AD&Co News – December 08

Is It Over Yet?
By Rob Landauer

Mercifully, 2008 draws to a close. We bid good riddance to the upheaval, turmoil, and pain of the last 12 months and look to a more stable and positive 2009. To be sure, there will be additional hardships to endure and more shoes yet to drop but we hope that our clients and friends will endure and emerge as stronger and more viable entities in the New Year.

During these tumultuous months, AD&Co has tried to ease some of the pain and uncertainty with solutions designed to mitigate risk and provide insight into opaque markets and securities. For example, earlier this year, we formally released the RiskProfiler™ Valuation system. This solution integrates all of AD&Co's models into a turnkey analytical system that provides the full suite of prepayment and credit related valuations including a true credit based OAS. For more information on RiskProfiler™, please click on the following link http://www.ad-co.com/valuation_models/RiskProfiler.htm.

In November, we convened a meeting to discuss techniques that can be used to solve the OTTI and FAS 157 issues facing RMBS investors. To view an online replay of this meeting, please click on the following link http://video.webcasts.com/events/andv001/28683/. Many of you have signed on to our Breakpoint and Fair Value Reporting service and we are working hard to deliver these reports in time for year-end reporting requirements. Please contact Rob Landauer for more information about these services.

As always, AD&Co welcomes your questions, insights and ideas as to help us better serve your needs. We wish all of our clients, friends and partners a joyous holiday season and a very happy and healthy 2009.

We leave you with two final thoughts of hope for the New Year:

From John F. Kennedy, the 35th President of the United States:

"The problems of the world cannot possibly be solved by skeptics or cynics whose horizons are limited by the obvious realities. We need people who can dream of things that never were."

From Judge Smails in Caddyshack as he christens his new sloop:

"It's easy to grin / When your ship comes in / And you've got the stock market beat. / But the man worthwhile, / Is the man who can smile, / When his pants are too tight in the seat."

Happy Holidays

Prepayment Update – December 08

Impact of Recent Primary vs. Secondary Rate Moves on the AD&Co Prepayment Model
By Sanjeeban Chatterjee

Over the past few weeks the spread between the Freddie Mac Primary Mortgage Market Survey Rate and the Fannie Mae Current Coupon has almost doubled from the averages we saw over all of 2008.

Why is this important?

The Andrew Davidson & Co., Inc. (AD&Co) prepayment model uses the Fannie Mae Current Coupon Rate (MTGEFNCL <Index> <GO> on Bloomberg) to calculate the refinancing incentive. The average spread between primary and secondary mortgage rates for 30-year mortgages has been around 54 basis points (see chart below) through all of 2008 (before current coupons dropped drastically). The AD&Co model internally also adds a spread close to 50 basis points to the current coupon rate, so that historically there is parity between the primary rates and the rates the model uses to calculate refinancing incentive.

On November 25, 2008 the current coupon fell dramatically to 4.965 from 5.412 the day before. It reached a low of 4.123 on December 4. This caused the spread to almost double. Since the model runs using current coupons, even with our recommended tunings, the model would forecast speeds faster than what we would expect (given that the rates that the borrowers were getting were not changing proportionally).

The model runs using monthly averages. This helps smooth out some of the fluctuations in daily rates. Also, given that these are long term models we would not like to bias the valuations without having a good understanding of the changing market dynamics. Is the change structural? Is it temporary or permanent? If it is temporary, for how long and what happens after that?

We are dealing here not only with the credit issue and the liquidity issue, but also the price compression issue in MBS that we have been seeing recently. The price difference between a 5.0 and 6.5 percent coupon MBS has gone down from about 4.5 points to about 2 points from January 4, 2008 to December 5, 2008. This means that the primary to secondary spread is

under less pressure from market participants to get back down to historical levels, since it is no longer as profitable to issue a premium MBS in this environment.

What should a client do?

It depends. If a client is using daily rates, then we recommend using the slide tuning dial to slow down the model. A slide in the range of 30 - 50 basis points would get the underlying refinancing incentive close to what it would be, had the current coupon not dropped drastically. If a client is using monthly rates, then the monthly average rate will not be as severe as the daily rate drop.

What is AD&Co doing about this?

The Freddie Survey reflects what was published last Thursday (December 4). We will look closely to see how the survey rate changes over the next few weeks, and if there is any reverting back towards the historical spread of 54 basis points. Based on how the market performs over the next few weeks, we will provide official model tuning recommendations and guidance. In the meantime, clients should call us to discuss their individual needs and we will work together to come up with a solution that is reasonable and makes econometric sense.

