Consumer ABS Rating Criteria

Sector-Specific

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This report replaces *Consumer ABS Rating Criteria*, dated 23 December 2021 and the *Exposure Draft: Salary-Assignment Loan ABS Rating Criteria*, dated 5 July 2022.

Scope

This criteria report outlines Fitch Ratings' global methodology for analysing and monitoring credit risk inherent in asset-backed securities (ABS) backed by consumer receivables; it applies to both new and existing ratings. The portfolios consist of homogenous, amortising loan or lease products advanced to a granular pool of individuals. The criteria may also be applicable to similar portfolios with SME obligors (see *Appendix 1: Applicable Criteria for SME Portfolios*).

US auto loan and lease ABS, US and Latin American equipment lease ABS, student loan and credit card ABS are each rated under separate criteria.

Key Rating Drivers

Key rating drivers under these criteria, in order of relevance to Fitch's analysis, are as follows:

Obligor Default Risk: Obligor default and recovery rates are a key assumption in our quantitative analysis. We derive portfolio-specific default and recovery base-case expectations based primarily on originator-specific data, but also taking into account economic outlook and market and peer comparison data. The stressed default and recovery assumptions are the key drivers when evaluating credit enhancement.

Asset performance risks may be higher for transactions with revolving periods, as the characteristics of receivables may change over time.

Cash Flow Dynamics: The timing of cash flow, asset yield, note interest costs and other expenses can make a sizeable contribution to the analytical outcome and affect the final rating assigned.

Structural Risks: Securitisation structures are intended to delink the performance of issued notes from the credit quality of the originator. This is typically achieved by a "true sale" transfer of the assets from the originator to a bankruptcy-remote special-purpose vehicle (SPV). Analysis of structural risks is a key part of Fitch's rating review, underpinning the quantitative analysis.

Counterparty Risks: In collecting receivables and distributing funds, the issuer relies on counterparty relationships, especially with the servicer, account bank and hedge counterparties. Securitisation structures generally seek to minimise counterparty risk through diversification and replacement procedures, yet a degree of counterparty dependency often remains.

Servicer, Operational Risks: Fitch conducts an originator/servicer review to understand the policies, processes and practices in place; this may result in quantitative adjustments to its asset assumptions. Servicer continuity and the availability of liquidity and/or back-up servicing arrangements are also analysed.

Residual Value Risks: Certain auto loan and lease transactions are directly exposed to the risk of declining used-car values, as obligors can return the vehicle in lieu of final payments. In such transactions, the impact of residual value risk often outweighs obligor default risk (see *Consumer ABS Rating Criteria: Residual Value Addendum*).

Related Criteria

Global Structured Finance Rating Criteria (October 2021)

Consumer ABS Rating Criteria – Residual Value Addendum (November 2021)

Structured Finance and Covered Bonds Interest Rate Stresses Rating Criteria (September 2021)

Structured Finance and Covered Bonds Counterparty Rating Criteria (July 2022)

Structured Finance and Covered Bonds Counterparty Rating Criteria: Derivative Addendum (August 2022)

Structured Finance and Covered Bonds Country Risk Rating Criteria (July 2022)

National Scale Rating Criteria (December 2020)

SME Balance Sheet Securitisation Rating Criteria (October 2021)

Data and Assumptions

Portfolio Composition

Fitch assumes that consumer ABS portfolios: (i) comprise a large number of relatively small balance obligations; (ii) have products with relatively homogenous characteristics; and (iii) contain a diverse range of obligors. Fitch will validate the applicability of such assumptions prior to applying these criteria.

The same characteristics may also be present in portfolios of small corporate obligors.

Appendix 1: Applicable Criteria for SME Portfolios provides guidelines that Fitch will apply to determine the applicability of this criteria report to receivables pools of small corporate obligors.

The analysis assumes a portfolio mainly consisting of performing loans at closing. If delinquent assets are included, Fitch will adjust its assumptions to consider the additional credit risk from delinquent borrowers, subject to this being a small portion of the pool.

Data Availability

A summary data list for both the initial rating and the transaction surveillance is presented in *Appendix 2: Summary Data List*, which outlines the key data that Fitch would expect to be provided with by the originator or servicer in order to be able to apply the initial analysis and monitoring outlined in this criteria report.

The historical data for the initial rating is expected to cover:

- a minimum of five years, ideally covering all phases of at least one economic cycle; and
- the usual lifetime (origination to maturity) of the securitised products.

Fitch may consider available historical data sufficient, even if it does not fully cover the lifetime of the majority of eligible assets; this will attract higher stressed assumptions, all other things being equal. If the historical data do not fulfil the minimum criteria above, but sufficient relevant and comparable market information is available to derive proxy assumptions, Fitch may elect to proceed with the rating, but may impose a rating cap. The historical data may be insufficient for several reasons including the following: limited period of available data; limited relevance of available data; or high levels of volatility in the available data. Fitch may decline to rate the transaction if the available historical data are deemed to be insufficient.

For more details, please refer to *Global Structured Finance Rating Criteria.*

Data Sources

Fitch has developed these criteria based on data received while analysing and rating transactions in this asset class. The sources and types of data used in developing criteria are largely the same as that received in a transaction's rating process (see *Appendix 2: Summary Data List*). In general, the primary source of data is the originator, which provides the following:

- pool data (stratifications or loan level);
- historical performance data; and
- historical portfolio stratifications or time series of key parameters (e.g. original term of the assets).

Fitch's analysis will also be supplemented by market data provided by third parties, either directly to the agency or via the originator, for example:

- historical performance data of peer transactions (including Fitch index reports);
- historical performance data of peer originators;
- national statistics or central bank data on consumer loan balances and performance (where available);
- macroeconomic data on relevant drivers of default performance including unemployment and interest rates; and
- data on relevant drivers of recovery performance including used-car price data.

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To continue to rate a transaction, Fitch must receive sufficient information, although this may be less detailed than that is available for new transaction ratings before closing. Fitch's primary source of information for transaction monitoring is the monthly or quarterly investor or servicer report and increasingly in EMEA and Australia, loan-by-loan data.

Data Quality

The rating approach outlined in this criteria report uses historical performance data to form an expectation of future performance.

Fitch expects historical performance data to show the performance of the obligors in relation to the original contractual payment terms. Servicer/originator practices such as loan modifications or loan refinancing (outside the securitisation transaction) may lead to historical delinquency and default levels being understated. In such cases, Fitch expects to be provided with additional data so that the impact of any such servicer/originator practices can be isolated and excluded.

Historical data analysis may present limitations due to factors including: (i) limited data availability, due to the duration of the data series and/or the data series being derived exclusively from a benign economic period; and/or (ii) a lack of granularity within the underlying pool; and/or (iii) a change in the origination practices such that the historical data is not reflective of the securitised assets (e.g. caused by a change in scoring models, target business, or changes in general loan/lease characteristics such as term, LTV and down payment, or balloon size). In such cases, Fitch will determine whether to apply this criteria report or to use an alternative rating approach. Any rating caps and significant data limitations, adjustments or assumptions applied by the agency will be highlighted in its transaction rating reports.

The initial assessment of portfolio data is supported by an agreed-upon-procedures (AUP) report, where available. AUP reports are prepared by auditing firms typically selected by the arranger or originator, to assess the error rate in loan-by-loan collateral data compared to the information in the originator's source documents. An AUP may not be available in every jurisdiction and may not be applicable for receivables that were originated entirely online and for which no source documents may exist.

At the time of the initial analysis, or in some regions during the servicer review, the agency may also review a small sample of origination files to assess whether the information contained in the reviewed files is consistent with the originator's underwriting policies and practices and the other information provided to the agency about the asset portfolio.

In the ongoing surveillance of transactions Fitch will typically not receive AUP reports nor will it conduct reviews of originator files, unless the transaction is undergoing new issuance or restructuring.

Monitoring of Portfolio Data

If data from multiple sources complement the regularly updated investor or servicer reports, Fitch will seek to identify any discrepancies between them. The analysis will also include a comparison of period-to-period trends to identify missing information or unusual movements that might reflect a data error, and a comparison with cohort averages to identify unusual figures that may reflect a reporting error.

Information should include the receivable balance, split of receivables by sub-products, delinquency status of the receivables, amount of interest and principal collections, prepayments, default and recovery rates. To the extent that the reported asset performance is affected by any form of originator support, including (i) loan modifications, (ii) loan refinancing, or (iii) the repurchase of assets, then the scale and impact of the support should be clearly reported. The servicer report can be supplemented with additional data provided by the originator or servicer.

Fitch will identify and seek to resolve any data issues before proceeding with the analysis of that transaction. If data critical to the analysis is unavailable or not reliable, or Fitch determines it to be insufficient, the agency will withdraw the related ratings.

The surveillance of a revolving transaction requires more in-depth information regarding changes in portfolio composition and relative collateral performance, compared with assumptions made to rate the transaction at inception. This is due to the replenishment feature – whereby new assets are added to the portfolio – and the absence of any deleveraging, meaning that the structure does not build up any additional credit enhancement during the revolving period. Other factors, such as originator repurchases of delinquent collateral, are also important in assessing the effectiveness of triggers in controlling revolving period risk.

Furthermore, revolving transactions are exposed to the risk of changes in origination standards during the revolving period. If performance deterioration is reported or reasonably foreseeable, Fitch will ask for updates to information regarding origination procedures and controls, and product profiles and limits. In addition, originators and servicers should provide prompt notification of any material changes to their origination, underwriting or servicing processes or product profiles.

Asset Analysis

Fitch reviews the underlying asset quality of proposed transactions that are presented to it by originators and their arrangers. The agency identifies risks under different rating scenarios and forms an opinion on the ability of given structures to mitigate such risks.

Products and Sub-Products

Within a receivable pool, different sub-products can exhibit very different performance characteristics. Examples of product distinctions include: (i) originator's own product distinctions; (ii) obligor type; (iii) origination channels; (iv) underwriting process; (v) loan/lease purpose; (vi) underlying asset type; or (vii) deposits or loan-to-value (LTV) ratios for auto loans. Distinctions can be made using several different categorisations.

Fitch will review the terms and characteristics of the products that are expected to be included within the securitisation, focusing on the items described in the previous paragraph. Fitch may subdivide the securitised pool into sub-products that are homogenous with respect to expected performance for the purpose of its asset analysis (see the *Default Risk* and *Recoveries* sections). In that case, the base-case and stressed assumptions used in the rating analysis will be the weighted average of the aggregate according to the actual or stressed weight for each sub-pool.

When a transaction is revolving and transaction documents stipulate the maximum product ratios, Fitch will assume that within these concentration limits the portfolio migrates to a stressed case during the revolving period (see also *Portfolio Covenants: Concentration Limits and Replenishment Conditions)*. The two main risks in this case are the increased risk horizon and a shift to weaker collateral, as the original pool is replaced. Fitch will include its assumptions on the stressed portfolio mix in its transaction-specific rating reports.

Eligibility and Portfolio Criteria

Eligibility and portfolio criteria help to mitigate risk related to the type and quality of assets included within the pool. Typical loan-level eligibility criteria include:

- originated in line with the originator's underwriting guidelines;
- compliant with and enforceable under applicable consumer finance legislation;
- no more than 30-day delinquent or written-off/charged-off contracts;
- maximum loan/lease tenor;
- minimum interest rate or spread for each loan/lease in the pool;
- maximum original and remaining term for every contract;
- maximum balloon payment as a percentage of the financed amount; and
- no employees of the originator.

Typical pool-level concentration limits, which are especially relevant for revolving transactions, include:

- maximum single obligor concentration;
- maximum percentage of different loan products;
- geographical concentrations;
- maximum residual value (RV) or balloon per contract, by portfolio or sub-pool;
- minimum weighted average interest rate;
- RV/balloon cap for the portfolio or sub-pool;
- maximum single employer (retention agent) concentration (for payroll deductible loans, if applicable – see *Appendix 4: Salary-Assignment Loan ABS*);
- maximum LTV and/or minimum down payment in case of auto loan transactions; and
- distribution of credit scores.

Fitch will assess the rating impact of eligibility criteria on a transaction-by-transaction basis, by identifying any risks and considering available mitigating factors.

Transaction documentation usually obliges originators to repurchase any assets sold to the issuer which were not eligible at the time of sale. Fitch assumes that originators will comply with the eligibility criteria when selecting the pool and will comply with their contractual obligations to repurchase if the eligibility criteria are breached for any reason. The credit analysis therefore does not address the risk of ineligible assets being sold into the pool.

Default Risk

The transaction documents define the point at which receivables will be classified as defaulted. Typically, this will be upon the earlier of a certain period of delinquency (e.g. 90 days) or the occurrence of another event or circumstance that causes the servicer to classify the receivable as uncollectible (e.g. debtor insolvency).

Generally, Fitch's analysis will follow the transaction default definition and therefore historical data is expected to be provided on the same basis. In certain instances, historical data suggest that defaults occur earlier than the defined period of delinquency. This historical information will also inform the definition used in the cash flow modelling.

A later default definition will typically result in a lower default rate and a lower recovery rate – the extent of which will depend upon the cure rate achieved between different stages of delinquency and how it is reflected in the recovery rate data. The ultimate loss expectation, however, is the same irrespective of the default definition applied. Fitch does not typically expect the transaction default definition to exceed 120 to 180 days for consumer loan portfolios.

In addition to the above, Fitch requests default data to be provided on the basis of a 90-day delinquent definition in order to compare transactions on a like-for-like basis between different originators and different jurisdictions. To mitigate the risk that an unusually late default definition or high cure rate on a particular transaction could distort Fitch's quantitative analysis, Fitch may base its analysis of that transaction on an earlier default definition.

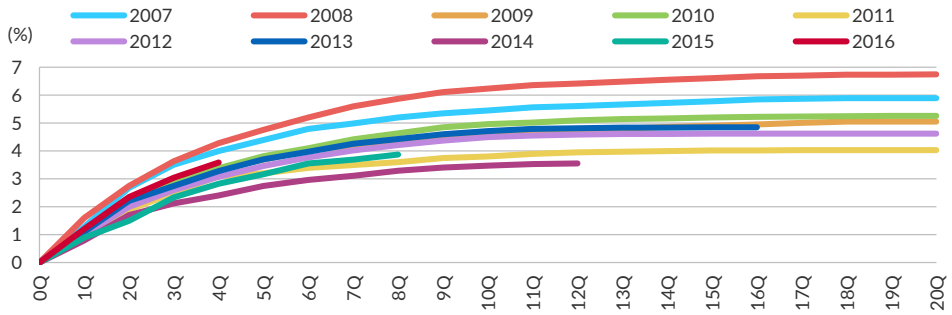
Where a transaction does not follow a definition of "default" that is fixed in terms of days delinquent, Fitch will base its analysis on an estimated default timing, derived by reviewing historical default timing. Where the agency has concerns that the servicer may amend the definition of default with regard to timing – if this is permitted under the transaction documents or inherent in the servicing standards – rating caps may apply or Fitch may not assign ratings to the transaction.

A portfolio may be exposed to obligor concentration, which is not a risk contemplated in this criteria report, which assumes a granular portfolio. Fitch may as a result analyse a specific aspect (e.g. default risk) under the *SME Balance-Sheet Securitisation Rating Criteria*, while other aspects (e.g. recovery expectations) are reviewed under this criteria report.

