

# Moody's

## INVESTORS SERVICE

### RATING METHODOLOGY

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## Moody's Approach to Rating Floorplan Asset-Backed Securities

This rating methodology replaces *Moody's Approach to Rating Floorplan Asset-Backed Securities* published in June 2020. We edited the "Liability Modeling" section to provide more information on our modeling approach, and we made limited editorial updates. The updates do not change the substantive approach of the methodology.

### 1. Executive Summary

This methodology describes our approach to rating floorplan asset-backed securities (ABS). Automobile dealers typically rely on loans from finance companies to finance their for-sale inventories of new and used vehicles. Issuers use the loans behind this "floorplan financing" as collateral in floorplan ABS. To illustrate the application of our methodology, we use US auto floorplan ABS as an example; however, we also apply this approach to non-US<sup>1</sup> and non-auto floorplan ABS. In this methodology, we describe: (1) the main risks of floorplan ABS; (2) our analytical approach; and (3) provide an overview of our analysis when monitoring the performance of floorplan ABS transactions.

There are two types of floorplan lenders: captive finance lenders, and independent bank lenders or finance companies. Captive finance lenders offer financing to a manufacturer's dealer network, and are often subsidiaries of the manufacturer. As such, floorplan ABS in which a captive finance company of a manufacturer acts as the sponsor are highly dependent on the underlying manufacturer's credit quality and business strategy.

Independent banks and finance companies typically cover a wider spectrum of dealers and manufacturers, which results in a less concentrated loan portfolio and a lower dependence on a single manufacturer.



THIS METHODOLOGY WAS UPDATED ON FEBRUARY 15, 2023. WE HAVE REMOVED AN OUTDATED FOOTNOTE FROM EXHIBIT 4 AND UPDATED THE ANALYST CONTACTS.

<sup>1</sup> When rating non-US floorplan ABS, we may adjust our model inputs and use different assumptions to the ones outlined in this report, to account for structure-, market- or transaction-specific elements.

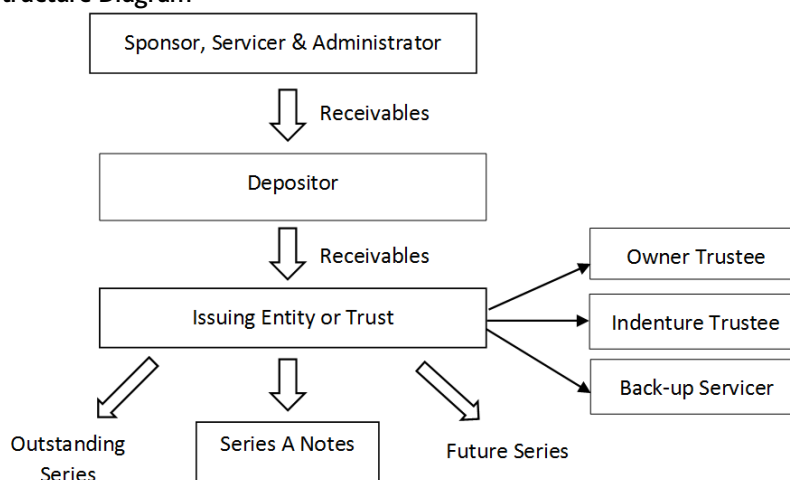
## 2. Transaction Structure

The transactions are structured with an issuing entity, usually a master trust, that owns a revolving pool of floorplan receivables originated by a captive finance, independent bank lender or finance company acting as the transaction sponsor. The receivables originate in connection with the purchase and financing by dealers of new and/or used inventory of products that may include automobiles, various types of recreational vehicles, or boats and other watercraft. The issuing entity issues different series of notes each backed by a revolving pool of receivables to the depositor, which is a wholly-owned, limited purpose subsidiary of the sponsor.

The diagram below shows a simplified overview of a typical floorplan ABS structure.

EXHIBIT 1

### Transaction Structure Diagram



Source: Moody's Investors Service

## 3. Main Risks in Floorplan ABS

Historical credit performance of floorplan assets has typically been very strong, as various levels of loss mitigation embedded in a healthy dealer-manufacturer-lender network serve to effectively limit the losses on floorplan assets under normal circumstances. With solvent manufacturers, dealers have a strong incentive to repay their floorplan loans, which are a financing source crucial to running their business.

In the event of a dealer default, losses may be mitigated when a lender repossesses vehicles. In the case of a captive finance company, the inventory is typically shifted to another dealer for sale. Moreover, floorplan assets are generally serviced by a captive or an experienced independent bank lender with established underwriting, servicing and repossession or remarketing policies that can mitigate losses.

One of the typical risks of auto floorplan securitization is the failure of a dealer to remit sale proceeds to the servicer when the units securing the floorplan loan are sold. If the dealer sells units and does not remit the proceeds to the servicer, and then defaults on the floorplan loan, the servicer will be unable to repossess and sell the units, as they were sold out of the trust (SOT) and therefore could result in losses to an ABS transaction.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moodys.com](http://www.moodys.com) for the most updated credit rating action information and rating history.

Another key risk in floorplan ABS is the failure of a manufacturer. Such an event could cause deterioration in floorplan asset performance which, under certain circumstances as described below, could be significant. It is important to note that, although such a deterioration in performance is not reflected in the historical performance of these assets (due to the absence of significant manufacturer failures), we still consider the possibility of it when assessing these types of transactions, linking this possibility to the creditworthiness of the manufacturer. This “manufacturer risk of failure” is even more pronounced for floorplan ABS sponsored by a captive finance company because these transactions have a significant exposure to a single manufacturer.

The potential impact of a manufacturer failure on various aspects of floorplan asset performance is discussed below.

### 3.1 Decreased Demand and Consequent Drop in Principal Payment Rate

Consumer demand for products from a troubled manufacturer could decline. Lower demand could adversely impact the principal payment rate of a floorplan ABS, which is the first source of repayment for the ABS bonds.

