Methodology

Rating Canadian Credit Card and Personal Line of Credit Securitizations

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DBRS's extensive coverage of securitizations and structured finance transactions solidifies our standing as a leading provider of comprehensive, in-depth credit analysis.

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I. Scope and Limitations

DBRS evaluates both qualitative and quantitative factors when assigning ratings to a Canadian structured finance transaction. This methodology represents the current DBRS approach for rating credit card and personal line of credit (PLC) securitizations issued in Canada with collateral originated in Canada. It describes the DBRS approach to analysis, which includes: (1) a focus on the quality of the originator/servicer, (2) evaluation of the collateral pool and (3) utilization of historically employed credit evaluation techniques. This report also outlines the asset class and discusses the methods DBRS typically employs when assessing a transaction and assigning a rating. 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 with formulaic inflexibility, but understood in the context of the dynamic environment in which it is intended to be applied.

II. Introduction

DBRS applies a qualitative and quantitative approach to rating debt backed by receivables from credit cards and PLCs. The approach includes an assessment of the quality of the seller, which DBRS believes directly affects the likelihood that investors will be fully repaid according to the terms under which they have invested. DBRS believes that receivables sellers typically maintain a strong vested interest in maintaining the credit quality of the receivables backing the rated debt. DBRS understands that 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 and adjusting the annual percentage rate (APR) for better risk pricing in addition to performing collection activities to minimize credit losses. Additionally, these entities’ interests are largely aligned with investors’ interests as the sellers also hold various investments in the receivables, such as through their co-ownership interests, occasionally retained subordinated notes as well as the receivables that are not sold to a trust but remain on the entity’s balance sheet.

Other key analytical considerations evaluated by DBRS include the following:
- Operational Risk Review
  - Quality of originations and underwriting
  - Quality of servicing capabilities
  - Collateral quality analysis
  - Performance of the receivables
- Capital structure, proposed ratings and credit enhancement
- Cash flow analysis
- Legal structure and opinions

In connection with the analysis of the aforementioned analytical considerations, DBRS tests the viability of each transaction’s proposed capital structure and credit enhancement levels at each proposed rating level through the use of DBRS’s proprietary cash flow model. Scenarios are executed for each class of debt, with each higher-priority class subjected to successively more severe assumptions. The model includes inputs such as base cases for yield, principal payment rate and loss rate; the proposed capital structure; the priority of payments; trust expenses; and interest rate and basis risk. The stresses and base-case determination may incorporate potential implications that ensue from the imposition of regulations.
From a transaction structure perspective, credit card and PLC securitizations incorporate the concept of an early amortization event which, when triggered, accelerates the end of the revolving period and the onset of the amortization period. Early amortization may be triggered by the insolvency of the seller and other seller-related issues in addition to declining performance of the receivables. From a modeling perspective, transactions enter an early amortization period for all rating levels because of a breach of a performance trigger, which generally signals a decline in the performance of the collateral. Depending on the variables in the cash flow stress scenarios, a breach is typically expected to occur between eight and ten months after closing for the notes rated AAA (sf), and potentially later for lower-rated notes. For sellers with sizable and what DBRS considers to be well-managed portfolios of receivables, DBRS believes that the likelihood of an early amortization event occurring shortly after note issuance is remote. As a result, DBRS may start the stress on such portfolios a few months later and/or over a longer stress period of up to 18 months in the cash flow analysis when evaluating the subordinated notes.

Each rating assigned by DBRS represents an opinion regarding the likelihood of repayment of principal and interest according to the transaction documents by the legal final maturity date, which could be many months after an expected final payment date. DBRS may assign provisional ratings prior to the transaction’s closing date. Provisional ratings signify DBRS’s opinion prior to a review of the final details of a proposed transaction. Once a transaction closes, DBRS assigns final ratings and begins the monitoring process in accordance with DBRS’s Canadian Structured Finance Surveillance Methodology.

As PLCs function similar to credit cards in many ways, except for the lack of physical access cards in some instances and the lack of payment grace periods specific to credit cards, DBRS incorporates in this methodology the approach to rating Canadian PLCs (excluding home equity lines of credit) as Appendix 1. The main body of this methodology focuses on the discussion of credit card securitization with the discussion of PLCs, both secured and unsecured, in the appendix.
III. Overview of Canadian Credit Card Industry

Credit cards are unsecured revolving lines of credit used to finance the purchase of goods and services as well as for cash advances. The contractual agreement between the credit card holder and financial institution addresses the terms and conditions to which the cardholder and card issuer must adhere. Cardholders are typically only required to make a minimum monthly payment on the outstanding balance to remain in good standing; however, the entire outstanding amount is contractually payable on demand.

A credit card typically provides a cardholder with a maximum amount that may be borrowed and stipulates an APR 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 based on an index, which is typically the card issuer's prime rate. Outstanding cardholder balances increase as charges are made and decrease through cardholder principal payments. Portfolio yield comes from interest amounts that accrue on unpaid revolving principal balances and other charges, such as over-limit charges. Portfolio yield may also include interchange, which represents fees received by card issuers to compensate for assuming interim cardholder credit risk and fraud. Interchange fees are not paid by cardholders and are generally remitted to the card issuers and included in the yield of credit card trusts.

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

Credit cards are offered by a variety of financial institutions, but primarily by chartered banks. In Canada, there are two main associations that process credit card transactions: Visa and MasterCard. To address the potential concerns of the Competition Bureau, Canadian financial institutions were historically prohibited from issuing both Visa and MasterCard products (duality) until November 2008. The restriction on issuing multiple credit cards is no longer in place. American Express is a more exclusive association, as it issues credit cards directly or with other financial institutions to customers. Credit card issuers have a membership agreement with the association outlining the roles and responsibilities of each party in the transaction settlement process. Competition among card issuers, changing consumer demographics and market saturation have resulted in continuous product innovation, including the use of credit cards as a convenience tool rather than solely as a means to finance purchases over time.

Interchange

In a typical credit card transaction, the cardholder’s bank remits the transaction amount less an interchange fee to the merchant’s bank. The interchange fee serves to provide compensation to the cardholder’s bank for administrative costs and for assuming the credit risk of funding transactions up to the point at which either the cardholder pays off the transaction amount or the cardholder’s bank can charge the cardholder interest on balances. The merchant receives from its bank the transaction amount charged to the cardholder’s credit card less a merchant discount fee, which includes the interchange fee and other expenses as compensation to the merchant’s bank for card acceptance services. Rates of interchange may vary according to the type of transaction, type of card and its associated risk. Processing, authorization, clearing and settlement services are provided through a card association, with the actual exchange of funds completed through a settlement bank. Figure 1 below is a simplified illustration of the parties involved and payment flows during the processing of a credit card transaction.

In the example, the cardholder charges a $100.00 item to a credit card; the merchant receives $98.00 after a $2.00 merchant discount, as the merchant’s bank receives $98.50 after a $1.50 interchange fee. The gain is $0.50 for the merchant’s bank and $1.50 for the issuing bank; therefore, the cardholder does not pay interchange fees and credit card originators can derive additional sources of revenues from interchange fees.
Credit Card Transaction Processing Steps
(1) Cardholder purchases $100.00 of goods and services from Merchant using a credit card;
(2) Merchant submits transaction data to Acquirer for authorization;
(3) Acquirer submits transaction data to Issuer for authorization through Card Association Network;
(4) Issuer approves purchase and transfers $98.50 ($100.00 less $1.50 interchange fee) to Acquirer through Settlement Bank;
(5) Acquirer pays Merchant $98.00 ($100.00 less $2.00 merchant discount fee);
(6) Cardholder is billed by Issuer for purchase; and
(7) Cardholder pays Issuer $100.00 (assuming full repayment within the interest-free grace period).

