



Methodology

*Rating European Consumer and  
Commercial Asset-Backed Securitisations*

JUNE 2011



*Insight beyond the rating.*

---

## CONTACT INFORMATION

### STRUCTURED FINANCE

**Claire J. Mezzanotte**

Managing Director  
Structured Finance - U.S. and European ABS/RMBS/Covered Bonds  
Tel. +44 (0)20 7855 6672  
cmezzanotte@dbrs.com

**Mike Babick**

Senior Vice President  
Structured Finance - U.S. and European ABS  
Tel. +44 (0)20 7855 6676  
mbabick@dbrs.com

**Bruno Franco**

Senior Vice President  
Structured Finance - European ABS/RMBS  
Tel. +44 (0)20 7855 6603  
bfranco@dbrs.com

**Chuck Weilandmann**

Senior Vice President  
Structured Finance - U.S. and European ABS  
Tel. +44 (0)20 7855 6677  
cweilandmann@dbrs.com

**Alessio Pignataro**

Assistant Vice President  
Structured Finance - European ABS/RMBS/Covered Bonds  
Tel. +44 (0)20 7855 6602  
apignataro@dbrs.com

### STRUCTURED FINANCE - RESEARCH, MODELING AND SURVEILLANCE

**Jan Buckler**

Senior Vice President  
Structured Finance - U.S. and European ABS/RMBS/Covered Bonds  
Tel. +44 (0)20 7855 6678  
jbuckler@dbrs.com

### STRUCTURED FINANCE - OPERATIONAL RISK

**Kathleen Tillwitz**

Senior Vice President  
Structured Finance - U.S. and European ABS/RMBS/Covered Bonds  
Operational Risk  
Tel. +44 (0)20 7855 6665  
ktillwitz@dbrs.com

### Related Research:

Legal Criteria for European Structured Finance Transactions and Addenda  
Master European Structured Finance Surveillance Methodology  
Operational Risk Assessment for European ABS and SME CLO Servicers  
Swap Criteria for European Structured Finance Transactions  
Unified Interest Rate Model for European Securitisations  
The Effect of Sovereign Risk on Securitisations in the Euro Area

---

DBRS is a full-service credit rating agency established in 1976. Privately owned and operated without affiliation to any financial institution, DBRS is respected for its independent, third-party evaluations of corporate and government issues, spanning North America, Europe and Asia. DBRS's extensive coverage of securitisations and structured finance transactions solidifies our standing as a leading provider of comprehensive, in-depth credit analysis.

All DBRS ratings and research are available in hard-copy format and electronically on Bloomberg and at DBRS.com, our lead delivery tool for organised, Web-based, up-to-the-minute information. We remain committed to continuously refining our expertise in the analysis of credit quality and are dedicated to maintaining objective and credible opinions within the global financial marketplace.

This methodology replaces and supersedes all related prior methodologies. This methodology may be replaced or amended from time to time and, therefore, DBRS recommends that readers consult [www.dbrs.com](http://www.dbrs.com) for the latest version of its methodologies.



---

# Rating European Asset-Backed Securitisations

---

## TABLE OF CONTENTS

Executive Summary	4
Scope of Methodology	4
Data Request	5
Operational Risk Review – Originations and Servicing	6
Asset Quality Review and Performance Analysis	8
Transaction Financial Structure	14
Credit Enhancement	15
Cash Flow Analysis	16
Term Loan ABS	17
Consumer and Commercial Lease ABS	22
Credit Card ABS	26



---

## Executive Summary

---

The following methodology summarises DBRS rating approach for European consumer and commercial asset-backed securities (ABS) transactions. The criteria described herein are most applicable to revolving and amortising consumer and commercial loan transactions where the underlying pool of receivables consists of one or more large, homogeneous pool(s) of assets, as is typically the case in secured and unsecured consumer loan securitisations (including credit card securitisations) and consumer and commercial lease securitisations. In this report, the asset classes are collectively referred to as ABS transactions. In addition, the rating paradigm outlined in this report is applicable to transactions evaluated across all European jurisdictions.

DBRS reviews the following qualitative and quantitative factors when assigning and monitoring ratings for ABS transactions:

- The operational capabilities and financial strength of the transaction parties;
- Collateral quality of the proposed collateral pool and performance of the sponsor's portfolio;
- Transaction structure and proposed credit enhancement;
- Cash flow analysis;
- Legal structure and opinions.

As noted in the first bullet point above, DBRS review and analysis of ABS transactions comprises an operational risk review<sup>1</sup> of the originator and servicer, including its commercial and operating procedures and policies. The operational risk review and assessment provides insight into the manner in which these processes have impacted past asset performance and assists in establishing expectations for future performance of proposed asset pools to be securitised.

In its rating analysis, DBRS reviews the characteristics of the proposed asset pool to be securitised and analyses the historical performance of assets of a similar nature in order to define a projected base case performance level for the proposed pool. In accordance with the criteria herein, DBRS applies stresses to the projected base case at successively higher levels for each successively higher requested rating level. DBRS then reviews the level of stress that each debt issue is able to withstand in light of the transaction's structural features.

For organisational purposes, this report provides DBRS criteria regarding the above cited analytical considerations in advance of describing in greater detail DBRS rating methodology for transactions backed by term loans, leases and credit card receivables.

---

## Scope of Methodology

---

### JURISDICTIONAL DIFFERENCES

Each European jurisdiction exhibits a different legal framework, different market practices and product characteristics. The present criteria apply across all European jurisdictions. DBRS European ABS methodology focuses on historical performance data relevant to the asset class and jurisdiction under consideration and therefore typically reflects market specificities without the need to introduce jurisdiction-specific adjustments. As regards DBRS analysis of the legal structure of securitisation transactions, the reader is referred to DBRS Legal Criteria for European Structured Finance Transactions and Addenda, which contain addenda addressing the specificities of the principal European jurisdictions encountered by DBRS.

---

<sup>1</sup>For details on the originations component of the operational risk review, refer to the section entitled Operational Risk Review – Originations. For detail on the DBRS methodology with respect to the servicing component of the operational risk review, refer to the DBRS Operational Risk Assessment for European ABS and SME CLO Servicers.



The different jurisdictions in Europe also exhibit varying degrees of sovereign-related risk. Here, the reader is referred to the DBRS commentary: *The Effect of Sovereign Risk on Securitisations in the Euro Area*.

## COUNTERPARTY EXPOSURE

All securitisation transactions rely to some extent on the performance of third parties, be they a servicer, account bank or swap counterparty. The present criteria do not address in any detail DBRS methodology for assessing counterparty risk or servicer operational risk. For a discussion of the related DBRS methodology, the reader is referred to the DBRS Swap Criteria for European Structured Finance Transactions as regards to exposure to swap counterparties, DBRS Operational Risk Assessment for European ABS and SME CLO Servicers as regards exposure to servicers and DBRS Legal Criteria for European Structured Finance Transactions and Addenda as regards to exposure to other counterparties.

---

## Data Request

---

As part of the rating process, DBRS analyses historical loan<sup>2</sup> performance data provided by a sponsoring entity and also looks to compare the issuer's experience to the performance of the overall market. For consumer and commercial ABS transactions where the assets are sufficiently granular, DBRS utilises this historical information to help assess future performance. Preferably, DBRS expects issuers to provide loss information, as described below, that covers asset performance during various economic cycles to enable DBRS to evaluate the impact that macroeconomic factors such as unemployment levels may have on collateral performance.

## STATIC POOL DATA

DBRS loss analysis focuses on static pool loss data. Static pool analysis relies on historical loss data from discrete groups of loans originated over a relatively short period of time; ideally, these time periods should be monthly or quarterly as annual vintage data may lack the precision to accurately assess performance volatility during periods of economic stress. In addition, to the extent available, DBRS reviews static pool loss data on a gross basis, without giving effect to any recoveries, for which separate static pool recovery data should be provided. Presentation of data in this manner can help provide additional insight into the unique factors that impact loss and recovery performance for the collateral. For example, if only static pool net loss data were reviewed, periods of elevated defaults could be masked during periods of strong recoveries. By evaluating defaults and recoveries separately, DBRS can better understand the volatility drivers behind each figure and develop more accurate and appropriate stresses. To the extent only net loss data is available, DBRS performs adjustments to the data presented that takes into account historical recoveries.

Typically DBRS receives three to five years of performance history from an issuer to perform a rating analysis. In the absence of adequate performance history, DBRS may decline to rate the transaction due to insufficiency of provided data. For cases where static pool loss data is unavailable, DBRS may consider using managed portfolio loss data as a proxy. However, this approach has several shortcomings. Firstly, portfolio figures are biased downwards during periods of portfolio growth. While it is possible to make adjustments to the data to address this phenomenon, these adjustments do not provide insight into the timing of losses, an important component of DBRS loss analysis during transaction cash flow modelling. In addition, utilising portfolio figures make it difficult to adjust for changes in asset composition, and the amount and timing of recoveries can be obscured as well. As a result, in the absence of static pool data, DBRS requests supplemental data to help refine its loss projection. Where the performance history for the originator's assets is insufficient, DBRS may consider proxy data such as the performance of similarly originated assets within the same jurisdiction. In cases where originator-specific data is unavailable, DBRS is likely to use a higher base case loss projection than would otherwise be suggested by the proxy data.

---

2. Unless otherwise stated, in this report the methodology should be understood to apply similarly to loans and leases.



The static pool data should be presented such that receivables are considered defaulted in a manner that is consistent with the definition of a defaulted receivable in the transaction documentation to ensure that cash flow stresses are constructed in a manner that properly addresses the collateral's loss profile.

## POOL CHARACTERISTICS

When approached to rate a transaction backed by a pool of consumer or commercial assets, DBRS typically receives pool stratifications that provide a summary of the pool's characteristics as they relate to variables such as loan rate, term, new versus used, internal credit score and geography. In general, the characteristics of the underlying loans that comprise the static pool loss sample should mirror the characteristics of the proposed pool, as closely as possible. However, DBRS recognises that pools with similar summary characteristics can demonstrate significantly different performance. For instance, two portfolios may have identical remaining terms to maturity, but the underlying stratifications may indicate that one pool has a greater preponderance of longer term loans that are likely to have a higher loss profile. For this reason, it is important that issuers have the reporting capability to provide static pool performance data that can be stratified by various attributes such as credit score, loan term, new versus used, etc. In cases where sufficient loss performance detail has been provided, DBRS can refine its loss analysis by using the data to determine an accurate loss estimate for each distinct component of the pool and then use this information to develop a weighted average loss expectation for the securitised pool based upon the relative contribution of each segment.

---

## Operational Risk Review – Originations and Servicing<sup>3</sup>

---

### ORIGINATOR REVIEW

Originators can take many forms ranging from banks, building societies, and independent finance companies. For new and existing sponsors seeking DBRS ratings, DBRS reviews the sponsor's organisation and management structure and any material changes. Among the items that DBRS considers is the span of control of each individual and whether there is sufficient delegation of responsibility. In addition, DBRS assesses whether any potential conflicts of interest exist such as might be the case if an individual in charge of new loan production also had oversight of the underwriting or credit policy areas. The crux of the company review is to assess whether the issuer has a fundamental and realistic appreciation of its position in the industry and a coherent and rational plan on how to maintain and/or enhance their position.