### 3.2 Reduced Recovery Rates

Recovery or liquidation value for collateral backing the floorplan receivables could be adversely affected by a manufacturer's failure. For example, a potential sharp decline in demand could lead to depressed pricing of a manufacturer's vehicles. That, in turn, could lead to reduced recovery proceeds should the inventory securing a floorplan loan need to be liquidated. Recoveries could also be negatively affected should a troubled manufacturer not honor its repurchase agreements.

### 3.3 Dealer Defaults

A dealership's financial health is tied to the financial health of a related manufacturer. If the manufacturer fails, resulting in shrinking sales volume and depressed collateral sale values, dealers (particularly those affiliated with a single manufacturer) could be put into financial distress.

In certain instances, a manufacturer could use its bankruptcy as a means to reduce its dealership base, an action that could be more challenging outside of bankruptcy. Dealer defaults could increase as a result. Ultimately, a manufacturer's failure could lead to a much higher number of dealer defaults in comparison to historical dealer default data, since such data only reflects “normal” dealer defaults with functioning manufacturers.

### 3.4 Sold-Out-of Trusts (SOTs)

Dealers under financial stress could also sell vehicles and fail to remit corresponding proceeds to the servicer, and therefore to the securitization. Hence, Sold-Out-of Trust (or SOT) situations could also increase in the event of a manufacturer's failure and ultimately result in losses to an outstanding ABS transaction.

### 3.5 Impaired Servicing Capability for Captive Floorplan Seller/Servicer

Captive floorplan lenders' seller/servicer capability may be negatively impacted given their close ties with the manufacturer. If the manufacturer weakens, particularly to the extent of bankruptcy, the entire underwriting, lending and servicing processes and systems could weaken, leading to higher losses for related outstanding ABS transactions.

### 3.6 Legal Risks Related to Manufacturer Bankruptcy Proceedings

If a manufacturer's failure leads to a bankruptcy filing, the legal proceedings can produce uncertain outcomes. Bankruptcy courts and administrators typically have a wide range of powers to address the fate of the bankrupt manufacturer. A disorderly or lengthy bankruptcy process could further exacerbate the above-mentioned risks and negatively affect related floorplan ABS transactions.

Historical performance data showing how these risk factors might behave under different economic circumstances is scarce. However, we consider that these risk factors will concurrently worsen as the manufacturer's financial health weakens. Consequently, our quantitative inputs and qualitative adjustments are stressful in the scenario of a liquidation bankruptcy.

Aside from the aforementioned stress scenario (which is driven by a manufacturer's failure), an alternative stress scenario could be caused solely by a lender failure. Such a scenario is more applicable to an independent bank lender. Most of the aforementioned risk factors also apply in the event a bank lender fails (except for decreased demand and highly stressed recovery rates). In addition, for low-rated independent bank lenders, the availability or absence of a capable and experienced backup servicer may be a key rating consideration.

## 4. Quantitative Analysis

Our floorplan analysis encompasses quantitative and qualitative elements. The quantitative analysis uses a simulation-based approach, that may be supplemented by either a static scenario analysis or a portfolio expected loss approach depending on the specifics of a transaction. Rating committees will, where appropriate, consider additional quantitative and qualitative factors that they deem relevant.

### 4.1 Simulation Analysis

Our floorplan simulation analysis evaluates losses on the floorplan receivables based on outcomes related to the main risk drivers,<sup>2</sup> including manufacturer default, dealer default, recoveries upon dealer default, SOTs, payment rates, and macroeconomic conditions. Our analysis considers the collateral and bond cash flows once an early amortization event has occurred and typically includes interest and principal payments, defaults and recoveries during the period following the occurrence of the early amortization event. Dealer defaults increase when a related manufacturer defaults, and both dealer and manufacturer defaults are correlated to macroeconomic conditions. The model output is a key consideration in the rating assigned by a rating committee.

Appendix 1 lays out the decision tree that we typically apply for each iteration of our simulation model. For each iteration, we calculate the internal rate of return (IRR) that would be earned by investors. We then calculate the average IRR from all simulation iterations and compare it to the expected IRR (i.e., the IRR earned by investors if there were no credit losses). We then map the average reduction in the IRR to our benchmarks for each rating level.<sup>3</sup>

As an alternative, we may also use the maximum collateral loss output from the simulation analysis, estimate an expected loss for the floorplan portfolio and derive a lognormal portfolio loss distribution in order to assess the ratings of the notes based on our IRR benchmark.

<sup>2</sup> For more information, see "Main Risks in Auto Floorplan ABS" (section 3).

<sup>3</sup> For more information, see the discussion of Internal Rate of Return (IRR) Reduction in *Rating Symbols and Definitions*, (a link can be found in the "Moody's Related Publications" section) and in the "Loss Benchmarks" section (section 5.2).

The model inputs related to some of the main risks are described in further detail below. The values we show as examples are similar to the model inputs we typically use in US floorplan ABS. We may modify inputs on a case-by-case basis to reflect market-specific, or portfolio-specific information.

#### 4.1.1 Manufacturer Inputs

##### MANUFACTURER SCENARIOS

Up to three manufacturer scenarios are modeled in the simulation model: no bankruptcy, reorganization bankruptcy and liquidation bankruptcy. The probability for each scenario is determined based in reference to the rating for the primary<sup>4</sup> manufacturer and default probabilities are decided as part of our rating committee process. Additionally, we consider the credit quality of manufacturers as follows:

- » **Relatively strong manufacturers with ratings of at least Ba or higher.** We use the manufacturer's rating as a reference for the manufacturer default probability. The default probability for the primary manufacturer in the transaction is typically stressed<sup>5</sup> to be several notches below the current rating in the simulation model. Furthermore, a macroeconomic multiplier is applied to derive the manufacturer default probability. If a manufacturer defaults within the simulation model, the model uses a conditional probability to determine whether the default is a liquidation or a reorganization bankruptcy. Typically, we assume major auto manufacturers with strong brands and/or a robust product mix/pipeline have a very low liquidation bankruptcy conditional probability. This may vary, however, based upon committee determination.
- » **Relatively weak manufacturers with ratings below Ba.** In these cases, we may assume the manufacturer is in a liquidation bankruptcy. In this instance, we do not apply the macroeconomic multiplier to the manufacturer's default probability, which is 100%.

