

How Loan-Level Insight Can Lead the Way to Resolving the RMBS Crisis

BRENDAN J. KEANE

How Loan-Level Insight Can Lead the Way to Resolving the RMBS Crisis

BRENDAN J. KEANE

BRENDAN J. KEANE is senior vice president of the Advisory Data Valuation Group at CoreLogic Inc. based in New York, NY. bkeane@corelogic.com

The non-agency residential mortgage-backed securities (RMBS) market remains effectively moribund, thanks to a number of inter-related, inhibiting factors. Primary among them are the following concerns:

- investor mistrust of the quality of underlying loans, evident in the mountain of RMBS-related litigation, negotiations, and settlements;
- anxiety over continuing poor credit performance of loans underlying RMBS transactions due to the still-downward-trending real estate and housing markets;
- growing demand for real transparency of structured product cash flows by investors, trustees, and other market participants.

While these challenges might appear daunting, they can be overcome by the effective combination of new industry best practices, targeted regulation, and transparency-driven initiatives aimed at evaluating assets at a more granular level. Not only does this alignment promise to restore the RMBS marketplace, it will give it solid, long-term stability.

Nevertheless, some market players remain unconvinced as to the value of assessing risk at the asset level, contending that it is just as effective to employ risk management strategies derived from portfolio-level approaches.

This article explores this misconception by demonstrating the effectiveness of a granular versus portfolio analysis by applying each approach across two issues that continue to vex the non-agency RMBS market:

- the adequacy of seller-provided representations and warranties of loan quality;
- effective valuation techniques that can effectively reveal the hidden intricacies of loan performance and resulting RMBS bond cash flows.

This analysis not only verifies the superiority of a granular approach; it also illuminates how this methodology can be done as quickly, painlessly, and cost-effectively as traditional “higher-level” portfolio evaluations.

THE CURRENT CONTEXT—RMBS LITIGATION AND FORENSIC DISCOVERY

Perhaps as a corrective to the sluggishness in setting new regulatory standards, litigation has emerged as a preferred alternative for injured RMBS investors to recover lost asset value. A consequence of these cases may be the establishment of best practices for appropriate disclosure, servicing, and securities underwriting long before regulations decreed by laws like the Dodd-Frank Wall

Street Reform and Consumer Protection Act actually go into effect. This, in turn, may help create the conditions necessary to reanimate long-dormant investor trust and resolve the RMBS market crisis.

Indeed, the pending \$8.5 billion Bank of America settlement involving legacy Countrywide securities may instigate permanent changes in servicing practices not only for Countrywide transactions but for many other deals subject to litigation. As a leading market analyst notes, even if the Bank of America settlement doesn't actually occur, some mandated changes in servicer behavior are already a *fait accompli*—servicing standards will be affected no matter what the final settlement (Goodman [2011]).

That we are even at this stage is the result of exerted investor pressure unlike any we have witnessed previously—leverage derived from fundamental technological advances in the sourcing and creative combinations of borrower, loan, property, and RMBS securities data. These improvements include the streamlined availability of verifiable data and the admissibility of statistical extrapolations thereof. Plaintiffs can now document their positions using easy-to-verify public data detailing the performance of loans underlying an RMBS, then transparently model it to demonstrate patterns of misrepresentation clearly and convincingly.

RMBS issuers and underwriters have also been able to employ these techniques to counter frivolous and unworthy claims brought by litigators attempting to piggy-back on legitimate claims.

LESSONS LEARNED—UNDERSTANDING RISKS UPFRONT

This experience has led investors and other market participants to realize that increased transparency of structured product cash flows could be accomplished early enough in the investment process to *avoid* negative financial outcomes altogether—rather than discovering them only after the fact. Given this awareness, and the secondary market's emerging regulatory rigor, evolving best practices, and technology-driven initiatives, RMBS portfolio valuation is trending inexorably toward granularity.