IV. Operational Risk Assessment

Origination and Underwriting
Competition in the Canadian credit card industry has made account retention and new account acquisition a key component of a successful credit card operation. Marketing for new accounts has evolved from a simple process of in-branch brochure applications for existing bank customers to a highly sophisticated operation that selectively pre-authorizes limits and places card applications directly into households of potential customers. Increased penetration of these acquisition strategies into nationwide markets has also resulted in profitable cross-selling opportunities for many card issuers.

Credit card issuers determine their appetite for risk when constructing their approach to originations and underwriting, as different strategies yield correspondingly different pools of cardholders from a credit quality perspective. Review of marketing and acquisition channels and their successes provides insight into the credit card issuer’s origination strategy. DBRS views credit card issuer’s policies and procedures that include other important functional areas in the underwriting process favourably (such as risk management, operations, information systems, legal and compliance). For instance, many credit card issuers employ behavioural scoring models and other analytics to design product offerings for specific consumer groups in order to optimize and/or monitor cardholders’ purchasing and payment patterns. The common characteristics of credit card underwriting include standard credit bureau checks, which entail a review of trade lines, presence of liens, judgments and other derogatories as well as applicant information, including number of years at current residence, length of employment at recent positions and current personal
debt levels. Issuers who can successfully target creditworthy customers with appropriate risk pricing are better positioned to generate stable and high levels of portfolio yield with manageable levels of delinquencies and losses, and thus consistent levels of excess spread.

Credit card issuers use various tools to manage the credit risk in their portfolios. These tools include closing accounts, pre-emptively lowering the limit of the credit line, changing the financing rate charged and charging various fees associated with the transactions. Credit card issuers must maintain and invest in their infrastructure to evaluate and re-evaluate daily cardholder transaction activity and to manage and investigate (potential) fraudulent activities. Compared to other lenders, the credit card issuer in many ways has a better understanding of a borrower’s current creditworthiness and has greater flexibility to respond to changes in a borrower’s profile as they occur. Changes in underwriting standards, product mix and geographic concentrations, aggressiveness of account acquisition and adequacy of account management can all have an impact on a portfolio’s risk profile. In addition, experienced and competent management and staff are vital components of a successful credit card operation.

Typical factors DBRS assesses as part of the rating analysis include the quality of the originations, underwriting criteria and processes, level and consistency of compliance and the quality and competency of the staff employed by a credit card issuer. DBRS favourably views the participation of the credit risk management, quality control, legal and compliance departments in all aspects of the origination and underwriting process to identify and mitigate attendant risks. Additionally, as credit card issuers add receivables to a master trust over time, DBRS analysis considers changes to criteria and processes to ensure credit enhancement levels remain sufficient at each rating level.

**Servicing**

The efficiency and effectiveness of collection systems have a significant impact on the performance of credit card receivables. Technology plays a crucial role in servicing and can be a major competitive advantage as there are usually millions of accounts to be serviced. Similar to account management, many credit card issuers now use behavioural scoring models (with bankruptcy risk scores) and other analytics to evaluate delinquent accounts in order to optimize collection efforts. Issuers who can efficiently deploy their resources for collections can reduce the ultimate credit losses.

**Operational Risk Assessment for Canadian Credit Card Originators, Sellers and Servicers**

An important part of the DBRS rating process for credit card securitizations is a review of the operations of the originator/seller, which is usually also the initial servicer. Although the entity used in the securitization transaction (the Trust) is bankruptcy remote from the seller, an evaluation of the seller is integral to the sustainability of the securitization as the seller 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 Trust (through a replacement servicer) to collect outstanding receivables could become impaired or uncertain. DBRS will, therefore, assess the quality of a seller’s origination platform with typical factors considered including underwriting guidelines and compliance with those guidelines, marketing strategies and acquisition channels in addition to a review of its servicing capabilities. Servicing evaluations will be considered in conjunction with the collateral itself and the cash flow analysis for each credit card securitization transaction, and each of these factors will be used to evaluate appropriate credit enhancement levels.

In Canada, credit card accounts and related receivables may be sold on a fully-serviced basis in a securitization transaction if the seller remains as the servicer, meaning no servicing fees are paid to the seller for these services (and this will be explicitly set out in the transaction documents). Instead of receiving explicit servicing fees, the seller typically receives any remaining funds (excess spread) after expenses and payments to the investors are made. Investors rely on the efficient processing of transactions and the timely collection of payments and disbursement of funds for interest and principal (re)payments. DBRS, therefore, reviews the servicer’s servicing capabilities and infrastructure, including investment in technology and any outsourcing arrangement(s).
In general, operational risk assessment by DBRS covers the following areas:

1. Company and Management
2. Financial Condition
3. Controls and Compliance
4. Origination and Sourcing
5. Underwriting Guidelines
6. Technology

V. Collateral Performance Metrics and Base Case Assumptions

DBRS analyzes the characteristics and performance of the seller’s historical portfolio to derive assumptions for loss rate, portfolio yield and principal payment rate for the proposed portfolio of credit card receivables to be securitized (the Portfolio). DBRS also reviews the characteristics of the current Portfolio as compared with the seller’s current origination and servicing practices, the characteristics of the historical pool and the eligibility criteria set forth in the transaction legal documents. This step serves to ensure that DBRS forecasts are based on the current composition and origination practices of the seller and the eligibility criteria of the transaction.

Portfolio Characteristics
When rating notes backed by a portfolio of credit card receivables, DBRS typically receives stratifications of the Portfolio that provide a summary of the Portfolio’s characteristics, such as distributions of obligor credit scores, if available, APRs, credit limits, seasoning, geographic distribution and account balances. It is important that sellers have the reporting capability to provide Portfolio performance data that can be stratified by key risk attributes necessary to forecast a proposed Portfolio’s loss rate, yield and principal payment rate.

Data Request and Developing a Base-Case Expectation for Loss Rate, Portfolio Yield and Principal Payment Rate

As part of the rating process, DBRS develops expectations for the base-case loss rate, base-case portfolio yield and base-case principal payment rate for each credit card Portfolio. These three base-case levels are also referred to as expected loss, expected yields and expected principal payment rates, respectively, or collectively known as Expected Performance. These three variables of loss rate, portfolio yield and principal payment rate are collectively considered the Key Metrics. DBRS analyzes seller-specific performance history and Portfolio-specific characteristics provided by a seller. DBRS may also look to compare the seller’s experience to the performance of other credit card issuers or the industry. DBRS utilizes this historical information to help assess future performance. DBRS expects sellers to provide performance information, as described below, that shows a range of asset performance over various economic cycles.