Chart: Spread between the Freddie Mac Primary Mortgage Market Survey Rate and the Fannie Mae Current Coupon for 30 Year Fixed Rate Mortgage
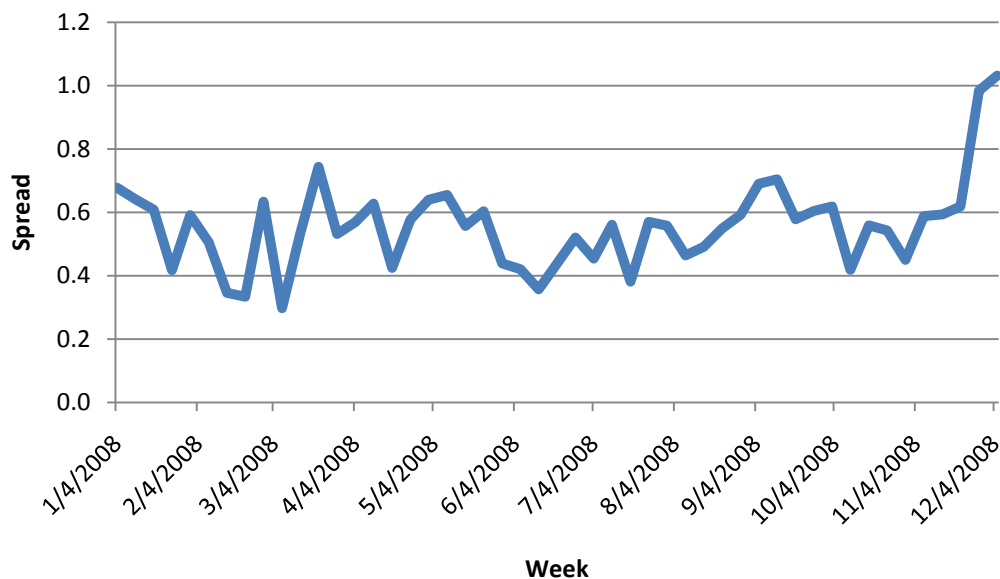
Valuation Commentary – December 08

Credit Loss Distribution: Credit OAS vs. Vasicek – Part 1

By Alex Levin

Investors and risk analysts focus on price and its sensitivity to risk factors (the Greeks). In contrast, insurers prefer to use histograms of losses. A professional risk manager in an investment firm may like to stay Delta-hedged, whereas in an insurance company one may seek to trim the tail.

RiskProfiler^{TM}, AD&Co's valuation system, speaks all the Greeks, but it also allows the user to compute and visualize probability distributions for key credit measures such as cumulative collateral loss and default, as well as a bond's write-down. And, if we work with a cohort of loans, we can see those metrics in 12 months, or in 24 months, or whatever horizons the user defines. And if this is still not enough, we can show the distribution of C (current), D (delinquent), and S (severely delinquent) populations.

These distributions are generated using our Credit OAS method, i.e. via coupled simulations of interest rates and home prices. Each loan is considered through a myriad of scenarios that are collectively subject to conditions we term "risk-neutral." We discussed the construct of Credit OAS and the HPA simulator in a large number of publications. The loss distribution generated by the Credit OAS method is certainly model-driven. The result depends both on the volatility of factors (interest rates and home prices), but also on the characteristics of loans.   The Credit OAS method works surely, but slowly.

Can we think of a quicker surrogate? A theoretical alternative could be the so-called Vasicek distribution, which is derived for an infinite cohort of identical loans. The Vasicek approach has gained recognition in credit studies; it is almost model-free although based on a set of practically unrealistic assumptions. Each loan is assumed to default once the home value falls below a threshold (Merton's approach); each loan has the same probability of default p; correlation between home values (ρ) is considered to be another model's parameter. The Vasicek model is a one-period model whereas MBS losses and defaults take place gradually, over the life of the instrument.

Collateral loss versus bond loss

Exhibit 1 depicts a rather typical result of 100 simulations for a mezzanine tranche of a subprime deal. The collateral default seems to follow a distribution resembling that of Vasicek, whereas a tranche's losses are mostly binary. The tranche had no losses in 70 cases out of 100, but had the entire principal lost in 11 cases. The remaining 19 paths resulted in intermediate principal loss; none of them are as likely as losing all or nothing. Practitioners usually consider such a tranche "thin": the distance between losing its 1st dollar of principal and the last dollar of principal may be a slim one. When I see the distribution shown in Exhibit 1 (right chart), the analogy to a digital option comes to my mind. In contrast, "super-senior" tranches are usually large in relative size and reside at the top of credit enhancement ladders; their loss distributions will resemble those of collateral itself.

