Valuing Agency Mortgage-Backed Securities

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Nothing complicates an investment decision more than the uncertainty of the timing of future cash flows. Welcome to the complex world of Agency Mortgage-Backed Securities ("Agency MBS").

For any fixed income investor, the value of one investment over another is determined by how much you initially pay for a series of future cash flows. The initial price paid for the investment is used to quantify the return, and an inverse relationship exists between the price and return (meaning if the price increases, the return decreases, and vice versa).

It's that simple…or is it? What if those cash flows vary over time? How do I calculate a true return, and how does it compare to alternative investment options?

Fixed income investors are taught to use maturity, yield, and spread to guide their investment decisions. Maturity helps judge the timing for returning the initial investment, yield is a proxy for income and return, and spreads gauge relative value. All three characteristics are important to the decision-making process where the goal is to maximize income over time within acceptable risk parameters. Unfortunately, these characteristics become more complicated when the concept of varying cash flows is introduced.

Maturity

The simplest type of fixed income securities (e.g., US Treasury Notes) maintain defined payment and maturity structures. A US Treasury Note pays a series of equal periodic interest payments with all principal returned on the maturity date. Conversely, an Agency MBS receives a series of periodic principal and interest payments that can vary as to amount and timing. The stated maturity date of an Agency MBS coincides with the date of the last contractual cash flow of the underlying collateral. An Agency MBS collateralized by 30-year mortgages has a stated maturity date of 30 years. The actual maturity date could be shorter than the contractual maturity date as a result of prepayments. The maturity date of a US Treasury Note is therefore not synonymous to the maturity date of an Agency MBS. To bridge this information gap, the concept of weighted average life was introduced as a proxy for Agency MBS maturity.

Weighted average life (WAL) is the average number of years that each dollar of unpaid principal due on the mortgage remains outstanding. For example, if a 30-year mortgage repays according to its contractual schedule, the WAL of a 30-year mortgage is approximately 15 years. Other factors including prepayments and borrower defaults can also alter the WAL of an Agency MBS. As a consequence, while WAL is used as a proxy for maturity, it is not maturity and can change over time. This is a critical concept for an investor to understand. Remember, a true return can only be calculated with a defined stream of cash flows purchased at a specific price. Changing either of these variables alters return.

Yield

If income is the investor's goal, income (not yield) must be measured to determine relative value. In the fixed income world, yield has become synonymous with income. We are taught that a $1,000 investment with a yield to maturity of 2% will generate income of $20 per year until maturity. This is true as long as the original principal investment remains outstanding or any principal cash flows received are reinvested at the original yield to maturity. As with maturity considerations discussed above, the concept of yield-to-maturity involves additional factors when dealing with Agency MBS. The market uses WAL and not maturity to calculate a yield.

Also, it is unrealistic to assume that all principal cash flows from an Agency MBS will be reinvested at the same rate. Reinvestment rates for Agency MBS can have a significant impact on yield and ultimately income. If cash flows are reinvested at a lower rate than the original investment.

Expressed differently, the expected yield may be achieved but on a much smaller outstanding balance than originally assumed – and that is where actual income is impacted. In a simplified example, if an investor paid $1,000 at par for a 2.00% coupon 10-year Agency MBS with a 5-year WAL, they could expect to generate $20 of annual income. This would be true if principal cash flows could be reinvested at 2.00%. However, if an investor is only able to reinvest scheduled or additional cash flows returned at 1.00%, then income in years two, three, and four would drop to approximately $19, $18, and $17, respectively. The reinvestment rate on cash flows has a direct impact on the original income projection.

Spread

The characteristic of spread utilizes yield and maturity in an effort to gauge relative value. To obtain a spread, the yield to the WAL of an Agency MBS is compared to the yield of the corresponding maturity of a US Treasury Note. This spread (quantified in basis points) is then used to determine relative value. Spreads are not absolute. They change over time and represent additional earnings for the uncertainty of cash flows. The higher the spread, the more an investor is being compensated for uncertainty.

Conclusion

The investment metrics offered by the market to influence investors' decision making has oversimplified the complexities associated with Agency MBS. The general concepts of maturity, yield, and spread are more complicated in the world of Agency MBS. First, we know that maturity is not equal to WAL; assuming that they are interchangeable ignores the critical factor of prepayment risk. Second, yield does not necessarily equal income. Varying cash flows result in the reinvestment of prepaid principal at different rates than the original investment, changing expectations about income. Lastly, the spread (which is a function of WAL and yield) cannot be consistently relied upon as an indicator of relative value.

Fortunately, a solution exists. Horizon analysis and total return calculations can equip an investor with the information necessary to make informed decisions. While the process of evaluating investment alternatives in a variety of interest rate scenarios can be complicated and time consuming, it is imperative for understanding an investment's true value. Our firm utilizes total return and horizon analysis tools to assist our clients with their investment decisions. We can move your decision making beyond simplistic and into the realm of true value.