DBRS also evaluates the products and services a company offers to determine whether they are consistent with management's vision, strategy, and experience. While DBRS recognises the value and need for companies to seek a competitive edge and grow, plans to enter into new markets are reviewed closely to evaluate consistency with their core competencies. DBRS may see potential issues with lenders' expansion into new markets even when company management is comfortable that they have properly assessed the risks.

#### *Financial Condition*

While DBRS recognises that ABS are constructed in a manner that strives to isolate the performance of the assets from the credit quality of the originator, an originator's financial strength nonetheless is an important component of DBRS company assessment. Companies in a strong financial position with various sources of liquidity are better poised to maintain servicing quality in the event of unexpected losses and are more likely to be able to withstand market disruptions and fund their assets through other channels if the ABS market were not available for an extended period of time. Stronger companies are also more likely to be in a position to remedy any breaches of representations made to the securitisation.

---

<sup>3</sup>.See footnote 1.



### *Originations*

Many ABS transactions consist of one or more large, relatively homogeneous pools of assets. In such cases, DBRS assessment of the future performance of these assets incorporates historical loss and delinquency experience during various economic cycles. Accordingly, DBRS attributes a high degree of importance that the originations process be characterised by a high degree of control and consistency to ensure that the credit profile of the assets to be securitised is similar to the assets for which historical performance information is available. Consistency in the origination process is of paramount importance in the evaluation of revolving transactions to mitigate potential downward migration of asset quality during the revolving period.

Loans and leases can be originated on either a direct or indirect basis. In the case of auto loans and leases, many loans follow an indirect model of origination, whereby the loans are effectively sourced from automobile dealers. In a direct model, customers apply to or are solicited by the lender as is the case for a direct mail campaign or internet driven originations from the lender's website that is common for credit card lenders. To the extent that a lender originates assets via a branch network, for maximum consistency, branches should adhere to underwriting and credit policies that are established on a centralised basis within the organisation. In such cases, DBRS considers the controls in place to ensure adherence to established underwriting criteria. Regardless of the origination channel, issuers' practices should conform to all applicable rules and regulations governing consumer finance in the respective jurisdiction.

In some cases, joint ventures or marketing alliances may be formed with other companies to source loans. While such programs have the benefit of increasing loan production, DBRS considers whether such alliances may render the loans prone to either positive or adverse selection. DBRS has witnessed instances where loans originated with identical underwriting criteria and possessing nearly identical loan attributes displayed significantly different performance that appeared to be solely attributable to the source of origination.

### *Underwriting*

DBRS considers many factors during our review of an originator's underwriting practices. DBRS expects approval authorities to be well defined and policies and procedures providing for exceptions to established underwriting guidelines to be limited. To the extent that exceptions are permitted, the performance of these exceptions are expected to be tracked and then communicated to those in charge of credit policy, who can use the performance feedback to assess whether any permanent modifications should be made to the established guidelines.

DBRS reviews historical origination volumes and approval rates to detect potential credit migration. Lenders who adhere to their established underwriting guidelines generally exhibit stable approval rates over time. Any increases in approval rates are explored to assess whether the change could signify a possible decline in credit standards.

It is not uncommon for lenders to utilise credit scorecards to assist in the originations process. Scorecards can create efficiencies in the origination process by effectively eliminating borrowers who do not meet certain minimum requirements. Scorecard inputs vary by jurisdiction but usually include substantial information regarding the prospective borrower's socio-demographic characteristics including marital status, number of years at current job and number of years at current residence as well as any negative credit history. Typically, scorecards also take into account the borrower's payment to income ratio and overall debt to income ratio taking into account the new loan as well as information regarding the loan structure such as loan term and loan to value.

Lenders often use customised scorecards to more accurately evaluate certain customer types. For example, a lender may have separate scorecards for first time auto buyers or individuals who have thin credit files. Scorecards are also particularly useful in maintaining consistency in originations in cases where the lender



may be originating loans through a branch network. Scorecards' predictive validity should be routinely assessed and recalibrated. DBRS considers the extent to which a credit underwriter's judgement is used in conjunction with the scorecard. While scorecards can offer the benefit of consistency and efficiency, their overall effectiveness in some cases can be enhanced by incorporating the judgement of an experienced underwriter.

For revolving pools of consumer credit, DBRS examines the systems and procedures in place to detect and prevent fraudulent purchases. For credit card issuers, DBRS evaluates the rules governing card authorisation for purchases and cash advances, as well as the security measures taken with respect to the issuance and mailing of new cards. In the case of auto loans, there should be sufficient quality control measures in place to verify that all the customer and collateral information is correct prior to the loan being funded. This can be accomplished through phone interviews with the borrower to ensure that they are buying the car for themselves and not fronting for another person who will actually use the automobile (commonly referred to as a "straw purchase"). In addition, lenders can utilise VIN ("vehicle identification number") software that verifies factory installed options on the vehicle and mitigate the risk that the lender advances money on the vehicle to finance options that do not exist.

Yet another method to examine the robustness of a company's quality control and fraud prevention efforts is to obtain information on borrowers who fail to make their first payment and then subsequently default. Unusually high first payment defaults may indicate deficiencies in the underwriting and/or verification process. The quality control area should also include a check that all the contract terms are in accordance with applicable lending laws.

## SERVICER REVIEW

Granular ABS transactions rely heavily upon the presence of the servicer to collect and remit collections on the receivables in order to repay the issued securities. For this reason, DBRS reviews the capabilities of the servicer, including its operational capabilities and financial strength. DBRS servicer review methodology is detailed in the DBRS Operational Risk Assessment for European ABS and SME CLO Servicers.

---

# Asset Quality Review and Performance Analysis

---

## ASSET CHARACTERISTICS

DBRS reviews the characteristics of the assets being securitised on an aggregate basis, considering pool stratifications. In a typical ABS transaction, DBRS does not consider it necessary to review the asset pool on a loan-by-loan basis but reviews any individual obligors or assets that represent an unusually large proportion of the pool. Where a securitised pool is composed of distinct sub-pools that are themselves homogeneous but exhibit different credit behaviour, DBRS analyses each of the sub-pools separately.

## ELIGIBILITY CRITERIA – REVOLVING PERIODS

Within the legal documents, the eligibility criteria incorporated for a revolving transaction help establish a threshold for asset quality and are an important part of maintaining pool consistency. Common eligibility criteria that DBRS would expect to see in an ABS transaction include the following:

- Minimum and maximum loan tenors
- Limitations on the severity of delinquency, typically not exceeding 30 days
- No loans in charge-off or in bankruptcy
- Minimum and maximum loan balance
- Minimum interest rate or excess spread levels
- Geographical limits to ensure diversity
- Limits on new and used vehicles/assets
- Assets have been originated in accordance with existing credit policies and all applicable laws
- The originator has legal title to the assets and there are no liens or encumbrances on the assets (other than certain permitted liens)



## ELIGIBILITY CRITERIA – PRE-FUNDING PERIODS

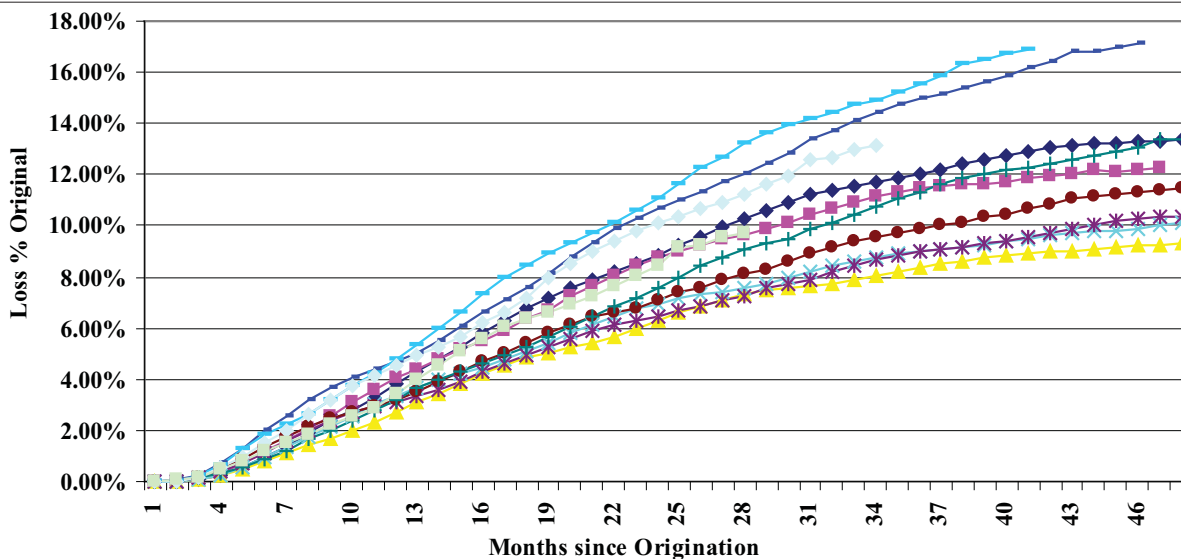
Eligibility criteria also play an important role in transactions that provide for a pre-funding feature, where monies are expended over time to purchase receivables. In such transactions, unless very stringent and specific restrictions are established at closing, DBRS conducts its credit analysis assuming that the pre-funded portion of the loans are prone to adverse selection and results in downward migration of the overall credit quality of the pool.

## BASE CASE LOSS DETERMINATION

In establishing the base case loss estimate for the proposed pool, DBRS reviews the historical asset performance data provided by the originator. DBRS considers the economic environment that existed as the pools seasoned as well as any changes in origination or servicing practices that might be anticipated to result in markedly different performance metrics across different vintages. DBRS also contrasts the performance metrics with those of other originators operating in the same markets. Bearing in mind the foregoing, DBRS examines the inherent volatility of the performance of the assets. To assist in this process, DBRS utilises various statistical techniques to help assess the potential volatility in asset performance.

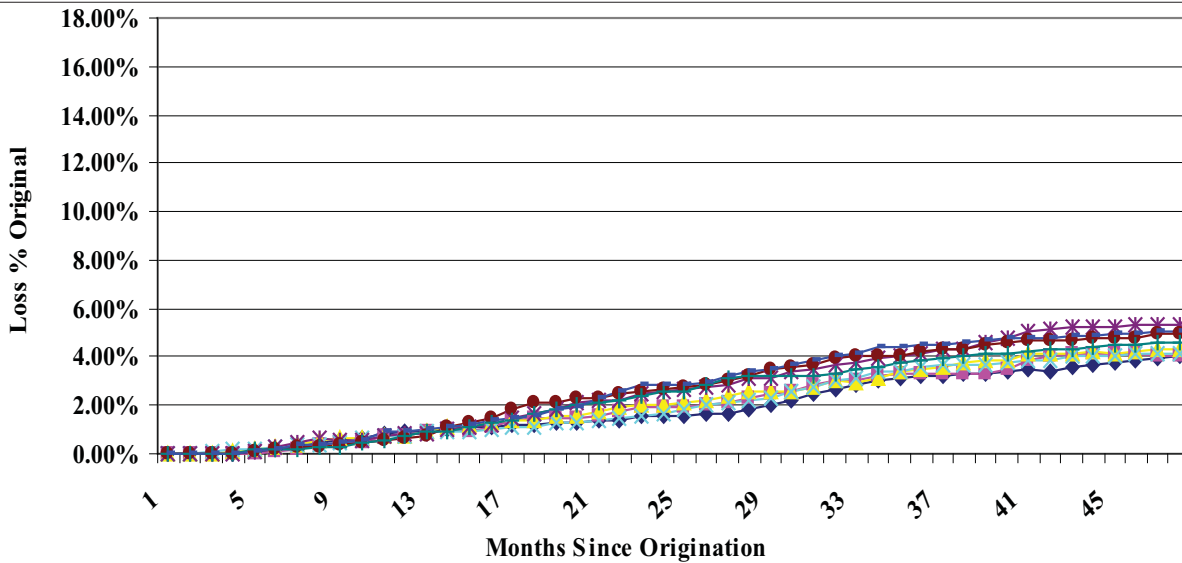
The chart below and on the following page contain two sets of data that are representative of the type of static pool loss data DBRS typically receives from an issuer. As is evident, the different data sets exhibit significantly different loss profiles with respect to volume and timing. These differences could be attributable to either differences in customer type or asset type. Assuming that the attributes of the proposed pool to be securitised are highly similar to the pools for which performance data is available, DBRS uses the historical static pools as a foundation to construct an estimate of future losses for the proposed pool.

