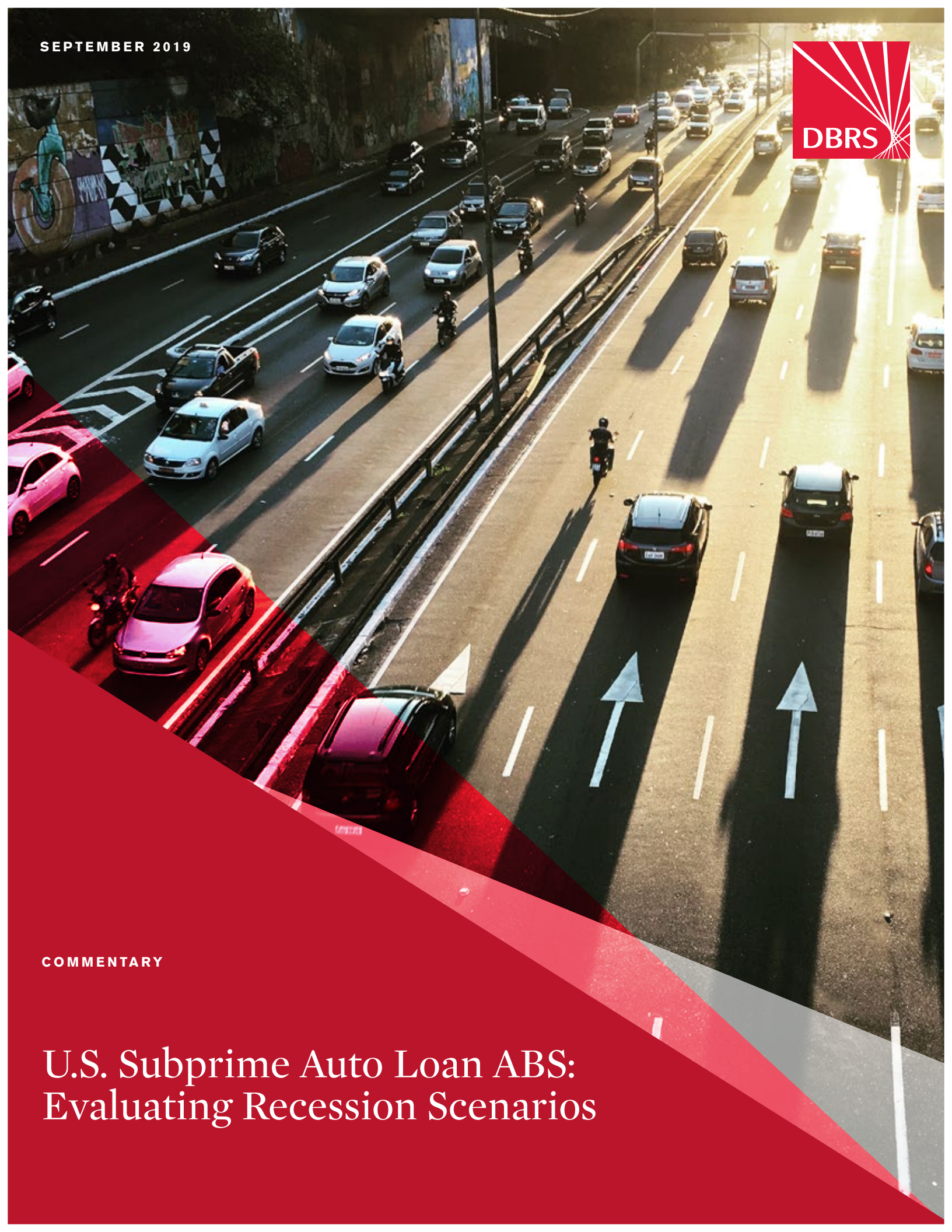


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COMMENTARY

U.S. Subprime Auto Loan ABS: Evaluating Recession Scenarios

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U.S. economic growth has slowed in the second quarter of 2019 along with general declines in business investment, manufacturing activity and capacity utilization. While consumer spending and employment have remained robust, DBRS acknowledges that recent periods of yield curve inversion and increasing market volatility are indications that recession warnings are on the rise.¹ As these signs of a slowdown in the U.S. economy are expected to continue, the question arises as to how subprime auto loan asset-backed security (ABS) transactions could perform in a future recessionary economic environment. As observed during the recessionary period from December 2007 to June 2009 (Great Recession), collateral for subprime auto loan ABS transactions outstanding experienced an increase in losses. In this commentary, DBRS evaluates the impact of hypothetical recession scenarios on credit enhancement coverage of losses for recently issued subprime auto loan ABS transactions as well as the potential impact on ratings of those transactions. DBRS simulated these recession scenarios for six DBRS-rated transactions issued in early 2019, each from a unique subprime auto loan lender. These transactions are collectively referred to as the Sample Transactions. To simulate a recessionary environment (the Recession Scenario), DBRS assumed an increase in cumulative net losses (CNL) from DBRS's Base Case CNL (original CNL at the time of the initial rating), which was assumed to be similar to the increase in losses experienced by subprime auto lenders during the Great Recession.

Summary Highlights

- Under the hypothetical Recession Scenarios, DBRS found that credit enhancement (excluding excess spread) coverage of remaining expected losses, as determined by a multiple calculation, decreased at the inception of the hypothetical recession for all of the Sample Transactions. The senior debt tranches experienced a swift deleveraging whereas some of the subordinated debt tranches could be at risk for a potential downgrade during the hypothetical Recession Scenarios.
- After the initial decline in the multiple calculations at inception of the hypothetical Recession Scenarios, the deleveraging nature of the sequential pay structures of the transactions resulted in the calculated multiples for the analyzed debt tranches to move into the multiple range corresponding to the original rating of the debt tranche over varying lengths of time. The multiples for some of the debt tranches originally rated BB were weaker and moved into the BB range at a slower pace. As a result, those tranches would be more likely to be considered for a potential downgrade as compared to the more senior debt tranches where the structures delevered more quickly and the multiples reached the range corresponding to the original rating over a generally shorter period.
- Over the life of the Sample Transactions, the credit enhancement multiples for all of the debt tranches analyzed, some on a delayed basis, ultimately moved into the AAA rating multiple range.
- In each of the Recession Scenarios, the structure of each of the transactions provided sufficient credit enhancement for timely payment of interest and ultimate payment of principal of all debt tranches.

