Crisil
Ratings

Crisil Ratings criteria for securitisation transactions

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Contents

Section I.
Evaluating risks in securitisation transactions - A primer

1 Executive summary

A securitisation transaction is very different from conventional lending. In the latter, a lender advances loan to a borrower and receives principal repayment and interest payment over time. In the former, the lender sells the right to receive future payments from the borrower to a third party and obtains a consideration for it much before the actual maturity of the original loan. Given this distinction, investors in securitisation transactions encounter risks quite different from those involved in conventional lending. Therefore, analysis of risks in securitisation transactions requires a separate framework.

The following four categories of potential risks provide the starting point for a meaningful analysis of securitisation transactions:

- **Credit risk** arises on non-payment by underlying borrowers in the pool of loans because of the inability or unwillingness to pay. Analysis of the nature of the underlying asset class, robustness of the origination processes, past performance of the originator's overall portfolio and pool characteristics will provide pertinent insights into the credit risk associated with the underlying borrowers.
- **Counterparty risk** arises on account of non-performance of counterparties involved in the transaction. The key counterparties to be analysed are the servicer, the designated bank and the swap counterparties. Crisil Ratings assesses counterparty risk using a combination of qualitative and quantitative factors; it analyses the quality of the processes and systems at the counterparties and, where required, employs credit rating as a proxy for the ability of the counterparties to perform over the tenure of the transaction.
- **Legal risk** arises if the originator goes bankrupt and there is a possibility that the bankruptcy court may attach the securitised receivables and decide that the pool cash flow should not be specifically earmarked to the investors in the securitisation transaction. To assess this risk, Crisil Ratings studies the relevant transaction documents and requires the originator to furnish an independent legal opinion addressing the relevant legal issues and uncertainties associated with the transaction. Crisil Ratings then conducts a detailed analysis of the legal documents to assess whether there is a valid sale of the securitised assets and whether these assets are bankruptcy remote from the originator.
- **Market risk** arises on account of factors external to securitisation transactions such as prepayment of loans, movement in interest rates and macroeconomic factors. Crisil Ratings incorporates these risks in its analysis by applying stress levels commensurate with the transaction structure.

2 Scope

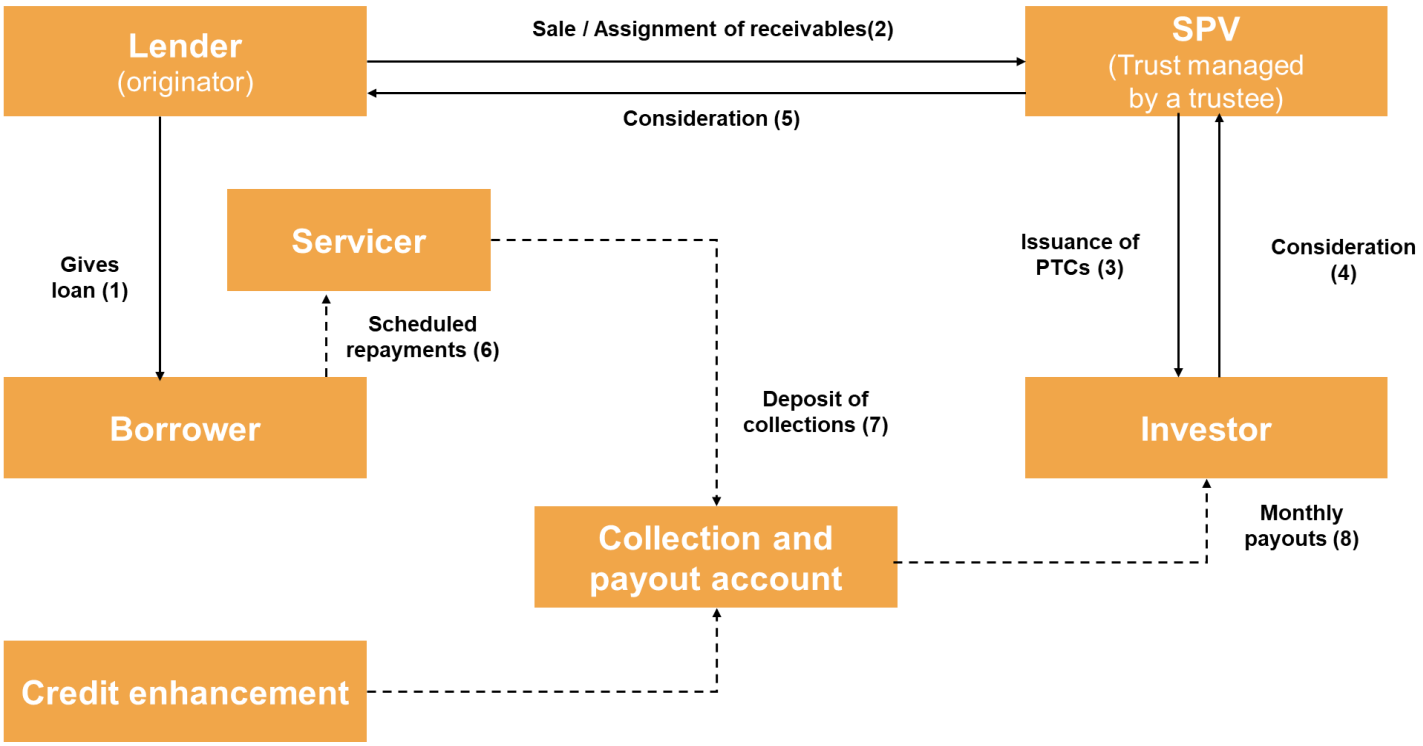
This section[1] provides an introduction to the risks faced by investors in securitisation transactions. It also throws light on the Crisil Ratings analytical framework for evaluating such transactions, the criteria for identifying the risks in a transaction and assessing whether these risks are commensurate with the rating assigned. The risk assessment framework discussed here is applicable to pass-through certificates (PTCs) as well as direct assignment transactions.

[1] *For the previous version of this article please refer to the link below:* *https://www.crisilratings.com/content/dam/crisil/criteria_methodology/structured-finance/archive/primer-on-evaluation-of-risks-in-securitisation-transactions-aug2023.pdf*

3 Understanding securitisation

Typically, securitisation transactions involve sale of loan receivables by the originator (a bank, non-banking finance company [NBFC], housing finance company or a manufacturing/ service company) to an intermediary (a special purpose vehicle [SPV]), typically set up as a trust (Chart 1). The SPV issues PTCs to the investors and the proceeds are paid as a consideration to the originator. In this manner, the originator, by selling its loan receivables to the SPV, receives a consideration from the investors much before the maturity of the underlying loans. Collections from the underlying loans held by the SPV are passed on to the PTC investors. The transaction is provided with limited credit support or credit enhancement in the form of fixed deposits or guarantees, which provides protection to investors against defaults by the underlying borrowers.

Chart 1: A typical securitisation transaction structure



In short, the basic characteristics of a typical securitisation transaction are as follows:

- Receivables are sold to the SPV
- Investors subscribe to PTCs issued by the SPV and can, therefore, be repaid only out of collections from the underlying receivables held by the SPV
- As the originator has **sold** the receivables, the investors' recourse to the originator is limited to the credit enhancement provided by the originator at the time of securitisation

An alternative securitisation structure, called a direct assignment, is also prevalent in the market. Direct assignment transactions involve assignment of a pool of loan receivables directly to the investor without any association with the SPV.

Credit enhancement is not permitted in direct assignment transactions involving banks or NBFCs as either a buyer or seller as per the current regulations[2].

3.1 Common cash flow structures used in securitisation transactions

Structures have evolved based on the risk appetite of the investor, tenure preferences and issuer requirements. The common structures include:

- **Fully amortising structures**

  Fully amortising structures are designed to closely reflect the full repayment of the underlying loans through interest and principal payment. Here, the principal is repaid to the investor along with interest over the tenure of the PTC. This is different from bullet structures where the entire principal is repaid at maturity.

- **Par and premium structures**

  In par structures, the investor pays a consideration equal to the pool principal outstanding (par value). In return, the investor is entitled to receive scheduled principal repayments from the pool of receivables along with a pre- decided rate of interest. Par structures have an element of excess interest spread (EIS) generated, wherein the yield of the pool is higher than that on the PTCs. The originator has the right to receive the EIS amount.

  A premium structure is one where the investor pays a consideration greater than the pool principal outstanding for the right to receive all the cash flow arising from the securitised assets.

- **Senior subordinate structures**

  Cash flows from securitised assets can be carved into multiple classes/ tranches of securities with different tenures and risk profiles. The senior class is accorded the first claim on cash flow from the pool, whereas the subordinate class has a lower claim. Thus, in the event of shortfall in the pool collections, the subordinate class provides a cushion to the payments on the senior class.

- **Fixed and floating rate structures**

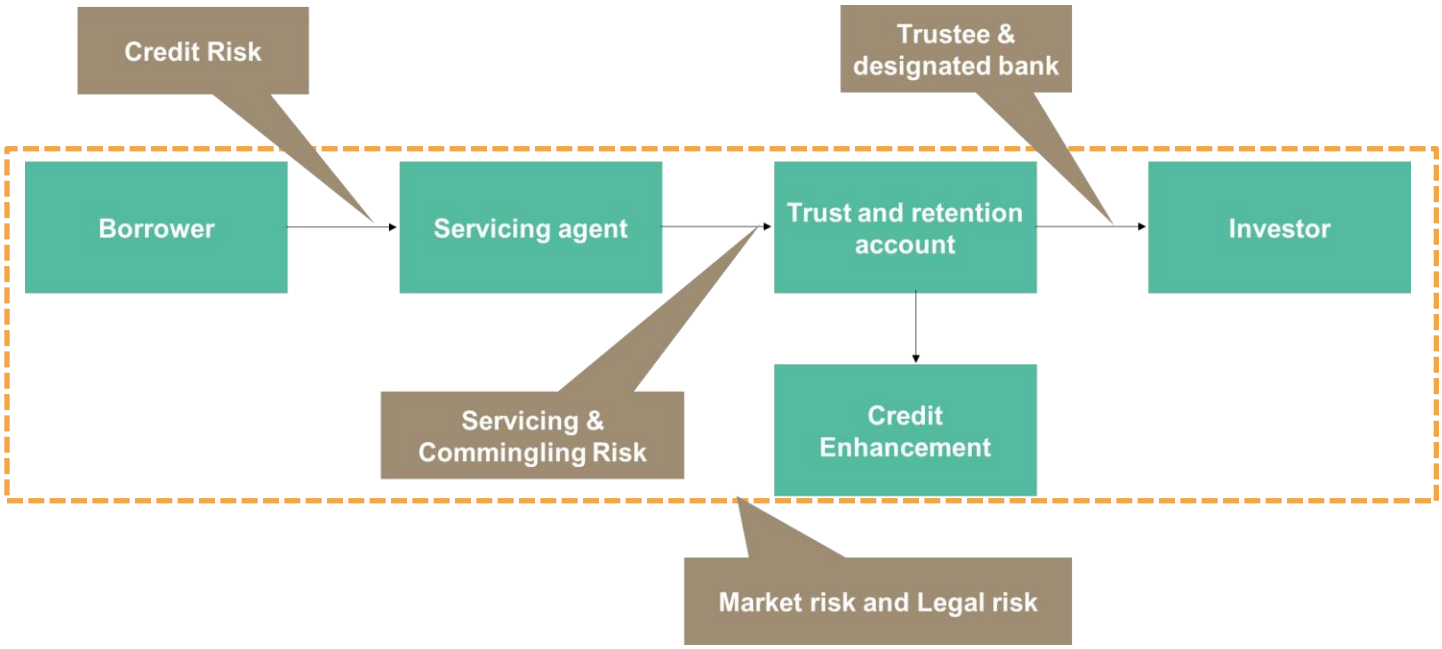
  PTCs can be issued at fixed as well as floating rates of interest. A floating rate of interest is linked to a designated index or benchmark rate. If the underlying pool comprises fixed rate loans, then floating coupon rates introduce an element of interest rate risk in the transaction. This risk can be mitigated by using an interest rate swap with a swap provider.

