CRISIL Ratings

# CRISIL Ratings methodology for RMBS transactions

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# 1 Executive summary

Mortgage-backed securitisation (MBS) is the securitisation of mortgage loans, either against residential or commercial properties. The securitisation of residential mortgage loans or residential mortgage-backed securitisation (RMBS) includes traditional home loans and loans against property (LAP).

The CRISIL Ratings framework for assessing the credit quality of RMBS transactions encompasses an analysis of:

- Portfolio and processes of the originator
- Characteristics of the underlying pool of loans and comparison with the portfolio
- Interest rate and prepayment risks
- Counterparty and legal risks
- Cash flow analysis and credit enhancement

# 2 Scope

This article[1] describes the CRISIL Ratings approach to rating RMBS transactions. CRISIL Ratings also analyses the sufficiency of credit enhancement in securitisation transactions, with focus on:

- Projection of base-case pool collections
- Subjecting the pool collections to stress that varies with the rating
- Sufficiency of credit enhancement to cover the stressed shortfall in pool collections compared with investor payouts for a specific credit rating

There is another variant of securitisation transactions—direct assignment of pools of loans—which is quite prevalent in the Indian market. CRISIL Ratings provides its estimate of ultimate credit losses (loss estimates) likely in such pools. Amongst the various aspects discussed in this article, analysis of the originator's portfolio and processes, analysis of the pool and estimate of the base case shortfalls are relevant in the loss estimate exercise.

# 3 Portfolio and processes of the originator

## 3.1 Portfolio analysis

Portfolio analysis involves a detailed analysis of historical asset performance. This analysis can be split into:

1. **Static pool analysis**
2. **Dynamic portfolio analysis**

[1] This article is being republished following a periodic review of criteria in Sep 2024. The previous version of this article, which was published in May 2024, can be accessed here: https://www.crisilratings.com/content/dam/crisil/criteria_methodology/structured-finance/archive/CRISILs_rating_methodology_for_RMBS_transactions_may2024.pdf

### 3.1.1 Static pool analysis

Static pool analysis serves as a good reference point to project the performance of the pool being securitised. Cash flow projections based on static pool analysis are appropriate because the securitised pools are also static.

A static pool refers to a pool of contracts originated in a particular period of time, say a month or a quarter. There is no addition of contracts to the static pool over time, unlike a portfolio to which contracts are added every day. Static pool analysis entails a study of the behaviour of such a pool over time. Contracts in the pool may be selected on the basis of specific parameters, and there is no addition or deletion of contracts in the pool once securitised.

To analyse static pools, CRISIL Ratings considers the performance of all the contracts originated over several years by an originator, and then analyses contracts originated in a particular period (for example, a quarter or half year) as one static pool. The performance of earlier rated pools of the same originator is also taken into consideration.

CRISIL Ratings also analyses, if available, static pool performance based on various parameters such as interest rate (fixed or floating), loan to value (LTV) ratio, instalment to income ratio (IIR), seasoning, loan amount, and geographical distribution of borrowers.

