

## Residential Mortgage Criteria Report

# U.S. Residential Mortgage Re-REMIC Criteria

### Analysts

#### RMBS

Roelof Slump  
+1 212 908-0705  
[roelof.slump@fitchratings.com](mailto:roelof.slump@fitchratings.com)

Wen Hsu  
+1 212 908-0633  
[wen.hsu@fitchratings.com](mailto:wen.hsu@fitchratings.com)

Stefan Hilts  
+1 212 908-9137  
[stefan.hilts@fitchratings.com](mailto:stefan.hilts@fitchratings.com)

Huxley Somerville  
+1 212 908-0381  
[huxley.somerville@fitchratings.com](mailto:huxley.somerville@fitchratings.com)

#### Performance Analytics

Vincent Barberio  
+1 212 908-0505  
[vincent.barberio@fitchratings.com](mailto:vincent.barberio@fitchratings.com)

#### Structured Credit Products

Ken Gill  
+1 212 908 9185  
[ken.gill@fitchratings.com](mailto:ken.gill@fitchratings.com)

### Related Research

- *ResiLogic™: U.S. Residential Mortgage Loss Model Criteria, Aug. 11, 2009*
- *U.S. RMBS Cash Flow Modeling Criteria, Aug. 20, 2009*
- *U.S. Prime RMBS Surveillance Criteria, March 30, 2009*
- *Global Rating Criteria for Structured Finance CDOs, Dec. 16, 2008*
- *U.S. RMBS Alt-A Surveillance Criteria, Dec. 15, 2008*

### Summary

This report summarizes Fitch Ratings' current criteria used for analyzing credit risk in the issuance of new securities that are backed by securities of U.S. residential mortgages. The term used to refer to the new securitization of one or more real estate mortgage investment conduit securities (REMIC) is "re-REMIC." This process can involve the distribution of cash flows from the underlying bonds into multiple bonds in the re-REMIC, each which may have different risk profiles. Certain re-securitizations of residential mortgage-backed securities (RMBS) utilize an owner's trust legal structure; Fitch's fundamental analysis applied for this type of security is the same as that for re-REMICs, as described in this report.

Fitch will use these criteria in analyzing new issue securities backed by individual or small groups of five or less RMBS bonds pledging into a re-securitization structure using RMBS analysis. Fitch will also analyze groups of more than five RMBS bonds or a large number of RMBS bonds pledging into a single re-securitization structure using a combination of RMBS and analyses employed by the Structured Credit group. These may include various RMBS market sectors and cover the full spectrum of loan seasoning.

The analysis of the underlying bonds in a re-REMIC is reviewed by Fitch at the loan level, based on the current collateral attributes and analysis of the underlying deal structures, and is not reliant on the current rating of the underlying bonds. Therefore, the same analytical process applies to all underlying bonds whether or not they have an existing rating by Fitch.

### Role of ResiLogic Model in the re-REMIC Rating Process

This report references the "ResiLogic™: U.S. Residential Mortgage Loss Model Criteria," dated May 7, 2009 (*available on Fitch's web site at [www.fitchratings.com](http://www.fitchratings.com)*). Consistent with other RMBS product, ResiLogic forms the basis of determining expected pool-level losses and stresses up to the 'AAA' level for Fitch rated re-REMICs.

Fitch's ResiLogic model is the base platform used for determining expected and stressed loan losses in the analysis of traditional new issue residential mortgage loan collateral and new issue re-REMICs. ResiLogic is also used extensively in the surveillance process on existing Fitch-rated RMBS. The analysis of new re-REMICs and existing securities relies on available updated collateral and performance information at the loan-level, used in ResiLogic in accordance with the published criteria.

Fitch currently has a moratorium on rating U.S. RMBS re-securitizations backed by transactions with subprime, Alt-A with overcollateralization structures, or other esoteric assets due to continued performance volatility in these sectors. In addition, Fitch will provide ratings only on the senior bonds in U.S. RMBS re-securitization structures. Fitch currently does not provide ratings on U.S. RMBS re-securitizations backed by nonsenior bonds. Fitch will review its position on these asset classes when performance stabilizes.

The ResiLogic model encompasses the three major U.S. credit sectors: prime, Alt-A, and subprime mortgages. Base frequency of foreclosure (FoF) and loss severity (LS) are computed at the loan level, based on each loan's risks attributes, performance (as applicable), and underlying economic factors, to derive an expected base-case loss amount.

In addition to base-case loss expectations, the model generates loss coverage for each rating category, reflecting FoF and LS sensitivity to economic stress. 'AAA' ratings are based on the response to a severe, low probability stress simulation. The stressed loss levels are computed by simulating changes in economic conditions at both the national and regional level for each loan. Thus, the loss coverage computed for a pool of mortgages at each rating category reflects both geographic composition and concentration.

