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METHODOLOGY

# Rating European Consumer and Commercial Asset-Backed Securitisations

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## Table of Contents

Scope and Limitations	3
Executive Summary	3
Operational Risk Review	4
Collateral Analysis	5
Static Default Analysis	7
Loss Coverage and Rating Stresses	10
Transaction Financial Structure	10
Cash Flow Analysis	12
Term Contract Asset-Backed Securitisations	12
Consumer and Commercial Leases with Residual Value	18
Credit Cards and Revolving Lines of Credit	22

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DBRS is a full-service credit rating agency established in 1976. Spanning North America, Europe and Asia, DBRS is respected for its independent, third-party evaluations of corporate and government issues. DBRS's extensive coverage of securitizations 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 organized, 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.

## Scope and Limitations

DBRS evaluates both qualitative and quantitative factors when assigning ratings to a European structured finance transaction. This methodology represents the current DBRS general approach for rating securitisations issued in Europe (with collateral originated in Europe). It describes the DBRS approach to analysis, which includes: (1) a focus on the quality of the sponsor/servicer, (2) evaluation of the collateral pool and (3) utilisation of historically employed credit evaluation techniques. This report also outlines general methods DBRS typically employs when assessing a transaction and assigning a rating as well as more specific approaches for particular asset classes. It is important to note that the methods described herein may not be applicable in all cases. Further, this methodology is meant to provide guidance regarding the DBRS methods used in the sector and should not be interpreted as prescribing a rigid template, but understood in the context of the dynamic environment in which it is intended to be applied.

This methodology addresses the rating process applicable to various asset classes and a variety of European jurisdictions. However, from case to case the present methodology will have to be read in conjunction with other relevant applicable methodologies or legal criteria as the case may be. DBRS may also adjust the approach or resolve on the best applicable methodology on a case-by-case basis.

Each European jurisdiction exhibits a different legal framework, as well as different market practices and product characteristics. The methodology applies across all European jurisdictions. DBRS's 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.

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## Executive Summary

This methodology summarises DBRS's rating approach for European consumer and commercial asset-backed securities (ABS) transactions and is most applicable to revolving and amortising consumer and commercial loan transactions where the underlying pool of assets or receivables consists of one or more large homogeneous pool(s) of assets. The methodology covers term and revolving loan contract asset-backed securitisations including secured loans such as some auto loans and leases (including or not including residual values) and unsecured loans such as credit cards and personal loans (ABS).

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

- Operational risks related to the originator(s) and servicer(s);
- Collateral and performance analysis;
- Capital structure and available credit enhancement;
- Cash flow analysis; and
- Consistency of a transaction's legal structure and opinions with DBRS's *Legal Criteria for European Structured Finance Transactions* methodology.

DBRS's review typically comprises an operational risk review<sup>1</sup> of the originator and servicer, including its origination, underwriting and servicing procedures and policies. The operational risk review and assessment provides insight into the manner in which these processes have affected past asset performance and assists in establishing an expectation of future performance of the asset pool to be securitised.

As part of the rating analysis, DBRS normally reviews the characteristics of the asset pool to be securitised and analyses the originator's historical performance and/or assets of a similar nature to project a cumulative net loss expectation for the pool (expected net loss). DBRS then usually applies stresses to the expected net loss for each successively higher rating level. While the focus of DBRS's analysis is typically on the expected net loss and the past volatility of net losses, DBRS also analyses

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1. Please refer to the DBRS methodologies (1) *Operational Risk Assessment for European Structured Finance Originators* and (2) *Operational Risks Assessment for European Structured Finance Servicers*.

historical default (gross loss) data and historical recovery data. As for net losses, the aim of such performance analysis is to project cumulative defaults (expected gross loss), the expected average recovery rate and the historical variability of defaults and recoveries.

For each assigned rating, DBRS analyses the transaction structure under various stress scenarios to determine the ability of the transaction to repay investors in accordance with the terms of the transaction.

DBRS reviews the transaction's legal structure and opinions for consistency with DBRS's *Legal Criteria for European Securitisations* methodology.

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## Operational Risk Review

### Originator Review

The originator review process evaluates the quality of the parties that originate the loans that are about to be securitised in a transaction rated by DBRS. While DBRS does not assign formal ratings to these processes, it typically conducts operational risk reviews to assess the quality of an originator in the context of the transaction and incorporates the results of the review into the rating process.

DBRS typically begins the initial originator review process by sending a questionnaire to the company that outlines the topics to be covered during the discussion with management and includes a list of documents to be provided such as organisational charts, financial statements and underwriting guidelines. In instances where DBRS determines that the originator is below average, issuers may incorporate certain structural enhancements into a proposed transaction such as additional credit support or a third-party firm to provide the requisite representations and warranties so that DBRS can rate the transaction. In the event that DBRS determines that an originator is unacceptable, it may refuse to rate the deal.

The originator review process typically involves a review and analysis of the following:

1. Company and management;
2. Financial condition;
3. Controls and compliance;
4. Origination and sourcing;
5. Underwriting guidelines;
6. Technology.

For details on the originator review process, please refer to the DBRS's *Operational Risk Assessment for European Structured Finance Originators* methodology.

### Servicer Review

The servicer review process evaluates the quality of the parties that service or may conduct back-up servicing on the loans that are about to be securitised in a transaction rated by DBRS. While DBRS does not assign formal ratings to these processes, it typically conducts operational risk reviews to assess the servicer quality in the context of the transaction and incorporates the results of the review into the rating process.

DBRS typically begins the initial servicer review process by sending a questionnaire to the company that outlines the topics to be covered during the discussion with management and includes a list of documents to be provided such as organisational charts, financial statements and performance statistics. In instances where DBRS determines that the servicer is below average, issuers may incorporate certain structural enhancements into a proposed transaction such as additional credit support, dynamic triggers or the presence of a warm or hot back-up servicer so that DBRS can rate the transaction.

The servicer review process typically involves an analysis of the following:

1. Company and management;
2. Financial condition;
3. Controls and compliance;
4. Loan administration;
5. Customer service;
6. Account maintenance;
7. Default management:
  - a. Collections,
  - b. Loss mitigation,
  - c. Bankruptcy,
  - d. Fraud;
8. Investor reporting;
9. Technology.

For details on the servicing review process, please refer to DBRS's *Operational Risk Assessment for European Structured Finance Servicers* methodology.

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## Collateral Analysis

### Data Request

As part of the rating analysis<sup>2</sup> DBRS analyses historical performance data provided by one or more originators or sponsoring entities. When possible, DBRS also considers the originator's experience in the context of the performance of the relevant market segment (e.g. existing transaction performance, peer data, market data). For consumer and commercial ABS transactions where the assets are sufficiently granular, DBRS utilises this historical data to help assess future performance. Preferably, DBRS expects issuers to provide data and information, as described herein, that cover performance during various economic cycles.

### Static Pool Data

DBRS loss analysis focuses on static pool data from discrete groups of loans originated over a relatively short period of time. Ideally, these time periods should be monthly. DBRS prefers to review static-pool default (or gross loss), recovery and net loss data separately. In particular, DBRS usually expects separate static pool recovery data to be provided to better understand the volatility drivers behind each figure and to develop more appropriate stresses. For example, if only static pool net loss data were reviewed, periods of elevated defaults could be masked during periods of strong recoveries. When only net loss data is available, DBRS typically estimates gross default and recovery inputs.

Typically DBRS receives a minimum of three to five years of seasoned performance history from an issuer to perform a rating analysis. For cases where static pool default, recovery and loss data is unavailable, DBRS may consider using managed portfolio data as a proxy; however, this approach has certain limitations. Firstly, portfolio performance measures, such as defaults and recoveries, may be lowered by a growing denominator of receivables during portfolio expansion. While it is possible to adjust the calculations to address this phenomenon, these adjustments do not provide insight into the timing of defaults and losses, which is an important component of DBRS analysis during transaction cash flow modelling. In addition, utilising only aggregate portfolio net returns makes it difficult to adjust for changes in asset composition, and the amount and timing of recoveries can also be obscured. DBRS may, therefore, request supplemental data to refine its default and loss projections, and may consider proxy data, such as the performance of similarly originated assets, within the same jurisdiction. In cases where originator-specific data is limited or unavailable, DBRS may use proxy data and higher expected net loss projections against such data, or may decline to rate such transaction. In the absence of adequate performance history, DBRS may decline to rate the transaction as a result of an insufficiency of provided data.

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2. In this report unless otherwise stated, the methodology should be understood to apply similarly to loans, leases and to any other relevant form of financing.

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 so that cash flow stresses are constructed in a way that properly addresses the collateral's loss profile.

### **Pool Characteristics**

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 default and loss sample should mirror the characteristics of the securitised 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 higher share of longer-term loans, which are likely to have higher losses. 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, amortisation type, new versus used financed assets, etc. In cases where sufficient loss performance detail has been provided, DBRS can refine its loss analysis by using the data to determine an expected net loss for each distinct component of the pool and then use this information to develop a weighted-average (WA) expected net loss for the securitised pool based on the relative contribution of each segment.

### **Asset Characteristics**

DBRS reviews the characteristics of the assets being securitised on an aggregate basis. In a typical granular ABS transaction, DBRS may rely on pool stratifications and a review of the asset pool on a loan-by-loan basis is not usually performed. DBRS usually 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 have exhibited different credit behaviour, DBRS normally analyses each of the sub-pools separately.

Asset deterioration may be affected by the existence of revolving or pre-funding periods (such as ramp-up or warehousing), since the characteristics of the underlying asset pool may change due to changes in origination or market standards, the evolution of economic cycles and other factors.