Recession Simulation Approach

The Sample Transactions were grouped into two categories based on the Base Case CNL ranges. Group 1 consisted of four Sample Transactions with a Base Case CNL in the range of 10% to 20%. DBRS determined a percentage increase (CNL Increase) in the Base Case CNL corresponding to an observed increase in losses during the Great Recession for transactions with original expected losses in a similar range. The CNL Increase for Group 1 was 50%. Group 2 was composed of the remaining two Sample Transactions, which had collateral pools with deeper subprime obligors and, as a result, had Base Case CNLs greater than 20%. Given the higher expected losses for Group 2, the hypothetical CNL Increase for these transactions was 25%. DBRS also assumed that subprime auto loan pools would experience a decline in monthly voluntary prepayment rates (Prepayment Decrease), as an accommodation to the CNL Increase. Although lower prepayment rates can somewhat benefit the analysis as additional collateral would generate interest income, it also can extend the life of the transactions.

Similar to the eighteen-month duration of the Great Recession, DBRS simulated an eighteen-month recessionary period beginning in Month 7 and ending in Month 24 for each of the Sample Transactions. The additional recessionary losses for each transaction were modelled in Month 7 through Month 24 based on the DBRS original base case loss timing curve assumptions. The CNL Increase effectively grossed up the base case losses in the eighteen-month recession period in order to incorporate the entire dollar amount of the CNL Increase during this period. Other assumptions were kept the same as originally determined at the time the transaction was initially rated. The Recession Scenario assumptions are provided in Exhibit 1.

1. DBRS Quarterly Macro Update - North America, September 2019.

Exhibit 1: Summary of Recession Scenario Assumptions

	Sample Transactions	Base Case CNL	CNL Increase	Recession Period	Prepayment Decrease	Prepayment Decrease Period
Group 1	#1, #2, #3, #4	10.00%-20.00%	50%	Months 7-24	50%	Month 1 through transaction life
Group 2	#5, #6	> 20.00%	25%	Months 7-24	50%	

For each Sample Transaction, cash flows were run for the Base Case and Recession Scenarios, and the ratio of remaining hard credit enhancement to expected remaining losses was calculated monthly for each analyzed debt tranche, referred to as the Monthly Transaction Multiple (MTM). Remaining hard credit enhancement consists of available subordination, overcollateralization (OC) and amounts held in the reserve account for each respective month in the cash flow run. In addition to hard credit enhancement, each of the Sample Transactions benefited from excess spread; however, for the purpose of this commentary, remaining excess spread was not included in the calculation of remaining credit enhancement as excess spread may be released from the deal if not used to cover losses in the month it was generated. This is a conservative approach, as the MTMs reflect how only hard credit enhancement covers expected remaining losses.

The graphs in the Appendix show the calculated MTMs for the Base Case and Recession Scenarios for each debt tranche,² rated AAA through BB,³ over the life of the transactions. The MTMs were compared with the range of multiples used to derive the applicable rating stress CNLs when analyzing subprime auto loan ABS transactions, as provided in the DBRS methodology *Rating U.S. Retail Auto Loan Securitizations*. These multiple ranges, shown in Exhibit 2 below, are guidelines and may differ across transactions in a rating analysis.

At transaction inception, MTMs for some of the debt tranches are below the lower boundaries of the multiple ranges corresponding to the original debt tranche ratings as shown in the Appendix. The driving factor for the multiples being lower than the boundary is that expected losses are higher for some of the Sample Transactions. A secondary factor is that the DBRS recession simulation approach does not include excess spread as part of credit enhancement. Additionally, the applicable multiple ranges for the debt tranches will be commensurate with the higher Base Case CNLs for those Sample Transactions.

Exhibit 2: U.S. Retail Auto Loan ABS Multiple Ranges for Subprime Collateral

Rating	Subprime
AAA	2.50 – 4.00
AA	2.25 – 3.50
A	2.00 – 3.00
BBB	1.50 – 2.25
BB	1.25 – 1.75

Source: DBRS

The structural mechanics of each Sample Transaction are similar to many subprime auto loan ABS transactions. Interest and principal due are paid on a sequential basis to the holders of the ABS debt tranches. The debt tranches outstanding pay down sequentially in priority, typically on a monthly basis, and excess spread generated is used early in the life of the transaction to pay down the notes and build the OC to each transaction's required OC level, typically on a monthly basis. In addition, since subordination of the lower rated debt tranches and the reserve account are non-amortizing, the percentage of those components increase as a percentage of an amortizing pool balance.

2. Each debt tranche can include "high" and "low" designations. For example, the AA-rated debt tranche includes any tranches rated AA (high) and AA (low).

3. Two of the six Sample Transactions include a B-rated tranche. The MTMs for the B-rated tranches were not calculated, as the B range of multiples used to derive rating stress CNLs, while lower than the BB range, can be subject to additional quantitative and qualitative factors.

Detailed Findings

- Given the DBRS assumption that the recession begins in Month 7, the results of the Base Case and the Recession Scenarios during the first six months of each transaction were similar. Each transaction was able to build up OC and increase hard credit enhancement as illustrated by the increase in the MTMs during the first six months.
- With the Recession Scenarios beginning in Month 7, the following observations were made:
 - MTMs initially dropped as a result of the increase in losses for the Recession Scenarios, as compared with the remaining hard credit enhancement for the Recession Scenarios.
 - The MTMs, while lower than in the Base Case scenarios, increased in each subsequent month through the remaining life of each Sample Transaction, as (1) the deleveraging structures resulted in growth in the percentage of hard credit enhancement, particularly as a result of the subordination component, as compared with the amortizing pool and (2) the growth in remaining hard credit enhancement was able to offset some of the increased losses.
 - The AAA-rated debt tranches in Group 1 did not experience MTMs below the lower boundary of the AAA multiple range.
 - The AAA-rated debt tranches in Group 2 moved below the lower boundary of the AAA multiple range, however, these multiples returned to the AAA range within four months. If excess spread had been included as part of credit enhancement, it is likely that the multiples would have stayed within the AAA range, leading to stable ratings over the debt tranche life.
 - The other debt tranches in both Group 1 and Group 2 experienced a reduction in the MTMs below the range of multiples for the original rating of the debt tranches, putting them at greater risk of negative rating action. The severity of the decrease in the MTMs was more pronounced for the lower-rated debt tranches.
 - The MTMs for the AAA-rated debt tranches through the BBB-rated debt tranches rose into the multiple range of the original rating of the debt tranche within four to 14 months of the inception of the Recession Scenario. The multiples for the BB-rated debt tranches moved into the BB range within ten to 36 months of the beginning of the Recession Scenario.
 - The MTMs for the analyzed debt tranches ultimately rose into the AAA multiple range with the more subordinate debt tranches achieving this level at the later stages of the transactions.
- In the Recession Scenarios for the Sample Transactions, interest and principal were paid in full for all debt tranches (including B-rated tranches that were not analyzed in this commentary).