**Illustration 1: Performance of sample static pools**

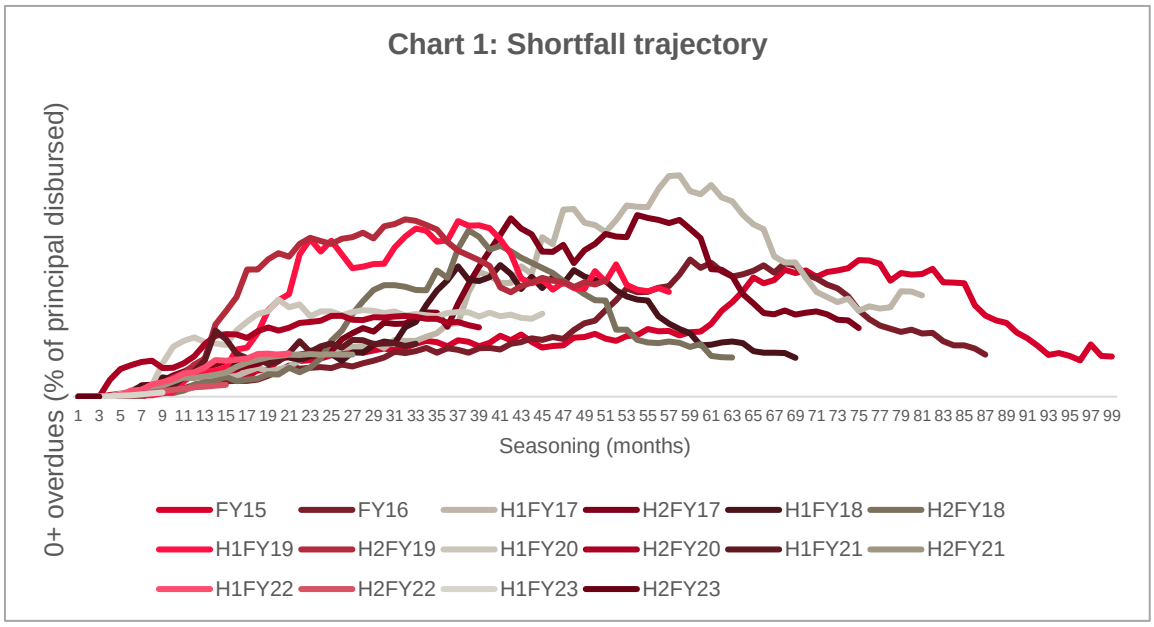


Chart 1 shows the trajectory of performance of contracts originated in specific periods (half-years in this case). Contracts originated in 2016 have exhibited lower overdue, indicating better performance than contracts originated in the first and second halves of 2017.Contracts from first and second halves of 2017 have also recovered markedly from their respective peak shortfalls.

CRISIL Ratings calculates loss expectations based on overdue levels in static pools across vintages.

The analysis of the static pool helps CRISIL Ratings arrive at the assumption of base shortfall for the pool being securitised. The base shortfall usually corresponds to the peak shortfall observed in the static pool of the originator. It serves as a measure of the shortfalls expected in a pool (similar to the portfolio) in a business-as-usual scenario.

**Illustration 2: Interpretation of base shortfall**

Assume that the base shortfall estimated is 2% for a pool with a principal of Rs 100 crore. This indicates that the peak shortfall expected in collections during the life of the transaction is likely to be 2% of Rs 100 crore -- that is, Rs 2 crore. Alternatively, the quantum of overdue outstanding at any point in time during the tenure of the transaction is not expected to exceed 2% of Rs 100 crore or Rs 2 crore in a business-as-usual scenario.

Static pool performance may be affected by changes in several micro and macro factors such as the economic environment, interest rate, and underwriting practices of the originator. These factors, along with the characteristics of the pool being securitised, are key inputs for determining the base shortfall assumptions for the pool, which, in turn, are used to project the base case pool collections.

### 3.1.2 Dynamic portfolio analysis

In dynamic pools, contracts may be added every day. Dynamic portfolio analysis provides insights into recent performance and trends in the originator's portfolio, which may not always be available in static pool data. Dynamic portfolio analysis of CRISIL Ratings comprises:

1. Delinquency analysis
2. Analysis of prepayment data

### 3.1.3 Delinquency analysis

Delinquency analysis[2] refers to segregation of contracts in 'buckets' based on the number of days they have been overdue. It provides a quick measure of portfolio quality and is used by financiers[3] to monitor performance of their portfolios.

Under delinquency analysis, the principal outstanding (POS) on current contracts (those contracts which have no overdue amounts pending to be collected) will belong to the current bucket, POS on contracts that are one-month overdue will belong to the 1 to 30 days-past-due (dpd) bucket, and so on. The amounts in different buckets are then divided by the total POS to arrive at the exposure of the pool in each bucket, as shown in Illustration 3.

[2] Also referred to as ageing analysis

[3] Also referred to as lenders. The terms financier and lender can be used interchangeably. Specifically, in the context of securitisation, financiers may be referred to as originators, as they originate the contracts (loans) being securitised

**Illustration 3: Delinquency analysis**

| As on | | Current | 1-30 | 31-60 | 61-90 | 91-120 | 121-180 | 180+ | Total |
|---|---|---|---|---|---|---|---|---|---|
| 30-Sep-23 | POS | 700 | 41.6 | 16.8 | 13.2 | 14.0 | 12.0 | 2.4 | **800** |
| | Dpd | 87.5% | 5.2% | 2.1% | 1.7% | 1.8% | 1.5% | 0.3% | **100%** |
| 31-Mar-24 | POS | 885 | 49 | 20 | 15 | 15 | 13 | 3 | **1000** |
| | Dpd | 88.5% | 4.9% | 2.0% | 1.5% | 1.5% | 1.3% | 0.3% | **100%** |

*All amounts in Rs crore*

In a rapidly growing portfolio, dpd levels may be understated as contracts usually perform relatively well in the initial months. Moreover, recently disbursed contracts cannot move to higher dpd buckets.