4 Framework for analysing risks and mitigants

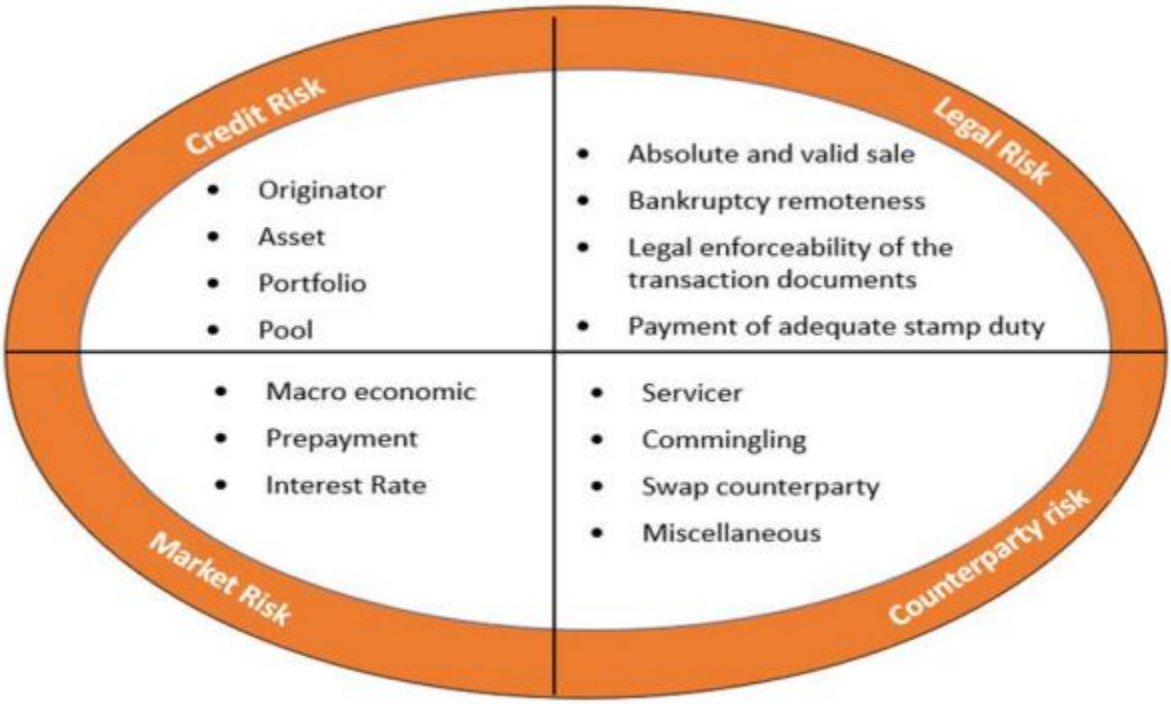
Investors in a securitisation transaction are exposed to several risks at each stage of the transaction. The schematic representation below shows the potential sources of risks in a typical securitisation transaction.

[2] *Please refer to the Reserve Bank of India (RBI) Master Direction – Master Direction – Reserve Bank of India (Securitisation of Standard Assets) Directions, 2021*

Chart 2: Risks in a typical securitisation transaction



Crisil Ratings, in its analysis of securitisation transactions, uses a four-quadrant framework to identify, classify and evaluate risks. All the relevant risk factors identified (as shown in the schematic diagram above) fall under one of the four quadrants.



The four quadrants represent the fundamental risks in any securitisation transaction.

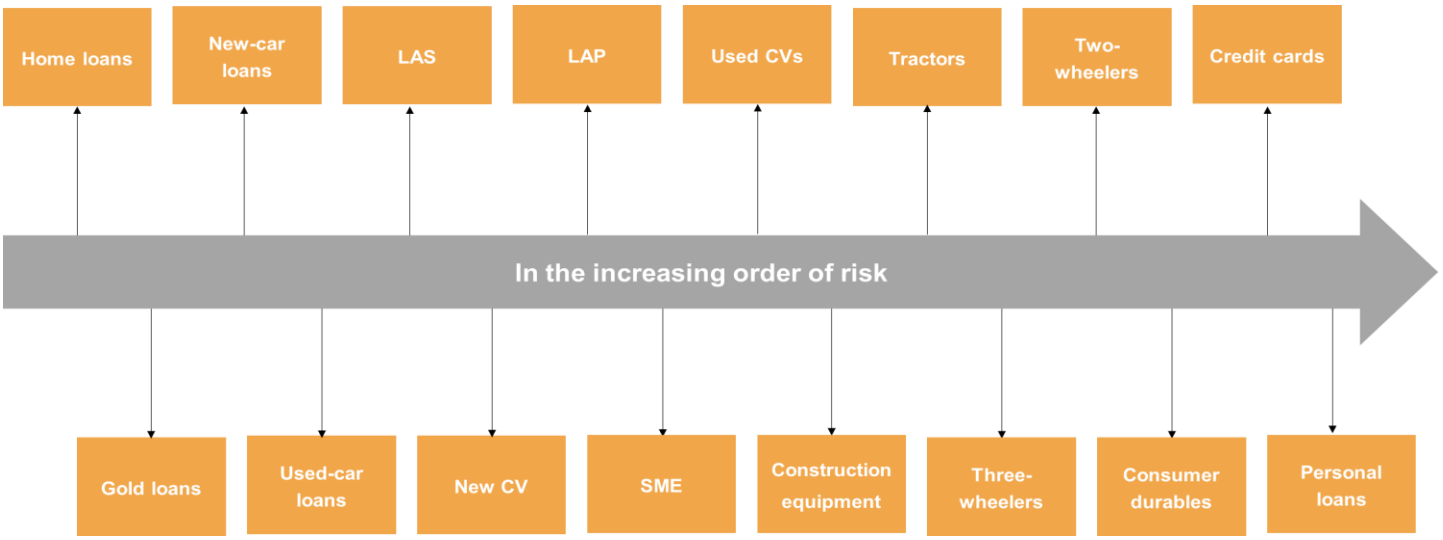
- **Credit risk** or the risk of default by the underlying borrowers
- **Counterparty risk** or the risk of failure of the counterparties involved in the transaction
- **Legal risk** or the risk centred around sale and transfer of receivables from the originator to the SPV
- **Market risk or risks arising because of the macroeconomic environment**

4.1 Credit risk

Credit risk forms a critical element in the analysis of securitisation transactions. Typically, in securitisation transactions involving a pool of loans, credit enhancement is provided to cover shortfalls in pool collections vis- à-vis investor payouts, primarily on account of defaults by the underlying pool borrowers. The level of credit enhancement is sufficient to cover shortfalls in pool collections commensurate with the assigned ratings. For determining the sufficiency of credit enhancement, the key factors evaluated are:

4.1.1 Asset risk

The nature of the underlying assets is a crucial indicator of the performance of the pool. For instance, receivables backed by home loans extended to salaried borrowers display a completely different collection pattern compared with receivables backed by commercial vehicle (CV) loans. The Crisil Ratings risk continuum provides a fair indication of the relative risk levels in the underlying retail loan assets, which is duly factored in when determining the sufficiency of credit enhancement for various asset classes. Everything else remaining constant, low risk assets need lower credit enhancement than high risk assets. However, in the case of securitisation transactions involving corporate loans, the analysis focuses primarily on Crisil Ratings' credit view on the underlying borrower(s).



4.1.2 Originator risk

The originator of the assets plays a key role in the transaction. 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 assets. While strong origination systems and processes enhance the quality of assets, inadequate origination systems and ineffective processes lead to poor quality of assets. A robust risk control mechanism and availability of strong management information systems (MIS) are other prerequisites for the creation of a strong portfolio. Crisil Ratings undertakes a detailed analysis of the originator's processes, right from the generation of leads to post-disbursal documentation and collection processes to gain insights into the quality of asset creation. This analysis provides key inputs for the evaluation of the pool being securitised.

4.1.3 Portfolio risk

The pool to be securitised is to be carved out of the portfolio consisting of a set of outstanding loans disbursed by the originator. The originator's track record in this asset class and past delinquency patterns of the portfolio could provide pointers on the possible performance of the securitised pool. For example, historical losses in an originator's car loan portfolio could be used as a leading indicator of possible future losses in a car loan pool. In addition, the delinquency levels of an originator's portfolio are compared with those in the same asset class for other originators as part of the benchmarking process adopted by Crisil Ratings.

Portfolio analysis is a key component of the risk assessment framework in a securitisation. It is conducted in two forms: static pool analysis of past originations and dynamic portfolio analysis to understand the performance of recent originations. This is discussed below in detail in section II on 'Crisil Ratings methodology for ABS transactions'.

4.1.4 Pool risks

The quality of the pool is a crucial element in assessing credit risk. Crisil Ratings takes into consideration pool characteristics such as pool seasoning (or the number of instalments paid by the borrower to date—the higher the seasoning, the better the quality), overdue at the time of selection and loan to value (LTV) ratio, as these are good indicators of the future performance of the pool.

Furthermore, Crisil Ratings benchmarks pool characteristics with the overall portfolio characteristics to identity positive or negative deviation in the pool quality from the portfolio quality. The parameters compared include geographic distribution, LTV, original tenure, borrower profile and interest rate. Based on the benchmarking, if the pool is ascertained to be weaker than the portfolio, Crisil Ratings applies a higher level of stress on the pool cash flow. On the contrary, if the pool appears to be cherry-picked based on a positive selection criteria, the stress levels applied will be commensurately lower.

Crisil Ratings also evaluates whether the pool is exposed to concentration risks at the borrower as well as geographical level. All else remaining equal, a concentrated pool would display higher variability in performance and, hence, would require greater credit enhancement compared with a granular pool. The geographic concentration is evaluated at a state, city or district level depending on the asset class. For instance, for a residential mortgage-backed securitisation transaction involving housing loans, geographic concentration is evaluated at a city level, as real estate trends are fairly local, whereas for microfinance loans, the concentration is usually evaluated at the state and district levels.

4.2 Counterparty risk

Several counterparties are involved in a securitisation transaction and their steady performance is crucial for the smooth functioning of the transaction. In a securitisation transaction involving a pool of loans, the credit risk is modelled to determine the sufficiency of credit enhancements. However, counterparty risks are typically digital in nature and are too large to be modelled to determine the sufficiency of the credit enhancement. Stringent counterparty selection and replacement requirements form the basis of the criteria to ensure counterparty risks are commensurate with the assigned rating. Key counterparty risks to be factored in a typical transaction are:

4.2.1 Servicer risk

The servicer plays a crucial role in a securitisation transaction in the Indian context, especially in transactions involving retail assets. Investors are susceptible to the risk of bankruptcy and non-performance of the servicer. Consequently, the sustained performance of the servicer over the tenure of the pool becomes a crucial element of the securitisation process.

Crisil Ratings evaluates the quality of the management team; the collection processes, strategies and follow- up mechanisms; and the quality of the MIS systems of the servicer. Crisil Ratings also considers the tenure of the securitised instrument and the credit rating of the servicer, which is taken as a proxy for its ability to continue servicing the pool over the tenure of the transaction.

4.2.2 Commingling risk

In most securitisation transactions, there is a time lag between pool collections and investor payouts. Typically, the servicer collects money from the underlying borrowers in the pool in a particular month and deposits that amount into the trust and retention account in the next month. In the interim, the money collected lies with the servicer and may commingle with its own cash flow. While the collected amount is held in trust by the servicer, in the event of the servicer going bankrupt, there could be total or partial loss or delay in recovery of the commingled amounts on account of legal proceedings.