**Sample Static Pool Data Set 1**



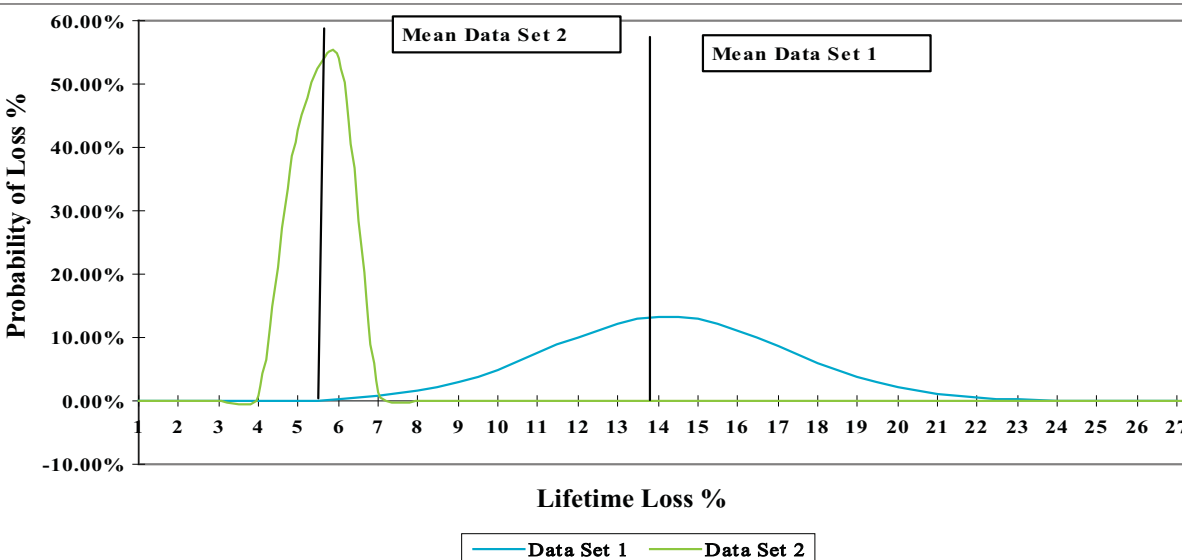


**Sample Static Pool Data Set 2**



Assume that the loss information for data sets 1 and 2 is for identical observation periods in a relatively benign economic environment. Using the available loss information, loss probability profiles can be established to help understand the potential variability in asset performance which is shown in the chart below. The two bell-shaped curves in the chart below show the probability density function for a given level of lifetime losses as suggested by the historical data. As is evident, the loss probability profiles for each data set are significantly different with data set 1 demonstrating a greater dispersion of potential losses relative to the mean than data set 2.

**Probability Distribution of Losses**



To establish a base case loss projection, DBRS strives to determine a loss estimate that reflects historical credit behaviour. Where appropriate, e.g. in the presence of negative trends, regime changes, inexplicable volatility or use of proxy data, DBRS ensures the base case is appropriately conservative and addresses such limitations or concerns. In the example above, given the tighter dispersion of losses in data set 2, the DBRS base case would likely be closer to the historical mean than would be the case for the assets in data



set 1, where the performance history provides less clarity for the estimation of mean loss of the proposed collateral pool.

## EXTRAPOLATING LOSSES

DBRS develops a loss timing curve for each of the pools or sub-pools of collateral (if broken out into more discrete categories) and uses that loss timing curve to forecast defaults on vintages which have not yet completed their full loss cycle.

As an example, using the loss information contained in data set 1, the performance data indicates that on average, the cumulative lifetime losses are approximately 13%. Based upon the information developed from the loss timing analysis, one would expect 65% of the ultimate lifetime losses to be experienced by the end of year two, resulting in losses of 8.45% after 24 months. Suppose more recent performance data demonstrated that recent originations had losses of 10.00% after 24 months. Assuming the shape of the loss curve for these more recent vintages was the same as historical pools, losses would be extrapolated by dividing the current losses by the percentage of ultimate lifetime losses expected at that seasoning point, in this case  $10.00\%/0.65 = 15.38\%$  compared to the historical average of 13%.

There are a few factors that DBRS takes into consideration when extrapolating losses in this fashion. The first is that the technique may magnify performance anomalies that may occur at early seasoning points. Given this phenomenon, DBRS only uses this extrapolation technique with static pools that have at least twelve to eighteen months of performance history. Second, when extrapolating losses in this fashion, care must be taken to ensure that the characteristics of the prospective pool are representative of the vintages showing performance anomalies and adequate adjustments should be made to properly account for changes in pool composition. Lastly, when developing the loss timing curve based upon historical data, it is important to consider the potential impact of changes in absolute loss levels over time and their potential impact on the shape of the loss timing curve.

## CUMULATIVE LOSS TO LIQUIDATIONS

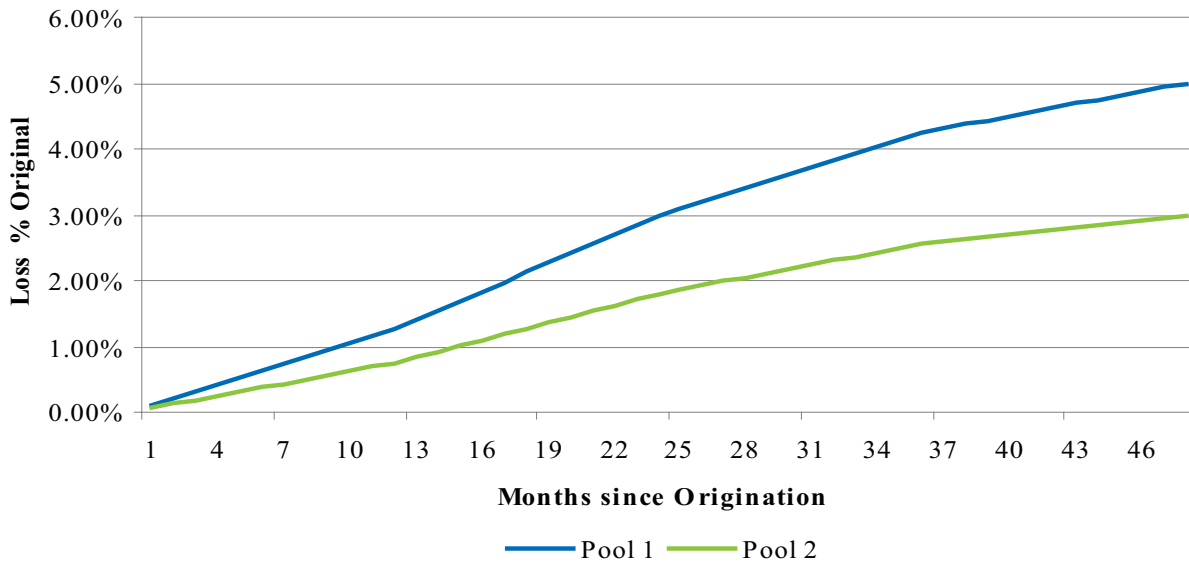
In certain instances, DBRS may supplement its loss analysis by using loss to liquidations. This alternative technique is used to obtain a better understanding of performance trends for pools with a low degree of seasoning. The cumulative loss to liquidation metric for a given period is calculated by dividing the cumulative losses for a given period by the total amount of paydown (natural amortisation, prepayments, and defaults) or liquidation of the pool up to that period. As a result, the two performance metrics, cumulative losses, and cumulative losses to liquidation ultimately equal each other, as at the end of a pool's life, the denominators in both calculations will be identical and equal to the original pool balance.

One benefit of the loss to liquidation calculation is that it is a more sensitive to differential performance early in a pool's life as shown in the charts on the next page. This results from the difference in the denominators in the two calculations. Though the numerators in each calculation are identical, the denominator in the cumulative net loss calculation is a large, fixed number, the original pool balance, while in the loss to liquidation calculation the denominator consists of the cumulative paydown which will result in a much smaller denominator early in the life of a transaction compared to the cumulative loss calculation.

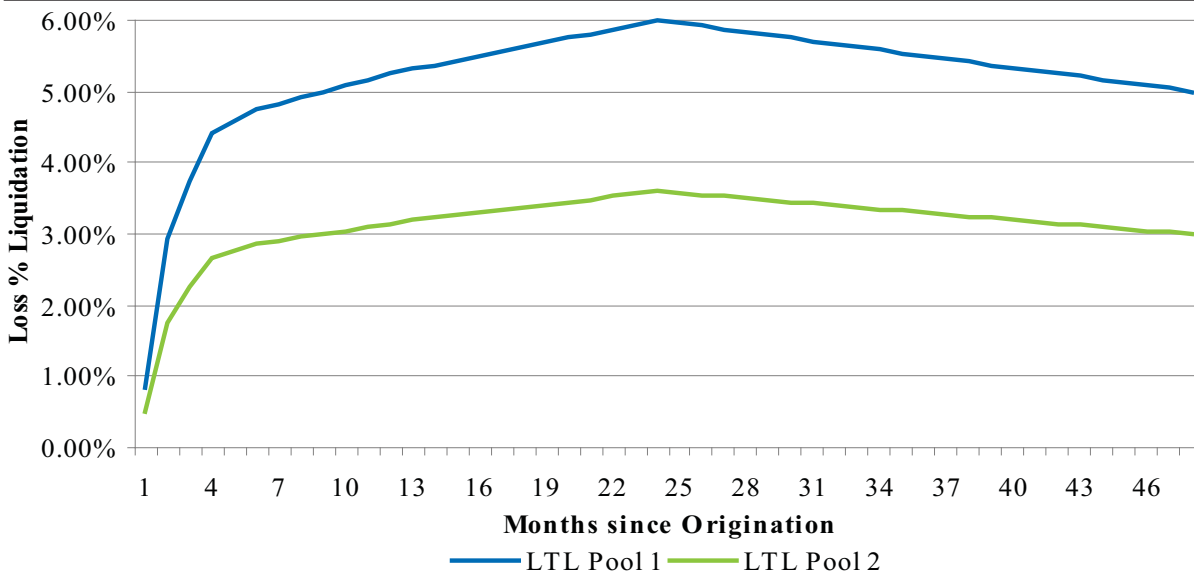
As can be seen on the cumulative loss comparison chart on the next page, the cumulative loss figures for the two data sets presented earlier are closer to each other in loss performance early in their lives than is suggested by the loss to liquidation figures on the right. This early sensitivity can be helpful in forecasting losses for new originations that demonstrate higher losses.



