

## Valuation Models - OAS Variables

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**T**his is the third installment in a series on Valuation Models that was first published February 25, 2000.

In our last installment we began to examine the Option Adjusted Spread model for solving for a mortgage investments value and value sensitivity to changes in the markets required yield for that investment.

We are now at the point of exploring some of the variables that go into an OAS valuation model. In making the value assumptions about the numerous variables that drive the OAS model it is good to remember we are looking from the buyer's (investor's) perspective and not the seller's. Also, many times the derived value is on a generic or composite of mortgage securities or loan pools and not a specific mortgage.

The first decision to make is what maturity in terms of remaining payments we will assign to the investment. A WAM (weighted average maturity) is often assigned based upon a survey result or notional construct. The WAM represents the remaining contractual payments remaining. In connection with this, one must specify whether these payments include principal and interest, interest only, etc. Next, if this loan has a balloon component this must be applied, as well as, considering whether the amortization life (the payment term structure used to build the amortization structure) is the same or differs from the WAM. In any event, the AMWAM must be determined. If the loans are variable in nature additional considerations must be added that are beyond the scope of this article.

Next the model will need the note rate paid by the borrower and the interest rate (coupon) passed on to the investor. The current unpaid principal balance, payment frequency and scheduled periodic payment amount from the borrower will be added to the mix.

An underlying risk free (non-option adjusted spread) investment rate must be determined. On the simplest scale a user might opt for one rate, say the short term t-bill rate or the ten year note rate. However, more popular would be to provide the model the yield curve structure for U.S. Treasury Securities. For example, cash flows arriving in the first three months would be spread over the three month t-bill yield. While cash flows coming in during the second year might be spread over a U.S T-Note with a three year maturity. The structure you create would be used as the "base" term-structure. The structure you build will impact the absolute value of the spread and the sensitivity of the spread to changes in the rate-term structure.

So far this is all fairly concrete information, now we are getting ready to jump off into the more creative part of the variable collection and assignment task.

Next time we will explore the important but often esoteric variables of prepayment speeds, interest fluctuation rates, lattice structure, random versus biased walks, error tolerance, coupon-array balancing and model fatigue.

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