### ***Revolving Periods – Eligibility Criteria***

Pool performance risks are generally higher for transactions including revolving or reinvestment periods because of the potential deterioration of origination standards and the increased risk of an economic downturn occurring during the life of the transaction. Furthermore, assignment of additional receivables after inception may alter the characteristics of the pool modifying the balance of the distinct homogeneous sub-components. Within the transaction's legal documents, restricting conditions to further assignments included in a revolving transaction help to establish a threshold for asset quality and are an important part of maintaining pool consistency. Such conditions are usually in the form of eligibility criteria applicable to certain types of loans and concentration or performance limits. An absence of restrictions upon assets subsequent to the closing of the transaction is usually addressed by DBRS assuming adverse selection, although DBRS may, to some extent, rely on the consistency and continuity of origination policies.

### ***Eligibility Criteria – Pre-Funding Periods***

Eligibility criteria and other limits also play an important role in transactions that provide for a pre-funding period feature, where monies are expended over time to purchase new assets. In such transactions, DBRS typically conducts its credit analysis assuming that the pre-funded portion of the pool is prone to adverse selection within the limitations prescribed in the transaction legal documents and results in downward migration of the overall credit quality of the pool.

## Static Default Analysis

In this section, DBRS outlines different approaches it uses for historical performance analysis, based on data provided by the originator(s). This analysis is ultimately used by DBRS to derive its expected gross or net loss for the subject portfolio, and the potential volatility around such gross or net loss expectation. As outlined above, historical performance data may be provided on a dynamic or static basis, if the portfolio evolution is observed in its entirety, or if various vintages are analysed separately. In this section, the static default analysis typically conducted by DBRS is summarised.

Asset characteristics vary across European jurisdictions, primarily as a result of different legal and regulatory frameworks, but also because of differing market practices and borrower behaviour. These different frameworks also result in different rights for creditors and lessors, as well as different optimal workout strategies for impaired assets. DBRS typically reviews the jurisdictional factors to assess whether historical performance data remains predictive of future performance and whether there is a need to introduce further jurisdiction-specific adjustments.

### Expected Loss Static Analysis

The expected net loss of a pool of receivables is DBRS's expected write-off net of relevant recoveries and can be expressed as a function of the gross cumulative default and the recovery associated with the chosen default definition.

In establishing the expected net loss estimate for a transaction, DBRS reviews the historical (static) performance data provided for assets with the same or similar characteristics. The approach is substantially similar for defaults (gross losses), net losses and recoveries. DBRS uses the historical static pools as a foundation to construct an estimate of future losses for the pool considering the economic environment that existed as the pools seasoned and any changes in origination or servicing practices that might result in markedly different performance metrics across different vintages. Various vintages may be weighted or otherwise considered depending on their respective relevance.

Ideally, historical data should be sourced by the same originator of the securitised pool; however, DBRS may also contrast the performance metrics with those of other originators operating in the same markets.

When a sufficient array of static vintage data is available, DBRS may have to extrapolate or project the recent vintages in order to reach the desired term in order to cover the expected life of the analysed pool and/or transaction. The transaction term depends on a number of factors, including but not limited to the securitised pool characteristics repayment characteristics and the framework or the transaction structure.

### Extrapolating Losses

DBRS typically develops a gross loss-timing curve for the collateral pool or each sub-pool or for other discrete categories representative of key portfolio characteristics and uses these curves to forecast gross losses (defaults) on vintages which have not yet completed their full loss cycle or to reach the desired maturity. Typically a suitable curve is a double exponential function that fits to the available vintages, but DBRS may consider alternative options, especially if the actual behaviour appears different.

There are a number of factors that DBRS takes into consideration when extrapolating losses for pools of limited seasoning, including:

- The technique may magnify early performance anomalies; DBRS therefore only extrapolates static pools that exhibit significant performance history compared to the asset life cycle (typically a minimum of 12 months);
- When extrapolating losses in this fashion, DBRS checks that the pool has similar characteristics as the historical vintage performance data; and
- Adequate adjustments should be made to properly account for changes in pool composition.

### Cumulative Loss to Liquidations

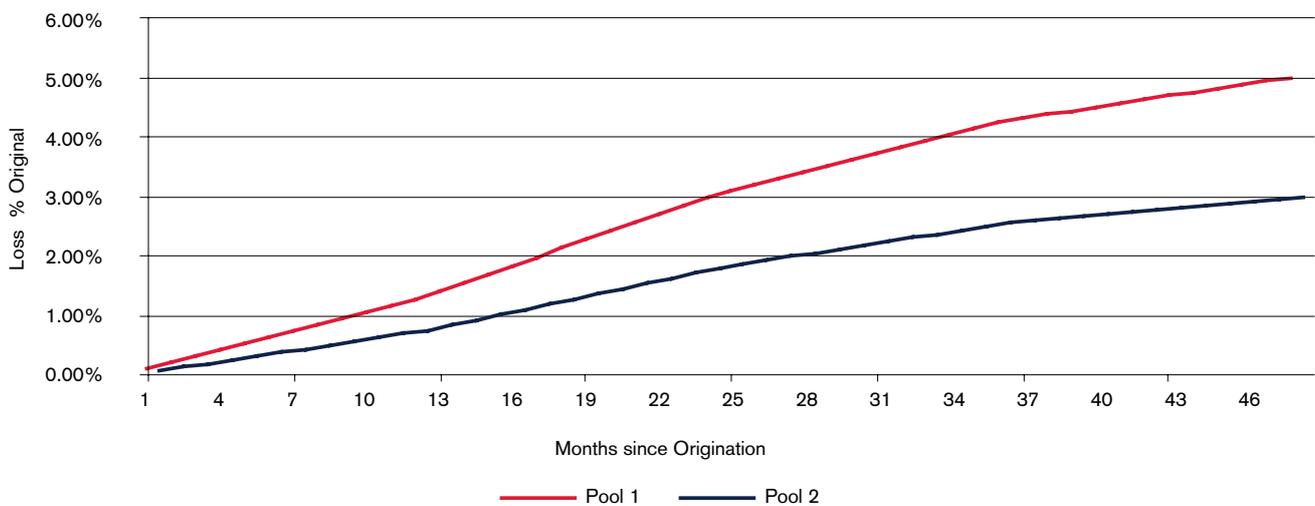
In certain instances, DBRS may supplement its loss analysis by using loss to liquidations, which can be particularly useful for pools with little seasoning. This metric is equal to the cumulative losses to date divided by the total amount of pay down (natural amortisation, prepayments and gross defaults) or liquidation of the pool up to that period. Cumulative loss and losses to liquidation ultimately equal each other at the end of a pool's life as both the numerator (losses) and the denominator (amortisations, prepayments and gross defaults) in both calculations will be equal to the original pool balance.

One benefit of the loss to liquidation calculation is that it allows early pool performance to influence estimates of lifetime pool performance more quickly, as shown in the charts below.

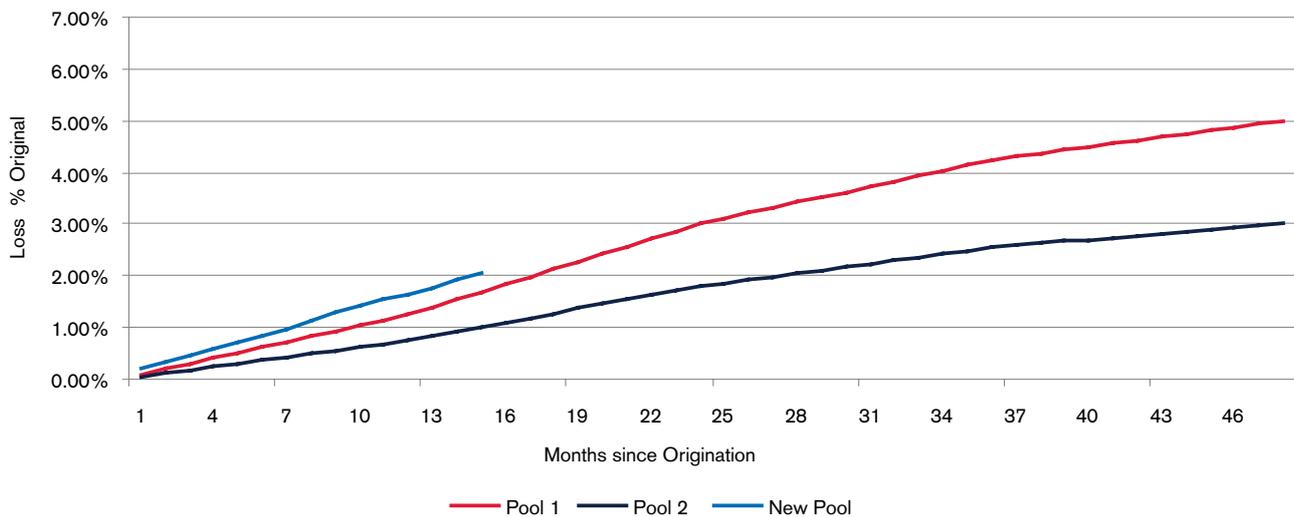
As evident in the cumulative loss comparison chart below, the cumulative loss figures of data sets 1 and 2 are closer to each other early in their lives than those suggested by the subsequent presentation of loss to liquidation, which provides a more visible warning of higher losses for data set 1.

Charts 1 and 2 introduce the New Pool, whose early loss performance suggests that losses will be higher than those demonstrated by Pools 1 and 2. The performance weakness of the New Pool becomes most apparent in the loss to liquidation calculation. In addition, as the loss to liquidation curve for the New Pool begins to flatten and decline around month ten, it captures some potential improvement over early performance that is difficult to discern by looking at the cumulative loss figures.

