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RATING METHODOLOGY

Moody's Approach to Rating Consumer Loan-Backed ABS

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This rating methodology replaces *Moody's Approach to Rating Consumer Loan-Backed ABS* published in July 2022. In this update, we clarified sections 6.1 "Modeling the Transaction" and 6.5 "Evaluating the Benefit of Excess Spread." In section 8 "Legal Considerations," we added a sub-section that discusses Japanese cancellation risk and another that discusses Japanese overpaid interest. In section 12 "Loss Benchmarks," we clarified our approach for determining loss benchmarks for transactions in Japan. In "Appendix 4: Bank Partnership Lending in the US," we explained in more detail how we assess bank partnership lending-related risks in our analysis. We also made limited editorial updates.

1. Executive Summary

This methodology describes our global approach to rating securities backed by pools of non-revolving consumer loans.[1] The loans in the securitizations may or may not be designated to finance a specified purpose.[2]

Our rating analysis incorporates assessments of the typical main risk drivers for consumer loan transactions: Portfolio credit quality; transaction structure; and counterparty, operational, legal, and sovereign risks. In our analysis, we first estimate the likely default rate ("expected," or mean default rate) of the consumer loan pool and the variability of the default rate to derive a probability distribution of the asset pool's default rate. In the typical case in which the individual assets are relatively small and well-diversified (i.e., the pool is "granular"), we use a lognormal distribution to represent the probabilities of future loan default scenarios.

Second, we assess the likely recovery rate on defaulted loans. Third, we use the loan default probability distribution and the expected recovery rate to derive the expected loss for the rated security, using a model of the transaction's cash flow structure.

1 Our methodology for revolving consumer loans is described in our methodology for rating credit card asset-backed securities (ABS) transactions. For more information about this methodology, as well as those for rating transactions backed by loans secured by autos or by real estate, a link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section. Some transactions are also backed by pools with some unsecured non-revolving auto loans. In this case, we typically use the approach described in this report.

2 In EMEA, for example, loans to finance the purchase of a specific item, originated at the point of sale, are "purpose" loans, while loans without a specified purpose are "personal" loans. This methodology covers securitizations backed by either or both types of loans.

Fourth, we compare the security's expected loss to our benchmarks for each rating level.[3] Finally, a rating committee determines the rating by combining the model output with other quantitative analyses and qualitative assessments of factors specific to the transaction, including operational risk, counterparty risk, and the legal structure.

2. Main Risks of a Typical Consumer Loan Transaction

Assets in consumer loan securitizations are typically short- to medium-term (i.e., two to six years) amortizing loans to individuals that either banks or finance companies originated. Loans are usually unsecured, and the average loan size is relatively small.[4] Pools generally contain a large number of loans with little obligor concentration. Typical loan characteristics vary by region and could entail specific additional risks; see Appendix 3 for a description of two particular loan types that have been securitized in Italy, Cessione del Quinto (CDQ) and Delegazione di Pagamento (DP) and Appendix 4 for a description on consumer loans originated via marketplace lending platforms.

The main risks of a consumer loan transaction fall into five categories:

Portfolio credit quality. In evaluating the credit quality of the underlying loans, we focus on the following factors:

» the risk profile of the obligors (e.g., credit scores, geographic distribution)

» the loan characteristics (e.g., purpose loans vs. personal loans, loan term, amortization profile, interest rate, repayment method, payment holidays options)

» current and forecast macroeconomic environments

» historical performance of pools with similar characteristics

» origination channels and underwriting and servicing policies and abilities of the originator

Transaction structure. We analyze the transaction's main structural features that can have an impact on the expected loss for each tranche of securities, such as how cash flows are allocated among the transaction participants, triggers that alter the cash flow allocations, and the size and availability of various forms of credit enhancement. We also consider the extent to which the originator is likely to replenish the portfolio with new loans (e.g., in transactions with revolving or prefunding periods), which adds uncertainty to the portfolio composition and, therefore, increases risk. We base our modeling of the transaction structure on the structure described in the transaction documentation.

Counterparty risk/operational risk. Our assessment focuses on the risks posed by the main counterparties in the transaction, such as the servicer, cash manager, or swap provider, and any associated structural mitigants, such as counterparty replacement triggers.

Legal aspects. We assess risks associated with the assignment of the assets to the special purpose entity (SPE), the bankruptcy remoteness of the SPE, risks associated with the bankruptcy of the originator or the servicer (e.g., commingling risk, set-off risk), and other jurisdiction-specific issues.

Sovereign risk. The country in which the transaction's assets, originator, or issuer is located could introduce systemic economic, legal or political risks to the transaction that could affect its ability to pay investors as promised. We usually incorporate such risks into the analysis by applying our local currency country risk

[3] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions* (a link can be found in the "Moody's Related Publications" section) and in the "Loss Benchmarks" section.

[4] For example, the average loan size in Europe is between €5,000 and €10,000.

ceilings (LCC) in accordance with our sovereign ceiling methodology.[5] In particular, when generating our assumed portfolio loss distribution, we typically define the portfolio credit enhancement as the credit enhancement consistent with the highest rating achievable (i.e., the LCC) in the country. We may also consider modifying appropriate assumptions or defining minimum credit enhancement levels required to achieve a particular rating.[6]

3. Estimating the Pool's Expected Cumulative Default Rate

A key element of our analysis is our projection of the expected cumulative defaults of the loan pool over its life. To project those defaults, we examine for example historical data from the originator or similar originators and adjust those data for factors that can drive differing behavior in the future.

3.1 Historical Default Data

The data that originators provide generally cover either (1) an evolving, dynamic portfolio of loans over time (i.e., portfolio data), which is sometimes the originator's entire portfolio of managed loans; or (2) particular sets of loans originated during a common period (i.e., "vintage" or "static pool" data). In some cases, we use static pool data from pools of loans backing prior securitizations to supplement the analysis.

Since static pool data are derived from a fixed pool of loans over their lives, those data are more directly applicable than are portfolio data for projecting the potential defaults of a new pool of assets over its life. In cases where we need to rely on portfolio data information instead of static pool data to project defaults for the securitized pool, we may adjust our assumptions to account for factors such as (1) potential differences between the securitized pool and the entire portfolio, (2) growth in the portfolio, and (3) a mixture of credit quality in the overall portfolio resulting from changes in underwriting standards over time. Even with those adjustments, portfolio default numbers are often difficult to interpret, adding uncertainty to an analysis that depends heavily on them and increasing the transaction's risk.

3.2 Extrapolation of Historical Data

In theory, static pool information gives us a set of cumulative defaults on historical pools of assets comparable to the pool being securitized, allowing us to derive estimates of the expected default rate of the pool, as well as its variability. In practice, it is often the case that only some, if any, of an originator's prior static pools have gone through their entire life cycle. However, even for incomplete pools, the defaults to date still can contain useful information on likely lifetime defaults. To use such data in our collateral analysis, we extrapolate defaults to date on the incomplete pool for the remainder of the pool's life. For the missing periods, the extrapolation typically relies on average changes in the cumulative default rate, either on an absolute or percentage basis, in similar pools during those periods.[7] When only static data on the cumulative net loss rate are available, we extrapolate the net loss rate instead of the cumulative default rate.

3.3 Using Historical Data from Other Originators

In many cases, rather than rely solely on the performance of the issuer's prior transactions, we supplement our analysis of the originator's data with data from comparable originators. In some cases, static pool data could be limited, either because the originator is new to the market or has not tracked static pool performance. In other cases, an originator's static pool data is not relevant to the pool of loans being securitized, either because of recent changes in the originator's origination, underwriting and servicing

5 For more information, see our cross-sector methodology for assessing local currency country risk ceilings. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

6 For more information, see Appendix 2.

7 See Appendix 1 for a summary of our extrapolation methods.

policies and strategies or because of our expectation that the future economic environment will be materially different from the one from which the historical performance data came. While we seek to supplement the transaction originator's data with those from other originators whenever possible, in some cases, we deem the aggregate amount of available reliable data as insufficient to be able to assign a rating.

We select comparable originators based on similar pool characteristics and origination, underwriting, collection, and charge-off policies. To incorporate data from other originators, we adjust our analysis for any differences in definitions of defaults and other factors, where possible. However, because each originator tends to be unique to some extent, the applicability of other originators' data performance is not perfect, adding uncertainty to the analysis.

3.4 Obtaining Base Case Expected Default Rates

To obtain a base case for expected defaults, we typically average the extrapolated cumulative defaults of the analyzed pools, focusing on the pools that are most comparable to the one in the transaction we are rating. We also typically disregard very recent vintages that do not have a sufficient number of non-extrapolated data points or those that are very small in size. When appropriate, we then adjust the base case for performance trends, differences in pool composition, seasoning of the loans, changes in origination and servicing practices, and potential changes in the macroeconomic environment.

3.4.1 Adjusting for Performance Trends

If recent default performance trends are different from what the long-term performance would indicate, we analyze the reasons for the difference to determine whether the recent aberration is likely to continue. In our analysis, we typically give more weight to any trends that have persisted for a prolonged period and reflect a large sample of loans. If we determine that a recent trend is likely to continue, we rely on that behavior as the most relevant. We also adjust our view of recent default performance based on delinquency data, which often indicate performance trends that the default data do not yet reflect.

