

December 21, 2007

# Reviewing The Impact Of Rate Freezes On Rated U.S. First-Lien Subprime RMBS Under Two Scenarios

**Primary Credit Analysts:**

Greg Koniowka, New York (1) 212-438-5327; greg\_koniowka@standardandpoors.com  
Waqas I Shaikh, New York (1) 212-438-6318; waqas\_shaikh@standardandpoors.com  
Monica Perelmuter, New York (1) 212-438-6309; monica\_perelmuter@standardandpoors.com

**Secondary Credit Analysts:**

Jack Kahan, New York (1) 212-438-1622; jack\_kahan@standardandpoors.com  
Nancy Reeis, New York (1) 212-438-1643; nancy\_reeis@standardandpoors.com

## Table Of Contents

---

Examining A Break-Even Scenario

Assumptions Used For The Break-Even Scenario

Results For The Break-Even Scenario

Market-Value Risk

Examining The Adverse Selection Scenario

Assumptions Used For Adverse Selection Scenario

Results Of The Adverse Selection Scenario

Difficult To Predict Exact Ratings Implications

# Reviewing The Impact Of Rate Freezes On Rated U.S. First-Lien Subprime RMBS Under Two Scenarios

At what point would a U.S. first-lien subprime RMBS transaction incur the same level of losses under a rate freeze loan modification scenario as under a borrower default scenario? Which classes of a U.S. first-lien subprime RMBS transaction would be affected by potential adverse selection if the more creditworthy borrowers are refinanced?

In this article, Standard & Poor's Ratings Services provides potential responses to these two questions. To answer the first question, we will discuss a "break-even" scenario that examines the interplay between the modification percentage and recidivism rate (default rate) and determine under which scenario the reduced defaults offset loss of excess spread. And to answer the second question, we will discuss an "adverse-selection" scenario that explores the potential ratings implications that might result when the more creditworthy borrowers are refinanced and the less creditworthy borrowers remain in a transaction pool.

This marks the third and final article in our series discussing the potential ratings impact of the American Securitization Forum (ASF) Streamlined Foreclosure And Loss Avoidance Framework For Securitized Subprime Adjustable-Rate Mortgage (ARM) Loans (framework), which was released Dec. 6, 2007. Because this article refers to and builds on some of the concepts discussed in our previous articles, we encourage readers to review "Standard & Poor's Views On Freezing The Interest Rates Of U.S. Subprime ARMs" (first article) and "The Potential Effect Of Rate Freezes On S&P-Rated U.S. First-Lien Subprime RMBS" (second article), which were published Dec. 6, 2007, and Dec. 14, 2007, respectively, and are available on RatingsDirect and [www.standardandpoors.com](http://www.standardandpoors.com).

For both scenarios, Standard & Poor's continued to use the hypothetical subprime collateral pool from our second article in our analysis (see table 1).

**Table 1**

Hypothetical Subprime Collateral Pool	
Collateral characteristics	Percentage (%)
2/28 hybrid ARMs	67.10
3/27 hybrid ARMs	17.74
FICO < 660 (total pool)	81.97
FICO < 660 (2/28 and 3/27)	83.52
LTV > 87 (total pool)	17.90
LTV > 87 (2/28 and 3/27)	16.59
Owner-occupied (total pool)	95.98
Owner-occupied (2/28 and 3/27)	96.24

## Examining A Break-Even Scenario

At what point would a U.S. first-lien subprime RMBS transaction incur the same level of losses under a rate freeze loan modification scenario as under a borrower default scenario?

From the assumptions used in our break-even scenario, it appears that the senior class ('AAA') investor would be indifferent, from a principal and interest dollar loss perspective, between a rate-freeze loan modification or a borrower default. However, under a market value loss perspective, the senior class 'AAA' investor may suffer losses if forced to sell, or mark to market, as a result of ratings actions.

## Assumptions Used For The Break-Even Scenario

For our break-even analysis, we applied assumptions that correspond to our current market expectations for interest rate and voluntary prepayment rate assumptions. Our analysis incorporates the following additional assumptions:

- Only 2/28 and 3/27 subprime ARM loans are eligible for a rate-freeze loan modification (segments 2 and 3 of the framework);
- A 45% loss severity on non-modified loans and successful loan modifications (modified loans that do not default);
- A higher loss severity (15% greater) for unsuccessful loan modifications (those that result in a default);
- A lower probability of default for successful loan modifications;
- Initial borrower interest rate payments continue for five years beyond the reset date for 2/28 ARMs and for four years beyond the reset date for 3/27 ARMs; and
- The transaction remains sequential pay.

