



Pricing Methodologies Shares in FIDCs

Price and Index Management – GEPRI

Updated on: 05/03/2021

Methodologies applied to the pricing process for shares in FIDCs

1. Criteria for selection of contributing institutions

In the composition of the sample of contributing institutions, efforts will be made to maintain a significant number of participants, considering their representation on the secondary market of shares in FIDCs (“Fundos de Investimento em Direitos Creditórios”, a type of investment fund composed of receivables from various issuers).

Institutions that meet one of the criteria below will be evaluated:

- I. Member institutions.
- II. Investment fund management firms among the 15 largest allocators in FIDC shares;
- III. Treasuries, funds and brokerage firms operating in the segment;
- IV. Other institutions that are willing to participate in the sample may be included, as long as they meet criterion no. 1 and are approved by the Pricing Advisory Group.

The institutions that are part of the sample of contributors can be consulted on the Association’s website.

2. Selection of Series

Shares of FIDCs that will have their rates and prices calculated by ANBIMA are those selected by ANBIMA’s Prices and Indexes department, according to minimum liquidity criteria, as suggested by the Pricing Advisory Group, by the Thematic Committee on Credit Receivables, and as suggested by the member institutions, provided that they cumulatively meet the following conditions:

- I. Fund constituted on closed condominiums;
- II. Pre-defined amortization flow (including time limits), as specified in the regulation and/or in the specific supplement, and informed to ANBIMA by the FIDC Administrator:
 - a. Fixed percentages on the VNE;
 - b. With or without compounding of remuneration on the principal;
 - c. Amortization schedules with N installments, each of which amortizes $1/(Ni)$ of the

remaining balance;

- III. Administrator has agreed to send the information described in item 2.2 herein, about the Shares;
- IV. Shares with remuneration target (defined Benchmark);
- V. Remuneration goals: DI Rate + surcharge, percentage of DI Rate, Fixed, or IPCA + surcharge;
 - In cases where IPCA indexing is applicable, the remuneration target must be fixed, and ANBIMA must inform the Contributing Institutions as to the NTN-B with the closest duration;
- VI. Shares must be distributed through a public offering, and, in the case of issuance pursuant to CVM Instruction 476, they must not be subject to trade lock-up;

2.1. Minimum liquidity requirements evaluated by ANBIMA

A proposal to include new selected FIDC shares, as applicable, will be sent to Contributing Institutions on a monthly basis.

At least seven (7) Contributing Institutions must commit to sending indicative rates related to the shares on a daily basis.

- Minimum of four days with trades in two of three months with ticket exceeding R\$ 1 million;
- Fully paid-in shares;

2.2 Pursuant to the provisions of the third-party resource management code, the FIDC administrator must undertake to provide ANBIMA with the following information regarding the priced series:

- I. Amortization schedule with remuneration payment dates;
- II. Applicable indexing;
- III. Remuneration goal;
- IV. Extraordinary amortizations and corresponding new amortization timetables;
- V. Share registration information, including:
 - B3 Code
 - ISIN code

- FIDC name
 - Series name;
 - Series Number;
 - Issue Number;
 - CNPJ [EIN];
 - Offer type;
 - Existence or absence of a repurchase clause;
 - Repurchase formula;
 - Issuance Date;
 - Profitability Start Date;
- VI. Occurrence of valuation and settlement events.
- VII. Daily, updated value of the shares.

3. Flow of information submission from the administrators of the priced shares to ANBIMA

It is essential that the administrators send all the information indicated in accordance with item 2.2, plus any updates/changes that may occur, as soon as they become aware of them.

If recurrent errors in submission are proven, all the benchmark prices of the shares of such administrator calculated and disclosed by ANBIMA will no longer participate in the publication, until there is a readjustment of the submission flow.

In this case of missing information, until readjustment, only the indicative rates of the respective shares shall remain in the publication.

The situations set out above affect only the shares that are approved in the share selection process for pricing by ANBIMA, and that are part of the daily publication. The remaining shares of these administrators are not affected, and their information flows remain unchanged.

4. Methodology for Collecting and Calculating Prices

A file generated by an electronic spreadsheet, provided to price makers and containing the information, must be sent daily by 6:30 pm to ANBIMA via email. The Contributing Institutions, in turn, must send ANBIMA information on FIDC share prices on a daily basis, considering the following formats:

- a) Indicative buy and sell rates: firm buy and sell offers practiced, observed or evaluated by the institution as a benchmark for spreads, adjusted to reflect the market conditions of the respective benchmarks at their closing;

b) Indicative rates: these correspond to the rates assessed by the institution as the fair trading price for each share, according to the individual pricing models, regardless of whether the asset has been traded.

