

This methodology is no longer in effect. For information on rating methodologies currently in use by Moody's Investors Service, visit [www.moodys.com/methodologies](http://www.moodys.com/methodologies)

## RATING METHODOLOGY

# Moody's Approach to Rating Securities Backed by Brazilian Consumer Assets

### Table of Contents

|   |    |
|---|----|
| I. SCOPE  | 1  |
| II. EXECUTIVE SUMMARY   | 2  |
| III. DETAILS OF THE ANALYSIS  | 3  |
| A. The Default Rate on the Underlying Assets  | 3  |
| B. Recoveries on Defaulted Assets   | 4  |
| D. The Prepayment Rate of the Assets  | 4  |
| E. Interest Rate Risk   | 8  |
| F. Structural Elements  | 8  |
| G. The Impact of Limited Data   | 9  |
| H. Qualitative Factors  | 9  |
| I. Legal Structure and Analysis   | 9  |
| IV. MARKET RISK FROM EARLY REPAYMENT NOT COVERED BY MOODY'S RATING                          | 10 |
| V. RELIANCE ON THIRD PARTIES IN RATING PROCESS  | 10 |
| VI. MONITORING  | 10 |
| A. The Monitoring Process   | 10 |
| B. The Analytical Approach to Monitoring  | 10 |
| APPENDIX 1: LEGAL OVERVIEW OF FIDC'S AND RESPONSIBILITIES OF TRANSACTION PARTIES            | 12 |
| Responsibilities of Transaction Parties, as Defined by Applicable Rules and Regulations     | 14 |
| Operational Roles Played by Transaction Parties   | 15 |
| APPENDIX 2: MOODY'S IDEALIZED CUMULATIVE EXPECTED LOSS                                      | 16 |
| APPENDIX 3: MAPPING MOODY'S NATIONAL SCALE RATINGS TO GLOBAL SCALE RATINGS (AS OF AUG 2010) | 17 |
| APPENDIX 4: KEY DRIVERS OF DEFAULT FOR CONSIGNED CREDIT LOANS IN BRAZIL                     | 18 |
| MOODY'S RELATED RESEARCH  | 19 |

### 1. Scope

This report describes Moody's approach to rating securities backed by Brazilian consumer assets and issued through Fundo de Investimento em Direitos Creditórios ("FIDC"). The funds are regulated by the Brazilian capital market regulator, Comissão de Valores Mobiliários ("CVM") through a series of rules and regulations that provide a common framework across transactions. (See Appendix 1 for more information about the FIDC legislation.) The approach described in this methodology applies to (1) consumer auto loans, (2) unsecured consumer loans to civil servants and pensioners that are repaid through payroll or pension benefit deductions ("consigned" loans), and (3) other consumer loans with similar risk characteristics.

The approach to rating Brazilian securitizations backed by unsecured consumer loans to civil servants and pensioners that are repaid through payroll or pension benefit deductions ("consigned" loans) is generally consistent with Moody's approach to rate consumer loans described in the methodology "[Moody's Approach to Rating Consumer Loan ABS Transactions](#)" published May 2013. The approach to rating Brazilian securitizations backed by auto loans is generally consistent with Moody's approach to rate auto loans described in the methodology "[Moody's Approach to Rating Auto Loan-Backed ABS](#)" published May 2013. This report details the rating considerations specific to these Brazilian securitizations.

### Analyst Contacts

Martin Fernandez-Romero,  
*Vice President – Senior Analyst*  
 +54.11.5129.2621  
[martin.fernandez-romero@moodys.com](mailto:martin.fernandez-romero@moodys.com)

Maria Muller  
*Senior Vice President*  
 +1.212.553.4309  
[maria.muller@moodys.com](mailto:maria.muller@moodys.com)

**!** THIS CREDIT RATING METHODOLOGY CONTAINS UPDATED REFERENCES TO THE CONSUMER LOAN AND AUTO LOAN METHODOLOGIES, AND AN UPDATE TO APPENDIX 1 TO REFLECT RECENT REGULATORY REVISIONS. ORIGINAL DATE OF PUBLICATION REMAINS THE EFFECTIVE DATE OF THE CREDIT RATING METHODOLOGY. NO OTHER CHANGES HAVE BEEN MADE TO THE CONTENT OF THE CREDIT RATING METHODOLOGY

» contacts continued on the last page

## II. Executive Summary

Moody's rating of a security issued through an FIDC in Brazil is based in part on our estimate of the "expected loss" that investors will suffer on the security. That estimate is then adjusted for various qualitative factors to determine the final rating.

Generally, investors will suffer a loss if the sum of the (1) cash flows from the underlying assets and (2) any additional credit protection that is allocated to the investors is insufficient to pay the security's principal and interest and the transaction's fees. Therefore, our analysis of the risk of a transaction focuses on the main factors that influence whether investors will experience a shortfall:

- » the levels of defaults and recoveries on the underlying assets,
- » the interest rate mismatch between assets and securities,
- » the rate of prepayment of the underlying assets,
- » the amount of credit enhancement available to investors, and
- » the structural elements of the transaction that affect the allocation of the transaction's cash flows.

Typically, our analysis is based on simulations of multiple possible future scenarios for the default rate on the underlying loans, based on a probability distribution that we estimate from the historical performance of the seller's loan book. Each simulated asset default rate scenario is combined with an assumed recovery rate and prepayment rates and security interest rates for each period (typically monthly) throughout the life of the transaction. The assumed recovery, prepayment, and bond interest rates are "stressed" with view on the rating being considered. In addition, the stresses for the recovery rate and security interest rates are based on the time horizon of the security.

For each scenario, the cash flows that result from the simulated asset default rates and the assumed values of the recovery, prepayment, and interest rates are then input into our model of the transaction to determine the cash flows paid to investors. The resulting investor cash flows are discounted at the promised interest rate, and the resulting present value is compared with the proceeds at issuance to calculate the amount of loss, if any, in that scenario. We repeat this calculation for each simulation scenario, and then calculate the average amount that is lost by investors (i.e., their "expected loss") over all of the simulated scenarios. The security's modeled global scale rating depends on that calculated expected loss and on the security's weighted

average life, compared with our rating benchmark expected losses, which are shown in Appendix 2. We then map the global scale letter rating to a national-scale long-term rating, as shown in Appendix 3.

Our analysis takes account of a number of factors that are specific to Brazilian FIDC securitizations:

- » The potential for changes in the credit quality of the asset pool

We base our assessment of the credit quality and the likely performance of the original pool of assets on historical performance information. However, the composition of the pool of assets – and hence its credit quality -- can change over time because the pool and liability structure are "revolving" (that is, incoming asset payments can be used to purchase new assets, in some cases until the maturity of the securities). Additionally, the seller typically has the right to replace assets under certain conditions, further changing the composition of the pool of assets. Therefore, one of the risks to investors is that the overall credit quality of the asset pool may deteriorate over time because of the replacement of the original assets with lower-credit-quality assets. To assess that risk, we analyze the eligibility criteria for new assets, the record of the seller in originating assets of a consistent credit quality, and the effectiveness of any asset performance triggers in reducing the potential for deterioration in quality and in mitigating the effects of any deterioration.

- » FIDC purchases of assets at a premium to par

One of the distinguishing features of Brazilian FIDC consumer loan transactions is that the loans typically are sold to the FIDC at a premium to the contractual loan principal. In other words, the interest rate used within the transaction to discount the loan cash flows is lower than the contractual loan interest rate, resulting in a higher price for the loans typically in excess of loan principal balance and a higher principal value of the securities that are sold to investors. The higher principal value of the securities results in higher interest payments on the securities, which lowers the gross excess spread available to provide protection against defaults on the loans and increases in market interest rates on the securities. Consequently, in our analysis we assess the protection provided by the excess spread after accounting for the lower rate used to discount the loan cash flows in the securitization, that is, the difference between (1) the rate used to discount the cash flows of the loans in the initial pool and (2) the projected expenses of the

transaction (which include the securities' interest, fees, and loan losses). We also assess the risk that the discount rate used for new asset purchases might be lower, reducing that protection.