### **Economic Risk Factors in ResiLogic**

The impact of economic factors on future defaults and losses, which include home price forecasts as well as other measures, is captured by National Risk Index (NRI) and regional risk multipliers provided by University Financial Associates (UFA). Detailed information on Fitch's use of the UFA multipliers is discussed in the ResiLogic criteria report.

Fitch's base NRI reflects economic conditions at a national level and assesses the impact of current national economic conditions on future mortgage defaults and recoveries. The base NRI takes into account real GDP growth, inflation, and interest rate fluctuations and provides a default forecast for loans originated today relative to loans written during the 1990s.

For both new issue ratings purposes and surveillance, the UFA multipliers are incorporated directly into ResiLogic and raise or lower the expected default probability and loss expectations on a given mortgage loan to reflect national and regional economic risk forecast.

Fitch applies a stressed NRI value when analyzing new issue RMBS, including re-REMICs. This stressed level is evaluated by Fitch with each quarterly update from UFA and is used to ensure more stable credit enhancement levels over the economic cycle and life of the re-REMIC. For existing transactions, while economic forecasts are important, actual performance is a major determinant on ratings actions; therefore, the base NRI value is used for surveillance purposes. For instance, a pool of seasoned mortgages that has had negligible delinquencies over its life, including the recent past, would not be subject to further review as a result of a moderate change in the quarterly NRI.

### **Roll-Rate Analysis**

Used as a verification of performance expectations, the new ratings analysis of roll rates combines a pipeline liquidation approach with pool-specific delinquency (DQ) projections based on historical roll rates to perform a comparison with the ResiLogic 'B' expected case. The value of this analysis is in capturing the risk posed by the velocity of delinquencies within a pool. This approach proposes an expected-case FoF equivalent to the pipeline loss plus the losses expected from continued months of current DQ rolls. This methodology analyzes and affects only the FoF dimension of losses; it does not address LS.

There are three stages to this approach: pipeline liquidation, DQ projections, and loss-level adjustment (if necessary), as detailed below.

#### ***Pipeline Liquidation***

This stage takes the current DQ snapshot on a pool level and liquidates each of the DQ buckets according to sector-specific default percentages. The calculation itself is

simple: Multiply the pool percentage in each DQ bucket times an “eventual default percentage” for each bucket and sum the totals.

The eventual default percentages refer to the historical default percentage from a given delinquency bucket, ignoring the effect of any payment volatility. That is, while most loans rolling to 30 days delinquent will recover to a current delinquency status (approximately 90%), these loans have a significantly higher probability of default than their always-current counterparts. Therefore, despite this ostensibly high recovery rate, approximately 40% of recent-vintage prime loans over 30 days delinquent have defaulted.

### *Delinquency Projections*

This stage uses the exponential moving average (EMA) of a pool’s latest six months of net rolls to delinquency as a basis for forward projections. The EMA is a formulaic weighting process that emphasizes more recent observations over earlier observations (*for more information on this process, see the Appendix on page 7*). Net rolls (calculated as rolls delinquent – rolls current) refer to the net change in a pool’s delinquency from one month to the next. The expected defaults from projected delinquency rolls can be calculated as: six-month EMA net rolls) x (30-day DQ eventual default percentage) x (projected months of DQ roll).

This methodology utilizes the conservative assumption that in the base-case scenario delinquencies continue unabated at the current pace; higher rating stresses imply worsening delinquency rates. This approach does not provide for an improvement in pool roll rates.

### *Loss-Level Adjustments*

The results from the two previous stages are compared to the ResiLogic ‘B’ FoF to determine if adequate coverage is provided by the model loss numbers. If the model’s base-case FoF is greater than the sum of expected pipeline loss and projected losses from continued DQ rolls, no adjustment is made, and the more conservative model levels are used. If ResiLogic levels are determined to be insufficient to cover the pipeline plus projected DQ losses, the calculated expected loss is used as the new ‘B’ base case.

To scale up this ‘B’ FoF expectation to other rating categories, a level adjuster, based on a pool’s loss coverage ratio as determined by ResiLogic and a power-form regression of results from approximately 1,000 ResiLogic pool runs, is utilized. This tool is also used in the surveillance model to provide a basis for new scaled loss levels when base-case levels are adjusted due to performance factors. The table below shows a hypothetical pool where the ‘B’ FoF is adjusted from the model’s 20.44% to 26% based on the roll analysis. FoF numbers at the ‘BB’ and higher rating categories are determined using this methodology.