We apply the severe manufacturer stresses in the simulation model to account for scenarios commensurate with high investment grade up to Aaa ratings for the floorplan ABS. The stress also protects the ABS ratings from severe rating transitions should the underlying manufacturer rating be downgraded during the life of a floorplan ABS transaction.

##### MANUFACTURER CONCENTRATION

If there is a meaningful concentration of other manufacturers in the transaction, that would be represented by additional manufacturers within the simulation model. The default probability assumption for any additional manufacturers is closer to their actual rating, with a lower concentration of these manufacturers resulting in a lower degree of stress.

We determine the concentration of manufacturers based on the actual manufacturer concentrations in the underlying floorplan portfolio as well as the manufacturer concentration limits (if any) in a given transaction. The modeled manufacturer concentrations are typically an approximation of, and possibly a stress from, the actual concentrations at closing.

<sup>4</sup> For a captive finance company floorplan lender, the primary manufacturer is the captive's parent manufacturer. For a non-captive floorplan lender, the primary manufacturer or manufacturers would be those with the greatest concentrations.

<sup>5</sup> Certain assumptions, such as the manufacturer rating assumption, are stressed from their current value or expected value at closing to lessen the impact of small downgrades in the manufacturer rating to the ratings on the floorplan ABS.

## EXHIBIT 2

**Examples of Manufacturer Inputs**

	Example 1: Primary Manufacturer rated above Ba	Example 2: Primary Manufacturer rated below Ba
Manufacturer 1 Rating:	Baa3	B1
Manufacturer 1 Default Probability:	5.5%*	100%
No Bankruptcy (over two-year period) Probability	~94.5%	0%
Restructuring Bankruptcy (over two-year period) Probability	~5.0%	0%
Liquidation Bankruptcy (over two-year period) Probability	~0.5%	100%
Manufacturer 1 Concentration:	100%	100%

\* In Example 1 where primary manufacturer is rated above Ba, the manufacturer two-year cumulative default probability used as an input into the model is 5.5%, which is roughly equivalent to a Ba3 rating (using Moody's idealized default rates), i.e., equivalent to three notches lower than the manufacturer's rating at closing. The liquidation bankruptcy conditional default probability is assumed to be 10% in the example.

In Example 2, where the primary manufacturer is rated below Ba, the manufacturer has been assumed to be in a liquidation bankruptcy for illustrative purposes.

In both examples, assuming all underlying vehicles are from one manufacturer, the manufacturer concentration limit is 100% and the simulation model assumes a single manufacturer underlies all the dealers in the transaction.

Source: Moody's Investors Service

**4.1.2 Dealer Inputs****DEALER DEFAULT STRESS**

Dealer default is correlated to both manufacturer and macroeconomic conditions (see below). Stressed dealer default rates may vary as we assess specific dealer information, manufacturer strength, transaction-related dealer concentration limits, the condition of the auto market or sector, and other information. The strong correlation between dealer default and manufacturer default is modeled through a multiplier, which is typically 1.0X, 1.5X and 2.5X with a non-bankrupt manufacturer, a manufacturer affected by a reorganization bankruptcy and a manufacturer affected by a liquidation bankruptcy, respectively. The default multiplier reflects the high degree of dependency between dealers and manufacturers and its effects are illustrated in Exhibit 3. In addition to impacting the average dealer default, the multiplier increases the range of dealer defaults which affects the transaction's cash flows. The specific dealer default stress is also determined based in reference to the rating for the primary manufacturer, or default probabilities decided as part of a rating committee process, as follows:

- » If the primary manufacturer is in the Ba-rating category or higher, we typically stress average cumulative dealer default to about 15%~20% for our analysis. Dealer default stress for future analysis could differ from this. For Moody's rated dealers, our dealer default assumption is commensurate with the dealer's rating.
- » If the primary manufacturer is rated below the Ba-rating category, we may stress dealer defaults assuming a 100% manufacturer liquidation bankruptcy scenario. The stressed dealer default rate under this scenario will be very high as dealers' ability to sell vehicles above wholesale cost is questionable. Those in a better position to avoid default will be deep, multi-branded (i.e., vehicles sourced from different manufacturers) dealerships with an appropriate new/used car sales mix and dealerships with highly successful service, parts, and repair shops. As part of the simulation runs, we have used a stressed average dealer default rate up to 75% for this scenario, with a maximum dealer default rate up to 100%.

Dealer defaults are typically randomly distributed over the amortization period. We may also stress test different dealer default timings (e.g. front-loading dealer defaults) and measure the sensitivity of the results on the transaction cash flows.

## DEALER CONCENTRATION

We typically model dealer concentrations based on the dealer concentration limits of a transaction. In some cases, we may also test how many of the larger dealer defaults can be covered by credit enhancement.

EXHIBIT 3

### Examples of Dealer Inputs

	Example 1: Primary Manufacturer rated at or above Ba	Example 2: Primary Manufacturer rated below Ba
Dealer Concentration Limit:	2% each	2% each
Number of Dealers	50	50
Dealer Default Probability:	Equivalent to B3 each	Equivalent to B3 each
Average Dealer Default (over two-year period) Probability with 1.0X Non-Bankrupt Manufacturer Default Multiplier	~16.61% (16.61% x 1.0)	NA
Average Dealer Default (over two-year period) Probability with 1.5X Restructuring Bankruptcy Manufacturer Default Multiplier	~24.91% (16.61% x 1.5)	NA
Average Dealer Default (over two-year period) Probability with 2.5X Liquidation Bankruptcy Manufacturer Default Multiplier	~41.52% (16.61% x 2.5)	~41.52% (16.61% x 2.5)
Weighted Average Cumulative Default (over two-year period) Probability <sup>1</sup>	15% ~ 20%	~75%

<sup>1</sup> As a result of a combination of dealer default probability, manufacturer default multiplier and macroeconomic multiplier.