» Prepayments

In addition, when loans are sold to the FIDC at a premium, investors can effectively lose that premium (or a portion thereof) if the loans are prepaid. Consequently, our analysis includes an assessment of the risk posed to investors by prepayments.

» Alignment of interests between investors and the sponsor and the servicer

Generally, the credit underwriting of the pool of assets is likely to be of higher quality if the credit underwriter (sponsor) retains a stake in the performance of the loans. Therefore, our analysis includes an assessment of the whether the sponsor's incentives end when it sells the assets to the FIDC (particularly if the assets are sold at a premium) or continue throughout the life of the transaction through earnings from excess spread and/or returns on an equity interest in the FIDC.

In addition, the underwriting is likely to be of higher quality if the underwriter (sponsor) has an interest in maintaining a strong reputation in the market. Consequently, in analyzing the credit quality of the pool of assets, we assess the underwriter's long-term commitment to the market.

Servicing and collections on the assets are likely to be affected by similar factors. In analyzing the likely performance of the pool, we incorporate an assessment of the incentives provided by the fee structure and any ownership interests in the FIDC and of the servicer's reputation and long-term commitment to servicing.

» Interest rate risk

The assets that are securitized in Brazilian FIDC consumer loan transactions typically have a fixed rate, while the securities that are issued typically are floating rate. To analyze the risk posed by that interest rate mismatch, we typically assess the transaction's ability to pay investors in full if interest rates rise to higher-than-expected levels. The "stresses" on interest rates in our analysis are more severe the higher the rating that we are considering.

» The need to manage the liquidity position of the fund

One of the responsibilities of the trustee of the FIDC is to ensure on a continuing basis that as new assets are purchased, the reconstituted pool of assets will generate sufficient cash flow to pay any promised principal and interest on a timely basis, including the payment of all principal prior to the legal final maturity of the transaction. In our rating analysis, we include an assessment of the trustee's ability to perform that duty.

» The effect of asset repurchases and substitutions by the sponsor on monitoring existing transactions

Typically the sponsor of a Brazilian FIDC transaction is entitled to repurchase assets or sell assets to third parties and the trustee is allowed to utilize the repurchase and sale proceeds to purchase new receivables. In some cases, delinquent or defaulted assets may be repurchased or sold and replaced by new receivables, reducing the observed delinquency and default rates on the pool. Therefore, if the sponsor were to stop purchasing or selling delinquent or defaulted assets in the future – either because it chose to do so or because it were no longer able to make the purchases -- we would expect the observed delinquency and default rates to rise. Therefore, when monitoring outstanding transactions, we adjust the performance data to remove the influence of asset repurchases and sales to third parties, to derive an accurate measure of underlying asset performance, excluding the effects of sponsor support.<sup>1</sup>

### III. Details of the Analysis

#### A. The Default Rate on the Underlying Assets

As described in "[Moody's Approach to Rating Consumer Loan ABS Transactions](#)" published May 2013 and "[Moody's Approach to Rating Auto Loan-Backed ABS](#)" published May 2013, a key input in our model of the transaction is the default rate on the underlying assets.

For revolving transactions (which comprise the large majority of the Brazilian market) the default variable is an annual default rate, which we apply to each period in the transaction's life. For static transactions, the default variable is a cumulative default rate over the life of the transaction, which we allocate to the various periods based on a "default timing curve," which describes the proportion of lifetime defaults that we expect to occur in each future period.

Our first step in modeling the defaults is to assume a type of underlying probability distribution, typically a log-normal distribution.<sup>2,3</sup> We then use historical performance data, typically in the form of cumulative default rates from static pools of loans, by vintage of origination, compiled and verified by an audit firm, as a starting point in deriving the parameters of the distribution. Typically 180 days in arrears is the proxy for loss. For example, in the case of the log-normal distribution, we derive a mean lifetime cumulative default rate and a variance of the default rate (and then, for revolving transactions, convert it to an annual rate).

For a description of the key factors that drive defaults for consigned credit loans in Brazil please refer to Appendix 4.

We may adjust our projections to account qualitatively for additional factors, such as

- » Observed performance trends, including
  - (1) default and loss trends in recent vintages, which could indicate recent changes in underwriting standards and,
  - (2) changes in early- and mid- stage delinquency rates, which could be early indicators of coming defaults;
- » The potential drift in credit quality that might result from new assets added to the pool over time. In that analysis we include an assessment of the limitations that the transaction documents place on adding assets<sup>4</sup> and the sponsor's track record in originating assets of a consistent credit quality. In modeling the pool of assets, we typically assume credit characteristics consistent with the weakest credit characteristics allowable under the eligibility criteria;
- » Recent changes to underwriting and servicing strategies and policies that might result in future asset performance that differs from past performance;
- » Limited relevant historical performance data, which could cause us to increase our estimates of the mean cumulative lifetime defaults or its variance, to account for the higher degree of uncertainty associated with the limited data;
- » Expectations of a future macroeconomic environment that is different than the environment that accompanied, and was in part responsible for, the observed historical performance.

## B. Recoveries on Defaulted Assets

As part of our analysis, we assess the likely recovery rate on those assets that we project to default, as well as the timing of those recoveries. The timing of the recoveries is summarized in a recovery curve, showing the percentage of the defaulted amount likely to be recovered at each point in time after default occurs.

To date, we have given credit to recoveries in FIDC transactions backed by consumer loans only in a limited number of cases. Typically we assign nil recoveries given (1) presence of unrated servicers or servicers with relatively low ratings, (2) high interest rates environment and lengthy times to recoveries, (3) limited historical recovery information, and (4) low actual recovery rates realized on historical portfolios.

## D. The Prepayment Rate of the Assets

### 1. Understanding the Risk

The future asset prepayment rate is a crucial risk in a FIDC transaction because of the high premium over the asset contract value that the FIDC typically pays for the loans. That premium represents the value that the FIDC places on the difference between

- (1) the present value of the future contractual loan payments, discounted at the securitization rate, which is typically considerably lower than the effective contractual loan interest rate and
- (2) the face value of the loans (i.e., the contractual loan payments discounted by the contractual loan interest rate).

That premium value depends on how long the assets are assumed to remain outstanding; a slower assumed prepayment rate leads to a higher calculated value.

By paying a premium for the loans – and by securitizing the entire price paid for the loans – the securitization becomes reliant on the relatively high interest earnings on the loans to repay additional security principal (i.e., the premium). However, if the loans prepay at a faster rate than that assumed in the calculation of the premium, then the loans, overall, will earn the high interest rate for a shorter period of time, leaving the FIDC exposed to the risk that the interest earned on the assets over the shorter period will be insufficient to pay the security premium, resulting in a default to investors. The point is illustrated in a numerical example (see Example 1 “Security Loss due to Higher-Than-Assumed Prepayments”).

## 2. Analyzing Asset Prepayment Rates

To incorporate the risk posed by prepayments, we include a “stressed” level of prepayments in each of the asset default scenarios that we run as part of our cash flow simulations. Based on historical prepayment experience, compiled and provided by the auditor to the transaction, we typically first determine an expected prepayment rate and then determine the stressed rate as a multiple of the expected rate. We determine the multiple based on

- (1) our assessment of the uncertainty regarding future prepayment rates, which depends on both the historical experience and our assessment of the future volatility of the industry and the national economy and financial system and
- (2) the rating being sought.

See Figure 1 for an example of indicative stressed prepayment rates.