## Results For The Break-Even Scenario

A break-even scenario for the senior 'AAA' class occurs when the combination of the modification percentage and recidivism rate results in the capital structure absorbing the same amount of losses when loans are not modified (permitted to default) as when they are modified. Although multiple break-even scenarios may exist, we will provide and discuss one example. The time period for the break-even scenario spanned the life of the senior 'AAA' class in our analysis.

When conducting this break-even analysis, we compared various potential modification scenarios to our "base case," which assumed a 0% modification percentage. The results are summarized in table 2.

**Table 2**

Break-Even Scenario Analysis							
Scenario	Modified 2/28 and 3/27 loans (%)	Recidivism rate (%)	Foreclosure frequency (%)	Total losses (\$ mil.)	Total excess spread (\$ mil.)	Losses absorbed by the capital structure (\$ mil.)	Period in which the senior 'AAA' class paid off (mo.)
Base-case	0	0	43.51	85.0	66.8	18.2	60
Modification	50	20	38.89	76.0	58.3	17.7	62
Modification	50	25	39.14	76.5	58.2	18.2	62
Modification	50	30	39.38	76.9	58.2	18.8	62
Modification	50	40	39.89	77.9	58.1	19.8	64

When 50% of the segment 2 and 3 loans were modified, the capital structure absorbed a similar level of losses under a 25% recidivism rate compared to our base case. Under this scenario, when 50% of the eligible segment 2 and 3 loans were modified, the capital structure absorbed lower losses (than under the base case) until the recidivism rate

reached 25%, after which the capital structure's losses were higher than those under the base case.

Thus, in our analysis, the timing of, and impact to, the senior class 'AAA' ratings should be similar under the two scenarios (the first in cases where 50% of the segment 2 and 3 loans have been modified (their rates are frozen) and 25% of those modified loans subsequently default; and the second where, in lieu of receiving loan modifications, the borrowers default) when the 'AAA' classes pay off in roughly the same period and the level and timing of losses are similar under both scenarios.

## Market-Value Risk

The timing and magnitude of rating actions on the lower-rated classes could affect the market value of the senior class 'AAA' securities. Senior class 'AAA' rating actions may occur for the following reasons:

- Lower-rated classes have been downgraded and ratio-testing assumptions applied.
- Losses are experienced after the release of credit support.

For more information regarding our surveillance assumptions with respect to lower-rated classes experiencing downgrades (ratio-testing), please see our article "612 U.S. Subprime RMBS Classes Put On Watch Neg; Methodology Revisions Announced," which was published July 11, 2007, and is available on RatingsDirect and [www.standardandpoors.com](http://www.standardandpoors.com).

## Examining The Adverse Selection Scenario

Which classes of a U.S. first-lien subprime RMBS transaction would be affected by potential adverse selection if the more creditworthy borrowers are refinanced?

Building upon the analysis we conducted in the second article, we further tested the impact of this type of adverse selection on the capital structure for our hypothetical transaction. For purposes of this article, adverse selection should be viewed as the potential increased default risk associated with the lower credit-quality of the remaining loans after the segment 1 borrowers are refinanced.

## Assumptions Used For Adverse Selection Scenario

Our adverse selection analysis incorporates the following assumptions:

- Original FICO scores used to identify borrowers for segments 1, 2, and 3;
- Segment 1 borrowers identified as those who may be eligible for FHA, FHA Secure, and loan products available via other origination channels through FICO, mortgage loan balance, and LTV parameters;
- Segment 1 borrowers prepay within six months of the original rate-reset date;
- Only 2/28 and 3/27 subprime ARMs are eligible for a rate-freeze loan modification (segments 2 and 3 of the framework);
- Initial borrower interest rate payments continue for five years beyond the reset date for 2/28 ARMs and for four years beyond the reset date for 3/27 ARMs;
- 45% of 2/28 and 3/27 ARM loans received rate-freeze loan modifications;
- Recidivism rates of 0%, 10%, and 25% were used for the segment 2 and 3 borrowers whose loans were

modified;

- Current probability of default assumptions for non-modified loans and unsuccessful loan modifications (those that result in a default);
- A lower probability of default for successful loan modifications (modified loans that do not default);
- Current loss severity assumptions for non-modified loans and successful loan modifications (modified loans that do not default);
- A higher loss severity (15% greater) for unsuccessful loan modifications (those that result in a default);
- Current market expectations for voluntary prepayment rate assumptions; and
- Transaction remains sequential pay.