However, some veteran risk managers question the effectiveness of analyzing portfolios at the loan level, arguing that the same risk-weighted results can be obtained quickly and effectively with a higher-level approach. This argument rests on three assumptions:

1. that loan-level portfolio analysis is a slow “onesie, twosie” process;
2. that accurate portfolio analysis can be based on “high-level” assumptions of loan values;
3. that high-level portfolio analytics have a record of accuracy equal to that of loan-level analytics.

All three assumptions point to an amazing discrepancy between standard industry practices and current technological realities, a disparity that may bear much of the responsibility for the decline of investor trust. To reestablish new security issuance—and trust—we must be willing to accept and embrace current market and technological realities, starting with an objective assessment of the relative performance of loan-level and “high-level” analytics in evaluating RMBS portfolios, pools, deals, and tranches.

ILLIQUIDITY AND ITS UNWELCOME OFFSPRING

The collapse of the non-agency RMBS market signaled a profound disconnect between investors and their investments: It quickly became clear that those with the most money at risk had had little or no understanding of the nature or size of the risks they had acquired. Numerous market veterans accepted trusted, “high-level” assurances that their investment risk was vanishingly minimal—only to find their securities were illiquid.

Although it is still early times clearing the wreckage, thus far the key to the market collapse has proven to be focused on the value—or lack thereof—of the mortgage loans underlying the securities:

- Litigation continues over declines in private-label RMBS valuations and subsequent investor losses.
- Memories of steep initial ratings downgrades and continued ratings volatility attributable to underlying collateral performance keep investors unacceptably apprehensive.
- Accounting challenges, including effectively measuring impairments and loss reserves for securities, continue to strain investor balance sheets and compromise trading positions.

A loan-level approach to evaluating securities—whether estimating long-term performance or credit-based market valuation—could have alleviated much of

the risk of subsequent illiquidity. Given lessons learned, superior risk managers will demand a loan-level approach now and into the future.

Nevertheless, market participants without the ability or desire to evaluate, understand, and monitor RMBS holdings at the loan level will continue to risk suffering the same fates as those already mired in litigation, ratings uncertainty, and accounting weaknesses. As a result, each of these easily mitigated issues could continue to exert significant drag on the overall RMBS market.

Unwelcome Offspring #1—Layered Misrepresentations and Poor Credit Performance

An example of the unexpected side effects of the RMBS market meltdown is the compounding effect of multiple misstatements of fact in a security’s underlying loans. A recent study of loans and securities in a benchmark subprime securities index, the ABX 2007-1 (CoreLogic [2011]), revealed potentially significant layered overstatements:

- Nearly 45% of loans tested overstated reported property values by at least 10%.
- Over 28% of properties originally listed as owner-occupied showed inconsistencies with the stated

occupancy in at least one of six tests, with more than 11% showing at least two inconsistencies.

In Exhibit 1 we see the impact on performance of potentially misrepresented collateral attributes. For example, an analysis of the loans in the ABX 07-1 index shows the progression of delinquencies and ultimate principal losses as the frequency of owner occupancy (“owner occ”) inconsistencies increases. Similarly, we see in Exhibit 2 that as the likelihood of valuation misrepresentation increases, so does incidence of poorer credit performance. The layering effect of combining multiple misrepresentations increases the likelihood of loan default loss significantly: Loans with overstated values of at least 10% plus two owner occupancy inconsistencies suffered higher losses (34%) than the overall ABX 2007-1 (22%), a 55% increase.

