



Methodology  
*Canadian RMBS Methodology*

MAY 2008

*Appendix summarizing methodology added April 2011*



*Insight beyond the rating.*

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# Canadian RMBS Methodology

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## Introduction

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On October 29, 2007, DBRS released the Canadian Residential Mortgage Backed Securities (RMBS) Model,<sup>1</sup> which integrated updated and new criteria for RMBS analysis in Canada. These criteria will provide market participants with a more comprehensive and transparent quantitative assessment of credit risk for Canadian RMBS transactions.

This study, focusing on the rating methodology and approach to analyzing residential mortgages in securitization transactions and related structural considerations, is the second part of a complete mortgage study, the first part of which was released in May 2007 and is called “Residential Mortgages and Securitization in Canada: Overview of the Mortgage Market”. Notwithstanding the updated and new criteria, the fundamental RMBS methodology used for Canadian RMBS transactions has remained consistent since the introduction of the RMBS model in 2004. First, credit risk for an individual mortgage is assessed relative to a “base case” mortgage which, based on the historical data in the United States, is a 30-year fixed rate mortgage for purchase of an owner-occupied single family property underwritten to a “full documentation” standard. The credit enhancement required to achieve a specific credit rating then will be increased or decreased by distinctive risk factors (risk layering) of the individual mortgage. Second, after the model sums up the credit enhancement for each individual mortgage in a pool through a risk weighting formula, DBRS adjusts the credit enhancement, if necessary, to reflect the characteristics of the pool as a whole, namely the size of the pool and the geographic concentrations of the properties. The Canadian RMBS model will perform the analysis of the above two steps. Finally, DBRS will use the model output to evaluate the final credit enhancement for each rating category based on a cash flow model. In addition, the quality and experience of the mortgage originator and servicer, legal and operational aspects of the transaction will be examined to determine if any further adjustments are necessary.

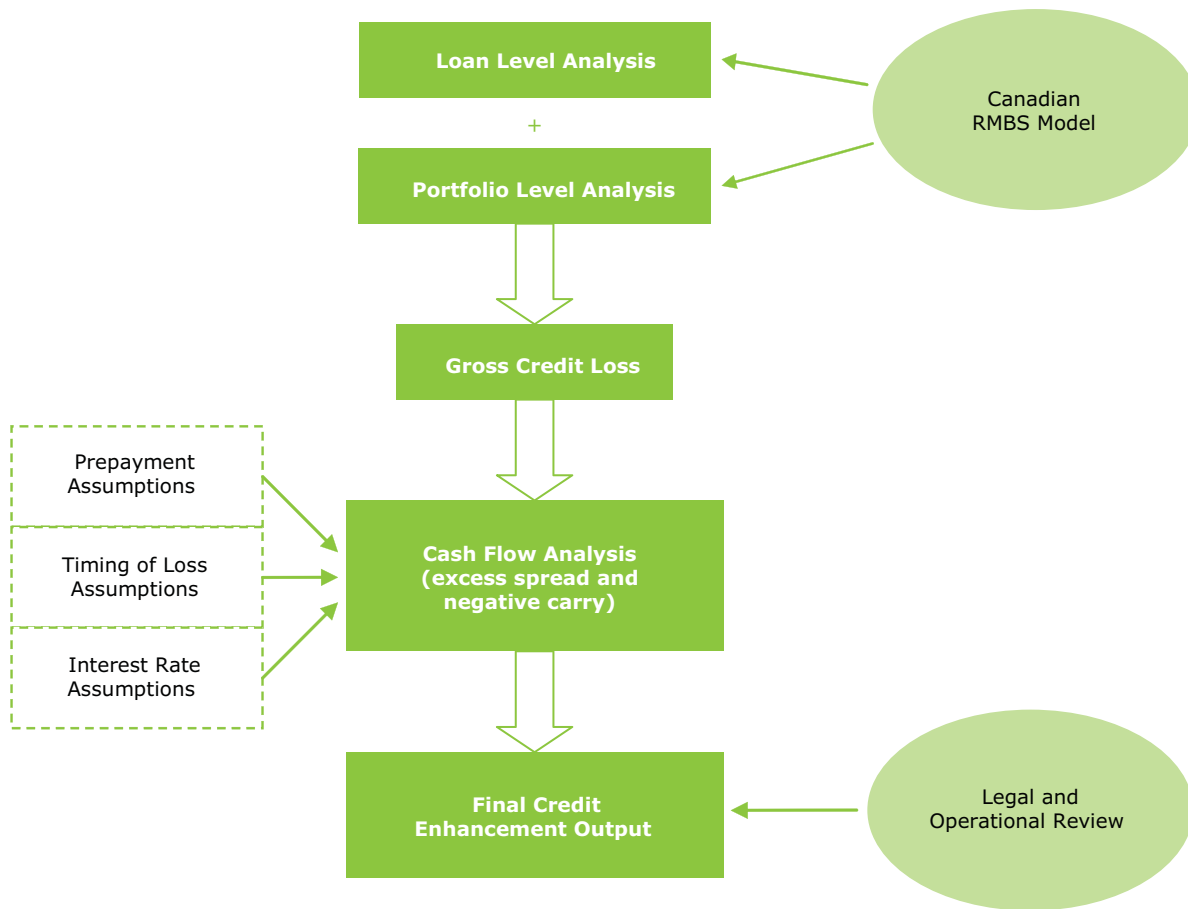
### APPLICATION OF METHODOLOGY

The following diagram describes the overall process to analyze a RMBS transaction:

- (1) DBRS will conduct loan level and portfolio level analysis using the RMBS model. The resulting output of the model is the expected gross credit loss.
- (2) DBRS will perform a cash flow analysis based on the output from the RMBS model by incorporating assumptions regarding prepayment, timing of loss and interest rate in order to estimate the excess spread available over the life of the transaction and the required credit support for each rating level.
- (3) The legal and operational aspects of the transaction will also be reviewed with the understanding that the credit enhancement is subject to adjustment if necessary.

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1. See [www.dbrs.com/canadianrmbsmodel](http://www.dbrs.com/canadianrmbsmodel) for details.



The Canadian RMBS Model is a substantial component of the DBRS rating process. A material deviation from the rating implied by the Canadian RMBS Model would be a three-notch rating difference. The quantitative and qualitative factors that could result in a material deviation are included in this methodology.



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## Loan Level Analysis

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### DEFAULT FREQUENCY

#### *Key Factor: The Product of Loan-to-Value (LTV) and Credit Score (LTV x Credit Score)*

The combination of LTV and credit score (the most common one is the Beacon<sup>®</sup> score used by Equifax in Canada) is the most important factor in analyzing the default risk of a residential mortgage. Both factors are highly correlated with mortgage defaults. LTV is positively correlated, meaning the higher the LTV, the greater the default probability. The credit score, however, is negatively correlated, meaning the lower the credit score, the greater the default probability. These two variables are used in tandem within the DBRS Canadian RMBS model such that the credit score determines the shape of the default curve while the LTV sets the absolute level of the default curve (i.e., the default curve moves vertically for different LTVs, but the shape remains the same) for each rating category.

#### *Base Case 'LTV x Credit Score' Curve*

The default probability of a “base case” mortgage can be estimated by the borrower’s credit score in combination with the LTV of the mortgage at origination. DBRS defines the “base case” mortgage as a 30-year fixed rate mortgage for purchase purpose, underwritten to a full documentation standard and assumed by an “A” grade borrower who occupies the single-family detached house as the primary residence. This “base case” mortgage of 30-year is based on the U.S. convention where a large amount of mortgage data is available. When the characteristics of a mortgage change from the above “base case,” the related default risk changes accordingly. For example, a 25-year mortgage (a general standard in Canada) with all other characteristics unchanged has a lower default probability than a 30-year mortgage because if a borrower chooses a shorter amortization period it means he/she is able to afford a larger monthly mortgage payment and is more committed to pay off the debt sooner. In other words, such a borrower has a stronger (financial) ability and willingness to pay and therefore is less risky (credit wise). The base case default curves are derived from DBRS’s interpretation of the modified Fair Isaac bad rate table and the statistical study of the mortgage historical performance data in the United States, adjusted for Canadian experience. DBRS internal analysis reveals that for the same credit scores between 510 and 680, Canadian borrowers tend to perform better, resulting in a slight ‘credit lift’ embedded in the default curve assumption.

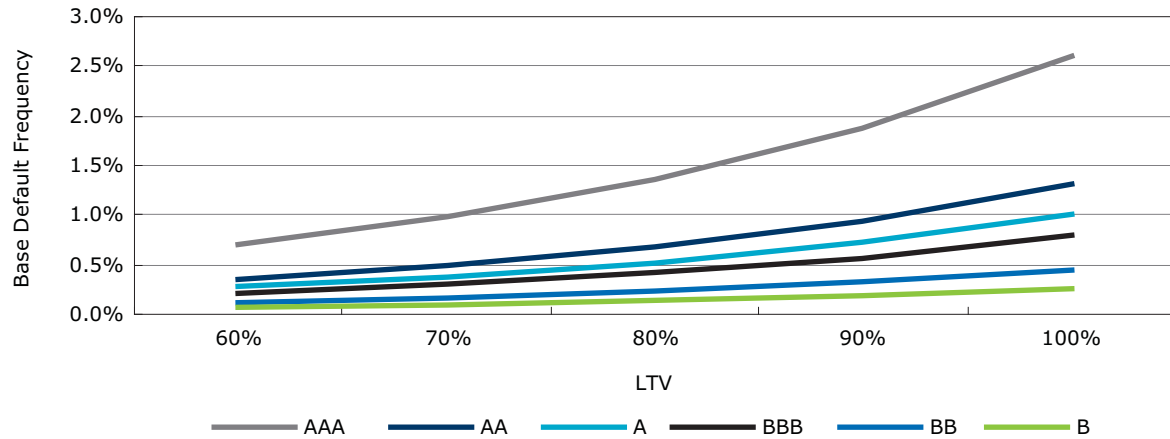
As the credit score decreases, the bad rate of over 90 days in arrears (i.e., default rate) increases at an exponential rate. This is because the ability or willingness to pay is expected to decrease exponentially when credit score decreases, resulting in an exponential curve. DBRS’s model allows for credit scores in the range of 440 and 880. Any score beyond or below this range is considered statistically immaterial from the cut-off points and will be replaced by the cap (880) or floor (440) score. If a credit score is not available, DBRS will assign a score of 580 unless the performance proves otherwise.



**Examples of Default Frequency Assumptions**

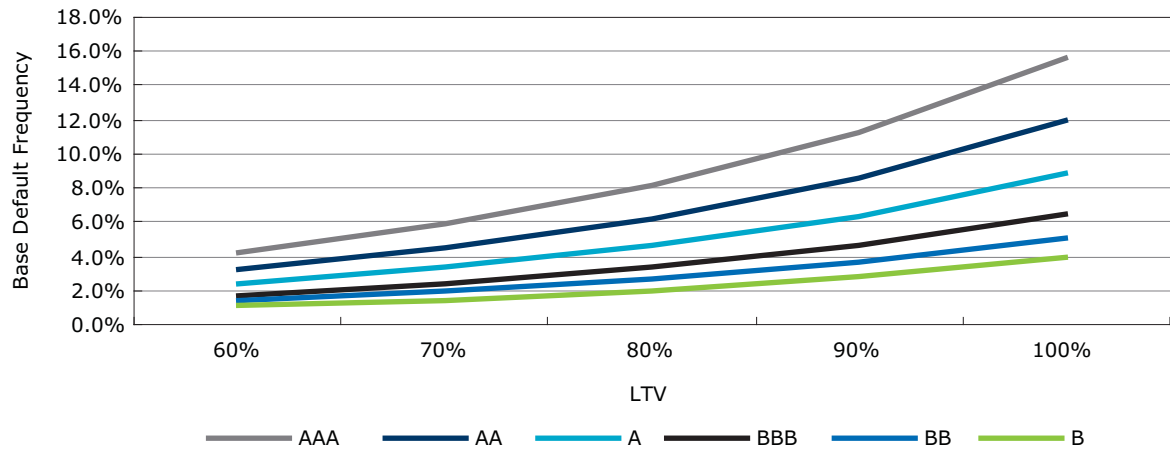
(1) “Base case” mortgage with a Beacon score of 820 at different LTV levels for rating categories from AAA to B

**820 Beacon x LTV**



(2) “Base case” mortgage with a Beacon score of 620 at different LTV levels for rating categories from AAA to B