Exhibit 1. Distribution of loan defaults (left) and bondwrite-downs (right)
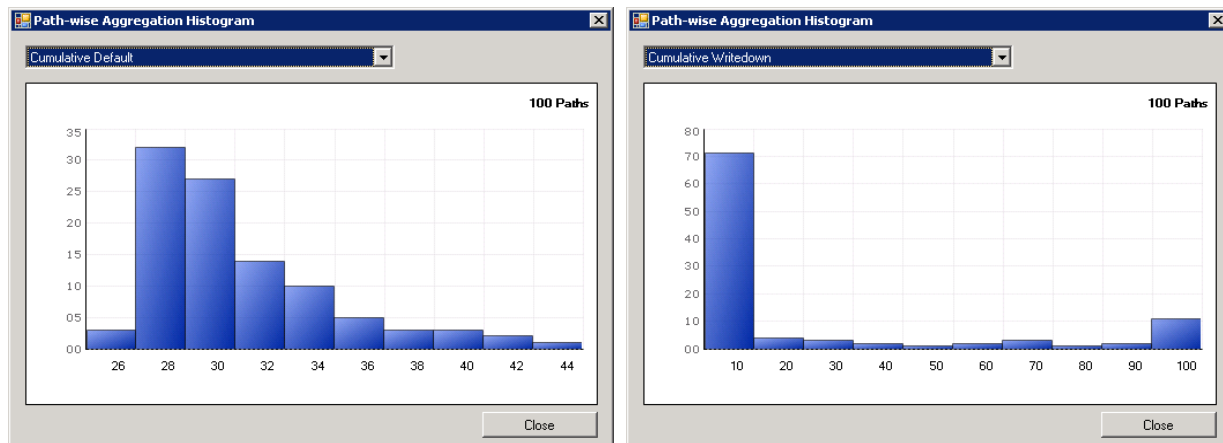
Not all loans default

If we carefully look at the left chart of Exhibit 1, we notice that the cumulative default doesn't exceed 44% for this collateral. At first, one may suggest that this is a result of only 100 paths used. And had we run more paths, we would have seen some of them triggering larger default rates. However, we would not be able to cause 100% of loans processed by the AD&Co's LoanDynamics™ Model (LDM) to default, no matter how many paths we run. Borrowers don't default just because market factors (economy and home prices) deteriorated; they default when this deterioration is coupled with one's inability to pay at the time they are still in the pool. Hence, in each cohort of loans, there will be borrowers that never default or prepay before defaulting thereby compromising the Vasicek model.

In order to illustrate this observation, we ran a series of tests setting progressively deteriorating HPA assumptions. We defined a new loan (considered "current" by definition) and depict the

default rate distribution using 10,000 paths (see Exhibit 2). The HPA = 0 case corresponds to the HPA model's settings we employ normally. The HPA = -4% means we subtract 4% from the annual HPA simulated by the model, etc. Of, course, the HPA = -30% case would be a totally unrealistic apocalypse.

It is interesting to observe the change in the shape of distribution as the HPA setting deteriorates. It starts out as a typical Vasicek-like right-tailed distribution. As the expected default rate increases, the distribution becomes symmetric, then left-tailed. In the worst HPA case, the distribution regains symmetry, but remains bounded by some 63% of cumulative default. It looks as though the loan contains a portion (37% in size) that never defaults. Of course, in a large pool, this phenomenon may be simply explained by the fact that some loans are able to prepay before facing possible default.