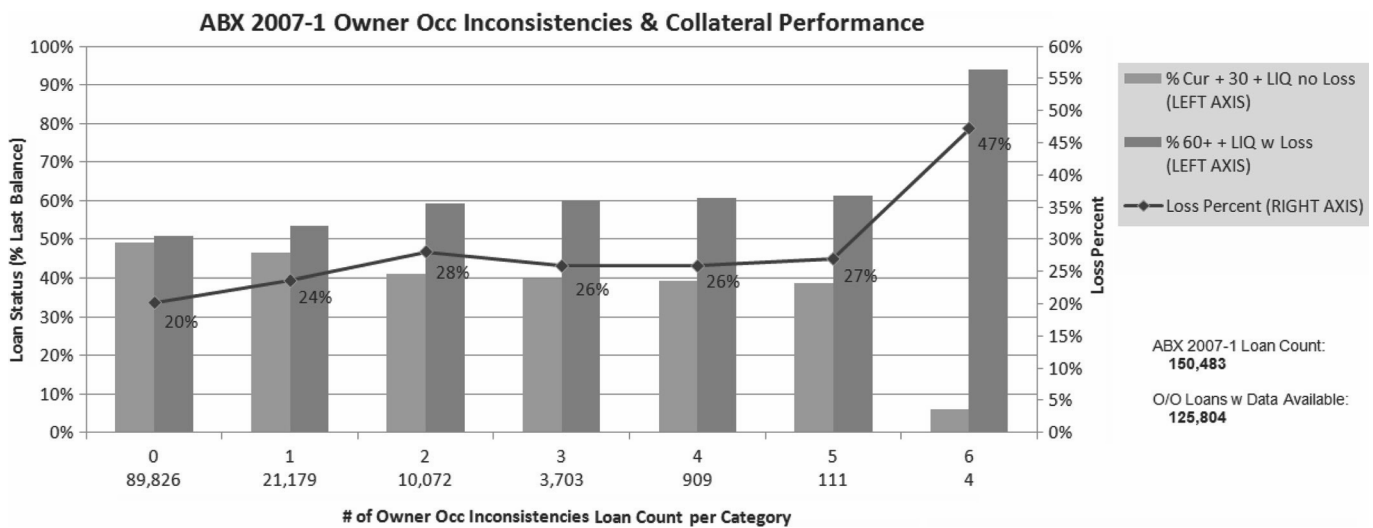
Although loan-level valuation modeling in advance may not consistently identify these disclosure issues—after all, 65% of loans in the study didn’t incur losses—ongoing loan-level portfolio surveillance will reveal the noticeably poor performance of such loans and flag them for additional investigation.

Unwelcome Offspring #2—Ratings Volatility

The RMBS crisis proved unequivocally that the burden of valuation diligence resides with the buy-side.

EXHIBIT 1

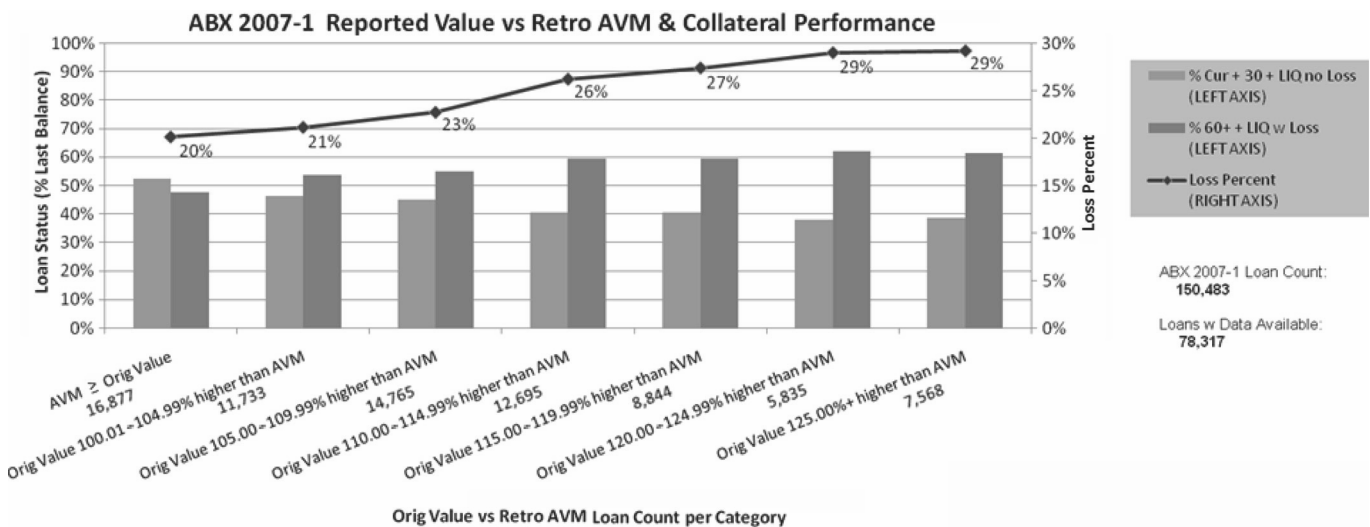
The Impact on Performance of Potentially Misrepresented Collateral Attributes



Source: CoreLogic Securities Database; Markit ABX Index Performance & Loss Data as of 6/30/2011.

