

Valuation Commentary – March '08

RiskProfiler™: Your Complete Valuation Solution

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RiskProfiler™ is AD&Co's database-driven (MS SQL or Access) valuation solution that incorporates standard and advanced valuation technique including OAS, prOAS, credit OAS (with the LoanDynamics™ Model) and derivative pricing. A thoroughly designed front-end exposes market data, valuation options, tunings and results. Multi-dimensional risk measures can be compiled for large portfolios of MBS, ARMs, CMOs (including credit-impaired instruments) and standard rate derivatives to produce portfolio or strategy-level summary reports.

What Does RiskProfiler™ Do?

RiskProfiler™ is a complete option-adjusted valuation solution suitable for pricing MBS from both traditional OAS angles and under the logic flow of Credit OAS. For traditional OAS, the system operates with our suite of prepayment models and interest rate models. For Credit OAS, the role of the prepayment model is played by our LoanDynamics™ Model (LDM), and an interest rate model is complemented by our stochastic home price model. Hence, both prepayment and default options are captured in the analysis, in the best possible way.

Much like traditional MBS valuation systems, RiskProfiler™ converts market prices into OAS or other measures (like Yield) and produces dozens of Greeks: effective duration and convexity, key rates, Vega, sensitivity to prepayment tunings, etc. Unlike other systems, Risk Profiler™ can value instruments by forecasting default rates and losses and even measure exposures to short-term HPA or long-term HPA. It can combine every computed risk metric across portfolio instruments.

In addition, RiskProfiler™ is filled with built-in utilities and tools to load market rates and swaption matrix right off Bloomberg, alter prepay model tunings, set tasks that suit particular business regimen and safely keep positions along with all analytic assumptions in the database.

Instruments Covered

RiskProfiler™ supports most instruments used by MBS portfolio managers and risk managers.

“MBS”- all fixed rate pass-throughs or non-securitized loans. The cashflow generator is AD&Co's and includes computation of the principal, interest and loss components where relevant. No 3rd-party license is required, but you are responsible for loading MBS indicative data (WAM, WAC) and, optionally, enhanced collateral data (loans size, LTV, FICO, geography, etc.), or LDM-related credit data. The built-in Bloomberg link helps retrieve this data (Bloomberg license required).

“ARM”- all adjustable-rate pass-throughs or non-securitized loans. All that is stated for MBS applies except there are many more fields required that describe coupon resets (index, frequency, margin, caps).

“iCMO”- CMOs or ABS processed via a built-in Intex link (Intex licensed required). Since the entire deal’s structure is kept by Intex, you need only to provide the cusip and analytical assumptions. Intex also serves as the data source for LDM: LTV, FICO, loan status, etc. You can even inspect the completeness of loan data and provide your own default values for missing fields.

“Bond”- non-MBS interest rate derivatives like usual bonds and swaps, swaptions, caps and floors. Powered solely by AD&Co, no 3rd-party tools are needed. Bonds and swaps can have separate schedules for call, put, coupon (step-ups/downs) or explicit amortization (“sink”). Calls and puts can be European, American or Bermudan.

Regardless of the actual MBS or CMO type, you can “strip” the cashflow and compute the values of IOs, POs, MSR pieces or the IO Multiple. The same instrument can be processed via LDM or via AD&Co’s residential MBS prepayment model.

Valuation Methods

RiskProfiler™ implements all AD&Co’s rigor in understanding how MBS are priced in the marketplace.

Static Analysis: While our prepayment models and LDM can forecast prepayment, default and losses of loans, they can’t compute the resultant cashflows of complex financial instruments on their own. RiskProfiler™ can.

Traditional OAS Method: Option-adjusted valuation using AD&Co’s empirical prepayment model. For MBS and ARM pass-throughs, we can rely on the blazing speed of backward induction – thanks to the fine property of our active-passive decomposition (APD) modeling structure. For CMOs, an efficient Monte-Carlo, or even more accurate, quasi Monte-Carlo will be employed.

The AD&Co prOAS Method: An OAS method operating with a risk-neutral prepayment model instead of an empirical one. This method accounts for the prepay model risk priced by the market. It levels the playing field for instruments like TBA, IOs, POs and CMOs. The prOAS method is proven to be a more accurate predictor of price change than the traditional OAS.

The AD&Co Credit OAS Method: An OAS method operating in the space of two random risk factors, interest rates and home prices, and allows losses to be modeled explicitly. Rather than using a traditional OAS method with an artificially inflated discount spread (OAS), we rely on the LDM to directly forecast default rates and loss severities, along each path. Thus generated cashflows are discounted using a suitable liquidity spread (crOAS).

Each of these methods is available within one system, RiskProfiler™, and engaged by simple user selections.

Use the Full Power of Your Hardware

Running an MS SQL database means having nearly unlimited storage for positions and historical (daily) results. Everything you do with RiskProfiler™, from setting assumptions to computing risk measures, is stored in a database. Using these database records, you can add as many custom reports as you like. RiskProfiler™ doesn't restrict you in the way you want to aggregate, group and display results.

RiskProfiler™ (version 2.1 and above) is a multi-threaded, multi-processing application. This means that one can install it on a dedicated powerful server (with several processors) and take advantage of them all. CMOs (the most time consuming instruments) will be sent to various processors and computed simultaneously rather than sequentially.

Unique Credit Valuation Analytics

RiskProfiler™ loses nothing to other traditional OAS systems in its functionality, analytical depth or computational power. However, it is unique in that it includes truly unprecedented credit valuation analytics. Some of the highlights are:

- HPA is viewed as a random factor and modeled as a stochastic process. This feature is integral to our understanding the ways both default option and ABS capital structures should be objectively valued.
- The home price process is alterable by transparent tunings affecting the short-term forecast or the long-term equilibrium. These tunings can be used to achieve HPA risk-neutrality as well as to gauge ABS' exposure to home prices. Users don't have to agree with AD&Co on the HPA model – they can alter it.
- If you appreciate AD&Co's prepayment and credit models, RiskProfiler™ is their natural and direct extension. No vendor can integrate AD&Co's credit valuation analytics the way we have.

Look for other great features to come:

- Aggregation of path-wise portfolio losses and distribution of losses. Although this is not the only method to “see beyond the averages,” many credit players like to have it.
- Innovative loan sub-clustering, i.e. certain pre-aggregation within each collateral piece created by Intex. This relieves us from the necessity to run Monte-Carlo at the loan-level, which would be tedious, and lets us approximate one with reasonable accuracy and in a fraction of time.
- Automating AD&Co's “breakpoint” methodology that measures a bond's distance to its first loss.

- Other LDM functionality and utilities will be embedded like loan stratification and loan-level downloads from Intex.
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Starting in April, AD&Co will hold a series of “WEBinars” on RiskProfiler™. Stay tuned!



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