Default Base-Case Assumptions

The default base case is defined as the value of receivables that Fitch expects to be classified as defaulted and is expressed as a percentage of the aggregate initial loan amount during the life of the loans. The base case is Fitch's best prediction of the lifetime default behaviour of the underlying assets and is not meant to include a buffer against any unexpected economic deterioration. The base case is derived from a combination of quantitative and qualitative considerations.

Default Vintage



Source: Fitch Ratings

To derive the default base case, Fitch starts with the historical performance of a corresponding asset from the same originator and of the same quality and composition as the pool to be securitised. Base cases are determined for each individual product type. The base case is always set to cover the maximum original tenor of the receivables. The available data are expected to cover the majority of the original term of the assets, so that the default curves reach a point of flattening.

A static pool is a group of assets generated during a specific calendar period, typically a month, quarter or year (referred to as the "vintage" of the data). In the chart above, data are presented with respect to year of origination, showing default performance with respect to quarters since origination (X axis). Fitch may use its proprietary ABS Loss Forecaster model to extrapolate younger vintages based on more settled ones, but extrapolation is no substitute for robust historical data. A minimum of five data points would be expected to utilise the model and the output used only as a guide to future performance.

Fitch will take into account the following qualitative considerations to adjust any quantitatively derived result when forming a base-case assumption:

- If historical data are volatile or shows a certain trend, Fitch's analysis will focus on the drivers of these patterns and their impact on the pool performance.
- The agency will also look into historical originator or transaction dynamic delinquency data, as this can provide insight into near-term default performance, changes in underwriting standards and the exposure to the economic cycle. Increasing delinquency levels indicate the likelihood of increased defaults.
- Fitch will use originator-specific data as the primary means of deriving base-case assumptions, due to the impact of originator-specific factors on default performance. This might include the performance of transactions from the same originator and with similar asset type rated by Fitch when available. However, the agency will benchmark default data and base-case assumptions between different originators for similar asset types. It will also cross-reference the portfolio characteristics of the securitised pool with those of the originator's total book to establish how relevant the provided historical data are for determining the base case.
- For balloon loans, Fitch will determine if the historical performance data fully capture the stress that borrowers may experience when making a large balloon payment. As this is often not the case – for example because the historical data do not cover the full term or only cover a benign period with easy re-financing options – Fitch is likely to

apply higher default probabilities or higher stresses, or in extreme cases cap the rating or decline to rate the transaction.

Fitch will also consider the impact of balloon payments on the speed at which loans amortise. A loan including a balloon component will amortise more slowly than a fully amortising loan, all else being equal, which may result in a higher outstanding balance at the time of default. This effect will be captured in historical data for portfolios where balloon percentages have remained stable over time, but an increasing trend in the balloon share across origination vintages may cause Fitch to make an upward adjustment to its default expectations.

- Input from the relevant Fitch Sovereigns team will provide the economic context for the historical data to determine how much economic stress is included within the historical default data that is presented for a particular transaction. This is combined with Fitch's macroeconomic outlook for the relevant jurisdiction to form forward looking base-case assumptions. For transactions with longer revolving periods, Fitch's expectations will be less influenced by the near-term economic outlook.

Fitch considers origination quality and macro-economic data (taking into account the overall level, movement and trend) to be key drivers of consumer ABS asset performance. Historical vintage data, spanning a period of increasing unemployment, will generally be considered to include a degree of economic stress (whereas the opposite conclusion would apply to data derived from a period of stable or decreasing unemployment). Fitch will compare the range of macro-economic data (e.g. unemployment levels) and the extent of any increase in the period corresponding to the historical performance data to its unemployment expectations for the relevant jurisdiction over the term of the transaction. This analysis, along with data from other similar transactions, will contribute to Fitch's overall outlook for the asset class and will be incorporated into Fitch's base-case expectations.

Fitch has seen historical default data that quantitatively could support extremely low base cases. Since even very small nominal deviations from historical values would represent potentially substantial relative shifts, Fitch floors base-case lifetime (or in case of surveillance analyses, remaining) default rates at 1%, unless substantial historical data are available to support stable low levels below this floor. The limit applies to the individual sub-pools of the securitised portfolio.

Default Rating Stresses

Fitch's rating analysis uses stress multiples to establish a degree of remoteness from the base-case assumption that is appropriate for the assigned rating level. It addresses the risk that actual default performance may be worse than the base-case assumption. The stressed assumptions are intended to provide a basis to account for the impact of economic deterioration on the transaction's cash flow.

The following multiples are applied to the base-case default expectation to arrive at the rating default rate (RDR) for a given rating scenario. The RDR will be an input to Fitch's cash flow model. In most transactions applied stresses will fall within the range outlined in the following table; when Fitch applies multiples outside these ranges – as described further below – this will be disclosed in the transaction-specific rating reports.

Default Stress Multiples

Rating level	Lower (x)	Median (x)	Higher (x)
AAAsf	4.0	5.0	6.0
AAsf	3.2	4.0	4.8
Asf	2.4	3.0	3.6
BBBsf	1.8	2.2	2.6
BBsf	1.2	1.5	1.8
Bsf	1.1	1.2	1.3

Notch-specific default rate stresses are generally derived by interpolation between the stresses applicable to adjacent rating categories. The 'AA+sf' level will be a third of the distance between 'AAsf' and 'AAAsf'. The 'CCCsf' multiple is assumed equal to 1.0x. The interpolation between 'Bsf' and 'CCCsf' follows the same approach above, i.e. each step

Default Stress Multiples

Rating level	Lower (x)	Median (x)	Higher (x)

corresponds to a third of the distance between categories
Source: Fitch Ratings

Fitch generally expects RDRs for high rating scenarios to be relatively stable over the course of a representative business cycle (for a given portfolio), whereas for lower rating levels the RDRs may be more responsive to the prevailing base-case default rate. As a result, within the above ranges the actual multiple will be determined by Fitch on a transaction-specific basis, in conjunction with the base-case assumption, and with consideration given to qualitative factors including the following:

- Expected performance (base case) relative to economic cycle: as stresses are intended to provide protection against economic deterioration. Fitch considers it appropriate to apply a multiple above the median if the base case does not incorporate an element of economic stress. If, for example, the base case, defined to cover the default performance expectation for the term of the transaction, is based on a stable or positive economic outlook, a higher multiple will be applied. The opposite scenario, where the base case includes an element of economic stress (e.g. expectation of increased unemployment), would lead to a lower multiple. This consideration is typically the most important in view of Fitch's expectation of relatively stable RDRs in high rating scenarios over time.

  However, this stability may not always be appropriate; economic stress outside representative business cycle patterns may require a reset of RDRs across the entire rating scale. Rare, exogenous and unforeseen shocks may have severe implications for pool performance that are not adequately captured in even the pre-shock 'AAA' scenario. In addition, the reliability of historical data covering previous periods of stress as an indicator of future performance under stress may be diminished. In such cases, the logic of largely offsetting increases to base case expectations with reductions to default multiples at the highest rating levels does not necessarily apply (see *Below-the-Range Multiples and Response to Severe Exogenous Shocks*).

- Quantity and volatility of historical data: limited data history and volatile performance would give rise to concerns regarding the consistency of the origination and collection processes. Fitch may diagnose data limitations even if the time period covered is substantial, but asset origination was subject to major changes. Portfolios with volatile performance history are also likely to be more volatile in the event of economic stress and therefore a higher multiple would be applied. The opposite scenario, where historical data is consistent, especially if it includes a period of economic stress, would lead to a lower multiple. However, it should be noted that a higher stress cannot mitigate insufficient data; the provision of insufficient data would result in a rating cap or prevent Fitch from assigning a rating at any level.

- Default definition: an earlier default definition would typically result in higher base-case default and recovery rate assumptions. However the base-case loss expectation (defaults less recoveries) would not be affected by the choice of default definition. In order to avoid the choice of default definition having an undue impact on Fitch's stressed default, recovery and loss expectations, the agency will adjust rating stresses. As a result, all else being equal, transactions with an early default definition will be subject to a lower default multiple than transactions with a late default definition.

- Stability of origination volumes: historical data derived from periods of unstable, especially growing, origination volumes is typically less predictive than data derived from a period of stable origination volumes. This is because the same factors that support increased origination volumes may also negatively affect future performance (e.g. broader distribution and lower acceptance standards). Base-case expectations derived from unstable origination volumes would lead to a higher multiple, whereas data derived from stable origination volumes would lead to a lower multiple. However, it should be noted that a higher stress cannot mitigate the absence of data based on a representative level of origination volumes.

- Stability of collateral characteristics: changes over time to collateral characteristics, within the historical performance (e.g. longer original terms), should be addressed in the base-case assumptions. However, smaller changes will be addressed by the choice of default multiple.
- Obligor diversity: within consumer ABS transactions, a high level of diversity is expected. Certain concentrations, for example regional, will make the portfolio more exposed in the event of an economic stress. Increased stress multiples may address the risk for certain portfolios, while in other cases Fitch will utilise criteria that explicitly address concentration risk (see *Appendix 1: Applicable Criteria for SME Portfolios*).
- Absolute level of base case: where base cases are low in absolute terms (for example at or close to the floor level of 1%), Fitch will tend to use higher multiples to address the risk that a small change in absolute terms can lead to a large change in relative terms. When base cases are set at high absolute levels, lower stress multiples may be appropriate.
- The following two factors work as add-ons to the multiple where present:
    - Balloon risk: if the historical data only cover a benign period with easy re-financing options, they do not fully capture the risk that exists in a stressed economic environment when borrowers are faced with making large balloon payments. Therefore, Fitch will apply a higher stress multiple for sub-products that are subject to balloon risk.
    - Revolving period: revolving periods expose the transaction to the risk of changes in origination standards and also the risk of an economic downturn during the longer transaction horizon. While some of these risks are addressed by replenishment criteria and early amortisation triggers, revolving periods can contribute to increased credit risk. See *Revolving Transactions* for more details on how Fitch views risks during revolving periods. The add-on may be tempered if the revolving period already starts in a recession, but everything else equal, replenishment of any length will tend to attract higher multiples than an amortising transaction.
- Country risk considerations: Fitch will apply higher stresses if assets are located in countries with increased risk of macroeconomic volatility or event risk. This is usually the case in countries subject to a rating cap due to sovereign risk and will usually result in stresses exceeding the ranges shown in the Default Stress Multiples table above, up to two rating categories (up to three, for emerging markets): if for example the cap were set at 'BBBsf', Fitch would look at the 'AAsf' row of the table above in order to rate the transaction 'BBBsf'. Please refer to *Interaction with Country Risk Criteria* in this report for further details.
- National scale considerations: similar to the treatment described in the previous paragraph, higher multiples will be used for National Scale Ratings. In particular, multiples will be set by first adjusting the relevant multiple on the international scale based on the framework outlined in the previous paragraph. Once such multiples are established reflecting the country risk, Fitch will identify the multiple used for the rating on the international scale that currently aligns with a 'AAA(xxx)' National Scale Rating; this multiple becomes the basis for the 'AAA(xxx)' stress (Fitch may round the multiple).

  Finally, with the 'AAA(xxx)' multiple in place, all other multiples will be derived through interpolation. Using Mexico (rated BBB in local currency at the time of publication) as an example, Fitch will start with determining the multiple at the structured finance cap (from country risk criteria) of 'Asf'. Fitch then applies the 'AAAsf' stress from the Default Stress Multiples table to 'Asf'. The stresses are then interpolated for all other ratings, with the 'BBBsf' stress corresponding with 'AAA(mex)'. For more details on National Scale Ratings, see *National Scale Ratings Criteria*.

  Notwithstanding the above, transactions rated on the national scale may involve originators (e.g. multinational companies) rated at or above the highest rating of the notes. In addition to reducing the probability of servicer substitutions, Fitch will deem an entity rated higher than the senior notes more likely to provide support (e.g. by repurchasing

assets or providing more cash flow by waiving servicing fees), which may result in applying lower default multiples than listed in the Default Stress Multiple table above.

The importance of the above factors will vary for different portfolios. The final stresses will be selected on a qualitative basis and the rationale will be described in the rating reports.

Many transactions feature both positive and negative aspects from the above, partially offsetting each other. Fitch may still decide to apply multiples outside the listed ranges (and disclose them in the transaction report). An above-the-range multiple will be applied for the following reasons:

- base cases set at low levels in absolute terms, as a small change in absolute terms will represent a large relative change;
- early amortisation triggers do not, in the agency's view, protect adequately against asset deterioration;
- historical data are only available for very benign economic situations, or not long enough to cover substantially the lifecycle of the receivables;
- balloon risk is significant; or
- country risk is present.

An above-the-range multiple for a given modelled sub-portfolio cannot be higher than 8x at 'AAAsf' (or, for lower ratings, the equivalent interpolated level) without constituting a criteria variation.

While the above range of stresses provides a tool to reflect the expectation that different portfolios will respond differently to economic deterioration, Fitch highlights that the application of higher stresses does not negate the importance of adequate origination and servicing practices, as well as the availability of sufficient and reliable historical data when setting base-case expectations. In the absence of adequate origination and servicing practices and/or adequate data, Fitch may be unable to derive base-case expectations with a sufficient degree of robustness to apply this rating approach and in such event a rating cap will be applied to the transaction. The same applies when the other factors listed above are "extreme" – for example when a transaction's revolving period is very long and the assets' term much shorter.

Below-the-Range Multiples and Response to Severe Exogenous Shocks

Below-the-range multiples can apply when base-case default assumptions are so high (e.g. 12%) that applying a multiple even at the lower end of the range would imply a level of defaults not conceivable in the rating scenario under consideration.

Rare and unexpected exogenous shocks such as natural disasters, public health incidents or civil unrest, which may have material unexpected economic implications, may also justify the use of below-the-range multiples if Fitch concludes that the asset assumptions at the highest rating level remain adequate despite a material increase of base default expectations. Multiples will compress for those high rating categories. How assumptions across the entire rating scale will have to be recalibrated in response is by their very nature difficult to predict and will be very case specific, but the through the cycle concept does not automatically extend to such events.

At lower ratings, Fitch may then elect to maintain stress multiples above levels implied by standard interpolation to follow its principle of aligning those asset assumptions more closely with fluctuating base cases.

Rating publications would clearly identify the shock event that is responded to and the rationale for resulting multiples across the rating scale. In most cases an assigned below-the-range multiple would be applied only on a temporary basis, until the next in-depth analysis provides clarity on the long-term consequences of the shock, which would be likely to allow a resetting of assumptions with multiples in the regular criteria range.

Recoveries

Recovery Base-Case Assumptions

The recovery base-case assumption can be defined as the amount of cash proceeds (expressed as a percentage of the corresponding defaulted amount) which Fitch expects could be realised by the issuer from receivables that become defaulted. Such proceeds can include cash payments from obligors and sale proceeds from secured assets. In the case of recoveries achieved as a result of the cure or re-performance of the defaulted receivable, Fitch considers such amounts on a cash basis, as opposed to a full and immediate recovery.

The base case is derived by performing static data analysis and applying qualitative considerations. Static recovery data are analysed in a similar way to static default data, with the exception that static recovery data are analysed with respect to the period of default rather than the period of origination, and levels are shown as a percentage of the principal amount defaulted rather than the principal amount originated.

Qualitative considerations, including any legal or operational limitations on the issuer's recovery capabilities, will be taken into account by Fitch when deriving the base-case recovery assumptions. For example, in the case of receivables whose payments are secured by an asset, if the issuer does not benefit from the same security as the originator, then the base-case recoveries will be reduced, possibly to zero.