Conclusion

Subprime auto loan transactions with sequential pay structures may experience a decrease in credit enhancement coverage over the life of the transaction as result of increases in expected losses during stress consistent with the Great Recession. Yet the deleveraging nature of the structures can lead to increases in credit enhancement over time that can offset the rise in losses, which may be a contributing factor to the relative stability of ratings in the sector.

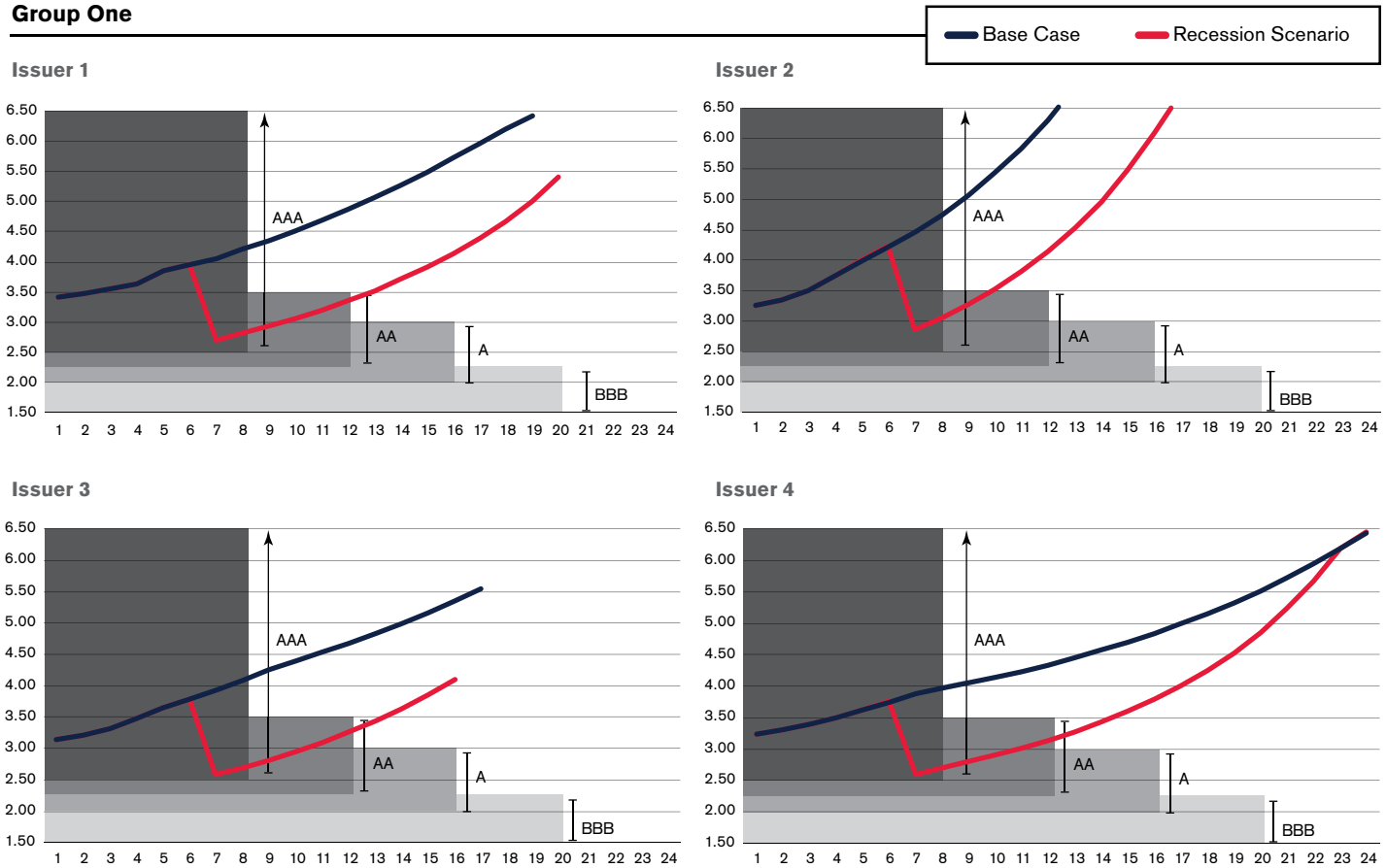
As signs of a U.S. recession spread, increases in ABS collateral losses may materialize at the time of deteriorating economic conditions. The analysis of the Sample Transactions performed indicated that an increase in losses on subprime auto loan collateral similar to the levels experienced during the Great Recession could increase the risk of downgrades in subprime auto loan ABS transactions, particularly for debt tranches rated below AAA. Additionally, the risk of downgrade grew with each increasingly subordinated debt tranche. However, the DBRS hypothetical 18-month simulation resulted in the debt tranches being able to withstand the increase in losses. The structural protections built into the transactions, and credit enhancement coverage levels of the debt tranches resulted in the MTMs returning to levels associated with the original rating over a four- to 36-month period from recession inception. Further, as the transactions delevered, the MTMs reached levels commensurate with rating categories higher than the original ratings. Ultimately, credit enhancement coverage levels of the debt tranches entered the AAA range of credit enhancement as the most senior debt tranches paid down and credit enhancement was built. The results of the analysis take into account one recessionary period over a defined period of time during the life of the transactions. Prolonged recessionary periods or additional economic downturns could have a significant effect on the results. Additionally, while the analysis indicates that certain ratings may be at risk for downgrade as a result of a degradation of credit enhancement coverage levels, additional analytical factors may be considered in the rating action decision. Overall, the deleveraging feature of these transactions can generally absorb losses higher than the base case expectations, which has led to rating stability in the sector.