## Results Of The Adverse Selection Scenario

The ability for borrowers, particularly subprime borrowers, to refinance their 2/28 and 3/27 hybrid ARMs will largely depend on market conditions in the future. Should the mortgage market expand to provide liquidity further down the credit spectrum, then the number of borrowers falling into segment 1 may increase. Conversely, a contraction of liquidity to subprime borrowers may reduce the number of segment 1 borrowers.

The percentage of loans in segment 1 should increase when refinancing options are available to a wider range of borrowers in the credit spectrum. As such, the probability of default associated with the segment 1 borrowers should increase, which may result in fewer losses experienced higher up in the capital structure because these loans are refinanced and result in prepayments. However, as more loans fall into segment 1, the remaining loans in a transaction pool may have a lower credit profile. This may result in higher probabilities of defaults and losses on the remaining loans after the segment 1 borrowers are refinanced and principal prepayments flow through the transaction.

To show how these changes in the credit markets, and the resulting impact on the ability of borrowers to refinance, would affect the capital structure for our hypothetical transaction, we performed a sensitivity analysis by adjusting the minimum FICO threshold for a borrower to qualify for segment 1. We began our analysis with a FICO threshold of 660, which resulted in 15% of the 2/28 and 3/27 loans meeting our assumptions used to identify segment 1. Lowering the FICO threshold below 660 shifts more borrowers into segment 1 and reduces the overall borrower quality of the loans remaining in segments 2 and 3, but in doing so also reduces the cumulative losses realized as less credit-worthy borrowers are able to refinance than remain in the pool as a credit risk. In our analysis, as the percentage of borrowers qualifying for refinancings under segment 1 increased, the effects more than offset the decrease in the total borrower credit quality associated with segments 2 and 3, resulting in a decreased potential for ratings implications. For our hypothetical pool, the FICO threshold would need to be reduced to below 620 in order for 35% of the 2/28 and 3/27 ARM borrowers to qualify for segment 1. However, should a small number of borrowers qualify for refinancing under segment 1, this may not fully offset the decrease in the total borrower credit quality associated with the remaining loans, which may result in ratings implications.

We ran scenarios assuming that 15%, 25%, and 35% of the borrowers would be refinanced under segment 1. The changes in the borrower quality of segment 1 versus segments 2 and 3 were captured by re-weighting the default and loss severity assumptions associated with each of the three segments. We calibrated the base-case scenario so that none of the classes in the hypothetical transaction experience losses. This also allows us to isolate the potential impact of increased default risk associated with the lower credit quality of the remaining loans after the segment 1

borrowers are refinanced.

The potential ratings implications on the hypothetical transaction due to the refinancing of the higher credit-quality 2/28 and 3/27 loans in our analysis are shown in tables 3, 4, and 5 for each of our assumed recidivism rates for the loans that were modified. A one-notch positive ratings action is indicated by ('+1'), no ratings implication is indicated by ('0'), and a one-notch negative ratings action is indicated by ('-1').

**Table 3**

<b>Scenario 1: 25% Recidivism Rate</b>			
	<b>Segment 1 (%)</b>		
<b>Benchmark rating</b>	<b>15</b>	<b>25</b>	<b>35</b>
AAA	0	0	0
AA+	0	0	0
AA	(-1)	0	0
AA-	(-1)	0	(+1)
A+	(-1)	(-1)	0
A	(-1)	(-1)	0
A-	(-1)	(-1)	0
BBB+	(-1)	(-1)	0
BBB	(-1)	(-1)	(-1)
BBB-	(-1)	0	0
BB+	(-1)	0	0

**Table 4**

<b>Scenario 2: 10% Recidivism Rate</b>			
	<b>Segment 1 (%)</b>		
<b>Benchmark rating</b>	<b>15</b>	<b>25</b>	<b>35</b>
AAA	0	0	0
AA+	0	0	(+1)
AA	0	0	0
AA-	0	0	(+1)
A+	(-1)	0	0
A	(-1)	0	0
A-	(-1)	0	(+1)
BBB+	(-1)	0	(+1)
BBB	(-1)	0	0
BBB-	0	0	0
BB+	0	0	0

**Table 5**

<b>Scenario 3: 0% Recidivism Rate</b>			
	<b>Segment 1 (%)</b>		
<b>Benchmark rating</b>	<b>15</b>	<b>25</b>	<b>35</b>
AAA	0	0	0
AA+	0	0	(+1)