EXHIBIT 2

The Impact of Valuation Misrepresentation on Credit Performance



Source: CoreLogic Securities Database; Markit ABX Index Performance & Loss Date as of 6/30/2011.

When an RMBS security is downgraded, rating agencies have generally not taken responsibility for mislabeling the actual level of risk. It's the investors' problem—and theirs alone—to solve. Some investors choose information and analytics to improve their results over time, while others choose to pursue restitution through legal discovery and litigation.

One might think that getting it right the first time would be straightforward enough: combine loan-level securities data with predictive analytics to model cash flows. Mix, review, assess, and then compare expected performance against actual credit behavior. An oversimplification perhaps—but this is the heart of the actual RMBS ratings process and where the industry fell most flamboyantly on its face. Something is clearly amiss when an entire generation of ratings is almost entirely made up of downgrades, as illustrated in Exhibit 3.

Taking responsibility for RMBS valuations is not—and never should be—a game of catch-up to be played only after a problem has surfaced. RMBS transaction cash-flow projections can be easily modeled by investors, traders, and others, at any stage of the investment process, enabling a variety of telling, comparative benchmark assessments. Despite RMBS structural variations, varying servicing parameters, and several other factors germane to assessing risk, the heart of getting security valuation right is straightforward—it is all about

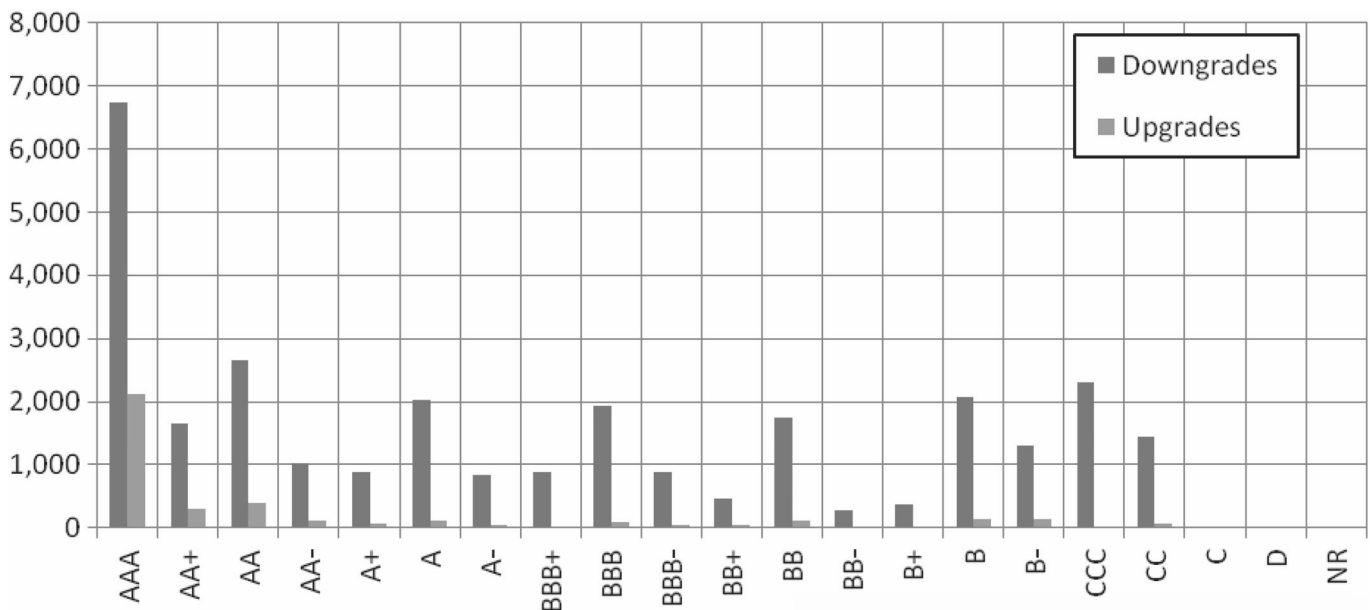
the credit performance of the underlying mortgage loan assets.