**Cumulative Loss Comparison**



**Cumulative Loss 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.

**Expected Loss Dynamic Analysis**

Some securitisable assets are revolving lines of finance (such as credit cards) and the concept of cumulative gross or cumulative net loss is more difficult to define on a static basis. Typically, static analysis is less relevant within DBRS’s cash flow analysis as each credit line is not usually repayable in accordance with an agreed plan, but on more loosely defined principles and the outstanding of a line may increase (rather than reduce) due to further draw-downs.

Due to the revolving nature static data cannot be aggregated in the same way and dynamic losses are more significant. However, DBRS still endeavours to evaluate vintage performance using dynamic metrics such as an annualised charge-off, yield rates and monthly payment rates for revolving facilities.

### Expected Net Loss

The previous section outlined how DBRS analyses historical vintage data provided by the originator(s) to derive the *loss forecast* for portfolios similar to the subject portfolio. Since each vintage will perform somewhat differently, such data can also be used to estimate to what extent performance data has been deviating from such past average. The analysis of past net loss volatility is another important step DBRS's rating analysis. As explained in more detail below, the expected net loss may incorporate a stress based on past volatility.

#### **The approach based on the volatility stress.**

The expected net and gross loss of a pool is usually defined by observing the projected performances of vintages and their development over time. In particular, the net loss evolution of different vintages reflects the changes in the economic cycle, in the originator's underwriting approach and other factors.

DBRS examines the inherent volatility of the performance of the assets. To assist in this process, DBRS uses various statistical techniques, as explained below, to assess the expected asset performance.

The typical technique applied considers average and its related variance operators ( $E$  and  $\sigma$  respectively) applicable to the relevant set  $\mathcal{L}$  of projected losses or recoveries as the case may be. A typical average operator would be a weighted average defining the expected loss or recovery.

Crucially, the expected gross or net loss is sometimes expressed as a combination of the average with its related variance:

$$E(\mathcal{L}) + h \sigma(\mathcal{L})$$

In this case  $h$  is an integer number or a fraction. The expected net loss thus may incorporate a stress factor and  $h$ , when designed not to be zero, is usually defined as positive number for losses (either gross or net) and a negative number for recoveries so that the expected cases may not reflect the pool the historical data's mean performance, but also stress factors, in order to reflect potential uncertainty related to the vintage data.

The choice of  $h$  and, in general of the stresses applied to and included in the default and recovery base cases, depend on both qualitative and quantitative factors.

Some of such factors are related to the quantity, quality and detail level of data available:

- One typical factor is directly related to the amount and relevance of data available and to the economic cycle covered in the available history, e.g. in the case when the issuer's historical performance data does not cover a full cycle or is otherwise representative of an extremely benign phase.
- The lower the frequency of vintages provided the lower, typically, the volatility, thus a higher  $h$  is likely to be used when only aggregated vintage data is available.
- The loss or recovery distribution may be very flat or otherwise uneven thus making volatility too high, thus a lower value of  $h$  is likely to be used.
- Positive or negative evolution over time of the vintages may also affect the choice of lower or higher  $h$ , respectively.
- Presence of concentrations is also accounted although such factor is usually referenced through other stress factors (such as the use or choice of stress multipliers referenced in the following sections).

The approach to recoveries is similar (assuming that recovery data are available in suitable form), the adjustment is likely to entail use of a negative value of  $h$ .

DBRS may stress its expected loss assumptions also applying alternative techniques or even in a qualitative way.

Other factors are also relevant to the definition of the overall stresses applicable to a pool, although not necessarily all are included in the expected net loss<sup>3</sup>. Other factors than the quantity and volatility of the available data that may typically affect the stresses applied when determining the expected net loss include the following:

- Consistency over time of the origination in terms of pool characteristics (e.g. contract or customer type), lender attitude and business model (e.g. origination policies, target or objective) or corporate structure (e.g. acquisitions, mergers or other corporate events, etc.);
- Collateralisation of loan (secured vs unsecured);
- Timing of recovery;
- Consistency of the legal framework; and
- The default definition used.

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## Loss Coverage and Rating Stresses

After establishing an expected net loss for a subject portfolio (including any losses on residual value exposures as described in the section on lease-related ABS), DBRS normally applies various stresses (stressed case net loss) to assess losses and other components that can affect the amounts and timing of cash flow that each tranche of debt issued against the receivables should be able to withstand to assign a rating. As such, stresses vary depending on pool characteristics, primarily the average performance and volatility. The ranges of stress levels DBRS typically applies are described in the asset-specific sections.

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## Transaction Financial Structure

### Priority of Payments

On a regular basis (monthly, quarterly or semi-annually), collections on the receivables are aggregated and then distributed to noteholders based on the priority of payments established in the transaction documents. Collections from the receivables may be combined to create available funds which are then subjected to a payment waterfall, or they may be segregated and then subjected to separate principal and interest waterfalls.

Collections pass through a payment waterfall that allocates them to transaction counterparties and noteholders in descending order of priority. Recurring transaction expense items, including servicing and trustee or transaction management fees, commonly rank the highest in the waterfall, after which noteholders receive interest and principal on either a sequential (senior to junior) or pro rata basis, as described below.

### Repayment Structure

When more classes or series of notes are issued backed by the same pool or receivables, usually their hierarchy is clearly outlined in the transaction documents.

A sequential structure provides for all principal amortisation and prepayments to be allocated to the most senior class of notes until the notes are fully repaid; only then are principal and prepayments directed to the next class under the priority of payments. Losses, on the other hand, are allocated in a reverse sequential fashion. Losses in excess of excess spread, the reserve account and overcollateralisation (OC) are absorbed by the lowest-ranked tranche. Once the lowest-ranked tranche is written down to zero, the losses are absorbed by the second-lowest-ranked tranche in the structure.

Pro rata structures typically allocate principal amortisation and prepayments proportionally to all outstanding notes to maintain constant credit enhancement levels. Under such a payment structure, subordinate tranches can receive principal payments while senior notes are still outstanding. Pro rata structures, however, typically contain performance triggers such that, should the transaction performance deteriorate, repayment of subordinated tranches can be stopped and interest and/or principal of the receivable pool can be redirected to repay senior tranches first.

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3. As covered herein, DBRS also applies stresses in the form of multipliers and recovery haircut; thus some factors, when not covered under the definition of the expected cases, may be applied in the form of higher multipliers.

## Thresholds and Triggers

Depending on the structure of a transaction, performance thresholds or triggers can mitigate risk due to a deteriorating economic environment and/or collateral performance. The performance triggers are designed to assure that senior noteholders have preferential access to cash flows of the pool, thereby enabling the subordinated notes to absorb more losses. DBRS does not dictate the transaction triggers to be included in a particular structure; rather, DBRS assesses the extent to which any additional credit enhancement may be built up as a result of such triggers in a transaction within the transaction structure and cash flow scenarios. Common transaction triggers include thresholds for minimum payment rates, seller's interest, cumulative defaults, current delinquency, default and net loss rates, and excess spread falling below a predetermined level.

In revolving transactions, triggers may also limit the issuer's ability to reinvest collections in new receivables. To the extent that the non-curable triggers were breached, the revolving period would stop and amortisation would commence.

## Servicing<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 its duties, or if the servicer defaults in certain of its material obligations. DBRS assesses whether the servicing fee provided for in the event of a servicer replacement is sufficient to induce a replacement servicer, who may not have been involved in the original transaction, to properly and profitably service assets. Consideration is also given to the amount of transition expenses provided for in the transaction documents and DBRS may stress these amounts to account for the costs of potentially difficult situations to find eligible replacements.

If a back-up servicer has been designated in the transaction, DBRS typically 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 its ability to take over collection accounts to minimise payment disruptions.

## 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 of credit enhancement depends on 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 subordination, reserve fund and excess spread.

It is important to note that DBRS does not determine credit enhancement levels or transaction structures, but rather considers the level of protection provided by the amount of available credit enhancement in the context of a structure and related triggers.

## 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 subordination, reserve accounts typically earn a very low (or negative) rate of interest that can contribute to loss coverage. Reserve accounts do, however, 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 that all obligations prescribed by the transaction liability structure are satisfied, excess collections can be released to the issuer or residual holder. Consequently, in the absence of mechanisms to trap excess spread, it is only available

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4. Please refer to the DBRS methodology Operational Risk Assessment for European Structured Finance Servicers.

to cover losses incurred during the period when it is collected (“use it or lose it”). Excess spread may be trapped by transaction triggers related to collateral performance, but such spread is again only available in periods when it is collected and may be substantially reduced as prepayments and defaults increase. Excess spread may decline over the life of a transaction when high-interest rate loans default or prepay at a higher rate than the overall pool. DBRS evaluates this risk when reviewing collateral stratifications, and cash flow analysis is normally performed to assess the ability of the transaction to withstand declining levels of excess spread under higher stress scenarios.

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## Cash Flow Analysis

DBRS evaluates cash flow model results to assess the financial viability of a transaction, the sufficiency of available credit enhancement at the assigned rating level(s) and the ability of the transaction to repay investors according to the transaction documents.