FIGURE 1

### Indicative Stressed Levels of Prepayments

(Based on Expected Prepayment Rate of 7.5% per annum)

| Global Rating | Multiple | Stressed Prepayment Rate (per annum) |
|---------------|----------|--------------------------------------|
| Baa           | 2.0X     | 15.00%                               |
| Ba            | 1.5X     | 11.25%                               |
| B             | 1.0X     | 7.50%                                |

### Example 1: Security Loss Due to Higher-Than-Assumed Prepayments

To illustrate the risk that prepayments pose to investors in FIDC transactions, consider the following simplified example. Suppose the interest rate on five-year loans is 30%, the par value of the loans is \$1,000,000. For simplicity, assume that the loan cash flows (consisting of principal and interest) are equal installments, and that these occur annually.

Next, assume that the loans can be securitized with an interest rate of 15%.<sup>5</sup> Hence, a 15% discount rate is applied to the nominal contractual cash flows, assuming a zero prepayment

rate and zero loss rate. The resulting net present value or purchase price of the total cash flows from the loans (\$2,052,908, shown in the right-hand column of Table 1, undiscounted) would be \$1,376,333. The premium – \$376,333.00, or 37.6% of contractual principal – is the present value of the difference in the interest rates (30% on the loans vs. 15% on the securitization) used to discount the cash flows over the life of the loans. It is also equivalent to the difference between 1) the price paid by the FIDC to the seller (\$1,376,333) and 2) the contractual principal of the underlying loans (\$1,000,000).

TABLE 1

#### Pricing Cash Flows as Per Contract (0% Prepayment Rate = Contract Rate)

| Inputs        |                                  |
|---------------|----------------------------------|
| \$1,000,000   | Loan Principal                   |
| 30%           | Loan Interest Rate               |
| 5             | Loan Term (years)                |
| (\$410,581.5) | Loan Payment                     |
| 0%            | Annual (Pricing) Prepayment Rate |

| Results |                                    |                    |                    |            |                    |
|---------|------------------------------------|--------------------|--------------------|------------|--------------------|
| Period  | Contractual Loan Principal (Start) | Interest           | Principal          | Prepayment | Total Cashflow     |
| 1       | \$1,000,000                        | \$300,000          | \$110,582          | \$-        | \$410,582          |
| 2       | \$889,418                          | \$266,826          | \$143,756          | \$-        | \$410,582          |
| 3       | \$745,662                          | \$223,699          | \$186,883          | \$-        | \$410,582          |
| 4       | \$558,780                          | \$167,634          | \$242,948          | \$-        | \$410,582          |
| 5       | \$315,832                          | \$94,750           | \$315,832          | \$-        | \$410,582          |
|         |                                    | <b>\$1,052,908</b> | <b>\$1,000,000</b> | <b>\$-</b> | <b>\$2,052,908</b> |

|                 |  |
|-----------------|--|
| \$1,000,000     | Total Contractual Principal                          |
| \$1,376,333     | NPV of Total Cashflows                               |
| 15%             | Securitization Interest Rate                         |
| \$ 1,000,000.00 | NPV of Total Cashflows at Contract Rate (check)      |
| \$ 1,376,333.03 | NPV of Total Cashflows at Discount Rate = Price Paid |
| \$ 376,333.03   | Gain on Sale   |
| 37.6%           | Purchase Price as Premium of Contractual Par         |

In Table 2, we show the interest and principal payments of the securitization, now assuming that the actual prepayment rate on the loans were 25%. As indicated in the table, the total cash flows from the loans were \$1,613,236, considerably less than the total contractual cash flows of \$2,052,908 used

to price the loans. More importantly, note that net present value of the actual cash flows received using the 15% discount rate is \$1,242,837 and less than the purchase price of \$1,376,333.

TABLE 2

**Actual Cash Flows as per Contractual Loan Rate (Prepayments = Actual; Rate = Contract Rate)**

|                |                              |
|----------------|------------------------------|
| \$1,000,000    | Loan Principal               |
| 30%            | Loan Interest Rate           |
| 5              | Loan Term (years)            |
| (\$410,581.55) | Loan Payment                 |
| 25%            | Prepayment Rate (Actual)     |
| 15%            | Securitization Interest Rate |

| Period          | Loan Principal (Start)  | Interest  | Principal | Prepayment | Total Cashflow |
|-----------------|---|-----------|-----------|------------|----------------|
| 1               | \$1,000,000   | \$300,000 | \$110,582 | \$222,355  | \$632,936      |
| 2               | \$667,064   | \$200,119 | \$210,462 | \$114,150  | \$524,732      |
| 3               | \$342,451   | \$102,735 | \$307,846 | \$8,651    | \$419,233      |
| 4               | \$25,954  | \$7,786   | \$25,954  | \$-        | \$33,740       |
| 5               | \$-   | \$-       | \$-       | \$-        | \$-            |
|                 |   | \$610,641 | \$654,844 | \$345,156  | \$1,610,641    |
| \$ 1,376,333.03 | Purchase Price  |           |           |            |                |
| \$ 1,242,095.13 | NPV of Actual CF Received (Total Cashflows at Securitization Discount Rate) |           |           |            |                |
| \$ 134,237.90   | Shortfall in NPV (Purchase Price - PV of CF Received)                       |           |           |            |                |
| 10%             | Loss as % of Price Paid   |           |           |            |                |

The reason that the present value of the securitization's actual payments is lower than the initial purchase price is that the loans had been priced (at \$1,376,333) with the expectation that they would prepay at a rate of 0%. As a result, the assumption was that the loans would be generating interest at a rate far in excess of the security interest rate for the maximum possible period of time. However, with an actual prepayment rate of 25%, the loans actually remain outstanding for a shorter period of time, on average. Therefore, less excess interest is generated over the life of the loans, so that the excess interest that is generated is no longer sufficient to pay the security premium.

Note that the actual size of the asset loss depends on the magnitude of the actual prepayment rate; a higher prepayment rate leads to a higher loss. However, note that since the assets were priced assuming a 0% prepayment rate, any prepayment rate above 0% would lead to at least some loss.

The capital structure of the liabilities determines how those losses are distributed among the various classes of investors (e.g., Senior, Mezzanine, and Junior). In Table 3, we show a hypothetical FIDC balance sheet at closing. The \$1,000,000

loans are accounted for at the purchase price. As these loans are repaid (either via scheduled repayment or unscheduled prepayment), their outstanding value is recalculated at the original discount rate.

The liabilities of our hypothetical FIDC are shown as a percentage of the total purchase price.

TABLE 3

**FIDC Balance Sheet at Closing**

| Assets      |           | Liabilities |                       |
|-------------|-----------|-------------|-----------------------|
| \$1,376,333 | Loans (1) | \$1,032,250 | 75% Senior Shares (2) |
|             |           | \$275,267   | 20% Mezzanine Shares  |
|             |           | \$68,817    | 5% Junior Shares      |
| \$1,376,333 |           | \$1,376,333 | 100%                  |

(1): Loans are accounted for at Purchase Price, not Contractual Principal of \$1,000,000

(2): Securities issued by FIDC's are legally classified as Fund Shares. Typical structures have a Senior and a Mezzanine Share, whereby the equity tranche is the Junior Share.

Table 4 shows how the loss of \$133,495 (or roughly 10% of total assets) is allocated among the securities, or shares. Losses due to prepayments in our example result in a full write down the junior shares (i.e., a 100% loss), a partial loss for the mezzanine shares (23%) and no loss for the senior shares.