This information is used to derive cumulative recovery-rate assumptions and a time vector for recoveries. The agency will also consider other data provided by the originator, or other data available to Fitch, including peer comparison, when deriving recovery assumptions.

For periodic reviews of existing transactions, recoveries from the existing stock of defaulted assets will also be assessed, to the extent where further proceeds can be expected.

Recovery Rating Stresses

Fitch's rating analysis will include haircuts to incorporate the risk that actual recovery performance may be worse than the base-case assumption. The stressed assumptions are intended to provide a basis to account for the impact of economic deterioration upon the transaction's cash flow; for secured financing contracts, they also assume the default of the manufacturer of the financed good in the highest rating scenarios. The haircuts in the table below will be applied as a reduction to the base-case recovery assumption in different stress scenarios; stresses outside of this range will constitute a criteria variation (see also *Interaction with Country Risk Criteria*).

Recovery Stress Haircuts

Rating level	Lower (%)	Median (%)	Higher (%)
AAAsf	40	50	60
AAsf	32	40	48
Asf	24	30	36
BBBsf	18	22.5	27
BBsf	12	15	18
Bsf	8	10	12

Notch-specific recovery rate stresses are derived by interpolation between the stresses applicable to adjacent rating categories. See footnote to Default Stress Multiples table for interpolation between 'AAsf'/'AAAsf' and 'CCCsf'/'Bsf'. 'CCCsf' is assumed to be zero recovery stress
Source: Fitch Ratings

Within the above ranges, the actual haircut will be determined by Fitch on a transaction-specific basis, in conjunction with the base-case assumption, and with consideration for qualitative factors including the following:

- Expected (base-case) recoveries relative to economic cycle: as stresses are intended to provide protection against economic deterioration, Fitch considers it appropriate to apply a haircut below the median if the base case already factors in an element of economic stress (and vice versa). For example, if an economic downturn is expected in the near term and the base case has been set below the historical average to capture

the expected impact, this would justify a lower recovery haircut, relative to a base case that has been set closer to the long-run average performance.

- Quantity and volatility of historical data: recovery history, based on a large sample of defaulted receivables and showing stable performance, would support a haircut below the median (and vice versa).
- Default definition: an earlier default definition would generally result in a higher base-case default and recovery rate assumptions. However, the base-case loss expectation (defaults less recoveries) would not be affected by the choice of default definition. In order to avoid the choice of default definition having an undue impact on Fitch's stressed default, recovery and loss expectations, the agency will adjust rating stresses. As a result, all else being equal, transactions which have an early default definition will be subject to a higher recovery haircut than transactions with a late default definition.
- Stability of collateral characteristics: changes over time to collateral characteristics, within the historical performance (e.g. longer original terms), should be addressed in the base-case assumptions. However, smaller changes will be addressed by the choice of recovery haircut.
- Collateral type (secured versus unsecured): this criteria addresses both secured (e.g. auto loan transactions where the issuer benefits from title to, or some other interest in, the vehicles) and unsecured (e.g. unsecured consumer loan transactions where recoveries are only achieved through recourse to the borrower) consumer ABS transactions. Usually, the historic recovery rates of unsecured portfolios are significantly lower compared to those where the loans/leases are secured by collateral, and therefore lower base cases are assumed. Moreover, Fitch deems that unsecured recoveries would be even more negatively affected in an economic downturn (and therefore receive a greater haircut).
- Recovery processes: the recovery processes and timing will vary depending upon the jurisdiction and the asset class. Often the impact will already be reflected within the base-case assumption derived from the historical data. For example, higher base cases are typically observed for secured asset classes when the relevant legal framework allows a rapid repossession and sale of the collateral security. However, the level of stresses may be varied, within the above ranges, to accommodate such considerations, to the extent that they are expected to be more pronounced in a stress scenario.
- Some originators rely, at varying degrees, on sales of non-performing assets (NPLs). Fitch will consider the stage at which such debt sales are carried out, the number of and the arrangements with NPL buyers, the relevant NPL market, and whether the originator would have the capacity and skills to work out late-stage arrears should an NPL market cease to exist. The presence of debt sale arrangements in historical data may not result in adjustment to analytical assumptions by themselves, but Fitch will treat a reliance on a functioning debt sales market with higher recovery haircuts.
- Country risk and national scale considerations: these apply in similar way to that described in the last two bullet points under *Default Rating Stresses*.

In some transactions and/or jurisdictions Fitch may conclude that access to secured recoveries, for example from cars, could be challenging from a legal perspective and not robust in all circumstances. In such cases, Fitch will use higher haircuts than outlined above or not consider secured recoveries at all in its analysis.

Monitoring Asset Assumptions

After a transaction has closed, more information about the ongoing performance of the underlying receivables and the composition of the outstanding portfolio will become available, but the extensive data submitted for the initial analysis will usually not be updated, or only to a lesser degree of detail. For example, transaction reporting typically does not include performance variables by sub-pools, while Fitch may have assigned separate asset assumptions in its original analysis. However, a full initial-rating data set that becomes available for any similar portfolio of the same originator would also be considered when updating the existing

assumptions. Once an updated lifetime default assumption is established, subtracting observed defaults will return the expected remaining defaults.

In Fitch's periodical review of existing transactions, the level of base cases and stressed assumptions will be re-assessed in accordance with the methodology outlined in this report to reflect Fitch's updated economic expectations, reported performance (including the observed delinquencies' trend) and current status of the portfolio. The assumptions used in the analysis will reflect the transaction performance, which may result in a revision of previous base-case expectations.

In particular, the base-case default rate is the single assumption that the agency will revise most often. As a first step, Fitch will compare the cumulative defaults observed to date to its expectations at closing. Fitch will review the annualised default rate (ADR) in two possible ways: if a translation of lifetime defaults into an ADR expectation was previously performed it can be compared to the actual ADR trajectory reported for the transaction; material deviations may indicate a revision to the lifetime default assumption. Alternatively, a simple approximation of remaining life defaults can be obtained from an observed stable ADR and remaining portfolio WAL.

Particularly in cases where transactions have longer default definitions, Fitch may apply alternative analyses, as described in this and the following paragraph. Transactions with longer default definitions may experience a greater pipeline of delinquent assets, building up to potential defaults at a later stage and therefore attracting analytical adjustments, all else being equal; a roll rate analysis may fit these cases. Fitch will adjust the applied default rate for the stock of delinquent assets at the time of the analysis and trends in observed delinquencies, typically assuming that all assets more than 90 days past due will go on into default, unless there is evidence of material cures.

Furthermore, Fitch may revise its expected base case by considering the pool factor projection, whereby the observed default rate is divided by the collateral amortisation thus far (i.e. 1 – pool factor). Alternatively, the default curve projection may be used, which obtains revised lifetime defaults from dividing observed defaults by the share of defaults that Fitch initially expected to have occurred by that date. Finally, peer analysis with similar transactions from different issuers or other issuances from the same issuer may also be employed.

The rating stresses above will also be assessed at each subsequent review to take into account changes in the above factors, e.g. the end of revolving period, obligor concentration, longer data history or changes to the absolute level of the base case. As an illustration, in the context of an expected deterioration of the performance, the absolute level of base case would likely be adjusted upwards while rating stresses in the higher rating categories would be adjusted downwards in line with our through-the-cycle rating approach in the higher rating scenarios and an expectations-based approach at the lower rating scenarios.

For Fitch's approach to cash flow analysis on existing transactions, please refer to *Modelling in Surveillance.*

Structural Risk Analysis – Liability Structure

Fitch reviews the liability structure of transactions that are presented to it by originators and their arrangers. The agency identifies risks under different rating scenarios and forms a view on the ability of given structures to mitigate such risks. The following section outlines standard features of typical consumer ABS transactions; however, it should be noted that Fitch does not recommend or approve any particular structural features.

Credit Enhancement

Fitch will review the credit enhancement structure of each transaction and include it in the agency's cash flow model.

Overcollateralisation and Subordination

Receivables in excess of the amount of any given class of notes (in particular, the amount of notes of senior classes) protect the rated notes against the risk of defaulted receivables.

Cash Reserves

For transactions which use cash reserves, Fitch will analyse the scenarios in which drawings can be made, for example, to cover senior expenses, interest costs and defaulted receivables. In the event that the reserve can be drawn to cover defaulted receivables, then the risk exists that it could be fully drawn and therefore be unavailable for liquidity purposes (unless drawings to cover defaulted receivables are limited by the terms of the transaction documents).

Fitch will analyse the structure with respect to the build-up and amortisation of the cash reserve. These features, as set out in the transaction documentation, will be included in the cash flow modelling. In particular, Fitch will test the impact of a back-loaded default distribution on such a structure and it will consider the adequacy of the floor reserve amounts.

Excess Spread

Where the portfolio yield exceeds interest costs and expenses, there will be a source of funds to cover defaulted receivables, subject to the transaction structure and priority of payments. The amount of excess spread to cover defaulted receivables will depend on the prepayment, yield and delinquency performance of receivables. This will be included in Fitch's cash flow modelling. Given the high level of portfolio yield that is often found in emerging market transactions (e.g. 40%-80% in some Latin American transactions) excess spread is a common source of credit enhancement there. Where the reliance of a structure on excess spread as credit enhancement is very high, its susceptibility to adverse scenarios will increase. Fitch's approach to evaluating such structures is described under *Cash Flow Modelling* below.

Interest Rate and Currency Risk

Fitch will identify any underlying interest rate mismatches, and analyse the extent to which these positions are covered via the transaction's hedging or liability structure (see also *Cash Flow Modelling* and *Counterparty Risk* below for further details).

Fitch will also identify any currency mismatch and analyse the extent to which these positions are covered via the transaction's hedging structure. In the event of a mismatch between the currency of the debtor income and the currency of the loan obligation, Fitch will consider the impact of a currency shift upon default risks. If a transaction includes material exposure to un-hedged interest rate or currency risk, Fitch will apply a rating cap or decline to rate the transaction. Such examples are usually confined to emerging market jurisdictions (see also *Cash Flow Modelling and Counterparty Risk* for further details).

Priority of Payments

Fitch will review the priority of payments in the transaction documents to identify the relative seniority of each class of notes and the issuer's other obligations. It will replicate the transaction-specific priority of payments within its cash flow model.

Principal Deficiency Ledger/Charge-offs

The principal deficiency ledger (PDL) or charge-off mechanism is commonly used to account for defaulted principal receivables and to make cash available from interest collections to reimburse such amounts.

Fitch will review the transaction structure to identify how asset defaults are provisioned for. This mechanism will be included in Fitch's cash flow modelling.

Note Amortisation

Notes may be amortised either on a sequential or pro rata basis. Under sequential amortisation, principal funds are allocated first to repay senior notes in full, before being allocated to repay junior notes. Under pro-rata amortisation, funds are shared in proportion to the respective outstanding principal balances of the notes.

Fitch highlights that pro rata structures are vulnerable to back-loaded default distributions. This will in turn increase the credit enhancement needed to support the ratings of the notes.

Structures may feature both sequential and pro rata amortisation phases. In such structures, Fitch will analyse the triggers that lead to the transaction switching between the different phases. Such triggers often determine note interest and principal payments in accordance with documented terms better than credit enhancement. Increased credit enhancement may not be

sufficient to support the ratings unless effective triggers stop the pro rata amortisation upon performance deterioration. The amortisation sequence will be included in Fitch's cash flow modelling.

Risks of idiosyncratic factors heighten as the transaction amortises and the pool becomes more concentrated. Fitch will analyse what mitigants address this risk. Typical mitigants have included triggers that switch the amortisation profile to sequential at a later stage and minimum reserve fund provisions. Fitch will analyse such transaction provisions to assess their effectiveness in addressing this risk and to determine whether such idiosyncratic factors will constrain the ratings.

Some structures feature triggers that modify the allocation of funds during the amortisation phase, for example by trapping all excess spread if the performance deteriorates. If material to the analysis, Fitch will model these and similar triggers as documented.

Revolving Transactions

Consumer ABS transactions sometimes have a specified revolving period, during which principal collections are used to purchase additional receivables rather than to repay notes. The analytical principles discussed for revolving periods below also apply to prefunding periods, ramp-up periods and warehouse transactions.

Revolving periods (similar to other mechanisms that allow the addition or substitution of assets) expose noteholders to additional risks from: (i) deteriorating collateral characteristics due to a substantial weakening of the originator's underwriting criteria, and (ii) the effect of a longer exposure to the economic cycle on asset performance. Typically, the longer the revolving period the more pronounced these risks become, and they are increased by a high portfolio churn when the assets have short durations.

Fitch's analytical assumptions account for these risks and any related structural mitigants. The risk of performance deterioration during a revolving period can be partially mitigated by adequately sized performance-based amortisation triggers and portfolio covenants (see *Portfolio Covenants: Concentration Limits and Replenishment Conditions* below for more details).

Revolving periods can vary by jurisdiction, asset or originator type. Before discussing any of the structural protections in the form of stop-revolving triggers below, Fitch will form a general view on the following factors: (i) stability of collateral characteristics; (ii) financial and operational strength of the originator and servicer; and (iii) incentives embedded in the originator's ownership structure. Fitch will compare the length of a revolving period against the tenor of the assets and the expected churn of the portfolio, while accounting that long revolving periods are more exposed to economic downturns regardless of these two factors. Notwithstanding any structural mitigants, Fitch will cap the maximum achievable rating of transactions, or decline to rate them entirely, if any weakness in these factors is not adequately addressed.

Even with tight stop-revolving triggers and portfolio covenants, Fitch generally expects revolving transactions to benefit from greater credit enhancement than static ones, to account for the additional risks described above.

Portfolio Covenants: Concentration Limits and Replenishment Conditions

In transactions where Fitch has assigned separate base-case assumptions to different sub-products, the agency will utilise the documented concentration limits to form a weighted-average base case. The agency will assume that, during the revolving period, the portfolio migrates towards a stressed case within the concentration limits (see *Eligibility and Portfolio Criteria for* further details).

To assess a stressed-case portfolio, Fitch would first calculate a stressed replenishment mix, determined on the basis of: (i) the portfolio covenants and concentration limits; (ii) the maximum portfolio turnover achievable during the revolving period; and (iii) the asset selection practices and likely stressed origination mix. The maximum possible portfolio turnover is determined by considering the portfolio's scheduled amortisation profile and assuming a prepayment rate at or higher than the base-case assumptions.

When assessing asset selection practices, the agency will make a distinction between a random strategy (e.g. when the transaction documents state that the purchased assets are randomly selected from the eligible receivables in the seller balance sheet) and a non-random strategy, which can take the form of either positive selection ("cherry-picking", when assets of better-than-average credit quality are selected) or negative selection. Finally, the stressed-case portfolio is built up by assuming that the assets that prepay are the least risky (e.g. those with low or the lowest expected loss) and that the proceeds from prepayments and amortisation are used to purchase additional assets in line with the stressed-case replenishment mix determined on the basis of the above considerations.

Performance-Based Triggers

Transaction structures often use a variety of performance-based triggers to mitigate the risk of deteriorating asset performance. Such performance issues could arise from declining origination standards in a revolving transaction, and general deterioration in the wider economy. Typical performance-based triggers include the following:

- maximum dynamic delinquency rate;
- maximum dynamic default rate; and
- maximum cumulative default rate.