The inputs of the cash flow analysis generally include the following:

- **Asset Characteristics:** The term, interest rate, prepayment rights etc. of the receivable pool;
- **Losses:** The expected net loss level and the stressed case net loss levels for each assigned rating.
- **Default and Loss Timing Curve:** In addition to considering the historical distribution of losses, DBRS evaluates cash flow scenarios that capture front- and back-loaded loss scenarios and volatility;
- **Recovery Delays:** Cash flow scenarios incorporate delays in recoveries of defaulted receivables, for example, due to ineffective servicing, a servicing transition or regulatory constraints;
- **Prepayments:** Prepayment speeds, as they tend to be higher for higher-rate loans, may reduce the amount of excess spread available;
- **Rate on Investments:** A low return on cash balances may reduce the transaction’s cash inflow.
- **Interest Rate, Basis Risk or Foreign Currency Swaps:** If unhedged, the cash flows assume interest rate, basis risk and/or foreign currency stresses as described in DBRS’s *Unified Interest Rate Model for European Securitisations* methodology;
- **Transaction Priority of Payments and Triggers:** The cash flow scenarios reflect the priority of payments set forth in the transaction’s legal documents, including the impact of defined triggers being tripped.

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## Term Contract Asset-Backed Securitisations

Consumer term loan contracts and other term contracts falling under the scope of this methodology, include secured loans, such as auto loans and auto leases, and unsecured term loans, such as personal loans. Real estate-related consumer loans (although not necessarily backed by mortgages) are not usually covered by this methodology and are the object of specific methodologies.

### Receivables

When evaluating a pool of term contracts, DBRS considers the following loan characteristics:

#### **Contract Terms of Repayment**

For the most part, term contracts are level-pay instalment receivables payable over a predetermined term.

Some contracts (particularly auto loan contracts) or lease contracts are structured as balloon contracts (discussed in more detail in the following dedicated section). Balloon contracts have a large payment at maturity but may or may not have substantial residual value risk (the typical contract with residual value risk is the balloon auto loan where the obligor has the right to return the vehicle to the financing company at maturity).

#### **Original Term and Remaining Term to Maturity**

The original term of relevant contracts may vary depending on the product type, the borrower type and lending strategy of the originator(s). For example, a consumer loan usually has an original term up to ten years but an auto loan contract rarely exceeds a seven-year term.

In many cases, longer-term loans are underwritten to more budget-constrained borrowers and may carry greater default risk than their shorter-term counterparts. However, the elevated credit risk may be offset by more restrictive underwriting policies.

### **Financing Rate**

The annual percentage rate (APR) charged on a loan is a function of the market environment, prevailing interest rates and the underwriter's perception or risk of default by the obligor.

### **Establishing Default Projections**

Usually, DBRS establishes the expected gross and net losses of a pool of term contracts through a static default analysis as referenced in the previous sections.

DBRS reviews the characteristics of the proposed collateral pool separately considering the significant 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.

DBRS typically defines an expected gross loss (default) assumption by applying some basic stresses to the historical mean cumulative default rates as summarised in the previous sections. However, the described approach based on static vintages is especially effective for consistent and granular pools but may be less adequate for assessing losses within a concentrated portfolio<sup>5</sup>. Expected cases are usually defined for relevant pool components depending on the available information and combined to determine a transaction-specific expected case. However, in some cases, different portions of collateral may have to be treated and modelled separately (e.g. concentrated portion of the pool or longer terms as opposed to very short terms).

For some financing products, seasoned cohorts experience lower future losses because defaults tend to occur early in cohort lives. To determine losses for these pools, DBRS may estimate a whole-life loss timing curve for a cohort based on historical whole-life results for similar obligors, type of loan and jurisdiction. The above analysis assumes stable economic risk factors; anticipated economic deterioration may force reconsideration of prior seasoning assumptions. Furthermore, DBRS does not normally give any seasoning credit to revolving pools, since the WA seasoning of the underlying collateral may change during the revolving period.

### **Recoveries**

It is optimal to analyse a transaction by separating gross losses (defaults) and recoveries. This distinction is especially relevant when the factors that influence defaults can be different than those determining recovery levels (especially collateral values). For example, automobile values as collateral can be influenced by many variables that may be unrelated to the default of obligors, such as new vehicle pricing and incentive policies of the auto manufacturers that favour new cars over old cars, body-style changes, product line discontinuances, fuel prices and overall consumer tastes and preferences.

The expected recovery rate of a pool can also be derived by comparison between historical gross and net loss data, although when there is significant volatility observed between static vintages the result is more difficult to determine.

DBRS may define an expected recovery assumption but apply rating specific recovery assumptions. This is typically true if recoveries are influenced by factors that vary upon different rating scenarios or are directly related to market value decline of an asset.

Similar to its approach to expected gross loss, DBRS evaluates an originator's historical recovery experience as well as third-party data relating to the relevant collateral market to develop recovery estimates. The expected recovery used may capture the risk of volatility in recovery values and timing as summarised in previous sections and, when applied to stressed base assumptions, recoveries may not require additional adjustments or reductions related to high rating scenarios.

<sup>5</sup> As previously stated, this methodology is not specifically designed for concentrated pools and other DBRS methodologies may be applicable. However, reasonable concentrations or risk concentrations may be addressed within the framework of this methodology.

### Cumulative Net Loss

The net loss rate (one minus the recovery rate) is calculated and then applied to the expected gross loss to arrive at the recovery-adjusted expected net loss.

However, if net loss data is provided and separate recovery data is not available the static loss analysis can be equally conducted on net loss data.

### Cash Flow Analysis

DBRS typically uses a cash flow model that shows the cash flows from the receivable pool under rating-specific stresses (stressed case net loss) as they pass through the transaction waterfall, giving effect to credit enhancement and performance triggers. These cash flows are then compared with the payment requirements of the notes proposed for such rating levels within the transaction.

### Stress Multiples and Rating Specific Recoveries

DBRS applies stress multiples to determine to what extent the cash flows produced from the underlying receivables may reduce due to defaults in a deteriorating scenario. The stressed assumptions, reflecting the expected gross loss compatible with a rating scenario, are thus applied to test features of a structure in accordance with the standard cash-flow modelling approach.

The multiple ranges below are representative but not prescriptive of those that DBRS applies to the expected gross loss that reduce collateral pool collections in term contract transactions. The multipliers may be adjusted to capture uncertainties and qualitative factors that can affect transaction performance.

The stress multiples aim to emulate the increasingly reduced or otherwise unfavourable cash flow of the receivable pool to probabilities equal to those of the DBRS expected default rates. The ranges below are indicative and may be lower or higher to the extent that DBRS has a particularly positive or negative view of qualitative factors that can influence transaction performance.

Multiple of Expected Gross Loss	AAA	AA	A	BBB	BB
Middle Level Multiple	5.0	3.5	2.5	1.75	1.35
High Level Multiple	6.0	4.0	3.0	2.0	1.5
Low Level Multiple	4.0	3.0	2.0	1.5	1.2

Multiples applicable to 'high' and 'low' notches between middle ratings may be derived by interpolation (usually linear interpolation).

DBRS generally starts with the middle multipliers and moves toward higher or lower multiples based on qualitative and quantitative factors. Some quantitative or qualitative factors may already be included in the stressed case net loss and such factors would therefore not be reflected in a higher multiplier choice. The main factors typically included in the expected gross loss definition are listed in previous sections, but DBRS may elect to not to consider all or some these factors within expected loss, in which case such factor may affect the choice of multipliers. The alternative approaches are not typically equivalent for all rating levels, thus DBRS may apply different approaches to different proposals.

The chosen expected loss and the combination of the relevant factors ultimately result in the multiple used to assess the amount of loss coverage for each tranche of notes for an assigned rating. The factors specifically relevant for the definition of multiples typically include, but are not limited to:

- The absolute level of a proposed pool's expected loss figures. The relevance of the assumed expected gross loss is due to the obvious reason that the maximum applicable default rate and loss given default are subject to a natural cap given by the size and the amortisation of the assets, but also to the fact that unusually low or high expected losses may mirror a particularly benign or adverse position in the economic cycle or local market;
- The industry outlook and the position of the sponsor within the market. The industry business model and/or the position of the lender within the local or global market may hide or enhance risk factors that cannot be properly reflected in the available data (e.g. refinancing risk);
- The findings of an operational risk assessment from an originator and/or servicer perspective; and
- Macroeconomic conditions. Particularly benign or adverse conditions may justify the application of higher or lower multiplier. DBRS may address the issue by applying an asset correlation analysis.

If all or part of the term contracts are granted to corporate customers (i.e. large, medium or small businesses) and/or the pool is not considered granular, DBRS may consider applying its *Rating CLOs Backed by Loans to European SMEs* methodology to define the level of stress applicable for the entirety or for part of a pool in respect of a rating scenario. The aforementioned DBRS methodology contains a specific approach to defining recoveries that may not be relevant for some asset classes such as leases where the lender benefits from a security title over the leased asset. Accordingly, in such circumstances, DBRS may apply the approaches discussed herein.

### Concentration of Risk

DBRS may still deem the current methodology suitable to analyse pools that show some degree of borrower or segmental concentration.

The pool concentration can typically be addressed segmenting the concentrated portion of the pool. In that case, the granular portion of the pool is reviewed in accordance with the typical analysis described herein with an adjustment to the stressed scenarios to factor in risk related to the concentrated positions.

Other concentration of risk on or around a single name (typically a banking institution or group retaining several roles or providing some form of financial support, a sovereign institution or an insurance company) may, in absence of mitigating factors (such as downgrade provisions, reserves, regulations, etc.) be designed to achieve de-linkage, create a dependence upon the credit standing (typically expressed through a rating or other equivalent assessment) of the one or few names.

Unless the capacity of the issuer to repay the notes (and, particularly, to timely pay the investors) is strongly tied to the ability of such parties to honour their financial obligations, DBRS may recognise that the link is sufficiently weak to achieve higher ratings, subject to capacity of the structure to support additional stresses that depend on the various factors including the following:

- The level of concentration on each single name;
- The availability of a DBRS internal assessment for the relevant names;
- The degree of likelihood that the financial support of the relevant party continues over a specified time horizon as compared to the likelihood or repayment of the notes commensurate with the rating; and
- The mitigating measure in place as transaction structural features or regulatory requirement.