In the examples, each dealer is subject to a concentration limit of 2%. Fifty dealers are assumed in the example assuming dealers are all at their concentration limit. In both examples, the dealer rating assumption is B3. Different cumulative dealer default ranges by scenarios are driven by primary manufacturer rating, manufacturer default multiplier and macroeconomic multiplier.

Source: Moody's Investors Service

### 4.1.3 Macroeconomic Inputs

The state of the economy is simulated in the model and is identified as either "good" or "bad". A default multiple of 0.75X is used for a "good" economy iteration while a default multiple of up to 2.00X is used for a "bad" economy iteration. Both manufacturer default probability and dealer default probability will be multiplied by the macroeconomic default multiplier based on the assumed state of economy.

The probability for a "good" or "bad" economy is assessed during the committee process and considers economic and auto industry forecasts from various sources. Furthermore, we use a "bad" economy probability of up to 100% in the simulation process to assess a transaction's cash flows against changes in macroeconomic inputs. The application of economic multipliers in combination with the other default factors – including manufacturer default probability, dealer default probability and manufacturer default multiplier - create a wide range of manufacturer and dealer default scenarios for the simulation analysis.

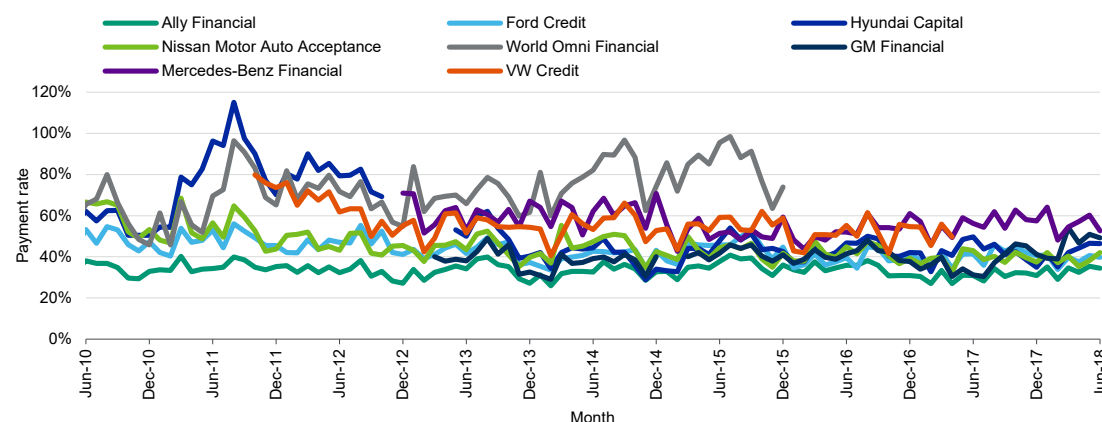
### 4.1.4 Early Amortization Principal Payment Rates

The principal payment rate measures the pace at which dealers pay back their outstanding loan balances.<sup>6</sup> The historical principal payment rate for select issuers is shown in Exhibit 4 below:

<sup>6</sup> The principal payment rate is expressed as a percentage of the monthly principal collections versus the principal receivables outstanding at the end of the preceding month.



EXHIBIT 4

**Sample Payment Rate by US Floorplan Issuer**

Source: Moody's Investors Service

We model principal payment rate behavior during early amortization in three phases: (1) the payment rate when early amortization commences, (2) the rate of decline during the early amortization, and (3) the application of a floor during the entire early amortization period. All three phases of the principal payment rate are modeled using a triangular distribution.<sup>7</sup> Empirical payment rate data can only be utilized to a limited extent in formulating our assumptions since, for example, the US auto dealer floorplan environment has been generally favorable for much of its history, and the challenges experienced by manufacturers in the past did not have severe economic consequences to dealers. The input parameters below are typical sample values. We may deviate from these values for markets outside of the US, or to encompass market- or portfolio-specific information.

**PAYMENT RATE AT THE COMMENCEMENT OF EARLY AMORTIZATION**

We use a triangular distribution to simulate the principal payment rate at the commencement of the early amortization period.

- » We typically assume that the mode of the triangular distribution is equal to the deal's early amortization payment rate trigger (PRT) minus 3% (PRT-3%). We begin the payment rate lower than the early amortization trigger because triggers are commonly based on a three-month average. Therefore, the monthly payment rate when the early amortization actually begins could be lower than the three-month average trigger level.
- » The lower limit of the distribution is typically set at a payment rate of 10%, reflecting the extreme possibility of a sudden manufacturer bankruptcy that causes a severe payment rate decline.
- » The assumed upper limit in the triangular distribution is typically around 30% (assuming the trigger is established below this level), allowing for the possibility that the transaction may enter early amortization when the payment rate is well above the transaction's payment rate trigger (but lower than the typical rates).

**MONTHLY PRINCIPAL PAYMENT RATE DECLINE DURING EARLY AMORTIZATION**

We typically model the monthly principal payment rate decline after the start of early amortization with a triangular distribution of (1%, 3%, 10%) of the current outstanding principal balance, until the monthly payment rate reaches its floor (described below). The monthly payment rate decline is primarily assumed to be moderate, as reflected in the 1% (min) and 3% (mode) assumptions, compared to a precipitous monthly

<sup>7</sup> The triangular distribution is a continuous probability distribution with a lower limit, a mode and an upper limit.



decline. The basis is that the most likely scenarios -- manufacturer distress or a reorganization bankruptcy -- would likely be paired with a manufacturer attempting to maintain its floorplan network and continuing to sell vehicles even though we do expect sales to decrease in these scenarios. In the less likely event of a sudden manufacturer liquidation bankruptcy or other unexpected event, the monthly payment rate could drop sharply, and such a scenario is captured by assuming the 10% monthly principal payment rate decline for the third component of the triangular distribution.