Appendix

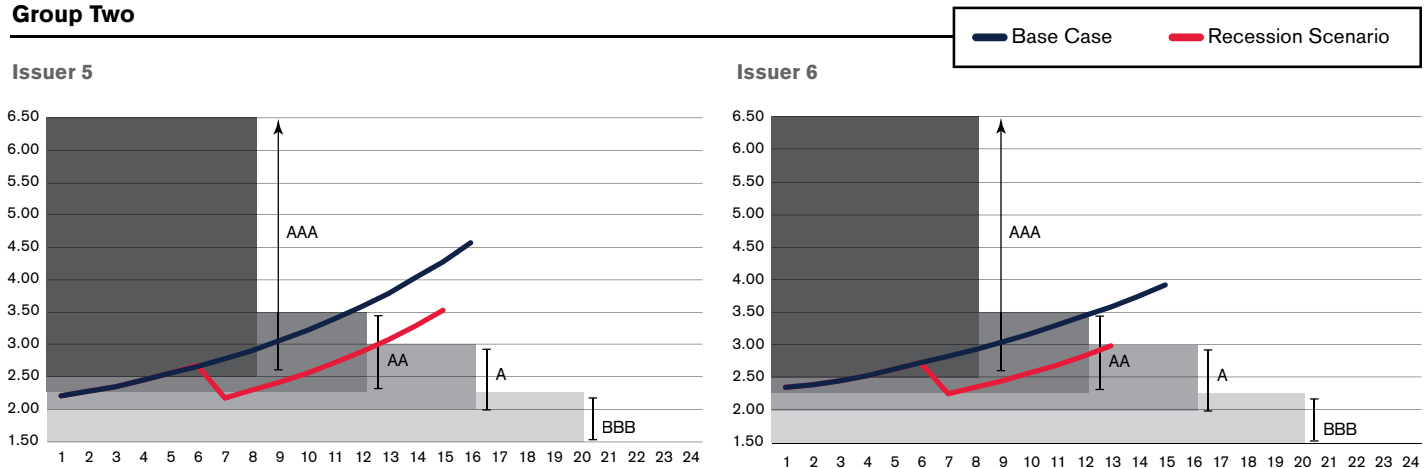
AAA-Rated Debt Tranches: In Group 1, the MTMs for the AAA-rated debt tranches did not move below the lower boundary of the AAA range with the onset of the Recession Scenario in Month 7. The OC build, amounts in the reserve account and subordination of the lower rated debt tranches more than offset the expected remaining losses by a factor of over 2.50 times (x) for the entire period of the Recession Scenario.

In Group 2, the MTMs for the AAA-rated debt tranches moved below the lower boundary of the AAA range with the onset of the recession losses in Month 7. The multiples moved back into the AAA range within four months, as the deleveraging payment structures led to a continued build in remaining hard credit enhancement as compared to remaining expected losses.