In such cases, CRISIL Ratings calculates 'lagged' dpd, that is, instead of taking the principal outstanding of the current month as the denominator, the principal outstanding with a lag of, say, six months is considered. In the above example, 180+ dpd as on March 31, 2024, lagged by six months, is 0.4% against an un-lagged 180+ dpd of 0.3%.

While lagging overcomes some limitations of delinquency analysis, it does not consider write-offs. In cases where financiers do not expect to make significant recoveries from the borrower or the underlying asset, they resort to write-offs. Writing off loans leads to recognition of losses and the exposure is usually removed from the portfolio of the originator in the delinquency analysis. Thus, exposure does not show up in any of the delinquency buckets, which leads to an apparent improvement in the portfolio's dpd profile. All else being equal, originators adopting aggressive write-off policies will show better delinquency levels than others.

Hence, CRISIL Ratings obtains historic write-off data, net of recoveries from previously written-off contracts. The cumulative write-offs can then be seen at various points of time. This cumulative figure can be seen as a percentage of portfolio principal, say, 12 months prior to the current date. This could give a proxy for net losses on a static pool basis.

### 3.1.4 Analysis of prepayment data

Prepayments in the underlying pool can affect cash inflows (collections from the pool) to the trust. Hence, CRISIL Ratings studies monthly prepayments on the originator's portfolio and average prepayment levels in that asset class across originators. The prevailing interest rate scenario and the interest rate at which the contracts to be securitised were entered into are also factored in while calculating prepayment scenarios for the pool. The impact of interest rate and prepayment risks has been discussed in detail in subsequent sections.

## 3.2 Analysis of the originator's processes

The CRISIL Ratings methodology involves both qualitative and quantitative analysis. Analysis of the originator's operations is an important qualitative factor. This involves an analysis of management quality, experience of the originator in the specific asset class, goals and strategies of the management, and the size and market position of the originator. The method of origination (directly or through agents), underwriting standards, sanctioning authority and process, collection and recovery mechanisms, and pre- and post-disbursement documentation also indicate the quality of the originator's operations. Even within a specific asset

class, originators may choose to focus on lower risk or higher risk sub-segments as part of their strategy. Hence, the quality of origination and underwriting norms impacts the performance of the assets.

# 4 Analysis of pool characteristics

Pool characteristics are a good indicator of the expected future performance of the pool. Securitised pools are typically cherry-picked, that is, the quality of the underlying pool of loans may be better than the portfolio quality. CRISIL Ratings bases its analysis of pool characteristics on two aspects:

1. Analysis of characteristics of the underlying pool of loans
2. Comparison of the pool with the portfolio

## 4.1 Analysis of characteristics of the underlying pool of loans

CRISIL Ratings studies various parameters in the underlying pool of contracts and draws on its database and experience of the Indian market to ascertain the credit implications of these parameters. A comprehensive list of parameters that provide valuable insights into the pool is given below:

- Asset class
- LTV ratio
- Original tenure
- Geographical distribution
- Borrower profile
- IIR
- Borrower diversification
- Seasoning profile
- Interest rate
- Loan amount
- Overdue profile

### 4.1.1 Asset class

CRISIL Ratings analyses residential mortgages in its different forms, including traditional home loans, home improvement loans or LAP. Each of these segments may perform differently. Other factors such as the originator's familiarity with customers and the efficiency and rigour of the collection mechanism are also studied. CRISIL Ratings then bases its analysis on the specific factors affecting the performance of a particular lender. Asset class has been discussed in further detail in CRISIL Ratings criteria document titled *'Primer on evaluation of risks in securitisation transactions',* available at www.crisil.com.

### 4.1.2 LTV ratio

LTV ratio is the loan amount disbursed as a percentage of the value of the asset. This parameter is important for all asset-backed financing. A low LTV indicates higher initial equity of the borrower in the asset and, hence, makes default on loan repayment unattractive to the borrower. As the loan gets repaid in instalments, the borrower's equity in the asset builds up. However, if the LTV is higher, the risk of loss on the loan also increases.

### 4.1.3 Original tenure

It has been generally observed that all else being equal, longer tenure implies higher uncertainty. Thus, the higher the original tenure of contracts, the greater is the risk of losses.