### Default and 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 because it affects 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 the static pool data. DBRS aggregates all of the available historical gross or net loss curves to develop the average amount of gross or net losses experienced at each period since origination. This average curve is then 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 result of this analysis is a smoothed curve that expresses the distribution of losses typically over a period of four or five years.

After the base shape of the loss curve is determined, DBRS develops alternative loss distributions to evaluate scenarios whereby default and losses materialise quicker or later than expected. The front-loaded loss scenarios typically add more stress to the available credit enhancement levels of senior securities in the structure while back-ended losses cause more hardship on the subordinated bonds. For structures whereby losses are shared concurrently among the various credit tranches, DBRS may apply stresses to the mid-life of the transaction (Belly scenario).

### Loss Distribution Vector\*

Year	Back-Ended	Front-Ended	Belly
1	25%	40%	30%
2	30%	40%	50%
3	25%	15%	15%
4	20%	5%	5%
Total	100%	100%	100%

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

### Voluntary Early Termination

Evidenced by historical performance, prepayments and other form of early termination other than defaults (voluntary prepayments) may vary from one jurisdiction to another and from one finance product to another. DBRS typically analyses the historical dynamic performance in terms of early repayment or voluntary termination to assess a range of prepayments to be tested. DBRS typically runs low, medium and high prepayment scenarios.

The definition of the high prepayment scenario is typically critical, since the high prepayment scenario is likely to cause adverse selection in the underlying pool. However, when the early repayment is not a contractual right, and has to be separately negotiated and agreed with sponsor or the receivables assignees, the level of stress may be limited. This is due to the likelihood that in the harsh scenarios (when the sponsor may become insolvent) it is not usually expected to be in a position to authorise repayment above schedule without appropriate indemnification. This is typically the case in lease contracts where the early settlement is not usually regulated by the contract and has to be agreed with the issuer (as the assignee of the receivables) that is not typically allowed to take additional losses.

Other forms of contractual or regulatory early termination that may cause losses are analysed on a case-by-case basis. Typically, early terminations with embedded losses for the lender will be treated by DBRS under the same approach described above for hostile terminations (or defaults).

Some specific cases are covered in the next sections.

### Auto Loans and Leases

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

#### **Down Payment and Advance Rates**

The advance rate is defined as the initial loan balance, or financed amount, as a percentage of the sale amount. The financed amount typically includes the sale amount (less the value of any trade-in) plus taxes, insurance, extended warranty or other fees, minus any cash down payments. The lower the advance rate, the more down payment an obligor has to make and the more equity an obligor has in the vehicle.

High advance rates and/or rapid vehicle depreciation, particularly in the first few years of vehicle life, can turn equity negative when the borrowers' obligation under the loan exceeds the market value of the vehicle, resulting in a loss to the transaction if the vehicle is repossessed and sold. In auto loans, the concept of advance rates is analogous to the concept of loan-to-value ratios in other asset classes.

#### **New and Used Vehicles**

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 due to obligors' credit quality. Whereas a new vehicle always has a list price to help establish a valuation, particular care must be taken when valuing used vehicles to avoid over-advancing, because 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 vary by manufacturer, vehicle make and vehicle model, and can be affected by economic conditions and model discontinuances. The manufacturer's ability to maintain warranty coverage also affects the depreciation rate. As a result, it is beneficial to ensure that vehicles in the securitised pool are diversified across make, model and manufacturer.

***Servicing and Repossession***

As repayment of the auto loans depends in part on the sale of repossessed collateral, DBRS deems it important for servicers to strictly manage the repossession process to ensure that vehicles are repossessed and sold in a timely manner. Accordingly, DBRS normally assesses whether servicers' repossession policies are consistent with the timing of loans to be charged off prescribed in the transaction documents. Failure to do so could result in liquidity strains and reserve account draws in instances where the transaction does not have the vehicle sale proceeds when the vehicle needs to be charged off.

DBRS's review takes into account the legal framework of the jurisdiction, which governs how and when the lender or servicer is entitled to repossess and sell the vehicle, in an effort to refine its view of potential recovery delays.

***Early Terminations***

In retail auto loans, early repayments, as a percentage of the vintage origination volume, are usually very stable and generally independent of interest rates. Refinancing activity, the major driver of prepayments in the auto loan sector, is muted for two reasons: (1) the sharp initial fall in the market value of a vehicle when it leaves the showroom and over its first few years of use outpaces the amortisation of loan principal, giving lenders little incentive to offer refinancing against the depreciated collateral; and (2) auto loans have a relatively short term to maturity, reducing the amount of total interest savings to borrowers from refinancing. Conversely, consumer loans not secured by a vehicle may experience more volatile prepayment behaviour, due to a longer term to maturity or the unsecured nature of underlying collateral.

DBRS's base case assumptions for prepayments reflect the actual rates experienced by collateral similar to securitised assets. High prepayments reduce the effective life of the asset pool for potential defaults to occur, while compressing available excess spread. Slow prepayments lengthen the life of the asset pool to allow more time for defaults and excess spread to realise.

***Voluntary Terminations***

In the United Kingdom, under the Consumer Credit Act (CCA), Section 100, an obligor is entitled to terminate an agreement after paying the financing provider half of the total price (a Voluntary Termination). The obligor is expected to take reasonable care of the goods and the lender is entitled to compensation should that not be the case. In essence, once a customer pays 50% of the total amount payable under the auto finance contract, he or she is permitted under the CCA to return the car to the credit provider. This may lead to a loss for the originator should it not be able to dispose of the vehicle at a price that covers the outstanding finance amount.

In assessing the risk of Voluntary Terminations to an auto loan transaction in the United Kingdom, DBRS reviews voluntary termination rates either on a static or loan-by-loan basis as part of the transaction's loss analysis. Static Voluntary Termination vintage curves are assessed in conjunction with the historic volatility observed in the used car market and, in line with its assessment of credit losses, a stressed multiple is applied to the base case Voluntary Termination assumption. When DBRS considers that a transaction may be exposed to increased Voluntary Termination risk, typically as a result of longer contract terms, low initial deposits and vehicle depreciation volatility, DBRS may request loan-level data that allows an assessment of vehicle depreciation against the amortisation of the underlying financing agreement.

## Consumer and Commercial Leases with Residual Value

### Overview

Leases in the ABS transactions include leases for both road-going and industrial vehicles; industrial, medical and computing equipment; and sometimes 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 makes an asset available to a lessee (or obligor) for the term of the lease in exchange for the payment of repayment instalments. 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 the lease contract, the lessee may have an option to acquire the asset at a predetermined price (a closed-end lease) or is 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.

At the end of a closed-end lease term, the obligor, with an option to purchase the asset for a predetermined amount, 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 is lower than 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, driven by the legal and tax environment and customer preferences. Lease ABS transactions may involve the securitisation of payments from closed-end leases, open-end leases, the separate sale of lease instalments or solely the residual value payments.

The analysis of the obligors, collateral assets, term and payments of the leases backing a securitisation help to assess how the securitised pool of receivables is likely to perform. This analysis is substantially similar for a pool of loans with an additional consideration of potential residual value risk in closed-end lease transactions. The rest of this section focuses on the analysis of closed-end auto leases, which are the most prevalent lease asset. For other assets under closed-end lease, DBRS assesses residual value risk case by case, taking into account similar considerations.

### Collateral Analysis

For securitisation of auto leases, DBRS focuses on:

- Original Term;
- Remaining Term Distribution;
- Finance Charge or Interest Rate;
- Vehicle Make and Model, new versus used;
- Geographic Distribution; and
- Residual Value

### Original Term

The terms of consumer auto leases typically range from 24 months to 36 months, but may be as short as 12 months or as long as 60 months. As a result, the average term of securitised pools of leases is much shorter than the average term of auto loans, typically 24 months to 48 months.

Most vehicles depreciate sharply in the first year, with an average decline of 15% to 25% of the purchase price in first year. Over the following years, a vehicle may lose an additional 10% to 15% per year; however, there is wide variability in these depreciation rates, based on makes and models, as well as operational factors such as vehicle condition and mileage. Furthermore, the resale value at the end of the leases' term can be affected by wholesale market conditions, such as supply of similar used vehicles and health of the original manufacturer (which may reduce brand value and threaten future parts and service availability), as well as broader economic factors, such as fuel prices, personal income and employment. Consequently, the longer the term of the lease, the higher the uncertainty associated with the depreciation rate and future wholesale market conditions, leading to higher residual value volatility.

**Remaining Term Distribution**

DBRS examines the distribution of lease-term maturities within the securitised pool. A large portion of the lease contracts maturing in a short period concentrates and increases residual value risk in a weak wholesale used car market. An even distribution of lease maturities diminishes the proportion of the pool subject to a brief downturn in used vehicle prices. Nevertheless, in deeply stressed environments downturns are more severe and longer, creating a sustained, higher exposure to the financing company for vehicles to be returned at a loss against residual value.

**Finance Charge**

The monthly finance fee as measured by the money factor charged on the lease<sup>6</sup> is a function of prevailing interest rates, manufacturer and dealer incentives to use financing to motivate sales<sup>7</sup> and the perceived risk of the lessee's credit.

**Vehicle Make and Model**

Diversifying the distribution of vehicle make and model reduces concentration risk due to any particular make or model. Residual values can fall due to 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 diversification of a pool of lease contracts may limit the effect of any downturn in economic conditions of any particular region.