PORTFOLIO DATA
Portfolio analysis relies on historical performance data from discrete groups of receivables that have been stratified across key risk attributes. In this analysis, the historical performance of the Key Metrics is tracked on a monthly basis for the Portfolio. If the receivables composition is similar, historical Portfolio analysis is an effective tool for establishing Expected Performance because, all else being equal, two Portfolios with similar collateral composition during similar economic environments can be expected to have similar Key Metric realizations over their lifetimes.
DBRS seeks to receive historical data of the Portfolio with sufficient granularity. Sufficient granularity may include defining appropriate stratifications to identify key risk components within the Portfolio. DBRS may request a seller to segregate historical Portfolio performance data and the proposed securitization Portfolio into sub-portfolios of these common receivable characteristics. A typical DBRS data request would include the following data fields, among others, detailing the historical performance of the Portfolio:

- Total receivables balance
- Number of accounts
- Yield
  - Components – gross yield, fees, interchange and other
  - Percent of receivables that use a floating versus a fixed index rate
  - Margin and index where applicable
- Losses, including gross, recoveries and net
- Delinquencies at various stages
- Payment rate components including principal and finance charges
- Dilution components, including returns or adjustments
- Applications – both processed and approved
- Historical credit scores
- Geographic balances and distributions
- Historic credit limits and account balances

For private label retail credit cards, there may be additional requests for data such as store opening and performance statistics, store locations, program fees and terms and distribution channels.

Typically, DBRS requests at least five years of performance history from sellers. In the absence of adequate performance history, DBRS may decline to rate the transaction due to the insufficiency of the provided data. In cases where originator-specific Portfolio data has limited history or data quality limitations, DBRS is likely to use more conservative Expected Performance than would otherwise be the case.

The Portfolio data should be presented in a manner such that receivables which are categorized as either delinquent or written off are consistent with the transaction documents, ensuring that cash flow stresses are constructed in a manner that is consistent with the historical data. Portfolio yield and principal payment rate data should also be presented in a manner that is consistent with the transaction documents.

**PROJECTING EXPECTED NET LOSSES**

Net losses are defined as defaults less recoveries. Delinquent credit card accounts are required to be written off as uncollectable by the servicer after 180 days of delinquency per Office of the Superintendent of Financial Institutions Canada (OSFI) regulations. Account holders that file for bankruptcy are also considered write-offs per OSFI regulations and/or transaction documents. The net loss rate is calculated as the amount written off in the month as a percentage of the amount of receivables outstanding, and then annualized. Due to the unsecured nature of credit card lending, recoveries are usually low. Recoveries on write-offs depend on the means used to pursue recoveries. Most credit card issuers rely on a combination of internal collections, outside collection agencies, asset sales and legal channels in their collection work.

DBRS assesses the data provided by the issuer, based on the collateral statistics for the historical Portfolio. If the receivable parameters are considered to be a good proxy for the potential performance of the transaction portfolio, DBRS uses the information to build a base case net loss rate, based on factors such as seller’s financial strength, origination consistency, account management and collection and servicing practices.
Loss rates are generally affected by three main variables: (1) macroeconomic factors, such as unemployment trends, consumer wealth formation and household leverage ratios; (2) issuer underwriting and servicing; and (3) the consumer’s personal situation, such as divorce, job loss or medical issues. DBRS base-case and stress assumptions consider factors such as loss performance over time by vintage, migration of credit scores and, when available, credit line management strategies. The nature of a credit card may also affect these assumptions. For example, private-label retail receivable pools typically involve higher base-case net loss rates because of the more limited utility of retail cards. In a worst-case scenario, DBRS may assume 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 overall health of the seller. This is, of course, related to the retailer’s ability to be maintained as a viable entity and sell merchandise.

**ADJUSTMENTS TO THE EXPECTED NET LOSS RATE**

Adjustments to the expected net loss rate may occur based on overall variability and trends of the provided performance data. If DBRS believes that historical performance information is not consistent over time, the Portfolio may be assessed at a higher expected net loss rate. Performance trends are also considered in the determination of an expected net loss rate. DBRS reviews origination practices to assess movements in key performance drivers. As a result of this analysis, DBRS may adjust the expected net loss rate for a Portfolio, depending upon the directional trend of the performance indicators.

An adjustment to the expected net loss rate may also occur as a result of changes in underwriting criteria and servicing practices utilized by the originator. 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 net loss rate may be made.

**PROJECTING EXPECTED PORTFOLIO YIELD**

Portfolio yield is generated from finance charges, which include interest charges, annual fees, interchange fees, cash advance fees, over-limit fees and other miscellaneous fees. In general, portfolio yield is calculated as the annualized average of the monthly income earned on the portfolio divided by the receivables balance.

Credit cards have APRs that are either fixed or based on a floating-rate index plus a premium. The premium is often based on the perceived risk and credit quality of the obligor and the obligor’s historical performance with the card issuer (risk pricing). APRs, therefore, vary widely and are intended to attract various types of consumers.

DBRS assesses the data provided by the seller, based on the collateral statistics for the historical Portfolio. If the receivable parameters are considered to be a good proxy for the potential performance of the transaction portfolio, DBRS uses the information to build a base-case portfolio yield, based on factors such as the components of yield (i.e., interest charges, interchange, fees, etc.).

**ADJUSTMENTS TO THE EXPECTED PORTFOLIO YIELD**

Adjustments to the expected portfolio yield may occur based on overall variability and trends of the provided performance data. If DBRS believes that historical performance information is not consistent over time, the Portfolio may be subject to a lower expected portfolio yield. Performance trends are also considered in the determination of an expected portfolio yield. DBRS reviews origination practices to assess movements in key performance drivers. As a result of this analysis, DBRS may adjust the expected portfolio yield for a Portfolio depending upon the directional trend of the performance indicators.

The Portfolio yield may include interchange fees. For new issuance, DBRS typically reduces the interchange fee component from the yield figure when determining base-case portfolio yield to be conservative as most transaction legal opinions do not concisely address the ongoing availability of interchange, and interchange may be subject to set-off.
When determining the base-case portfolio yield, DBRS requests that the seller supply data for monthly interest income actually collected as opposed to the amount billed, as the billed income or billed yield figure does not account for delinquencies or waived fees and charges. If only billed yield data is reported, DBRS will discount billed yield to estimate the collected yield figure.

An adjustment to the expected portfolio yield may also occur as a result of changes in underwriting criteria and servicing practices utilized by the originator. 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 portfolio yield may be made.

**PROJECTING EXPECTED PRINCIPAL PAYMENT RATE**

Payment rates represent total monthly collections received from cardholders divided by the receivables balance. Higher payment rates mean that more funds are available to repay noteholders during either an accumulation or amortization period, a critical factor affecting the sufficiency of credit enhancement.

DBRS assesses the data provided by the seller, based on the collateral statistics for the historical Portfolio. If the receivable parameters are considered to be a good proxy for the potential performance of the transaction portfolio, DBRS uses the information to build a base case for principal payment rate, based on factors such as the minimum payment terms, regulations and portfolio composition between convenience users (transactors) and revolvers. In addition, the combination of the specific dollar amount set as the minimum monthly payment and the percentage of cardholders in the pool who seek to make the minimum monthly payment can have an impact on a trust’s payment rate.

In the pursuit of determining a base-case principal payment rate, DBRS requests that the seller supply data for the monthly principal payment rate. Sellers may report payment rate figures on a total payment basis (including portfolio yield and principal) and/or on a principal collected basis. If a seller only reports total payment rates, DBRS will estimate the yield or finance charge component embedded in the total payment rate to determine a base case for the principal payment rate.

**ADJUSTMENTS TO THE PRINCIPAL PAYMENT RATE**

Adjustments to the expected principal payment rate may occur based on overall variability and trends of the provided performance data. If DBRS believes that historical performance information is not consistent over time, the Portfolio may be subject to a lower expected principal payment rate. Performance trends are also considered in the determination of an expected principal payment rate. DBRS reviews origination characteristics to assess movements in key performance drivers. As a result of this analysis, DBRS may adjust the expected principal payment rate for a Portfolio, depending upon the directional trend of the performance indicators.