**Cumulative Loss Comparison**



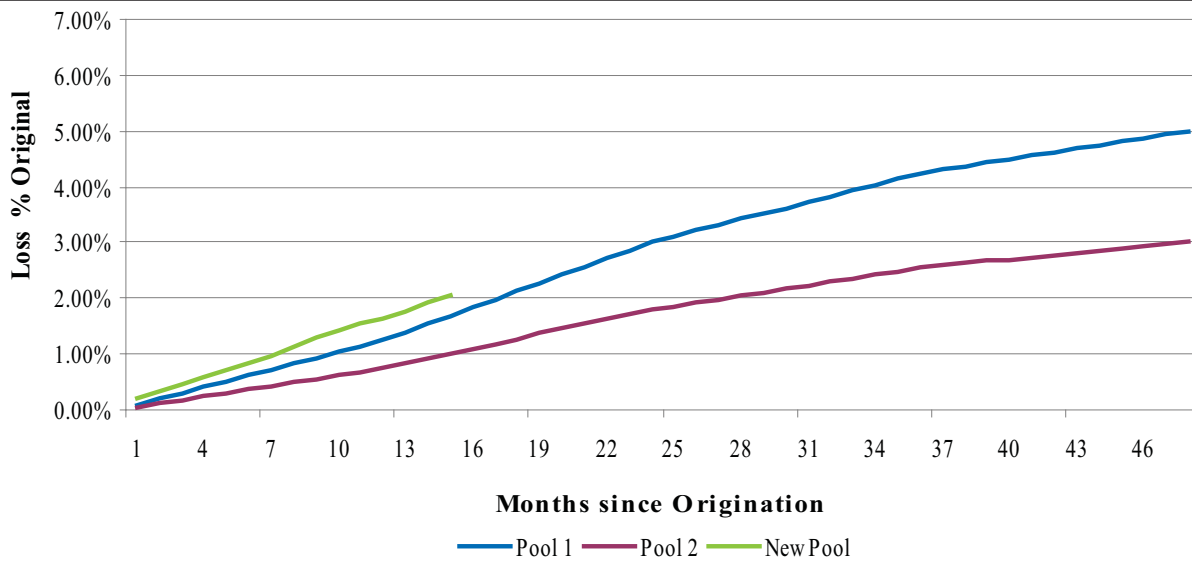
**Loss to Liquidation Comparison**



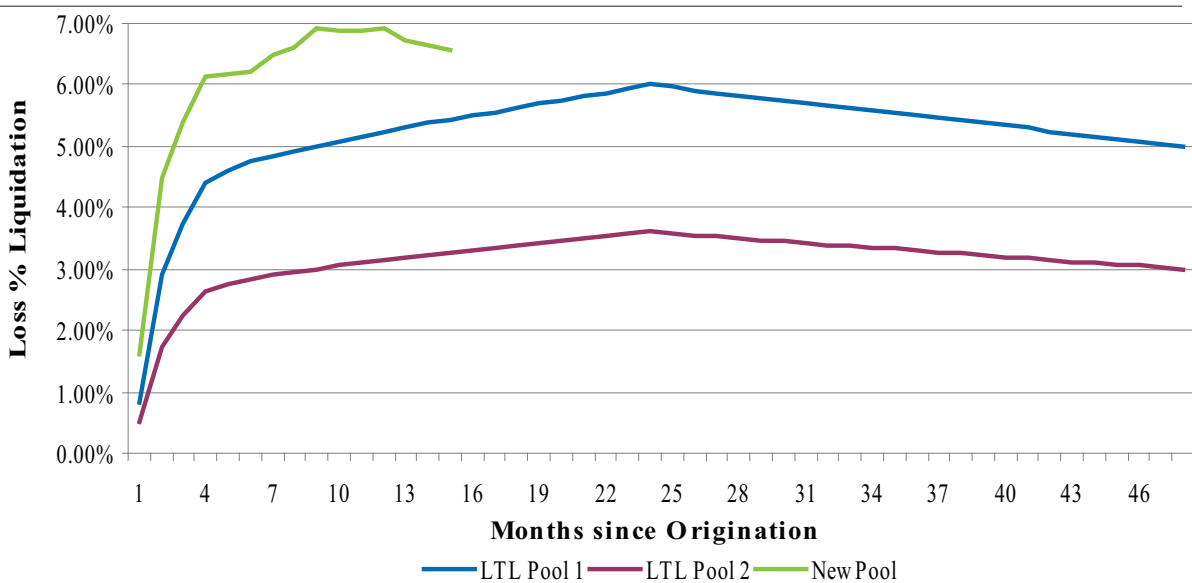
The charts on the next page are identical to those just discussed above, but introduce a New Pool whose early loss performance suggests that losses will be higher than demonstrated by Pools 1 and 2. Notice in the charts that the performance difference between the New Pool and Pool 1 is difficult to discern using the cumulative loss data, but becomes more apparent when looking at the loss to liquidation calculations. In addition, notice that the loss to liquidation curve begins to flatten out and decline around month 10, capturing performance information that is difficult to discern looking at the cumulative loss figures.



**Cumulative Loss Comparison**



**Loss to Liquidation Comparison**



Using loss to liquidations to extrapolate losses is a similar process to that described above for extrapolating losses using static pool cumulative loss figures.

**LOSS COVERAGE**

After establishing a projected base case loss or default level (including any losses on residual value exposures, as described in the section on lease-backed ABS), DBRS determines coverage multiples that debt issues should be able to withstand in order to warrant a proposed rating. These stress levels can be thought of as shorthand for determining the percentiles of a portfolio default distribution based on its mean. As such, they vary depending on pool characteristics, primarily the average performance and its volatility. The ranges of stress levels DBRS typically applies are described in the asset-specific sections.



## JURISDICTION-SPECIFIC CONSIDERATIONS

Asset characteristics vary across European jurisdictions, primarily as a result of the different legal and regulatory frameworks in force, but also due to differing market practices. These different frameworks also result in different rights for creditors and lessors, as well as different optimal work-out strategies for impaired assets. DBRS reviews the particular environment applicable to each type of asset and jurisdiction with the originator or servicer in order to appropriately assess the risks inherent in the asset class and interpret historical performance data accordingly. DBRS European ABS methodology focuses on historical performance data relevant to the asset class and jurisdiction under consideration and therefore typically reflects these specificities without the need to introduce jurisdiction-specific adjustments.

---

## Transaction Financial Structure

---

### PRIORITY OF PAYMENTS

On a regular basis, collections on the assets are aggregated and then distributed to noteholders based upon the priority of payments established in the transaction documents. Collections on the receivables may be aggregated in a manner such that principal and interest collections are combined to create a pool of total available funds that are then subjected to a payment waterfall. Alternatively, principal and interest collections may be accounted for separately and then subjected to the payment waterfall.

Once the amount of collections on the receivables is determined, the collections pass through a payment waterfall that allocates collections in descending order of priority. Recurring transaction expense items like servicing and trustee or transaction management fees are commonly senior in the waterfall, after which noteholders receive interest and principal. The allocation of interest and principal payments amongst noteholders is typically either sequential or pro-rata.

A sequential structure provides for all principal amortisation and prepayments to be allocated to the shortest maturity class until it is fully repaid and then directed to the next shortest class. Losses in excess of credit enhancement provided by the reserve account and over-collateralisation are absorbed by the lowest rated tranche. Once the lowest rated tranche is written down, the losses are absorbed by the second lowest rated tranche in the structure.

An example of the typical payment priority under a sequential structure is provided below:

1. Servicing fees and any transition fees to any successor servicer (if applicable);
2. Trustee and other fees;
3. Net swap payment (if applicable);
4. Interest in order of seniority;
5. Principal in order of seniority;
6. Amount, if any, to be deposited into the reserve fund;
7. Any remaining amounts to the seller.

The other common structure is pro-rata principal allocation, where principal amortisation and prepayments are allocated to maintain constant credit enhancement levels. Under such a payment mechanism, subordinate tranches can receive principal payments while senior notes are still outstanding. However, pro-rata structures typically contain performance triggers such that, should the transaction performance deteriorate, subordinated tranches can be locked out and payments redirected to senior tranches.

### TRANSACTION RATING THRESHOLDS OR TRIGGERS

Depending upon the structure of a transaction, performance thresholds or triggers can mitigate risk to a deteriorating economic environment and collateral performance. The rating performance triggers



are designed to increase credit enhancement levels beyond what is initially included in the transaction, thereby enabling the transaction to absorb more losses. DBRS does not dictate the transaction triggers to be included in a particular structure; however, DBRS assesses the extent to which any additional credit enhancement may be built up in a transaction as part of our overall assessment of the transaction structure and cash flow scenarios.

Common transaction performance triggers include levels of current delinquency and default or net loss rates and can also be based upon cumulative default or net loss rates. In addition, in some revolving transactions, triggers may be based upon the issuer's ability to reinvest collections in new receivables. If the issuer is unable to purchase new receivables, collections are held in a specified account pending reinvestment (excess funding account). In such cases, transactions can run the risk of negative carry as the amounts pending reinvestment earn less than the required payments to noteholders. To address this risk, the portion of the receivables that may be held in the excess funding account may be capped. To the extent this cap was breached, the revolving period would stop and amortisation would commence. The degree to which triggers are beneficial in building additional credit enhancement depends upon the level at which the triggers are set and the ability of the transaction to generate excess spread at those levels.

#### TRANSACTION PROVISIONS - SERVICERS<sup>4</sup>

Given the critical nature of the servicing function in structured finance transactions, DBRS considers the likelihood and consequences of a servicer failure and any ensuing collection disruption.

The servicing agreement is expected to contain provisions that allow the trustee or transaction manager to appoint a replacement servicer on behalf of the noteholders, if the original servicer is unable or unwilling to perform their duties or if the servicer defaults in certain of its material obligations. In that context, DBRS considers the amount of preparation any back-up servicer has done with respect to the current transaction such as data mapping with the servicer's systems and their ability to takeover collection accounts to minimise payment disruptions. DBRS assesses whether the servicing fee provided for in the event of a servicer replacement is structured in a fashion that allows the replacement servicer to properly and profitably service assets that are likely to be deteriorating when they are called upon to assume servicing responsibilities. Consideration is also given to the amount of transition expenses provided for in the transaction documents.

---

## Credit Enhancement

---

DBRS evaluates both amount and form of credit enhancement when assigning and monitoring ratings. This analysis is performed concurrently with the cash flow analysis discussed in the following section. The appropriate form and amount credit enhancement depends upon a number of factors including the overall amount and timing of losses, excess spread, and potential disruptions in servicing that may occur during a transfer of servicing. Credit enhancement in consumer and commercial ABS is usually provided through a combination of over-collateralisation, subordination, a reserve fund, and excess spread.

It is important to note, that DBRS does not determine credit enhancement levels or transaction structures but rather evaluates the level of protection provided by the proposed credit enhancement given the existing transaction structure, the payment waterfall and triggers.