3.4.2 Adjusting for Differences in Pool Composition

As we have noted, one way that we adjust for differences in pool composition is by focusing on the performance of the historical pools that we deem to be the most comparable to the securitized pool. However, when we have "stratified" data, which is information on the performance of the historical pools for specific sets of loans with different characteristics, we can adjust historical data to better reflect the characteristics of the pool we are analyzing.

To use the stratified data, we extrapolate the expected default for each sub-pool first and then derive the pool expected default from the weighted average of the extrapolated default for each sub-pool, using the weights of the sub-pool in the securitized pool or, for revolving or pre-funding transactions, the concentration limits detailed in the legal documentation.

Originators stratify data by a single characteristic or by a combination of them. Originators often provide stratified data for the following characteristics and measures:

» loan characteristics (e.g., loan purpose, origination channel)

» characteristics of the obligors (e.g., FICO or internal credit score)

The purpose of a loan could play a significant part in determining a consumer loan portfolio's performance. Personal loans tend to perform worse than auto loans or loans granted to finance the acquisition of durable goods (e.g., household appliances), even in the absence of security on the asset.[8] New vehicle loans tend to perform better than used vehicle loans, owing most likely to differing borrower characteristics. Loans granted for debt consolidation are riskier because these types of loans are normally granted to borrowers who are facing financial difficulties or already in delinquency. The performance of refinanced loans is significantly worse than that of standard unsecured consumer loans; thus, we generally assume a higher mean default and/or higher volatility for refinanced loans.

Loan origination channel is another driver of portfolio performance, with broker-originated loans showing worse performance than that of loans originated at the lender's branches.[9]

3.4.3 Adjusting for the Age of Loans

Our default projection for the securitized pool excludes those defaults on a new pool that normally would have occurred prior to securitization. Static pool performance includes defaults from the time of loan origination, while our default projections for the securitized pool address defaults only during the remaining life of the securitization. Often, we can take into account the impact of aging by analyzing the performance of prior securitizations with similar pool characteristics and similar age. However, if the number of such representative securitized pools is insufficient, we base our default projection for the securitized pool on the performance of the newer vintages, with adjustments for the effect of aging. The need for adjustment arises principally from the need to account for (1) the amount of amortization versus the defaults that have already occurred, and (2) the typical exclusion of delinquent loans from a securitization.

For relatively unseasoned securitization pools, each of the effects typically is relatively small, such that the net effect is usually negligible. For more seasoned securitization pools, the adjustment either increases or decreases our expected default projection. The degree of the effect depends ultimately on the interplay of the timing of default, prepayments, and delinquencies.

3.4.4 Adjusting for Changes in Servicing Practices

Changes in servicing practices affect the delinquency and default performance of the pool of loans. Those changes often affect performance with a time lag, so their effects may not appear in the data at the time of analysis. Consequently, generally only when we assign initial ratings, we incorporate our assessment of recent trends in the servicer's practices into our analysis, based largely on an operations review meeting with the servicer. We make qualitative adjustments to our expected default projections based on that analysis, even if the effects have not appeared in the performance data.

3.4.5 Adjusting for Potential Changes in the Macroeconomic Environment

The historical data that we analyze is, in part, a product of their macroeconomic environment. Therefore, if we expect that future macroeconomic conditions will be materially different from historical conditions, we adjust our projection of the expected defaults accordingly. We do so by looking at our macro outlooks for a particular region and if not available, we refer to alternative sources. We focus on macroeconomic variables that we consider to be important drivers of performance for consumer loan pools, such as the country's GDP growth rate and unemployment rate. For certain regions with more volatile macroeconomic environments, adjustments to historical observation could be significant.

8 Auto loans included in consumer loan portfolios do not usually benefit from any form of security because the title of the vehicle remains with the obligor and is not pledged/transferred in favor of/to the lender.

9 See Appendix 4 for more information on consumer loans originated via marketplace lending platforms.

4. Methods for Assessing the Variability of Loan Defaults

We typically use one of two comparable methods to assess the variability of loan defaults.

4.1 Inferring Variability from Defaults and Credit Enhancement Levels

In the first approach, we determine the variability of the default estimate indirectly. In situations where there is a sufficiently large set of comparable rated transactions in the country (or in comparable countries), we generally infer an estimation of the variability of loan defaults from (1) our expected default estimate, and (2) the level of credit enhancement that the rating committee would deem consistent with the highest rating achievable in a particular country[10] for a security with a simple cash flow structure[11] backed by the given pool (i.e., "portfolio credit enhancement"). That level of credit enhancement derives from (1) credit enhancement levels of the existing comparable transactions in the country (or comparable countries), and (2) adjustments made to account for differences between the given pool and the comparable transactions in the factors affecting variability. We use that portfolio credit enhancement level to infer the standard deviation of the default distribution, as described later. For a given default estimate, the higher the portfolio credit enhancement, the higher the implicit standard deviation of the default distribution.

4.2 Calculating Variability from Historical Data

An alternative approach is to calculate the standard deviation or the coefficient of variation of the observed cumulative default rates and adjust it (usually upward), where necessary, to better reflect the factors that are likely to cause variability over a long-run horizon.[12] As a further check, rating committees typically benchmark that variability and the resulting portfolio credit enhancement with that or other similar transactions.

Given that the portfolio credit enhancement is typically considered by rating committees in both approaches, the direct and indirect methods are comparable and contribute to the default distribution assumption.

5. Factors that Affect the Potential Variability of Loan Defaults

As we describe below, we account for a variety of factors in assessing the potential pool's loan default variability.

5.1 The Expected Level of Defaults

Generally, the higher the level of expected defaults in the pool, the lower is the relative measure of variability. Relative variability refers to how far pool defaults can range from the mean default rate, as measured by the coefficient of variation. Conversely, the lower the level of expected defaults, the higher our assessment of the relative variability, because there is more room for defaults to increase significantly above low non-stressed default levels than there is for them to increase above already high default levels.

10 Transaction ratings are subject to our local currency country risk ceiling for the particular jurisdiction. For more information, see Appendix 2.

11 For example, a simple senior/subordinate capital structure with a sequential waterfall, before any adjustment for any transaction-specific structural features.

12 For more information, see section 5.

5.2 Historical Performance Data: Quantity, Quality, and Relevance

The specific relationship between expected defaults and variability is dependent on the quantity, quality, and relevance of the data.[13]

Typically, the longer the period covered by the historical performance data, the more applicable the historical volatility is to our assessment. Consequently, our assessment of variability tends to be higher in countries with newer consumer loan securitization markets because less historical information is typically available. However, a large quantity of performance data is helpful only if it is also of sufficient quality and relevance.

The quality of the data depends on the type provided. As we described earlier, static pool data generally contains more applicable information than data from a dynamically changing portfolio does, and stratifying the static pool data can provide the means to an even closer match to the characteristics of the securitized pool. Additional data on other variables, such as delinquencies, can provide for more robust analysis, reducing uncertainty.

The relevance of the data is dependent on whether the factors that drove the historical performance are also likely to drive the future performance of the asset pool. One consideration is whether the historical performance reflects the impact of an economic environment that is representative of what the securitized asset pool is likely to experience, or whether the performance is biased by either an unusually benign or stressful economic environment. An additional consideration in our analysis is the extent to which the underwriting, servicing, and collection policies and practices that led to the historical performance are consistent with those that would apply to the securitized asset pool.

5.3 Experience, Track Record, and Financial Strength of Originator

We typically view transactions from originators with a long track record of pools that perform consistently with our expectations as having less variability than those from originators who are newer or less experienced, or whose previous transactions experienced unexpectedly volatile performance. In addition, representations and warranties provided by the originator can reduce uncertainty about the characteristics of the assets in the pool if the originator has the financial strength to back those representations and warranties.[14]

5.4 Servicing Stability

In assessing the pool default variability, we typically examine the stability of the servicer, both from a financial strength and operational perspectives, to determine the likelihood that the servicer will apply consistent servicing practices and policies. The servicer's ability to collect on the loans and prevent defaults has a direct impact on the default performance of a pool.

Another factor in assessing servicing stability is the servicer's operational structure. The servicer's operational structure affects the degree to which a servicing dislocation would impact the pool's loss performance, including dislocation arising from a servicing transfer following a servicer's financial stress.

[13] For more information, see our cross-sector rating methodology on global structured finance data quality evaluation. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[14] For more information on how we perform originator assessments in EMEA when we assign the initial ratings to the securities, a link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

5.5 Pool Characteristics: Loan Concentrations and Loan Tenor

If the asset pool is geographically concentrated, then it could be more susceptible to the impact of regional economic shocks, leading to higher variability.[15] Similarly, the performance of pools with large loans (compared with the average loan size) tends to be more variable, everything else being equal.

The presence of loans with a longer term to maturity adds additional uncertainty to future performance, increasing potential variability. The availability of such information for the comparable static pools and the securitized pool helps to reduce the potential variability around the default estimate for the securitized pool.

5.6 Structural Features: Prefunding and Revolving Periods

In transactions with prefunding and revolving periods,[16] which allow for the addition of receivables during the life of the transaction, the potential for changes in pool composition increases the uncertainty of the default estimate of a securitized pool. As a result, those features can lead to a higher variability estimate than for a similar transaction that does not have such features. The increase in variability depends on the transaction documents' criteria, if any, for adding assets and on the inherent turnover rate of the loans.