An adjustment to the expected principal payment rate may also occur as a result of changes in underwriting criteria and servicing practices utilized by the originator. 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 principal payment rate may be made.

**Purchase Rate**

The purchase rate is the rate at which new receivables are created under designated accounts in the trust. Generally, the trust pool balance is affected by a combination of purchase rate, principal payment rate and loss rate. The pool balance increases when the purchase rate exceeds the payment rate and loss rates combined and declines when the purchase rate is lower than the payment rate and loss rates combined.

The purchase rate also affects the repayment of the notes during the amortization period. If all other factors are held constant, the higher the purchase rate, the greater 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.
VI. Cash Flow Stress Scenarios and Credit Enhancement

Cash Flow Stress Scenarios
DBRS uses a proprietary cash flow model to test the ability of the trust to pay timely interest and principal of the rated transaction by the legal final maturity date, in accordance with the transaction’s legal documents. The cash flow analysis assesses the form and sufficiency of proposed credit enhancement for each class of notes, incorporates Expected Performance assumptions and the transaction’s priority of payments and is performed for each target rating. The cash flow scenarios reflect stresses applied to the Expected Performance for each rating level, with higher stresses applied at each successively higher rating level.

Specifically, the stresses assume a simultaneous decline in the base-case yield, decline in the base-case principal payment rate and increase in the base-case losses. DBRS also applies a purchase rate assumption, which reflects the rate at which new receivables are created under designated accounts during the amortization period. The specific stresses applied at each rating level are summarized in the table below. The cash flow analysis also incorporates the elements of the transaction structure, including any triggers that may affect cash flows. The nature of any hedges in the transaction is also taken into consideration in the cash flow analysis. As credit card receivables transactions are subject to interest rate and basis risk, DBRS cash flow stress scenarios incorporate interest rate and basis risk stresses.

The stress factors are designed to capture uncertainties and variables that may affect future transaction performance and serve to test the rated notes in much harsher conditions than those assumed within the Expected Performance.

Collateral Cash Flow Assumptions
Time frames to stress Expected Performance are compressed in the DBRS scenarios. The analysis begins with base-case assumptions in a normal, non-eventful period for the first five months, followed by a simultaneous deterioration of losses, principal payment rate and portfolio yield commensurate with the target rating beginning in the sixth month. Based on historical experience, simultaneous deterioration of all performance variables is, however, unlikely. For example, when a credit card program enters early amortization caused by severely compressed excess spread, it has been observed that delinquencies and losses would spike and principal payment rates would drop precipitously, but yields would remain relatively stable because of the unchanged APRs. As the DBRS stress scenario is more severe than empirical experience, DBRS may allow the subordinated notes to be stressed more leniently over a longer period; therefore, performance deterioration is assumed to be over 12 months in a linear fashion for the AAA (sf) rating, and may take longer for lower rating categories.

The stress scenarios below are general guidelines and are determined on a case-by-case basis.

### Summary of Credit Card Stress Testing Multiples by Rating Category

<table>
<thead>
<tr>
<th></th>
<th>AAA (sf)</th>
<th>AA (sf)</th>
<th>A (sf)</th>
<th>BBB (sf)</th>
<th>BB (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield (reduction applied to base case)</td>
<td>30–45%</td>
<td>25–35%</td>
<td>20–30%</td>
<td>15–25%</td>
<td>5–10%</td>
</tr>
<tr>
<td>Principal Payment Rate (reduction applied to base case)</td>
<td>35–50%</td>
<td>35–45%</td>
<td>30–40%</td>
<td>25–35%</td>
<td>10–20%</td>
</tr>
<tr>
<td>Net Losses (multiple applied to base case)</td>
<td>4.0x–5.0x</td>
<td>3.0x–4.0x</td>
<td>2.5x–3.5x</td>
<td>2.0x–2.5x</td>
<td>1.5x–2.0x</td>
</tr>
</tbody>
</table>

At each rating category, DBRS performs various stress scenarios to assess the adequacy of proposed credit enhancement levels. DBRS considers various elements when selecting the stress multiples for each target rating, including elements that are relevant to all securitization structures and elements specific to the credit card industry and to each proposed credit card transaction. The relative contribution of the elements may vary by transaction.
The elements include, but are not limited to, the following:

- Absolute level of a proposed pool’s base-case loss figure;
- The seller’s profitability and historical performance;
- Management team experience;
- Operational risk assessment of the originator and/or servicer;
- Presence of backup servicer, particularly for below-investment-grade servicers;
- Consistency of underwriting practices for new accounts;
- Data volatility;
- Macroeconomic conditions; and
- Transaction structures and mitigants.

**Historical Data**

The availability of consistent, less volatile than industry average and lengthy historical data that covers at least one full economic cycle and includes all significant stratifications (i.e., credit score, seasoning, credit limit, utilization rate, etc.) of the proposed pool may warrant lower stress multiples in the prescribed range. On the other hand, volatile and incomplete data sets may warrant higher stress multiples in order to account for the lack of historical data. In these cases, DBRS may use an industry comparable or other forecasting method as applicable to project performance. Similarly, data sets which incorporate significant changes in credit underwriting standards may warrant higher stress multiples, as the data has not been generated using consistent underwriting standards. This consideration may also be represented through a change in the base-case assumptions prior to applying the appropriate stress multiples.

**Originator/Servicer Considerations**

The originator and servicer of the transaction can be important factors in the determination of acceptable stress multiples. An originator or servicer deemed to have higher current or potential future operational risk may be subjected to higher stress multiples in the prescribed range. Similarly, an originator or servicer with questionable underwriting standards or weaker servicing capabilities may also warrant higher stress multiples. A new originator, non-investment-grade seller or one where a replacement servicer is more likely to be required may also warrant higher stress multiples. Conversely, lower multiples may be utilized for an originator or servicer which demonstrates consistency and competency in underwriting, servicing capability and operational risk. An investment-grade entity with a history of securitization, servicing assets and a well-tenured and experienced staff may also warrant lower stress multiples.

**Transaction Structure and Mitigants**

The transaction structure is also very important for assessing the stress multiples in a given transaction. If the structure includes appropriately structured early warning triggers on metrics such as losses, delinquencies or payment rates, it may warrant lower stress multiples in the prescribed range; however, if such triggers do not exist or are not set to be meaningful, higher stress multiples may be applied. If credit enhancement is non-amortizing or has very high floor levels, lower stress multiples may also be warranted. In the absence of these structural mechanics, higher stress multiples may be more appropriate.

**Cash Flow Stress Factor Example**

The chart below depicts a typical cash flow modeling scenario for credit card securitizations. The scenario below assumes stresses to the Expected Performance as well as interest rates and replacement servicer fees starting in the sixth month. Such stress compresses the three-month average excess spread to be negative in month ten, accordingly triggering an amortization event.
In the assessment of credit enhancement sufficiency, DBRS will stress purchase rates based on the type of card. In general, private label retail or co-branded cards with retailers are stressed with a purchase rate assumption of zero as the usage of these cards in an early amortization scenario (such as retailer’s insolvency) is likely limited. 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 vendors or locations. As rating categories decline, more benefit can be given to the purchase rate. Below-investment-grade sellers are also more likely to be stressed with a purchase rate of zero as the linkage between the card usage and issuers’ financial strength is considered high.