### **Example of FoF Adjustments Due to Roll Analysis**

(%)

<b>Rating Category</b>	<b>Original FoF</b>	<b>Adjusted FoF</b>	<b>FoF Difference</b>
AAA	40.23	46.94	6.71
AA	34.32	40.87	6.55
A	29.79	36.10	6.31
BBB	27.48	33.62	6.14
BB	23.26	29.17	5.91
B	20.44	26.00	5.56

As additional information for circumstances when credit enhancement levels are not

adjusted, the roll-rate analysis provides a “month of cushion” number. This refers to the number of months of roll to DQ at the current rate that the ResiLogic ‘B’ FoF can withstand after taking into account expected pipeline losses. The resulting number of months is reviewed in committee to further establish reasonableness of default frequency at the ‘B’ level prior to stressing further for higher rated bonds.

## Structural Considerations

The expectations of how a re-REMIC will perform are highly dependent on the underlying deal structure, since the credit enhancement of the underlying bonds will provide the first layer of credit protection to the entire re-REMIC transaction. If the underlying bond has sufficient protection from its subordinate bonds to withstand ‘AAA’ stress scenarios or if the underlying bond is expected to be paid off before its subordinate bonds are completely eroded, then the re-REMIC will not experience losses, and the pay structure of the re-REMIC becomes less important.

RMBS transactions, particularly Alt-A and prime transactions, may comprise one set of bonds supported by one group of mortgages, multiple sets of “stand alone” bonds each backed by a distinct pool of mortgages, or multiple groups that are “partially crossed,” meaning the groups are cross-collateralized at the subordinate level. Multiple groups that are stand alone do not benefit from other group(s) within the same deal; the performance of each group will only affect its related bond(s). For partially crossed transactions, performance of the subordinate bonds will depend on the performance of the aggregate underlying collateral. However, such cross-collateralization benefit will not be available when the subordinate bonds are completely written off. In that event, the senior bonds will be affected by the performance of their related groups only.

Senior bonds supported by different groups within the same transaction may have different loss expectations. When analyzing underlying bonds in re-REMICs, Fitch reviews each group independently and assigned FoF, severity, and expected losses based on each group’s collateral attributes and performance using ResiLogic. Therefore, the analysis captures the risk of a bond from a strong performing group sharing support bonds with a poorly performing group. It also eliminates the non-existent cross-collateralization benefit in scenarios where the subordinate bonds in the underlying deals are completely written down.

A further consideration when analyzing re-REMICs is the pay structure of the re-REMIC. Typically, RMBS transactions use sequential structures, whereby the repayment of interest and principal are paid first to the most senior tranches and losses are allocated in a reverse sequential order. However, other structures exist, including pro rata pay structures. In these structures, losses are attributed proportionally to each tranche, thus requiring significantly more credit enhancement than sequential-pay structures. In addition, the pro rata pay structure is shown to be highly sensitive to the CPR and loss timing assumptions used in modeling. Fitch is able to analyze re-REMIC structures that are both pro rata pay and sequential pay, as well as other variations, through cash flow modeling. Therefore, Fitch-rated re-REMIC transactions reflect the appropriate credit support for re-REMIC bonds, according to the deal structures from both the underlying deals and the re-REMICs.

## Cash Flow Methodology

Cash flow methodology is used to appropriately incorporate the impact of expected losses and stresses on the bond(s) pledged into the re-REMIC and to accurately assess this impact on the re-REMIC structure. The cash flow approach used to analyze re-REMICs is consistent with Fitch Research titled “U.S. RMBS Cash Flow Modeling

Criteria,” dated Aug. 20, 2009, available on Fitch’s web site at [www.fitchratings.com](http://www.fitchratings.com)

Fitch analyzes re-REMIC structures using Intex, an industry standard cash flow technology for cash flow modeling in both its new issue and surveillance rating process. Fitch’s approach incorporates an analysis of the cash flow to the pledged bonds based on the underlying deal structures and an analysis of the cash flow to the re-REMIC bonds based on the re-REMIC structures. Assumptions such as CPR and loss curves are detailed in “U.S. RMBS Cash Flow Analysis Criteria,” dated Aug. 20, 2009, available on Fitch’s web site at [www.fitchratings.com](http://www.fitchratings.com). Differing from newly originated loans, deals supporting re-REMICs generally have demonstrated a period of performance. The curves used in the Intex cash flow modeling will be adjusted to the underlying deals’ loan seasoning, historical prepay speed, and most recent delinquency status. A workbook to convert the base curve for each underlying deal is available on Fitch’s web site at [www.fitchratings.com](http://www.fitchratings.com) under Cash Flow Assumptions Workbook.

### **Analysis of Larger Numbers of Bonds Into One Structure**

An additional analytical process is used for certain types of larger RMBS-backed securitized structures. This process is entered into for transactions with capital structures containing more than five underlying RMBS assets pledged into the new security, whereby there is cross-collateralization among the assets. In these cases, Fitch utilizes criteria specifically designed for the analysis of larger pools of structured finance assets using a hybrid approach that incorporates analyses from Fitch’s RMBS and Structured Credit groups.