Group One



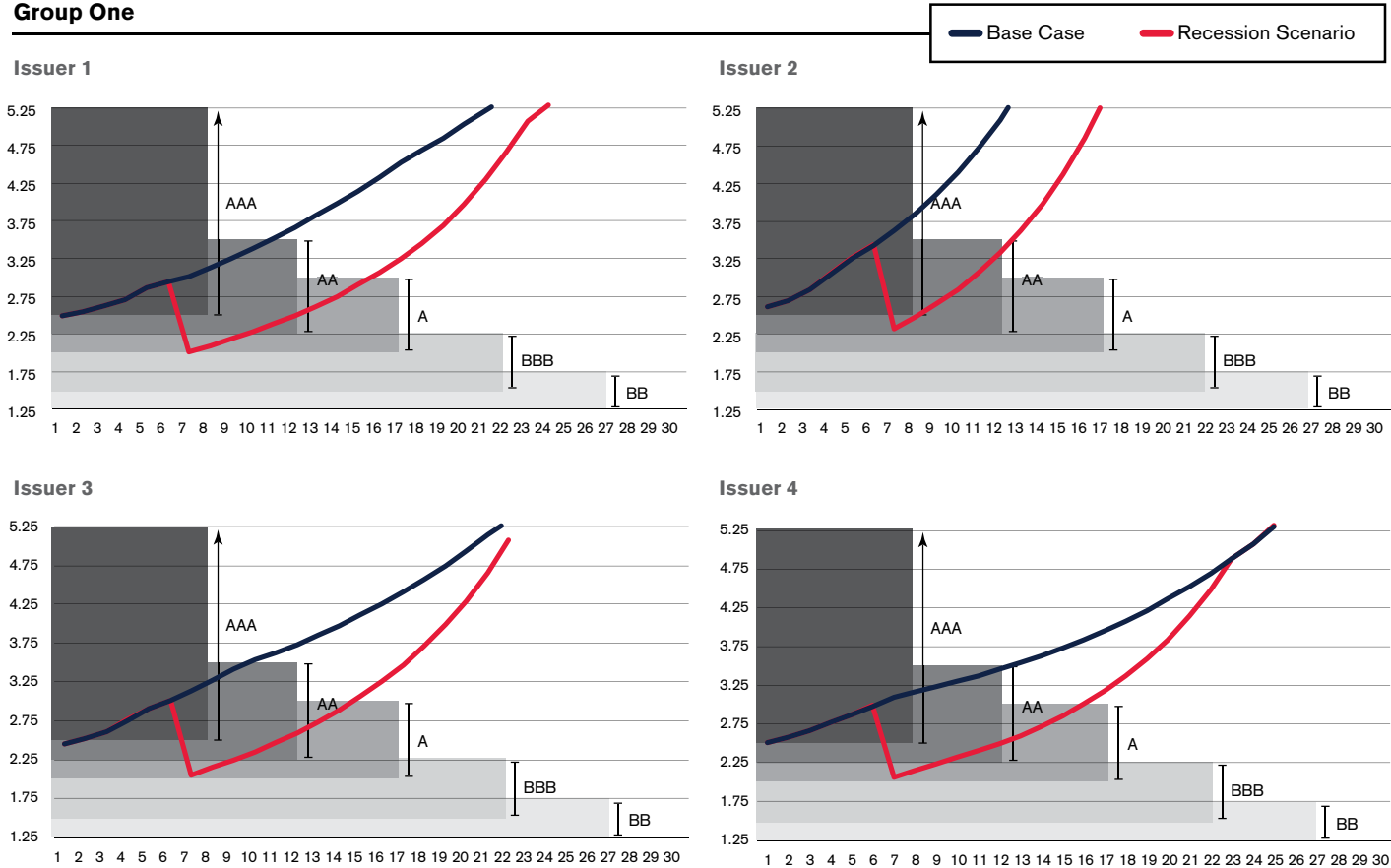
Group Two



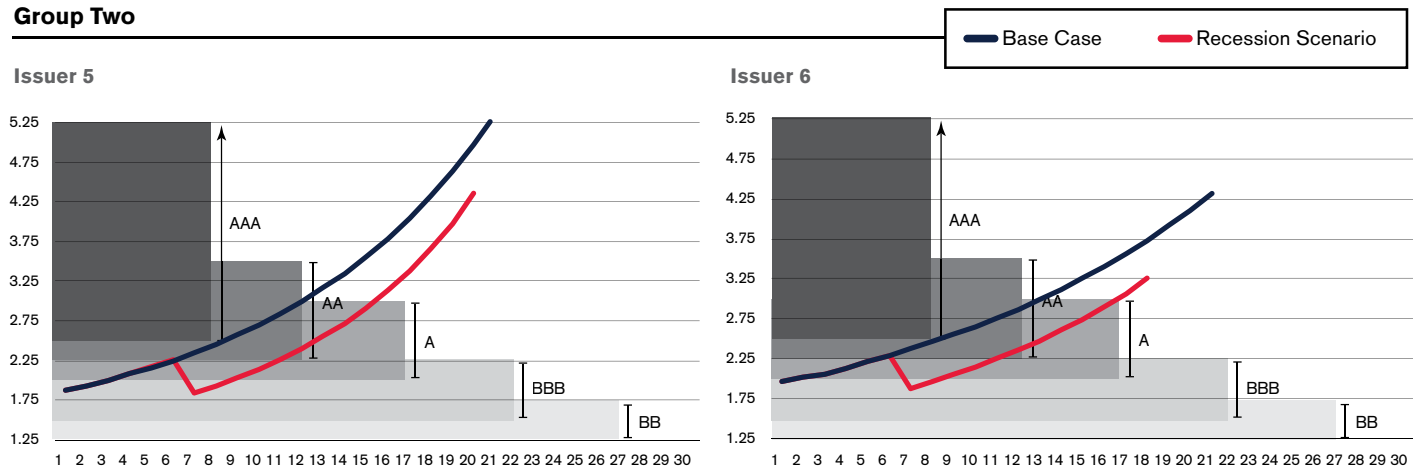
AA-Rated Debt Tranches

- Beginning in Month 7 given the higher recession losses, the Group 1 multiples declined to the lower boundary of the A range of 2.00x, with the exception of the multiple for Issuer #2, which moved to the AA range during the recession simulation. The multiples for Group #1 moved into the AAA range by Month 12.
- For Group 2, the MTMs did not begin in the AA range in Month 1 but moved into the range by Month 6, as OC increased in the early months of the transactions. With the onset of the recession losses in Month 7, the MTMs immediately moved below the AA range of multiples into the BBB range but returned to the AA range by Month 11 and Month 12, respectively, and into the AAA range by Month 13 and Month 14, respectively. This compares with the timing of the Base Case multiples, which moved into the AAA range in Month 9 for both transactions.