The difficulty lies, of course, in obtaining valid data—current, complete, comprehensive—and employing modeling techniques understood across the investing spectrum, from the most sophisticated Wall Street “quant” to retail investors with mutual funds long on non-agency RMBS. But dynamic, high-quality data and the automated, configurable tools to model them accurately and understandably do in fact exist today—and their rigorous use could improve the reputation and long-term financial outlook of the structured finance ratings industry dramatically. However, the chasm that existed between ratings and reality during the run-up to the crisis has brought about an important restriction on that industry: The Dodd-Frank Act's regulatory schema mandates reducing government-supported dependency on rating agencies.

Once this is implemented, investors and traders will bear more responsibility than before to conduct their own RMBS diligence—including assessments of expected-versus-actual asset performance, the accuracy of which can only be assured by loan-level information. Fortunately, the new automated technologies, more detailed and accurate data, and configurable reporting described previously will also benefit this wider user group by significantly reducing the expense of creating valid in-house or third-party-generated ratings.

EXHIBIT 3

Subprime RMBS Ratings Changes, 2007–2011



Sources: Standard & Poors; Bloomberg.

Unwelcome Offspring #3—Balance Sheet Exposure

While some injured RMBS investors were well-versed in the theory and execution of structured finance, many more invested perfunctorily in the bond markets and were, if anything, even more dependent on ratings than the so-called “experts” in choosing investment vehicles. These investors may now be exposed to toxic assets—or at least *potentially* toxic assets—on their balance sheets. The degree of their exposure can have real implications for their future financial health, even their very viability.

Understanding how to deconstruct these assets and ascertaining their actual value should be high on the priority lists of investment analysts—since the potential impact on their portfolios and institutions is so great. Fundamental analysis of such assets and their influence on balance sheets must be as accurate as possible, whether affecting loan-loss reserves or other-than-temporary-impairment (OTTI) sensitivities.

With more than \$1.2 trillion in non-agency securitizations currently outstanding, this issue and its potential for making mischief on corporate balance

sheets cannot be overstated. And when—not *if*—the non-agency RMBS market reappears, its presence won’t substantially diminish the risk these legacy securities will continue to pose to investors.

KEY FACTORS IN FORENSIC RMBS ANALYSIS

Even the most rudimentary RMBS portfolio analysis must provide collateral stratification and performance metrics. While the granularity of the analysis depends on data availability, validity, and detail, the effectiveness of an analytic program hinges on how well it incorporates projected loan-level prepayments, defaults, delinquencies, and severities in generating bond cash flows.

Additionally, the reporting of asset and liability cash flows, tranche valuations, and pricing analyses—for both individual positions and portfolios—should include standard fixed income metrics, such as

- price/yield comparisons;
- duration and convexity;
- static and simulation-based cash flow estimates;
- deal trigger analyses.

To ensure accurate results, the analysis should progress across several levels, including

- deal;
- deal/group;
- ground group;
- loan level.

Such advanced analytics can also help investors better model prepayment and credit performance trajectories over time—projections they can use to forecast bond cash flows for valuation and portfolio performance.

BEYOND TRANSPARENCY—MANAGING RISK AND OPPORTUNITY

As investors move past post-crisis forensics, the principal focus of portfolio managers will increasingly return to the task of optimizing returns—pricing and managing the risk of existing or new-issue RMBS investments. Effects of the crisis will linger, of course, in the form of diligence motivators like the new regulations anticipated under Dodd–Frank. But what matters most will again be the returns that managers can generate by truly understanding a portfolio’s limitations and opportunities.