#### PRINCIPAL PAYMENT RATE FLOOR DURING EARLY AMORTIZATION

We typically model the third component of principal payment rate during early amortization -- the payment rate floor -- with a triangular distribution of (5%, 10%, 15%) of the current outstanding principal balance. If the floor is higher than the starting payment rate in simulation runs, the monthly payment rate after month 1 will be kept at the floor payment rate. While data of actual manufacturer reorganization bankruptcies is limited for auto dealer floorplan transactions, we are using a stressed input that such a scenario would most likely produce a payment rate floor of 10%. This stress is lower than the lowest payment rate level observed in rated auto dealer floorplan transactions, but is based on the assumption that some vehicles will continue to be sold by the dealer network even in a distressed state of affairs, and lenders will enforce their curtailment rules.

Exhibit 5 gives an overview of sample model inputs for payment rates for the three phases described above.

#### EXHIBIT 5

##### Example of Payment Rate Inputs

###### Payment Rate:

Payment Rate at the Commencement of Early Amortization:	Triangular Distribution (10%, Payment Rate Trigger-3%, 30%)
Monthly Payment Rate Decline:	Triangular Distribution (1%, 3%, 10%)
Payment Rate Floor:	Triangular Distribution (5%, 10%, 15%)

Source: Moody's Investors Service

#### 4.1.5 Recovery Rates

To account for the impact of manufacturer failure on recovery values, we assume the recovery rate is the highest with a non-defaulted manufacturer, the lowest with a manufacturer subject to a liquidation bankruptcy, and with a manufacturer subject to a reorganization bankruptcy in the middle. Exhibit 6 summarizes sample recovery values that we may use.

The highest recovery rates exist in a scenario where the manufacturer is not facing bankruptcy. Concerns of manufacturer viability, reliance on warranties and service concerns should not influence potential car buyers in this scenario. In addition, the manufacturer is in the best position to match supply and demand and manage collateral value. Concerns relating to these factors grow in the manufacturer bankruptcy scenarios and affect recovery rates. Recovery rates are at their lowest in the liquidation bankruptcy scenario without external support.

## EXHIBIT 6

**Examples of Recovery Rate Inputs**

	With Non-Bankrupt Manufacturer	Manufacturer with a Reorganization BK	Manufacturer with a Liquidation BK
New Car	Triangular Distribution (75%, 85%, 95%) <sup>1</sup>	Triangular Distribution (65%, 75%, 85%)	Triangular Distribution (40%, 50%, 55%)
Used Car	Triangular Distribution (70%, 80%, 90%)	Triangular Distribution (60%, 70%, 80%)	Triangular Distribution (35%, 45%, 50%)

<sup>1</sup> Even though repurchase agreements should not be affected in this scenario, the agreement commonly provides for undamaged, new vehicles for the current model year less a specified margin.

Source: Moody's Investors Service

**4.1.6 Sold-Out-of-Trust (SOT)**

Our SOT inputs are applied as a percentage of total collateral and encompass potential negative consequences caused by a stressed dealership base during early amortization. We typically use SOT inputs with a triangular distribution of (1%, 3%, 5%) of the overall collateral for transactions that have a large dealership base. Additionally, tight dealer concentration limits documented in the transaction could mitigate SOT risks and contribute to relatively less stressful SOT assumptions. We apply a higher SOT value for transactions that have a concentrated, homogenous dealership base. In addition to dealership composition, the following are examples of other factors we may consider, resulting in a different triangular distribution for SOT:

- » Seller/servicer's floorplan financing track record
- » Seller/servicer's historical SOT occurrences
- » Auditing procedures to which the floorplan ABS transaction is subject
- » Transaction's exposure to a potential manufacturer or seller/servicer liquidation bankruptcy

**4.1.7 Other Important Modeling Parameters**

In addition to the main risks that we model (as described above), we also consider the following modeling parameters in the simulation model:

**Excess Spread:** Some auto floorplan ABS transactions are exposed to basis risk or fix-floating mismatch. Excess spread is important to mitigate the interest rate risk. Therefore, we typically do not give credit to excess spread in our simulation model. However, if a transaction benefits from appropriate hedging, we may give limited benefit to excess spread.

**Purchase Rate:** The purchase rate refers to the rate at which a lender generates new receivables and consequently the rate at which the trust purchases new receivables. We typically use a purchase rate of zero in our simulation model for floorplan ABS transactions, as sellers typically cannot convey additional receivables to the trust upon an early amortization event or bankruptcy of the seller. As a result, the purchase rate is usually assumed to be zero in our stress analysis.

**Liability Structure:** Interest and principal payments are modeled in the liability structure. The simulation model applies cash flow from the assets to the liabilities.

**Manufacturer Liquidation Considerations:** As there is no history of a large manufacturer experiencing a liquidation bankruptcy, an event likely to have a material negative impact on the performance of a related floorplan ABS transaction, our simulation model inputs are typically more stressful than what we have observed in previous manufacturer bankruptcy cases. For example, the worst negative impact of a

manufacturer bankruptcy on recovery rates has been 15% to 30% severity for used cars, compared with the 30% (reorganization) to 55% (liquidation) value for the mode of the severity that we typically apply for used cars in our model. Dealer defaults have been rather limited in previous manufacturer bankruptcy cases, while we use a 75% to 100% dealer default assumption under the manufacturer liquidation scenario for the simulation analysis. The lowest historical payment rate observed for a bankrupt manufacturer has been close to 20%, while we typically use a 10% median payment rate floor in our simulation model.

It is also likely that payment rates, dealer defaults, and asset recoveries would be correlated in a stress scenario. That is, when payment rates are low, more dealers will tend to default, and as more dealers default, recovery rates will likely be depressed. As described above, our current approach to capturing such correlation is to consider the additional stresses to which a portfolio of floorplan loans could be exposed in a manufacturer liquidation scenario.

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## 4.2 Static Scenario Analysis

For manufacturers with low sub-investment grade ratings, we may assess the potential rating impact of the manufacturer bankruptcy on the floorplan ABS through a static scenario-based analysis, when such bankruptcy is deemed a key rating consideration. To ensure the floorplan ABS ratings can withstand stressed manufacturer scenarios, we use scenario analysis to assess rating stability under manufacturer bankruptcy. The benefit of scenario analysis is that it allows us to evaluate projected remaining losses for the floorplan ABS relative to available credit enhancement throughout the life of an early amortization event.