Group One



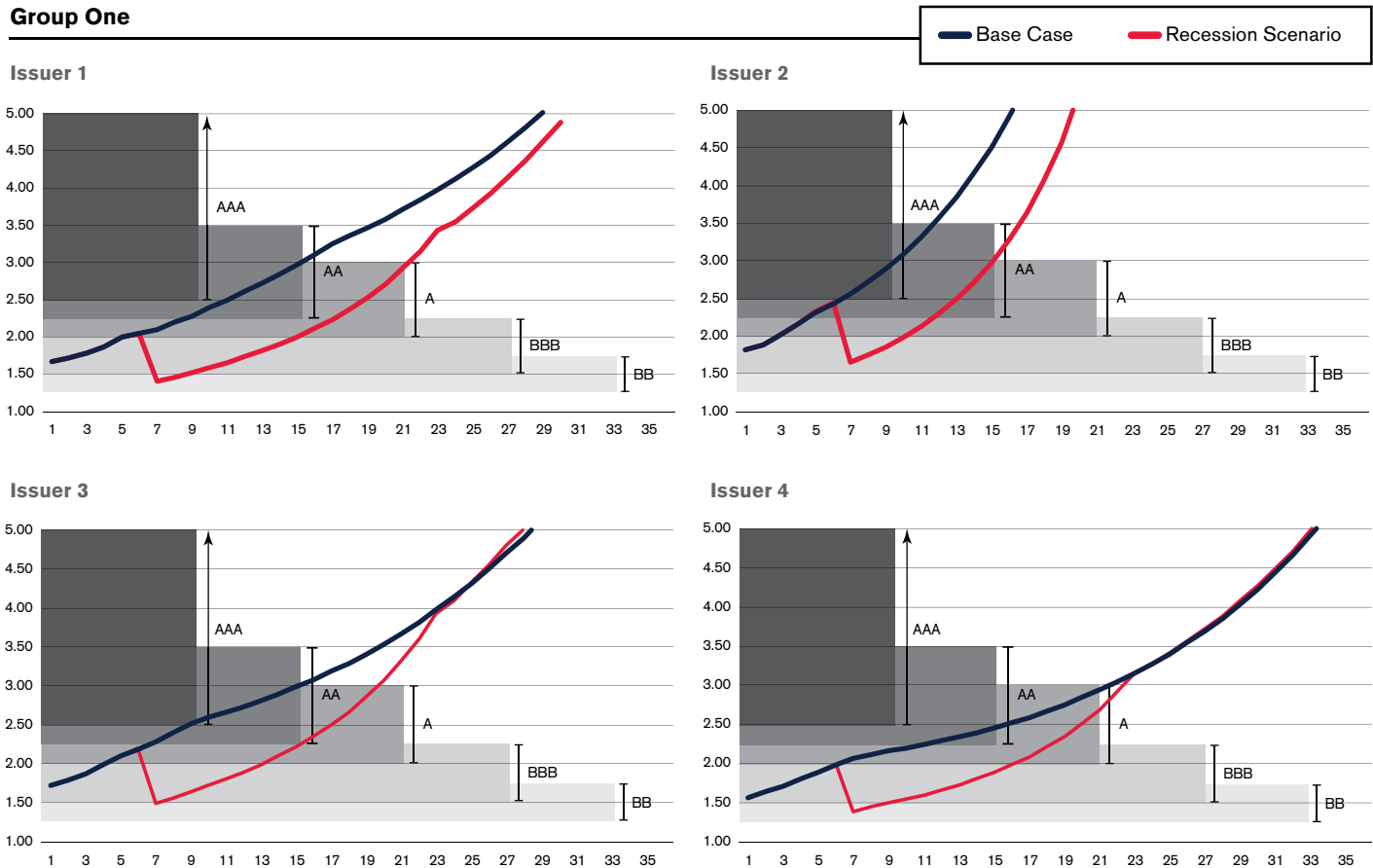
Group Two



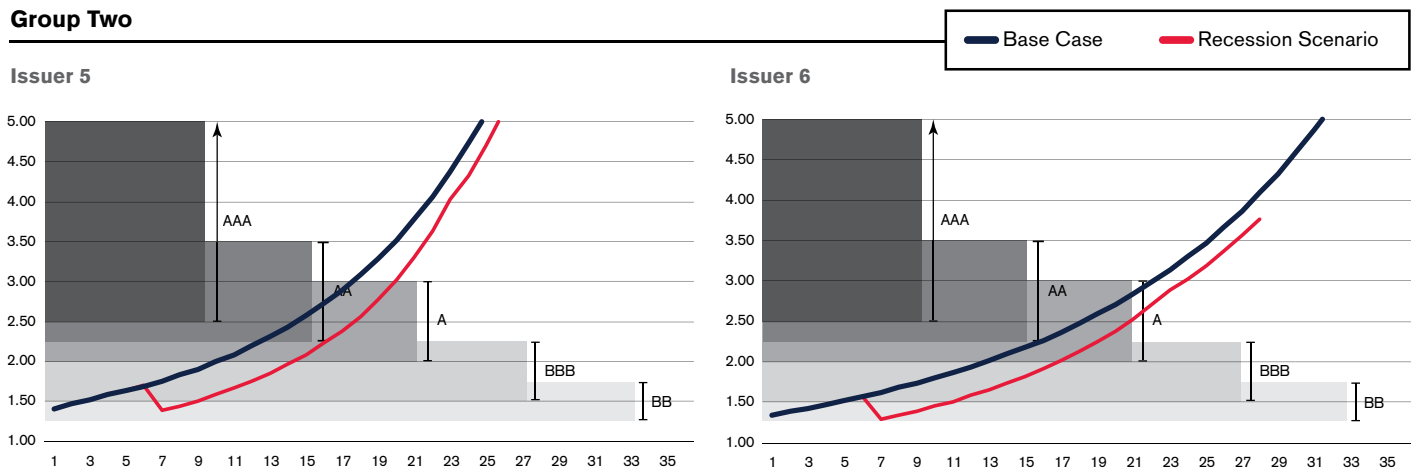
A-Rated Debt Tranches

- In Group #1, given that excess spread is not included, the MTMs did not start Month 1 in the A range but reached these levels through buildup of OC by Month 6. The recession simulation in Month 7 resulted in the multiples declining into the BBB and BB ranges, with a subsequent return to the A range between Month 11 and Month 17. The multiples eventually moved into the AAA range between Month 14 and Month 20 as the transactions built OC and delevered. The Base Case multiples moved into the AAA range between Month 7 and Month 16.
- In Group #2, the MTMs exhibited a similar pattern, but reached the BBB range, not the A range as with Group #1, in Month 6 and then moved into the BB range in Month 7 with the recession simulation. The MTMs moved back into the A range by Month 15 and Month 17, respectively, achieving the lower end of the AAA range multiples by Month 18 and Month 21. The Base Case multiples moved into the AAA range in Month 15 and Month 19, respectively.