TABLE 4

**Allocation of Prepayment Losses**

| Total Prepayment Loss |                   |               |                    |
|-----------------------|-------------------|---------------|--------------------|
|                       |                   | \$ 134,237.90 |                    |
| Class                 | Original Issuance | Loss Incurred | Loss as % of Class |
| Senior Shares         | \$1,032,250       | \$ 0.00       | 0%                 |
| Mezzanine Shares      | \$275,267         | \$ 65,421.25  | 24%                |
| Junior Shares         | \$68,817          | \$ 68,816.65  | 100%               |
|                       |                   | \$ 134,237.90 |                    |

**E. Interest Rate Risk**

Securizations of auto loans and consigned consumer loans in Brazil typically expose investors to interest rate risk. The loans generally have durations of three to three to five years and have fixed interest rates over their terms, while the liabilities (i.e., the FIDC shares) are floating-rate, with an interest rate that is linked to Brazil's overnight interbank deposit rate (the "DI" rate). Consequently, a rise in interest rates after the asset sale has locked in the portfolio yield would increase the amount of cash flows necessary to pay the increased financing cost, leaving less cash flow to pay investors.

In our assessment of the interest rate risk, we evaluate the extent to which any hedges in the transactions, such as interest rate swaps or caps, mitigate the risk. Our assessment incorporates (1) the extent to which the notional value of the hedge will match the values of the assets and liabilities over the life of the transaction, (2) the extent to which the interest rate(s) on the hedge instrument matches the rates on the assets and liabilities and (3) the credit quality of the hedge counterparty.

To analyze interest rate risk, we include a "stressed" path of future DI rates in each of the asset default scenarios that we run as part of our cash flow simulations. We first establish a baseline path of future DI rates from the then-current forward DI rates, which are published daily by the BM&F Bovespa, the Brazilian securities, commodities and futures exchange. Since forward DI rates may not be available for the entire tenor of a transaction, we may have to make an assumption regarding the baseline future DI rates during the final years of the debt to be rated. We then stress that baseline path by multiples that vary based on the rating being sought and the length of time between the start of the transaction and the time period covered by the future interest rate. Typically, the multiples are higher for higher-rated securities and for interest rates that cover more distant periods. The specific multiples that we choose are based on our analysis of

potential future interest rate volatility, which depends in part on historical volatility. In some cases we subject the resulting stressed forward rates to a cap, based on Moody's macro-economic outlook.

As an illustration and in light of the prevailing environment in recent years we have applied a multiple of the forward curve of 1.6 to 2.0 for Baa-rated securities and 1.4 to 1.6 for Ba-rated securities, both with a five year time horizon. We will assess stresses based on the macroeconomic environment and the characteristics of the transaction.

**F. Structural Elements**

FIDC transactions can differ in a variety of ways, such as the number of investor classes (tranches) in the transaction; the conditions, if any, under which the equity holders can receive cash flow before investors are paid in full; the conditions under which new assets can no longer be purchased with cash flow from the loans (i.e., a Revision Event); and the conditions under which the amortization of the securities will be accelerated from the scheduled amortization date (i.e., an Early Liquidation Event<sup>6</sup>).

In some cases, FIDCs are issued in a multiple-series format, in which a single pool of assets can back multiple series of shares issued over time. In our analysis, we examine whether allowing the issuance of subsequent series could negatively affect the credit quality of an existing series. However, typically the conditions set forth in the fund documents for the issuance of a subsequent series are such that the original series will not be negatively impacted. For example, issuance of new series is conditional of subordination triggers being met.

Most FIDC transactions are closed-end funds, where fund shares are repaid with the repayment of the underlying assets – early redemption of shares is not allowed. By contrast, in open-end funds, investors may submit a request to the trustee for the redemption of their shares at any time. (In addition, additional shares may be issued.) Consequently, with open-ended funds there is a hypothetical risk that underlying assets will need to be sold to pay for early redemptions, introducing market risk, the risk of a fall in the price of the underlying loans. Therefore, as part of our analysis, we assess the liquidity of the fund to insure that assets will not need to be sold. To do that, we examine the limits that the fund documents place on the amount of redemptions that are allowed, the amount of advance notice that is required for redemptions, and the likely timing of repayment of the underlying assets.

## G. The Impact of Limited Data

As described above, our analysis of the future performance of the loan pool is based in part on the historical performance of similar pools of the seller. In cases in which there is relatively little relevant historical data or in which the historical data does not cover the full range of possible future economic conditions, the uncertainty regarding future projections is increased, which increases the risk of the transaction from a rating perspective. To account for the higher risk in those situations, we typically increase the assumed variance in the case of the loan default rate and increase the stress multiples for the other variables.

## H. Qualitative Factors

In determining the rating of an FIDC transaction, we often modify the model rating that results from quantitative analysis, based on a number of qualitative factors, as described below.

### 1. Alignment of Incentives

As part of our rating analysis, we make a qualitative assessment of the incentives for the sponsor to maintain consistent underwriting standards. For example, we examine the portion of the securitization that is retained by the sponsor (typically in the form of an equity interest); generally, the greater the retained interest, the greater is the incentive for the sponsor to ensure that the transaction performs well.

In addition, we assess the extent to which the sponsor recognizes profits from the securitization immediately when the transaction closes (“gain on sale”) or over time as the underlying assets are repaid. If it uses gain on sale accounting, a sponsoring institution that has an overwhelmingly short-term perspective may focus more on its volume of originations and securitization, which create immediate returns, than on the quality of the underwriting behind the originations, which only becomes apparent over a longer-term horizon. Since January 1, 2012, Brazilian Central Bank Resolution 3533 (BCB Res 3533) prohibits regulated financial institutions from recognizing the full gain on sale immediately, instead requiring that financial institutions selling portfolios to FIDCs amortize the gain on sale over a time period consistent with the average life of the assets being securitized. However, non-regulated sponsors, such as niche boutiques and factoring companies, as well as non-bank sponsors, such as corporate sponsors and government entities, are not subject to the resolution; transactions sponsored by those types of sponsors, therefore, are still subject to the potential risk posed by gain on sale accounting.

We also assess other factors that could be indicative of a short-term perspective on the part of the sponsor, such as compensation systems that heavily weigh short-term performance and a lack of sponsor track record in the market, with relatively little franchise value. In transactions in which we conclude that there is not a strong incentive to engage in high-quality underwriting, the final rating that we issue on the transaction may be lower than the rating produced by our quantitative analysis, reflecting our qualitative assessment of the additional risk resulting from the misalignment of incentives.

### 2. Third-party and operational risk

The performance of a transaction typically depends crucially on the performance of a number of parties, such as the servicer, the master servicer and the trustee. For example, the servicer is responsible for functions such as collecting on delinquent loans, while the master servicer is responsible for ensuring that loan files are checked to verify the existence of the assets. The trustee is responsible for most of on-going operations of the fund, including monitoring performance triggers, carrying out on-going asset purchases, conducting shareholders meetings and acting in the name of the fund on behalf of investors. Consequently, our rating analysis incorporates our assessment of the ability of the party to perform the duties stipulated in the transaction, the likelihood that the party will continue to be able to perform its duties throughout the life of the transaction, and the feasibility and cost of replacing the party at some point in the transaction's life, if necessary.

To assess the “operational” risk posed by these “third parties,” we assess their track record, financial incentives to perform, the ability of their management to adapt to changes in the market, their financial stability, and arrangements in the transaction to back up the parties if they were not to perform their duties satisfactorily. In instances in which the institution or an affiliate is rated by Moody's, we incorporate that rating as an input into our assessment. For a detailed description of FIDC parties and their obligations, please see Appendix 1.

## I. Legal Structure and Analysis

### FIDC are created and defined by law

The Fundo de Investimento em Direitos Creditórios, or FIDC, is the main vehicle for Brazilian structured finance. It is regulated by the Brazilian capital markets regulator (“Comissão de Valores Mobiliários” or “CVM”).