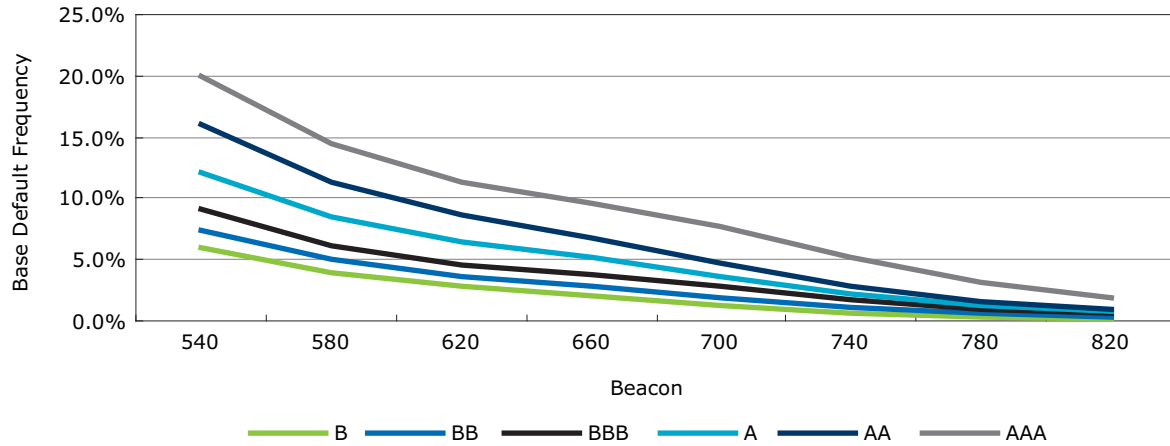
**620 Beacon x LTV**





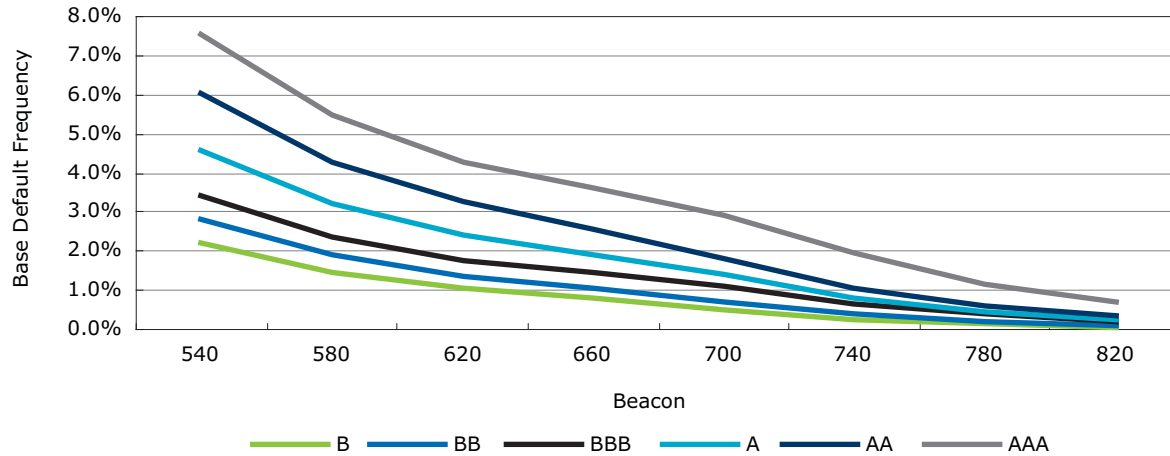
(3) “Base case” mortgage of 90% LTV with different Beacon scores for rating categories from AAA to B

**90% LTV x Beacon**



(4) “Base case” mortgage of 60% LTV with different Beacon scores for rating categories from AAA to B.

**60% LTV x Beacon**





## Other Factors

### (1) Type of Mortgage Product

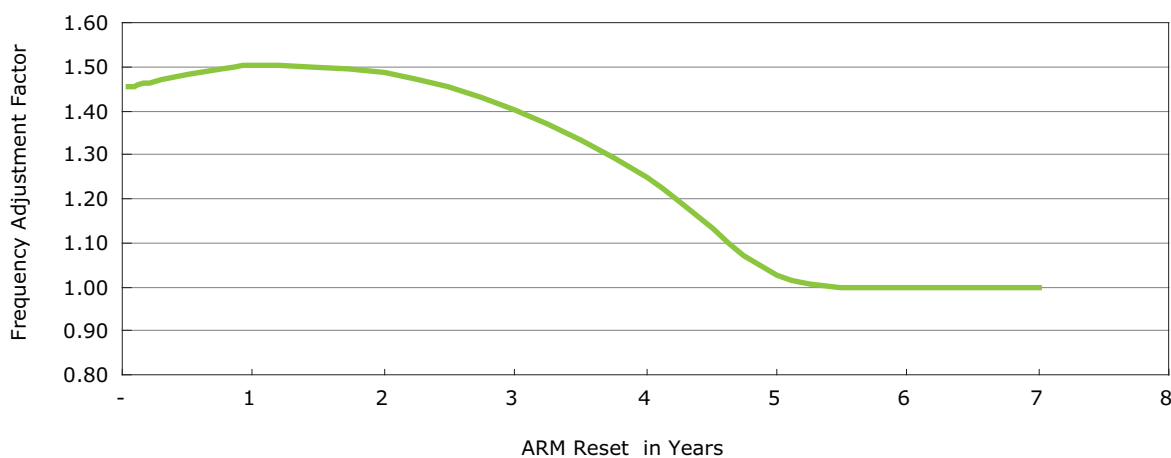
A mortgage product contains various components such as Mortgage Rate, Amortization Period, Term to Maturity and IO Period (if applicable). DBRS compares these components to the “base case” mortgage, estimates the default penalty (or benefit) factor of each component if different from the “base case” mortgage and multiplies these factors to obtain the overall default risk of a particular mortgage product.

*(a) Mortgage Rate:* Fixed rate mortgages (FRMs) are the most popular mortgage types in Canada while the popularity of adjustable rate mortgages (ARMs) depends on the interest rate levels. ARMs are considered inherently riskier because the mortgage rate could potentially be reset to a higher level when the Bank of Canada rate (and consequently the index rate, usually the bank Prime rate) moves up and a higher monthly payment will be required (the payment shock). DBRS uses FRMs as the base and applies an ARM penalty factor of up to 1.5 times, based on the reset frequency of the interest rate. A mortgage with interest rate reset more frequently than two years (monthly, quarterly, semi-annual, annual or bi-annual) is considered most risky as the borrower is subject to more frequent potential payment shocks. A mortgage with a three-year reset period is relatively more risky compared to a five-year reset as historical experience shows that the likelihood of default is high three years after loan origination. With a reset to a potentially higher rate, the likelihood of default increases. In comparison, a common mortgage in Canada with a fixed five-year term or longer (i.e., mortgage rate reset at the end of five years or later), is considered virtually the same as a FRM throughout the entire amortization period. See “Timing of Losses” section in “Structural Analysis” for more details.

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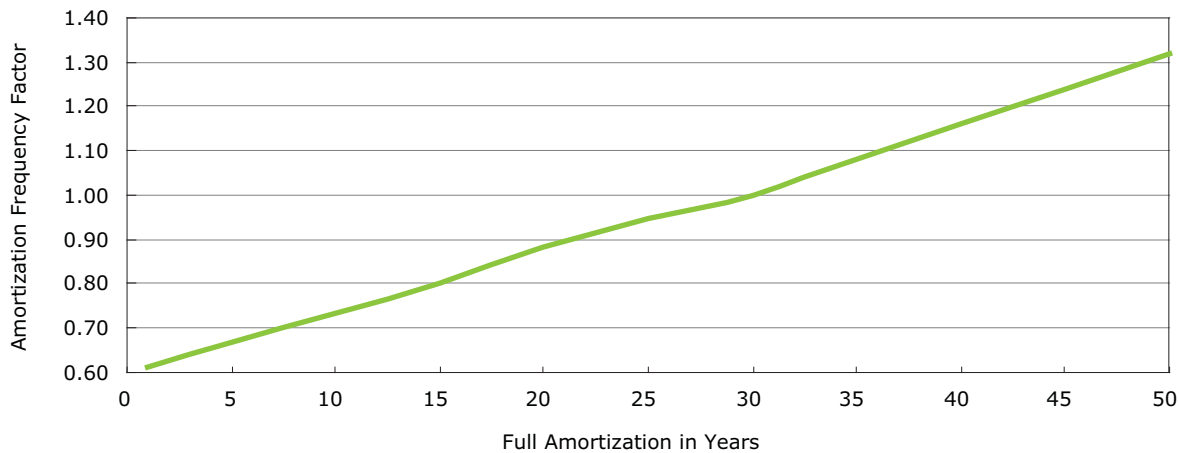
### Frequency Adjustment for ARMs

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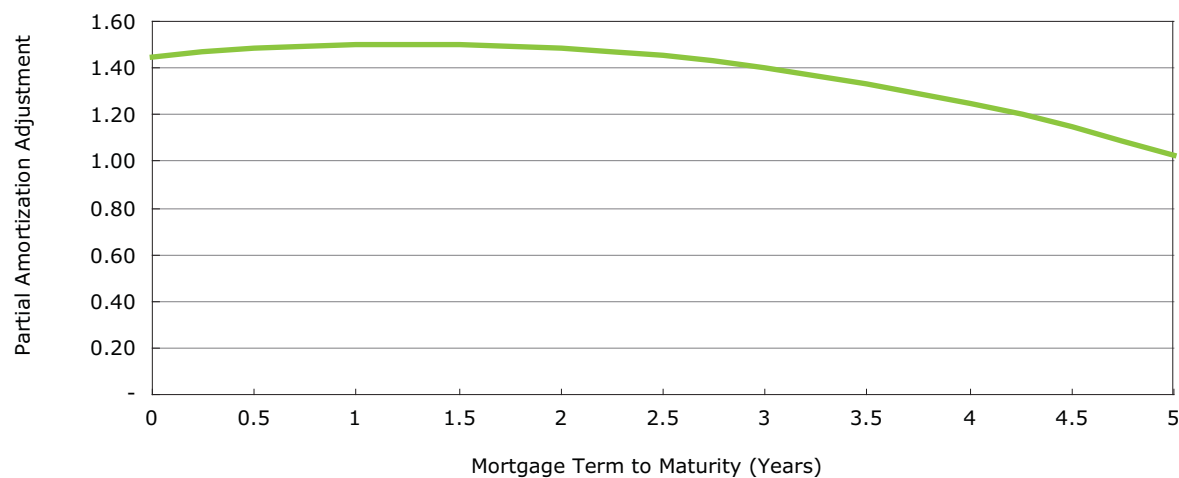
*(b) Amortization Period:* In Canada, the amortization term is generally 25 years. Using 30-year amortization as the base, DBRS applies a frequency (upward) adjustment for mortgages with longer amortization terms and a frequency benefit factor for mortgages with shorter amortization terms. As discussed above, if a borrower chooses a shorter amortization (all else being equal), it implies the borrower is likely in a better financial condition or more committed to pay off the debt sooner and therefore the borrower is less likely to default on the loan. On the other hand, if a borrower opts for a longer amortization which requires lower monthly payments and increases affordability, it could mean the borrower likely would not otherwise qualify under the standard amortization term and is less creditworthy. Therefore the likelihood of default is assumed to be higher. Another feature of amortization is negative amortization which allows unpaid accrued interest to be added to the principal balance of the mortgage, causing outstanding loan balance to grow, instead of being paid down over time. Mortgages with negative amortization features are considered risky since the effective interest rate is below the mortgage rate and the monthly payments are kept artificially low to ‘stretch’ the affordability. These borrowers will face payment shocks when the outstanding mortgage balance reaches a pre-determined LTV limit and starts to amortize. To properly assess this risk, the frequency penalty factor for negative amortization is 1.2 times within the RMBS model.

### Frequency Adjustment for Full Amortization Mortgages



(c) *Term to Maturity:* In Canada, a mortgage usually carries a term to maturity much shorter than its amortization term which means a mortgage is subject to a review (and renewal) at the end of the mortgage term. Such partially amortizing mortgages (or “balloon mortgages”) carry additional default risk since the mortgagor may not be able to arrange a new mortgage when the term of the mortgage ends and the final payment (“balloon payment”) becomes due. In general, the longer the term to maturity and the higher its length relative to that of amortization are, the less risky the mortgage is because mortgages with longer term to maturity will carry a smaller balloon when the mortgages mature and thus it is easier for borrowers to obtain another mortgage at the end of mortgage terms. The RMBS model assigns a penalty factor for partially amortizing mortgages if the term to maturity is shorter than five years. Historical experience shows that most mortgage defaults occur within five years after origination and if a borrower can make his/her mortgage payments on time for the first five years, the likelihood of default on future payments is small and the balloon refinancing risk at the end of five years is considered nominal.