In this approach, we may consider numerous possible manufacturer bankruptcy scenarios, each with a different set of assumptions including dealer defaults rates, dealer default distribution (e.g., front-loading dealer default), recovery rates, payment rates, and other major factors that could drive floorplan performance. Under each scenario, losses are projected and compared with available enhancement. Loss coverage ratios are analyzed in all scenarios along with the corresponding potential impact on the floorplan ABS ratings. The purpose of this analysis is to use qualitative judgment in addition to modeling analysis and to assess whether highly-rated bonds would be resilient to downgrades below investment grade upon even very stressed manufacturer bankruptcy scenarios.

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## 4.3 Portfolio Expected Loss

While floorplan ABS transactions historically have had very low losses, some transactions incur more meaningful defaults and losses, allowing for an analysis of a portfolio's expected loss based on actual performance in addition to our analytical methods set forth above.

In particular, portfolio losses are more common in diversified (e.g. non-auto) floorplan portfolios, where tracking sales for certain products may be less automated compared to the processes used by car dealerships. Losses for diversified ABS floorplan deals typically occur due to periodic SOTs or dealer defaults. In addition, losses may also occur when an inventory is written down or sold below its initial wholesale cost. In these instances, we commonly review the portfolio diversity to assess a transaction's exposure to risky manufacturers or products. Based on the historical loss data, rating committees also estimate the portfolio expected loss and its variability at a level consistent with a Aaa rating for the given transaction.

## 5. Structural Analysis and Liability Modeling

### 5.1 Liability Modeling

For transactions with subordinated securities, or with senior securities rated below Aaa, we typically also estimate an expected loss for the floorplan portfolio and derive a lognormal portfolio loss distribution in order to assess the ratings of these classes. For this analysis, we use a generic, relatively simple model we call Multi-Class. Multi-Class uses portfolio-related assumptions in the form of a portfolio expected loss and a loss equivalent to a Aaa stress to calibrate a lognormal collateral loss distribution.

We use Multi-Class to derive the potential losses for the different securities, taking into consideration the relevant capital structure. We sometimes supplement our modeling with additional analysis of special structural features.

### 5.2. Loss Benchmarks

In rating floorplan ABS, we use an Internal Rate of Return (IRR) benchmark when assessing the model output. Modeled IRR reductions are associated with benchmark ratings in Moody's IRR Reduction Rates table,<sup>8</sup> which indicates the internal rate of return reduction interval associated with each given rating level.

## 6. Ratings Assigned Based on Qualitative and Quantitative Considerations

In addition to the quantitative analysis explained above, we also evaluate qualitative factors in determining the ratings. Such qualitative factors typically include servicer experience, servicing procedures, dealership profile, as well as other items. Of those factors, servicing experience and quality is a key component. For instance, the integrity of a servicing system, the experience of servicing personnel, and robustness of auditing practices help limit dealer default or SOTs.

When dealers default, a floorplan servicer's experience and ability in a number of areas is critical in mitigating losses. First, the servicer personnel enters a defaulted dealer's property and ensure the security of the vehicles on the lot. Second, the servicer evaluates available liquidation methods to ensure the best possible recovery on the recovered assets. Although the US has a relatively efficient auction market for vehicles, losses could be mitigated more effectively by pursuing a manufacturer repurchase, brokering a sale of the entire dealership, or conducting sales of the defaulted dealer's vehicles to other dealers. Third, dealers often pledge personal guarantees to a floorplan ABS transaction. The servicer would also typically have experience maintaining these guarantees and pursuing them when they are not honored.

Because the servicing of floorplan loans is complicated, we consider the strength of a transaction's backup servicer.<sup>9</sup> If the primary servicer is unable to perform its duties, which may occur in the event of the bankruptcy of the manufacturer's finance company, the backup servicer needs to step in with as seamless a transition as possible. In that regard, we evaluate a backup servicer's floorplan servicing experience either as a primary servicer or backup servicer; its ability and readiness for servicing transfer; and whether the transaction incorporates an effective servicing transfer mechanism and reserves sufficient funds to cover related servicing transfer expenses. Such evaluation is important for a rating committee to assess whether a

<sup>8</sup> For more information, see the discussion of Internal Rate of Return (IRR) Reduction in *Rating Symbols and Definitions*. A link can be found in the "Moody's Related Publications" section.

<sup>9</sup> For more information, see our cross-sector methodology on assessing counterparty risks in structured finance, including operational risk. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

floorplan ABS transaction with a low-rated sponsor can achieve Aaa rating and is independent of proposed enhancement levels.

Given the lack of any historical example of liquidation of a large manufacturer and related information for our quantitative analysis, we focus on the qualitative components in rating floorplan ABS transactions.

The results of the quantitative analysis are important considerations to a rating committee's process. In addition, the ratings determined by a rating committee incorporate the servicing and other operational risks, as well as other counterparty (e.g. account bank or swap provider) and legal aspects. Subject to the jurisdiction of the assets, sovereign risk factors including sovereign ceiling considerations could also play a role in our analysis.