Note: In cases of reporting of Buy, Sell and Indicative rates for the same asset, the data must be consistent with one another.

4.1 Regarding the information sent, the Institutions Participating in the Pricing Sample must meet the following conditions:

- The rates submitted must be expressed:
 - I. As a percentage of the DI, spread, or surcharge, in the annual percentage format, base 252 business days, for assets remunerated according to the DI rate;
 - II. In points over NTN-B rates with the closest duration — except in specific cases, in which ANBIMA will indicate the benchmark — the durations of IPCA-indexed assets, calculated by the multiplicative method;
 - III. In rate (annual percentage, base 252 business days) for fixed-rate funds;
 - IV. Indicative rates must follow the standard lot trading concept;

4.2 Statistical filter: Box Plot

The criteria will be applied as long as there is a minimum number of 5 (five) pieces of information.

This methodology, which provides us with data dispersion, is an important tool for identifying outliers in a sample. To establish the limits, the first and third quartiles are worked with, according to the pre-established formulas listed below:

$$L1 = Q1 - 1.5 (Q3 - Q1)$$

$$L2 = Q3 + 1.5 (Q3 - Q1)$$

Where:

L1 – Lower limit;

L2 – Upper limit;

Q1 – First quartile of the total sample;

Q3 – Third quartile of the total sample.

Any observation outside this range will be eliminated.

4.3 Calculation of Indicative, Buy and Sell Rates

- I. To calculate the indicative rates, the moving average of three business days is calculated, as follows:
 - a. On each of the three days, if there are five or more pieces of information, the statistical filter is applied to the data and, if there are three or more pieces of information, the simple average is calculated;
 - b. The indicative rate will be the average of the three pieces of information found in (a);
 - c. When an amortization occurs or an NTN-B vertex is changed, the counting of days restarts and the average is calculated with less information until it is possible to once again accumulate three business days.

- II. Calculation of Buy and Sell Rates

The Buy and Sell Rates will be the simple average of the information that is not eliminated by the statistical filter, provided that at least three (3) observations remain.

If the conditions described below are met, the Buy and/or Sell Rates for that maturity date will not be disclosed:

- a. Buy rate is less than sell rate; and
- b. Equal buy and sell rates.

5. Information disclosure:

5.1. On a daily basis, ANBIMA will disclose prices and rates of shares of selected FIDCs in accordance with the procedures described in this document. In addition, ANBIMA may include the following in the disclosure:

- I. Share registration information, as received from the FIDCs Administrators;
- II. Share Amortization Schedules, used in converting rates into prices, as received from the FIDCs Administrators.
- III. Extraordinary amortizations and corresponding new amortization schedules.

6. Calculating prices

- I. Accuracy criterion

Critérios de cálculo para FIDC
(Arredondamento, truncagem, prestação de informações e número de casas decimais para os cálculos)

Variável	DI		Índices de Preços	Prefixada
	Spread	Percentual	IPCA	
Cota na Emissão	I - 8	I - 8	I - 8	I - 8
Cota Atualizada	T - 8	T - 8	T - 8	T - 8
Cota após amortizações	T - 8	T - 8	T - 8	T - 8
Taxa da Operação (%a.a.)	T - 4	T - 4	T - 4	T - 4
Taxa DI Over Cetip	I - 2	I - 2	--	--
Fator diário da Taxa DI Over Cetip	A - 8	A - 8	--	--
Fator diário do Percentual do DI	--	T - 16	--	--
Fator acumulado da Taxa DI Over Cetip ou do Percentual do DI no período	A - 8	A - 8	--	--
Fator de Juros ou Spread	A - 9	--	A - 9	A - 9
Fator DI * Fator de Juros ou Spread	A - 9	--	--	--
Expectativa de Juros Futuros nos Vértices do Fluxo	T - 2	T - 2	--	--
Taxa / Fator de Juros Termo entre os vértices	ST	ST	--	--
Projeções de Inflação ANBIMA	--	--	A - 2	--
Fator Pro Rata (Projeções)	--	--	T - 8	--
Fator Pro Rata (Variação do Índice de Preços)	--	--	T - 8	--
Fator Acumulado das variações de inflação	--	--	T - 8	--
Amortização (R\$)	T - 8	T - 8	T - 8	--
Fluxo de Pagamentos Descontados	T - 8	T - 8	T - 8	--
Cota de Mercado (PU)	T - 8	T - 8	T - 8	T - 8

Legenda: T = truncado; A = arredondado; I = Informado; ST = sem tratamento.