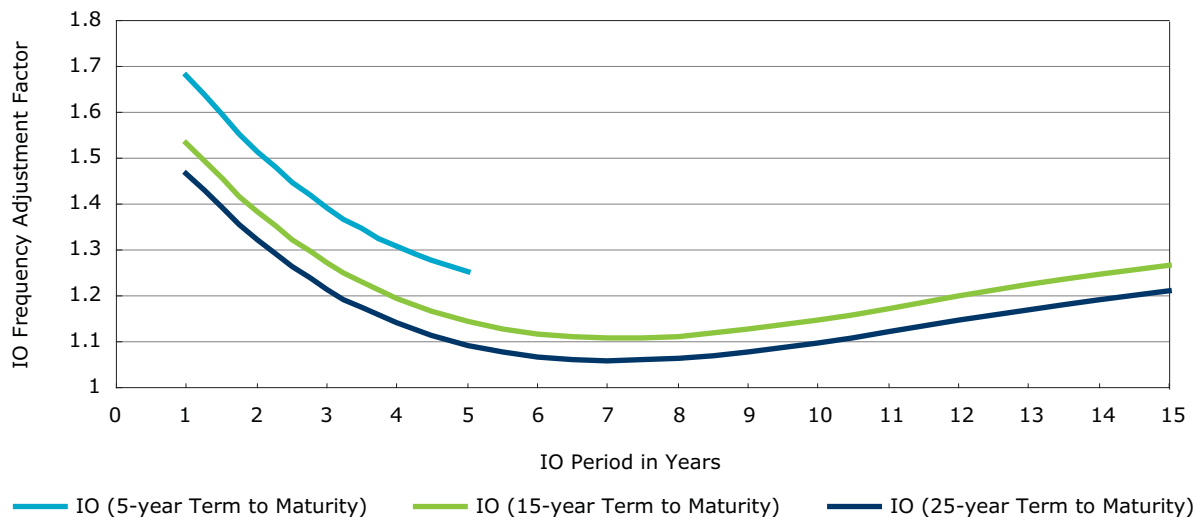
### Partial Amortization Frequency Adjustment Factor





(d) *Interest-Only (IO) Period:* The interest-only mortgages offered in Canada are different from those in the United States. As such, mortgages in Canada begin with an IO period (typically three years or five years) and end with an obligation of full principal repayment at the end of the IO period. Therefore, these mortgages are “IO balloon” loans, while in the United States, IO mortgages begin with an IO period and at the end of the IO period, principal amortization will occur for the remaining mortgage terms. The interest-only feature brings an additional layer of risk to the mortgage because these mortgages do not amortize during the IO period and the borrower solely depends on the appreciation of the property to increase his/her equity by the end of the IO period to refinance or fully repay the principal. There is a risk the property value may not increase during the IO period if there is a serious market downturn. In addition, borrowers face a payment shock when the IO period ends as the mortgage payments start to include principal repayment in addition to interest expenses. Within the RMBS model, the penalty for interest-only feature depends on the term to maturity. For example, IO mortgages with a 15-year term to maturity are considered to have a larger default probability than those with a 25-year term to maturity. This is because a shorter term to maturity means a shorter period of time for full principal amortization after the IO period ends and requires a larger principal repayment monthly, increasing the magnitude of payment shock when principal (re)payment is required. For loans with an IO period between five years and ten years, the penalty is relatively low because the borrower has a longer period for its property to appreciate and hence more opportunities during the ensuing years to sell or refinance the property. For an IO period shorter than five years, the risk of payment shock increases significantly as interest rates may move upwards when the IO period ends, increasing the payment obligations (both principal and interest) and the increased payment also becomes effective during the period of greater default risk (prior to year five). For an IO period longer than ten years, information of historical performance is limited and the increasing default frequency penalty factors reflect a conservative bias. Hence, DBRS’s IO adjustment curve is U-shaped for the above mentioned reasons.

**IO Frequency Adjustment Factor**





## (2) Loan Purpose

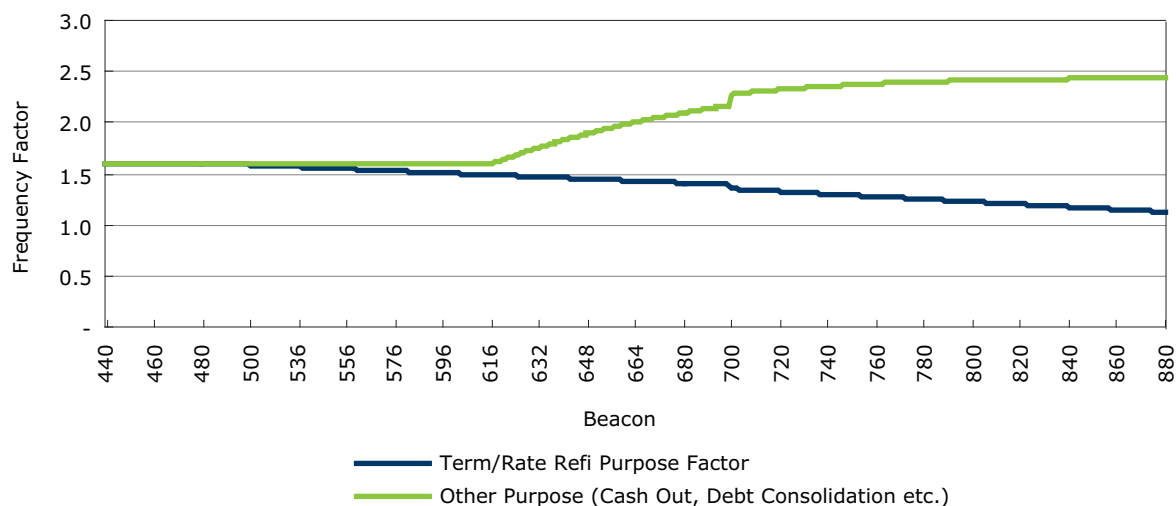
The base case loan purpose scenario is “purchase.” Purchase loans are the least risky of all loan purposes as no borrower is willing to overpay a property, especially in the case that borrowers need to provide down payments. Therefore, the value of the property should be very close to “true” market value, minimizing the risk of an inflated property price and an under-estimated LTV which would result in a lower credit risk.

Refinance mortgages are considered riskier than purchase mortgages, whether the refinance is a rate/term refinance or a cash-out refinance. This is because refinance mortgages do not have the inherent conservative (or “truer”) property appraisal of purchase mortgages discussed above. First, because there is no actual sale, there is no “true” property value, because there is no current price that satisfies both the buyer and seller as in a purchase. Instead, the LTV is solely determined by the appraised value, which may be subject to an inflated assessment (i.e., a lower LTV) so a better rate/term or a larger equity takeout can be obtained. Second, no down payment is required for rate/term refinance and with a cash-out refinance the property provides cash to the borrower. Such refinance process is more of a financial transaction, reducing the borrower’s commitment to the property and turning the home into a financing vehicle from the equity in the house. For cash-outs, the riskiest among all loan purposes, the value of the property is based on a new appraisal, not true market transaction value, hence accentuating the possibility of inflated appraisal value (i.e., higher equity) for a successful cash-out refinance. On the other hand, there is generally no re-appraisal done for a rate/term refinance transaction, reducing the risk of inflated property value and potential fraud.

The DBRS model uses continuous equations based on borrowers’ credit scores to calculate default penalty factors for both rate/term and cash-out refinances. The adjustment factors for rate/term refinance range from 1.2 times for borrowers with high credit scores to 1.5 times for borrowers with weaker credit scores. This is intuitive because the penalty is modest for strong credits and more substantial for weaker credits as rate/term refinance is geared toward sophisticated borrowers.

The penalty factors for cash-out refinance range from more than two times for borrowers with high credit scores down to 1.6 times for borrowers with weak credit scores. That is, the stronger the borrower credit-wise, the larger the penalty for a cash-out refinance is as prime credit borrowers are assumed to have many means of cost effective borrowing rather than having to resort to cash-out refinance. If a prime credit borrower chooses a cash-out refinance, it is likely the borrower is running out of other financing options to the point of being over-leveraged and therefore a larger penalty (up to 2.44 times) is warranted than a non-prime borrower for whom cash-out refinance is probably the only financing option available. The adjustment is relatively smaller at 1.6 times for non-prime borrowers.

### Frequency Adjustment Factor - Loan Purpose



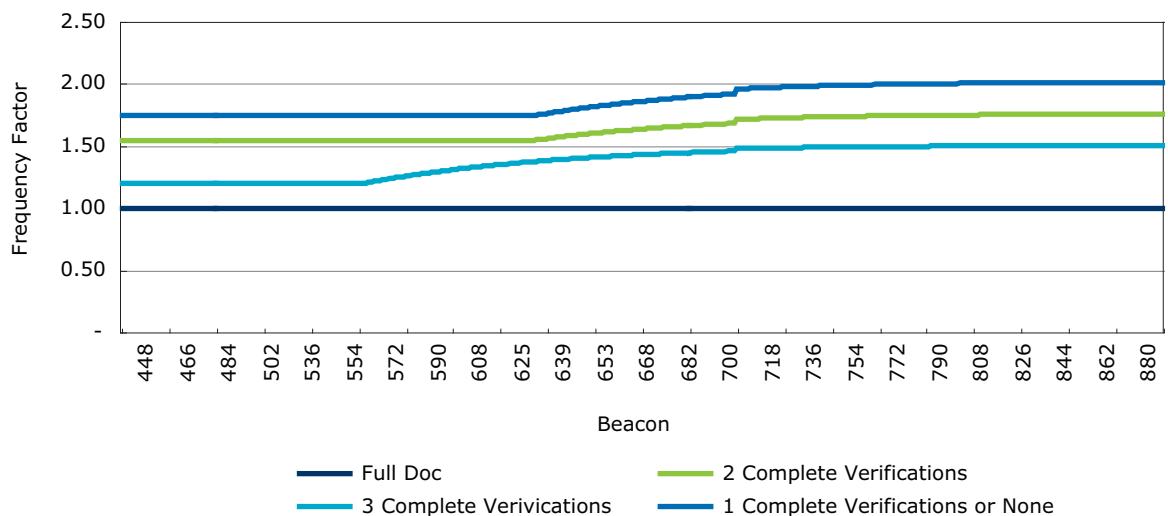


### (3) Documentation

The degree of documentation verification is important in the evaluation of mortgage default risks. DBRS considers a mortgage to be one with “full” documentation if the mortgage meets the documentation requirements of uninsured mortgages at a traditional Canadian financial institution (banks, credit unions, trust companies, etc.). A “full” documentation usually includes the verification by the lender of the borrower’s income, assets, employment and rental/mortgage payment history. DBRS assigns a penalty factor to mortgages with “reduced” or “low” documentation since those features introduce additional credit risks into the mortgage. The less documentation verified as part of the mortgage application process, the greater the uncertainty about the borrower’s financial ability and the propensity to pay. Similar to loan purposes, the frequency penalty for documentation is continuous based on the borrowers’ credit scores. The penalties for reduced documentation increase as the borrower’s credit score improves, similar to the adjustment for cash-out refinance. This may not be intuitively obvious as prime borrowers should have no problem providing full documentation and the use of low documentation in mortgage applications implies non-standard practice, potential misrepresentation and adverse self-selection. There is a disconnection between a prime credit and low documentation. As for non-prime borrowers, the use of reduced or low documentation type of mortgages is considered part of their credit nature, meaning incomplete or unverifiable credit documents contribute to the weak credit. The penalty therefore is lower than for prime borrowers with low documentation. If a “low doc” or “no doc” (Doc Code = 1 or 2) mortgage happens to carry other layers of risk such as high LTV ( $LTV \geq 80\%$ ), investment property or the loan is piggy backed, there is an additional frequency penalty of up to three times in addition to the documentation frequency adjustment factor.

Documentation Type	Doc Code
A “Full Doc” loan with all verifications completed in a manner that satisfies usual Schedule I bank standards. Four pieces of verification are completed: income, assets, employment and mortgage/rental history	4
Usually three verifications were performed or one verification less than a “Full Doc”	3
A “Stated Income, Stated Assets” loan with verification of mortgage/rental history and employment	2
Minimum document verification	1

#### Frequency Adjustment for Various Documentation Standards





#### (4) Borrower Credit Grade

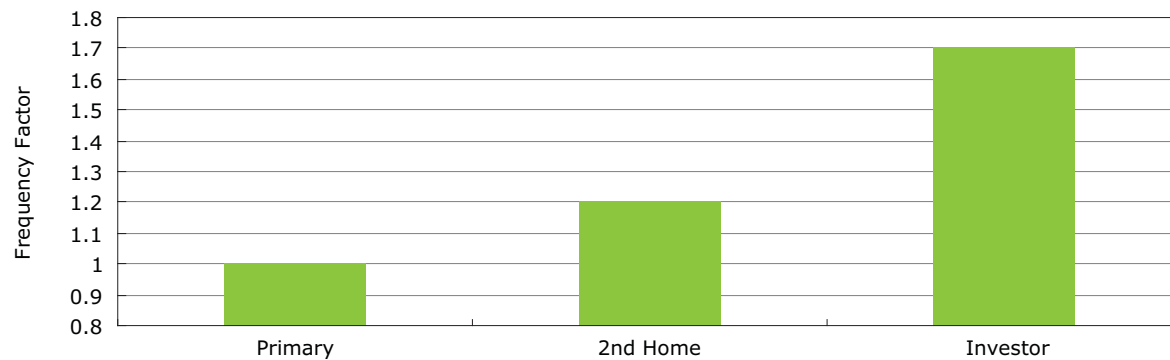
DBRS’s “base case” borrower credit grade is “A” which means the borrower has no delinquencies on their credit card and other personal debts in the past seven years according to the credit bureaus in Canada. Mortgagors whose credit histories are not as good are subsequently classified as “A-”, “B”, “C” or even “D” borrowers based on their credit scores or their delinquency/default history. DBRS assigns a frequency penalty factor for mortgages without an “A” credit grade. DBRS will examine the underwriting standards, available performance data and the borrowers’ credit scores to assign a credit grade to each mortgage. As the underwriting standards vary among different mortgage originators, DBRS uses the more objective credit scores presented in the following table as a general guideline to determine the credit grade for mortgages:

Credit Grade	Credit Score	Frequency Factor
A	Above 680	1x
A-	640-679	1.2x
B	540-639	1.35x
C/D	Below 540	1.5x

#### (5) Occupancy

As mentioned above, a “base case” mortgage is secured by a property occupied by the owner as the primary residence. Non-owner occupied properties like second homes or investment properties are considered riskier since the borrower is more likely to default on a non-owner occupied property when financial resources are constrained. For example, a second home is not a necessity to satisfy an immediate, basic need for housing and represents additional commitment (a luxury) on the part of a mortgagor. Given the choice between making the mortgage payments on a primary residence and a second home, most borrowers are assumed to choose to maintain their primary residences if their ability to pay is diminished. The penalty factor for second homes is 1.2 times. For an investment property, the investor is dependent on rental income to cover the mortgage payments and other expenses and rental income is subject to the changes in the rental market. In addition, renters are generally not as financially or emotionally committed to the property and if the investor owner is more distant from the property’s maintenance needs, an investor-owned property is more likely to be poorly maintained than a primary residence or a second home. As it is by nature an investment, subject to investment return goals and reflecting a certain appetite for risk, vacancy and/or rental market risk may alter the likely investment outcome, property value and the borrower’s interest. The frequency factor for investor-owned properties is 1.7 times, harsher than second homes which still typically have a strong commitment from the owners.