### 4.1.4 Geographical distribution

Geographical concentration can affect pool performance due to the influence of socio-economic conditions in a particular region. What constitutes concentration is decided based on factors such as the geographical spread of the pool, regional diversification within a particular state in which there is concentration, property prices in the region, and economic stability of the region. CRISIL Ratings subjects a geographically concentrated pool to higher stress scenarios than a diversified pool.

### 4.1.5 Borrower profile

Borrower segments vary in their characteristics, making assessment of the borrower profile essential. For instance, salaried borrowers have a steady income that can be assessed, while that of self-employed borrowers may not be as accurate. Hence, the proportion of salaried and self-employed borrowers is a good indicator of the pool's profile.

Analysis of the borrower profile (including credit bureau scores) provides valuable indications about a pool's likely repayment behaviour.

### 4.1.6 IIR

IIR signifies the extent of debt obligations covered by the borrower's income. In other words, IIR constitutes the borrower's monthly debt outflows as a proportion of net monthly income. A low IIR indicates low outflows to service debt, which means a higher amount of free cash flow available to the underlying borrower and, thus, a lower risk of default.

### 4.1.7 Borrower diversification

Borrower diversification ensures that the pool's performance is not overly dependent on the performance of a few borrowers. In a pool with low granularity, that is high borrower concentration, a large proportion of cash flows is expected from a small number of borrowers. Hence, in the event of default by these borrowers, a high proportion of the pool will be at risk. Thus, CRISIL Ratings subjects a concentrated pool to more stressful scenarios than one with lower borrower concentration and applies collateralized debt obligation (CDO) model[4] to gauge the riskiness of the pool. On the contrary, a pool with higher granularity, that is a high number of contracts (say 10,000 or more), is likely to have low borrower concentration and CRISIL Ratings may factor in the benefit of diversification in its analysis.

[4] Refer CRISIL Ratings' criteria on CDO transactions for more details on the model

### 4.1.8 Seasoning profile

Net seasoning refers to the number of instalments paid by the borrower (total seasoning minus overdue status minus moratorium period5). CRISIL Ratings considers net seasoning of the contract as an important performance driver.

As timely instalments are paid, borrower discipline regarding debt repayment is established. A few months of minimum net seasoning filters out cases of fraud to a large extent - it has been observed that borrowers with the intent to defraud the lender usually stop paying the instalments a month or two after disbursement.

CRISIL Ratings takes into account the weighted average net seasoning of the pool at the time of securitisation and the seasoning profile of the contracts in the pool. For pools with principal amortising loans, a pool with a higher weighted average net seasoning will be assumed to have lower risk than a similar pool with lower weighted average net seasoning.

### 4.1.9 Interest rate

Riskier customers are typically charged higher interest rates. A comparison of the weighted average interest rate of the pool with the market interest rate scenario at the time of origination can, therefore, be a reasonable proxy for the credit quality of customers. However, this needs to be seen in light of the regions the originator operates in, and the level of competition in those regions.

Moreover, residential mortgage pools may have a mix of floating rate and fixed rate contracts. If the weighted average interest rate of the pool is higher than the general market rate, the possibility of re-pricing and prepayment increases. Conversely, a pool with a low rate runs a much lower risk on these counts. CRISIL Ratings takes into account these aspects while determining stress levels to be applied in the analysis of such pools.

### 4.1.10 Loan amount

A big ticket loan is generally perceived to be riskier than a small ticket one. This is because a big ticket loan corresponds to a high-value asset, which, in the event of default, may have lower demand during resale. However, the credit quality of the target customer and the location of the underlying asset also need to be considered. For instance, the behaviour of a borrower with a large loan in a metro or Tier 1 city where property prices are higher, may be very different from that of a borrower with a similar loan in a Tier 2 city.

### 4.1.11 Overdue profile

The overdue profile of the pool is analysed in a similar manner as the bucket-wise segregation under delinquency analysis of the portfolio. CRISIL Ratings takes into account the proportion of overdue contracts along with the weighted average seasoning of the pool. Thus, a pool with low seasoning and high proportion of overdue contracts indicates a weak credit risk profile, and carries higher risk of losses. On the contrary, a pool with a low proportion of overdue contracts and high weighted average seasoning would comprise borrowers who have paid instalments on time. Such a pool would carry lower risk of losses.

[5] Moratorium period is the period of the loan tenure when the borrower is not liable to pay instalments. For example, some borrowers may be given a loan for 120 months, but there may be only 117 instalments to be collected from the borrower with the first 3 months being the moratorium period.