**Residual Value Determination**

The residual value or the amount for which the lessee may buy the vehicle directly from the financing company at the end of the lease is determined at the inception of a lease by the finance company. This is sometimes referred to as contractual residual value to distinguish it from the resale value of the vehicle at the end of the lease term. Residual value affects not only monthly lease payments, but also the likelihood that the consumer will turn in or buy the vehicle at the end of the lease term.

Leases with lower contractual residual value will entail higher payments from the lessee, but offer the opportunity for the lessee to take ownership at end of term by paying less than the price of a similar used vehicle. From the noteholders' perspective, this is a conservative residual value policy, which assures predictable cash flow at lease maturity when the obligor (or the dealer on his or her behalf, if taking the car in a trade) will tend to pay the amount of residual value. From a manufacturer's perspective, the higher lease payments might slightly dampen initial vehicle sales, but may help the brand over the long term by giving dealers the opportunity to engage the lessees by using the equity they have in their leased vehicle to offset some portion of the costs of a new vehicle.

Leases with a higher residual value offer low lease payments, which helps manufacturers to move vehicles from dealer forecourts, but they pass more risk to noteholders, as a large share of vehicles may be returned for resale at lower wholesale prices.

**Credit Losses**

To determine credit losses on a pool of lease contracts, DBRS analyses static pool gross and/or net loss data in the same manner as for other term contracts, utilising the techniques previously described in this report. The typical expected loss coverage multiples of the base case are summarised in the table below.

The ranges below are indicative and may be lower or higher to the extent that DBRS has a particularly positive or negative view of qualitative factors that can influence transaction performance.

**Turn-in Rates and residual Value Losses**

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

6. The money factor is usually a representation of interest rate, with the interest rate being 2400 times the money rate.

7. 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 subsidised leases carry interest rates as low as 0%.

DBRS examines the finance company's policy for setting future repurchase prices to gauge the expected baseline residual value exposure for each securitisation.

DBRS noticed that residual value setting policies in many markets in Europe are relatively conservative, contributing to turn-in rates that have been fractions of those experienced in North American markets.

### **Turn-in Rates**

The aggregate turn-in rate at maturity for a securitised pool depends in part on the lessees' exercise of the vehicle purchase option at lease maturity (if permitted), in addition to defaults and early terminations. The higher the percentage of lessees with purchase options who choose to purchase the vehicles at lease maturity<sup>8</sup>, the lower the turn-in rate and the lower the residual value risk. As a share of total lease outcomes in the pool, aggregate turn-in rates are reduced by customer defaults, insurance proceeds collected in connection with accidents or early prepayments (potentially substantial in some markets). Turn-in rates at maturity can vary widely and tend to rise when wholesale market prices for similar vehicles fall substantially below contractual residual values.

DBRS expects that a consumer who has the option to purchase a particular vehicle at a residual value less than used-market value will do so as a rational economic behaviour. Conversely, a consumer facing a residual value repurchase price higher than the market value will return the vehicle to the lessor, in effect transferring that loss to the lessor.

In establishing a turn-in rate at maturity for lease contracts, DBRS assumes that when the residual value payment is paid by the lessee (or dealer on the lessee's behalf) this will be done at a gain for the lessee but it results in a loss compared to the amount securitised against the residual value in the pool. As a result, lower turn-in rates are more beneficial 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 in a recession and where market values fell substantially below contractual residual value are used as a proxy to interpolate future turn-in rates for similar makes and models in progressively worsening economic and wholesale vehicle

market conditions. This analysis includes DBRS applying stresses to the projected base case, considering the manufacturer's aims of using the residual value provisions as short-term sale, neutral or longer-term repeat sale strategy, economic risks or competitive pressures, all of which could drive used car prices below projections.

The projection of the aggregate turn-in rate of the original pool first depends on the survival rate, which is the proportion of all leases on which all scheduled payments are successfully made to the end of term. This leaves a portion of the lessees in good standing with the choice to turn in the vehicle or exercise any available purchase option. Before this point, however, both stressed and unstressed environments will produce early terminations such as default-triggered repossessions, stolen or written-off vehicles because of accidents, lessees moving abroad or otherwise experiencing lifestyle changes that may contribute to their need for a replacement vehicle. In these cases, the lease will expire prior to its scheduled termination but, due to its low frequency and/or sufficiency of insurance (generally a condition of the lease), is unlikely to generate a meaningful loss to the lessor. Of the many factors leading to early termination of a lease, the repossession rate has the largest influence on turn-ins or survivorship, particularly in a stress scenario where the repossession 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 deemed as scheduled turn-ins during the term of the transaction because of the expected negative equity position of the lessee at the end of the term.

For leases, there is a natural turn-in ceiling at 100% (i.e., the worst case scenario will be that the entire portfolio is returned to the originator). The turn-in rate assumptions for lease agreements at maturity are typically 100% at the highest ratings. A lower turn-in rate may be considered in light of mitigating factors and for lower rating scenarios.

8. This includes those lessees who allow the dealer to take possession from the lessee in exchange for some amount of credit based on market value over contractual residual value. The dealer will then pay the contractual residual value to the lessor/financing company. In these cases, the lessee will perceive that he or she has turned in the vehicle at no additional obligation or charge. The financing company will have received contractual payment instead of a physical vehicle. The dealer will then end up owning a fresh off-lease used vehicle which, after its negotiations with the lessee, it expects to sell for profit.

### Impact of Early Settlements in Personal Contract Purchases

In the case of personal contract purchase (PCP) agreements, early settlements are typically very high, because car dealers and/or manufacturers actively solicit customers throughout the life of the agreement to use potential equity in the underlying vehicles to prepay their lease contracts and to purchase new vehicles. The percentage of early settlements is a function of the contractual residual value level and the performance of the used car market. When modelling a transaction, DBRS determines a base case cumulative early settlement rate for PCP contracts derived from historical data to identify the volume of vehicles that is not returned in addition to defaults. The early settlement rate is then stressed by applying the following rating-dependent haircuts:

Rating	Haircut applied to Base-Case Cumulative Early Settlements
AAA	75% - 90%
AA	65% - 75%
A	55% - 65%
BBB	35% - 55%
BB	15% - 35%

Although the reduction in the early settlement rate may lead to an increase in interest collections on the receivables, this is likely to be offset by the increased residual value exposure. DBRS will therefore assess early settlements under both base case and stressed scenarios. Examples of how this affects DBRS's approach to determining turn-in rate are outlined below:

Rating Level	(A) % of Loans Defaulted (stressed)	(B) % of Loans Early Settled Prior to Maturity (after haircut)	Reach End of Term (100%-A-B)	Turn-In Rate at Maturity	Aggregate Turn-In Rate
AAA	15.0%	10.0%	75.0%	100.0%	75.0%
AA	12.0%	15.0%	73.0%	95.0%	69.4%
A	9.0%	20.0%	71.0%	90.0%	63.9%
BBB	6.0%	30.0%	64.0%	85.0%	54.4%

Notes:

(A) Defaults are stressed according to credit loss multiples.

(B) Assumes that a base case of 50% of contracts are early settled prior to maturity.

### Residual Values

Contractual residual values, or guaranteed purchase prices at lease-end, are typically set according to published industry guides on future value or proprietary models of the originators, which then may be further subsidised by the manufacturer to be set at a higher level to make monthly payment amounts lower and more affordable and to increase sales. To the extent that contractual residual value in the securitised leases is set above the predicted future value of the vehicle, DBRS would expect the transaction to incorporate sufficient credit enhancement to accommodate the anticipated amount of embedded loss on the resale of returned vehicles. DBRS also only gives limited benefit to the manufacturer subsidies to cover losses, particularly for lower-rated manufacturers. Lease securitisations may look to minimise or eliminate the amount of the embedded loss by securitising the lowest of: (1) the market value at lease termination as initially forecast by the industry guide, (2) the current industry guide forecast for such vehicles and (3) the contractual residual value.

To analyse an originator's historical residual value performance, DBRS compares its original forecast of the value of the vehicle at lease-end to actual sale proceeds upon disposal. DBRS requests that this information be provided for the prior three to five years, by lease term for each make and model. DBRS also uses this data to assess the capacity for the financing company to face losses on sales of turned in vehicles compared with the contractually priced purchase.

To determine the adequacy of protection for noteholders, DBRS assumes volatility in the underlying market value of the vehicles caused by unanticipated market and economic developments, leading to a systematic overestimation of contractual residual values. The DBRS analysis is based on the assumption that the industry guide forecasts will not reflect all potential factors that could result in a systemic devaluation of the vehicles at the end of the lease term.

DBRS derives a base case residual value haircut by assessing at least two out of the following three sets of data:

- A minimum of three years of the originator's historical realised vehicle data versus contractual residual value and variability;
- Five years or more relevant market used car price data and variability; and
- An assessment of future market prices of used vehicles compared with the securitised contractual residual values by an independent third-party provider.

The base case residual value haircut, as a percentage loss, is typically the worst historical realisation of the contractual residual values versus the then-current vehicle market values. Rating-dependent multiples are then applied to this base case, according to the table shown below:

Residual Value Haircut Multiples	AAA	AA	A	BBB
Maximum	3.00	2.50	2.00	1.75
Minimum	2.25	2.00	1.50	1.25

### Cash Flow Analysis

DBRS applies a number of stresses to assess the ability of the notes to pay investors in accordance with the terms of the transaction documents at each assigned rating level. DBRS performs this analysis within a cash flow model that incorporates (1) increasingly stressed cash flows (including the stressed case net loss) from the receivable pool for each successively higher rating assigned and (2) the flow of these funds through the structure of the securitisation notes and conditions, such as triggers and credit enhancement. DBRS compares the amounts and timing of the receivable pool collections under a given set of ratings-specific stresses as shown above, including available credit enhancement.