Group One



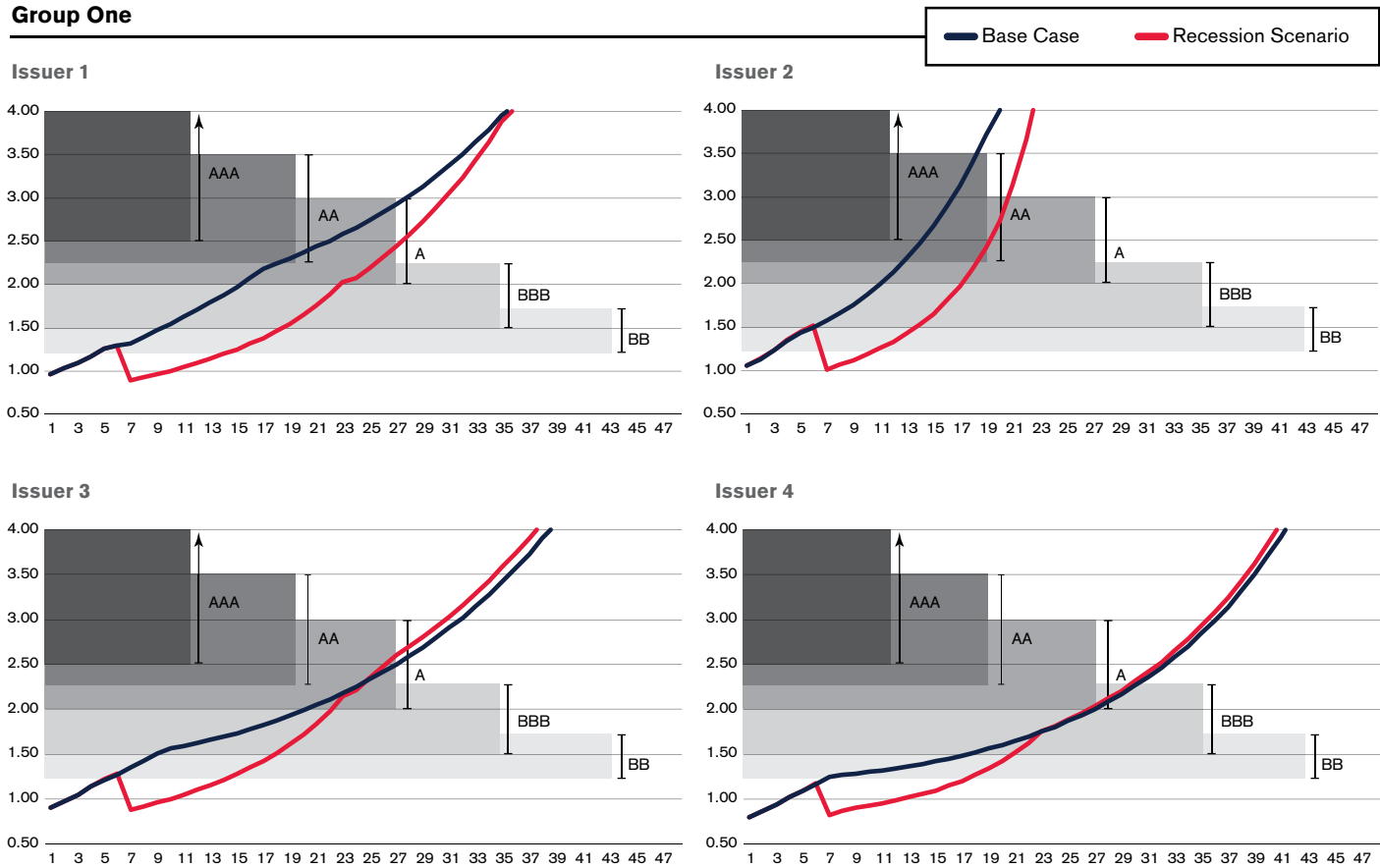
Group Two



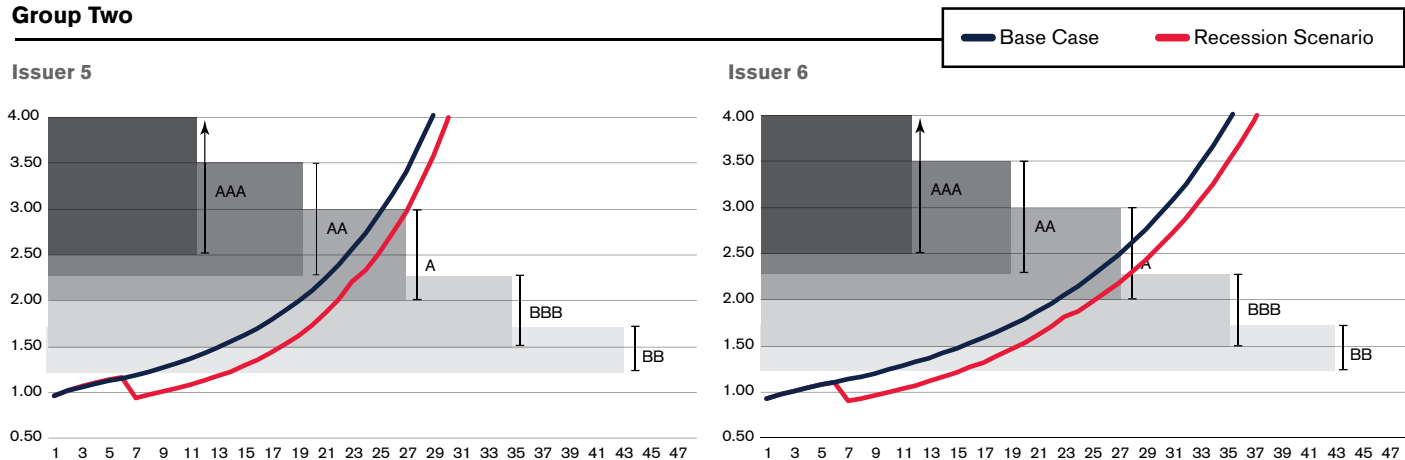
BBB-Rated Debt Tranches

- The MTMs for Group #1 did not increase as quickly as the MTMs for the higher rated debt tranches as credit enhancement for the lower-rated debt tranches did not build as quickly. The MTMs moved into the BB range and below with the recession simulation in Month 7. The Recession Scenario multiples moved into the BBB range between Month 14 and Month 21, and entered the AAA range between Month 20 and Month 32.
- For Group #2, the MTMs for the BBB-rated debt tranches followed a similar pattern to the Base Case with the exception of the effect of the Recession Scenario in Month 7. For Issuer #5, the multiple for the Base Case reached the BBB range in Month 14 compared with the Recession Scenario where the multiple reached the BBB range in Month 18. For Issuer #6, the recession delay for the BBB multiple was similar to Issuer #5, with the Base Case multiple reaching the BBB range in Month 16 compared with Month 20 for the Recession Scenario.