#### Frequency Adjustment for Different Occupancy Types

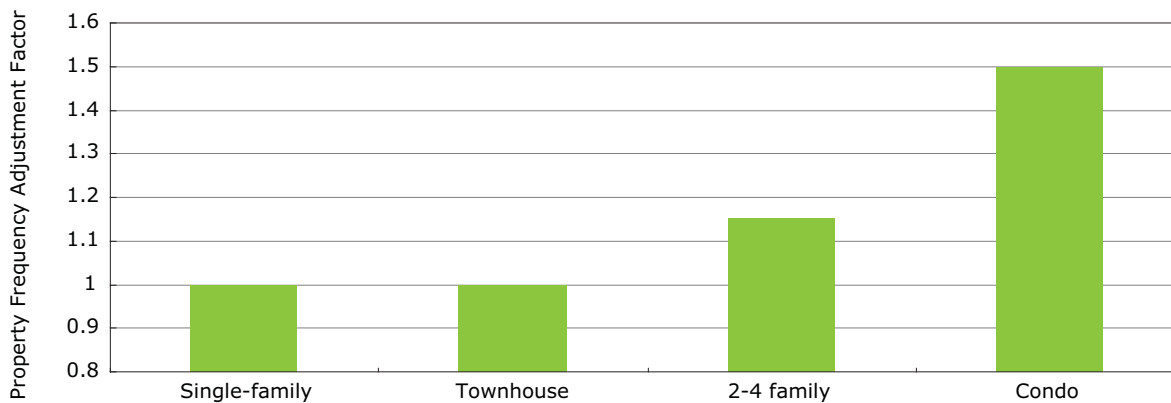




## (6) Property Type

Detached single-family homes, the most common and preferred property type in Canada, are the “base case” property type. Semi-detached, row houses and freehold townhouses are also considered the same as detached single-family properties. The default penalty factor increases when the property houses more than one family (duplex or more) or that ownership is somehow “shared” and an individual mortgagor is closely tied to neighbouring properties (condominiums, co-operatives). Historically non-single-family properties tend to have less market liquidity than single-family properties, take longer to sell and therefore are considered riskier in a market downturn, though the popularity of multi-unit residential dwelling such as condominiums has increased over the past decade. Specifically, a condominium or co-operative, although intended as single-family housing, is different in the sense that a mortgagor owning a condominium or co-operative unit is tied to the neighbouring units for the financial and physical maintenance of the entire building in which the unit exists. This co-dependency creates additional risk, which is especially apparent in circumstances where the building association is financially troubled even though the individual unit owners are not. To account for this increased risk, the DBRS penalty factor for both condominiums (including condo townhouses) and co-operatives is 1.5 times.

**Frequency Adjustment Factor for Various Property Types**



## (7) Location

(a) *Provinces*: Each province in Canada has its own distinct real estate laws and some provinces are more creditor friendly than others. DBRS assigns an adjustment factor to account for the impact of different legislation. For example, in Alberta, property foreclosures occur under judicial sale so that when a lender obtains a court order for foreclosure on a property, the mortgage debt is entirely extinguished and the lender can no longer pursue the borrower for any deficiency if the foreclosure proceeds do not fully satisfy the debt. In other words, the lender has no recourse back to the borrower (except for insured mortgages). Therefore, DBRS applies a penalty factor for mortgages with high LTVs in Alberta as a distressed borrower will likely be better off surrendering the property to the lender and walking away instead of trying to sell the property, paying off the loan and realizing the equity (if any) in the property. The likelihood of default in this scenario is considered high. Some provinces have less creditor friendly legislation which complicates the delinquency management process and thus increases the default risk.



(b) *Urban or Non-urban*: According to the StatsCan 2006 survey, there are more than 52% of Canadians living in municipalities with a population of 100,000 or more and more than 70% of Canadians living in municipalities with a population of 20,000 or more. Properties located in the less populated areas are considered riskier due to a more limited liquidity of the local real estate market and a higher dependence on one industry. To assess the risk related to the reduced market liquidity, DBRS uses population cutoffs to classify mortgages into the following categories and assigns a penalty factor to mortgages located in non-urban locations.

Category	Population Range	Frequency Adjustment Factor
Urban	100,000 and over	1x
Suburban	45,000 to 99,999	1.05x
Tertiary	20,000 to 44,999	1.2x
Rural	Below 20,000	1.25x

### (8) Loan Size

Large mortgages (usually associated with expensive properties) exhibit higher default propensities because expensive properties have limited market liquidity and take longer to sell during a market downturn. DBRS classifies mortgages according to their sizes and locations and assigns adjustment factors as follows: a penalty factor of 1.15 times to loans above the size range of the large loan, and 1.1 times to loans within the size range. DBRS will also review the concentration of large loans from a portfolio perspective and adjust the credit enhancement levels if necessary. For detailed discussion on large loans, please refer to the DBRS commentary published on May 3, 2006.<sup>2</sup> For mortgages funded through asset-backed commercial paper (ABCP) conduits which continuously purchase new mortgages, the general limit of large loan percentage is 7.5% of the total outstanding program amount. For mortgages funded through term deals, there is usually no such restriction since it is a discrete sale of mortgages and the disclosure of assets is more detailed and complete.

Large Mortgage Limit	Locations
\$600,000 - \$1,000,000	- Toronto, Vancouver(city proper)
\$600,000 - \$800,000	- Oakville, Thornhill, Unionville (ON) - Victoria, West Vancouver, North Vancouver, Richmond and Burnaby (BC) - Calgary -inner city only (AB) - Montreal (QC)
\$400,000 - \$600,000	- Rest of Canada

2. See press release “ DBRS Announces Changes in Canadian RMBS Criteria” on May 3, 2006 at [www.dbrs.com](http://www.dbrs.com).



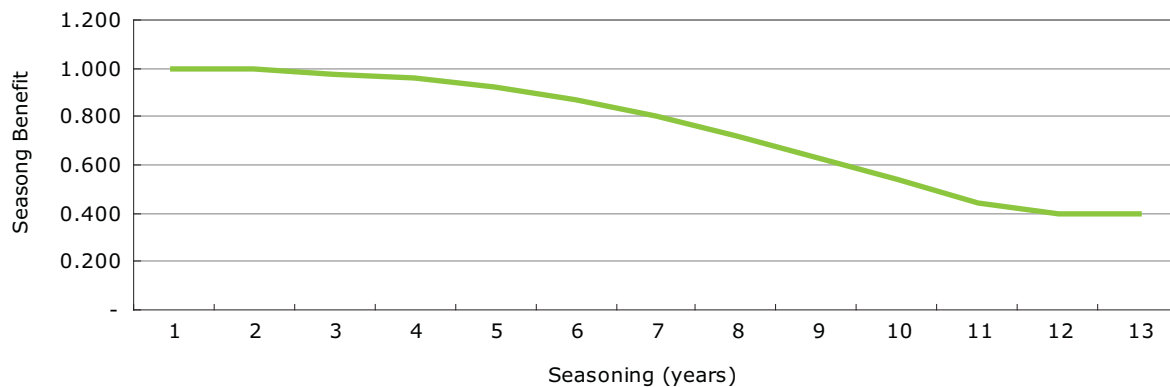
### (9) Seasoning (Years Since Origination)

Seasoned loans are considered less likely to default compared to the newly originated loans with similar terms since for a seasoned loan the borrower has already demonstrated his/her ability to pay. DBRS's review of historical mortgage performance data indicates that in general, mortgage default tends to be 'front-end' loaded and therefore there is no credit for loans with less than two years of seasoning as these loans are not considered to be over the 'default peak.' DBRS gives credit to loans with two or more years of seasoning (up to 60% frequency reduction).

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#### Frequency Benefit for Seasoning

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### (10) Buy Down

A buy-down mortgage, not common in Canada, has a lower than market interest rate and usually is offered to a borrower for a specific term, who would not otherwise qualify for a mortgage. Borrowers who "buy down" the mortgage rate are considered riskier and DBRS assigns a 1.2 times frequency penalty factor to account for it.



## LOSS SEVERITY

Loss severity is calculated as the division of the expected loss by the unpaid principal balance. The expected loss is the sum of unpaid principal balance and accrued interest, net of recovery on the property after adjustments for foreclosure costs or any other recoveries.

### (1) *Unpaid Principal Balance (UPB)*

UPB is the loan amount at the time of securitization. To be conservative, DBRS assumes an immediate default on the entire securitized amount without making any assumption for the timing of default.

### (2) *Accrued Interests*

The total amount of interest accrued during the mortgage arrears and subsequent property foreclosure period depends on the length of the liquidation period and the level of interest rate on the mortgage. The total liquidation periods include a delinquency period, a property marketing period and a foreclosure period whose length varies among provinces due to provincial regulations. For mortgage rates used in the calculation of the carrying costs during the liquidation period, DBRS uses the maximum of the current rate, the initial rate plus 4% and the life cap minus 2% for ARMs and current mortgage rate for FRMs.

### Foreclosure Process in Canada

In Canada, judicial sale and power of sale are two main ways a lender recovers mortgage debt when a borrower defaults. Judicial sale is a sale conducted under the supervision and authority of the court, where a lender must apply to the court to get the court's permission to sell the property. On the other hand, power of sale allows a lender to sell property without the involvement of the court. The lender has the right to sell the property according to the mortgage documents and/or provincial legislation which allows power of sale in that province.

Power of sale is mainly used in Ontario, Newfoundland, New Brunswick and Prince Edward Island. Judicial sale has been adopted in British Columbia, Alberta, Saskatchewan, Manitoba, Nova Scotia and Québec. In addition to legislative requirements, the actual length of foreclosure (either for judicial sale or power of sale) varies in each province. During normal or good economic periods it can range from days to several months but during economic downturns, it can be stretched up to a full year with some smaller communities experiencing even longer time frames.

The following table shows the DBRS assumptions on the liquidation period for each province/territory.