FIDC were created in 2001 by the Brazilian Central Bank Resolution nº 2,907 and are regulated by the CVM

Instruction nº 356, of December 2001, with amendments in 2003, 2006, 2007, 2010, 2011 and 2013.

Broadly speaking, the amendments to date have all had the objective of raising governance for the mandatory disclosure of asset performance and clarification of specific responsibilities of participating parties.

A key consideration in analyzing an securitization transactions is whether the securitized loans would be isolated from a bankruptcy or insolvency of the originator, especially given that in Brazilian securitization transactions the originator is typically also the sponsor and primary servicer of the transaction. Moody's notes, however, that instances of sponsor default have been few and that the legal framework of the FIDCs and securitization in general, including questioning of the true sale of the securitized loans, have therefore not been sufficiently tested. As a result, there are limited precedent cases available to date creating therefore some uncertainty.

Moody's typically receives a copy of a legal opinion that states whether the sponsor has validly assigned the securitized loan rights to the FIDC, and that as such, the securitized assets do not form part of the originator's assets, and therefore, would not be subject to attachment by any creditor and that the FIDC's ownership interest will not be legally impaired by the originator's bankruptcy or insolvency.

For a detailed description of FIDC regulations, please see Appendix 1 "Legal Overview of FIDC's".

#### IV. Market Risk From Early Repayment Not Covered by Moody's rating

Moody's rating does not address the possibility that a transaction will breach its early amortization triggers and pay principal to investors earlier than scheduled, as long as all principal and interest are paid to the FIDC investors as promised. Consequently, the rating does not address the risk that investors may suffer market-related losses when they receive their money back before originally anticipated due to tax reasons, reinvestment risk or other factors.

#### V. Reliance on Third Parties in Rating Process

Moody's relies on third-party verification of factual information underlying its ratings. This verification typically takes the form of an audit report by an independent auditor, verifying the historical performance of the originator's lending portfolio. In most cases, the lending portfolio is broken down

into static pools, where particular sets of loans are followed throughout their lives.

We also rely on a legal opinion provided by the law firm of the arranger of the transaction that attests to the validity and enforceability of the transaction's documents.

## VI. Monitoring

### A. The Monitoring Process

Moody's continuously monitors Brazilian securitizations and publishes periodic Performance Overviews of its outstanding rated transactions issued through FIDCs. Performance Overviews are typically published quarterly and are available on Moody's website. The overviews are also filed by the trustee with the Brazilian capital markets regulator (CVM) and available on its public website.

Moody's receives monthly performance data from the trustee, which receives its source data from the master servicer in the form of custody reports for the FIDC and for each class of shares. Those custody reports list the Fund's credit rights and other assets, with a detailed breakdown of the investments and outstanding hedges, if any.

Separate custody reports are typically available for each class of shares, showing unit value computations, scheduled amortizations and actual payments made, share redemptions, and new issuances. (FIDC shares may be distributed for up to 180 days from the time of first time issuance; FIDC shares of open-end funds may tap the market for new funds so long as the FIDC is outstanding.) Additional data may also come from the trustee's managerial reports, as well as the seller/sponsor of the transaction.

Moody's publishes a Performance Overview on each transaction, which typically contains key transaction data, a capital structure overview, trigger data, trigger definitions as defined in transaction documents, key financial data, an overview of the non-performing loan (NPL) reserves, and an NPL monitoring table.

### B. The Analytical Approach to Monitoring

Our approach to monitoring Brazilian securitizations consists of analyzing the components of the Funds' monthly economic profitability, which is shown by a simple proxy income statement reported by Moody's in the fund's Performance Overview. The proxy income statement shows the Funds' earnings, measured as (i) the actual gross yield earned by the Funds (due to the roll-off of the assets) minus

(ii) actual interest expense accrued in the period, minus (iii) total running portfolio losses estimated by Moody's.

The key considerations in our monitoring include, among others:

- » The extent to which the gross yield that is reported ("rendimento auferido") is consistent with the minimum discount rate specified in the fund documents.
- » The extent to which loan losses are consistent with our original baseline assumptions.

In monitoring losses, we start with the reported losses and add the value of loans that have been repurchased or substituted by the sponsor. This lends a conservative bias to the monitoring, implicitly assuming that the sponsor only repurchases or substitutes delinquent receivables, to support the transaction. Consequently, the adjusted loss performance should not be affected if the sponsor were to stop repurchases and substitutions in the future.

- » The extent to which the transaction's excess spread is consistent with our then-current baseline assumptions.

OUTDATED  
METHODOLOGY

## Appendix 1: Legal Overview of FIDC's and Responsibilities of Transaction Parties

### FIDC are created and defined by law

FIDC were created in 2001 by the Brazilian Central Bank Resolution nº 2,907 and are regulated by the CVM Instruction nº 356, of December 2001. Further CVM Instructions have all had the objective of raising governance and clarification of specific responsibilities of participating parties as per overview below.

| Instruction | Date         | Scope and Purpose  | Summary of the key provisions   |
|-------------|--------------|--|---|
| BCB 2907    | Nov 29, 2001 | Authorizes the constitution of FIDC and the FICFIDC  | The resolution authorizes and outlines the FIDC as an investment fund in credit rights to be regulated by norms and regulations to be decreed by the CVM.   |
| CVM 356     | Dec 17, 2001 | Regulates the constitution, management, functioning and reporting requirements of the FIDC and the FICFIDC (Fundos de Investimento em Cotas de Fundos de Investimento em Direitos Creditórios, a fund that invests exclusively in FIDC shares).  | <ul style="list-style-type: none"> <li>- Composition (e.g., open- or closed-end fund) and functioning of the FIDC.</li> <li>- Definition of the shares issued by a FIDC (e.g., tranching).</li> <li>- Minimum requirements to be included in the Funds indenture (the "Regulamentos").</li> <li>- Norms regulating eligible assets purchased by the FIDC.</li> <li>- Responsibilities of the trustee and master servicer.</li> <li>- Contracting of third parties as service providers to the FIDC.</li> <li>- Norms for the filing of financial statements to the regulator and reporting requirements.</li> </ul>   |
| CVM 444     | Dec 8, 2006  | Regulates the FIDC NP (Fundos de Investimento em Direitos Creditórios Não-Padronizados), an FIDC-backed by certain assets that do not constitute "plain-vanilla" credit rights (such as non-performing loans or contracts subject to performance risks).   | <ul style="list-style-type: none"> <li>- Definition of the credit rights that characterize eligible assets exclusive to the FIDC NP (e.g., an FIDC cannot purchase non-performing loans, but an FIDC NP can).</li> </ul>  |
| CVM 489     | Jan 14, 2011 | Additional regulation concerning reporting requirements of FIDC, FICFIDC, FIDC-PIPS (Fundos de Investimento em Direitos Creditórios no âmbito do Programa de Incentivo à Implementação de Projetos de Interesse Social) and FIDC-NP.<br><br>Defines the concept of risk transfer/risk retention.   | <ul style="list-style-type: none"> <li>- Reporting and accounting norms that envisage aligning financial reports of the Brazilian securitization vehicles closer to International Financial Reporting Standards (IFRS).</li> <li>- Includes criteria for recognizing, classifying and measuring assets and liabilities.</li> <li>- Includes instructions for new provisioning requirements of delinquent loans and replacing the Brazilian Central Bank directive 2682 for provisioning of delinquent assets.</li> <li>- Rules for recognition of income.</li> <li>- Defines the concept of risk transfer/risk retention for securitizations and provides guidance on what constitutes risk transfer or risk retention.</li> </ul>  |
| CVM 531     | 6 Feb 2013   | Details the master servicer's responsibilities and the hiring of third-party service providers. Seeks to mitigate structures in which there would be a conflict of interests and improve controls by the trustee and main service providers to the FIDC, with a clearer definition of the roles and responsibilities of the market participants. Reduces significantly the commingling risk in these structures. | <ul style="list-style-type: none"> <li>- Prohibits the trustee, manager, master servicer and specialized consultant or its related parties from assigning or originating, directly or indirectly, receivables for the FIDCs in which they participate.</li> <li>- Prevents the master servicer from hiring the originator, seller, specialized consultant or manager to safe-keep the relevant receivables documents and other assets in the fund's portfolio. Contracting service providers for physical safe-keeping of documents does not relieve the master servicer of its responsibilities.</li> <li>- Instructs that funds related to the payment of the receivables are to be deposited in an account in the name of the FIDC or in an escrow account, for funds to be released after the fulfillment of specific prerequisites and verified by the master servicer.</li> </ul> |
| CVM 532     | 27 Mar 2013  | Discusses the remittance of portfolio data of the FIDCs to the Credit Information System of the Brazilian Central Bank (Sistema de Informações de Créditos do Banco Central, or SCR). CVM and BACEN will be able to improve their monitoring of the fund's performance.  | <ul style="list-style-type: none"> <li>- The trustee shall forward to the SCR individual data related to the fund's receivables portfolio.</li> </ul>   |