## 4.2 Comparison of the pool with the portfolio

CRISIL Ratings also bases its analysis of the pool on the past performance of the originator's portfolio. As securitised pools may often be cherry-picked, the quality of the underlying pool of loans may differ from the portfolio quality. CRISIL Ratings, thus, benchmarks pool characteristics against the portfolio of the originator to evaluate whether the pool is likely to perform better or worse than the portfolio. Accordingly, higher level of losses are assumed where the pool is weaker than the portfolio, whereas due benefit is given in cases where the pool is stronger than the portfolio.

CRISIL Ratings compares the pool and the portfolio characteristics on key parameters such as geography, LTV, interest rate, original tenure, balance tenure, borrower profile, and asset category. The performance is benchmarked with delinquency status such as 90+ dpd or 180+ dpd. This helps to ascertain whether the pool has a better or weaker credit risk profile than the portfolio, for a particular characteristic.

**Illustration 4: Pool versus portfolio analysis**

| State | Portfolio | | Pool proportion |
|---|---|---|---|
| | Proportion | 90+dpd | |
| Andhra Pradesh | 30% | 0.5% | 10% |
| Maharashtra | 20% | 0.8% | 15% |
| Karnataka | 25% | 1.0% | 30% |
| Tamil Nadu | 25% | 1.5% | 45% |
| **Total** | **100%** | **0.9%** | **100%** |
| | | **Weighted average pool quality** | **1.1%** |

This illustration above compares the pool with the portfolio in terms of geographic distribution. The pool derives a greater proportion of its cash flows from Karnataka and Tamil Nadu than the portfolio does. These are the relatively weaker states in the portfolio, as visible from the higher delinquencies in these regions.

On the whole, the weighted average pool quality, after superimposing the 90+ dpd levels seen in the portfolio is 1.1%. This is higher than the portfolio 90+ dpd of 0.9%. This suggests that the pool is weaker than the portfolio and will attract some penalisation. On the contrary, a pool that is better than the portfolio is given appropriate benefit.

CRISIL Ratings performs similar analysis for other parameters such as LTV, interest rate, original tenure, borrower profile, and asset category.

# 5 Interest rate and prepayment risks

## 5.1 Assessment of interest rate risk

Interest on home loans can be charged on a fixed or floating rate basis. Additionally, the yield payable to investors may also be on a fixed or floating rate basis. The floating rate chargeable to borrowers is generally linked to an

internal benchmark of the lender - base rate (or marginal cost of funds based lending rate). Borrowers have an option to switch from floating to fixed rate, or vice versa, at any point during the tenure of the loan by incurring a cost. This switch can affect the interest inflows to the pool frequently and unpredictably.

In case of fixed rate PTCs, the outflows to investors are predetermined, whereas in case of floating rate PTCs, they are arrived at based on benchmarks (such as pool yield, MIBOR). Movement of the base rate may lead to variation in interest inflows and outflows, giving rise to the interest rate risk, also called 'basis risk'. Assessing this risk and building it into the computation of the enhancement levels is a critical step in the process for rating RMBS.

Interest rate movements impact par structures and premium structures[6] differently, as explained below:

### 5.1.1 Interest rate risk under a par structure

If the interest rates on home loans drop below the PTC yield, the transaction would be subject to a 'negative carry', as the income earned on the assets would be insufficient to pay the interest due on the liabilities.

***Illustration 5:*** Assume that home loans in a pool yield, on average, 11% per annum, and that PTCs carry a fixed coupon of 9.5% per annum. Thus, there is an excess interest spread (EIS) of 1.5% per annum. If the loans in the pool get re-priced to an average of 10% per annum, the EIS in the transaction reduces to 0.5%. Subsequently, if the loans get re-priced to a rate lower than 9.5% (PTC yield), it will result in a 'negative carry' in the transaction.

The likelihood and magnitude of these potential shortfalls has to be assessed to determine the sufficiency of the credit enhancement available for the transaction.

### 5.1.2 Interest rate risk under a premium structure

In a premium structure, if the pool yield falls due to downward revision in the base rate, cash inflows to the pool reduce. If the assets earn lower cash flows than are payable to the PTCs, the resulting mismatch will need to be met out of the credit enhancement available.