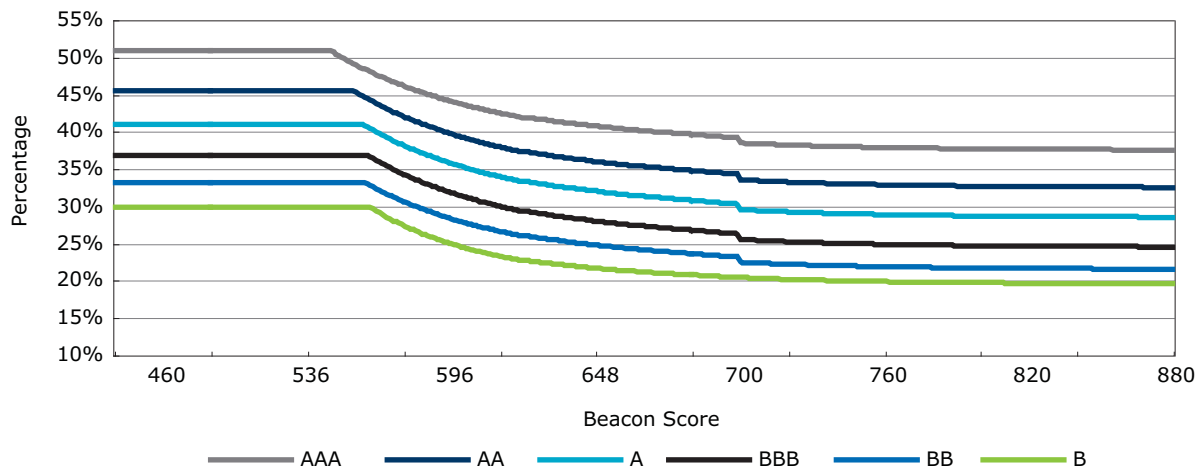
Provinces	Foreclosure Period (Months)	Total Liquidation Months
AB	4	14
BC	8	18
MB	1	11
NB	2	12
NL	6	16
NS	3	13
NT	10	20
NU	10	20
PE	2	12
ON	4	14
QC	9	19
SK	4	14
YT	4	14



### (3) Recovery on the Property

Market value decline (MVD) is key to determining the loss severity when the mortgage defaults. Loss severity, similar to default frequency, is correlated to the borrower's credit quality. Losses are likely smaller for borrowers with better credit quality and vice versa as borrowers with good credit are assumed to pay more attention to and take better care of the property than those with poor credit, therefore resulting in lower losses upon recovery. Accordingly, the borrower's credit score is used as a proxy for the likely condition of real estate collateral during the repossession of property and recovery process. Within the DBRS model, MVD is a continuous function of borrower credit scores by the rating categories as follows:

#### Market Value Decline by Rating Categories



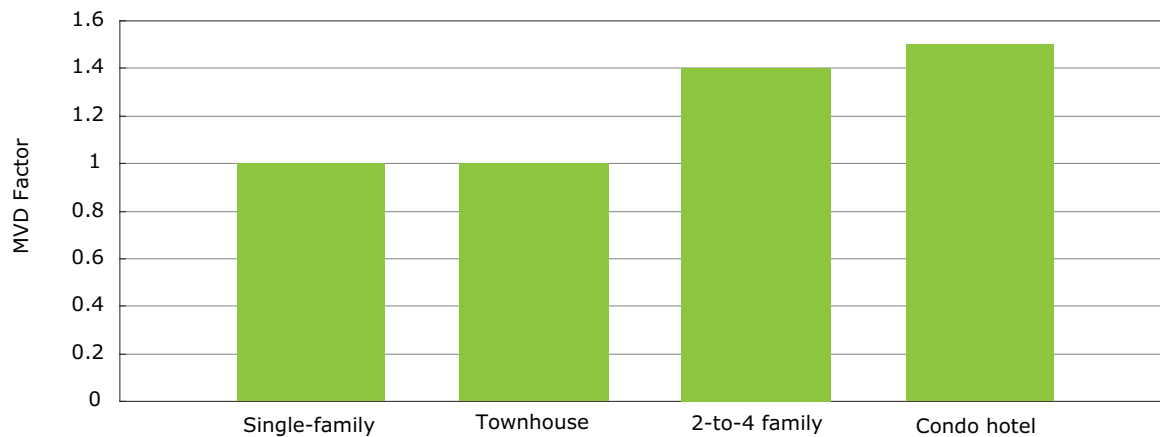
As shown above, DBRS's "B" rating MVD represents a quick-sale or distressed sale discount on property with a minimal level of stress beyond the individual property's distressed state. MVD for borrowers with credit scores above 700 is approximately 20%, and rises steadily to 30% as credit scores decrease. At the AAA level, DBRS assumes that the collateral will lose value in the range of approximately 38% to 51%, depending on the borrower's credit scores. Such stress level reflects the worst case historical home price declines observed in Canada.



### MVD Adjusted by Property Type

DBRS's "base case" property is a single-family detached home (including freehold townhouses). Multi-family buildings such as a duplex or condominium (including condo townhouses) are considered riskier, as they appeal to a more limited buyer population and tend to exhibit more price volatility historically. As a result, they tend to take longer to sell, especially during a market downturn. Condominiums and co-ops are considered the riskiest because the ownership of a common property means: (1) escalating association or maintenance fees may push levered borrowers beyond their means, and (2) the borrower partially depends on the neighbours in maintaining the property value. The following chart shows the penalty factors for different property types.

**Market Value Decline Factor by Property Type**



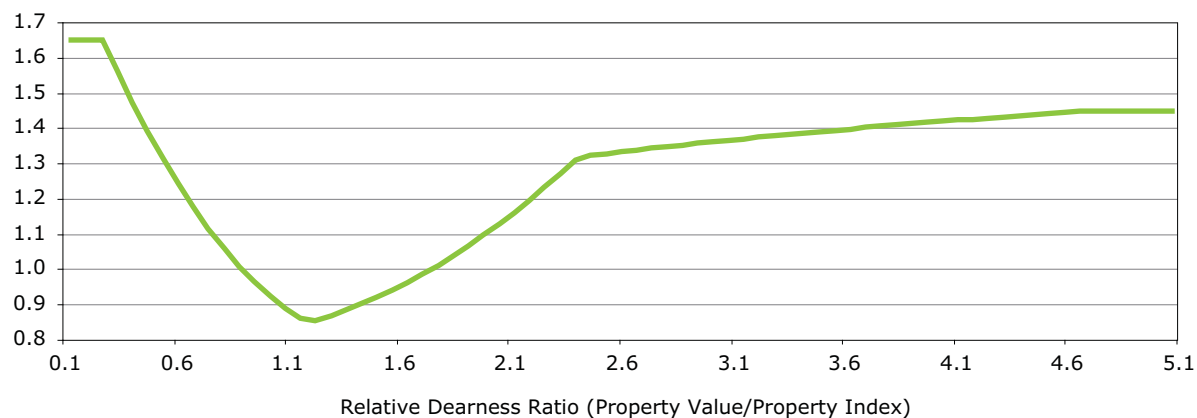
### MVD Adjusted by Relative Price Level ("Dearness")

Affordability and desirability are relative measures and can be perceived differently when different market conditions exist. DBRS has incorporated three levels (province, city or neighbourhood) of housing price indices based on 2006 residential property resale transaction data to gauge the relative dearness (or cheapness) of a collateral property. Extremely expensive or cheap properties are assumed to suffer a higher loss at foreclosure as expensive properties have a limited resale market and very cheap properties will incur a higher percentage of foreclosure costs as some costs are fixed amounts in nature, regardless of the property value. Properties in the median price range relative to the index are assumed to experience less severe value declines because of their broader appeal in resale markets.



DBRS's RMBS model incorporates property price indices (average resale price) to assess each property at the neighbourhood level (with 86, 21, 196 and 185 indices for the Greater Toronto Area, Greater Montréal Area, Calgary and the entire province of British Columbia, respectively), city level (142 municipalities if not included in the neighbourhood index above) or provincial/territorial level (13 indices if not included in the neighbourhood or city index above). Based on the postal code of the mortgage, the location of the mortgage will be identified. The property value will be compared to the corresponding index to calculate the dearness of the property, resulting in a property dearness ratio. An adjustment factor based on the dearness ratio is a continuous function implemented in the RMBS model as illustrated in the chart below. Properties too cheap or too expensive relative to the index will be penalized up to 1.65 times while property prices close to the index will have a credit of up to 15%.

#### MVD Adjustment Factor by Relative Dearness



#### (4) Foreclosure Costs

There are additional costs incurred in the foreclosure and liquidation processes. These include legal fees, real estate broker fees, property taxes, hazard insurance premiums (if applicable), eviction and routine maintenance. The DBRS model assumes foreclosure and liquidation costs are equal to 10% of the resale property value with a minimum of \$5,000.

#### (5) Other Recoveries

Aside from property sale, recoveries may occur from pledged accounts, mortgage insurance or other arrangements that provide potential cash flows to offset losses on the property value. The analysis of insured mortgages is discussed in the section "Analysis for Insured Mortgages."

#### (6) Second Lien Mortgages

Due to the increased sensitivity of the second mortgage to property value decline, the impact of additional costs, the involvement of additional stakeholders and the subordinated access to recovery proceeds, a 100% loss is assumed for second lien mortgages plus disposal costs. This results in a loss severity of over 100%. In addition, there is a higher default frequency on second liens because of the high LTV (first and second liens combined) and an inherent nature of adverse selection on second lien loans (i.e., over-leverage). Hence, a particularly high default frequency for second lien loans with a combined LTV over 80% is applied, in addition to over 100% severity on the second lien amount, because of the small equity in the property and the borrowers' higher propensity to default.



## Portfolio Level Analysis

### (1) Geographic Concentration

Geographic concentration increases the risk of a mortgage pool; as the concentration increases the dependence on local economies and reduces the benefits of diversification compared to a geographically diversified pool. A geographically concentrated pool is also more likely to be subject to other shocks such as environmental issues or natural disasters which can depress housing prices in the affected areas. DBRS assumes that the base case pool is geographically diversified according to the actual population distribution in Canada. Credit enhancement for a pool with substantial geographic concentration will be adjusted based on the following two factors: province and city.

#### (a) Province

If the concentration of one province (in terms of mortgage values) is more than two times that of the province's actual population distribution, the excess portion will be subject to a 20% penalty. The threshold of two times is considered sufficient to account for property value differences in each province across Canada. The following chart shows the current actual population distribution of each province/territory and the maximum concentration without penalty. For example, a pool can contain approximately 78% of loans in Ontario without being penalized for any provincial level concentration.

Provinces	Population Percentage <sup>1</sup>	Maximum Concentration Without Penalty
Ontario	38.9%	77.7%
Québec	23.4%	46.9%
British Columbia	13.2%	26.4%
Alberta	10.4%	20.9%
Manitoba	3.6%	7.2%
Saskatchewan	3.0%	6.0%
Nova Scotia	2.9%	5.7%
New Brunswick	2.3%	4.6%
Newfoundland and Labrador	1.6%	3.1%
Prince Edward Island	0.4%	0.8%
Northwest Territories	0.1%	0.3%
Yukon	0.1%	0.2%
Nunavut	0.1%	0.2%

1. According to StatsCan 2006 Survey.

The largest three provinces in the pool (in terms of mortgage values) will be evaluated according to the maximum concentration allowed listed above and the penalty factor will be the sum of the three provincial concentration factors, if any. Take a pool with 60% loans in Québec for example. The concentration in Québec will result in a relative 2.64% credit enhancement increase according to the calculation below, assuming the other two largest provinces do not incur concentration subject to penalties. If the original credit enhancement level is 15% prior to the provincial concentration assessment, the final enhancement after such adjustment will be  $15\% * (1 + 2.64\%) = 15.396\%$ .

A	B	C	D	E
Provincial % in the pool	Provincial population % in Canada	Threshold (2.0x B)	Excess (A – C)	Provincial Concentration Factor
60%	23.4%	$2.0 * 23.4\% = 46.8\%$	$60\% - 46.8\% = 13.2\%$	$13.2\% * 20\% = 2.64\%$



**(b) City**

If the concentration of a city (in terms of mortgage values) is greater than two-and-a-half (2.5) times the city’s actual population distribution (also according to the StatsCan 2006 survey), the excess portion will be subject to a 20% penalty. Similarly, the threshold of two-and-a-half times is considered sufficient to account for the property value differences in municipalities across Canada. The largest ten cities in the pool (in terms of mortgage values) will be evaluated and the total city concentration adjustment factor will be the sum of the ten city concentration factors, if any. Consider a pool with 40% loans in Toronto. Such concentration in Toronto will result in a relative 4.05% credit enhancement increase, assuming the other nine largest cities do not incur concentration subject to penalties. If the credit enhancement level is 15% prior to the city concentration assessment, the final enhancement after such adjustment will be  $15\% * (1+4.05\%) = 15.675\%$  due to the concentration in Toronto.

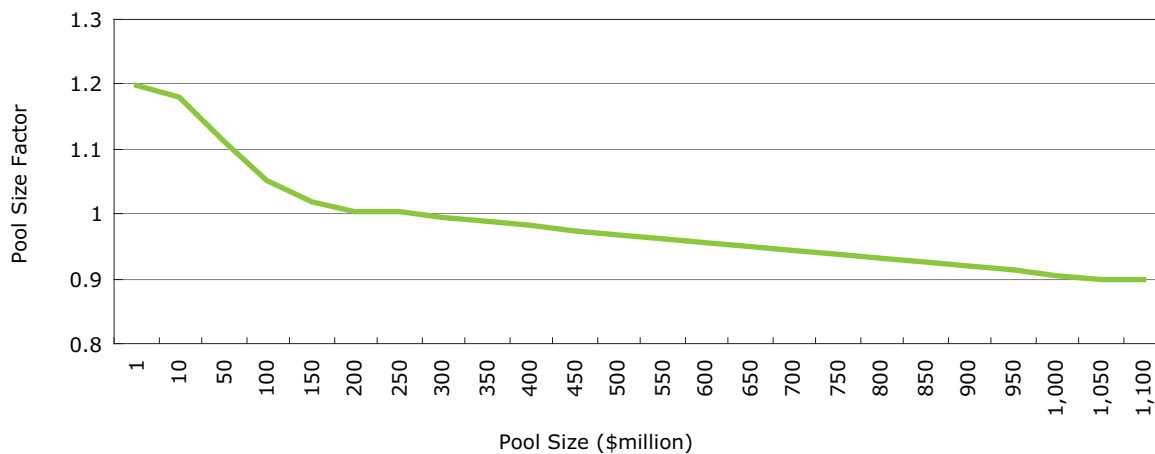
A	B	C	D	E
City % in the pool	City population % in Canada	Threshold (2.5x B)	Excess (A – C)	City Concentration Factor
40%	7.9%	$2.5 * 7.9\% = 19.75\%$	$40\% - 19.75\% = 20.25\%$	$20.25\% * 20\% = 4.05\%$

A regionally concentrated mortgage pool is subject to both provincial and city concentration penalties as these two factors are independently assessed and applied cumulatively.