| Instruction | Date         | Scope and Purpose  | Summary of the key provisions   |
|-------------|--------------|--|---|
| CVM 400     | Dec 29, 2003 | Regulates public offers in the primary and secondary capital markets.  | <ul style="list-style-type: none"> <li>- Regulates the requirement for registration and/or waivers by the regulator for public offerings.</li> <li>- Procedures for modifications to the public offering.</li> <li>- Provisions concerning the Offering Circular.</li> <li>- Distribution of public securities.</li> </ul>  |
| CVM 476     | Jan 16, 2009 | Regulates public offerings with limited distribution efforts (broadly equivalent to a private placement to a limited number of qualified investors in global capital markets) and the trading of these securities in the regulated markets.                          | <ul style="list-style-type: none"> <li>- Distribution procedures.</li> <li>- Restrictions applicable to the offering.</li> </ul>  |
| CVM 409     | Aug 18, 2004 | Regulates the constitution, administration and functioning and reporting requirements of all investment funds; note that FIDCs are one form of investment fund and are subject to both the specific CVM 356 Instruction as well as the broader CVM 409 Instruction). | <ul style="list-style-type: none"> <li>- Form of constitution (e.g. open or closed end fund) and functioning of the fund.</li> <li>- Definition of the fund shares. Norms regulating the issuance, redemption, registration, distribution and subscription of fund shares.</li> <li>- Mandatory provisions of the Regulamento (Fund Indenture) and Prospectus.</li> <li>- Attributions of the trustee (Administrador) and gestor (Asset Manager).</li> <li>- Applicable financial reporting norms.</li> </ul> |

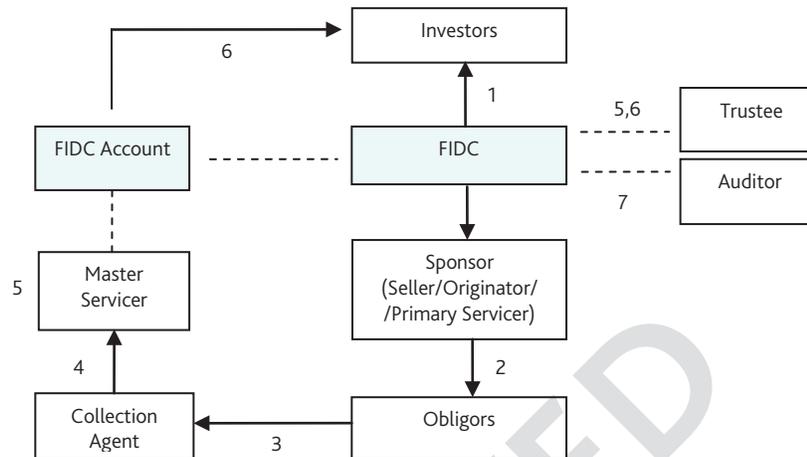
OUTDATED  
 METHODOLOGY

## Responsibilities of Transaction Parties, as Defined by Applicable Rules and Regulations

Rules and regulations specify the rights and responsibilities of transaction parties such as the trustee, the master servicer, and the independent auditor.<sup>7</sup>

| Key Roles in the Transaction | Legal Name (Portuguese) | Summary of Responsibilities   |
|------------------------------|-------------------------|---|
| Trustee                      | <i>Administrador</i>    | Represents the interests of shareholders. Coordinates communication between third parties (master servicer, auditors, rating agencies), the regulator (CVM) and investors. Responsible for day to day administration of the fund such as (i) filing mandatory reports with the regulator, (ii) performing asset purchases on behalf of the fund, (iii) verifying compliance of fund performance with triggers defined in the transaction documents and (iv) convening shareholder meetings upon the breach of transaction triggers.<br>Typically the role of the trustee is performed by a DTVM (Distribuidora de Títulos de Valores Mobiliários, or broker).   |
| Fund Manager                 | <i>Gestor</i>           | Responsible for making asset purchases on behalf of the fund. It must be authorized as a portfolio manager by the CVM. A fund manager is not mandatory and its functions can be carried out by the trustee.   |
| Master Servicer              | <i>Custodiante</i>      | A financial institution regulated by the Brazilian Central Bank, or BACEN, acting as custodian and master servicer to the transaction. Its key responsibilities include (i) receiving and analyzing the documentation giving rise to the credit rights, (ii) monitoring the eligibility criteria, (iii) providing custody of the financial and non-financial assets of the FIDC, and (iv) compiling and disseminating managerial custody reports. Regulations introduced in 2013 allow the master servicer to contract a third-party provider to safe-keep the documents that prove the existence of the receivables, but forbids contracting the originator, seller, specialized consultant or manager contract for such a role. The contracting of third-party providers to safe-keep documents does not release the master servicer from its responsibilities. |
| Independent Auditor          | <i>Auditor</i>          | Conducts third-party audits of the annual financial statements.<br>As described in this report, Brazilian structured finance transactions are structured to allow for ongoing purchases of new receivables during the entire life of the transaction. As a result, an auditor does not generally conduct an audit of a static pool to be sold to the trust. Instead, for publicly distributed transactions, the audit report will typically cover the asset performance of the seller's entire portfolio over a recent period.  |

## Typical Transaction Diagram



1. The fund issues senior and mezzanine shares to investors. Junior Shares are typically retained by the Sponsor.
2. Loans are originated as the originator/sponsor extends credit to eligible obligors according to its internal credit approval policy.
3. Obligors make principal and interest payments, typically in the form of monthly fixed installments comprising principal and interest.
4. The collection agent identifies the cash flows belonging to the FIDC. Typically the master servicer performs the role of collection agent for performing loans. The collection agent remits cash flows to a segregated bank account held at the master servicer on behalf of the fund.
5. The master servicer applies cash according to the waterfall, segregating balances for reserve accounts, commonly found in FIDC structures. The trustee, acting on behalf of the fund, will instruct the master servicer to purchase new loans on a periodic basis. The master servicer will verify the compliance of new loans to be purchased with the eligibility criteria established in the FIDC indenture. Any remaining cash may be allocated in other eligible assets by the Trustee and subject to investment criteria also defined in the FIDC Indenture.
6. The master servicer makes payments to the FIDC Shareholders, as instructed by the Trustee, using cash held at the FIDC account.
7. The auditor audits the financial statements of the FIDC in accordance with the legal requirements and provisions of the deal indenture.