## 6. Monitoring

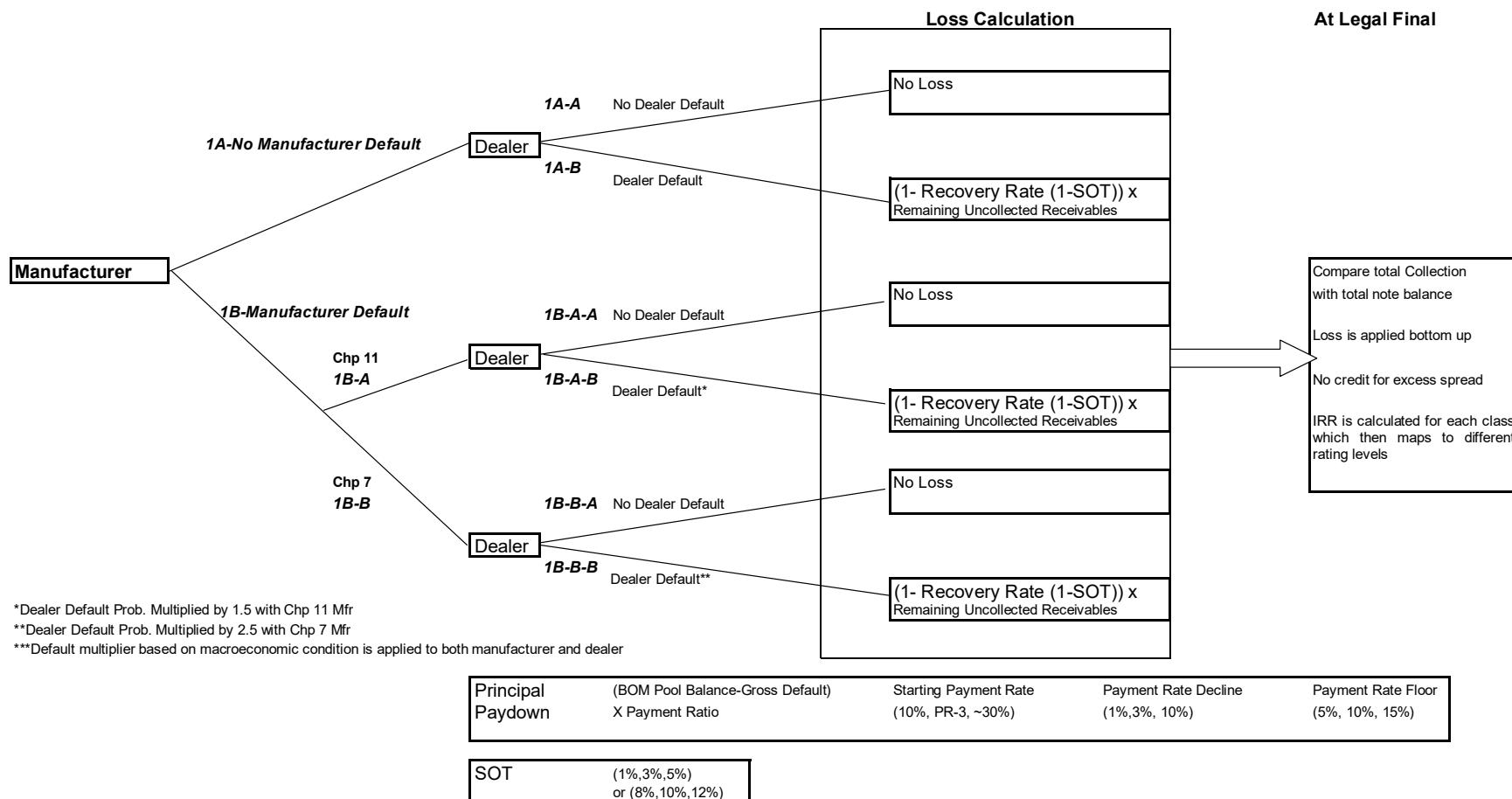
We generally apply the key components of the approach described in this methodology when monitoring floorplan ABS transactions, except for those elements of the methodology that could be less relevant over time, such as the review of the legal structure. We also typically receive periodic data on transaction-specific performance, which we use to monitor these types of transactions. However, unlike other ABS transactions, floorplan ABS transactions typically experience very limited to no portfolio losses during the life of a transaction. Therefore, we periodically assess other performance data such as monthly payment rates and level of excess spread in addition to monthly charge-off rates.

We also monitor the status of manufacturers, dealerships and servicers given their close linkage with the performance of a floorplan ABS transaction.

Macroeconomic, used-car market and industry trends are also periodically assessed for their potential impact on individual manufacturers or dealers. Negative developments detected through our periodic analysis could prompt a more detailed review process. When appropriate, we run our simulation model or we apply one of the other analytical approaches described in sections 4.2, 4.3 and 5.1 to evaluate the IRR on the bonds in a similar manner to the approach we use to assign ratings.<sup>10</sup>

<sup>10</sup> For example, in methodologies where models are used, modeling is not relevant when it is determined that (1) a transaction is still revolving and performance has not changed from expectations, or (2) all tranches are at the highest achievable ratings and performance is at or better than expected performance, or (3) key model inputs are viewed as not having materially changed to the extent it would change outputs since the previous time a model was run, or (4) no new relevant information is available such that a model cannot be run in order to inform the rating, or (5) our analysis is limited to asset coverage ratios for transactions with undercollateralized tranches, or (6) a transaction has few remaining performing assets.

## Appendix 1: Typical Floorplan ABS Simulation Paths



Source: Moody's Investors Service

## Appendix 2: An Example of Our Simulation Analysis and Bond IRR Calculation

The following theoretical example illustrates how we apply simulation analysis to determine the collateral cash flows and derive the bonds' IRR reduction.

### Simulation Analysis

The simulation analysis is based on key modeling assumptions summarized in Exhibit 7:

EXHIBIT 7

#### Theoretical Example Modeling Inputs

Manufacturer Rating:	Below Ba
Number of Manufacturers:	1
Manufacturer with a Liquidation Bankruptcy (over two-year period) Probability	100%
Dealer Ratings:	B3
Number of Dealers:	50 (2% limit for any single dealer)
Weighted Average Cumulative Default (over two-year period) Probability-Manufacturer with a Liquidation Bankruptcy:	~75%
Payment Rate at Start of Amortization:	Triangular Distribution (10%, 17%, 27%)
Monthly Payment Rate Decline:	Triangular Distribution (1%, 3%, 10%)
Payment Rate Floor:	Triangular Distribution (5%, 10%, 15%)
New Car Percentage:	100%
Recovery Rate:	Triangular Distribution (40%, 50%, 55%)
SOT Assumptions:	Triangular Distribution (1%, 3%, 5%)

Source: Moody's Investors Service

Assuming we have a bond structure with 70% Class A, 30% OC, 1.50% cash reserve account and no additional outside enhancement, the simulation result (based on the information in Exhibit 7) is as follows:

EXHIBIT 8

#### Simulation Results

Scenario	Scenario Probability	Avg. Dealer Default	Max Dealer Default	Min Collateral Loss	Mean Collateral Loss	Max Collateral Loss	Class A IRR Reduction
Manufacturer in Liquidation Bankruptcy	100%	75%	94%	4.62%	13.81%	27.52%	0.00%

Source: Moody's Investors Service

Mapping the class A notes' IRR reduction to our IRR benchmark,<sup>11</sup> the class A notes would correspond to a rating level of Aaa. Detailed simulation paths for the theoretical example are laid out in Appendix 1 (paths after 1B-B).