Surprisingly, the most significant legacy of the RMBS crisis may turn out to be not the imposition of a Dodd–Frank regulatory regimen but rather the residual aftereffects of the “deep dive,” forensic analyses that these portfolio managers undertake to cope with the toxicity of pre-crisis investments. To do so effectively, they often had to learn new and (to them) unfamiliar analytic tools employing what were then commonly considered “exotic” integrated datasets.

THE CRITICAL FACTOR: LOAN-LEVEL VERSUS PORTFOLIO-LEVEL ANALYTICS RESULTS

Having to reach a level of understanding sufficient to guide resolution of major portfolio toxicity sharply limits the usefulness of “high-level” assumptions about its content. Such assumptions introduce the same non-specificity and soft logic into the resolution process that enabled toxic assets to slip unnoticed into a “safe” investment in the first place. To accept the authority of such assumptions now demands a level of

faith reminiscent of the unquestioning, blind faith of the pre-crisis environment.

To illustrate loan-level analytics concretely, we return to the ABX Index—in particular one typical security whose AAA through BBB– tranches are contained in the ABX 2006–2, CARR 2006–NC1. We examined each tranche of this deal, analyzing at the “loan” and “deal” levels.

Loan Level

- Estimated cash flows for each loan currently in the security using a 200–path simulation that provided for changes in housing price assumptions, interest rates, and so on. As of June 25, 2011, there were approximately 2,674 active loans in CARR 2006–NC1, resulting in 534,800 total cash flow simulations.
- From the 200 runs for each loan, computed a loan-specific path of prepayments (CPRs), default rates (CDRs), and loss severities (SEVs).
- Applied these loan-level-generated paths across the bond structure and assessed the impact to the remaining outstanding bonds in the CARR 2006–NC1 transaction.

Deal Level

- Computed one average CPR, CDR, and SEV path, respectively, from the 534,800 paths simulated above.
- Applied this average cash-flow estimate across the CARR 2006–NC1 structure.

As shown in Exhibit 4, our analysis found some interesting differences in the loan- and deal-level approaches—notably the overall predictive quality of cash flows, the effect on the computations of excess interest, and the significantly differing impact on tranche-level cash flows. Because these ultimately determine bond principal writedowns and price, the different results—and their impact on the security’s value—should give investors pause.

RESULTS MAY DIFFER EVEN MORE

A one-to-one comparison of loan-level and deal-level analytics approaches must necessarily leave out

EXHIBIT 4

Loan- and Deal-Level Views (and Differences) of the CARR-2006-NC1 Transaction

CMLT06N1-6/25/2011		Loan Level Vector Analysis						
CUSIP	Tranche	Price 10% Yld	WAL	Collat Proj Loss (% of curr bal)	Collat Cum Loss (% of orig bal)	Bond Cum Loss (% of orig bal)	Bond Proj Loss (% of curr bal)	Bond Proj Loss (in Millions)
144531EW6	A3	85.38	2.03	56.25%	33.72%	0.00%	0.00%	0.00
144531EX4	A4	46.61	8.21	56.25%	33.72%	38.65%	38.65%	31.59
144531EY2	M1	8.48	4.17	56.25%	33.72%	100.00%	100.00%	52.60
144531EZ9	M2	4.88	2.90	56.25%	33.72%	100.00%	100.00%	49.00
144531FA3	M3	3.02	2.15	56.25%	33.72%	100.00%	100.00%	28.82
144531FB1	M4	1.96	1.39	56.25%	33.72%	100.00%	100.00%	26.66
144531FC9	M5	1.17	0.83	56.25%	33.72%	100.00%	100.00%	24.50
144531FD7	M6	0.70	0.52	56.25%	33.72%	100.00%	100.00%	22.34
144531FE5	M7	0.56	0.30	56.25%	33.72%	100.00%	100.00%	20.18
144531FF2	M8	0.33	0.17	56.25%	33.72%	100.00%	100.00%	12.49