## 5.2 Assessment of prepayment risk

Home loans offer the flexibility for prepayment of the loans at any point of time. Borrowers may prepay for a variety of reasons such as refinancing at lower rates, higher income levels, or sale of property. Prepayments constitute a risk because they result in a reduction of the outstanding pool principal, and change the timing of cash inflows. Prepayments impact par and premium structures differently.

### 5.2.1 Prepayment risk under a par structure

Prepayments do not have a significant impact on par transactions as the principal prepaid by the borrower (equal to the investor's principal) will be passed on to the investor. However, if loans being prepaid are at rates higher than the weighted average interest rate of the pool, there will be a reduction in EIS[7].

[6] To understand par and premium structures, please refer to CRISIL Ratings criteria document titled 'Primer on evaluation of risks for securitisation transactions'.

[7] Explained in detail below in Section E.2.4.2

### 5.2.2 Prepayment risk under a premium structure

In transactions structured as premium, the investor pays a 'premium' over and above the pool principal in order to acquire all the cash inflows to the pool. In case of prepayment of a loan, the borrower prepays only the outstanding principal and correspondingly saves on the proportionate future interest payable. This leads to lower pool cash flows than initial estimation, thereby reducing the overall inflows available to meet the PTC liability. The resulting shortfall will need to be met out of the credit enhancement available.

## 5.3 How CRISIL Ratings analyses these risks

Re-pricing (interest rate variations) and prepayment play a critical role in an RMBS transaction. To analyse these risks, CRISIL Ratings considers the following factors:

- The interest rate profile of the pool being securitised compared with the interest rate scenario in the market at the time of securitisation
- Historical movement of fixed and floating interest rates offered by the originator compared with those offered by its competitors
- Historical movement of the originator's base rate compared with market benchmarks (such as MIBOR, G-Sec yields)
- Monthly prepayments and re-pricing in pools rated in the past and in the originator's portfolio
- Historical and current geographical spread of the originator's operations

Based on these factors and the rating on the instrument, CRISIL Ratings generates various stressed interest rate and prepayment scenarios. These scenarios evaluate the reduction in EIS or pool cash inflows on account of change in benchmark rate and prepayment rate vis-à-vis PTC yields, resulting in reducing credit protection available from the transaction. Based on this sensitivity analysis, CRISIL Ratings determines the sufficiency of credit enhancement to cover shortfalls associated with the assigned ratings.

# 6 Counterparty and legal risks

## 6.1 Counterparty risk analysis

Counterparty risk primarily comprises two kinds of risks:

1. Servicer risk
2. Commingling risk

### 6.1.1 Servicer risk

In India, the originator usually continues as the servicer for the underlying contracts even after securitisation. Investors in securitisation transactions are exposed to the risk of bankruptcy and non-performance of the servicer, making the servicer the most crucial counterparty in the transaction. While it is legally possible to appoint an independent third-party servicer for a fee, an alternative servicer is unlikely to be able to service the securitised pool with the same efficiency as the originator.

The sustained performance of the servicer throughout the tenure of the pool is a crucial element of the securitisation process. To assess servicer risk, CRISIL Ratings analyses qualitative factors such as:

- Management quality of the servicer - length of experience in the business, goals and strategies of the management
- Size, market position and reach of the servicer
- Collection process and organisation structure of the servicer - collection strategies and follow-up mechanism
- Quality of management information systems (MIS) - critical for efficient monitoring of the performance of the securitised pool

CRISIL Ratings also looks at the servicer's credit risk profile in the context of the pool tenure. Servicer risk analysis indicates whether there is a need for a back-up servicer. If there is a back-up servicer, CRISIL Ratings carries out the same analysis for such a servicer, apart from evaluating the following factors:

- Familiarity of the back-up servicer with the primary servicer's operations
- Back-up servicer's track record in the asset segment
- Size and geographical spread of the pool vis-à-vis the backup servicer's operations

In such cases, CRISIL Ratings will appropriately factor in the cost of bringing in a back-up servicer, including the potential deterioration in collection performance.

### 6.1.2 Commingling risk

This risk refers to the mixing of pool collections with the servicer's own cash flows. In Indian securitisation transactions, the servicer typically collects instalments from the underlying borrowers in the pool in a particular month and deposits the money into a collection and payout account[8] (CPA) set up for the securitisation transaction in the next month. In the interim, the collections lie with the servicer and may commingle with the servicer's own cash flows. While these collected amounts are held in trust by the servicer, if the servicer goes bankrupt, there could be partial or total loss of commingled amounts, or delayed recovery due to legal proceedings. CRISIL Ratings assesses the risk of bankruptcy of the servicer by analysing the credit risk profile of the servicer.