Fitch will review the impact of any triggers included in the transaction structure as part of its rating analysis to assess the extent to which they would limit performance deterioration before a revolving period ending, and therefore whether loose triggers could be a factor that might constrain the ratings.

The effectiveness of the triggers would generally be assessed in light of specific characteristics of the assets (e.g. estimated default probability, estimated recovery following default, yield and tenor) and the structural features of the transaction (e.g. length of revolving period and provisioning mechanism). Fitch will also assess to what extent the originator has the ability to reduce trigger effectiveness through buying back or restructuring the receivables and expects that such information be included in the transaction reporting.

Where performance triggers have been used, Fitch has observed that triggers are often set at levels that broadly correspond with assumptions at or around its 'BBsf' stress assumptions. However, triggers may be set higher or lower than this and Fitch's analysis will take account of the relative flexibility accorded to a transaction from performance triggers in its rating analysis. Notwithstanding the trigger, the notes remain exposed to the performance of the existing pool until maturity or repayment.

Some transactions use additional credit enhancement to mitigate the risk posed where triggers allow for more flexibility for the length of the revolving period. Fitch's view on the ability of additional credit enhancement to mitigate a high degree of flexibility in revolving period length will be driven by a number of considerations including, but not limited to: (i) the extent of the differential between the triggers and historical performance; (ii) the history and outlook for the originator and asset class; and (iii) the duration of the revolving period. Fitch does not apply a formulaic link between credit enhancements and triggers, and additional credit enhancement is not always able to mitigate ineffective triggers.

Triggers based upon performance parameters that incorporate a significant time lag (for example those based on defaults or losses), or triggers that may be cured by originator actions (e.g. the repurchase of delinquent receivables) will be viewed as partially or wholly ineffective and will be reflected in higher base-case expectations and/or default stress multiples.

Credit Enhancement-Based Triggers

Fitch has observed that credit enhancement-based triggers have been used to mitigate the risk that the originator continues to transfer receivables to the issuer after the credit enhancement has fallen below the prescribed level. Examples of credit enhancement-based triggers include the following:

- no uncleared drawing on PDLs; and
- no unreimbursed drawings on cash accounts or liquidity facilities.

The specification of triggers will vary by transaction. For example, Fitch has seen triggers where the revolving period would cease on any interest payment date when the credit enhancement has fallen below its initial level. In such a case, Fitch will analyse the amortisation period by assuming that the credit enhancement will not be eroded in advance of the start of the amortisation period.

When lax triggers apply (e.g. when the revolving period terminates only after the excess spread has not been sufficient to cover the PDL for two or more consecutive reporting periods), Fitch will adjust its cash flow analysis and consider a degree of under-collateralisation at the start of the (early) amortisation.

Asset-Level Triggers

Revolving transactions often feature the ability of the issuer to hold cash as an alternative to reinvestment in receivables in the event that insufficient new eligible receivables are offered for sale by the originator on a particular purchase date.

Such structures are exposed to the risks of: (i) reducing excess spread due to negative carry; and (ii) increasing the exposure to the counterparty risks of the account bank. Fitch has observed transactions using the following structural mitigants to address such risks: (i) an excess spread trigger that causes early amortisation to start if excess spread falls below specified levels; and (ii) applying a cap equal to a percentage of total receivables to the amount that can be held as cash. Where Fitch concludes that the risks are adequately mitigated by the triggers, it makes no analytical adjustments. Should these risks not be adequately mitigated then it will be assessed in accordance with the *Structured Finance and Covered Bonds Counterparty Rating Criteria.*

Other Triggers

The occurrence of certain events that would have a negative impact upon the performance of the transactions is also typically used as early amortisation events. Such events typically include:

- a material deterioration in the financial profile or insolvency of the originator or servicer;
- the termination of the original servicer; and
- an un-remedied default or termination of a transaction counterparty (other than the originator or servicer).

Warehouses

Fitch believes that the risks on warehouse and revolving transactions are generally similar. However, one additional risk that warehouses pose is that they may be empty or have very few assets, so that the credit enhancement may appear adequate in relative terms but insufficient in a concentrated portfolio. As these criteria apply to granular portfolios, Fitch expects structural features to mitigate this risk.

Cash Flow Modelling

To determine the rating of a given tranche of notes, Fitch analyses the ability of the pool to generate the payment of interest and principal, according to the terms and conditions of such notes across a range of stress scenarios. Fitch utilises a global propriety cross sector cash flow model for this purpose (*see Multi Asset Cash Flow model*). The model addresses complex transaction features and is an important consideration in determining the final rating. See *Modelling in Surveillance* below for Fitch's use of models in monitoring existing transactions.

Scenarios modelled by Fitch include: (i) increasing, stable and decreasing interest rates; (ii) different default distributions; and (iii) high and low prepayment rates. For particular transactions, other scenarios may be tested to identify the sensitivity of the transaction to different assumptions. For example, the agency will test alternative recovery distributions if the review of the servicer's recovery process or other transaction-specific considerations so warrant.

The primary variables feeding the cash flow models are the portfolio's scheduled amortisation profile, default, recovery and prepayment assumptions, portfolio yield, capital structure, priority of payments and interest rates. A number of these inputs are fed through from the Consumer ABS Asset Model: Multi-Asset Cash-Flow Module.

Each cash flow model reflects how the various stress scenarios affect principal and interest payments as they are received each period throughout the life of a transaction. The cash flow model then allocates those payments to the various classes of notes, based on the priority of payments detailed in the underlying documents. If the cash flow model shows that a particular class of notes has received principal and interest payments according to the terms and conditions of the notes under the stress scenario for a particular rating, then it is deemed to have been able to sustain that particular stress scenario.

When carrying out its cash flow analysis, Fitch's cash flow model first projects the portfolio scheduled amortisation proceeds and any voluntary prepayments for each reporting period of the transaction life assuming no defaults (and no voluntary terminations, when applicable). In each rating stress scenario, such scheduled amortisation proceeds and prepayments are then reduced by a scale factor equivalent to the overall percentage of loans that are not assumed to default (or to be voluntary terminated, when applicable). This adjustment avoids running out of performing collateral due to amortisation and voluntary prepayments and ensures all of the defaults projected to occur in each rating stress are realised in a manner consistent with Fitch's published default timing curve

Portfolio Principal Amortisation Profile

The amortisation profile is expected to be provided by the originator or the arranger. Where an amortisation profile is not available, Fitch uses its proprietary Consumer ABS Asset Model: Portfolio Amortiser Module to calculate the amortisation of the loans according to their terms, based on the loan-by-loan information or create a profile from the portfolio stratifications and asset characteristics, should the information from the transaction parties not be available. The scheduled principal amortisation is calculated for each loan assuming zero prepayments and no defaults or delinquency. In Fitch's cash flow model prepayments, delinquencies and defaults are 'overlaid' on the scheduled principal pay-down of the portfolio. In other words, in higher rating stress scenarios, the portfolio amortisation is driven more by these factors than by the product amortisation features designed by the originator.

Interpreting Model Results

For each class of notes, the set of cash flow model outputs available to a Fitch rating committee includes any shortfalls of principal or interest, timely or ultimate, at the modelled rating level. The model also produces the highest achievable rating. Regarding the timely payment of interest, Fitch expects that interest on highly rated notes is paid when due, regardless of whether the transaction documentation would allow any deferral, as described in its *Global Structured Finance Rating Criteria.*

Ratings are ultimately assigned by a Fitch rating committee that also considers other quantitative and qualitative factors listed in this report. The final rating considered appropriate by the committee may be one notch above or below the relevant model-implied rating.

A committee can decide to assign ratings with more substantial differences to the model-implied rating, but, other than prescribed in the Related Criteria above e.g. sovereign rating or counterparty cap, this would constitute a criteria variation and be highlighted accordingly in the associated rating reports. For Fitch's approach to interpreting cash flow model results of existing transactions, please refer to *Modelling in Surveillance*.

As discussed under *Set-Off* below, Fitch may determine that a lack of legal clarity in some aspects could expose transactions to set-off risk in scenarios that, while remote, would have a substantial impact on note ratings if realised. In such cases, Fitch may elect to cap note ratings below the highest modelled outcome.

Summary of Standard Cash Flow Scenarios

Default distribution	Interest rate trend	Prepayment rates
Front-loaded	Rising	High

Summary of Standard Cash Flow Scenarios

		Low
	Stable	High
		Low
	Decreasing	High
		Low
Evenly distributed	Rising	High
		Low
	Stable	High
		Low
	Decreasing	High
		Low
Back-loaded	Rising	High
		Low
	Stable	High
		Low
	Decreasing	High
		Low

Source: Fitch Ratings

In its rating publications, Fitch will discuss relevant indications given by the cash flow model runs in the scenarios summarised in the table above, the related rating considerations and, if applicable, any scenario(s) in which notes did not pass their related rating stress.

Fitch models asset performance from the commencement of the amortisation period. Where assets have been analysed as separate sub-products, the agency may model them separately, especially if there are substantial differences in the amortisation profiles or other characteristics, and input the default and recovery rates of each sub-product into the cash flow model, or model them as one pool, and input weighted average (WA) assumptions. If the structure envisages a revolving period, the agency will review eligibility and portfolio criteria to determine the extent to which the portfolio composition, by sub-product, can change over time.

In its cash flow model, Fitch will usually apply a stressed-case weighting to sub-products, (where sufficient data exists to do so and it is not outweighed by other risk factors) according to the transaction-specific eligibility and portfolio criteria (as explained in the section *Portfolio Covenants: Concentration Limits and Replenishment Conditions).*

Default Timing

The allocation of defaults over time can have a significant impact on an issuer's ability to pay its debt, since the timing of defaults affects the use of excess spread as it flows down the waterfall. In its cash flow model, Fitch will test three default timing scenarios to understand the transaction's sensitivity to this assumption. The 'back' default vector is typically also sufficient to address the default risk posed by assets with a back-loaded risk profile, e.g. those that feature high balloon amounts.

The default timing vectors will be derived based on the WAL of the portfolio (calculated using base case prepayments) – net WAL – as the main input to the table below. This approach will return three default vectors, with different shapes and end points.

The length of each default bucket is equal to 25% of the net WAL. The net WAL, the first and the last month of each default bucket are rounded to the nearest integer (excluding zero). The beginning of each bucket is one month after the end of the prior one to avoid double-counting. Defaults are equally distributed within each bucket.

Default Distribution

Net WAL[a] (%)	(0-25)[b]	(25-50)	(50-75)	(75-100)	(100-125)	(125-150)	(150-175)
Front	40	25	20	10	5	0	0
Even	17	17	17	17	17	15	0
Back	10	12.5	12.5	15	22	15	13

[a] WAL – Weighted Average Life assuming base-case prepayments
[b] The lower bound for each default bucket is excluded; the upper bound is included.
Source: Fitch Rating

The tables below illustrate the default distribution for two example portfolios with different net WALs. The first one has a net WAL of 15.7 months and the second one 33 months.

Using the first one as an example, the net WAL is first rounded to 16 months. Its first default bucket is between 0% and 25% of the rounded net WAL, corresponding to the period between month 1 (0%* net WAL + 1) and 4 (25%* net WAL). The second default bucket will correspond to months 5 (25% * net WAL + 1) and 8 (50% * net WAL).

Default Distribution – Net WAL = 16 months

Month	1-4	5-8	9-12	13-16	17-20	21-24	25-28
Front	40	25	20	10	5	0	0
Even	17	17	17	17	17	15	0
Back	10	12.5	12.5	15	22	15	13

Source: Fitch Ratings

Default Distribution – Net WAL = 33 months

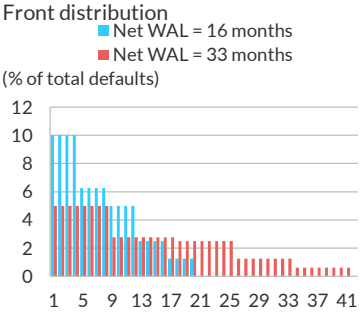
Month	1-8	9-17	18-25	26-33	34-41	42-50	51-58
Front	40	25	20	10	5	0	0
Even	17	17	17	17	17	15	0
Back	10	12.5	12.5	15	22	15	13

Source: Fitch Ratings

The chart below shows the cumulative default distribution for the two portfolios. The periodic default distribution is illustrated in the charts in the margin.

Periodic Defaults

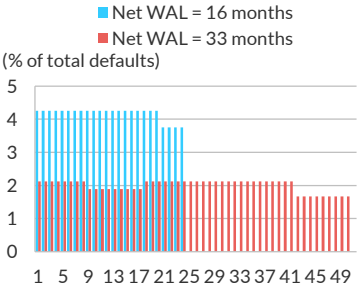
Front distribution



Source: Fitch Ratings

Periodic Defaults

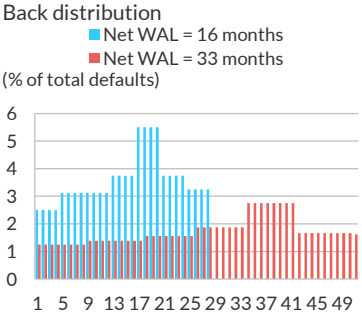
Even distribution



Source: Fitch Ratings

Periodic Defaults

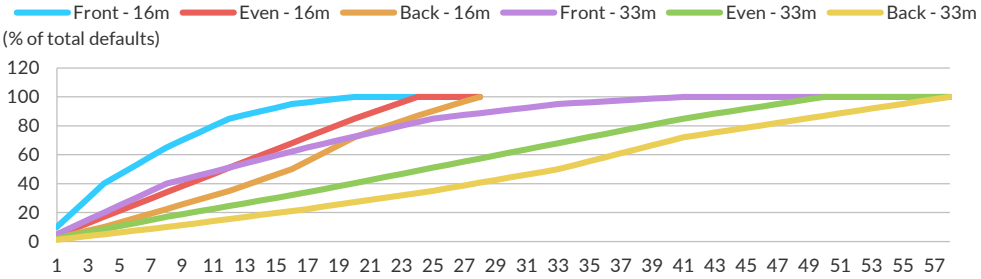
Back distribution



Source: Fitch Ratings

Cumulative Default Distribution

Net WAL = 16 months and Net WAL = 33 months



Source: Fitch Ratings

If the net WAL is particularly short (e.g. less than 12 months), Fitch may apply no differentiation between the front-, even- and back-loaded scenarios. Fitch uses its proprietary Consumer ABS Asset Model: WAL Module to calculate the default distribution.

Recovery Timing

Just as the allocation of defaults over time affects the allocation of payments during a transaction's life, so the generation of recoveries over time also has implications. Recovery timing will typically follow that shown by the historical data for the transaction. However, Fitch will test and disclose timing stresses in addition to stressing the level of recoveries where the agency is of the opinion that the historical timing is not expected to continue. This may be the case if a servicer has substantial reliance on NPL sales, or if a replacement servicer does not follow the same recovery process as the original servicer.

Cumulative recoveries on defaulted obligations are assumed to be bullet cash inflows or follow a simplified time vector derived from static pool recovery data, adjusted if necessary to reflect future expectations. The agency may also test alternative scenarios, determined case by case, where the transaction is particularly sensitive to the recovery timing assumption.

Prepayments

Fitch tests the impact of prepayments on the amortisation of the principal component of the portfolio. The base-case annual prepayment rate, derived from historical dynamic data, is stressed upwards and downwards to test the transaction's sensitivity to changing assumptions.