**(2) Pool Size**

DBRS considers a mortgage pool size of \$250 million to be large enough for meaningful diversification in terms of obligors and geography and is used as the “base case.” Credit will be given (up to 10% reduction) when the pool is over \$250 million and a penalty will apply (up to 1.2 times) if a pool is smaller than \$250 million.

**Pool Size Factor**



A small, geographically concentrated mortgage pool (in terms of province and city) will be subject to three different penalties at the pool level as these factors are assessed independently and applied accumulatively.



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## Structural Analysis

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In RMBS transactions, the collection and distribution of monthly cash flows generated by the underlying mortgages determines if there are adequate cash flows to satisfy the rated debts. DBRS uses the pool-wide weighted average default frequency and loss severity generated by the RMBS model in addition to other conservative assumptions to determine the final credit protection level for rated debts.

### *(1) Excess Spread (Cash Flow Analysis)*

Excess spread is typically available as internal credit protection to cover losses if no margin-related securities are issued to strip out excess spread. It is crucial to appropriately value the amount of potential excess spread because it affects the determination of final credit enhancement required. DBRS considers numerous risk factors when evaluating a transaction's excess spread, including:

- Timing of losses,
- Interest rate mismatches, and
- Prepayment speeds.

#### **(a) Timing of Defaults (Losses)**

DBRS's estimation of timing of defaults (losses) is based on historical experience and spans ten years. DBRS assumes once a mortgage is in default, losses (as calculated in the credit model above) will occur immediately so the timing of default is the same as the timing of losses. A typical default curve for mortgages usually shows concentrated defaults between years two and five, resulting in a front-loaded loss curve. While it is difficult to apply a specific formula based on the credit profile of a mortgage pool, DBRS has observed so far that the default curve for sub-prime mortgages tends to be more front-end loaded than prime mortgages since a sub-prime borrower tends to default earlier, everything else being equal.

#### **(b) Interest Rate Mismatch**

Interest rate mismatch risk occurs when the interest rate on the underlying mortgage collateral (i.e., asset yield) is different from the interest coupon on the notes (i.e., cost of funds). For example, mortgages (fixed rate or adjustable indexed to the Prime rate) can be funded by floating rate debt such as ABCP, which is indexed to the Canadian dollar offered rate (CDOR). This creates a mismatch between the fixed and floating rate or a mismatch between the Prime and CDOR rate (a basis risk). When CDOR rises, excess spread between CDOR-based debts and the fixed rate assets (mortgages) decreases. Alternatively, if Prime and CDOR rates were to converge, excess spread would also decrease. It is important to quantify the effect of these interest rate mismatch scenarios by stressing interest rates to ensure the adequacy of protection for the debt rated.

#### **(c) Prepayment Speeds**

Prepayment speed measures the rate at which borrowers make their principal repayments above the requirement prior to the scheduled maturity date. Prepayments reduce the outstanding principal balance of a mortgage, thus reducing excess spread. The faster the prepayment speed, the quicker excess spread is foregone. As prepayments shorten the average life of securitized assets, they reduce the period of time over which stressed assumptions can affect the portfolio. Aside from its effect on excess spread, a higher prepayment assumption generally allows a structure to withstand harsher stressed scenarios than a zero prepayment scenario because prepayments reduce the principal balance in respect of which defaults are applied in a shorter time frame. Most residential mortgages are prepayable in Canada to some extent. Generally, 10% to 20% of the original principal may be prepaid in any one year (as of each anniversary date) without penalty. Furthermore, if a property is sold (i.e., the whole mortgage amount is repaid), most lenders do not impose a prepayment penalty, as long as a new mortgage is placed with the same lender. Notwithstanding no penalty imposition, the securitization documents require that a "make whole" payment be made to the Special Purpose Vehicle (SPV) issuing the notes to compensate for the lost excess spread available to the SPV.



Even where such payments are passed through to the SPV, it is not certain that they are sufficient to compensate the SPV for lost yield. DBRS will assess the implications introduced by the prepayment nature of mortgages in RMBS transactions for adequate levels of protection.

After adjusting for prepayments, potential negative carry due to interest rates mismatches and/or mortgage delinquencies, as well as servicer fees, the credit for excess spread is usually no more than one year duration. DBRS takes this conservative approach because estimation of excess spread is very sensitive to the assumptions of prepayment, timing of default and other factors, rendering the precise determination of excess spread difficult.

## *(2) Other Forms of Credit Enhancement*

In addition to excess spread which can be available to the transaction depending on the structure, there are other forms of credit enhancement generally employed, such as over collateralization (OC), subordination and cash.

Over collateralization and subordination are similar in that they both allow holders of the senior notes the access to cash flows relating to assets with a value more than the face amount of senior notes. Cash is usually necessary to maintain minimum amounts of liquidity in a typical ABCP transaction, unless other satisfactory arrangements are in place. The use of cash introduces negative carry as cash must be invested in highly liquid investments often yielding less than the coupon rate on the notes or the mortgage rate if the cash were invested in additional mortgages. On the other hand, there are also disadvantages associated with OC or subordination as OC can generate a higher yield than cash at the mortgage rate; however any default will reduce the yield, and interest payment on subordinated notes which creates some cash drain from collections.

There are other less popular forms of credit enhancement such as bond insurance, letters of credit and third party guarantees. In each case, the rating of the security will be affected by the credit quality of the enhancement provider.



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## Analysis for Uninsured Conventional Mortgages without Loan Level Details

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For conventional mortgage pools without loan level details, a cash flow analysis is applied instead. It should be noted that these mortgages are generally underwritten under similar standards, are more homogeneous and have a good track record of servicing and historical performance compared to non-conventional mortgages which have very distinct characteristics among mortgage types.

Where conventional mortgage pools contain several loan types with different characteristics, DBRS adjusts the cash flow analysis by stratifying them based on loan term, amortization term and property type.

Base cash flow analysis assumptions for conventional mortgage pools are:

(1) Property type: single-family residential dwellings (includes buildings with up to a maximum of four units).

(2) Excess spread (prior to servicing, default and other expenses): 0.50% per year.

(3) Mortgage terms: 25-year amortization with five-year mortgage term and some seasoning (depending on the pools). Loans with longer amortization periods are subject to higher default frequency and enhancement levels.

(4) Defaults: preferably, a default history through the last economic cycle is available to DBRS to establish the base case, which could be the historical high or the annual average over several years. Originators that cannot provide this data will be subject to higher assumed default rate or multiples. In all scenarios a 100% enforcement rate upon a mortgage default is assumed.

(5) Losses: losses on disposal are determined by the degree of property value decline and the length of time such property must be held before ultimate sale (carry costs). Property value decline includes costs of disposal, primarily broker fees and legal costs. Larger value decline is applied to condominiums due to their higher price volatility historically. For example, a single family dwelling may be stressed with a 40% to 50% value decline for AAA assumption (see the chart below) and a condominium unit might be subjected to a 50% to 60% (approximately 25% more than single family at AAA level) stress. Larger value decline also applies to large loans. In both cases, value decline is inclusive of recovery and recovery periods on foreclosed properties would take approximately 18 months.

(6) Delinquencies: similar to defaults, the base case could be the historical high or annual average of several years. Stressing delinquencies serves to reduce yield on the mortgages and the amount of excess spread available. Both delinquency and default rates are assumed to increase over a period of six months to twelve months, starting in the second month.

(7) Prepayment: DBRS assumes a prepayment rate of 1% to 2% per month for conventional mortgages.



The following table is a general summary of stress parameters used by DBRS for mortgage pools without loan level details.

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**Summary of Stress Parameters**

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Stress Parameters		Property MVD		Recovery Period (months)		Default Rate
		Minimum	Maximum	Minimum	Maximum	Historical High
Rating Category	AAA	40%	50%	17	19	3-5 Times
	AA	35%	40%	15	17	2-4 Times
	A	30%	35%	13	15	2-3 Times
	BBB	20%	25%	10	13	1-2 Times

Given their good historical performance, uninsured conventional mortgages generally require lower enhancement levels across all originators even with the above assumptions. As a result, uninsured conventional mortgages are subject to a minimum floor of credit enhancement for each rating level in order to provide adequate and meaningful protection to investors.



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## Analysis for Insured Mortgages

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The credit loss from insured mortgages is considered to be nil as insurers guarantee the full payments of principal and interest in the event of the borrower's default on the mortgages. DBRS established the following credit enhancement guidelines for insured mortgages based on loan level analysis of several hypothetical mortgage pools and the possible negative carry from the time of mortgage default until full repayment by the insurers. As such, the credit enhancement is required to be funded in cash to provide the liquidity for potential negative carry. These levels are for a AAA/R-1(high) rating and were published on September 1, 2006<sup>3</sup>. Please refer to the announcement for conditions and restrictions.

Mortgage Pool Weighed Average Credit Score	Mortgage Insurer Credit Rating*	
	AA or Higher	AA (low)
680 or higher	0.25%	0.5%
580 to 679	0.5%	1%
579 or less	1%	2%
Not available	0.5%	2%

\* Minimum acceptable mortgage insurer's rating is AA (low).

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3. "DBRS Announces Enhancement Changes for Insured Residential Mortgages in Canada" on September 1, 2006 at [www.dbrs.com](http://www.dbrs.com).

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## Legal Criteria

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Assuming that the sale of mortgages from the seller to the SPV is on a true-sale basis, the SPV will be entitled to the rights the seller had under the securitized mortgages, including the right to enforce the mortgages in the event of a default. It is therefore important to ensure that the mortgages themselves have priority over the related collateral and the seller must make representations and warranties to this effect in the securitization documents. For a more detailed discussion, please review the related announcement.<sup>4</sup>

### PERFECTION

For residential mortgages, personal property security legislation (PPSA) in all provinces does not apply, except in Québec. In other words, to ensure the transfer of mortgages from a seller to a SPV all that is required to ensure bankruptcy remoteness of the mortgages or “claim” in those PPSA provinces is a true sale. No registration under the PPSA is necessary.

In Québec, the Civil Code prescribes the additional requirement of perfection, which means Québec does not treat mortgage loans differently from auto loans or other receivables and a PPSA registration would be required in order to perfect. Please refer to DBRS’s commentary<sup>5</sup> for a complete discussion on the nuances of perfection or “opposability” in Québec. In its most simplistic form, to render the sale of the mortgage loans or “claims” opposable against third parties (and therefore bankruptcy remote) either a universality must be created (i.e., the transfer cannot be a list of mortgages) or notification must be provided to obligors in Québec. If a universality is not created and/or notification is not provided to the mortgage obligors prior to a bankruptcy of the seller, the seller’s creditors would have a legal right to all payments on the mortgages, jeopardizing the SPV’s entitlement to collect the mortgage receivables. In addition, if the seller itself (or its chief executive office) is located in Québec, notification would apply to the whole mortgage pool securitized. To address this risk, DBRS generally requires notification to obligors in Québec once the seller is below investment grade (or a higher rating if the seller is a deposit taking financial institution), unless other mitigating arrangements are in place. A rating trigger at this level should allow enough time for notification to be completed prior to the seller’s bankruptcy, if it were to occur.

### REGISTRATION

Because land has a title registry, all mortgages are registered in the land registry system. Usually these mortgages are registered in the name of the originator and continue to be registered in that name even upon a sale to a SPV. In some instances the originator or seller registers the mortgages in the name of a third party custodian (an entity that is remote from the originator or seller). If that is the case, it is expected that the mortgages would not be subject to a stay of court proceedings (to have a court officially declare that the mortgage receivables belong to the SPV) upon a bankruptcy of the seller.

In all provinces, although not a requirement for perfection of the receivable or claim, there is an additional step to allow the SPV to enforce the mortgages. That step is a registration in the land registry office to evidence the transfer of the mortgage to the SPV. This is only required where the underlying obligor of the mortgage has defaulted on its monthly payments and the owner of the mortgage must enforce the security to be repaid. In the absence of a bankruptcy of the seller, the securitization documentation usually provides for a power of attorney so that the particular mortgage can be enforced by the SPV, or if that is not available, a re-transfer of the defaulted mortgage back to the seller solely for purposes of enforcement is required. In a bankruptcy of a seller, if the registration in the land registry has not been updated to reflect a transfer to the SPV, the ability of the SPV to enforce a defaulted mortgage may be subject to a stay

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4. “Legal Criteria for Canadian Structured Finance” published on May 10, 2007 at [www.dbrs.com](http://www.dbrs.com).