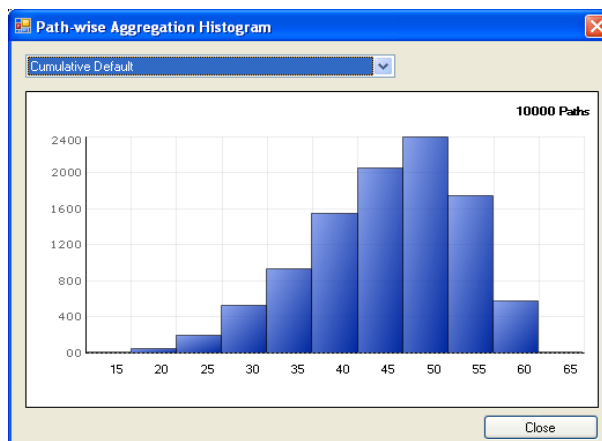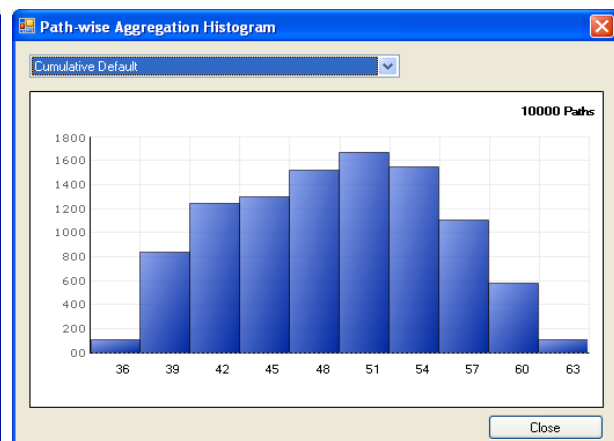**Exhibit 2. Cumulative default rate distribution for a new loan**
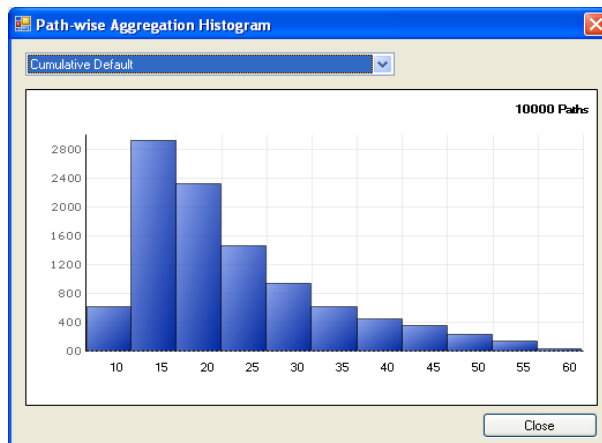
*HPA = 0*   *HPA = -4%*
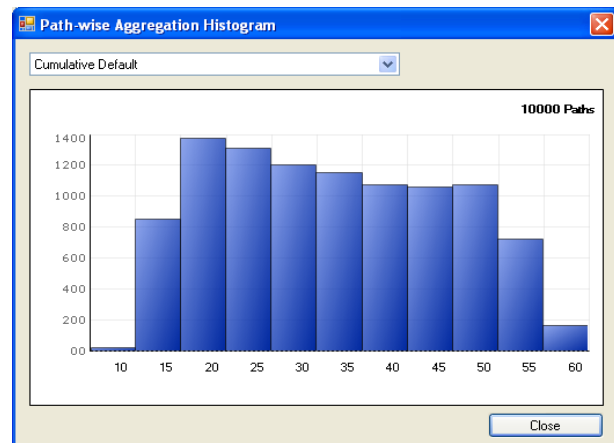
HPA = -10%   *HPA = -30%*


Some loans will default

The LDM is aware of the initial loan status ("current", "delinquent" or "severely delinquent") and models transitional probabilities accordingly. Exhibit 3 depicts a cumulative default histogram for a delinquent (left) and severely delinquent (right) loan. This time we shifted the HPA dramatically up, adding 30% to the model while purposely subtracting 2% from the MBS market rate. Hence, we created artificial conditions that are favorable beyond reality to refinancing and cure. For both cases, the loan's age was assumed to be 36.

Exhibit 3. Cumulative default rate distribution for delinquent loans
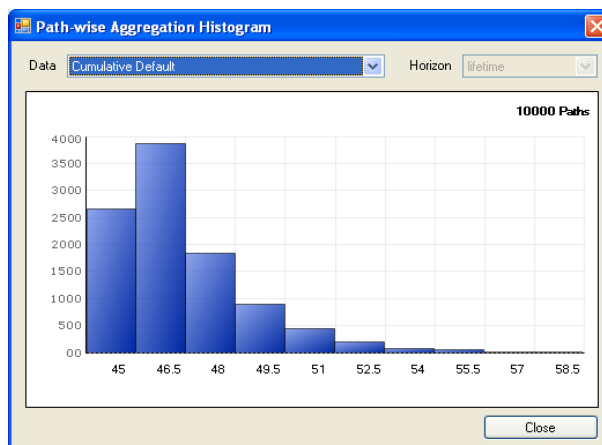
A. Delinquent   ### B. Severely delinquent
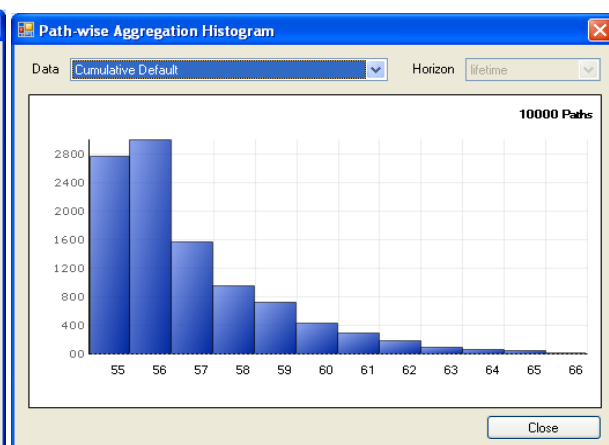
Our test shows that there is a minimum probability to default, 43.7% for the delinquent loan and 54.7% for the severely delinquent loan.

Thus, we illustrated that the cumulative default rate has lower and upper bounds. This observation grossly contradicts Vasicek's theory. In the next article, we will show how to modify it in order to approximate the distribution of defaults and losses of Credit OAS.