

Discussion of Credit Rating Crisis

Adam B Ashcraft, Federal Reserve Bank of New York

In the paper, the authors study the collapse of credit ratings of ABS CDOs, which played an instrumental role in how the recent financial crisis began and spread throughout the global financial system. Large exposures to the super senior tranches have crippled several large well-known banks insurance companies.

In this discussion I tackle four topics:

- Why did ABS CDO ratings perform so badly?
- Is it plausible that issuers of ABS CDOs shopped for ratings?
- What do the authors contribute?
- What does my own research suggest about credit ratings shopping?

1. Why did ABS CDO ratings perform so badly?

The authors do an excellent job highlighting the scale and scope of CDO downgrades in the paper. However, in order to understand why the models performed so badly, it is important to understand the how model employed by the credit rating agencies actually works.

At a high level, Moody's CDO model transforms a portfolio of 100 to 125 bonds into a smaller portfolio of statistically independent bonds, using a measure of portfolio correlation

called a diversity score. A portfolio with less correlation has a higher diversity score.

Portfolio defaults are projected using probabilities of default implied by the rating on the underlying collateral, and correlation is implied through the use of fewer bonds than exist in the reference portfolio. Using a simple binomial distribution and an assumption about loss given default, it is straightforward to simulate a loss distribution. For ABS CDOs, which had large concentrations of subprime and Alt-A MBS, the diversity score under the traditional methodology was very low, which made the loss distribution very lumpy and obviously difficult to tranche finely. In response, Moodys developed its correlated binomial model which essentially added a parameter in order to smooth out the loss distribution.

In the paper, the authors focus on excessive correlation when describing the failure of CDO ratings. In particular, they note a high concentration of residential housing, high exposure to risky residential housing, and low inter-vintage diversification. While I do not disagree with these assertions, I believe the fundamental problem was correlation created by model error in the ratings of underlying ABS collateral. The most significant model error, of course, was that the credit rating agencies underestimated the severity of the housing downturn. Housing markets were historically local, but securitization created correlation which did not previously exist. In a diversified pool, idiosyncratic risk is diversified away, leaving only systematic risk, and the accuracy of credit ratings will depend significantly on the accuracy of the forecast of systematic risk factors. In the case of MBS ratings, home prices are clearly the most important systematic risk factor.

However, there were additional honest mistakes discussed in CGFS (2008). For example, the use of limited historical data which did not permit one to accurately measure how loans with risk-layering would behave in financial distress. Moreover, they did not adequately account for the originator risk factor permitting the arbitrage of rating criteria by weak originators. Finally, they ignored the refinancing stress risk factor, never anticipated the complete evaporation of refinancing opportunities.

2. Is it plausible that issuers of ABS CDOs shopped for credit ratings?

As pointed out in a recent note by Adelson and Jacob (2008), the onset of ABS CDOs helped to obscure model errors in the underlying MBS bond ratings to the ultimate investors. Until 1997 the vast majority of subprime RMBS used bond insurance from monolines as credit enhancement. However, from 1997 to 2002, about half of deals used bond insurance and the other half used subordination as credit enhancement. In 2004, ABS CDOs and CDO investors became the dominant class of agents pricing credit risk on subprime RMBS, displacing bond insurers and other sophisticated investors. This was important because CDO investors were willing to accept loans that traditional investors would not have accepted, and originators began originating riskier and riskier loans. The willingness of CDO tranche investors to accept weaker collateral was created by overconfidence in models by the traders and risk managers of the trading books of several banks.

ABS CDO structures were typically structures as "hybrids", where the underlying collateral was a mix of cash MBS bonds and credit derivatives (CDS) on MBS bonds. In the latter, the

CDO sold credit insurance through on reference ABS bonds to hedge funds who had a negative credit view on the underlying collateral, and profited handsomely as it began to deteriorate in early 2007. In a hybrid ABS CDO, an unfunded super senior tranche rated Aaa was either retained off-balance sheet by the issuer or hedged with financial guarantors, and only the junior part of the CDO capital structure was funded. These junior tranches included a cash Aaa tranche, lower-rated mezzanine tranches, and an equity tranche. The cash Aaa tranche was sold to ratings-dependent foreign investors, lower-rated mezzanine tranches were re-securitized into CDO-squared transactions, and equity tranches were sold to hedge funds.