5. “Québec Perfection: Sales of Receivables” published on July 9, 2007 at [www.dbrs.com](http://www.dbrs.com).



of court proceedings so no steps can be taken to enforce the mortgage until a court allows it. However, assuming the elements of a true sale are present and in respect of Québec, perfection has been achieved, that stay would eventually be lifted by a court to allow enforcement of the mortgaged property by the SPV. If a registration is made at the land registry reflecting the transfer to the SPV prior to a bankruptcy of the seller, enforcement on that property would not be subject to a stay in the event of the seller's bankruptcy. Similarly, the collections or regular payments made by an obligor would not be subject to a stay if a true sale has occurred and Québec perfection has been achieved, as long as no commingling of the payments with other assets of the seller/servicer is allowed. To address the risk of no registration, DBRS generally requires the completion of registration within 30 days once the seller falls in the 'B' range (or higher rating if the seller is a deposit taking financial institution) to minimize the risk of seller bankruptcy occurring before transfer of the registrations are completed. This rating trigger is lower than that for notification in Québec as only the defaulted mortgages are subjected to a potential stay.

If the sellers do not have a rating, there must be other measures taken to mitigate the above risks, such as having financial strength tests to form the basis for notification in Québec and registration requirements.



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## Qualitative Analysis

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Notwithstanding all the quantitative analysis above, final enhancement levels are always subject to certain adjustments based on the assessment of the underwriting quality and the originator/servicer. Qualitative review is an important element when making comparisons among lenders and their respective underwriting criteria. This is particularly true for new originators without performance data that extends back to the last recessionary period. A review of the underwriting process, philosophy and system provides insight to the operations and the approach that might be taken in dealing with defaults if the originator also serves as servicer and is a practical way of determining if performance is likely to track other players in the marketplace.

An assessment of the originator's/servicer's ability to deal with significant increases in delinquencies and defaults needs to be made. If there are inherent limitations, it represents a significant concern should portfolio performance deteriorate. The ability of an originator/servicer to produce reasonably detailed historical data with respect to default rate, foreclosure frequency and recoveries is viewed positively as an indication that the originator/servicer is capable of tracking problem mortgages efficiently. Where historical data is not sufficiently detailed, DBRS will require tighter triggers to protect the portfolio.

An analysis of only the mortgage business of a seller with several business lines may not be sufficient. The aggressiveness or prudence of management may be demonstrated in other business units. If mortgage origination is relatively new without a significant track history, the performance of the seller in its other longer-running business unit could provide a tangible insight as to how businesses tend to be managed. To the extent that DBRS already rates the seller, discussions with the analysts covering the seller will also provide insight to the seller.

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## Conclusion

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The DBRS RMBS model is built on conservative assumptions about both the likelihood of default and the loss that may be experienced after default. As it analyzes the layering of risks of every loan in a securitized pool and additional risks of the loans in the pool taken as a whole in the assessment of loan characteristics, the model is designed to address the risks in a quantitative manner, in conjunction with other qualitative analysis. DBRS periodically reviews the assumptions built into the RMBS model and will make modifications if necessary to reflect changes in the Canadian residential mortgage market.

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## Appendix 1: Glossary

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<b>2-4 Family Unit</b>	A single residential structure which is divided into 2 to 4 separate living units but owned under a single title.
<b>Adjustable Rate Mortgage (ARM)</b>	A mortgage with variable monthly payments that adjust based on changes to an interest rate index such as the Canadian Prime Rate.
<b>Adverse Selection</b>	The concept that mortgages with better quality are more likely to prepay leaving lower quality mortgages in the pool.
<b>Amortization</b>	The scheduled repayment of principal and interest on a mortgage, based on a set period of time.
<b>Appraisal</b>	A valuation of the property securing a mortgage.
<b>Balloon Mortgage</b>	A mortgage that does not amortize to zero by the end of the mortgage term, leaving a large payment (balloon payment) of the remaining principal balance to be paid at maturity.
<b>Cash-Out Refinancing</b>	The refinancing of a mortgage in which the mortgagor borrows more than the outstanding balance of the prior mortgage, thus taking cash out of the mortgagor's equity in the property.
<b>Condominium (Condo)</b>	A housing unit representing a fractional interest in a larger property, part of which is owned separately by each owner and part of which is held in general by all owners.
<b>Credit Enhancement</b>	The protection against losses on the mortgages backing an MBS.
<b>Default</b>	A term most often used to refer to a mortgage that has become so delinquent that the mortgage is likely to be foreclosed upon and liquidated.
<b>Delinquent</b>	The condition of a mortgage when the borrower has failed to make one or more scheduled monthly payments.
<b>Equity-Take-Out Refinancing</b>	The refinancing of a mortgage in which the mortgagor borrows more than the outstanding balance of the prior mortgage, thus taking equity out of the property as cash, identical to a Cash-Out refinancing.
<b>Fixed Rate Mortgage (FRM)</b>	A mortgage with a constant interest rate and level monthly payments through its term to maturity.
<b>Foreclosure</b>	The process by which a mortgage lender takes title to the property underlying a delinquent mortgage. The process is determined by provincial/territorial law.
<b>Interest-Only Mortgage (IO)</b>	A mortgage in which for a set term the borrower pays only the interest on the principal balance, with the principal balance unchanged. At the end of the interest-only term the borrower may pay off the principal, or convert the loan to a principal and interest payment (P&I) loan at his/her option.
<b>Letter of Credit (LOC)</b>	A contractual promise issued by a bank or a financial institution to cover mortgage losses or other contingencies up to a specific amount.
<b>Loan to Value Ratio (LTV)</b>	The ratio of mortgage amount to the value of the mortgaged property. Original LTV is the original mortgage amount divided by the original property value. Current LTV is the current mortgage amount divided by the original property value and adjusted LTV is the current mortgage amount divided by the current property value.
<b>Loss Severity</b>	The mortgage loss on a liquidated property divided by the original balance of the mortgage.
<b>Market Value Decline (MVD)</b>	A decrease in the value of a property, the MVD is a significant component in the determination of loss severity.
<b>Mortgage Backed Security (MBS)</b>	A debt security collateralized by a pool of mortgage loans.
<b>Piggyback</b>	A piggyback mortgage is a second mortgage taken out by a borrower at the same time the first mortgage is started or refinanced.
<b>Principal and Interest (P&amp;I)</b>	Refers to monthly principal and interest payment on a mortgage
<b>Payment Shock</b>	The destabilizing effect of increases in the mortgagor's monthly payment associated with adjustable-rate mortgages.



<b>Prepayment</b>	An unscheduled payment of principal in excess of the scheduled monthly P&I payment. Prepayments result from the sale of a home or refinancing of existing mortgage, or a partial pay down of principal of an existing mortgage.
<b>Seasoning</b>	The length of time since a mortgage is originated or a transaction has been outstanding
<b>Second Lien Mortgage</b>	A mortgage as to which the line created is in a secondary position to another mortgage, the "first lien"
<b>Senior-Subordinate Structure</b>	A credit enhancement structure that includes at least two classes with one class, the subordinate class, providing credit enhancement to the other class, the senior class, by absorbing mortgage losses prior to the senior class.
<b>Special Purpose Vehicle (SPV)</b>	Also referred to as a "bankruptcy-remote entity" whose operations are limited to the acquisition and financing of specific assets. The SPV is usually a subsidiary company with an asset/liability structure and legal status that makes its obligations secure even if the parent company goes bankrupt.



## Appendix 2: Canadian RMBS Methodology Summary

### LIMITATIONS

- Future asset performance may deviate significantly from past performance.
- Actual default frequencies and/or loss severities may exceed DBRS's stressed performance assumptions and model results are highly dependent on assumed levels of these variables
- The methodology considers the current legal and regulatory framework (including consumer protection regulations) and its impact on the structure of transactions as of the date of publication of this summary.

### APPLICATION OF RATING RATIONALE

#### Summary of Risk Analysis Process for Canadian RMBS Transactions

Input	Details	Key Variables
<b>Loan-Level Characteristics<sup>1</sup></b>	The DBRS Canadian RMBS model will be populated with loan-level detail to generate expected default frequencies and loss severities.	<ul style="list-style-type: none"> <li>• All of the following as applicable: loan ID, credit grade, credit score, documentation, lien, origination date, maturity date, loan purpose, original loan amount, current loan amount, senior and junior loan amounts (if more than one lien), postal code, province, city, property value, property type, occupancy, original amortization term, original term to maturity, remaining term to maturity, interest-only (IO) period, payment type, negative amortization percentage, coupon/index, interest rate attributes, delinquency status, mortgage insurance provider.</li> <li>• The loan-to-value (LTV) and obligor credit score are the key determinants of default frequency in the RMBS model. In addition, if mortgage characteristics deviate from the base case, default penalty factors are applied. Table 1 contains the base-case mortgage assumptions and related default frequency penalty factors.</li> <li>• Market value decline is the key determinant of loss severity in the RMBS model and is negatively correlated to the obligor's credit score. Table 2 contains a summary of the determinants of loss severity.</li> <li>• Expected credit losses (the product of default frequency and loss severity) are increased or decreased based on the characteristics of the overall portfolio. Table 3 contains the portfolio-level adjustments in the RMBS model.</li> <li>• These variables may be approximated if specific loan-level data is not available.</li> </ul>
<b>Portfolio-Level Characteristics (If Loan-Level Data Not Available)</b>	A minimum of three to five years of historical performance data, tracking key variables of pool performance.	<ul style="list-style-type: none"> <li>• Historical portfolio performance (delinquencies, cure rates, defaults, losses, recoveries, prepayments, etc.) and stratification of the portfolio (credit score, geography, seasoning, LTV, property type, loan term, amortization term, etc.).</li> </ul>



## Summary of Risk Analysis Process for Canadian RMBS Transactions

Input	Details	Key Variables
<b>Originator Analysis</b>	All elements of a company's business related to mortgage origination will be reviewed for new issuers.	<ul style="list-style-type: none"> <li>• Credit rating of the originator (if applicable), business and securitization program history, competition and challenges, growth potential, senior staff experience and turnover, market share, target market and product positioning, material litigation/legal compliance issues, product offerings, marketing, pricing, credit risk management, liquidity and other funding sources, auditing, fraud experience and management, rejected insurance claims, loan origination and credit adjudication process, delivery channels, information systems, disaster recovery and business continuity.</li> </ul>
<b>Servicer Analysis</b>	Servicer capacity will be reviewed according to criteria outlined in the Canadian Residential Mortgage Servicer Evaluations methodology for new programs.	<ul style="list-style-type: none"> <li>• Credit rating of the servicer (if applicable), company structure, management experience and outlook, asset administration, reporting and customer service, loss management, technology and systems, financial condition, staff and training, procedures and controls, outsourcing and sub-servicing arrangements.</li> </ul>
<b>Economic Analysis</b>	DBRS expectation of macroeconomic factors throughout an economic or credit cycle.	<ul style="list-style-type: none"> <li>• Macroeconomic factors and potential impact on Canadian RMBS transaction performance from the review of the resale housing market, monetary policy, debt-to-income ratios, unemployment rate and consumer bankruptcies.</li> </ul>
<b>Legal Document Analysis</b>	Review of transaction structure and underlying documents.	<ul style="list-style-type: none"> <li>• Review of all legal documents as to their form and content, including true-sale opinions, perfection of security interest in the purchased assets, powers of attorney granted to the trust or registrable mortgage transfers, priority of cash distributions, legal maturity date and bankruptcy remoteness of the structure.</li> <li>• Document analysis also includes assessment of regulatory environment, early amortization events, servicer termination events, re-titling of mortgages trigger events and events of default.</li> </ul>
<b>Output</b>		<b>Application</b>
<b>Gross Credit Loss (from RMBS Model)</b>		<ul style="list-style-type: none"> <li>• The RMBS model is run using loan-level data to estimate default frequency and loss severity (gross credit loss) at each rating level before excess spread.</li> <li>• Estimated default frequency and loss severity is further used in the cash flow model to determine final expected credit losses.</li> <li>• Adjustments may be made to the model output based on the originator, servicer, economic analysis and legal structure review.</li> </ul>
<b>Assumptions of Base-Case Performance (Table 4, If No Loan-Level Analysis)</b>		<ul style="list-style-type: none"> <li>• The base-case default rate, property value decline and recovery time are estimated based on the key variables identified after the portfolio, seller, servicer, economics and legal structure reviews.</li> </ul>

1. DBRS applies loan-level characteristics as the standard approach; however, portfolio-level characteristics may be used if data availability is limited.