## Credit Cards and Revolving Lines of Credit

### Overview

Credit card ABS are securities that depend on payment of outstanding credit card balances, usually of thousands of credit card holders. Credit card issuers (including large retailers, which issue private label cards) will use this form of securitisation to raise funds from third-party capital market investors. Credit card ABS have proven to be one of the more stable asset classes within securitisation.

As a revolving credit product or a personal line of credit functions similar to a credit card in many ways, except for the lack of physical access cards in some instances, the approach to rating revolving credit (excluding home equity lines of credit) is incorporated in the discussion here.

Credit card ABS differ from other consumer ABS in the following ways:

- Receivables are unsecured, and cardholders may have lower credit quality than other ABS, based on expected charge-offs;
- Excess spread, which is relatively high compared with other ABS classes, may also be volatile because of potential variation in finance charges to cardholders and funding costs of the issuer, itself dependent on future access to securitisation;
- The higher the utility of the credit card (more acceptance in more places or special rewards from the issuer), the higher its value to the credit card holder and implicit priority in personal financial payments;
- The notes are issued by a single trust of revolving receivables with frequent repayments and purchases of assets, securing several series of notes simultaneously. This means:
  - The business strength, competitive position and underwriting quality of the originator to assure new receivable generation through its franchise, carry over into the stability of securitised assets;
  - The allocation of payments from the receivable pool between several series of notes after an amortisation event (paying down notes issued by the trust and potentially winding down the trust itself) may have rating implications that are different than the usual sequential priorities of senior and subordinate payments from discrete pools.
- Given their high finance charges and increasingly pervasive use in personal finance, they have a higher potential to attract regulatory action, which may limit finance charges and payments.

Because of these and other differences, as explained below, the dynamics and risks of cash flow from the collateral pool supporting credit card ABS necessitate different evaluation tools.

### **Credit Card Receivables**

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 card balances increase as charges are made and decrease when outstanding principal is repaid. Finance charges may include late payment or over-limit fees, in addition to interest charges that accrue on unpaid balances. 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 cardholder credit risk on a given transaction, for fraud and for the cost of funding receivables. Interchange fees are typically paid by the merchants accepting the credit card transactions, not paid by cardholders and they are remitted to the card issuers and contributed to some credit card master trusts to supplement the yield.

Cardholders that pay their entire balance in full each month are often referred to as convenience users or transactors. Other cardholders that make only partial or minimal monthly payments are referred to as revolvers and, therefore, often carry or revolve an outstanding balance from month to month.

### **Originator and Servicer Review**

DBRS believes that the quality of the seller and originator directly affects the likelihood that the notes will be fully repaid and that credit card receivable sellers typically maintain a strong vested interest in maintaining the credit quality of the receivables backing the rated debt, as excess spread is typically released to the seller until the amortisation of notes occurs. Many sellers expend considerable resources to actively manage their accounts and corresponding receivables in order to promote consistent and robust levels of profitability. This active management includes originating receivables amid intense competition, reviewing and modifying credit limits, adjusting the APR for better risk pricing and performing collection activities to minimise credit losses.

Although the entity involved in the securitisation transaction is a bankruptcy-remote special-purpose vehicle, from the seller, an evaluation of the seller is integral to the sustainability of the securitisation because the seller typically provides critical ongoing services as the (initial) servicer of the receivables. In the event that the seller becomes insolvent, the generation of additional receivables would likely dramatically decline or stop and the ability of the special-purpose vehicle to collect outstanding receivables through a replacement servicer could become severely impaired or uncertain.

### **Base Case Performance Metrics**

Generally, DBRS first establishes base case assumptions for each key collateral performance metric, including charge-offs, yield, payment rate and purchase rate as inputs in the cash flow analysis. DBRS assesses the data provided by the seller or arranger based on the collateral characteristics for the historical portfolio. If the receivable parameters are considered to be a good proxy for the potential performance of the transaction portfolio, DBRS may use the data to derive a base case scenario.

### **Charge-Off Rate**

Delinquent credit card receivables are typically charged off by the servicer after 180 days of delinquency or by other criteria usually defined under national regulations. Charge-off timings may differ between originators depending on their servicing and collection procedures; DBRS has observed charge-off timings in Europe of up to 360 days in arrears. Account holders that file for bankruptcy or equivalent proceedings are also typically charged off by the servicer and in line with transaction documents. The charge-off rate is calculated as an annualised percentage of the amount charged off in the month of the amount of receivables outstanding. Because of the unsecured nature of credit card lending, recoveries are usually low. For cash flow modelling purposes, DBRS usually assumes a recovery rate of zero in the absence of adequate recovery data.

Charge-off rates are generally affected by three main variables: (1) macroeconomic factors, such as unemployment trends, consumer wealth formation and household leverage ratios, addressed by DBRS's view of the originator's market; (2) issuer underwriting (UW) and servicing capacities, addressed in the operating review; and (3) the consumer's personal situation, such as divorce, job loss or medical issues, which is an idiosyncratic risk typically embedded in past performance.

The nature of a credit card may also affect charge-offs. For example, private-label retail cards typically incur higher base case charge-off rates than a general purpose card because of the more limited utility of retail cards in a worst-case scenario that the retailer and the seller are both bankrupt. The utility of retail cards drives the seller's ability to transfer or sell its portfolio, which affects the financial viability and overall health of the seller. This is, of course, related to the retailer's ability to be maintained as a viable entity and to sell merchandise.

### ***Adjustments to the Charge-Off Rate***

Adjustments to the expected charge-off rate are typically based on factors such as the seller's financial strength, origination consistency, account management, collection and servicing practices, and overall variability, sufficiency and trends of the provided performance data.

To the extent that DBRS determines changes have occurred to the criteria used in receivable origination or in collection practices which may affect future performance, an adjustment to the expected charge-off rate may be warranted. An adjustment to the expected charge-off rate may also occur as a result of changes in UW criteria and servicing practices utilised by the originator, most notably the use of repayment plans and the re-aging of delinquent accounts.

### ***Portfolio Yield***

Portfolio yield is typically generated from finance charges, annual card fees, interchange fees, late payment fees, cash advance fees, over-limit fees and other miscellaneous fees levied on the cards. In general, portfolio yield is calculated as the annualised ratio of the monthly income earned or billed (not collected) on the receivables divided by the receivables balance. Recoveries may be included in the calculation of yield or charge-off, depending on the transaction documents or general practices.

Credit cards typically have interest rates that are fixed or based on a floating rate, plus a premium. The premium is often reflective of risk pricing and is based on the credit quality of the obligor and the obligor's performance as a cardholder. While credit card interest rates are intended to attract certain types of consumers, the card issuer's ability to reset the interest rate, if permitted under the legislation, is an effective risk-management tool on an ongoing basis.

The net yield on a card portfolio is affected by the charge-off rate, payment rate and delinquencies. While the direction of charge-off and payment rates are inversely correlated to net yield, there is a typical positive relationship between delinquencies and yield because of late fees (if permitted under the legislation) levied on delinquent accounts. Additionally, regulations and the mix of transactors and revolvers in the pool have an impact on yield. When determining the base case portfolio yield, DBRS requests that the sponsor or seller supply data for monthly interest income collected in addition to the amount billed. As the billed income or yield figure typically does not account for delinquencies or waived fees and charges, DBRS may discount billed yield to estimate the collected yield figure.

The yield figure normally includes interchange fees. In such cases, DBRS may reduce or eliminate interchange fees from the yield figure to determine a base-case yield.

### ***Monthly Payment Rate***

Payment rates represent total monthly collections received divided by the receivables balance. Payment rates are a critical factor affecting credit enhancement, as higher payment rates mean that more funds are available to repay noteholders during either controlled accumulation or amortisation periods and typically result in lower enhancement.

Monthly payment rates are affected by several variables, such as delinquencies, which is inversely correlated to payment rates. In addition, the combination of the specific contractual minimum monthly payment and the percentage of cardholders in the pool who make the minimum monthly payment can have a significant impact on a portfolio's payment rate.

When determining the base case payment rate, DBRS requests that the sponsor supply data for the monthly principal payment rate. If total payment rates including finance charges and principal are reported, DBRS nets out the finance charge component embedded in the total payment rate to determine the base case for monthly payment rate.

### ***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 basis of the cash flow analytics include the base cases for the portfolio yield, monthly payment rate and loss rates; proposed capital structure; priority of payments; transaction expenses; and interest rate and basis-risk assumptions.

Credit card securitisations normally incorporate the concept of an early amortisation event that, when triggered, ends the revolving period and begins paying down the notes sequentially. The trigger may be a result of declining performance of the receivables, insolvency of the sponsor or seller and other sponsor-related issues. DBRS typically models a transaction entering an early amortisation period as a result of trigger breach due to the deteriorating performance of the collateral for all rating levels.

The modelled cash flow scenarios impose increasingly severe stress multiples on the base case assumptions for each higher rating level. The stresses applied by rating level are summarised in the table below as general guidelines and the actual stresses applied are determined on a case-by-case basis. The following factors are considered in determining the ultimate stress parameters:

- The absolute levels of performance metrics;
- The nature and utility of credit card products; and
- Macroeconomic conditions.

For example, DBRS, absent other factors, may apply a lower multiple in the stress range on a portfolio with a high loss expectation to account for lower anticipated volatility relative to the loss expectation or premature triggering of performance-related amortisation. Conversely, DBRS may apply a higher multiple in the stress range on a portfolio with relatively low loss expectations which may be expected to have higher volatility relative to the loss expectation.