Group One



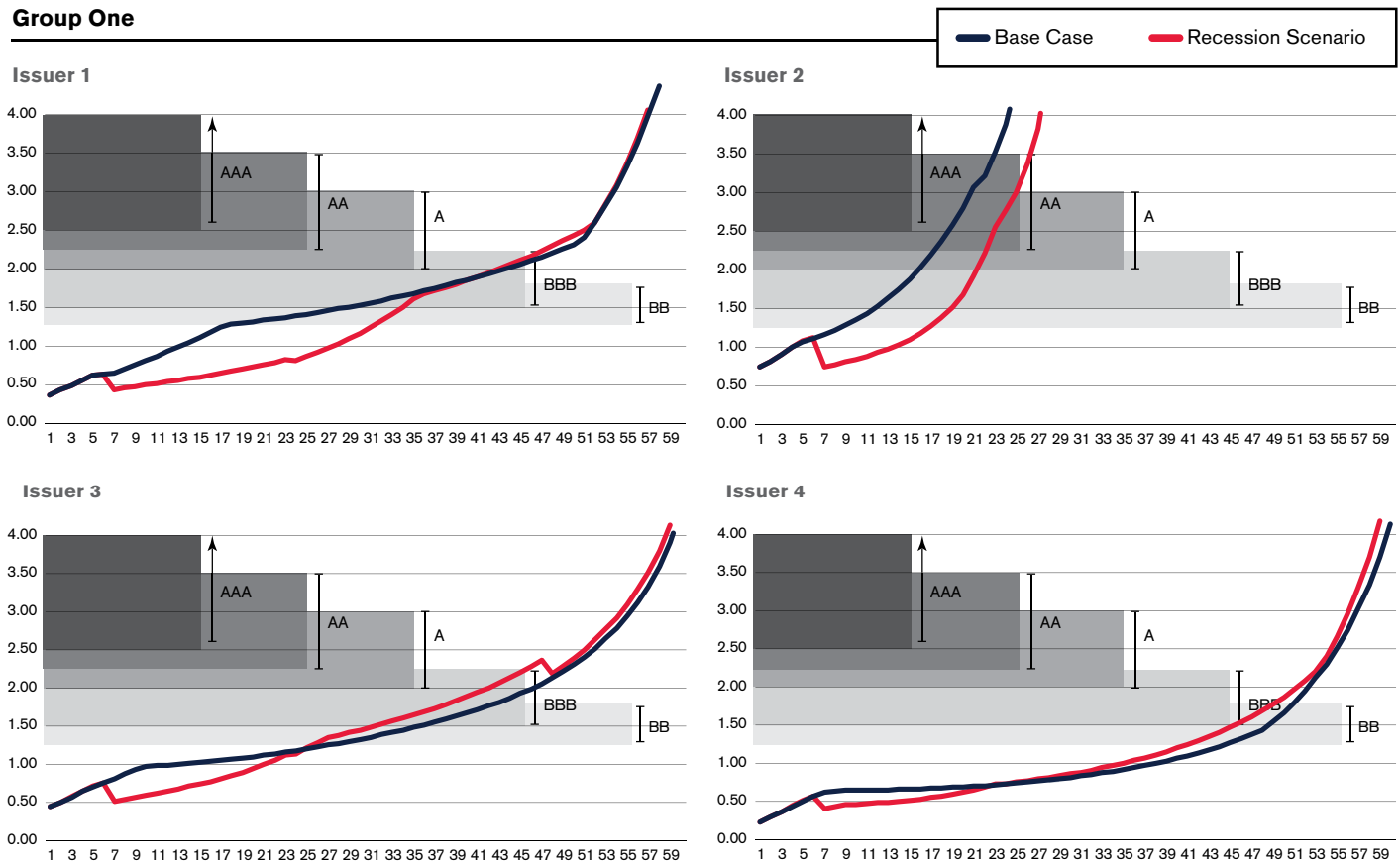
Group Two



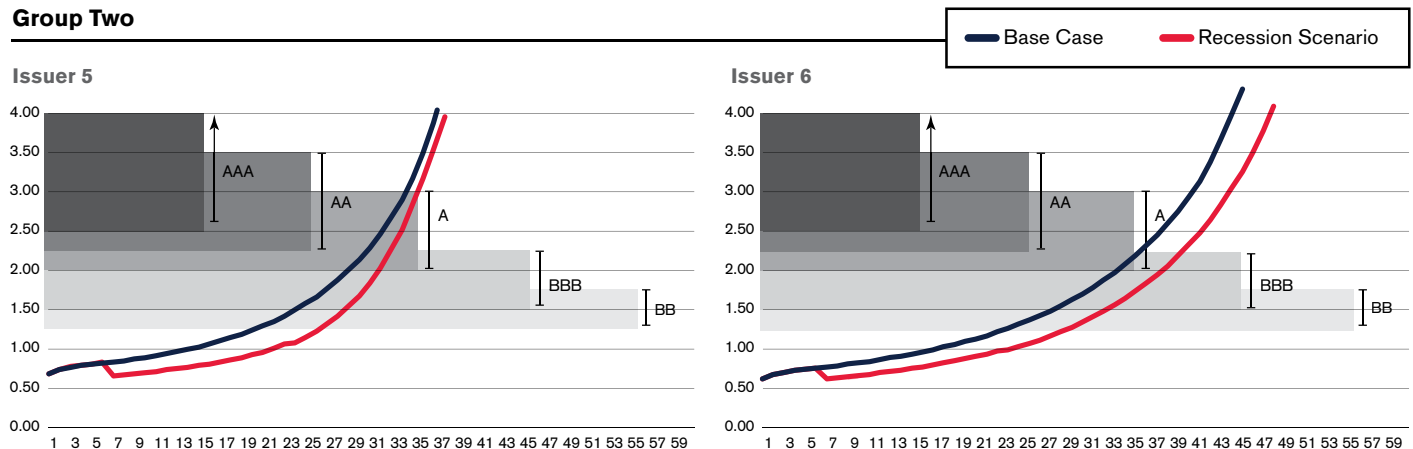
BB-Rated Debt Tranches

- For both Group #1 and Group #2 Issuers, the MTMs for the BB-rated debt tranches experienced the largest variation in rate of increase to the BB multiple range once the recession losses occurred in Month 7 as low levels of OC and, in most cases, no subordination of a lower-rated bond significantly affected the multiple calculations.
- Issuer #1 reached the BB range in Month 17 in the Base Case and in Month 31 in the Recession Scenario. Issuer #2 reached the BB range in Month 9 in the Base Case and in Month 17 in the Recession Scenario. The Recession Scenario MTM reached the BB range before the the Base Case MTM for Issuer #3 at Months 26 and 27 respectively, and for Issuer #4 at Months 42 and 45 respectively.
- The Recession Scenario MTM for Issuer #5 reached the BB range in Month 27, a six month lag from the Base Case. The Recession Scenario MTM for Issuer #6 reached the BB lower boundary in Month 30, a five-month lag from the Base Case.

Group One



Group Two





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