Factors mitigating the increase in variability resulting from such features are (1) a long track record of consistent originations, (2) the originator's representation that there will be no adverse selection of additional receivables, and (3) stringent eligibility criteria in the transaction documents for the characteristics of the additional receivables.

6. Combining Expected Loan Defaults and Their Variability to Derive the Default Rate Probability Distribution

We use our assessment of the asset pool's expected defaults and variability to derive a specific lognormal probability distribution of the asset pool's defaults. We generally assume that defaults of a granular asset portfolio are lognormally distributed. A default distribution is a curve that associates each default scenario with its corresponding probability. Exhibit 1 below shows the general shape of the lognormal distribution curve.

We can build such distribution if we have a measure of its central tendency (typically the mean), and a measure of dispersion (e.g., the standard deviation or a quartile). We derive the central tendency from the asset pool's expected default rate. The standard deviation either is a direct assumption or implied from the indirect approach.[17] The indirect approach uses the "portfolio credit enhancement," determined by the rating committee for a simple cash flow structure,[18] as the credit enhancement consistent with the highest rating achievable in the country (i.e., the LCC). With those inputs, we derive the standard deviation of the distribution,[19] which is uniquely defined. Conversely, using the direct approach, we can derive the portfolio credit enhancement (at the LCC) from the pool's expected default rate and standard deviation assumptions.[20]

15 If the portfolio geographic distribution reflects the distribution of the country population, then geographic concentration is not necessarily an additional source of risk. In Japanese consumer loan transactions, we consider regional concentration as a risk only when there is concentration to non-metro areas.

16 Prefunding and revolving periods both allow for additional receivables to be added to a transaction after the closing date: In a "prefunded" transaction, some of the proceeds from the closing of the transaction are set aside in a prefunding account to be used to purchase additional receivables during the prefunding period; in a "revolving" deal, principal collections from the loans can be used to purchase additional receivables during the revolving period.

17 For more information, see section 4.

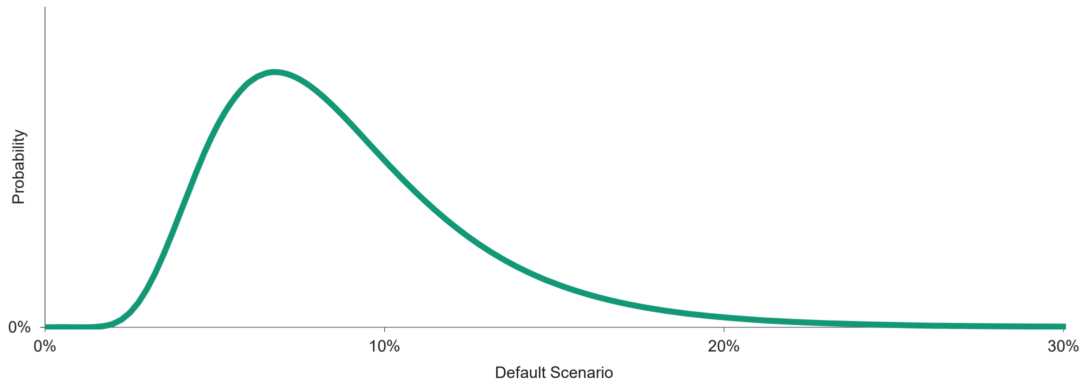
18 For example, a simple senior/subordinate capital structure with a sequential waterfall, before any adjustment for any transaction-specific structural features.

19 We typically assume a fixed recovery rate to derive a loss on the assets in our model.

20 For more information, see Appendix 2.

EXHIBIT 1

Probability Density Function of the Lognormal Distribution



Source: Moody's Investors Service

6.1 Using the Probability Distribution to Derive Expected Losses on a Security

Once we determine the probability default distribution, we calculate the projected security losses, if any, for investors in a multitude of portfolio default scenarios, using a model of the structure that closely represents the allocation mechanisms of the transaction, trigger levels, and the size and availability of credit enhancement. Inputs to the model, in addition to the amount of loan defaults, include the timing of the defaults and the amount and timing of recoveries on defaulted loans. We then determine the expected loss on the security by weighting the security losses by the probabilities that are consistent with the lognormal probability distribution of loan defaults. Finally, we determine the model output on the security based on our pre-established benchmark relationships between a security's expected loss and our ratings, using Moody's Idealized Cumulative Expected Loss rates.[21]

6.2 Modeling the Transaction

We typically use a probabilistic model to evaluate the losses of the securities, if any, that investors would incur in a multitude of loan default scenarios, which we assume will occur with a frequency consistent with the specific lognormal distribution that we have assumed. The model helps to assess the benefit of the various sources of credit enhancement, including excess spread, and the different structural features of the transaction.

We typically consider specific structural elements in our analysis. Key input parameters, in addition to the magnitude of loan defaults, include the timing of the defaults, and the amount and timing of recoveries on defaulted loans, as described below. We typically also model the following transaction features:

» the yield earned on the assets for each period, taking into account any stresses – including both the possibility of relatively rapid prepayment of high-interest loans or the potential for loan renegotiations – that may cause this yield to decrease

» the scheduled amortization profile of the loans

[21] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions* (a link can be found in the "Moody's Related Publications" section) and in the "Loss Benchmarks" section.

» an assumption about the prepayment rate of the loans[22]

» transaction fees

» the interest rates on the securities, including interest rate swaps

» the reserve amount, if any, including provisions governing changes in the amount

» how the transaction allocates cash flows and losses among the various parties in the transaction, including different classes of securities

» the triggers that can change those allocations

» potential losses associated with legal risks, such as cash commingling or set-off risk, when not adequately mitigated in the structure

The model calculates the security's loss for each portfolio default scenario of the lognormal curve. The model then weights each security's loss by the frequency implied by the probability distribution. We then sum the weighted losses to calculate the security's expected loss.

6.3 Timing of Defaults

In our cash flow modeling, we allocate each scenario's cumulative default across the life of the security using an assumed default timing curve, which describes the proportion of defaults that occur in each period.[23] The timing of defaults is important in the analysis because it determines the extent to which the transaction's excess spread in each period will be sufficient to cover the period's defaults. For example, if defaults occur towards the end of a transaction (after previous excess spread has gone unused and has "leaked out" to other transaction participants), less remaining excess spread will be available to cover the losses that result from those "back-ended" defaults. The timing of defaults can also have an impact on how triggers related to the level of default are hit. For example, if defaults occur early in the transaction, stop revolving triggers might be hit and early amortization of the securities may commence.

Empirical evidence suggests that defaults on consumer loans tend to be concentrated during the early life of loans (i.e., the first 12-24 months), gradually decreasing after this period. However, since the timing is variable and back-ended defaults can lead to higher losses on securities, we often test a variety of default timing curves and may adjust our conclusions to incorporate the impact of more back-ended defaults.

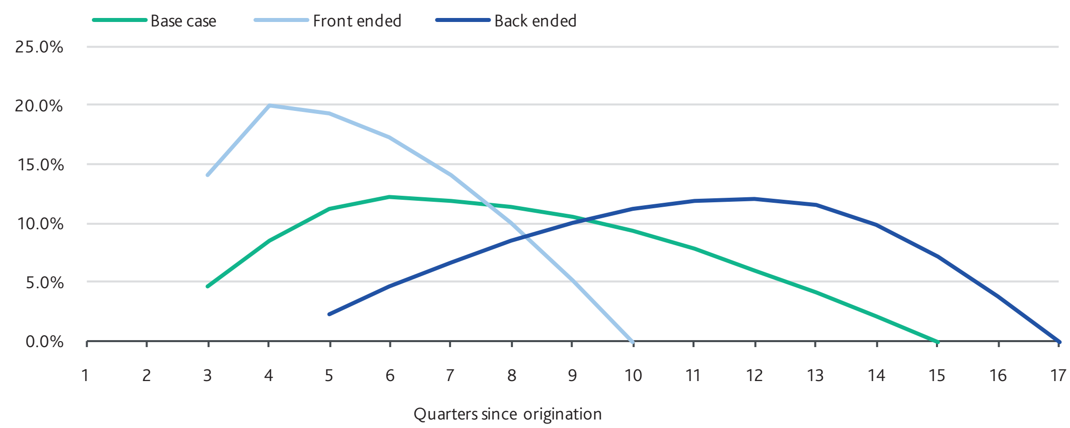
We show three alternative default timing curves in Exhibit 2. The green line (base case) reflects an indicative "typical" default timing curve observed for an unsecured consumer loan portfolio. We also show two illustrative alternative curves, a "back-ended" and a "front-ended" curve.

22 Prepayments are unscheduled principal collections (i.e., partial or total repayment of the outstanding debt before the amounts become due). We calculate "dynamic" prepayment data as the ratio between prepayment amounts received during each period and the outstanding portfolio as of the same date. The constant prepayment rate (CPR) is often an annualized percentage.

23 The default timing curve may have different shapes, such as sinus or flat over a certain period.

EXHIBIT 2

Typical Default Timing Curves



Sources: Moody's Investor Service, Moody's Performance Data Service, periodic investor/servicer reports

6.4 Magnitude and Timing of Recoveries

Loans backing consumer loan transactions are typically unsecured, and thus the recovery rates on defaulted loans are relatively low. We generally base our assumption regarding the magnitude of the recovery rate for a particular transaction, in part, on historical static pool data provided by the originator or servicer as a starting point. However, we may adjust the historical data for a variety of factors, including the below. Assumed recovery rates are usually in the 0%-30% range.[24]

6.4.1 Definition of Default

Recovery rates are typically higher for loans that are declared in default after a shorter period of delinquency. For instance, for loans that are defined to be in default after 90 days of delinquency, the recovery rate is typically higher than for loans defined to be in default after 180 days.[25] Loans that are defined to be in default after a relatively short period of delinquency:

» are more likely to have been driven to default by a temporary factor (e.g., a temporary liquidity shortfall) that subsequently may be reversed, allowing the borrower to resume payments; and

» are more likely to have manageable accrued balances.