## Operational Roles Played by Transaction Parties

| Key Roles in the Transaction | Legal Name (Portuguese)            | Description of Operational Role  |
|------------------------------|------------------------------------|--|
| Originator (Seller)          | <i>Originador (Cedente)</i>        | Typically the seller is the originator of the loans in single-seller transactions.   |
| Primary Servicer (Seller)    | <i>Cobrador Primário (Cedente)</i> | Typically the seller also plays the primary servicer role. The primary servicer carries out functions such as renegotiating loans in arrears, working out non-performing loan and carrying out recovery related functions, as well as being the first point of contact for the loan client/debtor. |
| Sponsor (Seller)             | <i>Sponsor (Cedente)</i>           | The sponsor is the ultimate economic beneficiary or arranging entity of the transaction. In most instances, the sponsor is the seller/originator of the loans.   |
| Collection Agent(s)          | <i>Agente(s) de Cobrança</i>       | Banks that have deposit accounts in the name of the fund for the purposes of receiving payments for the assets held by the fund.   |

## Appendix 2: Moody's Idealized Cumulative Expected Loss

| Expected Loss         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Rating \ Term (years) | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       | 14       | 15       |
| Aaa                   | 0.0000%  | 0.0001%  | 0.0004%  | 0.0010%  | 0.0016%  | 0.0022%  | 0.0029%  | 0.0036%  | 0.0045%  | 0.0055%  | 0.0067%  | 0.0079%  | 0.0093%  | 0.0107%  | 0.0122%  |
| Aa1                   | 0.0003%  | 0.0017%  | 0.0055%  | 0.0116%  | 0.0171%  | 0.0231%  | 0.0297%  | 0.0369%  | 0.0451%  | 0.0550%  | 0.0719%  | 0.0876%  | 0.1051%  | 0.1241%  | 0.1449%  |
| Aa2                   | 0.0007%  | 0.0044%  | 0.0143%  | 0.0259%  | 0.0374%  | 0.0490%  | 0.0611%  | 0.0743%  | 0.0902%  | 0.1100%  | 0.1371%  | 0.1674%  | 0.2009%  | 0.2376%  | 0.2776%  |
| Aa3                   | 0.0017%  | 0.0105%  | 0.0325%  | 0.0556%  | 0.0781%  | 0.1007%  | 0.1249%  | 0.1496%  | 0.1799%  | 0.2200%  | 0.3540%  | 0.4199%  | 0.4909%  | 0.5668%  | 0.6473%  |
| A1                    | 0.0032%  | 0.0204%  | 0.0644%  | 0.1040%  | 0.1436%  | 0.1815%  | 0.2233%  | 0.2640%  | 0.3152%  | 0.3850%  | 0.5709%  | 0.6723%  | 0.7808%  | 0.8958%  | 1.0169%  |
| A2                    | 0.0060%  | 0.0385%  | 0.1221%  | 0.1898%  | 0.2569%  | 0.3207%  | 0.3905%  | 0.4560%  | 0.5401%  | 0.6600%  | 0.7877%  | 0.9248%  | 1.0707%  | 1.2249%  | 1.3866%  |
| A3                    | 0.0214%  | 0.0825%  | 0.1980%  | 0.2970%  | 0.4015%  | 0.5005%  | 0.6105%  | 0.7150%  | 0.8360%  | 0.9900%  | 1.2826%  | 1.4738%  | 1.6732%  | 1.8799%  | 2.0929%  |
| Baa1                  | 0.0495%  | 0.1540%  | 0.3080%  | 0.4565%  | 0.6050%  | 0.7535%  | 0.9185%  | 1.0835%  | 1.2485%  | 1.4300%  | 1.7773%  | 2.0226%  | 2.2755%  | 2.5347%  | 2.7991%  |
| Baa2                  | 0.0935%  | 0.2585%  | 0.4565%  | 0.6600%  | 0.8690%  | 1.0835%  | 1.3255%  | 1.5675%  | 1.7820%  | 1.9800%  | 2.2719%  | 2.5714%  | 2.8778%  | 3.1895%  | 3.5052%  |
| Baa3                  | 0.2310%  | 0.5775%  | 0.9405%  | 1.3090%  | 1.6775%  | 2.0350%  | 2.3815%  | 2.7335%  | 3.0635%  | 3.3550%  | 4.2333%  | 4.6683%  | 5.1006%  | 5.5286%  | 5.9513%  |
| Ba1                   | 0.4785%  | 1.1110%  | 1.7215%  | 2.3100%  | 2.9040%  | 3.4375%  | 3.8830%  | 4.3395%  | 4.7795%  | 5.1700%  | 6.1940%  | 6.7647%  | 7.3228%  | 7.8671%  | 8.3966%  |
| Ba2                   | 0.8580%  | 1.9085%  | 2.8490%  | 3.7400%  | 4.6255%  | 5.3735%  | 5.8850%  | 6.4130%  | 6.9575%  | 7.4250%  | 8.1547%  | 8.8610%  | 9.5449%  | 10.2055% | 10.8419% |
| Ba3                   | 1.5455%  | 3.0305%  | 4.3285%  | 5.3845%  | 6.5230%  | 7.4195%  | 8.0410%  | 8.6405%  | 9.1905%  | 9.7130%  | 10.7874% | 11.5936% | 12.3605% | 13.0890% | 13.7806% |
| B1                    | 2.5740%  | 4.6090%  | 6.3690%  | 7.6175%  | 8.8660%  | 9.8395%  | 10.5215% | 11.1265% | 11.6820% | 12.2100% | 13.4192% | 14.3255% | 15.1752% | 15.9717% | 16.7185% |
| B2                    | 3.9380%  | 6.4185%  | 8.5525%  | 9.9715%  | 11.3905% | 12.4575% | 13.2055% | 13.8325% | 14.4210% | 14.9600% | 16.0511% | 17.0573% | 17.9899% | 18.8544% | 19.6564% |
| B3                    | 6.3910%  | 9.1355%  | 11.5665% | 13.2220% | 14.8775% | 16.0600% | 17.0500% | 17.9190% | 18.5790% | 19.1950% | 20.6128% | 21.9203% | 23.1321% | 24.2555% | 25.2976% |
| Caa1                  | 9.5599%  | 12.7788% | 15.7512% | 17.8634% | 19.9726% | 21.4317% | 22.7620% | 24.0113% | 25.1195% | 26.2350% | 27.4851% | 28.6344% | 29.6671% | 30.5988% | 31.4428% |
| Caa2                  | 14.3000% | 17.8750% | 21.4500% | 24.1340% | 26.8125% | 28.6000% | 30.3875% | 32.1750% | 33.9625% | 35.7500% | 36.6485% | 37.4049% | 38.0482% | 38.6010% | 39.0808% |
| Caa3                  | 28.0446% | 31.3548% | 34.3475% | 36.4331% | 38.4017% | 39.6611% | 40.8817% | 42.0669% | 43.2196% | 44.3850% | 44.8962% | 45.3571% | 45.7455% | 46.0766% | 46.3621% |
| Ca                    | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   | 55.00%   |

### Appendix 3: Mapping Moody's National Scale Ratings to Global Scale Ratings (as of Aug 2010)

| Global Scale   | Long-Term Brazilian National Scale Rating |
|----------------|---|
| Baa2 and above | Aaa.br                                    |
| Baa3           | Aaa.br to Aa1.br                          |
| Ba1            | Aa1.br to Aa2.br                          |
| Ba2            | Aa2.br to A1.br                           |
| Ba3            | A2.br to A3.br                            |
| B1             | Baa1.br to Baa3.br                        |
| B2             | Baa3.br to Ba2.br                         |
| B3             | Ba2.br to B1.br                           |
| Caa1           | B1.br to Caa1.br                          |
| Caa2           | Caa2.br                                   |
| Caa3           | Caa3.br                                   |
| Ca             | Ca.br                                     |
| C              | C.br                                      |

OUTDATED  
METHODOLOGY

## Appendix 4: Key Drivers of Default for Consigned Credit Loans in Brazil

Brazilian “consigned” loans are unsecured consumer loans to civil servants and pensioners that are repaid through payroll or pension benefit deductions.

