OPTION ADJUSTED SPREAD (OAS)

- OAS is the average yield spread of a security, adjusted for the value of its embedded options.

- We use OAS as a "robust" measure of value for mortgage securities. Mortgages have uncertain cash flows due to prepayments. Simple static spread assumes a fixed series of cash flows, while OAS incorporates varying levels of prepayments.

- The two quantitative components needed to calculate OAS are: an interest rate path model and a prepayment model.

- Most interest rate models use forward rates as a base case scenario. Numerous paths of rates are then generated. The final result is an interest rate "tree" with many interconnected "branches" that represent the paths that rates can follow over time.

- A prepayment model is then used to assign different sets of cash flows to each one of these interest rate paths. The primary inputs to the prepayment model are refinancing incentive/sensitivity and housing activity.

- OAS is the weighted average spread over the various interest rate paths that discounts the cash flows back to the security's price. The weightings given to each interest rate path are statistically determined by volatility assumptions. In general, paths that more closely follow forward rates are assigned higher probabilities than more extreme scenarios.

- In conclusion, unlike static spread, OAS dynamically takes into account:

    1) possible interest rate movements over time
    2) the probabilities of each interest rate path occurring
    3) a series of cash flows for each path based on a prepayment model

  OAS is the single weighted average spread that ties all these factors together.

Vanderbilt Research Team