---

<sup>4</sup>For a more detailed discussion of the servicer review, refer to the DBRS Operational Risk Assessment for European ABS and SME CLO Servicers.



## OVER-COLLATERALISATION

Over-collateralisation (OC) is a common form of credit enhancement and consists of the amount by which the collateral amount exceeds the total amount of securities issued. There may be an initial OC level which then builds to a pre-specified target level (percentage of outstanding collateral) based upon amortisation of the ABS notes. Once the target OC is reached, its dollar balance may start to decline as the pool amortises. Most declining OC structures have a floor expressed as a percentage of the initial collateral balance providing back-ended protection to the issued notes. One benefit of OC is that the extra collateral generates income in the form of interest collections that can be used to cover losses through excess spread. However, OC is also prone to erosion as losses on the underlying collateral escalate.

## SUBORDINATION

Subordination is created by tranching the debt associated within the transaction's capital structure such that subordinated classes of notes have a lower priority of payments in the flow of funds or waterfall providing protection from losses to the senior classes of notes. Subordination is akin to OC except that the subordinate securities usually pay interest thereby decreasing the amount of interest available to cover potential losses.

## RESERVE FUND

Reserve funds are accounts that can supplement collections on the receivables. Such accounts may be funded at issuance or designed to trap excess spread to a pre-specified target amount. Reserve funds are typically held in a cash deposit account or in short term securities with little default risk.

While credit enhancement in reserve accounts has the benefit of not being subject to erosion through collateral losses as is the case with OC, reserve accounts typically earn a very low rate of interest that can contribute to loss coverage. However, reserve accounts do have the benefit of providing liquidity to address unexpected spikes in losses and reserve account floors can be used to provide back-end protection for noteholders.

## EXCESS SPREAD

Excess spread consists of interest generated by the assets that exceeds the cost of funding on the securities and transaction expenses such as servicing, trustee and professional fees. Generally, excess spread is available on a monthly basis to absorb losses. To the extent all of the obligations prescribed by the transaction liability structure are satisfied, excess collections can be released to the issuer or residual holder. Consequently, excess spread is only available to cover losses incurred during the period when it is collected ("use-it-or-lose-it"). However, excess spread may be trapped by transaction triggers related to collateral performance.

---

## Cash Flow Analysis

---

DBRS evaluates cash flow model results to assess the financial viability of a transaction, the sufficiency of proposed credit enhancement at the requested rating levels and the ability of the transaction to repay investors according to the manner in which they have invested. Cash flow modelling is instrumental in determining whether the available credit enhancement and transaction structure are consistent with returning timely interest and principal to investors under stresses consistent with the requested rating.

The inputs of the cash flow analysis most commonly include the following:

- **Assets characteristics:** The cash flow characteristics of the assets securitised.
- **Losses:** The base case projected loss level and the stress case loss levels for each requested rating in accordance with DBRS coverage multiples along with recoveries assumed.



- **Loss Curve Timing:** In addition to considering the historical distribution of losses, DBRS evaluates scenarios that capture front and back loaded loss scenarios and spikes in losses.
- **Recovery Delays:** Modelling scenarios incorporate delays in receiving recoveries that could occur due to either ineffective servicing or a servicing transition.
- **Prepayments:** Prepayment speeds affect the amount of excess spread available.
- **Reinvestment Rate on Investments:** A low rate of return on cash balances can exert a drag on the transaction's cash flow.
- **Interest Rate, Basis Risk or Foreign Currency Swaps:** When no derivative agreement is in place, the cash flows assume interest rate, basis risk or foreign currency stresses as described in DBRS Unified Interest Rate Model for European Securitisations.
- **Replication of Transaction Priority of Payments and Triggers**

---

## Term Loan ABS

---

Consumer term loans in the context of ABS include secured loans, such as auto loans, and unsecured term loans. Unsecured consumer loans are extended for a wide variety of purposes, from home improvement to education to financing electronic and white goods. Real estate related consumer loans are not included and are the object of a separate methodology report, .

### RECEIVABLES

When evaluating a pool of consumer loans, DBRS considers the following loan characteristics:

#### *Loan Structure*

For the most part, term loans are level-pay instalment loans payable over a predetermined loan term. A small percentage of auto loans are structured as balloons. A balloon loan, like a lease, has the advantage of low monthly payments during the term of the loan, requiring substantially lower capital outlay during the term when compared to level-pay. However, balloon loans have a large payment at maturity and similar to leases confront substantial residual value risk.

#### *Original Term*

Typically, the original term to maturity of a consumer loan may be up to 120 months; however, the bulk of securitised loans have an original term to maturity of 60 months or lower. In many cases, longer term loans are underwritten to more budget constrained borrowers and carry greater credit default risk than their shorter term counterparts.

#### *Financing Rate*

The annual percentage rate (APR) charged on a loan is a function of the market environment and prevailing interest rates. However, all else being equal, loans that are characterised by the underwriter as higher risk tend to have higher APRs when compared to less risky loans.

### AUTO LOAN RECEIVABLES

When evaluating a pool of auto loans, DBRS considers the following additional characteristics:

#### *Down Payment and Advance Rates*

For auto loan ABS transactions, the concept of "advance rate" is analogous to the concept of "loan-to-value" (LTV) in other asset classes. The advance rate is defined as the loan balance expressed as a percentage of the sale amount. The sale amount can either be the manufacturer's suggested retail price (MSRP), the wholesale value of the car or a value other than these two prices. The financed amount typically includes the sale amount (less the value of any trade) plus taxes, insurance, extended warranty or other fees, less any cash down payments. The lower the advance rate, the more equity an obligor has in



the vehicle. High advance rates or rapid vehicle depreciation can cause the equity amount to be negative - when the borrowers' obligation under the loan exceeds the value of the vehicle resulting in a loss to the transaction if the vehicle is repossessed and sold.

### *New versus Used*

Auto loans can be secured by either new or used vehicles. Used vehicles have flatter depreciation curves than new vehicles. However, used vehicles often experience higher default frequency and severity of losses. Whereas, a new vehicle will always have a list price to help establish an opening valuation, particular care must be taken when valuing used vehicles to avoid over-advancing as there can be a wide discrepancy among the various industry guides in determining the vehicle's market value.

### *Make and Model*

The value of a car is determined by an assortment of factors. Depreciation is the single largest reason for the decline in a vehicle's value. Depreciation levels will vary by manufacturer, vehicle make and model and can be impacted by economic conditions as well as model discontinuances or the manufacturer's ability to maintain warranty coverage becomes impaired. As a result, it is beneficial to ensure that vehicles collateralising the securitised pool are diversified across make, model, and manufacturer.

### *Servicing*

Repayment of the note issuance in automobile transactions depends upon the servicer's ability to effectively perform collections activities on the loans. Accordingly, for auto loan transactions, DBRS considers all of the items described in the DBRS Operational Risk Assessment for European ABS and SME CLO Servicers, as well as how the charge-off and repossession process is handled as repayment of the notes will depend in part on the sale of repossessed collateral. DBRS deems it important that lenders strictly manage the repossession process to ensure that vehicles are repossessed and sold in a timely manner. Accordingly, DBRS assesses whether lenders' repossession policies are consistent with the timing of when loans need to be charged off per the transaction documents. Failure to do so could result in liquidity strains and credit enhancement draws in instances where the securitisation does not have the benefit of vehicle sale proceeds when the vehicle is required to be charged-off.

DBRS review takes into account the unique legal framework of the jurisdiction in question that governs how and when the lender is entitled to secure and sell the vehicle.

## **ESTABLISHING LOSS PROJECTIONS**

When evaluating a pool of consumer loans, DBRS uses the analytical techniques described above in the "Asset Quality Review and Performance Analysis" section. DBRS reviews the characteristics of the proposed collateral pool and requests the pool be stratified into categories in order to address any changes to the collateral mix and to identify the factors surrounding any changes to the performance of the issuer's static pool data over time. DBRS then requests that the static pool data be broken down by program as designated by the issuer or in certain buckets or categories to ensure that the collateral characteristics of the securitised pool are similar to the collateral characteristics of the static pools in the data set. DBRS may consider parameters such as credit bureau score or the issuer's internal credit score, new versus used vehicles, and term to maturity. To ensure the most accurate results, parameters for the selected static pools should not deviate materially from the parameters of the securitised pool.

### *Seasoning*

DBRS considers the seasoning on the collateral pool and the degree to which ultimate losses may be impacted due to losses that have already occurred. This process involves converting the expected loss figure on a new pool of originations into an expected amount of losses and is summarised in the chart on page 19.



Original Pool Balance	1,190,476,192
Securitisation Pool Balance	1,000,000,000
Expected Loss on New Originations	13.00%
<b>Expected Loss = 13.00% * 1,190,476,192</b>	<b>154,761,905</b>

Then, losses that have already been realised are netted from the expected dollar loss amount. If realised loss information is not available, DBRS calculates the amount using historical loss and amortisation information as described and illustrated below.

Suppose that loans in a pool to be securitised were originated 12 months prior to the closing date and that loans were originated by the issuer whose performance history was discussed earlier in this report as data set 1. The loss timing curve constructed indicates that on average the loans should have experienced 30% of their ultimate expected losses (3.9%) 12 months after origination. This amount of losses is then deducted from the amount of losses expected on a pool of newly originated loans. In the current example, this results in a seasoning adjustment of 46,428,571, reducing the base case loss estimate from 13.00% of the original pool balance to 10.83% of the current pool balance that is being securitised.

Expected Loss New Originations	154,761,905
Seasoning (Months)	12
Expected Realised Loss (12 Month) %	3.9%
Expected Realised Loss (12 Month)	46,428,571
<b>Seasoning Adjusted Base Case</b>	<b>108,333,334</b>

Expected Remaining Loss	108,333,334
Securitisation Pool Balance	1,000,000,000
<b>Seasoning Adjusted Base Case %</b>	<b>10.83%</b>

Adjusting loss expectations for seasoning may not always reduce the loss estimate on the securitised pool. The potential impact of loan seasoning on loss estimates depends upon the shape of the loss curve and the amount of total amortisation of the pool which is in turn influenced by factors such as prepayments as well as servicing practices that impact charge-offs and recovery timing. Depending upon the interplay of all these factors, in some instances, seasoned pools may actually have a higher loss expectation than would a pool of new originations. Generally, any benefit for seasoning with collateral aged six months or less is negligible and DBRS typically only considers conducting an analysis for seasoning adjustment for losses to the extent the securitised pool is seasoned at least eight months.

## RECOVERIES

While credit enhancement is ultimately a function of DBRS stressed net loss assumption for a collateral pool, to the extent the available performance data permit, it is optimal to analyse a transaction first giving effect to gross defaults and then factoring in recoveries. DBRS believes this distinction is especially relevant when evaluating auto loan transactions because the factors that influence default and recovery levels can be different. Automobile values can be influenced by many variables that may be unrelated to the default drivers including new vehicle pricing and incentive policies of the auto manufacturers, gasoline prices, body style changes, product line discontinuances, and overall consumer tastes and preferences.

DBRS evaluates an issuer's actual historical recovery experience as well as historical data relating to the overall used vehicle market to develop recovery estimates that effectively capture the potential volatility in recovery values.