As an alternative, we may also use the maximum collateral loss output from the simulation analysis, estimate an expected loss for the floorplan portfolio and derive a lognormal portfolio loss distribution in order to assess the ratings of the notes based on our IRR benchmark.

<sup>11</sup> See "Loss Benchmarks," section 7.



## Appendix 3: Historical Performance Data and Auto Manufacturer Bankruptcy Cases

Historical evidence related to the main risks is sparse due to the limited number of auto manufacturer failures. The Chrysler and General Motors bankruptcy cases in 2009 provided some information in our assessment of the main risk factors in auto floorplan ABS transactions. Those cases demonstrated that a swift bankruptcy reorganization backed by strong government support can help prevent adverse effects on related ABS transactions. Despite this, future bankruptcies could occur under more adverse conditions, or without government support. For this reason, the parameters that we consider in our quantitative analysis are generally much more stressed relative to historical data. In this section, we explain how the historical observations from the GM and Chrysler bankruptcy cases relate to our analysis.

### 1. Vehicle Demand with a Bankrupt Manufacturer and Payment Rates

The Chrysler and GM bankruptcies called into question whether customers would be reluctant to buy new vehicles from a bankrupt manufacturer. If so, a significant drop-off in sales could put pressure on dealers' ability to make payments on their floorplan loans. Thanks to intense government intervention and incentives offered by both manufacturers, payment rates held up relatively well through the bankruptcy periods. Payment rates were also influenced by the fact that dealers kept vehicle inventories at manageable levels.<sup>12</sup> Despite these observations, a future bankruptcy of a manufacturer may be managed differently, be it in the US or outside.

### 2. Recovery Rates

In the GM and Chrysler bankruptcy cases, vehicle values did not decline substantially during the controlled reorganization period. Any excess inventory was managed through dealer sales or inventory redistribution, thereby preventing lower recovery values from crystallizing through liquidation channels (e.g., auctions). An efficient auction system, such as that which exists in the US, is an important component to monetizing vehicles from defaulted dealers in a stressed liquidation scenario. Future bankruptcies could occur in a vastly different environment, and recovery values could be subject to significant stress under a disorganized bankruptcy filing or a liquidation.

### 3. Dealer Defaults

Chrysler and GM both used bankruptcy to rationalize and reduce their dealership networks, highlighting a potential misalignment between the interests of floorplan ABS investors and the manufacturer or transaction sponsor. GM informed certain dealers that franchise agreements would not be renewed, while Chrysler terminated dealers within the bankruptcy period. These rationalizations did not lead to a cascade of dealership defaults. Affected dealerships had the incentive (given the existence of dealership and personal assets pledged to ABS transactions) and the ability (given their diversified revenue sources) to avoid default.<sup>13</sup> However, the GM and Chrysler dealer rationalizations occurred in the context of an orderly manufacturer bankruptcy which may not be the case with a future bankruptcy.

### 4. Servicer Disruption Risk and SOTs

Chrysler Financial and GMAC avoided bankruptcy despite their related manufacturers' bankruptcies and continued to service their portfolios and floorplan ABS transactions without any disruption. Most terminated dealers were cooperative in handing over any unsold inventory and

<sup>12</sup> See [Moody's Auto Navigator](#), "Payment Rates in Auto Dealer Floorplan ABS Weather the Storm," p.9, July 15, 2009 for more information.

<sup>13</sup> For a related discussion on dealer defaults, see [Moody's Auto Navigator](#), "Dealership Defaults Have Been Limited despite Auto Industry Hardship," p.7, August 12, 2009.

SOTs were very limited throughout the process. However, due to the strong reliance of a captive finance company on the fortunes of its manufacturer, a bankruptcy filing by both entities could occur simultaneously, which could lead to higher SOTs than those which occurred in GM and Chrysler's bankruptcy cases. The availability of a capable and experienced backup servicer could be a mitigating factor to address the risk.

### 5. Bankruptcy Timelines and Liquidation Considerations

Chrysler and GM's bankruptcy proceedings demonstrated that in the US, a government-supported prepackaged Chapter 11 reorganization can be resolved in a matter of a few months. Our experience shows that industrial companies in financial distress usually attempt to reorganize and are unlikely to immediately liquidate as long as the company's products are viable. We believe this holds true for the major auto manufacturers globally. However, bankruptcies that are not prepackaged can take more than a year to resolve. Chrysler and GM were closer to the typical timelines of prepackaged bankruptcies. Absent the support of the parties involved, their emergence from bankruptcy might have taken far longer. A prolonged bankruptcy filing could lead to increased uncertainty about the viability of the manufacturer, increasing the risk of a Chapter 11 reorganization bankruptcy converting to a liquidation bankruptcy.

### 6. Product Disposition and Discontinuation

GM's bankruptcy case provided a reference point with respect to product disposition and discontinuation. The bankruptcy was paired with a plan for the eventual discontinuation of the Pontiac brand and an attempt to dispose of the Hummer, Saab and Saturn brands. These strategic moves did not have a negative effect on GMAC's auto ABS floorplan performance given the small relative size of these brands as well as potential for ongoing viability within a new ownership structure. We expect the quality of a manufacturer's product mix and pipeline will influence the degree of adverse consequences of product disposition or discontinuation under a bankruptcy scenario.

## Moody's Related Publications

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For data summarizing the historical robustness and predictive power of credit ratings, please click [here](#).

For further information, please refer to *Rating Symbols and Definitions*, which includes a discussion of Internal Rate of Return Reduction, and which is available [here](#).

» contacts continued from page 1

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