The key characteristics that drive defaults for consigned credit loans in Brazil include:

- » Payments on consigned credit loans are made directly by a public entity (“jurisdiction”), which deducts the payments from paychecks to civil servants and benefits to pensioners. Losses on consigned credit loans typically result when banks lend in excess of permissible limits imposed by each jurisdiction. Losses vary by type of jurisdiction (i.e., municipal, state, or federal) and within types, based on the quality of the systems that are in place to control the adequacy of the borrower information that is collected and the payments that are made based on that information.
- » Typically, consigned loans that are repaid by municipalities have the highest losses, followed by those repaid by state governments, followed by those repaid by the federal government or public bodies at the federal level, such as the Brazilian Pension Systems (INSS).
- » Loan defaults vary across municipal jurisdictions and across state jurisdictions. We assess the riskiness of each jurisdiction based on a quantitative review of the seller’s historical loss rate of consigned loans from a particular jurisdiction under analysis.

OUTDATED  
METHODOLOGY

## Moody's Related Research

For a more detailed explanation of Moody's approach to this type of transaction as well as similar transactions please refer to the following reports:

### Related Methodologies:

- » [Moody's Approach to Rating Consumer Loan ABS Transactions, May 2013 \(SF 184265\)](#)
- » [Moody's Approach to Rating Auto Loan-Backed ABS, May 2013 \(SF318493\)](#)

### Special Comment:

- » [The Lognormal Method Applied to ABS Analysis, July 2000 \(SF8827\)](#)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Moody's publishes a weekly summary of structured finance credit, ratings and methodologies, available to all registered users of our website, at [www.moodys.com/SFQuickCheck](http://www.moodys.com/SFQuickCheck).

The credit ratings assigned in this sector are primarily determined by this credit rating methodology. Certain broad methodological considerations (described in one or more secondary or cross-sector credit rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments in this sector. Potentially related secondary and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings assigned using this credit rating methodology, see [link](#).

<sup>1</sup> Under CVM Instruction 489, which went into effect on January 1st, 2012, direct or indirect sponsor support of a securitization triggers the requirement to reconsolidate the entire transaction onto the sponsor's balance sheet. Consequently, those sponsors that want to keep securitizations off their balance sheets are less inclined to provide support for transactions. However, sponsor may still find it advantageous to support transactions in some circumstances. See Moody's Sector Comment, "[Brazil Securitization Regulations Will Increase the Likelihood of Mezzanine Defaults](#)," August 1, 2011 for more information about CVM Instruction 489.

<sup>2</sup> For more information about how we use the lognormal distribution in our analysis, please see Moody's Special Report "[The Lognormal Method Applied to ABS Analysis](#)," July 2000.

<sup>3</sup> We may use an alternative distribution if we consider it more appropriately represents the probabilities of future outcomes for the variable.

<sup>4</sup> Limitations typically take the form of (i) Eligibility Criteria ("Critérios de Elegibilidade"), (ii) Conditions of Sale ("Condições de Cessão"), and (iii) Permitted Investments ("Outros Ativos").

Eligibility criteria generally contain factual, loan-specific parameters such as maximum tenor, maximum ticket size, and maximum single-obligor concentration in relation to pool assets, among others. The eligibility criteria are independently verified by the master servicer prior to a sale of the credit rights to the fund. The master servicer is typically a highly rated financial institution. A failure on its part to verify the eligibility criteria will usually have material consequences such as an early liquidation event or revision event and will be a legal liability of the master servicer.

The conditions of sale typically include representations that the assets being sold were originated in accordance with the usual underwriting policy and are free of any legal encumbrances. However, since the seller of the credit rights in the transaction alone determines compliance to the conditions of sale and the seller is typically a non-rated or lower-rated entity, the conditions of sale typically add little to our analysis.

Brazilian securitizations often build up liquidity reserves in financial assets other than credit rights in anticipation of meeting amortizations or share redemptions. Regulations stipulate that at least 50% of a Fund's Net Asset Value be invested in credit rights, which means that the trustee could allocate up to 50% of the remaining Net Asset Value to other permitted investments. Permitted investments control the attributes of those non-credit rights assets. In our rating analysis, we evaluate the extent to which those permitted investments can add risk to the transaction.

<sup>5</sup> Note that the securitization interest rate (15%) does not affect the required payments by the borrowers to liquidate or prepay the loans, which remain based on the contractual 30% loan contract interest rate.

<sup>6</sup> Typically, more credit protection is provided to investors by revision event triggers and early liquidation triggers in which

- » the trigger level for the variable is set relatively close to the variable's value at the beginning of the transaction
- » the trigger is evaluated and acted upon frequently during the life of the transaction
- » the variable is a leading indicator of loan losses the trigger is calculated and transmitted by a capable, financially stable entity.

<sup>7</sup> As of the writing of this report, a public request for comments issued by the CVM remains outstanding and which seeks to increase governance of transaction parties as well as eliminating commingling risk. Please see Moody's comments of the effect of the RFC entitled "[Proposed Regulatory Changes for Brazil's ABS Are Credit Positive](#)," July 2012

» contacts continued from page 1

João Daher  
Associate Analyst  
+55.11.3043.7331  
joao.daher@moodys.com

**MOODY'S CLIENT SERVICES:**

New York: +1.212.553.1653  
Tokyo: +81.3.5408.4100  
London: +44.20.7772.5454  
Hong Kong: +852.3551.3077  
Sydney: +612.9270.8100  
Singapore: +65.6398.8308

**ADDITIONAL CONTACTS:**

Website: [www.moodys.com](http://www.moodys.com)

Report Number: SF294535

© 2012 Moody's Investors Service, Inc. and/or its licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

**CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. ("MIS") AND ITS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND CREDIT RATINGS AND RESEARCH PUBLICATIONS PUBLISHED BY MOODY'S ("MOODY'S PUBLICATIONS") MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.**

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process. Under no circumstances shall MOODY'S have any liability to any person or entity for (a) any loss or damage in whole or in part caused by, resulting from, or relating to, any error (negligent or otherwise) or other circumstance or contingency within or outside the control of MOODY'S or any of its directors, officers, employees or agents in connection with the procurement, collection, compilation, analysis, interpretation, communication, publication or delivery of any such information, or (b) any direct, indirect, special, consequential, compensatory or incidental damages whatsoever (including without limitation, lost profits), even if MOODY'S is advised in advance of the possibility of such damages, resulting from the use of or inability to use, any such information. The ratings, financial reporting analysis, projections, and other observations, if any, constituting part of the information contained herein are, and must be construed solely as, statements of opinion and not statements of fact or recommendations to purchase, sell or hold any securities. Each user of the information contained herein must make its own study and evaluation of each security it may consider purchasing, holding or selling.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

MIS, a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MIS have, prior to assignment of any rating, agreed to pay to MIS for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moodys.com](http://www.moodys.com) under the heading "Shareholder Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Any publication into Australia of this document is by MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657, which holds Australian Financial Services License no. 336969. This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001.

Notwithstanding the foregoing, credit ratings assigned on and after October 1, 2010 by Moody's Japan K.K. ("MJJK") are MJJK's current opinions of the relative future credit risk of entities, credit commitments, or debt or debt-like securities. In such a case, "MIS" in the foregoing statements shall be deemed to be replaced with "MJJK". MJJK is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO.

This credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be dangerous for retail investors to make any investment decision based on this credit rating. If in doubt you should contact your financial or other professional adviser.