### *Cumulative Net Loss*

The loss rate (one minus the total recovery rate) is calculated and is then applied to the pool base case gross default number to arrive at the recovery adjusted base case cumulative net loss.

### *Cash Flow Analysis*

After using the available default and recovery information to determine a base case expected cumulative net loss, DBRS uses a cash flow model that includes the transaction specific elements such as rating thresholds or triggers and credit enhancement characteristics to assess the adequacy of the proposed credit enhancement for each requested rating. The cash flow model reflects the priority of payments to investors as set forth in the transaction's governing legal documents.

### *Stress Multiples*

The stress multiples below are representative of those that DBRS uses to assign ratings to a consumer loan transaction and are designed to capture uncertainties and variables that can affect transaction performance such as servicing quality and practices, asset quality, potential deterioration during a servicing transfer, and the impact of macroeconomic factors that could result in performance deterioration outside of historical levels. The stress multiples ensure that the expected default rate of the rated instrument, as assessed by DBRS, is in line with DBRS published idealised default table. It should be emphasised that the ranges below are indicative and may be lower or higher to the extent that DBRS estimate of the loss distribution for a specific collateral pool imply different values or to the extent that DBRS has a particularly positive or negative view of other factors that can influence transaction performance.

Requested Rating	Multiple Range
AAA	4.0-6.0
AA	3.0-4.0
A	2.0-3.0
BBB	1.5-2.0
BB	1.25-1.5

## **CREDIT ENHANCEMENT**

Credit enhancement in consumer loan transactions typically consists of a combination of excess spread, a reserve account, and over-collateralisation or subordination.

Excess spread may decline over the life of a transaction if high interest rate loans default or prepay at a higher rate than the overall pool. DBRS evaluates transactions for susceptibility to this risk when reviewing collateral stratifications and cash flow models are constructed to assess the ability of the transaction to withstand declining levels of excess spread.

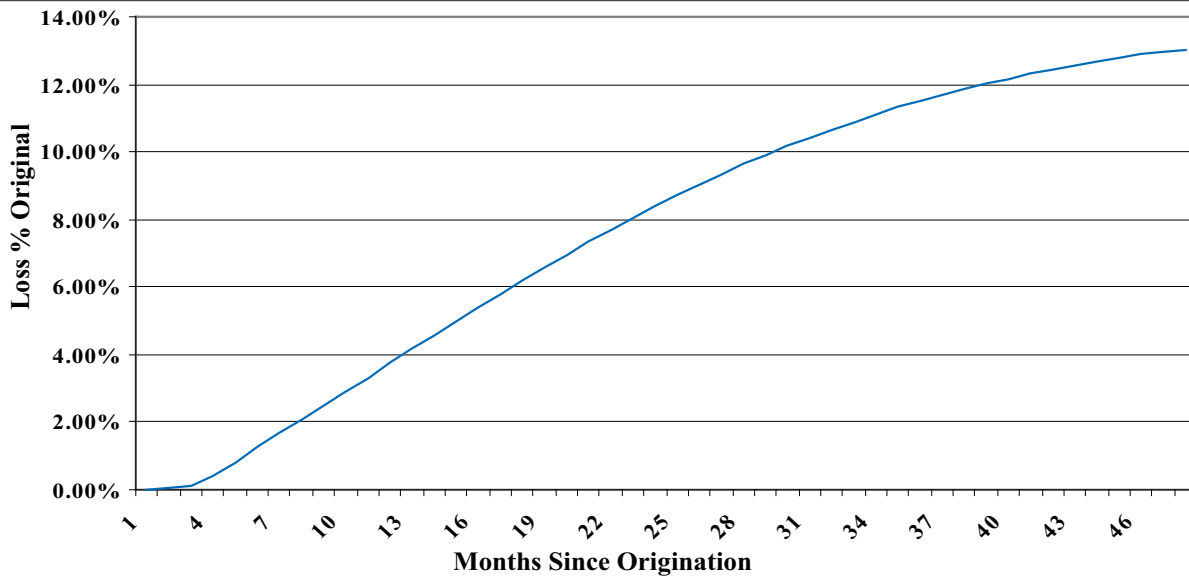
## **LOSS TIMING**

DBRS analyses the historical performance data to develop a loss curve that reflects when losses are expected to be experienced during the life of the transaction. Loss timing is an important component of the cash flow analysis as it impacts the availability of excess spread to cover losses and other potential liquidity stresses.

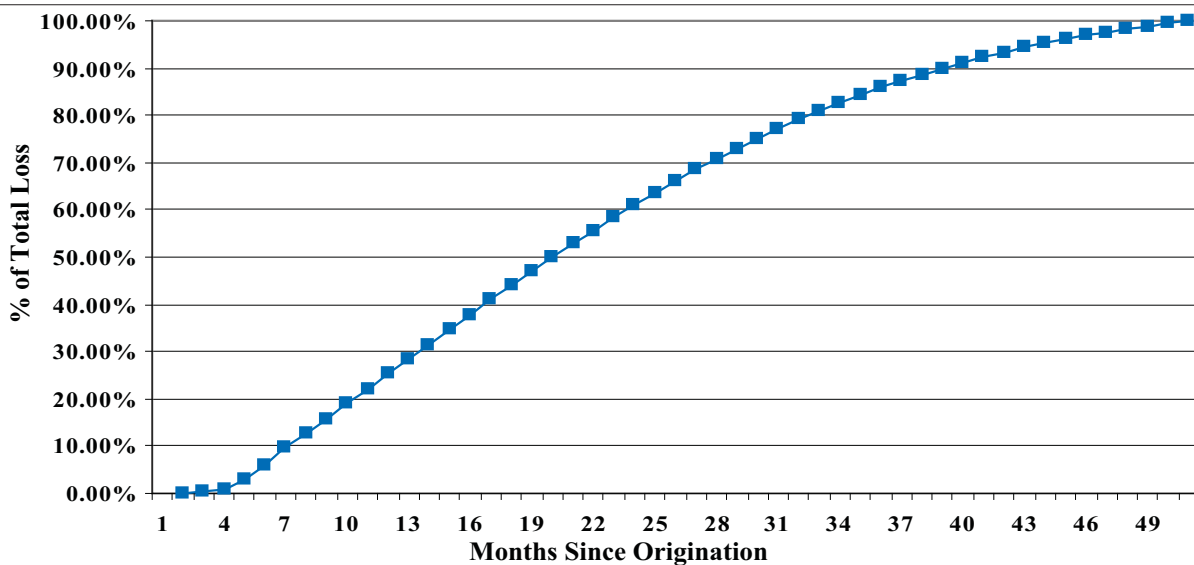
To describe the process and results of DBRS loss timing analysis, consider again the static pool data initially described above as data set 1. DBRS aggregates all of the available historical loss curves to develop the average amount of losses experienced at each period since origination. This average curve is then further subjected to a curve smoothing technique that determines the most representative loss curve shape by minimising the squared error among the historical curves and the predicted curve. The results of this analysis are the smoothed curve shown in the first chart below with further detail on the loss timing illustrated on the second chart on the next page. In this example, losses are assumed to be distributed approximately 30%/35%/20%/15% in years one through four, respectively.



**Smoothed Curve - Data Set 1**



**Loss Timing Curve - Data Set 1**



After the base shape of the loss curve is determined, DBRS develops alternative loss distributions to evaluate scenarios; whereby, losses materialise quicker or later than expected as might be the case if the economy entered a recession shortly after a transaction closed or towards the tail end of the transaction’s life. The front-loaded loss scenarios typically add stress to the credit enhancement levels of senior securities in the structure while back-ended losses cause hardship to the subordinated bonds. For structures whereby losses are shared concurrently among the various credit tranches, DBRS may apply stresses to the mid-section of the transaction (refer to Belly scenario on the following page).



Year	Loss Amortisation Vector*		
	Back Ended	Front Ended	Belly
1	25%	40%	30%
2	30%	40%	50%
3	25%	15%	15%
4	20%	5%	5%
<b>Total</b>	100%	100%	100%

\*Note: The respective amount of losses is spread evenly throughout the number of periods.

## PREPAYMENTS

Evidenced by historical performance, prepayments in retail auto loans, as a percentage of the vintage origination volume, are very stable and generally independent of interest rates. Refinancing activity in the auto loan sector is muted for two reasons. Firstly, the depreciating nature of the collateral results in a reduced incentive for lenders to offer refinancing. Secondly, auto loans have a very short term to maturity reducing borrowers' incentive to seek refinancing.

DBRS assumptions for prepayments are reflective of the actual speeds experienced by collateral similar, in all material respects, to that being securitised. The voluntary prepayment speed is then modelled separately from projected losses. To stress excess spread, the voluntary prepayment speed is increased, thereby reducing the effective life of the asset pool.

---

## Consumer and Commercial Lease ABS

---

### OVERVIEW

Leases in the context of ABS include leases for vehicles (both road-going and industrial), equipment (e.g. industrial, medical, computing), real estate in addition to other types of assets. The participants in the lease market include banks, captive finance subsidiaries of vehicle and equipment manufacturers and independent finance companies.

A finance lease is a contractual arrangement whereby a lessor purchases an asset and makes it available to a lessee (or end-user) for the term of the lease in exchange for the payment of regular instalments. At the end of the lease contract, the lessee may have an option to acquire the asset at a predetermined price (a closed-end lease) or may be committed to purchase the asset at a predetermined price (an open-end lease). The predetermined price, or residual value, is set so that the net present value of the instalments plus the residual value is equal to the amount financed upfront by the lessor. Consumer leases typically provide for level instalments whereas commercial leases may be more complex, including 'interest only' periods or tailored instalments.

At the end of a closed-end lease term, the end user has an option to purchase the asset for a predetermined amount from the bank or a finance company. At that time, the end-user is likely to evaluate the value of the asset versus the cost of acquiring the asset from the lessor. If the value of the asset falls short of the cost of buying it, the end-user is likely to forfeit the option.

The prevalence of open-end or closed-end leases varies by jurisdiction, related to the legal and tax environment and customer preferences. Lease ABS transactions may involve the securitisation of closed-end leases, open-end leases or only the instalments of leases to the exclusion of the residual value payments.

The analysis of the lease characteristics backing a securitisation provides insight into the manner in which the securitised pool of receivables is likely to perform. This analysis is substantially similar to that for a



pool of loans with the key difference being the need to consider the residual value risk that accompanies closed-end lease transactions. Residual value risk is highly dependent on the type of leased asset. The rest of this section focuses on the analysis of closed-end auto leases, which are the more prevalent lease securitisation asset. In the case of other assets, DBRS assesses the residual value risk on a case by case basis, taking into account similar considerations.

## COLLATERAL ANALYSIS

In the case of auto leases, DBRS focuses on the following key collateral characteristics when analysing lease transactions:

- Original and Remaining Term
- Remaining Term Distribution
- Finance Charge or Interest Rate
- Vehicle Make and Model
- Geographic Distribution
- Residual Value Determination

### *Original Term*

Auto lease products offered to consumers range in term from 12 to 60 months. The 12 and 60 months lease products are only offered by select institutions, while the bulk of the institutions focus on 24, 36 and 48 months leases. As a result, on average, the term of securitised pools of leases is much shorter than the average term of auto loans. In a typical securitised auto lease pool, the term generally ranges from 24 month to 48 months, and has an average term of less than 36 months.