II. Calculation criteria

➤ General aspects of the calculations of the Unitary Price (PU) of FIDCs

- Rates will be used to calculate the Unitary Price always based on 252 business days;
- In cases where there is an event of early settlement or amortization, the due date

- will become the expected date of the event;
- In all cases, when the events provided for in the fund's regulations (interest payments, inflation correction of the nominal value, amortization, etc.) fall on non-business days, the payment date will be the immediately subsequent business day.
 - The correction of the VNA and the share par must fully follow what is described in the regulation;
 - In cases where there are events scheduled without a defined date or events not scheduled in the regulations, the setting up of flows shall respect the financial settlement date of these events, upon their disclosure;
 - The setting up of payment flows shall consider an interest curve for the vertices of future payments. When they are greater than the date of the last DI Futuro available, this value will be repeated;
 - The shares corrected for inflation according to the IPCA shall have their nominal issue values (VNE) adjusted for inflation (VNA). The calculation of the VNA is summarized to the share issue value, discounting the amortization payment (if any), adjusted by the monthly change in the index pro-rated by the business days, when available, and, when not available, by the projected monthly change in the index pro-rated by the business days, calculated and published by ANBIMA, always observing the validity dates of the projections and the anniversary dates of these shares.
 - The anniversary date is considered to be the expiration date or the day informed as a reference date for using the price index, in each month.
 - The amortization of shares, pegged to the price index, when adjusted for inflation, will be corrected following the same calculation criteria as the correction of the Nominal Value;

➤ FIDIC Calculation Formulas

Shares remunerated according to the DI rate

Shares remunerated by the DI rate do not have their nominal values adjusted for inflation (VNA); therefore, except for the shares with principal amortization, the VNA will be the same as VNE;

- The calculation of interest follows the formula below:

$$PUPAR = VNA \times (FatordeJuros)$$

$$FatordeJuros = \prod_{i=1}^n \left\{ \left[\left(\frac{1 + TaxaDI_i}{100} \right)^{\frac{1}{252}} - 1 \right] \times \frac{P}{100} + 1 \right\}$$

$$\text{Fator de Juros} = \left\{ \prod_{i=1}^n \left[\left(1 + \frac{\text{Taxa DI}_i}{100} \right)^{\frac{1}{252}} \right] \right\} \times \left[\left(1 + \frac{S}{100} \right)^{\frac{du}{252}} \right]$$

Where:

PU PAR – nominal issue value, minus amortizations, if any, plus the remuneration accumulated since the last amortization event up to the reference date, calculated to eight decimal places, without rounding off;

VNA – Inflation-adjusted nominal value of the share, calculated to eight decimal places, without rounding off. This will be equal to the nominal issue value (VNE) when there have been no amortizations;

VNE – Nominal value on the issue date or balance of the nominal value of the shares (nominal value remaining after amortization, compounding and adjustment for inflation in each period), calculated to eight decimal places, without rounding off.

Amortization – in percentages or fixed amounts, defined in the regulation, incident on the VNE or Nominal Value Balance, calculated to eight decimal places, without rounding off;

Interest Factor – accumulated factor of variation of the DI Rate, compounding the percentage (P), or the Spread (S), between the start date (inclusive) and end date (exclusive) of the remuneration capitalization period, calculated to nine decimal places, rounded off;

DI Rate – rate calculated based on fixed-rate Interbank Deposit issuance operations, agreed for one business day, as a percentage per annum, base 252 days, calculated and published by B3 every day, to two decimal places, rounded off;

P – Percentage of the DI Rate (remuneration) defined in the regulation, to two decimal places;

S – Spread above the DI Rate (remuneration) defined in the regulation, to four decimal places

du – number of business days between the date of the last amortization event and the reference date.