From a cash flow modeling perspective, transactions enter early amortization because of a breach of a performance trigger as defined in the transaction documents. Depending on the variables in the stress scenarios, the breach in the cash flow modeling is typically expected to occur between months eight and ten in the cash flow scenarios. In all cash flow stress scenarios, when in early amortization, collections are diverted to repayment of outstanding notes and are no longer used to purchase additional receivables.

**Interest Rate and Basis Risk**
Credit card APRs are either fixed or based on a floating rate. Credit card issuers often use their prime rate as a benchmark to price floating rate credit cards. Note coupons for credit card securities can be either fixed or floating rate. Floating-rate note coupons are usually benchmarked to one-month or three-month Canadian Dealer Offered Rate (CDOR).

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 for APRs and the benchmark for the floating-rate notes.

To assess the impact of interest rate and/or basis risk on a transaction’s excess spread, DBRS assumes the following:

**Upward stress:** When interest rates increase, APRs of credit card receivables are assumed to be re-priced by the card issuer with a two-month lag while CDOR-based note coupons are increased immediately. DBRS uses a dual approach in stressing interest rates upward. First, it applies stress multiples to the base forward curve by rating category. The stresses are capped when the CDOR increase reaches 500 basis points (bps) for AAA (sf); however, the forward curve may not always slope upward. To account for a flat or downward-sloping forward curve environment, DBRS also incorporates a stressed linear increase over 12 months. The linear increase is intended to offset the risk that the forward curve would not apply significant stress in certain interest rate environments. DBRS then uses the higher value of the two stresses.
in every month, beginning in the sixth month. The graph below shows an example of the AAA (sf) one-month CDOR upward interest rate stress. Because of the gradual incline of the forward curve on this day, the linear increase is greater than the stressed forward rate and is, therefore, the stress scenario used.

**AAA (sf) One-Month CDOR Stresses (Upward)***

![Graph showing AAA (sf) One-Month CDOR Stresses (Upward)]

**Downward stress:** For fixed-rate note issuance, decreasing interest rates could compress excess spread if card issuers lower APRs. For floating-rate note issuance, APRs and note coupons may adjust differently, resulting in basis risk. In such instances, in addition to an upward interest rate stress, DBRS also applies a downward stress, which, for a AAA (sf) rating, represents a 300-bp linear decrease over 12 months starting in the sixth month. APRs of credit card receivables and floating-rate note coupons are decreased simultaneously. The graph below shows an example of the AAA (sf) one-month CDOR downward interest rate stress. Because of the low spot CDOR rate of 1.215% on this day, the stressed AAA (sf) rate reaches zero in month ten, only four months after the stress begins.

**AAA (sf) One-Month CDOR Stresses (Downward)***

![Graph showing AAA (sf) One-Month CDOR Stresses (Downward)]

The results from the more conservative of upward and downward stress scenarios are then used to assess the adequacy of credit enhancement. To isolate the impact of interest rate changes on appropriate enhancement levels, the interest rate stress may be applied later than the sixth month. Basis risk is also stressed based on the historical relationship of the indexes over long time frames. Everything else being equal, a floating-rate obligation exposes the trust to potentially more severe excess spread compression and consequently results in higher credit enhancement than a fixed-rate obligation for a given rating category.
The stress multiples applied to the base forward curve, the corresponding caps and the linear increases and decreases by rating category are listed in the table below.

### Interest Rate Stress Tests by Rating Category

<table>
<thead>
<tr>
<th>Forward Stress</th>
<th>AAA (sf)</th>
<th>AA (sf)</th>
<th>A (sf)</th>
<th>BBB (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiples</td>
<td>1.40x</td>
<td>1.30x</td>
<td>1.25x</td>
<td>1.15x</td>
</tr>
<tr>
<td>Cap (Basis Points)</td>
<td>+500</td>
<td>+470</td>
<td>+440</td>
<td>+410</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Linear Increases in 12 Months</th>
<th>AAA (sf)</th>
<th>AA (sf)</th>
<th>A (sf)</th>
<th>BBB (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Increases (Basis Points)</td>
<td>+400</td>
<td>+350</td>
<td>+300</td>
<td>+250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Linear Decreases in 12 Months</th>
<th>AAA (sf)</th>
<th>AA (sf)</th>
<th>A (sf)</th>
<th>BBB (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Decreases (Basis Points)</td>
<td>-300</td>
<td>-230</td>
<td>-170</td>
<td>-100</td>
</tr>
</tbody>
</table>

**Swaps**

Swaps may be used to mitigate interest rate risk in credit card transactions. Depending on the rating or the eligibility of the swap counterparty, a swap could be considered effective, beneficial (but not sufficiently effective) or immaterial in assessing the adequacy of credit protection. Given that excess spread from credit card receivables is generally high compared with other asset classes, however, a swap to mitigate the exposure to fixed-floating rate mismatch and possible spread compression is not always structurally necessary because such spread compression is part of the stressed scenario(s). In addition to being used to mitigate interest rate mismatch, some transactions have accumulation swaps in place to mitigate the potential negative carry during the accumulation period in lieu of depositing cash. Cross-currency swaps are typically used if the receivables and the notes issued are denominated in different currencies. For example, notes denominated in U.S. dollars are often issued and supported by a pool of Canadian-dollar credit card receivables. Swap counterparties must meet a minimum credit rating threshold as expected in DBRS’s Derivatives Criteria for Canadian Structured Finance methodology, which can be found on the DBRS website under Methodologies.

**Rating Designations of (high) or (low)**

Stress multiples of each rating level for credit card transactions are in ranges, which may overlap and are not as granular as other types of asset-backed securities (ABS); therefore, it is less common to assign a rating with the designation of (high) or (low) to credit card transactions. The general guideline is, however, that if a rated class can pass higher than mid-range stress multiples, a (high) designation may be assigned. On the other hand, a (low) designation will be considered if a rated class can only pass lower than mid-range stress multiples.
VII. Securitization Trust Structures and Cash Flow Allocations

Master Trust
Credit card securitizations typically employ a master trust structure, which provides the ability to issue multiple series out of the same trust with all the series secured by the same collateral pool. A master trust is different from a discrete trust, where there is a separate collateral pool backing each transaction. This is achieved by conveying a designated pool of accounts to a custodian for the subsequent sale of co-ownership interests in the conveyed pool. Separate co-ownership interests (collectively, the trust’s interest) are established for each series of notes issued by the trust, with the seller retaining a co-ownership interest in the portion of the receivables that are not offered to the investors. Thus, there are at least two co-ownership interests in a pool of credit card receivables: the seller’s interest and the trust’s interest. The seller’s interest ranks pari passu with the trust’s interest, which is represented by the notes issued by the trust. As credit card receivables have relatively high turnover rates with short maturities, master trust structures incorporate a revolving period, which facilitates the longer-term financing of shorter-term assets. During the revolving period, interest is paid to investors as always, while principal payments received on the collateral are used to purchase new receivables or to accumulate principal for repayment of other series of notes that are in an accumulation period.

This continuing purchase mechanism maintains the bullet repayment on the notes’ expected payment dates, reduces the likelihood of principal prepayment to investors and enables the use of long-term financing for short-term assets. The revolving period has a definite term and may be prematurely terminated by an early amortization event.

Most credit card trusts utilize a senior-subordinate financial structure, with the senior notes holding a higher priority than the subordinated notes. When excess spread, defined as portfolio yield or finance charge collections in excess of note coupon, losses and trust expenses, is reduced to zero, losses may be absorbed by reserve accounts and then allocated against note principal in reverse priority order, beginning with the most subordinated classes of notes.