## 6.2 Legal risk analysis

Legal risk assumes great importance in securitisation transactions. Instruments issued under securitisation transactions may have a rating different from that on a plain vanilla instrument issued by the originator. The main reason for this is that the SPV is bankruptcy remote from the originator. Bankruptcy remoteness requires that the assets belonging to the SPV will not be attached with the assets of the originator in the event of bankruptcy of the originator.

Legal risk analysis comprises an analysis of:

- Valid sale of the pool receivables to the SPV
- Bankruptcy remoteness of the pool and cash collateral

[8] Also referred to as trust and retention account (TRA) or any other relevant terminology as used in transaction terms

- Compliance with local laws such as those related to stamp duty payment and registration

For details on legal risks, please refer to CRISIL Ratings opinion piece 'Evaluating risks in securitisation transactions - A primer, available on www.crisil.com.

# 7 Cash flow analysis and credit enhancement

## 7.1 Cash flow analysis

After the aforementioned analysis, CRISIL Ratings creates a customised cash flow model for the transaction. The cash flow model comprises three major steps:

1. Projection of pool collections (inflows)
2. Projection of investor payouts (outflows)
3. Comparison of inflows with outflows

### 7.1.1 Projection of pool collections (inflows)

Based on an analysis of the static pool and moving portfolio delinquencies, CRISIL Ratings arrives at the base case shortfall assumption for the pool. Pool collections are projected based on this assumption and stress cases are then built up to derive the stressed inflows from the pool. Stresses are determined keeping in mind the following factors:

- Specific rating for the instrument
- Comparison of the pool with the portfolio
- Volatility in historical asset performance of rated pools
- Prepayment expectations
- Sensitivity to interest-rate movements
- Track record of the originator (or lack thereof)
- Geographical concentration
- Borrower concentration

### 7.1.2 Projection of investor payouts (outflows)

Depending on the structure of the transaction and the priority of payment, the expected investor payouts are calculated. These payouts represent the total outflows payable to the investors. The investor payouts are calculated for each scenario of interest rate variation and prepayments.

### 7.1.3 Comparison of inflows with outflows

Once the pool inflows and outflows are computed, they are compared on a monthly basis to derive monthly surpluses or shortfalls. These monthly shortfalls/ surpluses are cumulated to find out the cumulative shortfalls at the end of each month. The peak of these monthly cumulative shortfalls is a key input in determining

the enhancement requirement for the investors as it represents the maximum shortfall that needs to be covered during the transaction tenure.

## 7.2 Forms of credit enhancement

In the Indian context, credit enhancement is typically provided by the originator. Credit enhancement can be split into two broad categories:

1. External credit enhancement
2. Internal credit enhancement

As per RBI Master Direction – Reserve Bank of India (Securitisation of Standard Assets) Directions, 2021, the original amount of credit enhancement can be reset and the excess withdrawn by the credit enhancement provider subject to the RBI guidelines.

### 7.2.1 External credit enhancements

External credit enhancements are forms of credit enhancement that expose investors to counterparties other than the underlying borrowers. They may be classified as:

- Cash collateral
- Bank guarantee or corporate guarantee

### 7.2.2 Cash collateral

Credit enhancement can be maintained in the form of cash or equivalents. This includes cash deposited in a designated cash collateral account, fixed deposits, or investments in liquid mutual funds. The cash collateral account can be operated only by the trustee. Any shortfall in investor payouts can be met by the trustee by drawing on the cash collateral account.

For cash collateral maintained in the form of fixed deposits, the credit quality of the bank holding the fixed deposit also becomes a consideration while evaluating the transaction. If cash collateral is in the form of investments in liquid mutual funds, the credit quality rating/ rating view (CQR) of the fund is analysed.

### 7.2.3 Bank or corporate guarantee

Originators sometimes arrange for a bank guarantee or give a corporate guarantee as credit enhancement. These forms of enhancement work in a similar manner as cash collateral. For meeting shortfalls, the trustee will send a notice to the guarantor invoking the guarantee. For bank guarantees, CRISIL Ratings considers the credit rating of the bank to evaluate the counterparty risks. If the credit enhancement is in the form of a corporate guarantee, CRISIL Ratings evaluates the counterparty risks based on the credit rating of the guarantor.