The vehicle depreciation curve is very steep over the first year and most leading experts estimate the average first-year depreciation at 15% to 25% of the purchase price of the car. On average, over the next four years, a vehicle loses 10% to 15% of its value annually. However, there is wide variability among makes and models with the rate of depreciation affected by factors such as vehicle condition and mileage driven. Furthermore, the resale value at the end of the leases' term can be impacted by wholesale market conditions. Consequently, the longer the term of the lease, the higher the uncertainty associated with the depreciation rate and wholesale market conditions and consequently, higher residual value volatility.

### *Remaining Term Distribution*

The term maturity schedule of a securitised pool is another important attribute that is examined by DBRS. A maturity of a large portion of the lease contracts within a short time-frame may place the transaction under potentially higher residual loss risk because large off lease vehicle volume may impact the auction proceeds negatively by increasing supply at a possibly inopportune time of weaker wholesale used car market conditions. Therefore, DBRS examines the lease term maturity distribution within the securitised pool. An even distribution of lease maturities diminishes the proportion of the pool subject to (potentially depressed) market conditions at any single point in time.

### *Finance Charge*

The monthly finance fee as measured by the money factor charged on the lease is a function of the market environment and prevailing interest rates. However, all else equal, leases that are characterised by the underwriter as a higher risk tend to have higher finance charges when compared to less risky lessees. Further, finance charges can be influenced by commercial incentive programs<sup>5</sup>.

---

5. In an effort to increase sales, car manufacturers commonly offer interest rate incentives through their captives to the lessees. Such subsidies can result in a dramatic reduction of interest rates on the leases relative to market conditions. It is not uncommon to see subvented leases carry interest rates as low as 0%.



### *Vehicle Make and Model*

The distribution of the pool in terms of vehicle make and model is important in order to diversify the risk associated with any particular make or model. Residual values vary by manufacturer, vehicle make and model and can be impacted by economic factors as well as manufacturer specific items such as body style discontinuances or deterioration in the financial condition of the manufacturer resulting in concerns about their ability to satisfy warranty claims.

### *Geographic Distribution*

The geographic distribution of a pool of lease contracts is important in auto lease securitisations in order to limit the effect of any downturn in economic conditions of any particular region.

### *Residual Value Determination*

The residual value or amount that the vehicle is expected to be sold for at the end of the lease is determined at the inception of a lease by the finance company. Contractual residual value has an impact not only on monthly lease payments but also on consumer behaviour at the end of the lease term. By assuming rational behaviour, DBRS expects that a consumer who has the option to purchase a vehicle at less than its market value will do so. Conversely, a consumer who knows that the contracted residual value is higher than the market value of that vehicle is likely to return the vehicle to the lessor, in effect transferring that loss to the lessor.

If the contractual residual value is set conservatively, the actual market value of the leased vehicle at the end of the term may be above the contractual value. It is reasonable to assume that the lessee is likely to exercise the purchase option as the required payment would be lower than the actual value of the vehicle. Therefore, a conservative residual value setting policy lowers residual value risk for a securitisation. Conversely, by setting a contracted residual value higher than what the estimated true market value of the vehicle will be at the end of the lease term has the effect of decreasing the required monthly payment from the lessee. Over the term of the lease, however, the lessor will receive lower cumulative payments and, at the end of the term, the lessee would be less likely to exercise the purchase option as the required payment is greater than the expected market value. Such a residual value setting policy is expected to result in higher residual risk exposure for a securitisation as a higher volume of the off-lease vehicles will be returned to the lessor.

To set the residual values, lessors either utilise proprietary models to approximate the future fair market value of each vehicle financed under a lease or employ residual values determined by third-party information providers. Lessors may set the residual value at a higher level in order to make the vehicle more affordable to the consumer and help to drive sales.

In addition to less conservative residual value policies, some lessors increase the estimated actual value of the off-lease vehicles by subventing residual values and making the contracts more desirable for lessees as the monthly payments are lowered. DBRS examines the residual value policy to gauge the expected residual value exposure for each securitisation.

## **ESTABLISHING LOSS PROJECTIONS AND CASH FLOW ANALYSIS**

In lease transactions, potential losses include both credit losses and residual value losses. The risk of residual value losses comes from vehicles turned in by lessees to the bank or finance company. Credit losses generally represent the smaller portion of the total risk imbedded in auto lease transactions as the obligors are typically high quality. Residual value losses represent a larger portion of the total expected losses and tend to be volatile and therefore present greater challenges in deriving a base case loss assumption.

DBRS applies a number of stresses to assess the robustness of the transaction structure and ability of securities to withstand a strained environment and employs a cash flow model that incorporates transaction specific terms and conditions such as triggers and credit enhancement characteristics. DBRS does not determine credit enhancement levels for each transaction. It simply determines ratings using proposed credit enhancement levels.



## CREDIT LOSSES AND STRESS MULTIPLES

To determine credit losses on a pool of leases, DBRS analyses static pool loss data in the same manner it does for term loan ABS utilising the techniques previously described in this report. The typical expected loss coverage multiples are summarised in the chart below. The stress multiples ensure that the expected default rate of the rated instrument, as assessed by DBRS, is in line with DBRS published idealised default rates. It should be emphasised that the ranges below are indicative and may be lower or higher to the extent that DBRS estimate of the loss distribution for a specific collateral pool imply different values or to the extent that DBRS has a particularly positive or negative view of other factors that can influence transaction performance.

Requested Rating	Multiple Range
AAA	4.0-6.0
AA	3.0-4.0
A	2.0-3.0
BBB	1.5-2.0
BB	1.25-1.5

## TURN-IN RATES AND RESIDUAL LOSSES

The residual value risk in the transaction depends upon two factors: 1) the turn-in rate or percentage of vehicles returned to the lessor at the end of the lease term; and 2) the market value of the vehicles in the pool compared to the contractual residual value at the end of the lease term.

### *Turn-in Rates*

The turn-in rate depends in part on the lessees' choice regarding the exercise of the vehicle purchase option at the lease maturity. The higher the percentage of lessees that choose to repurchase the vehicles at lease maturity, the lower the turn-in rate and the lower the residual value risk. Turn-in rates are also influenced by customer defaults and insurance proceeds collected in connection with accidents or other related issues. Turn-in rates can vary widely and tend to rise during periods of adverse wholesale market conditions.

In establishing a base case turn-in rate, DBRS focuses on turn-in rates of non-defaulted obligors. When a lessee purchases the leased vehicle instead of turning it in, the lessee does so at a contractual residual value which is either higher or equal to the securitised residual value. Correspondingly, a lessee purchase results in either a gain or full lease residual value payments for a securitised pool. As a result, lower turn-in rates provide a benefit to a lease securitisation.

DBRS establishes a base case turn-in rate assumption by examining a sponsoring entity's historical data, where past turn-in rates per make and model are used as a proxy to estimate future turn-in rates for similar makes and models. DBRS applies stresses to the projected base case at successively higher levels for each successively higher requested rating level.

The turn-in rate first depends upon the survival rate which is the proportion of all leases on which all scheduled payments are successfully made to the end of term and the lessee must choose to turn in the vehicle or exercise their purchase option. Even in an unstressed environment, there will always be some early terminations (arising from default-triggered repossessions, for example), while other vehicles will inevitably be stolen, written off due to accident, or see their lessees move abroad or otherwise experience lifestyle changes that may affect their need for a replacement vehicle. In these cases, the lease will expire prior to its scheduled termination and is unlikely to generate a meaningful loss. Of the many factors leading to early termination, the repossession rate has the largest influence on turn-ins or survivorship, particularly in a stress scenario where that rate is assumed to be several multiples of the historical level. DBRS also considers the total number of vehicles in the pool that can be considered "scheduled turn-



ins” (due to the expected negative equity position of lessee at the end of the term) during the term of the transaction.

### *Residual Values*

Residual values are typically set according to published industry guides. Originators use the industry guides as a foundation to set their base residual value, which may be subsidised by a manufacturer to achieve a desired monthly payment amount or market penetration rate. To the extent that the subsidised residual value is included in the securitisation, DBRS would expect the transaction to incorporate sufficient credit enhancement sized to accommodate the amount of embedded loss. More often, lease securitisations will look to minimise or eliminate the amount of the embedded loss by securitising the lower of: 1) the residual value as initially forecast by the industry guide, 2) the current industry guide forecast (essentially a mark-to-market of the lease residual values) and 3) the contractual residual value.

To analyse an issuer’s historical residual value performance, DBRS compares the forecasted residual value at lease inception to the value of the vehicle at lease end, as determined by the actual sale proceeds upon disposal. DBRS requests this information be provided for the prior three to five years, and DBRS further requests that the information be provided by lease term for each make and model. DBRS uses this information to calculate the historical average loss relative to the industry guide forecast for each make and model included in the securitisation. DBRS also uses this data to assess the variability of residual losses relative to the expectations for the issuer.

To determine the adequacy of protection for noteholders, DBRS assumes volatility in the underlying market value of the vehicles caused by unanticipated market developments, leading to a systematic over-estimation of contractual residual values. The DBRS methodology is based on the assumption that the industry guide forecasts will not reflect all of the potential factors that could result in a systemic devaluation of the vehicles at the end of the lease term. DBRS applies stresses to the projected base case at successively higher levels for each successively higher requested rating level.

The methodology is best illustrated with an example. Take the case of a vehicle with a contractual residual value of €12,000 and an industry guide forecasted residual value of €11,000. In applying a 30% stress, DBRS reduces the lower of the contractual residual value or the industry guide forecast by 30.0%. In this example, the industry guide is the lower of the two values and would serve as the base for the stress. The stressed residual value estimate would be equal to €7,700 [ $€11,000 * (1 - 30\%)$ ].

---

## Credit Card ABS

---

### OVERVIEW

A credit card typically provides a cardholder with a maximum amount that may be borrowed and stipulates an interest rate to be applied to balances that are not paid in full each month. The interest rate on credit cards may be either fixed or floating. Outstanding cardholder balances increase as charges are made and decrease through cardholder principal payments. Finance charges include interest that accrues on unpaid revolving principal balances as well as other charges such as late payment fees or over-limit charges. Finance charges may also include interchange which represents fees received by card issuers from entities such as MasterCard Worldwide and Visa Inc. to compensate the card issuers for assuming interim cardholder credit risk and fraud. Interchange fees are not paid by cardholders; generally, they are remitted to the sponsors and contributed to some credit card master trusts in order to supplement the yield in the master trust.

## MASTER TRUSTS

Credit card securitisations typically employ a master trust structure, which provides a sponsor with the ability to issue multiple series backed by the same asset pool, unlike a discrete securitisation, where there is a separate collateral pool backing each transaction. As credit card receivables have relatively short maturities – generally ranging from six to 12 months – master trust structures incorporate a revolving period, whereby principal collections are invested in new receivables, which facilitates the longer-term financing of shorter-term assets.

Most credit card trusts utilise a senior-subordinate financial structure, with the senior Class A notes holding a higher priority to the subordinate Class B and/or Class C notes. Accordingly, Class B notes also hold a higher priority to Class C notes. When excess spread, defined as finance charge collections in excess of note coupon and transaction expenses, is exhausted, charge-offs are often absorbed by reserve accounts and then allocated against note principal in reverse priority order, beginning with the most subordinate classes of notes.