Transactions with positive excess spread will typically be negatively affected in high prepayment scenarios. However, transactions with negative excess spread or residual value exposure may be negatively affected in low prepayment scenarios (as prepaid contracts are not exposed to residual value risk). Structural features may also play a role in determining the sensitivity to varying prepayment rates, irrespective of excess spread levels. For example, senior notes in pro rata structures are likely to be negatively affected by high prepayments in rating stress scenarios, due to higher outflows of available funds to junior positions in the waterfall before switch-to-sequential triggers are breached.

The table immediately below outlines typical prepayment stresses. For example, at the 'AAAsf' level, a base case (BC) of 20% will be stressed up to 30% (i.e. 20% plus 10%) and downwards to 10% (i.e. 20% less 10%).

Prepayment Stresses

Rating	Upwards (%)	Downwards (%)
AAAsf	BC plus 50	BC less 50
AAsf	BC plus 40	BC less 40
Asf	BC plus 30	BC less 30
BBBsf	BC plus 20	BC less 20
BBsf	BC plus 10	BC less 10
Bsf	BC	BC

Notch-specific prepayment rate stresses are derived by interpolation between the stresses applicable to adjacent rating categories. See footnote to *Default Stress Multiple* table for interpolation between 'AAsf' and 'AAAsf'. The 'CCCsf' upward/downward prepayment stress applied on the base case is zero
Source: Fitch Ratings

Fitch will occasionally use different prepayment stresses from those outlined in the table above, particularly when the derived base case would be so low (e.g. 2%) that increasing it by up to 50% would not result in a meaningful stress This would also apply to transactions with a very high reliance on excess spread, as observed for instance in Latin America, where prepayment stresses for the highest rating category may reach multiples of 2.0x-2.5x of the base assumption.

For assets that have historically displayed very low prepayments (e.g. some types of leases), Fitch may derive its low prepayment assumption, down to zero, on a case-by-case basis. Additionally, Fitch will use lower prepayment stresses in cases where asset pools have historically displayed both high prepayments and high defaults, as is the case in some consumer ABS.

In some lease transactions, prepayments may not be a lessee's right (i.e. the lender needs to agree) and the latter may have to pay the sum of all future instalments (ie including future interest) to prepay. If this is the case and Fitch has evidence that the originator indeed receives the entire amount due, depending on the materiality of observed and expected prepayments to the analysis, Fitch may not model the high prepayment scenarios and make (and disclose) further adjustments, including modelling the additional interest receipts separately. In determining the relevant approach, Fitch will consider the use-it-or-lose-it nature of the excess spread and, where applicable, the relationship between prepayments and residual value exposure.

In the case of auto loan and lease transactions, prepayment is often driven by the debtor's desire to purchase a new vehicle and therefore settle the outstanding financing on the existing vehicle. Often this trend is encouraged by the captive originators' marketing campaigns, leading to very high levels of historical prepayments. In such scenarios, Fitch may adjust historical prepayment levels downwards or upwards when forming a base case.

Receivables' Book Value versus Securitised Value

In some transactions, particularly in auto loan and lease ABS, the receivables are purchased by the issuer on a net present value (NPV) basis and therefore the principal balances for the purpose of the transaction will often differ from the contractual book value of the receivables. This mechanism is often used to increase portfolio yield and create excess spread where borrowers benefit from subsidised, very low financing rates.

In contrast, for receivables purchased at a premium, the SPV in effect buys the assets at a price higher than their outstanding principal balance. If a prepayment occurs, the payment will be at this lower nominal balance, leading to a loss to the transaction. A gain would be realised for a receivable bought at a discount.

It is similar for defaulted receivables, where the outstanding book value the borrower defaulted on is different from the NPV used in the transaction. Applying recovery rates derived from

historical book value data to the NPV would either overstate (for receivables purchased at a discount) or understate (for receivables purchased at a premium) the actual loss.

To illustrate this, if a loan with an outstanding balance of EUR10,000 and a securitised balance of EUR8,000 defaulted and expected recoveries were EUR5,000 based on historical values, an upward adjustment to the recovery rate assumption can be made if deemed material.

Where Fitch deems the amount and quality of data received adequate and the effect material to the ratings, it will adjust the recovery inputs in the cash flow model to account for the difference between contractual book value of the receivables and principal balance for the securitisation when applying recovery assumptions.

When the premium at which receivables are sold to the SPV is very high, Fitch also evaluates any risk from a misalignment of incentives, since the originator's financial gain at the point of the sale of the portfolio may undermine any underwriting prudence.

Portfolio Yield

Fitch reviews the current yield distribution for an amortising portfolio and the minimum WA yield (according to the documented covenants and eligibility criteria) for a revolving transaction. The agency then applies a weighted average coupon compression (WACC), which is driven by default stresses, under the assumption that higher yielding accounts are more likely to default, as loans priced with higher interest typically have risker characteristics (e.g. small down-payment in auto loans or longer terms).

Fitch applies WACC to the modelled WA yield, whereby 50% of defaults are assumed to come from the higher rate buckets. Depending on the evidence of risk-based pricing, Fitch may increase this assumption.

Fitch therefore dynamically adjusts the pool interest rate distribution, and a new WA interest rate is calculated at each payment date to reflect the assumed change in the interest rate composition of the then-outstanding portfolio.

Where Fitch encounters significantly elevated interest rates, (e.g. in excess of 100%) it may apply haircuts to the modelled interest rates, to account for the risk that increased government regulation renders them unsustainable. This is particularly relevant in Latin America. Fitch's view on the level of sustainability will be included in the accompanying transaction report.

Delinquencies

The agency assumes in its cash flow modelling that all loans going into default in the respective rating scenario will have been delinquent for the period until they are recorded as defaulted according to the default definition in the transaction documentation.

Should there be a delinquency-based trigger that is material to the analysis, Fitch will compare the trigger levels to an adjusted delinquency level that is increased by a roll rate assumption. In such cases, the cash flow analysis will also consider delinquencies and the transaction report will disclose the approach.

Senior and Servicing Fees

Typically, the originator or seller of the receivables in ABS transactions acts as servicer. A range of fees have been seen across consumer ABS transactions; they can be amount or unit based. Fitch will apply stressed servicing fees to account for the potentially increased fee levels that a replacement servicer would expect to receive during a stressed period. Where contractual servicing fees are already similar to, or above, these stressed assumptions, Fitch will increase the values to the higher of the contractual or stressed level.

The fees shown in this section will be levied on the non-defaulted portfolio only (ie before assets are charged off) if: (i) the data underlying the recovery assumptions are net of the related costs and fees incurred to produce reported recoveries, or costs are otherwise incorporated in recovery assumptions and (ii) the servicing agreement does not stipulate fees are paid on the defaulted assets. Otherwise Fitch will model the stressed servicing fee on all assets, including defaults until final loss.

The fees listed in this section include other non-servicing senior expenses. In case Fitch deems an expense arrangement to be non-standard, any analytical amendments will be disclosed in the transaction rating report and the related cost will be modelled separately if material.

For EMEA, the observed fees across countries are sufficiently homogenous to apply one set of minimum stressed servicing fees, as per the rates in the table below.

EMEA Senior and Servicing Fee Assumptions

Rating[a]	AAAsf	AAsf	Asf	BBBsf and below
Fee assumption (bp p.a.)	100	90	80	70

[a] The servicing fees are applied per rating category (e.g. 90 bp for the 'AA-sf' scenario)
Source: Fitch Ratings

In the US, stressed servicing fees are applied in accordance to the table below; the large ranges reflect the variety of securitised assets and servicing platforms:

- pools with stressed servicing fees assumed at or close to 1% usually have the following characteristics: (i) prime borrowers; (ii) centralised and highly automated servicing; and (iii) an average loan balance above USD10,000;
- pools with stressed servicing fees at or closer to 5% usually have the following characteristics: (i) subprime borrowers; (ii) branch-based servicing, usually with intensive hands-on servicing; and (iii) an average loan balance below USD10,000; and
- finally, where the market for replacement servicers is a deep and has demonstrated a well-established market rate for certain asset classes, and an experienced backup servicer is in place, Fitch will model the contractual rate across rating categories, rather than the stresses shown above. This is the case for handset ABS transactions, where the modelled fee is typically 0.75%.

North American Senior and Servicing Fee Assumptions

Rating[a]	AAAsf	AAsf	Asf	BBBsf and below
Fee assumption (bp p.a.)	100-500	90-500	80-450	70-450

[a] The servicing fees are applied per rating category (e.g. 90 bp for the 'AA-sf' scenario).
Source: Fitch Ratings

The senior and servicing fee assumptions applied in APAC are shown in the following table. They apply to the listed asset classes per country and reflect the nature of the receivables e.g. higher balance secured auto loans versus much more labour-intensive smaller size unsecured loans.

APAC Senior and Servicing Fee Assumptions

Country	Australia and New Zealand	China	India	Japan	South Korea
Fee assumption (bp p.a.)	30-145	100-150	80-130	75-120	100-150
Asset classes	Auto loans and leases, equipment leases, unsecured consumer loans	Auto loans	Commercial vehicle loans	Auto loans and leases	Auto loans

Source: Fitch Ratings

For transactions rated in Latin America, either on the international or the national scale, if the credit quality of the servicer (also considering parent or external support) is at or above the level of the transaction rating, Fitch only models the documented servicing fee. Otherwise, Fitch will apply the higher of contractual and stressed servicing fees (in this latter case ranging between 0.7% and 2%).

The fee assumptions may differ for other jurisdictions or asset classes, or for types of receivables with non-standard features, in which case they will be disclosed in the transaction-specific rating report.

The agency will also model a floor amount during the tail period to account for any replacement servicer throughout the life of the transaction. For example, in EMEA the floor amount is typically equivalent to EUR250,000, but it varies widely globally.

Available Cash Investments

In most ABS transactions, the issuer will hold some cash from principal or interest payments, either until the next payment date or until the available amounts are reinvested in other collateral. In particular, in cases where significant amounts of cash are held, the interest earned thereon over time can have an impact on the overall performance of the transaction.

Fitch makes an assumption about the amount of cash on the balance sheet of the SPV in each period and assumes that interest on this amount is earned at the lower of the reference rate minus 0.50% and the contractual interest rate, as per the transaction documents.

Interest Rate Risk

Fitch will test the sensitivity of the transaction to interest rate volatility by applying increasing, stable and decreasing (including negative, in some jurisdictions) stress scenarios in its cash flow model. The stresses for the relevant reference rate are as described in the *Structured Finance and Covered Bonds Interest Rate Stresses Rating Criteria*.

The impact of the swaps – which are intended to protect the transaction against interest rate risk – will be factored into the cash flow modelling. In extreme cases, the interest rate, prepayment and margin compression risks can be fully transferred to a swap counterparty, thereby isolating the transaction from such risks, but resulting in significant counterparty dependency. In such case, the increased counterparty dependency will be taken into account in the rating analysis, potentially resulting in a credit-link to the counterparty rating (see *Counterparty Risk* section).

Revolving Transactions

Fitch's cash flow analysis focuses on the amortisation phase. The agency will determine the extent to which it expects portfolio quality to evolve during the revolving period and assess the relevant portfolio characteristics and risk indicators prevailing at the end of the revolving period (e.g. the portfolio's scheduled amortisation profile, default and recovery assumptions, prepayment assumptions, portfolio yield). Fitch will use the results of this analysis as inputs into its cash flow model. For example, if revolving triggers are loose, the agency may assume that the portfolio at the beginning of the amortisation period is smaller than the initial liabilities.

Modelling in Surveillance

Fitch utilises two propriety cash flow models under these criteria in its periodic surveillance process; the Multi Asset Cash Flow model (see above) or the Consumer ABS Asset Model: Granular Asset Loss Analyser (GALA) Module, as described below.

The GALA module tests if the transaction structure can withstand the stressed portfolio performance and other risk factors. GALA uses analytical assumptions, such as the remaining expected default and recovery rates, default multipliers and recovery haircuts. For transactions with longer default definitions, an assessment of the pipeline of delinquencies may be necessary. Certain cash flow elements are also incorporated – such as a projection of remaining life excess spread and recoveries from the existing stock of defaulted assets – to create a breakeven credit enhancement, which is compared to the current transaction credit enhancement at each rating level. As an output, GALA produces the indicative rating level at which a given note would pass the point-in-time rating stresses.

Where an updated cash flow analysis on existing ratings results in a model-implied rating within three notches of the current note rating (e.g. the model-implied rating is 'BBB+sf' and the current rating is 'A+sf'), the latter may be affirmed if the committee believes that the current rating remains more appropriate. This may be the case, for example, when the model would suggest a downgrade, but the credit enhancement is expected to increase; or when the model

suggests an upgrade, but tail risks remain material. This may also apply to limiting upgrades or downgrades to within three notches of the model implied rating.

This consideration is only applicable where transaction-specific factors are identified. It is not applicable for country-level factors, such as economic deterioration, which is included in the model-implied rating.

A cash flow analysis will be conducted for the annual review of existing transactions, but there are some instances where the cash flow analysis will be considered unnecessary and no model used:

- None of the variables affecting transaction performance have changed beyond that expected at closing and credit enhancement levels are unchanged or have moved in line with expectations. Both conditions often apply to transactions still in their revolving periods.
- Modelling may not be conducted where the main constraint on a rating is an external factor (such as a sovereign or counterparty rating).
- In situations where the main purpose of modelling would be to assess the effect of rising credit enhancement or better-than-expected performance for notes that are already at their highest achievable rating, or capped, and where other variables are in line with expectations.

In any case, Fitch will perform a full cash flow analysis for existing ABS transactions in cases of a significant deviation of asset performance or a material change to the transaction structure. Examples include, but are not limited to, changes in or removal of hedging arrangements, or a note restructuring. Where applied, cash flow analysis for existing transactions will be performed under the same framework as for new transactions outlined in this report. The models are updated to reflect the prevailing characteristics and performance of the transaction, including outstanding note balances, status of triggers and asset performance.

In its surveillance cash flow analysis, Fitch will estimate the recoveries from defaults that have already occurred if the stock of outstanding defaults is significant according to the rating committee (outstanding defaults of less than 5% of the current transaction size will not typically be considered significant). This analysis also depends on the availability of information on the time of those past defaults and on recoveries already received from them, based on the recovery vector assumptions at closing, adjusted if appropriate to take recoveries already received into account.

Distressed Ratings

Where the model-implied rating is lower than 'CCCsf', Fitch takes into account the considerations defined in the *Global Structured Finance Rating Criteria* and will apply the principles of the rating definition to assigning new ratings or monitoring of existing ratings.

Counterparty Risk

The following section highlights counterparty risks that are common within consumer ABS transactions. Fitch emphasises, however, that they should be considered according to the *Structured Finance and Covered Bonds Counterparty Rating Criteria* and the *Global Structured Finance Rating Criteria*. The approach to counterparty risk is identical for the analysis of new and existing ratings.

Servicing

The servicer is appointed to collect payments from obligors and administer the outstanding accounts. In most consumer ABS transactions the originator acts also as the original servicer.

Transactions are exposed to the risk that the original servicer defaults on its contractual duties. See *Operational Risks* below for Fitch's analysis on servicers.

Commingling and Payment Interruption

In most consumer ABS transactions, the originator acts as the original servicer and continues to deposit collections on the receivables into its own bank account, before transferring such funds to the bank account of the issuer or SPV.