As monthly pool collections are commingled only for a short period of time, the short-term credit quality of the servicer determines the commingling risk. Consequently, Crisil Ratings takes into account the relevant short- term credit rating of the servicer while evaluating the commingling risk.

4.2.3 Swap counterparty risk

In securitisation transactions, interest rate swaps (IRS) can be used to mitigate the interest rate risk (defined under the section ‘Interest rate risks’ within ‘Market risks’). In transactions that employ IRS, the payouts to investors depend on the payments received from the IRS counterparty. Hence, the credit risk of the IRS counterparty is relevant to the transactions.

Counterparty risk linked to credit enhancement

Credit enhancement can be provided in two ways:

- Cash collateral, which involves maintaining credit enhancement in the form of cash and equivalents
- Guarantee, where the originator arranges for a bank or corporate guarantee for the equivalent amount

If the cash collateral is in the form of a fixed deposit, investors are exposed to the credit risk associated with the bank holding the fixed deposit. Likewise, if a guarantee is provided, investors are exposed to the credit quality of the bank or the corporate entity providing the guarantee. Consequently, Crisil Ratings factors in the risks arising from these counterparties in its analysis.

A detailed discussion on the Crisil Ratings methodology to incorporate counterparty risks in its analysis can be found in Dthe ‘Forms of Credit Enhancement’ subsection within section II (below) on ‘Crisil Ratings methodology for ABS transactions’.

4.3 Market risks

Market risks represent risks extraneous to the transaction and include market-related factors that impact the performance of the transaction. For instance, a change in interest rates could impact the prepayment rates for assets. Similarly, a change in real estate prices could impact the performance of securitisation transactions backed by home loans.

Crisil Ratings incorporates the relevant market risks into its analysis by stressing the cash flow based on the transaction structure and underlying asset class. Thus, the initial sizing of credit enhancement for the transaction factors in the appropriate level of market-related risks.

4.3.1 Macroeconomic risks

The performance of the underlying loan contracts depends on macroeconomic factors, such as industry downturns or adverse price movements of the underlying assets. For instance, a sustained decline in industrial production may result in a slowdown in the transportation industry. This may strain the cash flow of truck operators, which, in turn, may impact repayments on CV loans. Similarly, a steep fall in the prices of the underlying trucks may increase chances of default. The borrower may prefer defaulting on the loan and letting the finance company repossess and sell the truck rather than retaining it and continuing to pay instalments on time.

Crisil Ratings applies the appropriate stress levels to the cash flow arising from the underlying assets to factor in these risks.

4.3.2 Prepayment risks

A combination of prepayments and volatile interest rates represents a difficult situation for investors. Typically, prepayments of retail loans increase with a reduction in interest rates, leading to a reinvestment risk for investors. Investors may receive their monies ahead of schedule and may not be able to reinvest the amount at the same yield. In certain structures, separate prepayment strips could be carved out of the pool cash flow, which would be susceptible to volatility in the cash flow on account of prepayments in the pool being passed on to them. The prepayment strip ensures that other investors (other than those who have invested in the prepayment strip) are protected from volatility in the cash flow until such time that cumulative prepayments in the pool exceed the prepayment strip. Crisil Ratings incorporates the relevant prepayment assumptions in its analysis of securitised instruments.

4.3.3 Interest rate risks

Crisil Ratings has rated transactions with ‘basis risk’, where the loans in the pool are based on a floating rate, while investor payouts are based on a fixed rate or vice versa. This results in an interest rate mismatch and can lead to a situation where the pool cash inflow, even at 100% collection efficiency, is not sufficient to make investor payouts. For such structures, Crisil Ratings evaluates various interest rate scenarios to factor the interest rate risk into the credit enhancement. Interest rate swaps may be used in certain transactions to transform interest rate risk into a counterparty credit risk.

All debt and debt-like investments suffer from interest rate risks as any movement in interest rates has a direct linkage to the value of the security. However, Crisil Ratings does not address risks related to volatility in the value of the rated instrument.

4.4 Legal risks

Securitisation-specific legislation and a long track record of judicial decisions lend a high degree of predictability to the legal position on securitisation transactions and facilitate the creation of transparent and well-established legal criteria for such transactions. However, in the Indian context, such transactions are structured by the counterparties within the framework of RBI guidelines, the Transfer of Property Act, 1882, Indian Trust Act, 1882

Indian Contract Act, 1872 and applicable stamp laws.

Securitisation transactions in India are primarily carried out through two routes:

- Pass-through certificate issued by a special purpose vehicle (SPV)

- Direct assignment of loans

The RBI has issued guidelines[3] for securitisation and direct assignment transactions, which stipulate conditions for carrying out such activities in India. One of the basic conditions for securitisation is absolute and valid sale of the assigned assets, which ensures that the underlying assigned assets are not impacted by the bankruptcy of the seller after the sale. An assignment shall be valid and bankruptcy remote when the assets transferred are put beyond the reach of the originator or its creditors even in voluntary or involuntary bankruptcy proceedings and/or administration and the transferee have unrestricted rights to the asset. A valid and absolute sale shall establish that the rights and duties with respect to the assets are transferred to the buyer and these assets are, therefore, bankruptcy remote from the originator's estate. Any dispute over the legal ownership of the assets is likely to result in uncertainty regarding investor payouts from the pool cash flow. Furthermore, an unfavourable ruling by an Indian court could result in outright loss for the investors, apart from raising questions over the basic concept of securitisation.

While Crisil Ratings evaluates all pertinent legal risks in a securitisation transaction, the assessment of the bankruptcy remoteness and validity of the sale aspect is of paramount importance. Therefore, all transactions are backed by independent external legal opinion on the bankruptcy remoteness and validity of the sale alongwith the enforceability of the transaction documents by the transaction counsels.

Crisil Ratings' legal risk evaluation framework

The Crisil Ratings framework for evaluating legal risks in a securitisation transaction covers risks that could be detrimental to investors and the mitigating factors for such risks. While Crisil Ratings uses its methodology for evaluating credit, market and counterparty risks, legal risks need to be examined through the documents provided to Crisil Ratings as part of the transaction.

The three key aspects evaluated by Crisil Ratings under this framework are:

a) Bankruptcy remoteness

b) Stamp duty

c) Nature of credit enhancement

a) Bankruptcy remoteness

As highlighted earlier, bankruptcy remoteness of the receivables and the credit enhancement is the building block of a securitisation transaction and the most important aspect in the legal risk evaluation framework. A test of bankruptcy remoteness will establish that the assets/exposures transferred are put beyond the reach of the originator or its creditors even in voluntary or involuntary bankruptcy proceedings and/or administration and the transferee have unrestricted rights to the assets Hence, Crisil Ratings examines this through the transaction documents which is also backed by an independent legal opinion from an external legal counsel

Crisil Ratings examines the following to ensure that the sale of receivables is bankruptcy remote:

a.1) Extent of recourse to the originator and risk retained by the originator in the assets

A valid and absolute sale occurs when the seller effectively transfers all risks and rewards pertaining to the asset to the buyer. This would result in the buyer having no recourse to the seller after the sale, except to the extent of credit enhancements (if any) provided by the seller. It is important to consider the extent to which the investor will have recourse to the originator, as this reflects the risk retained in the assets by the originator.

[3] *These guidelines are applicable to counterparties regulated by the RBI.*

The higher the level of risk retained by the originator, the greater the chances that the courts may not consider the assets as having been transferred from the balance sheet of the originator. There is a possibility that in cases where the originator retains a high level of risk in the assets, the courts may reclassify the securitisation as 'secured borrowing' by the originator. This would vitiate the bankruptcy remoteness of the transaction. Therefore, Crisil Ratings may regard transactions with unusually high risk retention by the originator as being inconsistent with the RBI guidelines.

If the originators or investors are regulated by the RBI, the transaction should be compliant with its applicable guidelines. Among the various conditions, the originator needs to adhere to the minimum retention requirement. This is primarily designed to ensure that originators have a continuing stake in the performance of the securitised assets to ensure they carry out proper due diligence of the loans to be securitised.

In India, the originator usually continues as the servicer of loans in securitisation structures. Crisil Ratings believes this does not violate validity of the sale as long as there are no additional liabilities taken on by the originator beyond fulfilling the role of a servicer collecting payments from the borrowers in the pool.

a.2) Option and obligation to repurchase assets

A securitization transaction should result in a complete transfer of risks and benefits, and the seller should not be obligated to repurchase assets or support the transaction after the sale of assets unless it is done through invocation of a clean-up call option in terms of the RBI guidelines. Some transactions in the PTC structure may have a call option. The threshold at which the originator can exercise the call option should not be more than 10% of the original value of the underlying exposures or securitization notes.

Nevertheless, in transactions where the terms may require the SPV to use cash collections during the revolving period of the transaction to buy fresh assets from the originator (based on the predefined eligibility criteria being met), Crisil Ratings does not consider such provisions as being inconsistent with the regulatory requirements.

a.3) Intention of the parties

As with most legal analysis, the intention of the parties is important to establish an absolute and valid sale and is often scrutinized by the courts to determine the same. Therefore, it is important that the language used in transaction documents clearly conveys the intention of the parties and that the nuances of the transaction do not have the potential to vitiate the validity of the sale. For instance, the price at which the assets are purchased is an important consideration for establishing the intention of the parties. An unfair purchase price can be scrutinised by the courts and could question the validity of such sale of the transaction. Crisil Ratings examines each transaction document to check that the terms of the proposed transaction (as shared by the originator in the term sheet/draft information memorandum) are appropriately incorporated in the executed documents.

a.4) Extent of control retained by the originator over the assets

For a transaction to be valid and bankruptcy remote of the originator, the originator should have minimal control over the sold assets. The transferred exposures should be legally isolated from the originator in such a way that the exposures are put beyond the reach of the originator or its creditors, even in bankruptcy specially voluntary and involuntary Insolvency proceedings and/or administration and the transferee have unrestricted rights to the assets. Hence, Crisil Ratings will examine such covenants and analyse the level of control that the originator continues to have following the sale.

a.5) Appointment of originator as servicer

In India, the originator usually continues as the servicer of the assets in securitisation transactions due to lack of backup servicers. While the appointment of the originator as the servicer is prima facie not considered to be a violation of the validity of the sale, the details of the obligations of the servicer are examined. For instance, if the servicer indemnifies the transferee from payment defaults by the obligors or if the originator takes on servicing of assets without adequate

consideration, this could vitiate the validity of the sale. While transactions may not have an adequate servicer fee[4], Crisil Ratings believes the servicer consideration is factored into the purchase price upfront in most transactions.

Additionally, the transferee could have the right to appoint another servicer if the originator fails to comply with the terms of the servicing agreement. Such a right gives greater control to the transferee.

Crisil Ratings also bases its analysis of a transaction on an independent legal opinion. For each transaction, we require the originator to obtain a legal opinion from an independent counsel confirming that the transfer of assets is valid and absolute sale.

b) Stamp duty and registration laws

Stamp duty is an important issue unique to securitisation transactions executed in India. Indian states are empowered to determine their own stamp duty rates, which vary widely among states.

Crisil Ratings examines the executed documents in each transaction and requires representations and warranties from the originator and an independent legal opinion confirming that the documents adhere to the relevant stamp and registration laws. The reasons for this are:

b.1) Consequences of stamp duty evasion

The consequences of evading stamp duty are serious. In terms of the Indian Evidence Act, 1872, documents that are required to be stamped and have not been duly stamped (either unstamped or inadequately stamped) cannot be adduced as evidence in a court of law. This renders the documents unenforceable, unless the deficient stamp duty is paid at the time of enforcement. Additionally, an inadequately stamped document attracts an enormous penalty, sometimes up to 10 times the deficiency in stamp duty paid.

b.2) Bearing the cost of stamp duty

The stamp duty payment liability is usually decided by way of contract between the parties to any transaction. In the absence of such an agreement, the general rule is that the person claiming the benefit of the document should bear the stamp duty levied on that document. It is important to note this because the person liable to pay the stamp duty is also liable to pay penalties or fines, if any, with respect to the same.

b.3) Differential rates of stamp duty

Stamp duty laws vary across states. Because of the differential stamp duty rates, if a document executed in one state is taken to another, it is liable to be stamped in the second state if the stamp duty there is higher. Therefore, it is essential that the underlying security (if any) for the transferred receivables is located in states with similar or a lower stamp duty than the state in which the transfer document has been executed.