Similar to re-REMICs backed by one or fewer RMBS bonds, Fitch’s RMBS rating group reviews the underlying mortgage pools supporting the RMBS bonds pledged to the re-REMIC using ResiLogic and Intex cash flow modeling. The RMBS analysis determines cash flows available to the re-REMIC from each pledged bond base on ‘AAA’ and lower stresses. These results are utilized by Fitch’s Structured Credit group to assess additional risk factors inherent in structured finance (SF) CDO portfolios. Factors include higher exposure to systemic risk and typically high concentrations in terms of sector and vintage, all of which lead to higher default correlation. The approach also takes into account the propensity for low recoveries upon default, particularly for thin tranches. The approach was developed with the recent underperformance of U.S. SF CDOs in mind and is applicable to CDOs referencing all types of SF assets. Fitch’s report titled “Global Rating Criteria for Structured Finance CDOs,” dated Dec. 16, 2008 (*available on Fitch’s web site at [www.fitchratings.com](http://www.fitchratings.com)*), details the analytical approach for these assets.

The analytical tool used for analyzing such assets is Fitch’s Portfolio Credit Model (PCM). In the PCM, the probability of a RMBS SF tranche defaulting is driven by its current rating, sector, and vintage. In the event of a default of a SF security, Fitch believes that the most appropriate determinant for the recovery of the tranche is its position in the liability structure of its respective transaction and its thickness relative to the original size of the portfolio. Typically, the hybrid approach will result in higher credit enhancement than the RMBS-only analysis due to the effect of negative pooling.

When analyzing a single re-securitization structure backed by a large number of RMBS bonds, an additional analysis using the pure CDO approach may be utilized. Fitch’s Structured Credit group directly incorporates the bonds’ current ratings into its analytical approach using the PCM model. If Fitch’s RMBS group has current rating opinions on all the underlying securities in the new securitized structure, then this information is used as direct inputs into the PCM model. However, for significantly larger transactions of this type, whereby the RMBS group may not have a current rating opinion on all the underlying assets, then PCM will accept other public information in

accordance with its published criteria. The output provided by the PCM approach enables Fitch to compare its credit enhancement by rating category to the transaction credit enhancement in the new structure and thereby assign ratings on the new securities.

## **Performance Analytics**

Fitch's fundamental surveillance methodology consists of estimating the expected mortgage pool loss with ResiLogic and performing cash flow analysis to determine the amount of mortgage pool loss each bond could sustain before incurring a bond principal loss. Thus, the tools used by the performance analytics team are the same as those used by the new issue ratings team in rating re-REMICs. The surveillance team analyzes the performance of re-REMICs in concert with any reviews of the underlying bonds from the re-REMIC and takes subsequent rating actions as appropriate. For more detail, refer to the surveillance criteria reports titled "U.S. Prime RMBS Surveillance Criteria," dated March 30, 2009, and "U.S. RMBS Alt-A Surveillance Criteria," dated Dec. 15, 2008, both of which are available on Fitch's web site at [www.fitchratings.com](http://www.fitchratings.com).

## Appendix: Exponential Moving Average Calculation

As discussed under the Roll-Rate Analysis section on page 2, the EMA is a statistical weighting process that places higher emphasis on more recent periods than a simple average, which weights all periods equally. This approach is intended to more accurately capture performance trends and is calculated as:

$$EMA = \alpha \times [p_1 + (1 - \alpha)p_2 + (1 - \alpha)^2p_3 + (1 - \alpha)^3p_4 + \dots]$$

Where:

$p_1$  to  $p_n$  = Monthly data observations

$\alpha$  = The constant equal to  $2/(N+1)$

N = Number of observations

The table below illustrates the differences between the EMA and a simple average for the last six months of net rolls to delinquency for the residential mortgage first-lien prime, Alt-A, and subprime sectors. Due to varying delinquency and recovery behavior in each of the sectors over this period, the effect of this methodology varies across these examples.

### Average Net Rolls to Delinquency, Simple Average vs. EMA Comparison

Period	Month	Prime Net Rolls (%)	Alt-A Net Rolls (%)	Subprime Net Rolls (%)	EMA Weights (%)	Simple Avg. Weights (%)
One	1/09	0.42	1.64	1.02	6.10	16.70
Two	2/09	0.64	1.73	1.01	8.60	16.70
Three	3/09	0.68	1.85	0.75	12.00	16.70
Four	4/0	0.30	0.67	(0.21)	16.80	16.70
Five	5/09	0.56	1.20	1.05	23.50	16.70
Six	6/09	0.56	1.34	1.48	32.90	16.70
Six Mo. Average – EMA		0.53	1.31	0.94		
Six Mo. Average – Simple Average		0.52	1.40	0.85		
EMA – Exponential moving average.						

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