Set-Off

Deposit Set-Off

In consumer ABS transactions, set-off risk typically arises when the originator is a deposit-taking entity, which is often the case for retail banks and for certain car finance companies. If the originator defaults and deposits are lost, obligors may seek to legally avoid making loan repayments equal to the amount of the lost deposits. See also *Deposit Set-Off for EU Structured Finance and Covered Bonds*.

Non-Deposit Set-Off

Set-off risk also arises in some jurisdictions if originator and debtor are parties to another (side) contract, such as insurance, which relates to the contract under which the securitised receivables arise. This risk is more pronounced when debtors are private individuals, given the often higher degree of consumer protection in many countries, particularly across Europe.

Fitch would expect the legal risks of set-off to be addressed in the legal opinions and, wherever they identify those risks as clearly applying, treat them in accordance with the *Structured Finance and Covered Bonds Counterparty Rating Criteria*.

However, often legal guidance cannot entirely rule out this risk, rather than affirming its presence. This warrants a different approach than the known and clearly identifiable set-off scenarios. Fitch will first consider whether the following main risk factors are present:

- Side contract premia are charged to the debtor upfront,
- Premia are financed by the credit contract, and
- Premia become part of the receivables sold into the securitisation

If all of the above apply Fitch will analyse the following factors. Any reference to relevant note rating levels above which sensitivity to loss may have to be modelled refers to the most commonly encountered case of financed insurance contracts, which are subject to a higher degree of supervision and regulation. While the principles apply generally, other less regulated products, such as membership fees, may attract different rating level cut-offs for sensitivity assessments, which would be disclosed in the rating publication:

- In case of insurance side contracts only, a clear regulatory framework that protects customer claims following an insurer default, ensures an orderly transfer of contracts, mandates schemes to protect or compensate for insurance premia, or maintains comparable mechanisms will typically allow Fitch to view this risk as addressed for rated or unrated insurers.
- Seller indemnity: Typically, the seller provides an indemnity for relevant types of set-off, which would also cover loan amounts attributable to the financed premium.
    1. If no indemnity applies, the contract provider creditworthiness becomes the sole applicable risk factor. Note ratings that may exceed the entity's rating will be subject to a sensitivity analysis as below. The lowest note rating level at which this analysis will be performed, irrespective of the entity rating or in case it does not have a Fitch rating, will be the BBBsf category.
    2. In the presence of an indemnity the joint default risk of both seller and contract provider becomes the main risk determinant.
        - If both are part of the same group, a sensitivity analysis as described below will be performed for ratings that may reach AAsf and above.
        - For entities deemed unrelated by the committee, a sensitivity run would typically not be required if at least one of the entities is rated BBB- or above by Fitch. A committee can still request a sensitivity if the nominal

premium exposure amount exceeds a) 5% of the total portfolio balance or b) 50% of the available CE of a tranche otherwise rateable in the AAsf category or above.

If a sensitivity run has been requested, Fitch would size a potential at-risk amount as follows:

- In the presence of more than one side-contract provider Fitch will typically consider the largest exposure to a non-IG rated (or unrated) entity.
- The exposure will be modelled as point in time.
- The resulting amount will be applied similarly to any regular set-off amounts in the cash flow model.

Fitch would cap the affected note ratings at the higher of: (i) two categories (six notches) above the rating achievable in that sensitivity scenario; and (ii) the higher of the rating of the indemnity provider (if applicable) and the provider of the side product. The cap derived for the note under consideration would also restrict the highest achievable rating for all subordinated notes.

High Reliance on Originator Remitted Cash-Flows

When loan contracts include features that require the originator or servicer to remit significant amounts of cash to the securitisation in place of consumer payments, as is the case with some US handset instalment plans, Fitch will consider the direct exposure to a bankruptcy of such entity. In particular, Fitch will size for additional losses and apply them in cash flow analysis, based on historical take rates on these features, structural arrangements that limit the time horizon of such exposure, the creditworthiness of the entity and the contractual rights of the customers.

Account Banks and Investments

The issuer often holds cash both as a result of monthly collections (e.g. collection and distribution accounts) and reserve accounts. Transactions with high levels of cash on hand will be particularly exposed to counterparty default if, for example, credit enhancement is provided primarily in the form of a cash reserve rather than subordination or overcollateralisation. This is assessed in accordance with the *Structured Finance and Covered Bonds Counterparty Rating Criteria*.

Derivative Counterparties

In many structures, the SPV relies on an interest rate swap or other hedging to mitigate interest rate and currency risks. The default of the hedging counterparty will therefore expose the SPV to such risks. This is assessed in accordance with the *Structured Finance and Covered Bonds Counterparty Rating Criteria and Derivative Addendum.*

Operational Risks

Originator and Servicer Review

The originator and servicer review plays a key part in the analysis of consumer ABS transactions. For new ratings, Fitch conducts a review as detailed in *Appendix 3: Sample Agenda for Originator and Servicer Review*, although for some frequent sponsors a single review may cover more than one transaction, provided that a review is carried out every 12 to 18 months.

The key factors of the originator review are the company's and management experience, risk management, quality control, asset origination and underwriting skills, and the collateral risk assessment process. As well as reviewing the servicing processes, Fitch will review the specific products offered by the originator and developments in its origination and underwriting processes. This provides insights for the agency which can affect its analysis of the historical data. For example, if the originator has broadened origination channels and/or relaxed underwriting criteria, then Fitch would expect performance data to show a deteriorating trend, and vice versa (see *Default Risk* for further details).

In addition, risk arising from specific product features will be identified and taken into account in Fitch's asset analysis. Material observations which Fitch makes during this review are

factored into its rating process. Changing assumptions such as the multiple applied to the base-case default rate or the amount of recoveries to be expected across rating categories will tend to be asymmetric, increasing the stress as a result of sub-par servicing standards, with no benefit assigned to best-in class standards beyond what is already reflected in the data.

The agency's assessment is also expected to cover the operational risk of servicers that act as counterparties in consumer ABS transactions. The quality, stability and experience of servicers directly affect asset performance and, ultimately, the transaction's performance Fitch will analyse the management and staff experience, policies and procedures, controls, collateral disposal methods, and historical servicing performance. The servicer's delinquency and default management strategies are expected to vary across asset types, and the servicer review will be focused on these specifics.

The quality and robustness of the servicer's IT platform may determine the limits by which the servicer can respond to deteriorating asset performance. Fitch expects that the servicer will have business continuity plans, with detailed disaster recovery procedures in place in the event that the existing servicing centre becomes unavailable.

For existing transactions, Fitch updates its assessment of the origination and servicing capabilities and procedures regularly, typically every 12 to 18 months, unless the transaction is very close to maturity or has built up substantial credit enhancement for the impact of the servicer assessment not to have a material impact on the analysis. In addition, the agency expects originators and servicers to provide prompt notification of any material changes to their servicing or, particularly relevant for revolving transactions, origination and underwriting processes. Absent any indications of a material change, typically the scope of the assessment will be narrower than performed ahead of a transaction's closing and may take the form of conference calls or questionnaires.

Rating Assumption Sensitivity

The ratings of notes issued in consumer ABS transactions are sensitive to the base-case default and recovery rate assumptions. Fitch will test several different default and recovery base-case assumptions to analyse the sensitivity of a note rating to changes in those assumptions. Where a particular reliance on excess spread leads to an increased sensitivity to prepayments, as is often encountered in Latin America, an additional prepayment sensitivity analysis will be tested and presented.

The three following tables show the range of defined stresses applied by Fitch and indicate the change in rating (e.g. ratings migration) if the default and/or recovery base case is increased or decreased by a relative amount, based on a representative transaction (while maintaining the relevant stresses). For example, increasing the base-case default rate by 50% may result in a three-notch downgrade of class A from 'AAAsf' to 'AA-sf'.

Rating Assumption Sensitivity to Increased Defaults

Scenario	Default rate (%)	Class A	Class B	Class C	Class D
Base case	5.00	AAAsf	AAsf	Asf	BBBsf
BC defaults increase 10%	5.50	AA+sf	AA-sf	A-sf	BBB-sf
BC defaults increase 25%	6.25	AAsf	A+sf	BBB+sf	BB+sf
BC defaults increase 50%	7.50	AA-sf	A-sf	BBB-sf	BBsf

Source: Fitch Ratings

Rating Assumption Sensitivity to Reduced Recoveries

Scenario	Recovery rate (%)	Class A	Class B	Class C	Class D
Base case	50.0	AAAsf	AAsf	Asf	BBBsf
BC recoveries decrease 10%	45.0	AA+sf	AA-sf	A-sf	BBB-sf
BC recoveries decrease 25%	37.5	AA+sf	AA-sf	BBB+sf	BB+sf
BC recoveries decrease 50%	25.0	AA+sf	A+sf	BBBsf	BBsf

Rating Assumption Sensitivity to Reduced Recoveries

Source: Fitch Ratings

Rating Assumption Sensitivity to Increased Defaults and Reduced Recoveries

Scenario	Default/recover rate (%)	Class A	Class B	Class C	Class D
Base case	5.00/50.0	AAAsf	AAsf	Asf	BBBsf
BC defaults increase 10%/ BC recoveries decrease 10%	5.50/45.0	AA+sf	A+sf	BBB+sf	BB+sf
BC defaults increase 25%/ BC recoveries decrease 25%	6.25/37.5	AA-sf	Asf	BBBsf	BBsf
BC defaults increase 50%/ BC recoveries decrease 50%	7.50/25.0	Asf	BBBsf	BBsf	Bsf

Source: Fitch Ratings

The sensitivities illustrated only describe the model-implied impact of a change in one of the input variables. This is designed to provide information about the sensitivity of the rating to model assumptions. It should not be used as an indicator of possible future performance. Should the higher stresses show no rating changes then the lower stresses will not be applied.

As outlined in this report, Fitch applies different degrees of rating stress to its base-case expectations which approximate different points in time in the economic cycle. Therefore, to the extent that any change in base-case assumptions is driven by economic factors (as opposed to originator-specific factors) the rating impact may be less than that shown in the tables. For the avoidance of doubt, no model-implied Rating Assumption Sensitivity will be produced when no model is run.

Limitations

Ratings, including Rating Watches and Outlooks assigned by Fitch are subject to the limitations specified in Fitch's Ratings Definitions, available at www.fitchratings.com/site/definitions.

Specific risks, such as excessive obligor, employer, industry or regional concentration, limited historical performance data, or legal or operational risks, may prevent Fitch from rating a transaction, or may limit the highest achievable ratings in the agency's analysis. Fitch will assess the materiality and relevance of any limitations in accordance with its *Global Structured Finance Rating Criteria (Appendix 4).*

Criteria Variations, Disclosures and Interaction with Other Criteria

Variations from Criteria

Fitch's criteria are designed to be used in conjunction with experienced analytical judgment exercised through a committee process. The combination of transparent criteria, analytical judgment applied on a transaction-by-transaction or issuer-by-issuer basis, and full disclosure via rating commentary strengthens Fitch's rating process while assisting market participants in understanding the analysis behind our ratings.

A rating committee may adjust the application of these criteria to reflect the risks of a specific transaction or entity. Such adjustments are called variations. All variations will be disclosed in the respective RACs, including their impact on the rating where appropriate.

A variation can be approved by a ratings committee where the risk, feature, or other factor relevant to the assignment of a rating and the methodology applied to it are both included within the scope of the criteria, but where the analysis described in the criteria requires modification to address factors specific to the particular transaction or entity.

Interaction with Country Risk Criteria

The *Structured Finance and Covered Bonds Country Risk Rating Criteria* indicate that, in order to embed the agency's expectation of the impact of a sovereign default on asset performance, Fitch will cap the rating of the notes in certain jurisdictions and apply additional stresses to those asset assumptions that are key rating drivers.

For the purpose of this criteria report, these key assumptions are those on defaults and recoveries. It will not be considered a criteria variation if the relevant stresses fall outside of the ranges given in this report by operation of *the Structured Finance and Covered Bonds Country Risk Rating Criteria.*

According to the *Structured Finance and Covered Bonds Country Risk Rating* criteria, for emerging markets the stresses applied at the maximum structured finance rating achievable in a given country are set between two and three rating categories above the stresses normally corresponding to such a scenario: thus in a country for which the maximum rating is 'BBBsf', the stress applied at 'BBBsf' will be within the 'AAsf' and 'AAAsf' rows in the default multiple and recovery haircut tables of this report (i.e. respectively two and three categories above the cap).

The rating committee will use its discretion in moving within this range, considering the asset characteristics: foreign-currency floating-rate receivables are deemed more exposed to sovereign events than local-currency fixed-coupon receivables.

Transaction-Specific Disclosures

Fitch expects to disclose the following items in its initial transaction reports and/or RACs:

- base-case assumptions (default, recovery and prepayment rates);
- application of stresses to base-case assumptions at each assigned rating level;
- any key cash flow assumptions when different from the standard levels described in this criteria report (such as default timing, senior and servicing fees and WACC);
- any additional loss (typically due to counterparty risks such as set-off or commingling) that is applied to the cash flow analysis; or different rating level cut-offs
- variations to this criteria report (as mentioned above); and
- any caps applied in accordance with the related criteria above.

Fitch will use the same asset assumptions for assigning and maintaining ratings. Material changes will be disclosed in subsequent RACs or as part of the transaction surveillance information made available on its website.

Appendix 1: Applicable Criteria for SME Portfolios

When presented with a securitisation transaction, Fitch decides how to analyse the portfolio and which criteria are most appropriate to address the inherent credit risks in the portfolio. Certain SME portfolios can present similar default risk characteristics to those of consumer loan portfolios, and therefore the *Consumer ABS Rating Criteria*, rather than the *SME Balance-Sheet Securitisation Rating Criteria*, may be deemed applicable for the analysis of those transactions.

Below is an overview of the guidelines Fitch uses to determine the appropriate analytical approach to a transaction. The primary differentiating driver is granularity. In the first instance the agency will consider the obligor type, although Fitch may apply *the Consumer ABS Rating Criteria* to SME portfolios to the extent that the characteristics of the portfolio and other considerations are deemed to be compatible with the analytical approach of such criteria. For each transaction the applicable rating criteria will be determined in the judgement of Fitch and highlighted in the transaction reports.

By and large, the *Consumer ABS Rating Criteria* will fit better portfolios that have most of the following characteristics:

1. borrower type: individuals (consumer regulation typically applies) and small commercial borrowers;
2. homogeneity and granularity of assets:
    a. limited obligor concentration (typically average borrowers weigh less than 5bp; mostly one asset per obligor);
    b. the portfolio includes several thousand assets;
    c. most asset balances are commensurate with a typical borrower's income;
    d. similar product characteristics (origination channel, underwriting method, purpose, tenor, etc.); [1]
3. concentration (in addition to obligor concentration): [2]
    a. limited geographical concentration;
    b. limited industry concentration; and
    c. limited employer concentration.

[1] Portfolios containing receivables that are similar with respect to origination channel, underwriting methodology, purpose, tenor and size are more likely to be homogenous. Within a transaction, Fitch may analyse a portfolio by separate sub-pools.
[2] The consumer ABS criteria are not applicable to portfolios that exhibit significant performance volatility with respect to default rates. These are typically portfolios with a high degree of sector (i.e. employment of obligor), geographic and/or industry concentrations. In these cases, Fitch will utilise other rating criteria that explicitly address these concentration risks.