Generally, all series issued by the master trust are collateralized by the same receivables pool held by the custodian on behalf of the trust. All series in the trust amortize based on either trust-level or series-level amortization events. A trust-level amortization event will affect all series, resulting in pari passu repayment. A series-level amortization event affects a specific series and results in the repayment of the most senior notes first, followed by the repayment of the subordinated notes in rank order.

Early Amortization Events
The structures used for credit card transactions generally incorporate early amortization events that are intended to cause principal to be repaid to investors once a trigger has been breached and remains uncured. Early amortization events generally include: (1) breach of a performance trigger; (2) failure of the seller to add sufficient amounts of receivables in order to satisfy the minimum seller’s interest test; (3) failure to pay timely interest to noteholders or ultimate principal on any series when due; (4) breach in the performance of the seller with regards to representations and warranties; (5) insolvency of the seller; and (6) the occurrence of a servicer termination event.
Servicer Termination Events
All transactions rated by DBRS contain standard servicer termination events which incorporate the following triggers, subject to an applicable cure period:

- Failure to make payments when due;
- Failure to perform or observe covenants;
- Untrue representation and warranty; and
- Bankruptcy or insolvency.

These triggers are designed to provide investors with the option of replacing the initial servicer should it fail to meet its servicing requirements. Performance-related triggers are not included as servicer termination events because they have already been included as amortization triggers and it is unlikely that a replacement servicer could implement new servicing procedures that would outperform those already in place within the initial servicer’s operation.

Master trusts are divided into the trust’s and the seller’s interests. The trust’s interest is determined by the aggregate amount of trust notes outstanding divided by the trust receivables balance. The seller’s interest is the residual amount, or the difference between the balance of the trust receivables and the notes. Generally in Canada, credit card securitizations require a minimum seller’s interest of 7% to 8% 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 such as merchandise returns, rebate or rewards programs, goodwill adjustment and ineligible receivables (collectively referred to as dilution). The higher the dilution, the higher the required minimum seller’s interest should be. DBRS assesses the adequacy of minimum seller’s interest based on the historical experience of receivables dilution.

In Canada, fraudulent receivables (i.e., receivables arising from the fraudulent unauthorized use of the credit card) are usually reported as part of the seller’s operating expenses and not covered by dilution. The seller’s interest ranks pari passu with the trust’s interest in terms of monthly cash flow allocations, except for those items described as dilution above, which are allocated only to the seller’s interest. The seller’s interest is typically not included in the calculation of credit enhancement, as it is used to provide a buffer for the dilution, rather than for credit enhancement. Generally, when the seller’s interest falls below the minimum required level, the seller must add receivables in an amount that restores the seller’s interest to the minimum level. If the minimum seller’s interest is not restored within the cure period, an early amortization event is normally triggered and all of the notes will begin to amortize, as this affects the entire trust.

Vertical Classes and De-Linked Structure
In Canada, master trust structures typically issue senior classes and subordinated classes simultaneously (vertical classes) to achieve desired levels of credit enhancement in the form of subordination; however, the master trust could, in principle, also allow the issuance of senior or subordinated notes independently at any time as long as certain issuance conditions are satisfied. This concept is called a de-linked structure. There has been no de-linked credit card issuance in Canada to date, but the information is provided below for the purpose of comparison.

Notes issued in de-linked structures may have significant features that are different from vertical classes. The first difference is a concept of shared credit enhancement. In a de-linked structure, there is a required level of subordinated notes relative to senior notes outstanding that must be maintained at all times. The calculation of credit enhancement is also different. Therefore, the credit support for all series of senior classes is the same in a de-linked structure, while for vertical classes the credit support can be different for each series.
The second difference is extension risk. Repayments of subordinated notes that are maturing in a de-linked structure cannot take place unless new classes of subordinated notes are issued or the senior notes amortize, in order to ensure there is adequate support for the remaining senior notes. Consequently, there may be extension risk for the subordinated notes in a de-linked structure. If the trust cannot issue replacement subordinated notes, the maturing subordinated notes are not paid until the senior notes are defeased with cash from principal collections. In comparison, the maturity date and beginning of the accumulation period of subordinated notes in vertical classes is the same as the senior notes.

**Cash Flow Allocations**

Collections from credit card receivables are segregated into principal and finance charge components and are allocated pro rata between the seller’s and the trust’s interest. Receivable write-offs, technically not a cash flow item, are also allocated pro rata. The pro rata share of the trust’s interest is determined by the percentage of the aggregate notes outstanding divided by the custodial pool balance. Subsequently, the collections are further divided among each series of debt. As indicated in Table 1 below, allocations to each series depend on whether the series is in the revolving, accumulation or amortization period. This unique allocation mechanism is intended to provide investors certain events or time frames that are intended to transition collection methods from one period to the next and to provide trusts with the flexibility to issue as much or as little debt as desired.

<table>
<thead>
<tr>
<th>Method of Allocation</th>
<th>Trust’s Interest</th>
<th>Seller’s Interest (100% - Trust’s Interest)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Finance Charges</td>
<td>Receivable Write-Offs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revolving Period</td>
<td>Floating</td>
<td>Floating</td>
</tr>
<tr>
<td>Accumulation Period</td>
<td>Floating</td>
<td>Floating</td>
</tr>
<tr>
<td>Amortization Period</td>
<td>Floating or Fixed^3</td>
<td>Floating</td>
</tr>
</tbody>
</table>

1. Technically, transaction documents refer to receivable write-offs as either investor defaults or investor write-offs. The difference between investor defaults and investor write-offs relates to how the write-off will be handled. A receivable default will be first covered by finance charge collections and excess spread from other series (if permitted). If finance charge collections and excess spread from other series are insufficient to cover the default, it will be deemed an investor write-off. At this point, the investor write-off will cause a draw on enhancement or a write-down of the most subordinate class of notes. Some trusts will allow re-allocation of unencumbered principal collections to cover write-offs.

2. Principal collections allocable to the series are calculated but not distributed.

3. For some transactions, finance charges may be allocated using the fixed allocation method if an early amortization event occurs.

4. Some trusts issue “paired series,” where the allocation of principal may be “re-fixed” during the initial series amortization.

The finance charge component comprises portfolio yield and is used to pay servicing expenses of the trust (if applicable) and note interest and to cover allocated receivables write-offs.

Generally, excess finance charges and principal collections can be shared and re-allocated among series to cover any shortfalls in noteholder interest, write-offs allocable to the series and restoration of any previous writedowns of note principal.

During the revolving period, interest is paid to investors while principal payments received on the collateral are generally used to purchase new receivables or, if permitted in the trust structure, to pay or accumulate funds for amortization amounts on other series of notes. Once the revolving period ends, either as scheduled or prematurely because of an early amortization event, the principal collections are used for maturing notes during an accumulation or amortization period.

**Fixed and Floating Allocation Methods**

Once the revolving period ends, principal collections are used to amortize notes using the fixed-allocation method. Under the fixed-allocation method, principal collections are allocated to a specific series based on its respective interest in the trust as of the end of the revolving period. In the fixed-allocation method, the numerator of the allocation ratio is the amount of the outstanding series note balance as of the end of its revolving period. The denominator of the ratio, however, is the principal amount of trust receivables,
which can change with each period. Since the numerator remains constant as the series amortizes, the use of the fixed-allocation method generally amortizes principal more quickly for the specific series than a pro rata allocation of principal among series.