Crisil Ratings examines the transaction documents to evaluate whether the transaction complies with the relevant stamp duty regulations so that no future liability arises on this account to the investors.

b.4) Registration of documents transferring interest in immoveable assets

In terms of the Transfer of Property Act, 1882, any document evidencing the transfer of immoveable property or interest in immoveable property has to be registered with the registrar of land records for the area where the property is located. Documents that transfer legal or beneficial interest should, therefore, be registered to ensure the rights of the investors are not legally impeded.

[4] *Most agreements quote a minimal fee, which may not be the total consideration for the servicer*

Typically, in the Indian context, due to high stamp duty rates on conveyance of immoveable property, the mortgage security interest continues to be held in the name of the originator. This also enables the originator to exercise all enforcement rights available in relation to the mortgage security interest. However, the originator has an obligation to transfer the mortgage security interest as and when requested by the trust.

c) Nature of credit enhancement

Credit enhancement in a securitisation transaction can be provided in two ways:

- Internal credit enhancement
- External credit enhancement

Internal credit enhancement is provided through various structural features such as excess interest spread, over collateralisation and subordination. For a detailed understanding of the analysis of internal credit enhancement in securitisation transactions, please refer below to section II on 'Crisil Ratings methodology for ABS transactions.

External credit enhancement is provided through external forms of support such as:

- Cash collateral
- Guarantee

Cash collateral

Credit enhancement, though typically provided by the originator, does not vitiate the validity and the genuineness of the transaction as long as it is bankruptcy remote from the originator. This means that even in the event of bankruptcy of the originator, funds in the cash collateral account should be available to the trustee for paying the investors. Cash collateral can also be provided in the form of a fixed deposit.

Some of the aspects analyzed by Crisil Ratings for evaluating bankruptcy remoteness are:

- Is the cash collateral maintained in a separate account?
- If the account is current, then do the documents expressly state that the money in the account is being held in a trust for the benefit of the trustee and is managed independently by the trustee basis the instructions received from the investors?
- If the cash collateral is in the form of a fixed deposit, are the maturity proceeds of the deposit endorsed in favour of the trustee upfront? The originator may, however, be a beneficiary to the residual amounts, if any, in the fixed deposit after payments from the same have been made.

Crisil Ratings examines the transaction documents that lay down the mode of operation of the cash collateral account and the rights and liabilities of the respective parties with respect to the account. Additionally, Crisil Ratings requires the originator to furnish an opinion from an independent legal counsel confirming the bankruptcy remoteness of the cash collateral from the originator.

Guarantee

If the credit enhancement is in the form of a guarantee, Crisil Ratings follows the framework[5] used for evaluating guarantee-backed transactions.

[5] *For details, kindly refer to Crisil Ratings criteria "Basics of Ratings" (section XI (Crisil Ratings methodology for rating instruments backed by guarantees"))*

Independent legal opinion

Legal risks in a securitisation transaction are many and need to be evaluated appropriately. While Crisil Ratings undertakes the analysis of legal risks in a transaction, it also relies on external legal opinion on certain aspects.

As a policy requirement, for every transaction, Crisil Ratings requires the originator to obtain an independent legal opinion from an external transaction counsel[6] to confirm the following:

- That the transfer of the assets is not in contravention of the underlying loan documents
- That the transfer of the assets to the buyer constitutes an absolute and valid sale
- That the receivables assigned to the trust are bankruptcy remote from the originator
- That the credit enhancement
  - If in the form of cash collateral, is bankruptcy remote from the credit enhancer/ originator
  - If in the form of a guarantee, is enforceable by the trustee and meets critical principles for legal adequacy as per Crisil Ratings criteria on "Basics of Ratings" (Please refer to section XI (Crisil Ratings methodology for rating instruments backed by guarantees")), available on www.crisilratings.com.
- That the transaction documents are valid and enforceable, and in compliance with the currently applicable law
- That all transaction documents have been duly executed in accordance with the prevailing stamp duty, registration laws

5 Conclusion

The above discussion provides a conceptual construct for the evaluation of securitisation transactions. While rating securitisation transactions, Crisil Ratings analyses the key risks such as credit, counterparty, legal and market risks.

[6] *The content of the opinion will, however, vary depending on the facts of a transaction*

A quick checklist for a securitisation transaction

Our rating rationales and the information memorandum for the transaction provide a comprehensive overview of the transaction, the risks involved and the mitigants for these risks. A brief checklist, which investors can use for understanding the risks involved in a securitisation transaction, is provided below for reference.

Credit risk:

- Analysis of the originator
  - Track record
  - Systems and processes
  - Past performance of similar pools by the originator
  - Disclosures by the originator with respect to the above
- Analysis of the pool
  - Nature of the asset class backing the underlying loans
  - Pool quality in terms of parameters such as seasoning, geographic diversity, loan size and LTV
- Coverage provided by the credit-cum-liquidity enhancement vis-à-vis the historical trend of losses in that asset class for the originator
- Counterparty risk:
  - Track record of the counterparties
  - Credit quality of the counterparties
  - Experience in handling securitisation transactions
- Legal risks:
  - Valid and absolute assignment of the assets from the originator to the Trust
  - Presence of an external independent legal counsel
  - Reputation of the external independent legal counsel
  - Coverage of all the relevant issues in the legal opinion viz. Bankruptcy remoteness of the assets, payment of adequate stamp duty, compliance of all the applicable laws, legal enforceability of the transaction documents etc.
- Market risks:
  - Extent of prepayment and interest rate risks, level of mitigation of these risks structurally or through credit enhancement

Provisional ratings

Since May 2015, Crisil Ratings has been assigning 'provisional' ratings for structured obligations, where necessary. This was in compliance with the guidelines from the Securities and Exchange Board of India (SEBI)[7]. The provisional nature of such ratings is disclosed by Crisil Ratings in its communications, including rating letter and rating rationale.

[7] *As per SEBI directive on Standardizing the term, rating symbol, and manner of disclosure with regards to conditional/ provisional/ in-principle ratings assigned by credit rating agencies' by SEBI dated May 06, 2015 and April 27, 2021 circular 'Standardizing and Strengthening Policies on Provisional Rating by Credit Rating Agencies (CRAs) for Debt Instruments' by SEBI*

SEBI also mandates disclosure of rating that would have been assigned in the absence of the pending steps / documentation. As Crisil Ratings would not be able to rate the securitization transaction without the pending steps/documentation – as these form the very basis of the ratings - Crisil Ratings will disclose the fact that no rating would have been assigned in case of absence of the steps/ documentation considered while assigning provisional rating.

Once the relevant documents (as per expectation when the provisional rating was assigned) are in place, the provisional rating will be converted into a final rating as per defined timelines. For more details, please refer to Crisil Ratings' Policy on Provisional ratings, available on www.crisilratings.com

Section II.
Crisil Ratings methodology for ABS transactions

1 Executive summary

Asset-backed securitisation (ABS) is the securitisation of non-mortgage retail loans through an intermediary (a special purpose vehicle [SPV]) typically set up as a trust. While commercial vehicle loans have been the dominant asset class in the Indian ABS market, receivables backed by other types of loans—car, construction equipment, two-wheeler, utility vehicle, tractor, unsecured personal, gold, microfinance, and micro, small and medium enterprise (MSME)—have also been securitised.

The Crisil Ratings framework for assessing the credit quality of ABS transactions encompasses an analysis of:

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

2 Scope

This section[8] describes the Crisil Ratings methodology to rating ABS transactions. Crisil Ratings also analyses the sufficiency of credit enhancement in securitisation transactions, with a focus on:

- Projection of base case pool collections
- Subjecting pool collections to stress that varies with the rating
- Sufficiency of credit enhancement to cover shortfalls 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 also prevalent in India. Crisil Ratings provides its estimate of ultimate credit losses (or loss estimates) likely in such pools. Among 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 two:

1. Static pool analysis

2. Dynamic portfolio analysis

[8] *For the previous version of this article please refer to the link below:* *https://www.crisilratings.com/content/dam/crisil/criteria_methodology/structured-finance/archive/crisil-ratings-methodology-for-abs-transactions-sep2024.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. The 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.

Illustration 1: Performance of sample static pools

Chart 1: Shortfall trajectory

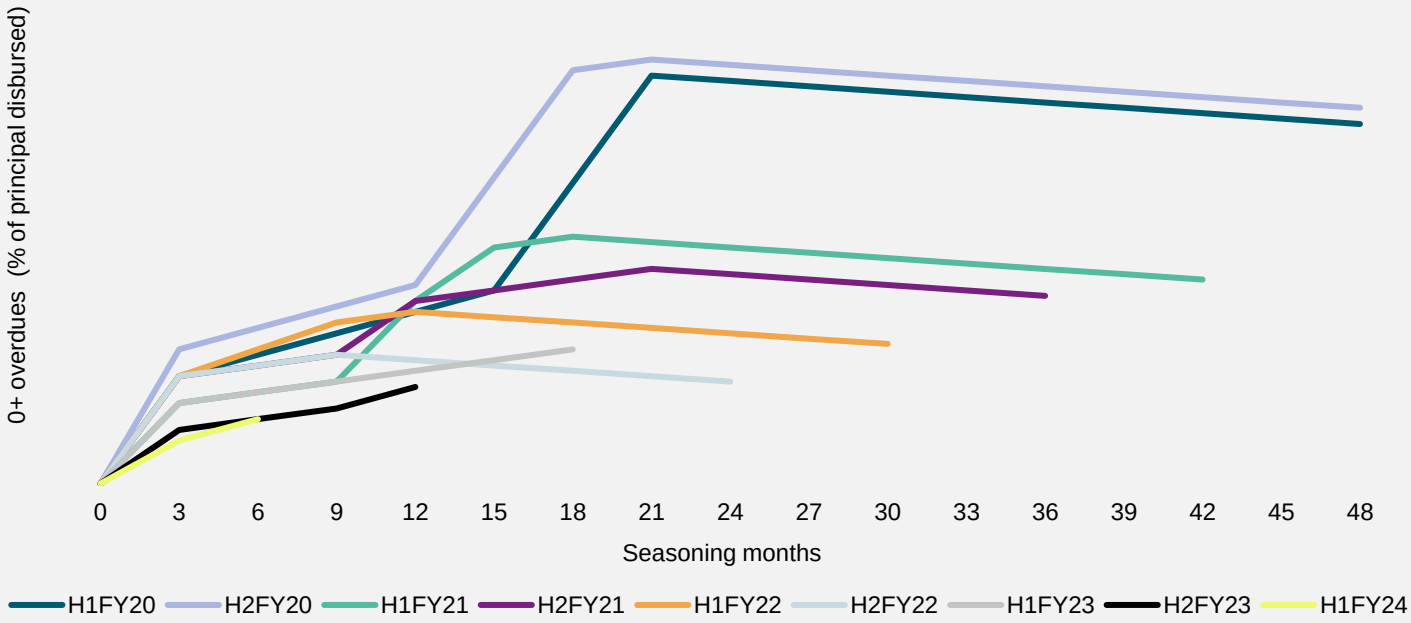


Chart 1 shows the trajectory of performance of contracts originated in specific periods (six months in this case). Contracts originated in the first half of 2021 have exhibited lower overdue, indicating better performance, than contracts originated in the first and second halves of 2020. Contracts from vintages of 2022 and 2023 have performed even better.