CMLT06N1-6/25/2011		Deal Level Vector Analysis						
CUSIP	Tranche	Price 10% Yld	WAL	Collat Proj Loss (% of curr bal)	Collat Cum Loss (% of orig bal)	Bond Cum Loss (% of orig bal)	Bond Proj Loss (% of curr bal)	Bond Proj Loss (in Millions)
144531EW6	A3	86.46	1.69	53.89%	32.83%	0.00%	0.00%	0.00
144531EX4	A4	65.50	6.85	53.89%	32.83%	1.28%	1.28%	1.05
144531EY2	M1	10.30	5.78	53.89%	32.83%	100.00%	100.00%	52.60
144531EZ9	M2	4.15	3.25	53.89%	32.83%	100.00%	100.00%	49.00
144531FA3	M3	2.60	2.39	53.89%	32.83%	100.00%	100.00%	28.82
144531FB1	M4	1.77	1.62	53.89%	32.83%	100.00%	100.00%	26.66
144531FC9	M5	0.96	0.92	53.89%	32.83%	100.00%	100.00%	24.50
144531FD7	M6	0.61	0.55	53.89%	32.83%	100.00%	100.00%	22.34
144531FE5	M7	0.54	0.31	53.89%	32.83%	100.00%	100.00%	20.18
144531FF2	M8	0.32	0.17	53.89%	32.83%	100.00%	100.00%	12.49

Loan Level			Deal Level			Difference		
Bond Writedowns	Collateral Losses	Excess Interest	Bond Writedowns	Collateral Losses	Excess Interest	Bond Writedowns	Collateral Losses	Excess Interest
(268,166)	(306,564)	38,288	(237,619)	(293,710)	56,091	(30,547)	(12,853)	(17,804)

Note: \$ in thousands; computed on CoreLogic Bond Analytics Platform.

important determinants when they're not common to both approaches. So, for example, the predictive quality of loan-level prepayment/default models would be significantly enhanced by including loan-specific attributes like FICO scores, LTV ratios, delinquency histories,

documentation types, property types, loan purposes, and occupancy statuses. Because these can only be seen at the loan level, however, their effects cannot be captured meaningfully in a pool-level approach.

In a true loan-level analysis, the granular data ensure a more accurate representation of loan prepayments, defaults, severities, and delinquencies. Loan characteristics like ARM resets and liquidation timelines can create different prepay/default scenarios that fall in different HPI time frames—resulting in different severity projections. Other pool-aggregate techniques, including running a bond with collateral averages, degrade results by averaging the vectors before bond cash flows are created. This weakens the predictive contribution of important loan-level characteristics and compromises the timing of cash flows.

Two critical observations highlight the importance of a loan-level approach.

Loan-Level Observation #1—There is Gold in Loan-Level Results

All parts of a deal's capital structure are not equal and cannot be equitably averaged. Because of the leverage built into securitizations, for example, even small collateral performance swings can wipe out subordinate tranches completely—yet have little impact on the more senior tranches. In the CARR 2006-NC1 capital structure, a 3% collateral loss would completely eliminate the M8 tranche.

The choice of whether to analyze securities at the loan or deal level, however, will have a significant impact on collateral loss and excess interest results all the way up the capital structure—which, in turn, will directly affect bond principal writedowns and the bond's ultimate value. In our analysis, there was an approximate \$19 difference in price in the A4 AAA tranche between the two approaches—with the loan-level analysis returning a lower price of \$46.61 versus the deal approach price estimate of \$65.50, reflecting significantly greater expected losses to the bond under granular modeling.

Pricing Impacts of Contrasting Results

We estimate that an investor using a simple deal-level approach could reasonably price the A4 tranche at around 66 cents on the dollar, based on an expected 54% cumulative collateral loss on loans remaining in the deal, with a bond principal writedown of 1.3% of the currently outstanding balance.

A loan-level approach, however, would produce a much different view. Although expected collateral writedown percentages are similar—56% in the loan-level approach versus 54% in the deal approach—the expected bond writedown of the A4 tranche is significantly higher in the loan-level approach: 39%. Compared to the 1.3% writedown projected through a deal-level analysis, that represents a swing of approximately \$30 million. Moreover, it results in a significant price differential of 19 cents on the dollar for the same bond (at a 10% yield, loan-level analysis would project a price of \$46.61 versus \$65.50 under deal-level analysis).