Consequently, we may adjust our estimate of recoveries in cases in which the definition of default for the historical recovery data is different from the definition used in the transaction.

6.4.2 Definition of Recoveries

In some cases, recovery data include interest and fees, as well as the principal component of the loan. As a result, the historical recovery data would overstate the amount of principal that would likely be recovered.

6.4.3 Impact of the Economic Environment on Recoveries

We may adjust historical recovery rates if we believe the future economic environment is likely to be different than the economic environment in which the historical recovery data were generated.

[24] For certain types of loans, we consider additional factors when estimating the recovery rate. Appendix 3 sets out the approach for CDQ and DP loans transactions.

[25] In certain jurisdictions, there is no "default definition" for the assets or the transaction. In those cases, we use as a proxy late delinquencies (e.g., 180 days).

6.4.4 Timing of Recoveries

In addition to estimating the magnitude of the average recovery rate, we assess the timing of recoveries. Recoveries with long time lags are more stressful to a transaction than those with short time lags. We base our assumption on our assessment of the efficiency of the servicer's operations and collection procedures, and the historical average recovery lags and their variability, including the servicer's policies for loan restructuring and recording of recoveries from restructured loans.[26]

6.5 Evaluating the Benefit of Excess Spread

Excess spread is the difference between the interest earnings on the loans and the sum of (1) the interest on the securities and (2) the fees of the transaction. Interest rate levels of unsecured consumer loan products are higher than those of secured loans, such as mortgage loans or secured auto loans. Therefore, excess spread can provide a significant amount of credit protection to investors in consumer loan transactions. However, the exact amount of protection that it will provide is unknown at the start of the transaction and depends on three main factors:

1. The amount by which the average interest rate on the loans could decrease over the life of the security, which we refer to as weighted average coupon (WAC) deterioration or yield compression. This amount might be the effect of either (1) high-yielding loans being repaid or prepaid at a pace faster than other loans, (2) renegotiations of loan interest rates lowering the average rate if allowed by the transaction documents, or (3) the possibility to add new loans during a revolving period with lower interest rates.

2. The speed with which loans prepay during the life of the security.[27]

3. The amount of excess spread that "leaks out" of the transaction before it is needed to protect investors. The risk of leakage is typically highest in the early months of a transaction when losses are relatively low.

We typically model the first factor by assuming that the loans with the highest interest rates, up to a specified portion of the pool, prepay immediately. We determine the size of the specified portion assumed to prepay immediately based on historical experience, which may differ by type of loan. We also assume that, in cases where the servicer has the right to renegotiate lower interest rates with borrowers, the servicer will exercise that right up to the threshold allowed by transaction documents. The prepayment of the loans with the highest interest rates and loan renegotiations tends to lower the weighted average interest rate of the remaining loans; we use that calculated lower interest rate in the cash flow modeling.

We incorporate the effects of the last two factors into the modeling, through the assumed prepayment rate, the default timing curve, and the modeling of the cash flow allocations among the participants.

6.6 Analyzing the Risk of Short-term ("Money Market") Tranches

Some transactions contain a money market tranche that matures within 13 months of issuance. A key part of our analysis is determining the likelihood that the transaction (including consideration of available liquidity accounts) will provide sufficient cash flow to pay off the tranche before its stated legal final maturity. To analyze the risk, we focus on the timing of cash flows from the underlying assets.

[26] In Spain, some servicers report an immediate 100% recovery rate for restructured loans. As a result, recovery data from restructured loans reflect shorter recovery time lags compared with the actual cash flows.

[27] Prepayments are generally higher in a decreasing interest rate environment or highly competitive market, where cheap refinancing is readily available. Prepayments are also related to the commercial practices of the originator regarding loan refinancing.

For a money market tranche to be rated Prime-1 (sf), cash flows must be sufficient to pay off the tranche in full under certain stress scenarios, typically at least one month before its legal final maturity date. Such scenarios include low or no prepayments. In a base case scenario, we typically expect the cash flows to be sufficient to completely pay down the tranche at least three months before its legal final maturity. We also assess the adequacy of liquidity in reserve accounts and other structural features against the risks of operational disruption.

6.7 Specific Risks in Synthetic Transactions

When the credit risk is transferred synthetically (e.g., through credit default swaps), we focus our analysis on (1) the specific credit event definition[28] (e.g., failure to pay, bankruptcy, and some restricted restructuring or loss definitions); (2) the counterparty risk with regard to the originator as credit protection buyer (typically mitigated by advance payments depending on the originator's creditworthiness); (3) the loss allocation mechanism;[29] (4) the synthetic excess spread mechanism, if any;[30] and (5) potential moral hazard problems resulting from the reliance on the credit protection buyer to (a) provide notification of a credit event (as public information is usually not available) and (b) calculate the loss amounts in its capacity as calculation agent (typically mitigated by a verification process performed by an independent third party).[31]

7. Using the Model Outcome as an Input in the Rating Committee Process

We typically use a comprehensive cash flow model, ABSROM™, which enables us to model transaction cash flows derived from portfolios of consumer loans and the associated liability structure. The model produces a series of loss scenarios with outputs for each security that include the expected loss, weighted average life, and default probability.

The results of our modeling are important inputs to our rating committee process. However, the actual security's rating assigned by the rating committee incorporate both those inputs and numerous other factors including, for example, the results of sensitivity analyses of the model outputs to certain assumptions and qualitative analyses relating to factors such as:

» underwriting and servicing practices;

» the risk of disruption in the transaction's cash flows that could result from the non-performance of a third party (operational risk); or

» other counterparty-related risks.

7.1 Operational Risk

The strength of a consumer loan transaction depends not only on the creditworthiness of the underlying pool of assets but also on the effective performance of transaction parties such as the servicer, cash manager, and trustee. A disruption of servicing may result in a weakening of collection activities, leading to increased delinquencies, lower recoveries, and ultimately higher losses on the securitized pool. Alternatively,

[28] A definition may be considered tighter or looser depending on the number and type of contingencies that will trigger a protection payment and on the level of subjectivity in their quantification.

[29] The loss amount is generally defined as the credit protection payment (i.e., the payment made by the issuer/seller to the originator/buyer that is triggered by the occurrence of a credit event). Securities to which losses are allocated are partially written down in the amount of such loss amount.

[30] Typically, the excess spread is either available on (1) a use-it-or-lose-it basis (i.e., at a fixed amount, generally a percentage of the non-written off note balance or of the performing portfolio) for a given period (generally one quarter or one year), making it sensitive to the timing of defaults; or (2) a trapped basis (i.e., at a fixed amount, generally a percentage of the non-written off securities or of the performing portfolio). In each period, to the extent not used before, excess spread is accumulated in a specific ledger.

[31] For more information, see our cross-sector methodology to assessing counterparty risks in structured finance and our methodology for rating corporate synthetic collateralized debt obligations. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

disruption of the operations of a cash manager or trustee could result in a payment default despite adequate collections.[32]

7.2 Bank Accounts

Consumer loan transactions in which an issuer account bank holds or has invested a substantial amount of the transaction's cash relative to the liabilities are potentially subject to rating volatility if the bank or eligible investment defaults. The cash or the investments would not be recoverable quickly, with ultimate recoveries uncertain, and could lead to additional losses for investors.[33]

7.3 Swap Risk

Our approach to assessing the rating impact of linkage to swap counterparties depends on various factors, including (1) the rating of the counterparty; (2) the rating trigger provisions in the swap documents; (3) the type and tenor of the swap; (4) the amount of enhancement supporting the securities; (5) the size of the relevant tranche; and (6) the rating on the securities before accounting for the effect of linkage.[34]

8. Legal Considerations

Our analysis focuses on the legal risks posed by the potential bankruptcy of the transaction originator, securitization vehicle, servicer, collections account bank, and other relevant parties. We also assess consumer protection laws and regulations applicable to the consumer loan contracts, the obligors, and the originators. We review legal opinions at closing to further inform our views on the key legal risks identified in a transaction.

8.1 Bankruptcy of the Originator

Our legal analysis of the potential bankruptcy of the originator is an assessment of the following key factors:

» whether the originator has sold the receivables (in what is often referred to as a "true sale")

» whether a court would consolidate the owner of the assets (e.g., the securitization trust) with the originator, in the event of the originator's bankruptcy (often referred to as "substantive consolidation")

» whether the securitization trustee can enforce its ownership or security interest in the collateral once the originator has filed for bankruptcy protection (referred to as "perfection" of the security or ownership interest)

Our legal analysis of these risks depends on the jurisdiction and applicable securitization laws.

In some circumstances, the bankruptcy of the originator can pose other risks that could reduce the cash flow available to repay the securities, such as set-off risk and cash commingling risk, as described below.