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

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 type of asset, whether the asset is new or pre-owned, original tenure, loan amount, geographical distribution of borrowers, and loan to value (LTV) ratio.

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 4.5% 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 4.5% of Rs 100 crore -- that is, Rs 4.5 crore. In other words, overdue at any point in time during the tenure of the transaction is not expected to exceed 4.5% of Rs 100 crore or Rs 4.5 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, characteristics of the asset class, 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:

- Delinquency analysis
- Analysis of prepayment data

3.1.2.1 Delinquency analysis

Delinquency analysis[9] 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[10] to monitor performance of their portfolios.

Illustration 3: Delinquency analysis

As on		Current	1-30	31-60	61-90	91-120	121-180	180+	Total
March 31, 2023	POS	640	80	39.2	16	4.8	13.6	6.4	800
	Dpd	80.0%	10.0%	4.9%	2.0%	0.6%	1.7%	0.8%	100%
March 31, 2024	POS	800	100	39	20	11	20	10	1000
	Dpd	80.0%	10.0%	3.9%	2.0%	1.1%	2.0%	1.0%	100%

All amounts in Rs crore

In a rapidly growing portfolio, days-past-due (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 delinquencies, that is, instead of taking the principal outstanding (POS) of the current month as the denominator, the POS with a lag of, say, one year is considered. In the example above, 180+ dpd as on March 31, 2024, lagged by one year, is 1.25%, against an un-lagged 180+ dpd of 1%.

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

Under delinquency analysis, the 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 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.

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, the exposure does not show up in any of the delinquency buckets, which leads to an apparent improvement in the dpd profile of the portfolio. 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.

3.1.2.2 Analysis of prepayment data

Prepayment 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.

3.2 Analysis of the originator's processes

The Crisil Ratings methodology involves both qualitative and quantitative analysis. The 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 (such as 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:

Analysis of characteristics of the underlying pool of loans

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
- Borrower diversification
- Seasoning profile
- Loan cycle
- Interest rate
- Loan amount
- Overdue profile

4.1.1 Asset class

Crisil Ratings analyses various segments within a given asset class if they have different characteristics or have performed differently. For instance, the behaviour of a pool backed by car loan receivables will be different from that of a pool backed by microfinance loan receivables. Similarly, within the car pool, the used and new vehicles may differ significantly in performance and loss levels.

Other factors, such as the originator's familiarity with customers, and the efficiency and rigour of the originator's 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 section I (above) on 'Evaluating risks in securitisation transactions - A primer'.*

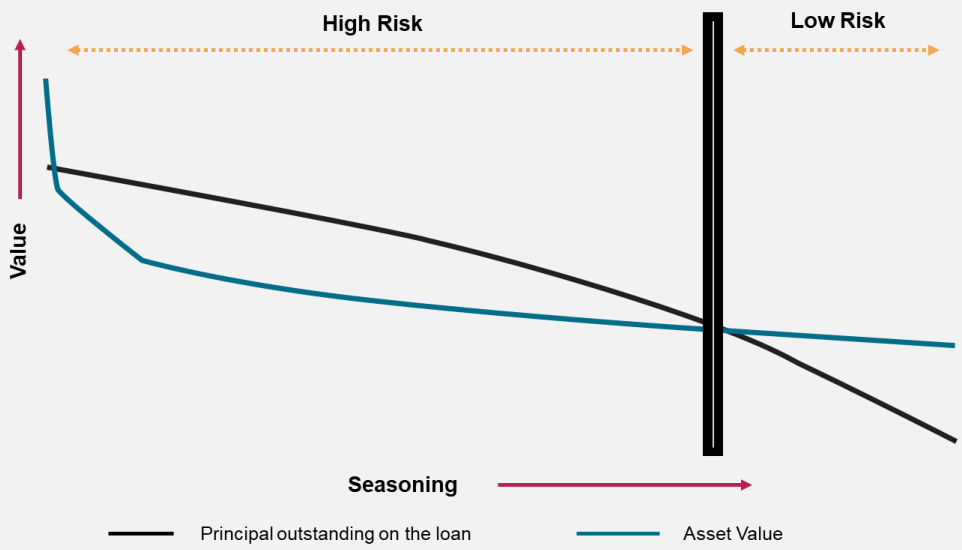
4.1.2 LTV ratio

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. However, if the LTV is higher, the risk of loss on the loan also increases. Given the unsecured nature of microfinance loans, LTV is not a relevant parameter for securitisation originated by microfinance institutions (MFIs).

Illustration 4: Loan amount versus realisable value of asset

Consider a vehicle loan as shown in Chart 2. The vehicle undergoes higher depreciation in the initial months, but the rate of depreciation gradually reduces with time. On the contrary, the outstanding loan amortises at a slower pace in the initial months as the principal forms a small component of the monthly instalments during this period. This may result in a situation where the outstanding loan is higher than the market value of the vehicle. Thus, this period may be vulnerable to losses, as the borrower has little to lose by defaulting.

Chart 2: Loan amount versus realisable value of asset



As more instalments are paid over time, the value of the vehicle continues to decline at a comparatively slower pace and remains lower than the outstanding loan amount. However, there comes a time when depreciation starts to taper off, and the value of the vehicle becomes higher than the outstanding loan amount. The length of these phases will vary based on loan characteristics such as the type of vehicle, value of the vehicle, tenure, and LTV.

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 the risk of losses.

The underlying rationale for this is similar to that of LTV. Typically, a longer tenure contract will see slower amortisation of the loan than a short tenure contract for the same amount. Thus, the high risk period (Chart 2 in Illustration 4), where the realisable value of the asset is lower than the principal outstanding on the loan, is longer. A pool dominated by long-tenure loans would, therefore, be significantly riskier for a considerable part of its tenure than a pool with shorter maturity loans.

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, and economic stability of the region in question.

For instance, in microfinance loan securitisation, given the small scale of operations of many MFIs and sensitivity to political risks, Crisil Ratings evaluates geographical concentration at the district and branch level in addition to the state. 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.

Within a pool of commercial vehicle loans, Crisil Ratings studies the proportion of small truck operators and large fleet operators. A large fleet operator has business spread across multiple customers and industries, apart from having higher

negotiation power than a small truck operator. This results in greater ability of a large fleet operator to continue operations in a challenging business environment, and thus a lower credit risk.

Similarly, the proportion of salaried and self-employed segments in a pool backed by car loans or personal loans is a good indicator of the pool's profile. This is because salaried employees have a steady income that can be assessed, while that of self-employed borrowers may not be as accurate.

Analysis of the borrower profile (including credit bureau scores and FOIR[11)] provides valuable indications about a pool's likely repayment behaviour.

4.1.6 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[12] 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.

4.1.7 Seasoning profile

Net seasoning refers to the number of instalments paid by the borrower (total seasoning minus overdue status minus moratorium period[13]). 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.

As can be seen in Illustration 4, loan contracts with very high levels of seasoning will typically see a good amount of borrower equity build-up, thereby reducing the borrower's incentive to default in future. On the contrary, contracts with low seasoning witness limited build-up of the borrower equity in the asset.

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. A pool with higher weighted average net seasoning will be assumed to have a lower risk than a similar pool with lower weighted average net seasoning.

4.1.8 Loan cycle

The loan cycle is a relevant parameter in the analysis of securitisation transactions of microfinance or MSME loans. A borrower's loan cycle, as provided by the financier, indicates whether the borrower is a first-time client or a repeat client. A borrower, who has been through multiple loan cycles with the same institution, has a track record of having repaid multiple loans taken from the same financier.

Consequently, the risks associated with loans given as second or higher cycle loans to borrowers with demonstrated ability to repay are distinct from those of first cycle loans, where the credit history of the borrower is limited. Crisil Ratings

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[11] Fixed obligation to income ratio

[12] Refer to section III on "Crisil Ratings methodology for CDO transactions"

[13] Moratorium period refers to the initial loan tenure when the borrower is not liable to pay instalments. For example, some borrowers may be given a loan for 36 months, but there may be only 34 instalments to be collected, which means the first two months are the moratorium period.

takes into account the proportion of second or higher cycle loans in the pool at the time of securitisation. The higher the proportion of such loans in the pool, the lower the credit risk of the pool.

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. Furthermore, certain asset types might be charged higher interest rates than others. 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

All else remaining equal, a big ticket loan is generally perceived to be riskier than a small ticket one. Typically, the loss severity for a larger loan on the same asset to the same borrower will be higher than for a smaller loan.

However, the credit quality of the customer will also influence the likelihood of default. For instance, a large loan might be to a big and highly creditworthy fleet operator, which typically has the advantage of diversification of the end use of vehicles, and hence, a lower probability of default. This is also evidenced in the high default and loss rates in small ticket, unsecured personal loans given to economically weaker borrowers.

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' evaluation of static pools of various originators and asset classes in the past shows that collections from one-month overdue contracts are lower than those from current contracts. Similarly, a two-month overdue contract tends to exhibit weaker collections than a one- month overdue contract.

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.

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 5: Pool versus portfolio analysis

State	Portfolio		Pool proportion
	Proportion	90+ dpd	
Andhra Pradesh	30%	1.0%	10%
Maharashtra	20%	1.5%	15%
Karnataka	25%	2.0%	30%
Tamil Nadu	25%	3.0%	45%
Total	**100%**	**1.9%**	**100%**
Weighted average pool quality			**2.3%**

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 2.3%. This is higher than the portfolio 90+ dpd of 1.9%. 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 Counterparty and legal risks

5.1 Counterparty risk analysis

Counterparty risk primarily comprises two kinds of risks:

- Servicer risk
- Commingling risk

5.1.1 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
- Underlying asset class of the pool
- 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.

5.1.2 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[14] (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

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

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.

5.2 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
- Compliance with local laws such as those related to stamp duty payment and registration

For details on legal risks, please refer to section I (above) on ‘Evaluating risks in securitisation transactions - A primer.

6 Cash flow analysis and credit enhancement

6.1 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:

- Projection of pool collections (inflows)
- Projection of investor payouts (outflows)
- Comparison of inflows with outflows

6.1.1 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 for the underlying asset class
- Track record of the originator
- Geographical concentration
- Borrower concentration

6.1.2 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 amount payable to the investors.

6.1.3 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 arrive at the cumulative shortfalls at the end of each month. The peak of these monthly cumulative shortfalls is a key input to determining the enhancement requirement for the investors as it represents the maximum shortfall that needs to be covered during the transaction tenure.

6.2 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:

- External credit enhancement
- Internal credit enhancement

As per Reserve Bank of India (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.

6.2.1 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

6.2.1.1 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.

6.2.1.2 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.

6.2.2 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
- Excess interest spread (EIS)

6.2.2.1 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.

6.2.2.2 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, trapped in the TRA or used to turbo amortize the PTC instruments. 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.

6.2.3 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.

7 Conclusion

The Crisil Ratings methodology for rating ABS transactions factors in the key parameters that may impact the credit quality of securitised instruments. Quantitative parameters such as delinquencies, pool and portfolio characteristics, counterparty credit ratings and cash flow projections, along with qualitative factors relating to originators' processes, servicers' capabilities and legal aspects of the transaction are critical to determine the sufficiency of credit enhancement in securitisation transactions. The parameters for the evaluation of the reset of credit enhancement are monitored as per guidelines regarding 'Reset of credit enhancement' in the RBI Master Direction – Reserve Bank of India (Securitisation of Standard Assets) Directions, 2021.

Annexure I: List of abbreviations used

ABS	Asset-backed securitisation
SPV	Special purpose vehicle
MSME	Micro, small and medium enterprises
LTV	Loan-to-value
MFI	Microfinance institution
POS	Principal outstanding
Dpd	Days past due
MIS	Management information system
TRA	Trust and retention account
CQR	Credit quality rating
EIS	Excess interest spread
CPA	Collection and payout account
FOIR	Fixed obligation to income ratio

Section III.
Crisil Ratings methodology for CDO transactions

1 Executive summary

A collateralised debt obligation (CDO) is a security issued against receivables on corporate debt instruments. CDOs are typically originated by banks or non-banking financial institutions (NBFCs) through sale of a pool of corporate debt to a special purpose vehicle (SPV), which issues CDOs.