The phenomenon of credit ratings shopping is the idea that competition between credit rating agencies might have the undesirable outcome of reducing the amount of credit enhancement required to attain a given. In the example explored in the paper, investors require only one credit rating, but issuers can choose between three. Generally, one might be concerned that the issuer would choose the credit rating agency with the least amount of required credit enhancement. The other rating agencies would not rate deals, and lose market share, which would create obvious pressure to relax their standards.

Turning to ABS CDOs, it seems difficult to suggest that ratings shopping played an important role when focusing on the super senior tranches, as these were generally either the issuers or fairly sophisticated investors. My view is that the only scope for ratings shopping in this asset class would have been with respect to the credit enhancement of the cash Aaa tranche.

Consequently, I would advise the authors to focus the analysis of any evidence of ratings

shopping at this point in the capital structure, and to use the other tranches as a falsification exercise.

3. What do the authors contribute?

The authors have a data set of 30,499 tranches of bond collateral included in 534 ABS CDOs, which were owned by the hedge fund Pershing Square Capital Management at the time of the study.

An immediate challenge with the paper is that the authors have data on the credit ratings of ABS collateral underlying CDOs, and do not appear to analyze data on credit ratings of CDO tranches. Without data on the ratings of CDO tranches, it is simply not possible to study ratings shopping by CDO issuers. In the conclusion to the paper, the authors note “Among 534 ABS CDOs issued between 2005 and 2007, we find that tranches rated by solely one agency, and by S&P in particular, were more likely to be downgraded by January 2008.” However, it would be more accurate to write, “Across various collateral types and vintages included in 534 ABS CDOs issued between 2005 and 2007, we find that ABS tranches rated by solely one agency, and by S&P in particular, were more likely to be downgraded by January 2008.”

In Table 13, the authors have focused on the coefficient of there being a single credit rating. The first column is a Probit regression of downgrade frequency on dummies for one or two credit ratings, controlling for vintage and asset class fixed effects. My view is that the first

model is meaningless, as the omitted category includes both “No rating” as well as “Three raters.” Strictly speaking, the coefficient on “One rater” suggests that a bond with one credit rating is 6.1 percentage points more likely to be downgraded than a bond with either no credit rating at all or a bond with three credit ratings. The coefficient on “Two rater” is negative with a large standard error. In principle, the authors should focus on the difference between the “One rater” and “Two rater” coefficients, as this is really the hypothesis of interest.

In the second model, the authors are excluding either “No rating” or “Two ratings” which makes the coefficients difficult to interpret. In particular, the coefficient implies that a bond with one credit rating is 7.5 percentage points more likely to be downgraded than a bond with either no credit rating or a bond with two credit ratings. In general, the specification does not appear to be thought out very carefully.

Ignoring these specification issues, there are some other potential problems with the approach which need to be addressed. While the impact of one credit rating might be statistically significant, it is not clear that it is economically significant. From Table 10, over the entire period only 6 percent of credit ratings were by a single firm, and this number was actually decreasing from 2004 to 2007. Consequently, it does not seem that “one rating” could have been an important part of the credit rating crisis. Moreover, the authors may be too eager to interpret a higher frequency of downgrade as evidence of inflated ratings. In particular, there is no serious attempt to control for deal-level characteristics which would mitigate obvious selection concerns. In lieu of such data, it would be prudent to break out the results by asset

class, vintage, original rating in order to document the robustness of the results, and to identify differences where one might expect credit ratings shopping to be more severe.

4. What does my own work suggest about credit ratings shopping?

A recent paper with colleagues investigates the efficacy of credit ratings on subprime and Alt-A mortgagebacked securities (MBS) deals issued between 2001 and 2007, the period leading up to the subprime crisis. We document evidence that conditional on credit ratings, projected mortgage delinquency rates from a simple loan-level econometric model are strongly correlated with ex-post default, suggesting ratings did not fully reflect information on mortgage risk available at deal origination. While these results hold throughout our sample, they are strongest for deals issued at the peak of the mortgage boom (2005-2007), and for deals with a high fraction of low-documentation mortgages and investor loans. Further, we document an increasing level of subordination below AAA over the sample period, consistent with rating agencies increasing rating conservatism in response to increasing risk. However, we find that assigned subordination conditional on fundamentals declined by about 20% in the last part of our sample (between mid-2005 and mid-2007) in both subprime and Alt-A.

References

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