8.2 Set-off Risk

In some cases of a bankruptcy of the originator, loan obligors to whom the originator owes money might be able to "set off" those amounts against the loan balance (i.e., reduce the loan balance by the amount owed

[32] For more information, see our approach to assessing counterparty risks in structured finance, including operational risks. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[33] For more information, see our approach to assessing counterparty risks in structured finance, including account bank and investment-related risks. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[34] For more information, see our approach to assessing counterparty risks in structured finance, including swap counterparties. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

by the originator). The typical situation in which this risk arises is when the originator is a bank and the loan obligors have deposits at that bank. The amount of the set-off represents a reduction in the principal amount of the loan pool and is, effectively, a loan loss.

To analyze this risk, we assess jurisdiction-specific laws and regulations governing the right to set off deposits in the event of bankruptcy. In jurisdictions that allow set-off, and for transactions without structural protections to fully mitigate set-off risk, we generally estimate the potential set-off exposure by modeling the probability of a default by the originator and the extent to which the originator is likely to owe money to loan obligors.

8.3 Cash Commingling Risk

Cash commingling risk is the risk that, if a bankrupt servicer is holding cash collections of the transaction at the time of its bankruptcy, the bankruptcy court could determine that the cash was part of the servicer's bankruptcy estate because the cash could not be traced to individual creditors. The bankruptcy court can freeze that cash until it sorts out conflicting claims, resulting in liquidity risk. It could also ultimately decide that the securitization trust has only an unsecured claim on the cash, resulting in credit risk.

We analyze the following factors in determining the extent of the risk:

» the likelihood of servicer default, as measured by the servicer's credit strength

» any transaction document provisions that require the trustee to transfer servicing to a backup servicer if the existing servicer's rating falls below a specified rating

» the potential amount of the transaction's cash that the servicer holds at the time of bankruptcy, which reflects:

- the cash payment patterns of the loans
- the frequency with which the transaction documents require the servicer to sweep cash from the servicer's collection account to the issuer's account
- the potential for cash to continue to flow to the servicer after bankruptcy and become part of the servicer's bankruptcy estate, potentially mitigated by requirements in the documentation to redirect collections to another account in the event of servicer bankruptcy or a pre-bankruptcy event

In certain instances, we include in our cash flow analysis the additional shortfalls that could arise from cash commingling, net of the transaction's credit enhancement, liquidity, and other structural protections.[35]

8.4 Japanese Cancellation Risk

Consumer sales contracts are often canceled in Japan when, among other things, financed goods have defects. In those cases, the related consumer loan contracts are canceled, and the originator needs to repurchase the loans at par from the SPE under the representation and warranty clause. However, if the originator has gone bankrupt, it may not be able to repurchase the loans, resulting in a loss for the securitized pool held by the SPE.

In assessing the cancellation risk, seasoning of the loans is an important factor, since cancellations typically occur within the first few months of origination. If the securitized pool includes only seasoned loans due to the loan eligibility criteria of the securitized pool or any other reasons, the cancellation risk is considered as mitigated. In addition, as long as the originator doesn't default within the first few months after transaction closing, the securitized pool will not incur losses because of the originator's repurchase obligation. When the cancellation risk is not mitigated (e.g., loans are securitized shortly after the origination), then we

[35] For more information, see our cross-sector methodology to assessing counterparty risks in structured finance, including commingling risk. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

incorporate the loan cancellation risk, considering available historical data from the originator loan book and previous securitizations.

8.5 Japanese Overpaid Interest

Some consumer loans originated prior to 2010 are subject to claims by borrowers for "overpaid interest" on the loans. If a court grants a claim for overpaid interest, or the originator voluntarily agrees to it, then the originator must calculate the cumulative overpaid interest amount and apply it as a principal payment, resulting in a reduction of the remaining principal. If the cumulative overpaid interest exceeds the current principal balance, the originators can refund the remaining overpaid interest amount. Furthermore, if the originator goes into bankruptcy, the receiver may decide to recalculate all loans with overpaid interest in the bankruptcy proceedings.

For securitized loans, if the principal balance has been recalculated because of overpaid interest, the originator typically must repurchase the loan from the securitization at full value (i.e., undiluted for overpaid interest reductions of principal). However, if the originator does not repurchase the loan (e.g., if the originator becomes bankrupt), then the securitization trust will dilute the securitization's principal and the originator will have to pay the remaining claim. Consequently, when transactions include loans subject to overpaid interest, we consider the risk case-by-case in our analysis including the originator's credit quality and the likelihood of a recalculation of the principal balance.

9. Sovereign Risk

The country in which the transaction's assets, originator, or issuer is located could introduce systemic economic, legal or political risks to the transaction that could affect its ability to pay investors as promised. We usually incorporate such risks into the analysis by applying our local currency country ceilings (LCC) in accordance with our sovereign ceiling methodology.[36] In particular, when generating our assumed portfolio loss distribution, we typically define the portfolio credit enhancement consistent with the highest rating achievable in the country (i.e., the LCC). A rating committee may also consider modifying appropriate assumptions or defining minimum credit enhancement levels required to achieve a particular rating.[37]

10. Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of securities backed by a portfolio of consumer loans. We evaluate the risk following our cross-sector methodology that describes our general principles for assessing these ESG issues[38] and may incorporate it in our analysis.

11. Monitoring

11.1 Transaction Performance

We generally apply the key components of the approach described in this report when monitoring transactions, except for those elements of the methodology that could be less relevant over time, such as originator assessments, underwriting standards for static pools, or review of the legal structure. We also typically receive periodically extensive data on transaction-specific performance which we use to monitor

[36] For more information, see our approach to assigning local and foreign currency country ceilings. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[37] For more information, see Appendix 2.

[38] For more information, see our methodology that describes our general principles for assessing ESG issues. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

transactions. We may give more weight to performance information for seasoned transactions, in particular when delinquencies and losses are higher or lower than expected.

When monitoring the performance of outstanding ABS, we track the performance of the underlying collateral and relevant developments regarding the originator, servicer, and other participants in the transaction; the amount and form of credit enhancement; and factors that affect the integrity of the legal structure. The starting point is typically the monitoring of the collateral performance relative to our initial expectations.

The performance metrics that we typically track are the then-current cumulative default rate,[39] recoveries, and redemption rates for the transaction, which we use in combination with the issuer's historical loss experience to update when deemed appropriate, our estimate of the ultimate lifetime default rate and recoveries on the pool of loans.[40] We also take into account any material changes in the macroeconomic environment that could affect future performance. We then use that updated estimate to assess whether the current ratings assigned to the transaction are still appropriate based on the credit protection available to investors. Our evaluation of the credit protection considers both the current levels of credit enhancement as well as how the transaction's structural features, such as the cash allocation mechanics among the various classes of investors, are likely to affect the credit enhancement and the extent to which the transaction allows the release of credit enhancement. When appropriate, we run a cash flow model to evaluate the expected losses of the securities similar to the approach we use to assign the initial ratings.[41]

Our monitoring analysis also includes an assessment of the stability of the servicer, swap counterparties, and credit support providers. If these entities become unable to fulfill their obligations to the transaction, the risk of declining cash flows to investors will increase. Thus, changes in the financial stability of an entity that could have an impact on the rating of the securities can result in a rating action on the securities.

11.2 Pool Size

In assessing pool diversity for consumer loan ABS transactions, we look beyond the nominal number of borrowers in a pool to take into account the actual size of the borrowers' loans. We express this pool diversity measurement, referred to as the effective number, in terms of equal-sized exposures, using the formula in Exhibit 3.

We typically use loan-level information to calculate an effective number of borrowers or loans.

EXHIBIT 3

$$Effective\ Number\ of\ n\ Borrowers\ (or\ Loans) = 1 / \sum_{i=1}^{n} (W_i)^2$$

Where:

» W_i is the weight of a borrower (or loan) i in the total pool.

Source: Moody's Investors Service

We do not assign nor maintain ratings on securities backed by consumer loans with the following characteristics:

[39] We sometimes receive dynamic data instead.

[40] For more information on revising performance metrics over the life of an EMEA consumer loan-backed ABS transaction, see Appendix 5.

[41] For example, in methodologies where models are used, modeling is not relevant when it is determined that (1) a transaction is still revolving and performance has not changed from expectations, or (2) all tranches are at the highest achievable ratings and performance is at or better than expected performance, or (3) key model inputs are viewed as not having materially changed to the extent it would change outputs since the previous time a model was run, or (4) no new relevant information is available such that a model cannot be run in order to inform the rating, or (5) our analysis is limited to asset coverage ratios for transactions with undercollateralized tranches, or (6) a transaction has few remaining performing assets.

- Transactions without support mechanisms, such as a credit enhancement floor or reserve fund floor, when the underlying pool has decreased to an effective number of borrowers or loans of 75 or below. If we cannot obtain the effective number, we will use a threshold of 130 instead.
- Transactions with a reserve fund or credit enhancement floor, which partially compensates for the increased exposure to single borrowers, when the underlying pool has decreased to an effective number of borrowers or loans of 50 or below. If we cannot obtain the effective number, we will use a threshold of 90 instead.

However, we make exceptions for securities with ratings that do not rely on our assessment of individual obligor creditworthiness, such as those that benefit from a full and unconditional third-party guarantee, whether at pool or security level,[42] or for securities that benefit from full cash collateralization.