On the other hand, finance charges and receivable write-offs are generally allocated using the floating-allocation method. Under the floating-allocation method, the numerator of the ratio is the series note balance as of the end of the last reporting period, after consideration of amounts in the accumulation account. The denominator of the ratio is the principal amount of trust receivables. The floating allocation is similar to pro rata allocation, as the ratio is based on the outstanding balance at the end of the last reporting period for both numerator and denominator determination. In some trust structures, the allocation may shift to the fixed-allocation method if an amortization event is triggered.

**Priority of Payments**

The allocation of cash flows generated by the collateral in credit card structures is often more complex than other ABS transactions because of the co-ownership structure and revolving period. In general, interest on the credit card receivables-backed notes is paid on a priority basis from finance charges collected from the receivables. Interest on subordinated notes may be deferred and subordinated to senior note principal if there is a shortfall of funds, depending on the provisions of the transaction documents. To the extent that interest payments on subordinated notes are not made, due amounts are carried over or accrued to future periods and paid as funds become available.

Typically, principal collections from the receivables are used to purchase new receivables during the revolving period or are used to accumulate or pay the amortization of the notes. If the notes are not fully repaid on the expected payment date, the trust is not in default; instead, an amortization period will commence and subsequent principal repayments will be made on a priority basis first to the most senior notes. Principal repayments of subordinated notes will be postponed until the senior notes are fully repaid.

Once finance charges are allocated between the seller’s interest and the trust’s interest, finance charges allocated to the trust are further allocated pro rata among the series of notes. The amount allocable to a given series is usually based on the floating allocation as discussed above.

Some credit card securitization structures may allow for the allocation of finance charges at the master trust level (i.e., a socialized trust), instead of series-specific allocations (a non-socialized trust). If finance charges are allocated at the master trust level, the main benefit is that the structure can cross support interest shortfalls among all series with the risk that an early amortization event will affect all series of notes, while in a non-socialized trust an early amortization event is series-specific.

During the revolving period, the principal collections allocable to the trust’s interest are reinvested to purchase new receivables. Once the revolving period for a series ends, principal collections are then allocated to the series of notes based on a fixed allocation method. Within a series, principal repayments are made on the notes according to the priority order.

Some master trusts allow the sharing of principal collections among outstanding series for accumulation purpose. For example, if one series is in accumulation while other series are still in the revolving period, all principal collections, if needed, can be used for the specific series in accumulation so the funds required to repay the maturing series can be accumulated in a shorter period.

Some structures also allow principal collections that are allocable to subordinate notes to be used to pay senior note interest if finance charges, excess spread from other series (if permitted) and amounts in the cash reserve account are insufficient to cover the interest payment. Lastly, note principal can be written down, starting from the most junior class of notes, if the amounts in the cash reserve account, finance charges and excess spread from other series are insufficient to cover allocated write-offs.
Write-offs are allocated first between the seller’s interest and the trust’s interest. Once allocated to the trust’s interest, receivable write-offs are generally allocated among the different series based on the floating allocation method.

**Full Commingling and Partial Commingling**

The commingling of funds occurs when the seller, acting as servicer, blends credit card receivable collections from the securitization with funds that are not related to the securitization. DBRS generally considers the full commingling of funds by the seller until the next settlement date of the transaction acceptable as long as the seller/servicer maintains a minimum R-1 (low) or equivalent rating. The reason the minimum rating threshold for full commingling is higher than the investment-grade rating level used for other securitization transactions is because of the high monthly payment rates for Canadian credit card portfolios and the large daily collections received.

Full commingling allows remittance to the investors to be carried out on a monthly basis or even longer. Should the seller be removed as servicer, or if the servicer’s rating falls below investment grade, the allowable commingling period is reduced to no more than two business days; however, commingling by the servicer of collections in excess of what is required to be paid or deposited for the next distribution or settlement date (partial commingling) may be considered acceptable if the seller is rated below R-1 (low) but above investment grade, subject to the following conditions:

1. A daily asset test must be conducted by the servicer in accordance with the terms of the transaction to ensure that there are sufficient eligible assets to meet the minimum required amount.

2. A daily monitoring of the occurrence of any amortization event must be completed by the servicer.

3. The above two conditions must be certified by an officer of the servicer on a monthly basis, confirming that no amortization event has occurred during that month and that the asset test has been complied with on a daily basis during that month.

If any of the above conditions are not met, or if the servicer is no longer rated investment grade, DBRS expects partial commingling to cease and all collections to be remitted to a trust account within the time frame set out in the terms of the transaction (at most, within two business days of collection).

The high turnover rates and large cash collections of credit card receivables make short commingling periods essential to protect the investors when the servicer’s financial condition weakens. At the same time, the ability to perform partial commingling addresses the flexibility required within the revolving period where collections may need to be used to frequently purchase new receivables until the end of the revolving period.

For further information, please refer to Legal Criteria for Canadian Structured Finance, which can be found on the DBRS website under Methodologies.
VIII. Types of Credit Enhancement

Typical credit card transactions utilize various structuring techniques whereby bondholders receive protection against pool losses from available credit enhancement and the transaction’s structural features.

Accordingly, a key factor in DBRS’s rating analysis is the analysis of proposed credit enhancement supporting the debt obligations issued in connection with the transaction. Credit support may be soft, which supports the obligations, if and when available, or hard, which is enhancement directly available to support the obligations. Typical forms of credit support in credit card transactions include excess spread, amounts on deposit in reserve accounts, overcollateralization (OC), bond subordination and letters of credit (LOCs).

**Excess spread**
Excess spread is a soft form of credit support that is specific to the transaction which could disappear quickly when the quality of receivables deteriorates. The excess of yield generated by the assets over losses and the cost of funding on the securities offered, net of transaction expenses such as servicing, trustee and professional fees, is commonly referred to as excess spread. After all of the payment obligations prescribed by the transaction documents are satisfied, excess spread can be released back to the seller. Consequently, excess spread is only available to cover losses incurred during that period. Because of the severity of stress assumptions applied at higher rating categories in cash flow modeling, junior classes of notes that benefit solely from excess spread without other kinds of hard credit support at closing will typically not warrant a rating higher than BBB (high) (sf) from DBRS.

**Cash Reserve Accounts**
A cash reserve account is a form of hard credit support that is available to pay interest, and sometimes principal, on the notes. Reserve accounts are included in most credit card transactions and are typically sized as a percentage of the total initial debt issued and are funded either at the outset of a transaction or over time through the transaction cash flows if excess spread declines below a pre-determined targeted level. Reserve amounts provide additional liquidity to the transaction and may allow the transaction to endure stressed scenarios or to address transaction-specific risks or current market conditions.

**Overcollateralization**
OC is another form of hard credit support which acts as loss protection, absorbing losses before any writedowns are allocated to the notes. OC is achieved by additional receivables in excess of the note balance in addition to minimum seller’s interest.

**Subordination**
Subordination is also a form of hard credit support that creates a cushion for losses from the related collateral. Subordination is created by a more junior class of notes which is subordinate in the right to receive amounts available for payments. These junior classes are available to absorb losses and therefore act as additional support for the more senior classes. All term credit card transactions issued in Canada to date have utilized a subordination structure with some variations.