Crisil Ratings considers the following when rating CDOs:

- **Underlying assets in the pool:** Crisil Ratings analyses each individual underlying asset in the pool and estimates the credit rating of each obligor.
- **Transaction structure:** Crisil Ratings studies the transaction structure, specifically, the waterfall mechanism, over-collateralisation and coverage ratios, and interest rate risks inherent in the transaction, to ascertain claims on cash flows from the underlying assets.
- **Simulation of portfolio shortfall distribution:** Crisil Ratings simulates pool collections and potential shortfall in debt servicing using its proprietary CDO model. The inputs in the model are the probability of default in the underlying assets (as indicated by their credit ratings), asset cash flows, asset correlations and estimation of recovery rate.
- **Linkage of credit enhancement to the rating of the CDO:** Credit enhancement helps reduce the weighted average shortfall in debt servicing for the rated tranche. Crisil Ratings determines whether the credit enhancement is at a level where these shortfalls are commensurate with a plain vanilla instrument of a similar rating.
- **Legal analysis of the transaction:** As in any securitisation transaction, Crisil Ratings undertakes legal due diligence while rating CDOs. In addition, Crisil Ratings relies on the opinions of independent, external legal counsel pertaining to the valid sale of the asset transfer, bankruptcy remoteness of the transferred assets and compliance with local laws.

2 Scope

This section[15] explains the Crisil Ratings methodology for rating CDOs. The rating is assigned such that the CDO's credit quality is similar to that of a plain vanilla single obligor security rated at the same level.

3 How a CDO works

A CDO is typically issued against receivables on corporate debt instruments originated by banks or NBFCs. The assets pooled in a CDO are, usually, corporate loans, debentures, bonds and other classes of debt instruments.Depending on the type of assets in the pool, CDOs may be characterised as collateralised bond obligations (CBOs; where the pool consists entirely of debentures and bonds) or collateralised loan obligations (CLOs; where the pool consists entirely of loans).

A CDO, similar to an asset-backed securitisation transaction, is created by the sale of a pool of assets by a financial institution to a SPV, which, in turn, issues CDOs, giving investors right to cash flows arising from the underlying pool. The SPV may issue multiple classes of securities (tranches) with differing rights to the cash flows. Based on the payment waterfall and prioritisation of cash flows, the credit ratings of certain tranches may be higher than the rating of the

[15] *For the previous version of this article please refer to the link below:* *https://www.crisilratings.com/content/dam/crisil/criteria_methodology/structured-finance/archive/crisil-ratings-methodology-for-cdo-transactions-sep2024.pdf*

underlying assets. For instance, a rating of ‘AAA’ may be assigned to a tranche with a pool of ‘A’-rated corporate debentures if a sufficient amount of lower-rated tranches are available within the transaction structure.

4 Components of CDO rating

4.1 Credit analysis of the underlying pool assets

The performance of a CDO depends on the repayment capacity of the underlying obligors or their credit quality. However, the process of analysing the credit quality of the underlying assets in a CDO is different from that for typical asset-backed securitisation (ABS) transactions backed by retail loans. Every asset in the CDO pool warrants detailed and specific analysis, while the underlying assets in a typical ABS transaction are analysed collectively as a large pool of small loans. This is because:

Securitisations of retail loans have numerous obligors, while CDO pools have fewer loans and obligors

Retail asset pools are more homogenous than corporate loans pooled into CDOs, especially as originators may pool diverse obligors to avail of diversification benefits

Underlying corporate debt in CDO issuances usually have readily available credit opinion (typically from credit rating agencies), unlike retail borrowers who are the underlying obligors in securitised commercial vehicle pools or microfinance loan pools

To determine the credit quality of the CDO pool, the credit quality of each underlying obligor is ascertained using the published credit rating of Crisil Ratings on the obligor. Where a published rating is not available, the internal rating opinion of Crisil Ratings on the obligor is used. Crisil Ratings assesses the credit ratings of obligors (both published and internal rating opinion) through an analysis of their business and financial risk profiles, management quality and other relevant parameters.

4.2 Analysis of the transaction structure

Although structures vary across CDO transactions, some common issues to be examined include:

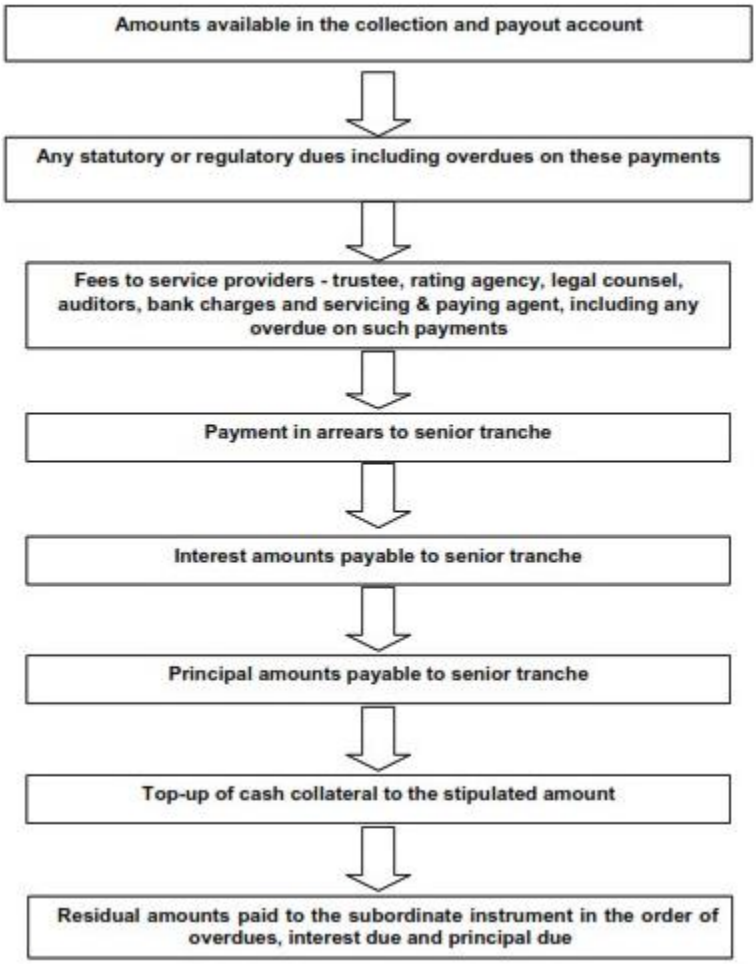
- Waterfall mechanism
- Over-collateralisation and coverage tests
- Interest rate risks

4.2.1 Waterfall mechanism

A waterfall mechanism specifies the priority of payment across various tranches of instruments issued during the CDO’s tenure (see Figure 1 for an illustration of a hypothetical waterfall mechanism in a securitisation transaction involving two classes of securities, senior and subordinate).

Typically, different tranches of a CDO may have varying seniority. The cash flows collected from the underlying pool are paid out in the order of seniority of the tranches. In other words, cash flows from the underlying pool may be used for payouts to a particular tranche only after fully meeting the promised payouts of all senior tranches. Consequently, credit shortfalls in the pool are absorbed by lower-ranked tranches before the shortfalls can be charged to any senior tranche.

Figure 1: An illustrative waterfall mechanism



The priority of payments across tranches could differ during periods of stress—when the pool's actual performance is less than originally envisaged. The waterfall mechanism may have in-built triggers (see the section 'Over- collateralisation and coverage tests'), which would alter the priority of payments in favour of senior tranches. The altered waterfall provides a higher degree of protection to senior tranches compared with subordinate tranches.

4.2.2 Over-collateralisation and coverage tests

These tests allow the senior instruments to be amortised faster if a stress situation, as indicated by the test, unfolds. The altered amortisation schedule increases protection for senior instruments.

Over-collateralisation and coverage tests are frequently integrated into the transaction waterfall by international CDO issuers.

4.2.2.1 Over-collateralisation test

Over-collateralisation for a tranche is the extent of protection offered by subordinate tranches. The over-collateralisation ratio is obtained by dividing the current collateral value by the aggregate outstanding amount of the tranche being tested for over-collateralisation. The ratio is calculated and tested periodically to check if it is at least equal to a specified minimum percentage.

Over-collateralisation tests are designed to ensure that an over-collateralisation cushion is maintained throughout the tenure of the CDO to protect the senior debt from shortfalls in the pool of assets.

Under this test, if the over-collateralisation ratio for a senior tranche falls below a predetermined level (say 105%)—a situation that may occur because of more-than-expected default by the underlying obligors—the payments due to the junior tranche/s are suspended and the cash flows are used to prepay the senior tranche till such time as the ratio breach is cured (in other words, till the ratio exceeds the trigger level, 105% in this case).

4.2.2.2 Interest coverage test

In principle, interest coverage tests are similar to over-collateralisation tests and are designed to validate whether the cushion between the interest earned on the asset portfolio and interest cost to be paid on the CDO securities (liabilities) is consistent with the current rating. The interest coverage ratio is calculated by dividing the aggregate expected interest inflows from the underlying assets by the aggregate interest amount payable to the CDO tranches.

If, due to defaults or other reasons, the interest inflows in the pool fall below a predetermined multiple (say 1.1 times) of the interest outflow to the CDO tranches, the interest coverage test accelerates the amortisation of the senior tranches. This process will result in lower interest outflows in subsequent periods. The process is continued until the trigger is cured, that is, the interest inflows into the pool exceed the predetermined multiple of interest outflow.

4.2.3 Interest rate risk

An interest rate risk arises if there is a mismatch between the interest terms on the underlying portfolio and the CDO tranches issued. The common sources of interest rate risk are:

Differences in interest rate terms: The underlying assets (asset-side) may have a floating interest rate while the CDO (liability-side) has a fixed interest rate, or vice versa. Mismatches could also arise from the use of different interest rate benchmarks to arrive at asset-side and liability-side floating rates.

Differences in periodicity: If the underlying assets pay interest more frequently than the CDO tranches, it could lead to negative carry, especially if the collected cash sits idle in the SPV or generates a lower return than the coupon payable on the CDO.

Differences in payment dates: Mismatches between the date on which the interest is received from the underlying assets and the date on which the coupon is paid on the CDO may lead to situations of negative carry or shortfall in the amounts that need to be paid.

Crisil Ratings factors in the sources of interest risk for each transaction and analyses the structural features incorporated by the originators to mitigate these risks. If the structural features are inadequate, Crisil Ratings will apply appropriate interest rate stresses.

4.3 Simulation of portfolio shortfall distribution using the Crisil Ratings CDO model

Crisil Ratings has developed a proprietary portfolio analytics tool that uses Monte Carlo simulations incorporating asset default probabilities, cash flows, correlations and recovery rate assumptions to simulate portfolio default and shortfall distribution statistics. The use of this tool to analyse portfolio quality is the most important step in the CDO rating process.

4.3.1 Monte Carlo simulation

Under the Monte Carlo simulation, a number of independent trials are simulated. Each trial randomly generates a set of numbers, each number having a one-to-one correspondence with an identified cash flow (a specific interest/principal obligation from a specific obligor). For example, if the pool consists of 30 five-year loans, 150 numbers will be generated in each simulation. The first five numbers correspond to the five annual cash flows of asset 1, the next five correspond to those of asset 2 and so on.

In a particular trial, based on the relevant random number generated, each asset is determined to have either paid on time or defaulted in a manner consistent with the probability of default associated with that asset's credit rating. For instance, if the probability of default on a given asset is 10%, the simulation engine will ensure that, on average, that asset defaults 10 times in every 100 trials.