Appendix 2: Summary Data List

The following outlines the key data that Fitch utilises to apply the analysis outlined in this criteria report. In the absence of specific data, the agency will determine the availability of proxy data and the applicability of the rating criteria on a case-by-case basis. Any specific data shortages and any data adjustments will be highlighted in Fitch's transaction rating reports.

The list below under Pool Data does not cover residual value risk analysis, which may be encountered in auto loan or lease transactions and which is subject to a separate addendum to this criteria report. Further, this general list is not exhaustive, as additional data will be relevant for individual transactions to analyse specific risks (e.g. voluntary termination data on UK auto loans).

Pool Data

The following data, with respect to the provisional and final pool cuts, are usually presented in summarised stratification tables, as both outstanding balance and number of contracts. The data should be spilt by sub-product (e.g. new and used auto loans):

- initial and outstanding balance;
- obligor concentrations;
- balance split by instalments and balloon payments;
- period of origination and seasoning;
- origination channel;
- original term and remaining term;
- yield;
- geographic distribution;
- loan purpose and type of asset (if secured);
- initial balance as a percentage of asset value, ie loan-to-value (if secured);
- contractual portfolio amortisation schedule; and
- originator's loan-by-loan credit scores/risk categorisation (where used by the originator) and the originator's default expectations associated with each score/category; and
- for Italian salary-assignment loans, information on insurance companies and borrowers' employers.

Loan-by-Loan Data Tape: A loan-by-loan data tape is normally made available in certain transaction types (e.g. UK auto loan transactions that involve voluntary termination risk or Italian salary-assignment loan transactions) or where Fitch deems it beneficial for its analysis.

Comparison to Static Origination Data: To determine the stability of collateral characteristics within the historical performance data, Fitch will review stratification data of key parameters for each vintage contained within the historical performance data. Such historical collateral compositions should be split by sub-products and should ideally include the following information:

- underwriting scores – averages and split into buckets;
- down payment and/or initial loan-to-values – averages and split into buckets;
- terms – averages and split into buckets;
- balloon payment in relation to initial loan amount and/or car purchase price – averages and split into buckets.

Comparison with Originator's Portfolio: To compare the securitised pool with the overall pool of the originator, Fitch will review stratification data of key parameters for the overall portfolio of the originator.

Historical Performance Data

The following data should cover the original tenor of the underlying loans, and a minimum of five years of originations. The data should be split by sub-product (e.g. new and used auto loans):

- historical origination volumes;
- historical average receivable balances;
- static cumulative default amount by period of origination (following transaction default definition);
- static cumulative default numbers by period of origination (following transaction default definition);
- static cumulative recovery amount by period of default (following transaction default definition);
- static cumulative default amount by period of origination (following 90-day default definition);
- static cumulative default numbers by period of origination (following 90-day default definition);
- static cumulative recovery amount by period of default (following 90-day default definition);
- dynamic delinquency balances, split by ageing buckets up to point of default;
- dynamic default by amount;
- static or dynamic prepayment data; and
- for Italian salary-assignment loans, default and recovery data should be split by borrower type (e.g. private- and public-sector employees, and pensioners) and default type (e.g. death or job loss).

The transaction default definition is typically based on a threshold of days past due. To the extent the servicer initiates enforcement proceedings prior to that threshold, the outstanding balance of affected contracts would also be expected to be included as a defaulted amount.

In addition, Fitch will assess the parameters used to extract historical data and compare them against the transaction's eligibility criteria; it will make analytical adjustments where appropriate.

Market Data

Fitch will also consider the following market and industry data:

- consumer credit origination and receivable levels; and
- delinquency and default data, if available.

Performance Monitoring

For the monitoring of existing transactions, Fitch expects to be provided with detailed asset performance data for each collection period, including the following:

- end-of-period asset balance, including product and geographical breakdowns;
- end-of-period delinquent asset balance by delinquency category;
- principal collections in the collection period;
- interest collections in the collection period;
- balance of newly defaulted assets in the collection period;
- recovery amounts in the collection period;

- for revolving transactions only, balance of new receivables purchased in the collection period; and
- balance of loans modified, refinanced and repurchased in the collection period, including the status of the loan before the action.

Fitch also expects the following data to be reported regarding each payment date:

- end-of-period note balances;
- principal distributions to noteholders;
- interest distributions to noteholders;
- end-of-period cash account balances;
- cash account draws/deposits;
- period excess spread; and
- other issuer income and distributions.

In EMEA, Fitch's assessment of reports available to investors is summarised by an Issuer Report Grade, as described in the special report *EMEA ABS Issuer Report Grades*. A summary of the performance data is regularly published on Fitch's subscription website (www.fitchratings.com) in the *Surveillance* section of each transaction.

Appendix 3: Sample Agenda for Originator and Servicer Review

The following list outlines the information expected to be covered in an originator/servicer review for an auto loan, lease or consumer loan transaction, as described in the section *Operational Risks* in the main body of this report. Key components of the review are as follows.

On-Site Review Agenda

Topic	Sub-item
Company presentation	History and business background
	Management
	Shareholders
	Structure of the organisation
	Company strategy
	Review of recent financial performance
Industry and market	Industry cycles
	Projected supply and demand.
	Competitive position and growth strategy.
	Pricing and competition
	Sales trends of products
Origination and marketing	Contractual relationships with agents and stores and exclusivity of arrangements, by product
	Payment structure, credit performance penalties and incentives for agents and stores
	Marketing and advertising strategy, use of demographic information
	Originator's procedures for ensuring that its standard forms used to originate the receivables comply with applicable law, are enforceable and are regularly updated to reflect changes in law and regulation
Product profile	Term of receivables (if applicable, original term to maturity and remaining term to maturity)
	Dilutions, product returns and warranties
	Maximum and minimum size
	Setting of internal interest rates
	Payment plan/amortisation
	Type of products financed
Customer profile	Obligor concentration
	Industry
	Geographic location
	Financials (employed/self-employed etc)
Underwriting – staff	Organisation of the underwriting department
	Experience of staffing, and recruitment and training procedures
	Centralised underwriting or branches
Underwriting – credit policy	Credit policy and procedures
	Process for making policy changes
	How different changes in the underwriting over the last years may have affected historical data
Underwriting – credit scoring	Use of credit scoring – demographic and behavioural
	Method of building scorecards – in-house or outsourced
	Key inputs to scorecard
	Scorecard summarised back-testing results or discriminatory power measures
	Use of external credit agencies and credit databases

On-Site Review Agenda (Cont.)

Topic	Sub-item
	Acceptance/rejection rate
Underwriting – exceptions	Policy on exceptions and overrides
	Review of exceptions to policy – annual limits to exceptions
Underwriting – account acceptance	Information required from customers – minimum acceptance criteria, verification and calculation of income
	Information verification procedures – fraud detection
	Use of external credit bureau and database
	Credit authorisation hierarchy from junior analyst to credit committee level
	Subjective underwriting analysis – credit limits and information required
Servicing – staff	Organisation of collection department
	Experience of staffing, and recruitment and training procedures
	Incentives and compensation schemes for increased productivity
	Transferability of staff
Servicing – general procedures	Calculation of principal balance
	Interest accrual methods
	Method of payment receipt – post, direct debit, cash collection etc.
	Application of payments
Servicing – delinquencies	Identification of delinquent accounts, delinquency calculations and reporting
	Late fees or other types of fees charged
	Procedures for collecting delinquent accounts – timing and intensity of actions, automated warnings, telephone calls, doorstep call etc
Servicing – charge-offs	Charge-off policy and timing
	Charge-off calculations and reporting (e.g. inclusion of expenses and accrued interest)
	Policy on extending, modifying and restructuring loans
	Collection of insurance payments for defaulted accounts
Servicing – recovery of defaulted accounts	Use of external agents
	Sale of non-performing debt at discount, whether opportunistically or through regular auctions or bilateral agreements
	Repossessions and liquidation process (time line of default, repossession, foreclosure and resale or release)
	Timing of cash receipts from recovery procedures
Operational risk – document custody	File maintenance and storage method and requirements
	File access
Operational risk – quality control	Internal and external audits and quality control procedures
	IT system (hardware and software)
Operational risk – disaster recovery and emergency plans	Back-up site availability
	Staff contacts and communication procedures
	Alternative servicers
	Recoverability of data – off-site storage of data

Source: Fitch Ratings

File Review

Fitch aims to perform a limited file review to observe the origination and underwriting processes and practices, following the steps below:

1. Fitch will select about 10 accounts from the full list of account numbers included within the provisional pool provided by the originator for its limited file review;
2. Fitch will review original or electronic copies of loan agreements and supporting documentation (e.g. proof of identification);
3. Fitch will query and investigate any apparent inconsistencies between the file review and the policies of the originator presented in the originator review; and
4. Fitch will factor material observations in its rating process.

However, file reviews are not an established practice in all markets, and may also not be performed when no original contracts are generated, as is the case for business models that underwrite exclusively online.

Appendix 4: Salary-Assignment Loan ABS

This appendix outlines Fitch Ratings' methodology for assigning new and monitoring existing credit ratings to securitisation transactions backed by salary assignment loans (SAL) or pension deductible loans (PDLs), collectively referenced as SAL. This appendix applies globally, to both international and national scale ratings. The main characteristic of SAL is that the loan monthly instalment is deducted directly from the borrower's salary, or their pension[3]. The portfolios consist of homogeneous, amortising loans advanced to a granular pool of individuals.

Any assumption or methodology not specifically mentioned in this appendix is made or performed in line with the main criteria.

Additional Key Rating Drivers

The key rating drivers under this appendix, listed in order of relevance to Fitch's analysis, are as follows:

Public Sector Exposure: SAL portfolios show a varying degree of exposure to the public sector, with heightened dependence on the respective sovereign. When setting its default assumptions, Fitch will apply a Sovereign Adjustment Factor (SAF). This is to address the risk of concentration and the interconnectedness with the respective sovereign for SAL transactions rated above the Local-Currency (LC) Issuer Default Rating (IDR) of the sovereign with significant exposure to the public sector. Significant exposure would be at least 33% of the portfolio balance at closing.

In the absence of significant employer concentration, sovereign-related risks will also be reflected by limiting the highest achievable rating on the notes to the maximum notch uplift from the relevant sovereign's LC IDR as outlined in Fitch's *Structured Finance and Covered Bonds Country Risk Rating Criteria*. Portfolios concentrated in one or a few public sector employer names will receive a reduced notch uplift from the sovereign LC IDR or no uplift at all.

Payment Interruption Risk: Salary and pension payment delays in a period of distress for the relevant sovereign could expose SAL ABS to liquidity stress. Liquidity protection mechanisms to address the temporary suspension of cash flows in SAL transactions are seen as effective mitigants to payment interruption risk.

Portfolio Loss: Borrower default and recovery rates are key assumptions in our quantitative analysis**.** A lifetime default expectation for the securitised pool is derived based on historical data: specific base cases for life default, related to borrower mortality, and non-life defaults are set. The recovery analysis follows the same break-down as the default analysis. A specific recovery analysis is conducted on life and unemployment insurance policies when the insurance providers are rated by Fitch.

Cash Flow Dynamics: The timing of cash flows, asset yield, note interest costs and other expenses can make a sizeable contribution to the analytical outcome and affect the final rating.

Data and Assumptions

SAL ABS performance generally depends on the risk factors listed in this appendix and in the main criteria. With regard to borrower performance, unemployment remains the most important individual risk driver. However, due to the frequent presence of pensioners, securitised portfolios often see borrower mortality as a sizeable risk as well.

Together with the lack of the willingness-to-pay component of credit risk, this means it is possible to look at the mortality tables published by the relevant country's institute of statistics (or equivalent institution) to validate a lifetime default rate due to mortality risk in light of the portfolio's remaining life. Additionally, this default rate may be subject to a lower degree of stress than that applied under the main criteria, assuming Fitch develops a stressed case portfolio (mainly in terms of age distribution) for revolving transactions.

[3] Fitch does not consider a loan in which the monthly instalment is deducted from the bank account of the borrower – where their salary is deposited – to be a SAL. This is because such account could be subject to other restrictions and the borrower could be able to use these funds for other purposes.

Data Availability

The quality and reliability of historical data is crucial, so Fitch expects historical data to be split by default reasons. This avoids mixing defaults due to mortality, which are less sensitive to the economic cycle, with defaults due to other reasons which should be stressed across rating scenarios as they are more correlated with the economic cycle. For example, mortality default data validated by the insurance companies (as life insurance pay-outs) are considered more robust because the insurer can provide a significant level of oversight, and can qualify for a lower stress. In the absence of data split by life and non-life defaults, Fitch sets only one base case to which default multiples as well as the SAF is applied.

However, not all portfolios backed by pension income will show high average ages. Some portfolios may instead be backed, for example, by disability pensions in which case, on the one hand, general population statistical tables may not be appropriate and, on the other hand, there may be younger cohorts of borrowers, making mortality risk a secondary consideration. These cases are generally a minority and barely influence portfolio-wide assumptions, but Fitch will apply a case-by-case approach in case the relevant proportions are sizeable, and will disclose it in its rating publications.

The recovery analysis follows the same break-down as the default analysis because the reason for default typically determines the source of recoveries, and the same considerations from the *Consumer ABS Rating Criteria* apply. Specific considerations will be made for jurisdictions where life and unemployment insurances are mandatory for a SAL product where insurance providers are rated by Fitch. If a material share of recoveries is expected to be received from insurances, specific recovery data connected to insurance pay-outs are expected to be received. For unrated insurance providers and jurisdictions with no mandatory insurance, the framework under the main criteria will be used.

For all other assumptions not specifically mentioned in this Appendix refer to the main criteria.

Data Sources

The sources and types of data used in developing these criteria are largely the same as that received in a transaction's rating process. In general, the primary source of data is the originator. Fitch's analysis will also be supplemented by market data provided by third parties, either directly to the agency or via the originator and country-specific mortality tables published by national statistics institutions or by other providers. Refer to the main criteria for further details.

Legal Framework

The legal framework regulating the collection system for SAL is a key consideration in the analysis of SAL transactions. The ability to deduct the loan instalment directly from a borrower's salary or pension before it is paid to or received by the borrower is generally regulated, and the lenders that have this ability must be authorised and sometimes supervised by a government entity. Rules and regulations governing these loans may be national or subnational laws, or even private agreements. Generally, national regulations are more stable than private agreements because they are applied to larger numbers of people and originators.

If there is concentration in a weaker payroll system, Fitch may apply specific stresses, or even categorise the loans as an obligation outside of the payroll collection system and therefore treat them as traditional unsecured consumer loans.

When analysing the legal framework, Fitch focuses on who is authorised to deduct from the payroll; how this authorisation is granted; any limits to the maximum deductible amount; seniority; and on operational collection features.

Public Sector Exposure

Concentration and Rating Caps

Fitch recognises that portfolios of SAL may show a varying degree of concentration in the public sector, either through public sector employees or pensioners. As a result, SAL transactions show a heightened dependence on the sovereign compared to non-SAL ABS transactions.

Fitch will apply an upward adjustment, the SAF, to its default multiples to address the risk of concentration in the public sector and the interconnectedness with the respective sovereign, to transactions backed by SALs or PDLs that benefit from a rating uplift above the LC IDR of the sovereign. In the absence of significant employer concentration, the highest achievable rating for SAL transactions will be equal to the maximum notch uplift from the respective sovereign LC IDR determined by the *Structured Finance and Covered Bonds Country Risk Rating Criteria*, which is up to six notches depending on the country.