### 7.2.4 Internal credit enhancements

Internal forms of credit enhancement are available on account of the structural features of the transaction. These may be further classified as:

- Subordination and over collateralisation
- EIS

#### *7.2.4.1 Subordination and over-collateralisation*

Multiple instruments (tranches) of senior or subordinated nature may be issued under a securitisation transaction. An instrument is classified as senior or subordinated based on the waterfall mechanism for the transaction.

A senior instrument will be first entitled to the pool collections, followed by the subordinated tranche. The subordinated instrument provides a cushion against shortfalls in pool collections for the senior investor payouts.

Over-collateralisation for a given tranche is the extent of protection offered by its subordinate tranches.

**Illustration 6: Subordination in securitisation transactions**

If the scheduled pool EMIs in a month are Rs 100 and senior investor payouts are Rs 90, the subordinated strip accounts for the remaining Rs 10. The collections from the pool will first be allocated to the senior investor; only the balance, if any, will be paid to the investor in the subordinated instrument. If the pool collections are Rs 95 in that month, Rs 90 will be paid to the senior investor and the balance Rs 5 is paid to the investor in the subordinated strip. However, if the collections were only Rs 90 or lower, the entire pool collections are paid to the senior investor.

#### *7.2.4.2 EIS*

EIS represents the difference in interest yield on the pool assets and the yield payable to the investors. EIS in transactions structured at par is typically subordinated to the investor payouts. The effect of EIS is, therefore, similar to that of over-collateral. If there are any shortfalls in the pool inflows, the EIS will first be utilised to meet these shortfalls. The remaining EIS may then either flow back to the originator or be trapped in the TRA. EIS, when trapped on a monthly basis, is available to meet shortfalls in the subsequent months as well. However, prepayments and re-pricing may result in substantial variations in the EIS in the pool.

**Illustration 7: EIS**

Consider a pool with inflows comprising Rs 100 of principal and Rs 20 of interest, and outflows (PTC payouts) comprising Rs 100 of principal and Rs 12 of interest. The difference of the interest inflows and outflows, Rs 8 in this case, represents the EIS in the transaction.

### 7.2.5 Minimum cash collateral requirement

CRISIL Ratings believes that a minimum cash collateral/ guarantee is needed in the structure for contingencies which could affect the performance of securitisation transactions that are entirely dependent on the collections from the underlying pool being passed on to the trust and eventually to the investors in a timely manner, typically on a monthly basis. Such contingencies may arise on account of:

Event-related liquidity stresses: In case of event-based disruptions (for instance, disruptions to collections due to lockdowns instituted during the COVID-19 pandemic and regulatory support to borrowers through moratoriums), collections in months affected by the event could be very low, necessitating the presence of cash collateral to absorb pool losses during these months and provide liquidity to the transaction to tide over steep collection stresses.

MIS or banking failures: Securitizations can be exposed to operational risks due to the involvement of multiple counterparties such as the servicer, trustee and collection and payout (C&P) account bank. These operational risks are typically addressed through adequate operational buffers in terms of clearly defined payment timelines for deposit of collections by the servicer, monitoring of C&P account by the trustee, invocation of external credit enhancement / cash collateral to bridge any shortfalls between investor payouts and pool collections, and transfer of payouts to the investors by the trustee. However, any operational challenges, such as delays in generation of servicer MIS due to system breakdowns or banking system failures resulting in delays in transfer of collections to the C&P account could affect timely payouts to investors, which can be addressed through the presence of minimum cash collateral in the structure which can be drawn down to make investor payouts.

## Conclusion

The CRISIL Ratings criteria for rating RMBS transactions includes the key parameters that may impact the credit quality of securitised instruments. Quantitative parameters such as delinquencies, pool and portfolio characteristics, interest rate and prepayment, counterparty credit ratings and cash flow projections along with qualitative factors relating to the originator's processes, the servicer's capabilities and legal aspects of the transaction are critical to determine the sufficiency of credit enhancement in securitisation transactions.

# List of abbreviations used

| MBS | Mortgage-backed securitisation |
|---|---|
| RMBS | Residential mortgage-backed securitisation |
| LAP | Loans against property |
| Dpd | Days past due |
| POS | Principal outstanding |
| LTV | Loan-to-value |
| IIR | Instalment-to-income ratio |
| PTC | Pass-through certificate |
| SPV | Special purpose vehicle |
| CQR | Credit quality rating |
| EIS | Excess interest spread |
| TRA | Trust and retention account |
| MIS | Management information system |

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