In jurisdictions such as Belgium and France where the minimum monthly repayments for credit cards and revolving lines of credit are legislatively mandated and the related receivables are essentially turned into amortising portfolios from a specific point in time with a finite duration, the stressed payment rates would be subject to a floor that is slightly below the statutory minimum payments.

In addition, DBRS may apply more punitive stresses on portfolios of private label cards as these cards are expected to perform worse than general use cards when the sponsor or co-branded entity is under stress and/or the utility of the cards may be severely limited.

### Summary of Stresses by Rating Category

	AAA	AA	A	BBB	BB
Portfolio 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-Off Rate (multiple of base case)	4.0-5.0x	3.0-4.0x	2.5-3.5x	2.0-2.5x	1.5-2.0x

The analysis typically begins with base case assumptions (which are generally equivalent to a 'B' rating scenario) in a normal, non-eventful period for the first five months, followed by a simultaneous deterioration of charge-offs, principal payment rate and portfolio yield commensurate with the assigned rating beginning in the sixth month. In the cash flow stress scenarios, yield, principal payment and charge-offs are assumed to move toward their respective stress multiples linearly over a 12-month period for a AAA (sf) rating and hold constant thereafter. DBRS may allow the subordinated notes to be stressed more leniently over a longer period.

Additional stresses that are not covered by the stresses above are discussed below.

#### **Purchase rate stress**

The purchase rate is the rate at which new receivables are created under designated accounts in the trust and is generally calculated as the ratio of new purchases (the pool's new receivables of credit card charges) over the outstanding balance at the end of previous month. The receivables balance increases when the purchase rate exceeds the payment rate and loss rates combined and vice versa.

The purchase rate affects the repayment of the notes during the amortisation period. If all other factors are held constant, the higher the purchase rate, the larger the receivables generated and the related cash flow to the trust from the repayment of those new receivables. This improves the trust's ability to repay the notes in full.

In the assessment of credit enhancement sufficiency, DBRS stresses purchase rates based on the type of card and/or the sponsor's strength. In general, private label retail cards or co-branded cards with retailers are stressed with a zero purchase rate assumption as the usage of these cards in an early (or unscheduled) amortisation scenario (such as a retailer's insolvency or deterioration of performance) is likely limited or severely impaired and the sponsor is constrained or has limited capacity to fund new receivables generated. This essentially transforms the receivables into an amortising pool. Unrated or financially weaker sponsors are also typically stressed with a zero purchase rate to assess a declining ability of the sponsor to fund new receivables over time as the linkage between the card usage and issuers' financial strength is considered high.

On the other hand, generic cards are given the benefit of a positive, albeit low, purchase rate as the usage of these cards is not limited to particular merchants or locations and the card usage is less likely to be severely curtailed. For lower rating categories, more benefit may be given to the purchase rate.

In the case of accelerated amortisation such as the insolvency of a sponsor, purchase rate or card usage is typically assumed to be zero; however, the timing of such occurrence is not predictable and such scenario is typically not considered in DBRS's cash flow modelling.

### **Early amortisation stress**

From a cash flow modelling perspective, DBRS assumes that a transaction ceases investing in additional receivables and enters early amortisation due to a trigger breach, as defined in the transaction documents. Depending on the severity of the stress scenarios being modelled, the breach typically occurs between months eight and ten in the cash flows for the senior bond rating category and between months ten and 18 for the subordinate bond rating categories.

### **Interest Rate and Basis Risk**

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 coupons of the notes.

Credit cards may be subject to finance charges that float, based on criteria typically prime rate set by the credit card issuer. Coupons for credit card securities may, on the other hand, be fixed or a different floating rate from that of the receivables (usually one- or three-month Euribor<sup>9</sup> or LIBOR<sup>10</sup>). To assess the impact of basis risk on a transaction's excess spread, DBRS assumes that floating-rate credit receivables will be re-priced by the originator 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's *Unified Interest Rate Model for European Securitisations* methodology while credit card rates remain fixed.

As excess spread from credit card receivables is generally high compared with other asset classes, a swap to mitigate the interest rate exposure and possible spread compression is not always utilised for credit card ABS because such spread compression is part of the stressed scenario(s). To the extent that this risk is hedged, DBRS will consider the counterparty risk of the swap provider and the comprehensiveness of the hedge to address both rate and timing differences between the receivable interest payments and those of the notes.

### **Securitisation Trust Structures and Cash Flow Allocations**

#### **Master Trust**

Credit card securitisations may employ a master trust structure, under which all receivables of designated accounts for a given issuer's brand or brands of cards pay into a single pool and from which all notes are paid. This approach provides a sponsor with the ability to issue multiple series backed by the same asset pool.<sup>11</sup> As credit card receivables have relatively short average maturities, generally less than 12 months, master trust structures incorporate a revolving period whereby principal collections are re-invested in new receivables. This extends pool cash flows for repayment of notes, allowing the creation of longer-term maturities for notes against 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 further subordinate Class C notes. When excess spread is exhausted, charge-offs are typically first absorbed by reserve accounts and then allocated against note principal in reverse sequential order, beginning with the most subordinate classes of notes.

Master trusts are generally divided into investors' and seller's interests. The investors' interest, designated for repayment of the notes, is determined by the aggregate amount of notes outstanding divided by the larger amount of master trust receivables balances.

The seller's interest is the residual amount, with a minimum required seller's interest as a percentage of the trust note balance. The minimum seller's interest exists to absorb fluctuations in the trust receivables balance that may occur because of 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 programmes, non-complying receivables and fraud. The seller's interest also

9. Euro Interbank offered rate.

10. London Interbank Offered Rate

11. This is in contrast to a discrete securitisation, where a separate collateral pool backs each transaction.

absorbs declines in receivables resulting from a breach of a representation or warranty by the seller/originator. The seller's interest ranks pari passu with the investor interest in terms of monthly cash flow allocations and is typically not considered by DBRS as part of credit enhancement in securitisations. Generally, when the seller's interest falls below a level specified in the transaction documents, the sponsor must add receivables in an amount that restores the seller's interest to the minimum level. Normally, when the minimum seller's interest is not restored within a pre-set period, an early amortisation event is triggered and the notes begin to amortise.

### **Master Trust Cash Flow Allocations**

Cash flows from the credit card receivable pool are typically segregated into two components: principal collections and finance charge collections. Allocations from these two components to each series of notes depend on whether the series is in the revolving, accumulation or amortisation period.

- The accumulation period is when cash is accumulated for the future redemption as a single scheduled (bullet) repayment of a particular series of notes.
- The amortisation period is when collections are applied as and when available to amortise the notes progressively. The amortisation period may be controlled or partial, used as an alternative to scheduled maturities of the notes under sound asset performance. The amortisation period may also arise from the breach of a performance trigger or the failure to repay a soft-bullet note in its entirety on its scheduled repayment date.

### **Fixed and Floating Allocation Methods**

Once the revolving period ends, principal collections are accumulated or used to amortise the notes, based on either the fixed or floating allocation method. Under the fixed allocation method, principal collections are allocated to a series based on its respective interests in the master trust as of the end of the revolving period. In the fixed allocation method, the numerator of the allocation ratio is held constant at the amount of its outstanding series note principal balance as of the end of its revolving period, and the denominator of the allocation ratio, however, is the principal amount of receivables of the trust, which can change with each period. As the numerator remains constant as the series' outstanding amortises, the use of the fixed allocation method generally amortises principal more quickly for the specific series than a floating allocation of principal among series.

In contrast, a floating (or pro rata) allocation of principal among series reduces each respective series' numerator at each calculation date as the series principal amortises (rather than staying at the higher, fixed amount from the end of its revolving period). This cancels the advantage of earlier-dated series, which receive proportionately more cash flow under the fixed allocation method.

The use of different allocation mechanisms in different periods of the transaction'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 noteholders. The table below describes a typical master trust allocation scheme.

	Investor Interest			Seller's 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	Floating	Fixed <sup>4</sup>	100% Floating/Fixed	100% Floating	100% Fixed

<sup>1</sup> Technically, transaction documents 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. A receivable default will be first covered with finance charge collections and excess spread from other series (if permitted). If finance charge collections and excess spread from other series 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 write-down of the most subordinate class of notes some trusts will re-allocate unencumbered principal collections to cover charge-offs. <sup>2</sup> Although series principal collections are not distributed, amounts allocable to the series are calculated. <sup>3</sup> For some transactions, finance charges may be allocated using the fixed allocation method if an early amortisation event occurs. <sup>4</sup> Some trusts issued paired series. With paired series, the allocation of principal may be re-fixed during the initial series amortisation

### **Master Trust Cash Flow Analysis**

As mentioned above, master trusts enable the sponsor to issue multiple series of notes at different points in time that are ultimately backed by the same (revolving) asset pool. As such, master trust structures have relatively more variability on the asset and the liability side than other securitisations. To address this potential variability, DBRS's proprietary cash flow model stresses many variables simultaneously to assess the sufficiency of credit enhancement for the assigned rating in a number of

scenarios. The results of the scenario analysis are typically used as guidance and are not considered determinative or predictive. Considering that master trusts are characterised by ongoing issuance, DBRS's expected case is re-assessed upon each new issuance. Therefore, DBRS does not set its expected case under a theoretical worst composition. DBRS also re-assesses its expected case also upon other significant changes to the asset pool. However, given that master trust structures allow the sponsor flexibility on the asset and liability side DBRS does not generally take positive rating without significant structural improvements, even if collateral performance were better than expected and/or the then-current portfolio would warrant a higher rating in a static or revolving stand-alone transaction.

On the other hand, in the surveillance of key performance variables to analyse the general trend, unfavourable material deviations from DBRS's expectation may have a negative rating impact.



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