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## Summary of Process to Evaluate Proposed Enhancement in Canadian RMBS Transactions

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Input	Process
<b>Proposed Amount of Enhancement</b>	<ul style="list-style-type: none"><li>• For loan-level analysis, RMBS model results are further used in a cash flow model similar to RMBS analysis. Alternatively, cash flow modeling is done to incorporate the base-case and appropriate stress multiples detailed in Table 5 below to estimate credit losses at each rating level.</li><li>• The cash flow model will consider different scenarios of prepayment, default/loss timing and interest rates to assess exceed spread, if any. Cost of funds and replacement servicer fee assumptions are included in the analysis.</li><li>• The estimated credit losses after cash flow modeling are compared with the proposed amount of credit enhancement to determine whether the proposed enhancement is sufficient or any loss on the notes may incur at the requested rating.</li><li>• For insured mortgages, DBRS considers the credit loss negligible for mortgages insured by highly rated insurers. The minimum credit enhancement outlined in Table 6 is to address the potential negative carry between the time of mortgage default and insurance proceeds from insurers and is based on the weighted-average credit score of the pool and the rating of the mortgage insurers.</li><li>• DBRS evaluates the appropriateness and mechanism related to each form of enhancement, including hedging arrangements, triggers, availability, scalability, the priority of payments, negative carry and eligibility of related parties and investments. Floor levels may be required to protect against tail-end risk of default and loss.</li><li>• Common forms of enhancement are the following:<ul style="list-style-type: none"><li>– Excess spread (generally limited to a credit of one year).</li><li>– Cash collateral account.</li><li>– Subordination.</li><li>– Overcollateralization.</li><li>– Letter of credit.</li></ul></li></ul>
<b>Proposed Form of Enhancement</b>	<ul style="list-style-type: none"><li>• For insured mortgages, credit enhancement (except for excess spread) should be funded in cash to provide for potential negative carry.</li></ul>
<b>Output</b>	Appropriate rating level based on the proposed enhancement.



## Summary of Additional Risks for Canadian RMBS Transactions

Risk	Description	Methodology <sup>1</sup>
<b>Interest Rate Mismatch</b>	Arises when the interest rates on the securitized assets are based on a different interest rate term than the notes issued. For example, floating-rate notes are secured by a portfolio of fixed-rate mortgages.	<i>Swap Criteria for Canadian Structured Finance Transactions</i> or conservative stress scenario in cash flow model.
<b>Basis Rate Mismatch</b>	Arises when the basis for calculating interest charged on the securitized assets or swap contract is different from the basis for interest on the notes issued. For example, an interest rate hedge referencing banker's acceptance (BA) rates are not on the same basis as asset-backed commercial paper (ABCP) notes (the Canadian Dealer Offered Rate (CDOR)).	<i>Swap Criteria for Canadian Structured Finance Transactions</i> or conservative stress scenario in cash flow model.
<b>Currency Mismatch</b>	Arises when the proceeds received from the mortgages are in a different currency than the principal and interest payments required under the note issuance.	<i>Swap Criteria for Canadian Structured Finance Transactions</i>
<b>Cash Commingling</b>	Cash commingling risk refers to the risk inherent in transactions where the servicer of the assets receives collections from the securitized assets and mixes the collected funds with its other funds between monthly remittance dates. If the servicer were to declare bankruptcy, it may be onerous and time-consuming for the note investors to obtain rightful access to the commingled funds. Unless the servicer or its performance guarantor has an investment-grade rating, DBRS expects collections to be remitted within two business days.	<i>Legal Criteria for Canadian Structured Finance</i>
<b>Bankruptcy Remoteness from Originator or Seller</b>	Transactions should be structured to ensure that the assets of the transaction are separate and remote from any claim that secured creditors may have if the seller or servicer of the securitized assets files for bankruptcy. True-sale opinions are expected and are reviewed as to their form and content on a transaction-by-transaction basis.	<i>Legal Criteria for Canadian Structured Finance</i>
<b>Transaction Parties</b>	Appropriate remedies should be clearly documented in case the financial strength of key transaction parties is weakened below acceptable levels by DBRS.	<i>Swap Criteria for Canadian Structured Finance Transactions</i> and <i>Legal Criteria for Canadian Structured Finance</i>
<b>Conduit Liquidity</b>	The funding of mortgages by ABCP has inherent asset-liability duration mismatch and risk for ABCP investors. To address the risk that market demand for ABCP may not be sufficient or the ABCP fails to roll over due to unforeseen events, all conduit sponsors should comply with DBRS conduit liquidity criteria, including Global Liquidity Standard (GLS) liquidity backup lines, in support of outstanding conduit notes.	<i>Rating Canadian ABCP</i> and <i>Legal Criteria for Canadian Structured Finance</i>

1. Methodologies are available at [www.dbrs.com](http://www.dbrs.com).



## SUMMARY OF TRANSACTION MONITORING

### Summary of Surveillance Reporting for Canadian RMBS Transactions

Debt Type	Information Reported	Frequency	Source and Results <sup>1</sup>
<b>ABCP</b>	Asset class, seller industry, seller rating, funded amount, initial credit enhancement, current credit enhancement, loss coverage, delinquency rate, performance ratios (default rate, loss rate and prepayment rate), deal rating.	Monthly	<i>Monthly Canadian ABCP Report</i>
<b>RMBS</b>	Originator, collateral description, types of credit enhancement available, program size, lead underwriter, debt class name, original debt balance, current debt balance, coupon, expected maturity, legal maturity, current rating, reporting month, pool balance, total debt balance, default rate, prepayment rate, pool factor, cumulative loss rate.	Monthly	<i>Monthly Canadian ABS Report</i>
<b>Private Term Transaction</b>	Originator, collateral description, types of credit enhancement available, program size, lead underwriter, debt class name, original debt balance, current debt balance, coupon, expected maturity, legal maturity, current rating, reporting month, pool balance, total debt balance, default rate, prepayment rate, pool factor, cumulative loss rate.	Monthly	Not public.

1. DBRS monthly surveillance reports are available at [www.dbrs.com](http://www.dbrs.com).



## SUMMARY OF MODELING ASSUMPTIONS FOR CANADIAN RMBS TRANSACTIONS

**Table 1: Factors in Determining Default Frequency**

Characteristic	Base-Case Assumption	Penalty Factor
<b>Mortgage Rate (Fixed-Rate Mortgage (FRM) or Adjustable-Rate Mortgage (ARM))</b>	Fixed rate	<ul style="list-style-type: none"> <li>Up to 1.5x for ARM, based on the reset frequency.</li> </ul>
<b>Interest-Only (IO) Period</b>	0 years	<ul style="list-style-type: none"> <li>Between 1.05x and 1.32x for loans with an IO period between five and ten years, depending on term to maturity. The penalty increases to between 1.14x and 1.76x for IO periods of less than five years and to between 1.12x and 1.45x for IO periods greater than ten years.</li> </ul>
<b>Amortization Period</b>	30 years	<ul style="list-style-type: none"> <li>Up to 1.32x for amortization terms of more than 30 years and down to 0.61x for amortization terms of less than 30 years.</li> <li>1.2x for negative amortization.</li> </ul>
<b>Mortgage Term</b>	5 years	<ul style="list-style-type: none"> <li>Up to 1.5x for terms of less than five years.</li> </ul>
<b>Loan Purpose</b>	Purchase	<ul style="list-style-type: none"> <li>1.2x to 1.5x for refinance, depending on credit score.</li> <li>1.6x to 2.44x for cash-out, depending on credit score.</li> </ul>
<b>Documentation</b>	Full	<ul style="list-style-type: none"> <li>Up to 2.0x for reduced or low-documentation mortgages, depending on credit score.</li> </ul>
<b>Risk Layering</b>	n/a	<ul style="list-style-type: none"> <li>Up to 3.0x for low-documentation loans, high LTV and investment properties, in addition to documentation penalty factor above.</li> </ul>
<b>Credit Grade</b>	"A"	<ul style="list-style-type: none"> <li>1.2x for "A-"</li> <li>1.35x for "B"</li> <li>1.5x for "C" and "D"</li> </ul>
<b>Occupancy</b>	Owner-occupied (primary residence)	<ul style="list-style-type: none"> <li>1.2x for second homes.</li> <li>1.7x for investment properties.</li> </ul>
<b>Property Type</b>	Single-family	<ul style="list-style-type: none"> <li>1.15x for two- to four-family properties.</li> <li>1.5x for condominiums and co-ops.</li> </ul>
<b>Province</b>	n/a	<ul style="list-style-type: none"> <li>1.3x in Alberta if LTV &gt; 85%.</li> </ul>
<b>Market Liquidity</b>	Urban	<ul style="list-style-type: none"> <li>1.05x for suburban.</li> <li>1.2x for tertiary.</li> <li>1.25x for rural.</li> </ul>
<b>Loan Size</b>	Standard loan	<ul style="list-style-type: none"> <li>1.15x for loans greater than large-loan size range.</li> <li>1.1x for loans within the large-loan size range.</li> </ul>
<b>Seasoning</b>	0 months	<ul style="list-style-type: none"> <li>Benefit down to 0.4x for loans with two or more years of seasoning.</li> </ul>
<b>Rate Buy-Down</b>	None	<ul style="list-style-type: none"> <li>1.2x for buy-downs.</li> </ul>
<b>Delinquency Status</b>	Current	<ul style="list-style-type: none"> <li>The greater of (1) the frequency calculated according to the credit attributes above or (2) an estimate based on the current delinquency status.</li> <li>The default estimate ranges between 40% and 100%, depending on the credit score, lien and delinquent status.</li> </ul>



**Table 2: Factors in Determining Loss Severity**

Factor	Determinants	Assumption
<b>Unpaid Principal Balance</b>	Principal balance.	• Current amount.
	Default timing.	• Immediate default.
<b>Accrued Interest</b>	Interest rate	• Current rate for FRM and for ARM, maximum of the current rate, initial rate plus 4% and the lifetime cap minus 2%.
	Liquidation period	• Varies by province: <ul style="list-style-type: none"> <li>11 months MB</li> <li>12 months NB, PE</li> <li>13 months NS</li> <li>14 months AB, ON, SK, YT</li> <li>16 months NL</li> <li>18 months BC</li> <li>19 months QC</li> <li>20 months NT, NU</li> </ul>
<b>Market Value Decline (MVD)</b>	Credit score	• MVD is negatively correlated to the borrower's credit score. Base MVD ranges from 20% for a "B" rating and high credit score to greater than 50% for a AAA rating and low credit score.
	Property type	• Penalty factor of 1.4x for two- to four-family. • Penalty factor of 1.5x for condos and co-ops.
	Dearness	• Penalty factor up to 1.65x based on property value compared with price benchmark. • Property prices close to benchmark have benefit up to 15%.
<b>Foreclosure Costs</b>	Legal fees, real estate broker fees, property taxes, insurance premiums, eviction costs and routine maintenance.	• 10% of resale property value, subject to a minimum of \$5,000.
<b>Lien</b>	Second lien	• 100% loss plus disposal costs.
<b>Delinquency Status</b>	Greater than 90 days	• 90 days and more, bankruptcy, foreclosure or real estate owned (REO), model adjusts credit score to the lower of original or 580, which affects the MVD.
<b>Additional Recoveries</b>	Mortgage insurance, pledged accounts, other arrangements.	• Factored into ultimate loss severity.

**Table 3: Factors in Determining Portfolio Adjustments**

Characteristic	Base Case	Penalty Factor
<b>Geographic Concentration</b>	2006 Statistics Canada population distribution	• Expected loss is adjusted at provincial and municipality levels. • If provincial concentration is more than 2.0x the base case or municipal concentration is more than 2.5x the base case, excess portions are penalized by 20%.
<b>Pool Size</b>	\$250 million	• Down to 0.9x benefit for pools of more than \$250 million. • Up to 1.2x penalty for pools of less than \$250 million.



**Table 4: Cash Flow Analysis and Base-Case Assumptions for Uninsured Conventional Mortgages without Loan-Level Details**

Factor	Base Case	Penalty Factor
Property Type	Single-family.	• None.
Mortgage Term	5 years (with some seasoning).	• None.
Amortization Term	25 years.	• Loans with longer amortization terms are subject to higher default frequency adjustments.
Defaults	Default history through the last economic cycle (historical high or average over several years).	<ul style="list-style-type: none"> <li>• Originators that cannot provide this data will be subject to higher assumed default rate or multiples. 100% enforcement rate upon default is assumed.</li> <li>• Defaults are stressed over a period of six months to 12 months, starting in the second month.</li> </ul>
Property Market Value Decline (MVD)	It includes costs of disposal, primarily broker fees and legal costs.	<ul style="list-style-type: none"> <li>• Larger MVD is applied to condominiums.</li> <li>• Larger MVD also applies to large loans.</li> </ul>
Delinquencies	Base case could be the historical high or annual average of several years.	• Delinquencies are stressed over a period of six months to 12 months, starting in the second month.
Prepayment	1% to 2% per month	• None.
Excess Spread	0.50%	• None.

**Table 5: Summary of Stress Multiples**

Stress Parameters Rating Category	Property Market Value Decline (MVD)		Recovery Period (Months)		Default Rate Historical High
	Minimum	Maximum	Minimum	Maximum	
AAA	40.0%	50.0%	17	19	3.0x to 5.0x
AA	35.0%	40.0%	15	17	2.0x to 4.0x
A	30.0%	35.0%	13	15	2.0x to 3.0x
BBB	20.0%	25.0%	10	13	1.0x to 2.0x

**Table 6: Summary of Insured Mortgage Credit Enhancement Guidelines (for AAA/R-1 (high) (sf) Transactions)**

Factors Weighted-Average Pool Credit Score	Mortgage Insurer Credit Rating*	
	AA or Higher	AA (low)
680 or higher	0.25%	0.50%
580 to 679	0.50%	1.00%
579 or less	1.00%	2.00%
Not available	0.50%	2.00%

\* The standard minimum threshold for a mortgage insurer's rating is AA (low).

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