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Fixed Income Research Commentary

Buying Umbrellas When It's Sunny: Why To Consider Floating Rate Bonds Now

Introduction

Floating rate bonds, securities whose coupon adjusts periodically to changes in short term interest rates, appear to be a tough sell right now. LIBOR, the London InterBank Offer Rate, the short term rate banks charge to lend to each other, is appallingly low (0.30%), the Fed seems like it is in no hurry to raise rates, and the yield on longer, fixed rate maturities is much greater (10-year Treasuries yield almost 4%). Thus, floating rate securities (or "floaters") might seem unappealing to investors at the moment. Nonetheless, as the economic recovery takes hold and the Fed moves from accommodation to a more neutral monetary stance, floaters might be what investors need to protect their portfolio from the detrimental effects of rising interest rates. Floating rate bonds do have risks, and this piece aims to provide a brief overview of the characteristics, risks and benefits of the instruments.

Nearly every sector of the fixed income market contains bonds with floating rate coupons. These securities are attractive to many investors due to their low price sensitivity to interest rates. Intuitively, this low interest rate sensitivity flows from the fact that floaters periodically reset their coupon rate to market levels. Mathematically, the low duration comes about since a change in interest rates impacts both the numerator and denominator in the net-present-value calculation that determines the price of a bond.

Ordinarily, floating rate securities are issued at par and are expected to remain near par for the term of the security. Hence, they are somewhat analogous to a boat, which is designed to float on the surface of the water. However, like the boat that encounters an unexpected storm or a threatening object such as an iceberg, floating rate securities are exposed to certain risks that can move the bond's price away from par. For example, corporate floating rate notes (FRN) are exposed to default risk and spread risk (i.e., risk that corporate yield spreads will widen). Mortgage-backed FRNs typically have caps and/or floors that expose the investor to interest rate risk, in addition to the prepayment risk that impacts nearly all mortgage backed securities. Asset-backed securities (ABS) largely have floating rate coupons, however they are exposed to downside price risk in the event there is collateral default and/or spreads widen. Finally, there is the possibility that the reset index for a security may not perform as well (i.e., not rise as much or fall too much compared to risk-free short-term Treasury rates.)

The evaluation of these risks is important. As anyone who held perpetual floating rate Eurobonds in the early 1990s, adjustable rate mortgages in 1994, floating rate emerging market debt in 1995, or most recently floating rate ABS and non-agency MBS in 2008 could attest to, floating rate securities can possess significant risk.

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In order to best explain the risks inherent in floating rate securities, it is useful to begin with an overview of the asset class. Thus, the balance of this discussion will cover the basics of corporate floating rate securities: (1) conventions and characteristics, and (2) relationship to fixed rate corporate bonds.

Conventions and Characteristics

Mathematically, floating rate securities set their coupons equal to the value of an index (e.g., LIBOR) plus some spread, called the Reset Margin. Hence, a floater with a Reset Margin of 25 basis points will set its coupon equal to the LIBOR rate plus ¼% on the coupon reset date (typically, a quarterly phenomenon). When the bond carries a price of par (100), the Reset Margin represents the expected excess rate of return the bond will experience over LIBOR. In order to capture the bond's expected excess return over LIBOR when the bond's price differs from par, another concept is needed, i.e., the so-called "Discount Margin" or DM. When a floater's dollar price is below par, the bond will earn some excess return over the Reset Margin due to the accretion of the bond's price towards par. Thus, a floater priced below par will have a Discount Margin (future expected excess return over the index) greater than the Reset Margin. Conversely, a premium priced floater will have a Discount Margin less than the Reset Margin.

The precise conventions and characteristics of floating rate securities can be best explained through an example. First, consider the generic equation for a two-year floating rate security with annual payments:

$$P = \frac{100x(I_1+RM)}{(1+I_1+DM)} + \frac{100x(1+I_2+RM)}{(1+I_2+DM)^2}$$

where,

P = Price
I = Reset Index

RM = Reset Margin
DM = Discount Margin

*This is selected at issuance,
the value of the index
changes through time.
This is fixed at issuance.
Analogous to yield spread on
a fixed rate corporate bond.*

At the time of valuation, the Reset Margin and the current value of the Reset Index are known. A standard convention is to assume all future values of the Reset Index will be the same as the current value. Either the price or the Discount Margin must also be known at the time of valuation. For example, a General Electric Capital Co. (GECC) two year floating rate bond that resets annually at 100 basis points

over 1 year LIBOR (currently 0.9%), and has a Discount Margin of 150 basis points would have the following price:

$$P = \frac{100x(0.009+0.01)}{(1+0.009+0.0150)} + \frac{100x(1+0.009+0.01)}{(1+0.009+0.015)^2}$$

$$P = 99.035$$

Conversely, if we know the price of the GECC FRN, we could solve for the Discount Margin. Generally, FRNs are issued at par, which means the Reset Margin equals the Discount Margin. After issuance, if the Discount Margin increases (i.e., spread widens) the price will fall below 100. If the Discount Margin falls (spread narrows), the price will rise above par. A floating rate bond's sensitivity to a 1% change in the Discount Margin is referred to as the bond's spread duration. A corporate FRN's spread duration will be identical to the modified duration of a fixed rate bond with the same price and maturity as the FRN. In the example above, the GECC FRN has a spread duration of 1.92 years. Thus, the longer the maturity of a FRN, the greater the spread duration and, hence, the greater the exposure to a change in credit spreads.

