

A: What would be wrong with that? If that investor has to live off the principal—not just the income—and the bond declines in market value, there would be plenty wrong with it. That person would be forced to sell the bond for money to live on, and the sale might not produce adequate funds. That person might die without enough money. An alternative risk is that this investor is fortunate enough to be in very good health and live longer than the expected additional 10 years, but with each passing year, the cost of living rises above the purchasing power of that bond's coupon income. That investor would not be very happy with that outcome. That is what's wrong with it.