But *why* the difference in expected performance of a bond when the overall credit performance of the underlying assets is relatively similar? The loan-level approach incorporates a more detailed assessment of available excess interest differences—which serves as credit enhancement and available cash to protect the A4 tranche. The deal-level approach does not.

Loan-Level Observation #2—The Hidden “Loss” of Excess Interest

Excess interest and how it is computed and applied to bond cash flows has a profound, yet often-overlooked, impact on a bond's financial profile. A bond with underlying collateral made up of both high and low coupons can potentially have widely varying loan liquidation rates. High-coupon loans tend to liquidate faster, both because of an implicit refinance incentive and because such loans tend to include a higher likelihood of default. Lower-coupon loans are the exact opposite, with a lower likely liquidation rate.

In loan-level analysis—with each loan's unique characteristics taken into account—these possibilities make up the loan's “weighted average coupon” (WAC) deterioration metric. Since high-coupon loans liquidate faster, they cause the pool's WAC to decrease at a faster rate, decreasing interest to the bond. In deal-level analysis—with an aggregated trajectory applied across all loans—this effect is muted because an average CPR and CDR is applied. As a result, high-coupon loans don't liquidate quite as fast—or actively pay interest for an extended period of time. In CARR 2006-NC1, a deal-level analysis produced excess interest \$17.8 million greater than the loan-level approach.

The Technology Factor

Probably the single most effective argument *against* the loan-level approach to evaluating RMBS portfolios has been grounded in technology—what we call the “onesie, twosie” contention. In years past, loan-level analysis did in fact require the inspection and measurement of loans on a one-at-a-time basis, a slow and expensive process. But that was then. ...

Today’s automated processing and dynamic data have eliminated the “onesie, twosie” approach. Now an entire portfolio can be analyzed at the loan level in hours and minutes rather than days and weeks. Because of sophisticated data and algorithms, this processing can identify and account for most, if not all the parameters needed for meaningful analysis.

The new automated loan-level analytics are now as fast or faster as responsible deal-level analysis. Moreover, the cost is also roughly the same—depending on the extent and precision of the deal-level approach. Perhaps most importantly, deal-level analysis accuracy depends to a large extent on the skill and experience—and motivations—of the individual analyst. Loan-level analysis accuracy is much less affected by the possibility of human shortcomings.

WHEN THE RMBS MARKET RETURNS

Despite the worst fears of some market participants, the RMBS market will in fact return to good health. Slowly, perhaps, but return it will—completely and robustly. The cost-benefit ratio of a healthy RMBS market so dramatically outweighs that of any other approach to mortgage funding that it would make just as much sense to harbor fears that the practice of lending is about to stop.

When the RMBS market does return, it will be because two challenges have been overcome: lingering investors’ mistrust and their rational concerns over return on investment. Although overcoming both challenges depends on many outside factors—building a new regulatory structure, lowering the rate of unemployment, rebuilding the housing market—they can’t be eliminated without changing the long-established “black box” approach to evaluating bonds. The single most frightening discovery of the RMBS crisis was how little investors knew about their investments. They had taken on risks far greater than they realized, believing that assets supporting highly rated bonds had been fairly evaluated. But, of course, they had no way to confirm this. So they trusted—without verification.

No more. Investors will no longer trust or tolerate bond composition or forecasted returns until they can verify the value of the assets underlying them—and verification will not result from a simple deal-level approach. Fortunately, the day for efficient, cost-effective, loan-level valuation and understanding is at hand.

REFERENCES

CoreLogic Case Study, January 2011; as updated with data through June 30, 2011 (unpublished).

Goodman, L. “Bank of America Settlement—Impact on Securities Valuation.” *Amherst Mortgage Insight*, July 28, 2011.

To order reprints of this article, please contact Dewey Palmieri at dpalmieri@ijournals.com or 212-224-3675.

Copyright © 2011 CoreLogic Inc. All rights reserved. Not to be reproduced or redistributed without permission.