Risks of Spread Durations

The reality of spread duration for FRNs was learned painfully by holders of perpetual floating rate Euro-dollar bonds in the early 1990s. These securities were issued by large foreign banks in the mid 1980s at margins of 10-15 basis points over six-month LIBOR and sold mainly to Japanese banks, who incorrectly viewed them as low risk instruments due to the periodic resetting of the bond's coupon. What the buyers of these securities failed to realize was that these securities had spread durations of 12 to 15 years. When the issuing banks came under financial pressure in the early 1990s and spreads widened 100-200 basis points, the perpetual FRNs fell in price from 100 to as low as 60.

Similar negative volatility was felt in 2008 in seemingly "safe" Aaa-rated ABS FRNs issued in 2005-2007 with sub-prime and Alt-A mortgages as collateral. Although they had floating rate coupons, many of the securities also had expected principal payments that extended out 10-plus years. Thus, while sub-prime/Alt-A FRNs had little sensitivity to changing interest rates, the securities had large spread duration (5 - 12 years) in an environment where spreads increased over 1,000 basis points and prices fell 50 - 80 points.

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Interest Rate Duration

The interest rate of an FRN measures the sensitivity of the price of the FRN to a 1% change in the level of the index. In the above example, assume that the GECC FRN is priced at 100.00, and thus the Reset Margin and Discount Margin equal 100 bps. If LIBOR increased 1% to 1.9%, then the new price of the bond is:

$$P = \frac{100 \times (0.009 + 0.01)}{(1 + 0.019 + 0.01)} + \frac{100 \times (1 + 0.019 + 0.01)}{(1 + 0.019 + 0.01)^2}$$

$$P = 99.028$$

The price of the bond has fallen to reflect the fact that the first coupon payment, which was set before LIBOR increased 1%, is now worth less in present value terms. The present value of the second coupon payment and all subsequent payments doesn't change because both the coupon and the discount rate increase. Thus, the effective duration of a FRN is a function of the length of time until the next reset date. Specifically, the effective duration of a FRN priced at par is the modified duration of a bond that matures on the next reset date. Thus, the more frequent the coupon is reset, the lower the duration of the FRN. The GECC FRN in the above example has one year until the next reset date, and an effective duration of 0.972 years. For FRNs with prices different than par, the effective duration will change. Premium priced FRNs will have higher effective durations, while discounts will have smaller durations. Some deeply discounted FRNs actually have negative durations!

Relationship of Fixed and Floating Rate Bonds

Fixed and floating rate securities with similar maturities can be compared to each other by converting the spread on the floating rate instrument (i.e., the Discount Margin) to a spread to Treasuries. This theoretical spread to Treasuries can then be compared to actual spreads observed in the market to determine if the Discount Margin is appropriate. The conversion is done via an interest rate swap spread. An interest rate swap is an agreement to exchange the value of an index which varies through time (e.g., 3 month LIBOR) for a fixed cash flow that is determined at the initiation of the swap (e.g., the current 5 year Treasury rate plus 0.2%).

In theory, the present value of the cash flows of both sides of the swap should be equivalent. To convert a floating rate Discount Margin to a fixed rate spread, one simply adds the swap spread to the Discount Margin. For example, if the two year GECC FRN in the above example has a Discount Margin of 150 basis points and the LIBOR-to-two year Treasury swap spread is 20 basis points (pay LIBOR and receive the two year Treasury rate plus 20 basis points), then the GECC FRN is trading at the equivalent fixed rate of Treasuries plus 170 basis points. If two year GECC fixed rate securities have spreads greater than 170 basis points, then the 150 basis point Discount Margin is not adequate compensation for the floating rate investor.

The Road Ahead

In the wake of the most traumatic financial crisis in a generation, that was in turn countered with a public policy response of equal proportion, the U.S. is facing near zero short term rates, a Federal Reserve with a bloated balance sheet, and a government running eye-popping deficits. If these conditions are allowed to persist past the point at which capital and labor market equilibriums have been obtained, the U.S. is likely facing a precarious up-turn in inflation and interest rates. The Fed will either be preemptive or reactive to these changing conditions, but either way, short term rates are inevitably heading higher.

At the same time, yield spreads are high in a historical context as investors still remain wary of risk across many sectors of the fixed income markets, particularly in the non-agency mortgage-backed market.

As a result, many floating rate securities in the corporate, mortgage and ABS markets offer the unique opportunity in today's market to benefit from declining risk premia via positive spread duration, while being protected from rising interest rates due to limited interest rate duration. So, while the coupon on these floating rate securities is currently low, and thus may seem like the lonely umbrella on a sunny day, they may provide investors with the protection they need when those interest rate rains arrive.

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