12. Loss Benchmarks

In evaluating the model output for consumer loan-backed ABS transactions, we select loss benchmarks referencing the Idealized Expected Loss table[43] using the Standard Asymmetric Range, in which the lower-bound of loss consistent with a given rating category is computed as an 80/20 weighted average on a logarithmic scale of the Idealized Expected Loss of the next higher rating category and the Idealized Expected Loss of the given rating category, respectively. For initial ratings and upgrade rating actions, the upper-bound of loss consistent with a given rating category is computed as an 80/20 weighted average on a logarithmic scale of the Idealized Expected Loss of the given rating category and the Idealized Expected Loss of the next lower rating category, respectively. When monitoring a rating for downgrade, the upper-bound of loss is computed as a 50/50 weighted average on a logarithmic scale. That is, the benchmark boundaries of loss appropriate for evaluating rating category R are given by:

EXHIBIT 4

$$[1]\ Rating\ Lower\ Bound_R = exp\{0.8 \cdot \log(Idealized\ Expected\ Loss_{R-1}) + 0.2 \cdot log(Idealized\ Expected\ Loss_R)\}$$

$$[2]\ Initial\ Rating\ Upper\ Bound_R = exp\{0.8 \cdot \log(Idealized\ Expected\ Loss_R) + 0.2 \cdot log(Idealized\ Expected\ Loss_{R+1})\}$$

$$[3]\ Current\ Rating\ Upper\ Bound_R = exp\{0.5 \cdot \log(Idealized\ Expected\ Loss_R) + 0.5 \cdot log(Idealized\ Expected\ Loss_{R+1})\}$$

Where:

- *Rating Lower Bound$_R$* means the lowest Idealized Expected Loss associated with rating *R* and the expected loss range of rating *R* is inclusive of the *Rating Lower Bound$_R$*.
- *Initial Rating Upper* Bound$_R$ means the highest Idealized Expected Loss associated with rating *R* that is either initially assigned or upgraded and the expected loss range of rating R is exclusive of the *Rating Upper Bound$_R$*.
- *Current Rating Upper Bound$_R$* means the highest Idealized Expected Loss associated with rating *R* that is currently outstanding and the expected loss range of rating *R* is exclusive of the *Rating Upper Bound$_R$*.
- *R-1* means the rating just above *R*.
- *R+1* means the rating just below *R*.
- The Rating Lower Bound for Aaa is 0% and the Rating Upper Bound for C is 100%. These are not derived using the formula.

Source: Moody's Investors Service

[42] For more information, see our rating methodology for assessing transactions based on a credit substitution approach. A link to a list of our sector and cross-sector methodologies can be found in "Moody's Related Publication" section.

[43] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions.* A link can be found in the "Moody's Related Publications" section.

Appendix 1: Extrapolation of Historical Data

For historical pools that reflect only a part of their life cycle but contain some useful data, we extrapolate defaults or losses to date for the remainder of the pool's life. To extrapolate default or loss data for the missing periods, we typically rely on average changes in the cumulative rate, either as an absolute number or a percentage, in similar pools during those periods.

We generally use one of two methods to extrapolate vintage data series (when available), both of which yield similar results in most circumstances. We typically use a single extrapolation method in a given market to enhance consistency across transactions in the market.

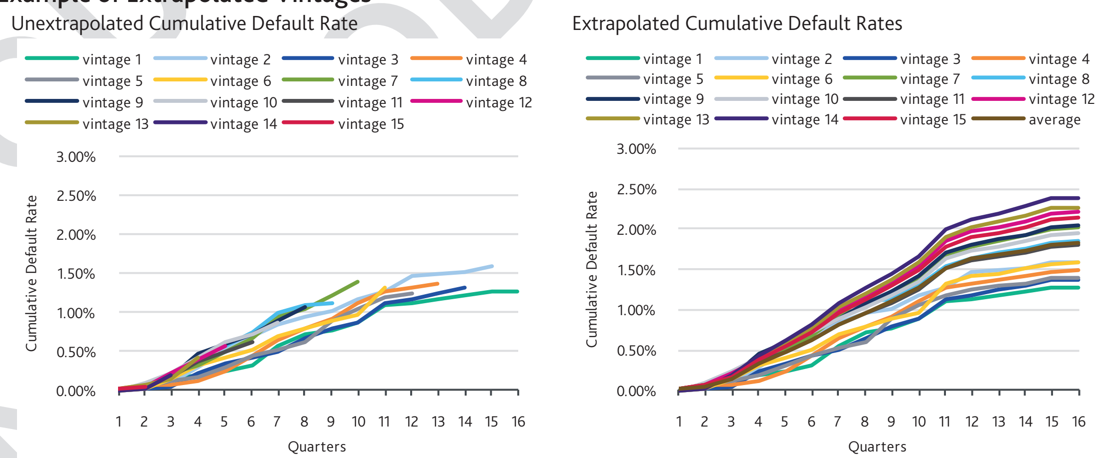
The Growth Rate Extrapolation Method

The Growth Rate Extrapolation Method is based on the calculation of the growth rate of the average cumulative defaults[44] (using a comparable number of data points) during previous periods. We extrapolate default data for a vintage by multiplying the last historical data point by one plus the growth rate of the average cumulative defaults of the specific period, and then repeat the process for each successive period by using the last extrapolated figure as the starting point. In Exhibit 5 below, the chart on the right shows the result of extrapolating uncompleted vintages from the chart on the left using the Growth Rate Extrapolation Method.

If the static pool performance history does not include pools that have paid down in full, we can extend the actual default curves to capture the impact of potential defaults after the observation period until the term of the loans and build a full default timing curve. To "simulate" these potential defaults, we can extrapolate the default rate of the longest observed period to the weighted average maturity of the pool for each vintage curve, at a rate equal to the last observed growth rate.

EXHIBIT 5

Example of Extrapolated Vintages



Source: Moody's Investors Service

44 Or losses, when we extrapolate losses.

The Delta Net Loss Timing Curve Method

The starting point is to create a loss timing curve for the originator. The loss timing curve provides the percentage of the overall lifetime losses the receivables are likely to incur at various intervals of the pool's life. We can use the loss timing curve to extrapolate the cumulative losses on a static pool of receivables from its current level to the expected level at maturity.

We frequently use the "Delta" Loss Curve Method to construct the loss curve. In this method, we use an increment (delta) of each vintage's cumulative loss rates to calculate the average incremental loss rates across vintages for each period (the average delta loss rate). Next, we calculate the cumulative average "delta" loss rate for each period by adding the incremental delta loss rates up through that period (cumulative delta loss).

If the static pool performance history does not include pools that have paid down in full, the static pools will incur losses over their remaining lives. Therefore, to apply the cumulative average delta loss to pools that we need to extrapolate, we determine the "anchor" or terminal value of the cumulative delta loss curve. We can use several methods to forecast the anchor value; one is to analyze the trend line of six-month deltas to determine the projected six-month deltas over the remaining life. We add these projections to the life-to-date losses to determine the anchor or terminal loss.

We create the loss curve by calculating the percentage of the total cumulative delta loss incurred in each period after origination. We can then use the loss timing curve to project the cumulative loss for each of the vintages with an incomplete history by dividing the life-to-date loss for any vintage by the corresponding value of the loss timing curve.

EXHIBIT 6
"Delta" Loss Curve Method

Column	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Originations (in $000')	25,216	26,878	27,815	27,327	26,943	28,433				
Pool Factor	0.01%	0.31%	1.92%	10.56%	25.38%	48.76%				

Year	1	2	3	4	5	6			Loss Curve	
1	0.68%	0.86%	0.94%	0.76%	0.74%	0.72%			24.28%	
2	1.73%	1.84%	2.32%	1.96%	1.74%	1.71%			58.38%	
3	2.26%	2.57%	2.64%	2.39%	2.18%				73.57%	
4	2.49%	3.28%	2.91%	2.75%					85.74%	
5	2.59%	3.50%	3.46%						94.73%	
6	2.66%	3.75%							99.69%	
7	2.67%								100.00%	
Projected Lifetime Loss	2.67%	3.76%	3.65%	3.21%	2.96%	2.93%				

(5) Projected lifetime loss calculation: 2.18/73.57=2.96%

(1) Delta calculation: 2.26-1.73=0.53

Incremental static pool losses

(3) Cumulative calculation: 0.78+1.1=1.88

(2) Average delta loss calculation: Year 1 average=0.78

								Average Delta Loss	Cumulative Delta Loss	Loss Curve
1	0.68%	0.86%	0.94%	0.76%	0.74%	0.72%		0.78%	0.78%	24.28%
2	1.05%	0.98%	1.38%	1.20%	1.00%	0.99%		1.10%	1.88%	58.38%
3	0.53%	0.73%	0.32%	0.43%	0.44%			0.49%	2.37%	73.57%
4	0.23%	0.71%	0.27%	0.36%				0.39%	2.77%	85.74%
5	0.10%	0.22%	0.55%					0.29%	3.06%	94.73%
6	0.07%	0.25%						0.16%	3.22%	99.69%
7	0.01%							0.01%	3.23%	100.00%

(4) Loss curve calculation: 3.06/3.23=94.73%

Source: Moody's Investors Service

Appendix 2: Incorporating Sovereign Risk to Consumer Loan ABS Transactions

Loss Distribution Curve Accounts for Changes in the Probability of High Loss Scenarios