The model also incorporates asset correlation assumptions while simulating portfolio behaviour. The accumulation of the behaviour of each asset in the portfolio in a trial gives the total portfolio default for that particular trial. The portfolio default behaviour for the entire set of trials gives the portfolio shortfall distribution, assuming there are nil recoveries on the defaulted assets.

The ultimate portfolio shortfall rate (the total shortfall in debt servicing in a trial as a percentage of total portfolio cash flows) can be arrived at after factoring in recoveries on the defaulted assets. The ultimate shortfall rates across different trials are plotted with the corresponding probabilities of occurrence to arrive at the ultimate portfolio shortfall distribution.

4.3.2 Inputs for the CDO model of Crisil Ratings

The key inputs for the CDO model are:

- Asset ratings and associated default probabilities (computed from the default statistics of Crisil Ratings)
- Asset cash flows (based on the underlying assets)
- Asset correlation assumptions (based on the in-house database of Crisil Ratings on asset behaviour in the rated and non-rated universe)
- Assumptions on the level and timing of recoveries expected within the tenure of the CDO (based on the servicer's experience in various asset classes)

4.3.2.1 Asset ratings and associated default probabilities

The methodology to determine asset ratings has been discussed in the 'Credit analysis of underlying pool assets' section. The default probabilities of individual assets in a CDO are embedded in the asset's credit rating and maturity. Based on the asset rating and its tenure, a default probability is assigned to each cash flow of each obligor based on the default matrix of Crisil Ratings.

Crisil Ratings has comprehensive rating statistics by virtue of its extensive coverage of the Indian debt market since its inception in 1987, and has developed a default matrix based on the performance of its ratings. This matrix provides the default probability of each rating across tenures.

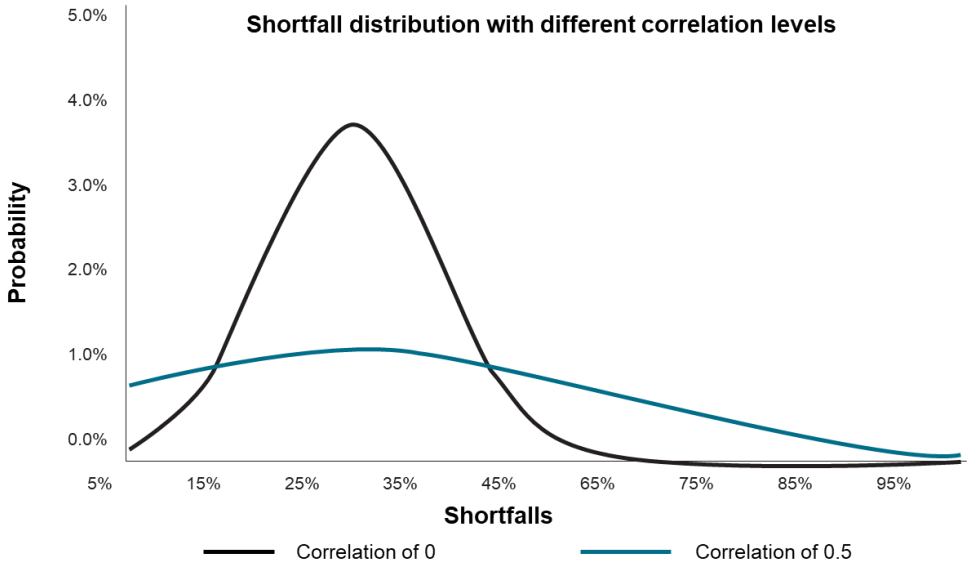
4.3.2.2 Asset cash flows

Crisil Ratings projects the cash flows available from the underlying pool. The cash flow estimation will factor in potential prepayments and interest rate movements during the tenure of the underlying assets.

4.3.2.3 Asset correlation assumptions

Correlation assumptions are based on the extensive experience of Crisil Ratings in the Indian corporate debt market across industries. It is intuitive to expect companies in the same industry to have a higher correlation than those in different industries. Accordingly, assets in the same industry are assumed to have higher levels of correlation than assets from other industries. If borrowers belong to the same corporate group, Crisil Ratings may factor in higher correlation assumptions to factor in more inter-linkages.

The chart below shows the effects of correlation on the probability distribution of shortfalls for a hypothetical pool of 100 assets:



The two scenarios considered are correlation of 0 and 0.5 between assets in the pool. A higher correlation changes the portfolio default distribution pattern, leading to more frequent extreme events (“fat tails” in statistical terms),¶ even though the mean remains unchanged. Both the standard deviation and the extremes (very low and very high shortfall levels) increase significantly as the correlation increases.

4.3.2.4 Recovery rate assumptions for defaulted assets

Typically, the rate and timing of recovery are a function of:

- Liquidity and value of the security pledged
- Lender’s legal seniority (secured or unsecured) and operational seniority in the borrower’s capital structure (term lender or working capital lender)
- The servicer’s recovery track record

The recovery assumptions are based on the historical track record of the banking sector's recoveries from non-performing assets. Crisil Ratings gives credit for servicers with a track record of higher recoveries and also takes into account recoveries on the defaulted assets but only until the maturity of the CDO. No benefit is factored in for recoveries beyond the scheduled maturity of the CDO.

Based on these factors, Crisil Ratings carries out the Monte Carlo simulation exercise. This simulates the pool collections and shortfalls under each trial. With a sufficiently large number of such trials, the portfolio shortfall distribution is generated.

4.4 Linkage of credit enhancement to the rating of the CDO

Based on the portfolio shortfall distribution generated by the Monte Carlo simulation and the transaction structure, the weighted average shortfalls of the CDO tranches are estimated. Credit enhancements tend to reduce the shortfalls in debt servicing. The weighted average shortfall in debt servicing (after factoring in credit enhancement) for each CDO tranche is benchmarked with that of a vanilla bond to arrive at the rating of the CDO tranche.

4.5 Legal analysis of the transaction

The rating process includes a detailed analysis of the legal structure adopted and the regulatory issues arising in the transaction. The in-house legal team of Crisil Ratings studies all relevant transaction-related legal documents and analyses the issues of asset transferability, bankruptcy remoteness and the valid sale nature of the asset transfer, and compliance with local laws. As post-default recoveries on assets are considered a positive in the rating analysis, the security relating to the underlying debt instruments is also examined to determine whether it has been perfected and whether it remains valid even after the transfer of assets. Crisil Ratings also examines whether the necessary stamp duties and other dues have been paid.

In addition, Crisil Ratings requires the originator to submit an opinion from an independent legal counsel. This opinion is required to address (with reasoning and reference to specific case laws, if necessary) the relevant legal issues and uncertainties associated with the structure.

5 Conclusion

The Crisil Ratings methodology for rating CDOs incorporates all the parameters pertinent to the credit quality of typical CDO instruments in the Indian context, including the credit quality of the underlying borrowers, the detailed transaction structure and legal aspects of the transaction.

Section IV.
Crisil Ratings methodology for RMBS transactions

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 section[16] describes the Crisil Ratings methodology 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

[16] *For the previous version of this article please refer to the link below:* *https://www.crisilratings.com/content/dam/crisil/criteria_methodology/structured-finance/archive/crisil-ratings-methodology-for-rmbs-transactions-sep2024.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

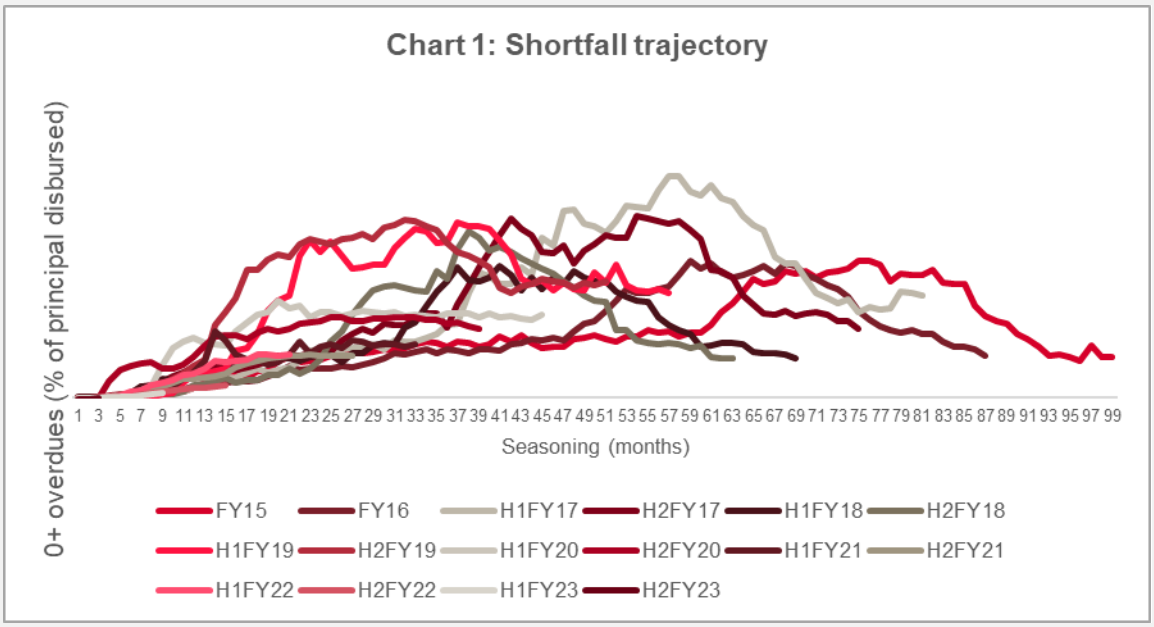


Chart 1 shows the trajectory of performance of contracts originated in specific periods (half-years in this case). Contracts originated in 2016 have exhibited lower overdue, indicating better performance than contracts originated in the first and second halves of 2017.Contracts from first and second 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[17] 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[18] 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.

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.

[17] *Also referred to as ageing analysis*

[18] *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*

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 section I (above) on '*Evaluating risks in securitisation transactions - A primer'*.

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[19] 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.

4.1.8 Seasoning profile

Net seasoning refers to the number of instalments paid by the borrower (total seasoning minus overdue status minus moratorium period[20]). 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

[19] Refer to section III (above) on 'Crisil Ratings methodology on CDO transactions' for more details on the model

[20] 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.

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.

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[21] 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.

[21] *To understand par and premium structures, please refer to section I (above) on 'Evaluating risks in securitisation transactions - A primer'*

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[22].

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

[22] *Explained in detail below in Section 7.2.4.2*

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[23] (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:

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

- Valid sale of the pool receivables to the SPV
- Bankruptcy remoteness of the pool and cash collateral
- Compliance with local laws such as those related to stamp duty payment and registration

For details on legal risks, please refer to section I (above) on ‘Evaluating risks in securitisation transactions - A primer’

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.

8 Conclusion

The Crisil Ratings methodology 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.

Annexure I: 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

Section V.
Crisil Ratings methodology for rating covered bonds

1 Executive summary

Covered bonds are debt instruments secured by a specific pool of ring-fenced assets, primarily issued by banks and financial institutions. Unlike securitised instruments, where investors have recourse only to the underlying assets, covered bonds are dual recourse instruments, where investors have recourse to the issuer as well as the pool of assets acting as collateral (known as the cover pool).

The dual recourse may be achieved through contractual structures involving the transfer of assets in the cover pool to a bankruptcy-remote special purpose vehicle (SPV) upon the occurrence of a trigger event, following which the cover assets are available exclusively for the benefit of the covered bondholders.

Crisil Ratings considers the issuer rating to be the rating floor for a covered bond. Crisil Ratings may notch up the covered bond rating above the issuer rating if, based on legal analysis of the structure, it believes the cover assets will be effectively transferred to the SPV for the exclusive benefit of the covered bondholders following the occurrence of the trigger event, and that the other creditors of the issuer will not have any claim on the cover pool assets.