Master trusts are generally divided into investors' and seller's interests. The investors' interest is determined by the aggregate amount of notes outstanding divided by the master trust receivables balances. The seller's interest is the residual amount, or the difference between the balance of the master trust receivables and the notes. Generally, credit card securitisations require a minimum seller's interest, usually 4% to 7% of the trust note balance.

The minimum seller's interest exists to absorb fluctuations in the trust receivables balance that may occur due to changes in cardholder account balances or reductions in the receivables balance that stem from factors other than defaults or payments, such as merchandise returns, rebate or rewards programs, non-complying receivables and fraud. The seller's interest also absorbs declines in receivables resulting from a breach of a representation or warranty by the seller. The seller's interest ranks *pari passu* with the investor interest in terms of monthly cash flow allocations and is typically not included in the calculation of credit enhancement in securitisations. Generally, when the seller's interest falls below the level required to satisfy the minimum seller's interest test, the sponsor must add receivables in an amount that restores the seller's interest to the minimum level. If the minimum seller's interest is not restored within a pre-set time frame, an early amortisation event is normally triggered and the notes begin to amortise.

## MASTER TRUST CASH FLOW ALLOCATIONS

Cash flows that are collected in credit card securitisations are segregated into two components: principal collections and finance charges. Allocations to each series depend on whether the series is in the revolving, accumulation or amortisation period. The accumulation period is one during which cash is accumulated in anticipation of the redemption in one single payment of a particular series of notes. The amortisation period is one in which proceeds are not accumulated within the structure but passed straight through such that the notes amortise progressively. The amortisation period may arise as a result of the breach of a performance trigger or the failure to amortise a 'soft-bullet' note on time or may be 'controlled', that is intended as an alternative method of amortisation notwithstanding good asset performance.

### *Fixed and Floating Allocation Methods*

Once the revolving period ends, principal collections are used to amortise issuer debt, usually using the fixed allocation method. Under the fixed allocation method, principal collections are allocated to a series based on their respective interests in the master trust as of the end of the revolving period. In the fixed allocation method, the numerator is a constant amount and is equal to the amount of the outstanding series note balance as of the end of its revolving period. The denominator of the ratio, however, is the principal amount of receivables, which can change with each period. Since the numerator remains constant as the series amortises, the use of the fixed allocation method generally amortises principal more quickly than a pro rata allocation of principal among series. In the floating allocation method, both numerator and denominator of the ratio described above are updated on each calculation date.



The use of different allocation mechanisms in different periods of the master trust's life aims to afford the sponsor the flexibility to issue as much or as little debt as desired while ensuring adequate asset cover and credit protection for note holders. The table below describes a typical master trust allocation scheme.

**Table 1: Method of Allocation**

	Investor Interest			Seller Interest		
	Finance Charges	Receivable Charge-Offs <sup>1</sup>	Principal	Finance Charges	Receivable Charge-Offs <sup>1</sup>	Principal
Revolving Period	Floating	Floating	Floating <sup>2</sup>	100% – Floating	100% – Floating	100% – Floating
Accumulation Period	Floating	Floating	Fixed	100% – Floating	100% – Floating	100% – Fixed
Amortisation Period	Floating or Fixed <sup>3</sup>	Floating	Fixed <sup>4</sup>	100% – Floating/ Fixed	100% – Floating	100% – Fixed

1. Technically, structures refer to receivable charge-offs as either investor defaults or investor charge-offs. The difference between investor defaults and investor charge-offs relates to how the charge-off will be handled. As long as there is excess spread, a receivable default will be covered with finance charge collections, or excess spread. If excess spread is insufficient to cover the default, it will be deemed an investor charge-off. At this point, the investor charge-off will cause a draw on enhancement or a writedown of the most subordinate class of notes (some trusts will re-allocate unencumbered principal collections to cover charge-offs).
2. Although series principal collections are not distributed, amounts allocable to the series are calculated.
3. For some transactions, finance charges may be allocated using the fixed allocation method if an early amortisation event occurs (see the Fixed and Floating Allocation Methods section below for further details).
4. Some trusts issued "paired series." With paired series, the allocation of principal may be "re-fixed" during the initial series amortisation.

## CASH FLOW STRESS SCENARIOS

Cash flow scenarios are executed for each class of debt, with each higher-priority class subjected to successively more severe assumptions. The bases of the cash flow include collateral inputs consisting of yield, payment rate and loss rates; proposed capital structure; priority of payments; transaction expenses; and interest rate and basis risk curves.

From a financial structure perspective, credit card securitisations normally incorporate the concept of an early amortisation event, which when triggered, accelerates the end of the revolving period and the onset of the amortisation period. Early amortisation may be triggered due to the insolvency of the sponsor and other sponsor-related issues, in addition to declining performance of the credit card receivables. From a modelling perspective, DBRS assumes a transaction enters an early amortisation period due to a breach of the base rate trigger, which signals a decline in the performance of the collateral. For all rating levels, DBRS assumes the trigger to be breached.

### *Base Case Performance Metrics:*

The purpose of DBRS cash flow stress scenarios is to evaluate proposed credit enhancement levels for each desired rating in the capital structure of a transaction. Generally, DBRS establishes base or expected case assumptions for each key collateral performance metric, including yield, payment rate, charge-offs or loss rate and purchase rate. The cash flow scenarios reflect stresses applied to the base case assumptions for each rating level, with successively higher stresses applied at each successively higher rating level. Specifically, the stresses assume a decline in the base case yield and the base case principal payment rate assumption and an increase in the base case charge-offs or loss rate. DBRS may also apply a purchase rate stress, which reflects the rate at which new receivables are created under designated accounts. The specific stresses applied by rating level are summarised in the table below. The cash flow scenarios incorporate the financial structure, priority of payments and payment of transaction expenses, such as servicing and the occurrence of an early amortisation event. As credit card receivables transactions are subject to interest rate and basis risk, DBRS cash flow stress scenarios incorporate interest rate and basis risk curves.



**Table 2: Summary of Credit Card Performance Metric Stresses by Rating Category**

	AAA	AA	A	BBB	BB
Yield (reduction of base case)	30–45%	25–35%	20–30%	15–25%	5–10%
Monthly Payment Rate (reduction of base case)	35–50%	35–45%	30–40%	25–35%	10–20%
Charge-Offs (multiple X base case)	4.0–5.0x	3.0–4.0x	2.5–3.5x	2.0–2.5x	1.5–2.0x

DBRS may apply a purchase rate stress to slow or stop the addition of new receivables and any increase in the pool balance. The purchase rate stress used in the DBRS credit card securitisation model varies based on the quality of the sponsor, the ability of the sponsor to generate receivables over time and the desired note rating. In most cases, DBRS assumes the sponsor is no longer able to generate new receivables; therefore, the purchase rate stress is 100%, thereby transforming the receivables pool into an amortising pool.

DBRS assumes a transaction enters early amortisation due to a breach of the base rate trigger as defined in the transaction documents. Depending on the stress scenarios being modelled, the breach typically occurs between months six and ten in the cash flows in the senior bond rating category and between months ten and 18 in the subordinate bond rating categories. In all cash flow stress scenarios, when in early amortisation, collections are diverted to repayment of outstanding notes and not invested in additional receivables.

In the cash flow stress scenarios, yield and principal payment rate are assumed to decline in a linear manner from the base case yield and principal payment rate assumptions beginning in month six and ending in month 18. After month 18, the yield and principal payment rate are held constant. Charge-offs are assumed to increase at a multiple of the base case charge-off figure, with the actual multiple applied dependent on the quantitative and qualitative factors described in this report. Charge-off levels increase in a linear manner starting in month six and ending at month 18, at which point charge-off levels are held constant.

## INTEREST RATE AND BASIS RISK

Credit card interest charges to consumers are based on either a fixed or floating rate. The majority of credit cards are subject to finance charges that are floating rate in nature, but finance charges are controlled by the credit card issuer. Note coupons for credit card securities can be either fixed or floating rate. Floating-rate note coupons usually use one-month or three-month EURIBOR<sup>6</sup> or LIBOR<sup>7</sup> as a benchmark.

Interest rate risk in credit card transactions stems from the mismatch between the timing of the rate resets for credit card receivables and the note coupon rates. Basis risk stems from the difference between the interest rate indices used to calculate interest and finance charges billed to credit card customers and the transaction liabilities.

To assess the impact of basis risk on a transaction's excess spread, DBRS assumes that floating-rate credit receivables re-price in accordance with their index on a lagged basis. To assess the impact of interest rate risk, DBRS assumes that floating-rate ABS note coupons are subjected to a stress in accordance with DBRS Unified Interest Rate Model for European Securitisations while credit card rates remain fixed.

6.European Interbank Offered Rate

7.London Interbank Offered Rate

Copyright © 2011, DBRS Limited, DBRS, Inc. and DBRS Ratings Limited (collectively, DBRS). All rights reserved. The information upon which DBRS ratings and reports are based is obtained by DBRS from sources DBRS believes to be accurate and reliable. DBRS does not audit the information it receives in connection with the rating process, and it does not and cannot independently verify that information in every instance. The extent of any factual investigation or independent verification depends on facts and circumstances. DBRS ratings, reports and any other information provided by DBRS are provided "as is" and without representation or warranty of any kind. DBRS hereby disclaims any representation or warranty, express or implied, as to the accuracy, timeliness, completeness, merchantability, fitness for any particular purpose or non-infringement of any of such information. In no event shall DBRS or its directors, officers, employees, independent contractors, agents and representatives (collectively, DBRS Representatives) be liable (1) for any inaccuracy, delay, loss of data, interruption in service, error or omission or for any damages resulting therefrom, or (2) for any direct, indirect, incidental, special, compensatory or consequential damages arising from any use of ratings and rating reports or arising from any error (negligent or otherwise) or other circumstance or contingency within or outside the control of DBRS or any DBRS Representative, in connection with or related to obtaining, collecting, compiling, analyzing, interpreting, communicating, publishing or delivering any such information. Ratings and other opinions issued by DBRS are, and must be construed solely as, statements of opinion and not statements of fact as to credit worthiness or recommendations to purchase, sell or hold any securities. A report providing a DBRS rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. DBRS receives compensation for its rating activities from issuers, insurers, guarantors and/or underwriters of debt securities for assigning ratings and from subscribers to its website. DBRS is not responsible for the content or operation of third party websites accessed through hypertext or other computer links and DBRS shall have no liability to any person or entity for the use of such third party websites. This publication may not be reproduced, retransmitted or distributed in any form without the prior written consent of DBRS. ALL DBRS RATINGS ARE SUBJECT TO DISCLAIMERS AND CERTAIN LIMITATIONS. PLEASE READ THESE DISCLAIMERS AND LIMITATIONS AT <http://www.dbrs.com/about/disclaimer>. ADDITIONAL INFORMATION REGARDING DBRS RATINGS, INCLUDING DEFINITIONS, POLICIES AND METHODOLOGIES, ARE AVAILABLE ON <http://www.dbrs.com>.



*Insight beyond the rating.*

[www.dbrs.com](http://www.dbrs.com)

---

**DBRS Ratings Limited**  
25 Copthall Avenue  
London, EC2R 7BP  
United Kingdom  
+44 (0)20 3137 9511