**Letter of Credit**
Another form of hard credit enhancement involves the use of a LOC in favour of the trust from a financial institution, which is expected to meet DBRS’s Legal Criteria for Canadian Structured Finance.
IX. Legal Structure and Opinions

Unlike mortgage or auto loan-structured finance transactions, where a security interest in tangible assets ultimately backs the rated securities, credit card-based transactions are backed by the unsecured obligations of consumers. In the event of a default by the obligor, there are no underlying secured assets that can be liquidated to satisfy the trust’s repayment obligations to the noteholders, as the only recourse is to the obligor for the defaulted amount.

DBRS’s Legal Criteria for Canadian Structured Finance expects that legal assurances are provided, by way of legal opinions, that the sale of the accounts and related receivables from the seller to the trust constitutes a true sale, and that the subsequent grant by the trust of a security interest in the receivables to the indenture trustee (on behalf of the noteholders) has been perfected by the filing of Personal Property Security Act financing statements in all applicable jurisdictions. DBRS reviews legal opinions to determine whether the transfer of the receivables to the trust constitutes a true sale, such that the assets of the trust would not be consolidated with those of the seller in the event of the seller’s bankruptcy, and also to ensure that the indenture trustee has a first-lien perfected security interest in the purchased assets, which secures the trust’s obligations to the noteholders.

X. Surveillance

After a transaction is closed, DBRS monitors its performance to ensure that the ratings remain appropriate. The review is predicated upon the timely receipt of performance information from the related providers. In addition to general trend analysis of key performance variables, DBRS typically performs cash flow stress testing for each rated class at least once a month, on an as-is basis in respect of the recent performance without applying any haircut or assumptions, to identify any performance deviation from DBRS’s Expected Performance at issuance and possible rating impacts.

DBRS also monitors changes in macroeconomic conditions and the associated effects on the consumer, credit card industry dynamics and other exogenous events that may have an impact on the credit quality of portfolios. Please refer to the DBRS methodology Canadian Structured Finance Surveillance for more details.
# Appendix 1: Personal Lines of Credit

## CREDIT FACTORS TO CONSIDER

<table>
<thead>
<tr>
<th>Performance Metrics</th>
<th>Credit Quality of Pool</th>
<th>Transaction Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asset yield</td>
<td>• Pool characteristics (geographic concentration, seasoning, credit limit versus credit balance)</td>
<td>• Revolving period</td>
</tr>
<tr>
<td>• Monthly payment rate</td>
<td>• Eligibility criteria</td>
<td>• Accumulation period</td>
</tr>
<tr>
<td>• Contractual payment rate, if applicable</td>
<td>• Restriction criteria on addition of new accounts (receivables limits and caps)</td>
<td>• Amortization period</td>
</tr>
<tr>
<td>• Delinquencies</td>
<td></td>
<td>• Minimum seller’s interest</td>
</tr>
<tr>
<td>• Defaults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Loss given default</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Net losses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Utilization rate</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Transaction Triggers</th>
<th>Credit Enhancement</th>
<th>Cash Flow Factors</th>
</tr>
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<tr>
<td>• Servicer termination events</td>
<td>• Subordination</td>
<td>• Base case</td>
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<td>• Commingling conditions</td>
<td>• Overcollateralization</td>
<td>• Gross yield</td>
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<td>• Counterparty rating triggers</td>
<td>• Cash</td>
<td>• Payment rate</td>
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<td>• Amortization events</td>
<td>• Excess spread levels and thresholds</td>
<td>• Default rate</td>
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<td>• Letter of Credit</td>
<td>• Stress multiples</td>
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<td></td>
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<td>• Interest rate risk/basis risk</td>
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PLCs are typically revolving loans with an approved credit limit that allow borrowers more flexible access to funds, compared with a traditional amortizing loan. PLCs generally allow borrowers to draw and repay an amount for an indefinite period (the revolving period) as long as the account is in good standing and the outstanding balance is within the credit limit. To remain in good standing, borrowers are typically required to make the minimum payment as stipulated in the contract terms; however, the entire outstanding amount is contractually payable on demand. PLCs may be either unsecured or secured by an asset or collateral owned by the borrower. Depending on the availability and value of the underlying collateral pledged to support the borrower’s obligation to repay the loan, recovery rates may play a substantial role in cash flow analysis for secured PLCs.

A typical securitization transaction involving PLCs incorporates a revolving period, an accumulation period and an amortization period. During the revolving period, principal receipts are re-invested in additional receivables and new accounts may be added to the pool, subject to limits and eligibility criteria, in order to maintain a minimum seller’s interest. The revolving period ends when the accumulation period or amortization period begins. During the accumulation period, principal collections are accumulated in a trust account to repay the notes at the expected maturity date. If the trust does not have sufficient funds accumulated in the account to repay the notes on the expected maturity date, the amortization period will begin. Other events may also trigger an early amortization of the notes. During the amortization period, collections will be used to repay the notes each month without being accumulated or invested in new receivables.

## KEY PERFORMANCE METRICS

### Asset Yield

Portfolio yield is generated from finance charges, which include interest charges and other miscellaneous fees. In general, portfolio yield is calculated as the annualized average of the monthly income earned on the portfolio, divided by the receivables balance. The interest rate charged to borrowers can be a fixed rate or a benchmark floating rate, plus a premium.
Monthly Payment Rate
Payment rates represent total monthly collections received from borrowers divided by the receivables balance. Like credit cards, PLCs typically have a minimum required payment each month. Higher payment rates during either the accumulation or amortization period mean more funds would be available to repay the notes.

Default Rate
Loans are considered in default once they are delinquent for a certain period of time or are written off according to the originator’s credit and collection policy. The default rate is defaults (usually over a one-month or rolling three-month period) calculated as a percentage of the amount of receivables outstanding. For unsecured PLCs, recoveries are usually very low and depend on the means used to pursue any recoveries. For cash flow modeling purposes, DBRS usually assumes a recovery rate of zero in the absence of recovery data to the contrary.

STRESS TESTING AND CASH FLOW ANALYSIS
DBRS generally requests at least three years to five years of performance data to determine a base case for asset yield, payment rate and default rate. For PLCs with sufficient recovery data, DBRS will further consider recoveries with appropriate time lags. Once the base-case levels are established, they are subjected to stress scenarios in a cash flow analysis based on the desired rating for the notes. The DBRS cash flow analysis incorporates the elements of the transaction structure, including any triggers or covenants that may have an impact on cash flows and result in early amortization. The impact of any hedges in the transaction is also taken into consideration. During the amortization period, cash flows are diverted to repay the outstanding notes, rather than being reinvested in additional receivables. The notes must be able to withstand a combination of stresses appropriate for the rating category, without any loss of principal or interest. The table below shows some of the stresses at varying rating levels that DBRS will incorporate into its analysis.

<table>
<thead>
<tr>
<th>Summary of Personal Lines of Credit Stress Testing Multiples</th>
<th>AAA (sf)</th>
<th>AA (sf)</th>
<th>A (sf)</th>
<th>BBB (sf)</th>
<th>BB (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield (reduction applied to base case)</td>
<td>30–45%</td>
<td>25–35%</td>
<td>20–30%</td>
<td>15–25%</td>
<td>5–10%</td>
</tr>
<tr>
<td>Payment Rate (reduction applied to base case)</td>
<td>35–50%</td>
<td>35–45%</td>
<td>30–40%</td>
<td>25–35%</td>
<td>10–20%</td>
</tr>
<tr>
<td>Default Rate (multiple applied to base case)</td>
<td>4.0x–5.0x</td>
<td>3.0x–4.0x</td>
<td>2.5x–3.5x</td>
<td>2.0x–2.5x</td>
<td>1.5x–2.0x</td>
</tr>
</tbody>
</table>