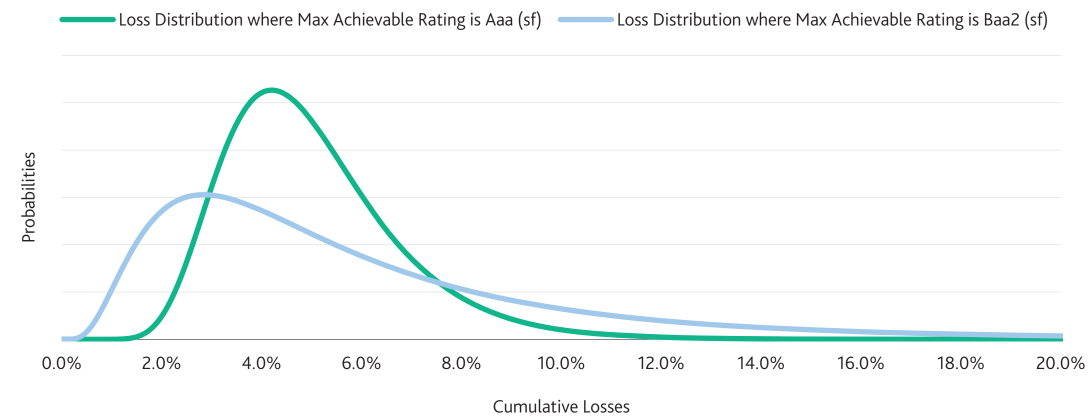
The modeling approach for consumer loan ABS transactions usually takes into account the country's local currency country risk ceiling (LCC) when calibrating the portfolio loss distribution, which we use to generate portfolio losses. In particular, we typically define the portfolio credit enhancement as the credit enhancement consistent with the highest rating achievable in the country (i.e., the LCC).[45]

As Exhibit 7 shows, two loss distributions reflecting the same amount of portfolio credit enhancement but different maximum achievable ratings will have markedly different shapes, meaning the losses and their associated probabilities differ markedly. The loss distribution for a maximum achievable rating of Aaa (sf) has a lower probability of very high loss scenarios than the loss distribution of a maximum achievable rating of Baa2 (sf).

EXHIBIT 7

Calibration of Credit Enhancement to Aaa (sf) vs. Baa2 (sf)

Same Portfolio Credit Enhancement for Different Country Ceiling Levels



Source: Moody's Investors Service

Under this approach, if we lower the maximum achievable rating for structured finance transactions in a country, we will not necessarily lower the portfolio credit enhancement. For example, if a maximum achievable rating of Aaa (sf) previously corresponded to 10% portfolio credit enhancement, a new maximum achievable rating of Baa2 (sf) may also correspond to 10% portfolio credit enhancement, to account for the risk of a higher probability of high loss.

Calibrating the loss distribution using the same enhancement amount but a lower rating results in a fatter tail on this curve, which takes into account the higher probability of high losses on the rated tranche in a country with a lower ceiling.

This approach provides for consistent stress across the capital structure, from the senior to the junior classes.

[45] In certain circumstances, in particular for low LCC levels, we may consider alternative loss distribution assumptions or may not adjust our loss distribution assumption taking into consideration the LCC.

Minimum Portfolio Credit Enhancement

Furthermore, for transactions issued from countries where the availability of information limits the predictability of severe stress, our analysis will also consider additional features. Specifically, we may subject the CE consistent with the highest rating achievable in a given market to two floors, namely the (1) minimum portfolio CE, and (2) minimum expected loss multiple. The minimum portfolio CE mitigates general market factors, such as system-wide event risk and asset correlation, which could lead to high losses in the pool in the event of extreme stress despite overall good asset quality. We set the minimum portfolio CE level at different levels for each affected country and asset class, to reflect the underlying economic uncertainty in the specific market.

We generally determine the minimum portfolio credit enhancement levels for each country as a function of the potential deterioration arising from macroeconomic, social, or political events that would affect all portfolios originated in a particular jurisdiction, regardless of (1) the strength of the origination and underwriting processes of an originator, (2) the type of borrowers in a portfolio, or (3) the characteristics of the underlying security that the borrowers provide. We apply such minimum portfolio CE levels as long as we assume that those conditions will prevail.

We may also apply a minimum expected loss multiple to ensure that extreme loss scenarios have an adequate probability of occurrence in our analysis. We apply this multiple when we assign or update the expected loss. We determine it as a multiple of the transaction's expected loss to ensure that we maintain a minimum level of difference between the expected loss and the portfolio CE. The method for calculating the multiple allows the loss distribution used to simulate losses incurred by the securitized portfolio to maintain a minimum coefficient of variation. Moreover, this method is particularly important for transactions with high expected loss assumptions or where there is an expectation of adverse performance, in which the arrears performance of the collateral portfolio is not yet reflecting but is already qualitatively incorporated into the expected loss assumption.

The multiples differ based on the level of the expected loss assumed for the portfolio but typically will range from between 3x (for high expected loss assumptions) and 5x (for low expected loss assumptions).

Appendix 3: Analyzing CDQ and DP Transactions

Cessione del Quinto (CDQ) and Delegazione di Pagamento (DP) loans are Italian consumer loan products with two main characteristics that differentiate them from standard unsecured consumer loans. First, loan payments are debited directly from the obligor's salary. Second, the loans are backed by insurance that protects against unemployment (for non-retired obligors) and mortality risk.

Background on CDQ and DP Loans

For a CDQ loan, loan installments cannot exceed 20% of the monthly after-tax salary or pension payment of the employee. The employer or pension provider is legally obligated to deduct the loan installments directly from the employee's monthly salary or pension and forward the funds to the lender. CDQ loan payment obligations are collateralized by any severance pay (Trattamento di Fine Rapporto (TFR))[46] that the employee has accrued and that third-party creditors of the debtor cannot revoke or attach (Art. 68 of Law 180/1950). Furthermore, the loans must have an insurance policy that protects against unemployment (termination), resignation, early retirement, and death of the employee. Italian law established CDQ loans originally for public-sector employees but subsequently widened eligibility to include pensioners and private-sector employees.

DP loans are similar to CDQ loans in that the loan installments are deducted from the employee's salary, are paid to the lender by the employer, and are insured. However, there are some important differences between the two types of loans:

» For DP loans, the employer must expressly accept the obligation to deduct the loan installments and make the loan payments. Furthermore, if the employee becomes employed with a new employer, the new employer must expressly accept the payment obligation.

» Unlike CDQ loans, DP loans are usually provided only in conjunction with a previous CDQ loan. The sum of the payments on CDQ and DP loans can constitute up to 50% of the employee's after-tax salary.

» In the case of DP loans, the TFR does not automatically collateralize the loan unless the debtor and employer expressly provide written consent, which is typically the case.[47] Furthermore, in situations where a borrower has both a DP loan and a CDQ loan, the DP is subordinated to the CDQ with respect to the protection provided by TFR.[48]

» If a private employer becomes insolvent, the payment delegation mechanism is automatically terminated for DP loans. Therefore, the lender has no claim against the employer for the DP loan payments, except for the installments that were due and payable before the declaration of insolvency. However, the claim against the obligor remains legal, valid, binding, and roughly equivalent to that of a typical unsecured consumer loan.

» For DP loans, in the event of originator insolvency, the bankruptcy receiver can terminate the employer's payment delegation. In such cases, the issuer of the securities in its capacity as the lender can request a new payment delegation, which the employer may or may not grant.

» In contrast to CDQ loans, the salary delegation under DP loans is not exempt from seizure and attachment proceedings set forth under Article 42 of the Presidential Decree 180. Therefore, in the event of an insolvency of the borrower, a court could attach the delegated portion of the salary to pay another debt.

46 TFR is severance pay accrued over the term of employment and paid to the employee upon termination of her/his employment.

47 In securitizations of DP loans, originators typically provide a representation stating that each DP loan benefits from the attachment of the TFR.

48 Most DP borrowers already have an outstanding CDQ loan.

Evaluating the Default Risk of CDQ and DP Loans

Like for standard unsecured consumer loans and to evaluate the default risk of CDQ and DP loans, we derive a portfolio loan default distribution. We typically assume that the distribution has a lognormal shape, and we estimate the mean default rate and volatility from historical default data. If the pool of loans is particularly concentrated (e.g., from concentrations in employers or pension fund providers), we may adjust our estimates to account for the higher volatility that concentration is likely to entail. Furthermore, if the employers and pension fund providers in the pool being analyzed have materially different credit quality characteristics than those in the historical data, we may adjust our estimates of the mean default rate and the volatility to incorporate those differences.

Evaluating Recoveries on Defaulted CDQ and DP Loans

If the borrower becomes unemployed or dies and defaults on the loan, the servicer will draw on the TFR, if any, to pay off the remaining loan balance. If a loan balance remains after drawing on the TFR, the lender will claim the unpaid balance from the insurance company. The amount recovered through such a claim depends on the extent to which the claim meets the criteria specified in the insurance contract and whether the insurance company defaults on its obligation. Therefore, in our analysis of recovery rates, we assess both the ability of the servicer in obtaining recoveries (e.g., drawing on the TFR and documenting and filing insurance claims) and the likelihood of default by the insurance companies.

The actual recovery rate that we use in our cash flow model is generally a weighted average of an assumed recovery rate in each of two types of scenario(s): (1) a scenario in which the insurance company defaults, and (2) a scenario in which the insurance company does not default. The weights that we apply are typically based on the default probabilities[49] of the insurance companies backing the loans.