**Table 5**

Scenario 3: 0% Recidivism Rate(cont.)			
AA	0	0	0
AA-	0	0	(+1)
A+	0	0	0
A	0	0	0
A-	0	0	(+1)
BBB+	0	0	(+1)
BBB	(-1)	0	0
BBB-	0	0	0
BB+	0	0	0

Given that a large percentage of borrowers in the hypothetical pool hold 2/28 ARM loans, the prepayments associated with the increased refinancing activity may benefit the more senior classes, as they may receive faster and greater principal payments than initially expected. In our analysis, when successively higher percentages of 2/28 and 3/27 subprime ARMs are refinanced, the impact on the structure becomes less pronounced as less creditworthy borrowers (those with FICO scores below 660) are able to refinance rather than remain in the pool as a credit risk. However, in our analysis, should the credit quality of the remaining loans (following the refinancing of the segment 1 loans) decrease compared to the base case, this may result in an increased risk of default, which would lead to a higher foreclosure frequency for the segment 3 borrowers. Although the probability of default may be higher, the total amount of losses that would be absorbed by the remaining classes may be lower, and hence, may mitigate potential ratings actions. The ratings impact may vary based on the percentage of borrowers refinanced under segment 1 and the total losses expected on the remaining loans in the transaction pool.

## Difficult To Predict Exact Ratings Implications

Questions have arisen in the market about whether or not loan modifications under the framework would minimize losses to U.S. first-lien subprime RMBS investors. In our view, the answer depends on a variety of factors, including the percentage of loans modified, the recidivism rate (default rate on modified loans), the default rate on the non-modified loans, the percentage of loans refinanced and the voluntary prepayment rate, loss severity, and the timing of losses. In our series of articles, we presented the results of several analyses, including isolating the impact of freezing rates, adding an adverse selection component, and running a break-even scenario with respect to losses incurred until the senior class is paid in full.

Some ratings actions may occur for other reasons, including continued deteriorating performance. Although it is difficult to predict the exact ramifications of the application of the framework, Standard & Poor's has already begun to consider the ratings implications, and we will continue to adjust our scenarios and analyses to incorporate new information as we receive it.

Copyright © 2008, Standard & Poors, a division of The McGraw-Hill Companies, Inc. (S&P?). S&P and/or its third party licensors have exclusive proprietary rights in the data or information provided herein. This data/information may only be used internally for business purposes and shall not be used for any unlawful or unauthorized purposes. Dissemination, distribution or reproduction of this data/information in any form is strictly prohibited except with the prior written permission of S&P. Because of the possibility of human or mechanical error by S&P, its affiliates or its third party licensors, S&P, its affiliates and its third party licensors do not guarantee the accuracy, adequacy, completeness or availability of any information and is not responsible for any errors or omissions or for the results obtained from the use of such information. S&P GIVES NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE. In no event shall S&P, its affiliates and its third party licensors be liable for any direct, indirect, special or consequential damages in connection with subscriber's or others' use of the data/information contained herein. Access to the data or information contained herein is subject to termination in the event any agreement with a third-party of information or software is terminated.

Analytic services provided by Standard & Poor's Ratings Services (Ratings Services) are the result of separate activities designed to preserve the independence and objectivity of ratings opinions. The credit ratings and observations contained herein are solely statements of opinion and not statements of fact or recommendations to purchase, hold, or sell any securities or make any other investment decisions. Accordingly, any user of the information contained herein should not rely on any credit rating or other opinion contained herein in making any investment decision. Ratings are based on information received by Ratings Services. Other divisions of Standard & Poor's may have information that is not available to Ratings Services. Standard & Poor's has established policies and procedures to maintain the confidentiality of non-public information received during the ratings process.

Ratings Services receives compensation for its ratings. Such compensation is normally paid either by the issuers of such securities or third parties participating in marketing the securities. While Standard & Poor's reserves the right to disseminate the rating, it receives no payment for doing so, except for subscriptions to its publications. Additional information about our ratings fees is available at [www.standardandpoors.com/usratingsfees](http://www.standardandpoors.com/usratingsfees).

Any Passwords/user IDs issued by S&P to users are single user-dedicated and may ONLY be used by the individual to whom they have been assigned. No sharing of passwords/user IDs and no simultaneous access via the same password/user ID is permitted. To reprint, translate, or use the data or information other than as provided herein, contact Client Services, 55 Water Street, New York, NY 10041; (1)212.438.9823 or by e-mail to: [research\\_request@standardandpoors.com](mailto:research_request@standardandpoors.com).