For portfolios concentrated in one or few employer names (excluding public pension providers), the agency will reduce the notch uplift from the sovereign LC IDR. SAL transactions backed by a portfolio concentrated in one public sector employer (excluding public pension providers) will have no rating uplift from the sovereign LC IDR. In this case, the highest achievable rating for the notes will be capped at the relevant sovereign LC IDR.

In addition to its effects on defaults, a significant exposure to the public sector increases the risk of temporary liquidity shocks resulting from delays on salary/pension payments, compared to standard unsecured consumer loans. The approach to PIR described in Fitch's *Counterparty Criteria for Structured Finance and Covered Bonds* remains applicable, with some additional specifications depending on the rating uplift from the sovereign LC IDR and on the length of time between the latest-maturing loan in the portfolio and the notes maturity dates, as described in the section 'Payment Interruption Risk' below.

Sovereign Adjustment Factor

The SAF applies to all portfolios with an exposure to public sector employees and pensioners equal to or higher than 33% of the aggregate outstanding balance of the portfolio at closing (see the table entitled 'Rating Cap and SAF' below). This assessment is conducted only at the closing of the transaction unless it is a revolving portfolio or the transaction is restructured. Fitch may also apply the SAF on a case-by-case basis to portfolios with public sector exposures close to the 33% threshold. For clarity, the SAF is applied to the whole public sector exposure, not just to the portion of the portfolio exceeding the 33% threshold. Employer concentration risk (if any) in private sector SAL transactions will be dealt with under the main criteria.

The SAF addresses the risk that local governments might have limited flexibility in managing non-financial payments in a distressed situation and considers measures we have seen in cases of sovereign default, such as a reduction in the number of workers in the public sector and a containment of salary and pension growth. Both factors would increase the probability of default associated with SAL borrowers employed in the public sector or with pensioners.

Public sector employees are defined as employees of central, regional or subnational governments, government-related authorities, or of government-related entities (GRE)[4].

In line with *Structured Finance and Covered Bonds Country Risk Rating Criteria*, to embed our expectations of the impact of a sovereign default on the transactions' asset performance, the SAF would apply from the relevant sovereign LC IDR up to the highest achievable rating for the notes.

Rating Cap and SAF

Notches above sovereign LC IDR[a]	Public sector exposure at closing	SAF
In line with *Structured Finance and Covered Bonds Country Risk Rating Criteria*	Below 33%	Not applicable.
In line with *Structured Finance and Covered Bonds Country Risk Rating Criteria*	Equal to or above 33%	1.3x at the rating correspondent to the maximum notch uplift from the LC IDR of the relevant country, under the *Structured Finance and Covered Bonds Country Risk Rating Criteria*. A SAF of 1x applies to the rating level correspondent to the relevant sovereign LC IDR.

[4] Please refer to the *Government-Related Entities Rating Criteria* for the definition of GRE.

Rating Cap and SAF

Notches above sovereign LC IDR[a]	Public sector exposure at closing	SAF
Up to three	Equal to or above 33% and only/mostly public sector exposure in few employer names[b]	1.3x at the highest achievable rating (i.e. up to three notches above the Sovereign LC IDR). A SAF of 1x applies to the rating level correspondent to the relevant sovereign LC IDR.
Zero	Equal to or above 33% and concentration in just one public sector employer (excluding public pension providers)	1x

[a] In the cases of portfolios mostly exposed to regions or subnational public sector employers, the region/subnational public IDR will be used as a starting point to determine the notches of uplift.
[b] Significant employer concentration is deemed to exist in portfolios whose top 10 employers (excluding public pension providers) exceed 20% of the portfolio at closing. For this purpose, employers are the entities where the employees work, rather than those that deal with the salary deduction.
Source: Fitch Ratings

The SAF will be applied to the default stress multiples of public sector employees and pensioners, which are derived in accordance with the main criteria, used to determine the portfolio rating default rate for a given rating scenario. The SAF is only applied to non-life defaults, including defaults for other reasons.

The SAF will be applied to each rating level - and will increase above the sovereign LC IDR, with an incremental factor for each notch up to the highest achievable rating for the notes, determined according to the table *Rating Cap and SAF* above. The incremental factor is calculated as the ratio between the 30% SAF adjustment and the maximum number of notches uplift from the sovereign LC IDR under the S*tructured Finance and Covered Bonds Country Risk Rating Criteria*.

Here below are examples for four countries to show the mechanics of the SAF. The maximum achievable rating for structured finance transactions in Country A and Country D is three notches above the sovereign LC IDR whereas it is six notches in Country B and Country C.

Application of the SAF: Examples

Rating scenario	Country A	Country B	Country C	Country D
Sovereign LC IDR	BB-	BBB	A+	AA-
AAA	n.a.	n.a.	1.20	1.30
AA+	n.a.	n.a.	1.15	1.20
AA	n.a.	1.30	1.10	1.10
AA-	n.a.	1.25	1.05	1.00
A+	n.a.	1.20	1.00	1.00
A	n.a.	1.15	1.00	1.00
A-	n.a.	1.10	1.00	1.00
BBB+	n.a.	1.05	1.00	1.00
BBB	n.a.	1.00	1.00	1.00
BBB-	1.30	1.00	1.00	1.00
BB+	1.20	1.00	1.00	1.00
BB	1.10	1.00	1.00	1.00
BB-	1.00	1.00	1.00	1.00
B+	1.00	1.00	1.00	1.00
B	1.00	1.00	1.00	1.00
Maximum number of notch uplift from the sovereign LC IDR	3	6	6	3
Incremental factor for SAF	0.10	0.05	0.05	0.10

Source: Fitch Ratings

Payment Interruption Risk

Delays on salary/pension payments increase the risk that a transaction may not be able to make timely interest payments to the noteholders. As a result Fitch expects mitigants to be in place to address PIR, as shown in the *PIR Coverage* table below. Fitch will assess mitigants to PIR for all classes of notes with timely interest payments in line with its *Structured Finance and Covered Bonds Counterparty Rating Criteria.* Fitch expects liquidity protection of between three and nine months as explained in the *PIR Coverage* table below. Fitch will also assess the degree of liquidity protection provided by contractual provisions or legal requirements. In the agency's view, a cushion of at least five years between the last-maturing loan in the portfolio and the legal final maturity date of the notes represents an additional mitigant to the risk of shortfalls on the notes due to temporary delays in the payment of salaries and pensions, which are expected to resume before the legal final maturity of the notes. The assessment of other PIR protection mechanisms will be made on a case-by-case basis and disclosed in transaction-specific reports. Fitch will consider the strength of the liquidity provision in line with the *PIR Coverage* table below.

PIR Coverage

Number of Notches Above Sovereign LC IDR[a,b]	Cushion between legal final maturity of the notes and last-maturing loan in the portfolio	
	Equal to five years or more	Less than five years
Above three or notes rated at least 'AA-'	2x the PIR exposure amount[c] (six months)	3x the PIR exposure amount (nine months)
Up to three	PIR exposure amount (three months)	2x the PIR exposure amount (six months)

[a] In the cases of portfolios mostly exposed to regions or subnational public sector employers the region/subnational public IDR will be used.
[b] For SAL ABS transactions with less than 33% exposure to the public-sector, standard PIR considerations from the *Structured Finance and Covered Bonds Counterparty Rating Criteria* continue to apply.
[c] PIR exposure amount is defined in the *Structured Finance and Covered Bonds Counterparty Rating Criteria* and it is generally calculated on over a three-month period.
Source: Fitch Ratings

Portfolio Loss

Default Analysis

For SALs, defaults typically come from life (i.e. the borrower's death) and non-life (i.e. loss of employment)-related events. Defaults can also stem from other reasons, such as salary garnishment, alimony, change of work, etc. Fitch expects originators to provide historical data split by default type: life, non-life and other reasons (if applicable). The analytical treatment of non-life and other reasons defaults is outlined in the section "Non-Life Defaults".

Life Defaults

Fitch will assign a default rate assumption specific for defaults resulting from deceased borrowers. Such life default expectation will not be stressed along the rating scale. However, if country-specific data suggests significantly high prepayment rates due to refinancing activities, when setting the life default assumption we would assume very low or zero prepayments at the maximum achievable rating scenario for the notes. The effect is that a slow amortisation of the portfolio would maximise the exposure on the default of the portfolio.

Fitch sets life-default assumptions considering the mortality risk embedded in the portfolio's demographics, by age and gender, as well as the historical data. In particular, the mortality analysis will be based on mortality tables published by national statistics institutes; it will determine the expected number of borrower deaths for each age/gender portfolio bucket over such bucket's time to maturity, if available; and convert the number of defaults due to deaths into the corresponding amount of defaults, considering the amortisation of the assets over time.

The originator's historical data is analysed after controlling for changes that have occurred in the originator's book. This could affect the representativeness of the default vintage data with regard to borrowers' age and gender. Originator-specific historical data is then reconciled with jurisdiction-specific mortality rates to identify inconsistencies and address portfolio changes that could affect the applicability of historical data.

The agency then determines monthly mortality rates and translates the mortality data into the corresponding amount of defaults for each age and gender portfolio bucket (if available). It takes into account the amortisation of the assets over time. For revolving portfolios, Fitch will consider how the portfolio demographics could negatively evolve to determine its stressed pool.

The SAF is not applied to life defaults.

Non-Life Defaults

Fitch will assign a specific default rate assumption for non-life defaults. Fitch may further distinguish defaults due to a job-loss event or for other reasons, if appropriate. Fitch will stress default rates across the rating scale by applying the SAF to the default stress multiples applicable under the main criteria. Default rates related to reasons other than job loss, if reported separately, may contain a share of instances that are temporary, such as sabbatical and maternity leaves. Although, the effects of this type of events on the transactions are more related to liquidity stresses, Fitch stresses their credit risk as part of the analysis.

For originators that exhibit high exposure to life default risk and low to non-life default risk, such as 100% pensioners pools, a minimum 1% base case default rate related to non-life defaults will apply. If that is the case, the SAF will then be applied to the non-life default rate resulting from the 1% multiplied by the default stress multiple.

Recovery Analysis

The recovery analysis follows the same break-down as the default analysis (life, non-life and other default reasons). It will also take into account the presence of insurance policies, the terms of such insurance policies, if they are mandatory, and if the policies remain in place until a SAL is fully reimbursed.

In the absence of insurance policies or with policies provided by companies not rated by Fitch, the recovery approach outlined in the main criteria applies.

In case of life defaults, the insurance policy is the only source of recovery in our analysis. For job-loss defaults, recoveries can be achieved through employment insurance pay-outs and other sources (first and foremost severance pay, if any). In both cases, the treatment of recoveries from insurance companies is what differentiates the recovery analysis for SAL portfolios vis-à-vis the general criteria framework for ABS transactions[5].

Fitch will determine the base-case insurance recovery assumption based on historical recovery data and including any quality adjustment for policy exclusions, the originator/insurance provider's experience in dealing with insurance claims and as suggested by historical data on partial pay-outs and invalid claims. Given that insurance policies in this area are homogeneous, and provided that historical data supports it, Fitch expects to assign most transactions an insurance base case of 95% of the relevant defaulted amounts. A base case lower than 100% accounts for invalid claims and delinquent instalments that may be excluded from the insurance claim. The agency may apply a lower recovery rate based on the considerations above on the experience of the originator, of the insurance provider, and also on the basis of evidence of invalid claims.

Insurance Pay-Out Stresses

For insurers rated by Fitch, the credit that the agency gives to insurance pay-outs in rating scenarios higher than either the Insurer Financial Strength (IFS) rating, or the IDR (if no IFS is assigned), or the long-term national rating (if neither a IFS nor a IDR is assigned), or a credit opinion[6] on the relevant insurance company, is set according to the *IFS Rating Adjustment* table below.

The IFS rating adjustment will be applied to the insurance recovery base case. If, for example, the base case is 95% and the 'AAsf' adjustment is 75%, for an insurer with a 'A' IFS, the resulting 'AAsf' insurance rating recovery rate will be 95% x 75%=71.3%. In some cases, Fitch assigns a rating only to the parent company of an insurer included in the transaction. The agency will assess the strategic importance of the subsidiary to its parent company with the involvement of the rating analysts of the parent company and adopting the framework outlined in the *Insurance Rating Criteria*.

IFS Rating Adjustment (%)[a]

	Note rating					
IFS of insurance provider	AAAsf	AAsf	Asf	BBBsf	BBsf	Bsf
AAA	100	100	100	100	100	100
AA	75	100	100	100	100	100
A	50	75	100	100	100	100
BBB	0	0	50	100	100	100
BB	0	0	0	50	100	100
B[b]	0	0	0	0	25	100

[a] Notch-specific ratings will be interpolated between IFS rating adjustments.
[b] No credit is given to insurers rated 'B-' or below.
Source: Fitch Ratings

For revolving transactions, Fitch will determine a stressed portfolio as far as insurance distribution is concerned, taking into account the portfolio covenants as well as the pool replenishment capacity. In addition, to avoid disruptions in the recovery cash flow and any excessive deviation from the base-case expectations, the agency will determine whether adequate concentration limits apply during the revolving period.

[5] For the avoidance of doubt, recoveries that are not generated by insurance policies (typically those from 'other' defaults) will be assessed under the general *Consumer ABS Rating Criteria* framework.
[6] In the event of high reliance on few insurance providers, a credit opinion would not be sufficient.

Operational Risks

The employer of the borrower, which could be either a private company or a government-related agency, is responsible for transferring the contract amount. In some jurisdictions it is referred to as a retention agent.

Apart from the risk of loss of employment, employer concentration implies additional operational risks for the structure, a risk usually mitigated by concentration limits. Alternatively, Fitch could conduct sensitivity analyses to gain insight about the effect on the ratings.

Origination Process and Ongoing Operations

When originating SAL, the borrower typically presents the relevant proof of income (typically pay stubs, and in some cases a certification of the maximum deductible amount). One resulting operational risk in some jurisdictions is the possibility of an employee, employed by one single employer, applying for loans from different finance companies at the same time. If this happens, it is possible that the combined amount withheld from the two companies exceeds the maximum allowed amount. In these cases, the employer generally has specific rules, such as first-in-first-out allocation, where the oldest deduction has seniority over any others until the maximum amount to withhold is reached. If two deductions are equally senior, the amount deducted could be distributed on a pro rata basis. This is one reason why it is important that eligibility criteria in SAL ABS include the requirement that the first instalment has been paid.

Operational risks also often differ for this type of transaction. For example, as long as the employers continue to transfer the collected amounts, the transfer of servicing for these loans is simpler as it involves fewer counterparties. However, the management of technical arrears due to late-paying employers and the reconciliation of multi-borrower payments may require more specific skills, so that servicer replacement, if needed, depends on the availability of suitable entities in the given jurisdiction. Fitch will assess the servicing continuity risk in line with its *Structured Finance and Covered Bonds Counterparty Rating Criteria.*

Transaction-Specific Disclosure

In addition to the disclosure specified in the main criteria, Fitch expects to disclose the following items in its initial transaction reports and/or RACs:

- The application of SAF for portfolios with a less-than 33% public sector exposure;
- The limited relevance of mortality risk in the determination of default rate assumptions;
- Alternative mitigants to PIR, if any, and Fitch's assessment.

Fitch will use the same asset assumptions for assigning and maintaining ratings. Material changes will be disclosed in subsequent RACs or as part of the transaction surveillance information made available on its website.

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