We have considerable historical data covering scenarios in which insurance companies have not defaulted and comply with their payment obligations; therefore, for that type of scenario, we base our recovery rate assumption on historical data. However, historical data covering scenarios in which insurance companies have defaulted on their obligations is limited. As a result, for scenarios in which one or more insurance companies default on their obligations under the insurance policies, and thus the issuer only has recourse to the obligor, we use a lower recovery rate assumption, typically in the 5%-15% range, similar to standard consumer loan transactions.

Liquidity Risk

Delinquencies on portfolios of CDQ and DP loans can be high, weakening cash flows and causing liquidity risk. The delinquencies, which generally have high and relatively quick cure rates, tend to arise from factors such as administrative errors; mismatches between the dates when the loan installment is due and the salary is paid; and the time necessary to assign an employer's bulk payment to each specific employee loan obligation.

Another reason behind delinquencies is salary suspensions,[50] which contractually trigger the suspension of the requirement to make loan installments. The obligation to repay the suspended installments is delayed until the end of the contractual or initial scheduled loan amortization period. Therefore, although

[49] Our estimate of the default probability for an insurer is typically based on the company's insurance financial strength rating, if available. Otherwise, the default probability may be based on a credit estimate (done for the purpose of rating the transaction) of the insurer's financial strength.

[50] The employee can be temporarily suspended because of a disciplinary action or may take an unpaid leave. An employer facing financial difficulties may temporarily suspend salary payments.

suspensions, by themselves, do not generate loan losses (assuming the obligor pays the rescheduled suspended payments), they delay the cash flows that the issuer receives.[51]

Liquidity lines or dedicated reserves typically mitigate the liquidity risk in transactions backed by CDQ and DP loans, covering the sum of interest on the securities for 6 to 12 months and transaction fees that are senior to required interest payments.

Derivation of Default and Recovery Distributions: A Simplified Example

In this section, we provide a simplified example of how we derive the default and recovery distribution for a CDQ/DP portfolio. The exhibit below shows our modeling inputs.

EXHIBIT 8

Asset Modeling Inputs

Default distribution	Lognormal
Cumulative mean default rate	10%
Standard deviation	5%
Recovery rate (insurer performs its obligation)	80%
Recovery rate (insurer defaults on its obligation)	10%
Insurance company exposure	10 insurers with identical exposure (10%)
Insurance Financial Strength Rating	five at Baa3 and five at Ba3
Correlation between insurance companies' defaults and portfolio defaults	35%
Correlation between insurance companies' defaults	65%

Source: Moody's Investor Service

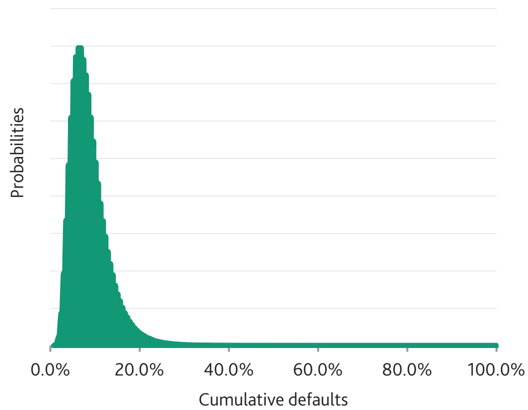
Step 1: We derive a joint default distribution, considering both the loan default risk and the insurance default risk on its payment obligations under the policy, through a Monte Carlo simulation. We assume that loan defaults follow a lognormal distribution, with a mean of 10% and a standard deviation of 5%. We model insurance company defaults, which affect the recoveries on the loan defaults, using the company's insurance financial strength rating as an input for the simulation. We assume that loan and insurance defaults are positively correlated, as insurance companies' exposures to potentially higher loan defaults on CDQ loans may affect their claims-paying abilities. For multinational, highly diversified insurance companies, we may apply lower correlation levels than for local CDQ-concentrated companies. Conversely, for local CDQ-concentrated companies, we may apply a higher correlation. In Exhibit 9, the chart to the left shows the loan default distribution in our example.

Step 2: For each combination of loan defaults and insurer defaults derived in Step 1, we calculate the recovery rate based on the number of insurance company defaults and on our recovery assumption of 10% when an insurance company defaults and 80% when it does not. In Exhibit 9, the chart to the right shows the conditional recovery rate distribution in our example.

[51] Suspended payments do not accrue interest. Therefore, in addition to their effect on the timing of cash flows, suspended payments cause some credit risk, which we assess as part of our cash flow analysis.

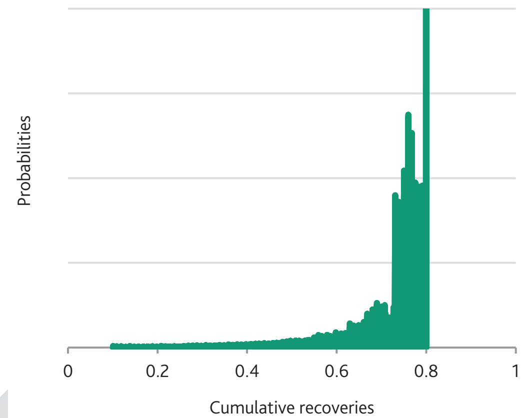
EXHIBIT 9

Portfolio Default Distribution



Source: Moody's Investor Service

Portfolio Recovery Distribution



Source: Moody's Investor Service

Appendix 4: Bank Partnership Lending in the US

In this appendix, we describe how we consider additional risks associated with consumer loan ABS transactions with loans originated by online platforms that involve bank partnership lending in the US.

Bank Partnership Lending

Many non-bank finance companies, US online lenders in particular, use a partner bank to originate the loans offered on their platform. Under such an arrangement, the partner bank originates and funds the loans. After origination, a partner bank sells the loans to a platform operator which then sells the loans or a right to the loans' payments to parties investing in the loans. This type of arrangement typically enables platform operators to offer loans across the US without obtaining state-specific lending licenses. Furthermore, it enables the export of a loan's permitted interest rate from the state in which the partner bank is located to other states without the need to comply with the permitted interest rates of each US state.

In the US, plaintiffs have alleged that the true lender of certain consumer loans was not the partner bank acting as a loan's lender but rather another party providing the marketing or ultimate funding for such loans. If the online lender were to be characterized as the lender rather than the partner bank, then state-specific lending statutes would have authority over the loans. Past actions brought by US states and/or borrowers against consumer lenders alleged to have violated various US state statutes have resulted in outcomes proven to vary. As such, state-specific statutes could conceivably render the loans voidable or unenforceable in whole or in part in any jurisdiction where the online lender is not properly licensed or a loan's interest rate exceeds the state usury limit. Another potential outcome is that the borrower interest rates could be significantly lowered to conform to individual state usury limits.

Loss Distribution Curve Accounts for the Probability of High Loss Scenarios

The risks inherent with a partner bank arrangement usually influence the highest achievable rating of a consumer loan ABS transaction with such an arrangement. We also incorporate the risks in our quantitative analysis. When calibrating the portfolio loss distribution, we typically define the portfolio credit enhancement as the credit enhancement consistent with the highest rating achievable, which is typically lower than Aaa.

Under this approach, if we increase the highest rating achievable for a consumer loan ABS transaction in connection to a reduction in the risk inherent with a partner bank arrangement, we will not necessarily increase the portfolio credit enhancement. For example, if a highest rating achievable of Baa2 (sf) previously corresponded to 10% portfolio credit enhancement, a new highest achievable rating of Aaa (sf) may also correspond to 10% portfolio credit enhancement, to account for the risk of a lower probability of high loss.

In this example, calibrating the loss distribution curve using the same portfolio credit enhancement amount but a higher highest achievable rating results in a narrower tail of the curve, which takes into account the lower probability of high losses for the rated tranche in a transaction with less exposure to the risk inherent with a partner bank arrangement.

Appendix 5: Revising Assumptions Over the Life of an EMEA Consumer Loan-Backed ABS Transaction

As part of our ongoing surveillance of EMEA consumer loan-backed ABS transactions, we use transaction-specific performance data to help revise our expected default or loss assumptions during the life of the transaction. The transaction-specific data we consider generally includes:

- delinquency rates and trends
- observed periodic and cumulative default or loss[52] rates
- historical portfolio redemption rates, which can often be separated into scheduled redemption and prepayments

In the early months of a transaction's life, we typically maintain our initial expected default or loss assumption unless we observe signs of material deviation in performance. More weight may be given to the transaction performance data the more the transaction is seasoned. When significant transaction-specific performance information is available, the payment patterns exhibited by the portfolio can be better performance predictors than loan-level or portfolio characteristics, in particular when forecasting future defaults considering our baseline projected economic outlook.

We also incorporate benchmarking analysis and other qualitative considerations when reassessing our expected default or loss estimates. For example, we may complement our analysis by reviewing performance indicators such as the evolution of the securitized portfolio delinquency trend or the distance between the observed defaults or losses and our expected default or loss assumption for the life of the transaction. In case of significant deviation of observed defaults or losses to our assumed level, we would adjust our expected loss or default assumption and may adjust further to acknowledge the observed deviation.

[52] Sometimes loss rates are reported instead of default rates. The entire approach to revise the expected default assumption that is described in this report also applies to revise the expected loss assumption.

Moody's Related Publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which includes a discussion of Moody's Idealized Probabilities of Default and Expected Losses, and is available here.

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