The extent of the notch-up will depend on the asset liability mismatch (ALMM) risks, the credit quality of the cover pool assets, and the overcollateralisation levels. Crisil Ratings also considers the eligibility criteria for the selection of cover pool assets and the operational risks in the transaction.

The Reserve Bank of India on 24th September 2021, released the Master Direction – Reserve Bank of India (Transfer of Loan Exposures) Directions, 2021. These directions lay down the conditions for transfer of loans, including allowing transfer of loans by lenders to only certain permitted transferees (Scheduled Commercial Banks, All India Financial Institutions, Small Finance Banks, NBFCs and HFCs). It is important to note that these conditions shall be without prejudice to the provisions of Reserve Bank of India (Securitisation of Standard Assets) Directions, 2021. Crisil Ratings understands that the RBI directions are not expected to impact covered bond transactions that were outstanding prior to the directions. However, these directions are expected restrict new covered bond issuances structured as per the prevalent market practices. As a result, the methodology covered under this section addresses those covered bond transactions that were outstanding prior to the RBI directions.

2 Scope

This section[24] outlines Crisil Ratings' methodology towards rating covered bonds. It focuses on the legal analysis of the covered bonds and the assessment of ALMM risks. It does not detail the methodologies to assess the credit quality of cover pool assets, coverage of shortfalls in pool collections, and counterparty risks in covered bonds, as these are similar to the ones employed in securitisation transactions. For more details, refer to the relevant sections of section I (above) on "Evaluating risks in securitisation transactions – A primer".

3 Structure of covered bonds

The distinguishing feature of a covered bond is the dual recourse it offers to the issuer as well as the assets in the cover pool. Under the dual recourse mechanism, the issuer makes payments to the covered bondholders from its own cash

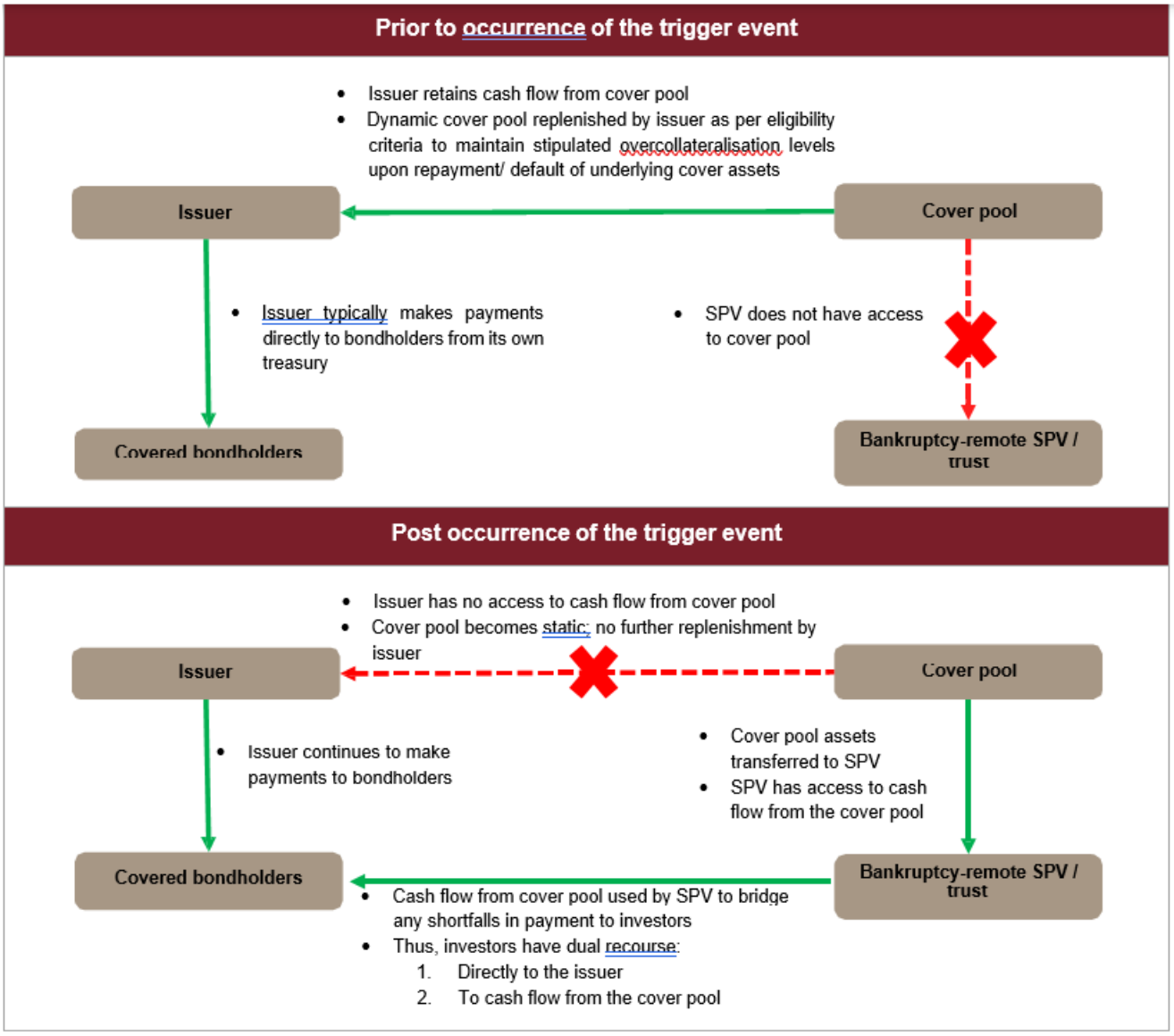
[24] *For the previous version of this article please refer to the link below:* *https://www.crisilratings.com/content/dam/crisil/criteria_methodology/structured-finance/archive/crisil-ratings-criteria-for-rating-covered-bonds-oct2022.pdf*

flows, and if the issuer defaults, the investors have access to the cash flows from the cover pool assets, which are segregated for the exclusive benefit of the covered bondholders.

The cover pool assets are selected based on specific eligibility criteria pertaining to the quality of assets, such as the asset class, loan-to-value ratios, and seasoning levels. The issuer typically maintains a level of overcollateralisation in the cover pool. The cover pool is dynamic in nature as the issuer replenishes it with new assets to replace maturing or defaulting cover assets so that the level of overcollateralisation is maintained.

Internationally, the dual recourse is achieved through specific covered bond legislations or through contractual structures involving the transfer of the cover pool to a bankruptcy-remote SPV. Considering the absence of a specific covered bond legislation in India, dual recourse is achieved through general contract laws by transferring the cover pool assets to a bankruptcy-remote SPV following the occurrence of any of the pre-defined trigger events, one of which may be linked to the rating levels of the issuer. There may also be instances where the cover pool is assigned to the SPV ab initio.

The following chart represents a typical structured covered bond transaction:



4 Rating methodology

Crisil Ratings considers the corporate credit rating of the issuer to be the rating floor for a covered bond. Under the dual recourse mechanism, the issuer continues to be liable for the payments due to covered bondholders throughout the tenure of the transaction, even post the occurrence of the trigger event and the transfer of cover assets to the SPV. The claims of the covered bondholders also rank pari passu with the claims of senior unsecured debtors of the issuer.

Crisil Ratings may notch up the covered bond rating above the issuer rating if, based on legal analysis, it believes the transfer of cover assets will become effective upon the occurrence of the trigger event, and that other creditors of the issuer will not have any rights over the cover assets.

4.1.1 Legal analysis

Crisil Ratings obtains legal opinions to confirm that the dual recourse mechanism can be achieved through the structure of the transaction. The cover assets need to be clearly segregated, with exclusive charge created in favour of the covered bondholders, and need to be bankruptcy-remote from the other creditors of the issuer.

Some of the specific legal aspects that are analysed are as follows:

- The cover assets are segregated from the other assets of the issuer prior to the assignment/transfer to the SPV
- The issuer cannot create security/charge on the cover assets for the benefit of its other creditors
- The cover assets will be effectively transferred/assigned to the SPV on the occurrence of any of the pre-defined trigger events, one of which may be linked to the rating levels of the issuer
- The cover assets will be bankruptcy-remote from the other creditors of the issuer post the transfer/assignment

Crisil Ratings may notch up the rating of the covered bond above the issuer rating if, based on legal analysis, the cover assets are available for the exclusive benefit of the covered bondholders. Else, the rating on the covered bond is equated to the issuer rating.

4.1.2 Asset liability mismatch (ALMM)

Covered bonds are typically exposed to ALMM risks as the amortisation of cover assets may not match the amortisation schedule of the covered bond. In case of an issuer default, the cash flows from the assets may not be sufficient to make timely payments to bondholders. Hence, the SPV may need to sell the assets in order to ensure timely payments to the covered bondholders.

The ability of the SPV to ensure timely payments to investors through the sale of cover assets, following an issuer default, will depend on the following:

- **Credit quality of cover assets:** The quality of cover assets plays an important role in ensuring the sale of assets in the market. Crisil Ratings stresses on cover pool assets for potential credit shortfalls to determine the credit quality and, thereby, saleability in the market. As the cover pool is dynamic prior to the trigger event, the analysis of the credit quality also takes into consideration the eligibility criteria of the cover pool assets.
- **Refinancing costs:** Refinancing costs may be considered by applying haircuts to the value of the cover assets based on the historic high yield levels of the asset class and after factoring in the overcollateralisation levels in the cover pool that can provide a cushion against these refinancing costs.
- **Time for sale:** Availability of liquidity (in the form of cash/bank lines covering an extent of payments) and provisions for extending the maturity of bonds are analysed to determine their adequacy to enable the trustee to liquidate the assets in a timely manner and avoid an imminent default on the covered bond following an issuer default.

The rating of the covered bond may be notched up from the issuer rating depending on the credit quality of the cover pool assets, the extent of refinancing costs covered through overcollateralisation, and the time available to liquidate the cover assets and ensure refinancing.

4.1.3 Other considerations

Crisil Ratings also factors in operational risks, such as commingling of cash flows from the cover pool with other cash flows of the issuer in case the issuer continues to be the servicer of the cover pool assets post the occurrence of the trigger event, and the potential need for a back-up servicer in case of failure by issuer to service the loans. Such risks are assessed in line with Crisil Ratings' methodology for assessing securitisation transactions. For more details, refer to the relevant sub-sections of section I (above) on "Evaluating risks in securitization transactions – A primer".

5 Application of 'CE' or 'SO' suffix

Crisil Ratings may apply its 'SO' (indicating structured obligation) or 'CE' (indicating credit enhancement) suffix to the rating of a covered bond depending on how the bond is structured.

Crisil Ratings uses its 'SO' suffix in case the covered bonds are to be primarily serviced by the cash flows from the cover pool housed in the bankruptcy remote SPV, with secondary recourse to the issuer. This will typically be in cases where the cover pool is assigned to the SPV ab initio.

Crisil Ratings uses its 'CE' suffix if the covered bonds are to be serviced primarily by the issuer. This will typically be in cases where the cover pool is not assigned to the SPV ab initio, but post the occurrence of a trigger event. However, the 'CE' suffix will be applied only if Crisil Ratings believes that the presence of the cover pool provides a credit uplift over the rating on the issuer.

6 Conclusion

Covered bonds are debt instruments secured by a specific pool of ring-fenced assets, where the bondholders have dual recourse—to the issuer as well as the cover pool assets. Crisil Ratings considers the issuer rating to be the rating floor for covered bonds, as covered bonds rank pari passu with senior unsecured obligations of the issuer. Crisil Ratings may notch up the rating of the covered bond above the issuer rating if, based on legal analysis, it believes the cover assets are bankruptcy-remote from the other creditors of the issuers and will be available for the exclusive benefit of the covered bondholders. The extent of notch-up will depend primarily on the extent of ALMM risks involved, the credit quality of the cover assets, and the credit enhancement in the structure.

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