Remarks:

- a) The factor resulting from the expressions (product of the sequence of the daily factors) is considered to have sixteen (16) decimal places, without rounding off;
- b) Once the daily factors are accumulated, the resulting factor is considered “DI factor” with eight (8) decimal places, rounded off.

$$\prod_{i=1}^n \left\{ \left[\left(1 + \frac{\text{TaxaDI}_i}{100} \right)^{\frac{1}{252}} - 1 \right] \times \frac{P}{100} + 1 \right\} e^{-\sum_{i=1}^n \left\{ \left[\left(1 + \frac{\text{TaxaDI}_i}{100} \right)^{\frac{1}{252}} \right] \times \left[1 + \frac{S}{100} \right]^{\frac{du}{252}} \right\}}$$

- The projected calculation of the remuneration of shares based on DI uses an interest expectation (Exp), base 252 business days, for each event date. This rate is obtained from the Adjustment DI Rates of the maturities with outstanding contracts, published daily by B3, and, when necessary, it is interpolated exponentially for the respective payment dates. The expectation is used as an adjustment to the accumulated spread, and for the first interest maturity that appears in the flow, the formulas are as follows:

$$\text{PagamentoJuros}_{1^{\text{vencimento}}} = [VNA \times (\text{fatorde juros} - 1)] X \left[\left[\left(\frac{\text{Exp}}{100} + 1 \right)^{\frac{1}{252}} - 1 \right] \times \frac{P}{100} + 1 \right]^{du}$$

(For shares remunerated by a percentage of the DI); and

$$\text{PagamentoJuros}_{1^{\text{vencimento}}} = [VNA \times (\text{fatorde juros} - 1)] X \left[\left[\left(\frac{\text{Exp}}{100} + 1 \right)^{\frac{1}{252}} \right] \times \left[\frac{S}{100} + 1 \right]^{\frac{1}{252}} \right]^{du}$$

(For shares remunerated by the DI rate plus a spread).

Where:

du – number of business days between the reference date and the next interest payment.

- For the other amortization dates in the flow, an adjustment is made to the expectation for the terms between payments. To this end, the term rate of the interest curve in the DI Rate (expectation) is calculated, compounding the remuneration on the index, defined in the regulation:

$$\text{Termo}_i = \frac{\left[\left[\left(\frac{\text{Exp}_i}{100} + 1 \right)^{\frac{1}{252}} - 1 \right] \times \frac{P}{100} + 1 \right]^{du_i}}{\left[\left[\left(\frac{\text{Exp}_{i-1}}{100} + 1 \right)^{\frac{1}{252}} - 1 \right] \times \frac{P}{100} + 1 \right]^{du_{i-1}}}$$

(for shares remunerated by a percentage of the DI); and

$$\text{Termo}_i = \frac{\left[\left[\left(\frac{\text{Exp}_i}{100} + 1 \right)^{\frac{1}{252}} \right] \times \left[\frac{S}{100} + 1 \right]^{\frac{1}{252}} \right]^{du_i}}{\left[\left[\left(\frac{\text{Exp}_{i-1}}{100} + 1 \right)^{\frac{1}{252}} \right] \times \left[\frac{S}{100} + 1 \right]^{\frac{1}{252}} \right]^{du_{i-1}}}$$

(for shares remunerated by the DI rate plus a spread).

Where:

dui and dui-1 – business days between the dates of each future compensation payment event.

- The calculation of depreciation will follow the formulas described in the regulations.
- The Unitary Price of the operation is the sum of the amortization payments, discounted (brought to present value) by the Indicative Rate published by ANBIMA.

The formula is as follows:

$$PUdaOperação = \sum_{i=1}^n \left(\frac{\text{PagamentoJuros}_i + \text{PagamentoPr incipal}_i}{\left[\left[\left(\frac{\text{Exp}_i}{100} + 1 \right)^{\frac{1}{252}} - 1 \right] \times \frac{\text{TaxaIndicativa}}{100} + 1 \right]^{du_i}} \right)$$

Shares remunerated according to the IPCA

- Inflation adjustment of the VNA and amortizations, if any, will have to observe the anniversary dates of each fund, as well as the periods of incidence of the closed index and the projections for the index published by ANBIMA, as described below:

Calculating VNA

$$VNA = VNE \times C$$

Where:

VNA= Adjusted Nominal Value to eight decimal places, without rounding off;

VNE = Nominal Unitary Value on the date of issue, on the date of payment or on the date of the last amortization or compounding of the remuneration, if any, whichever occurs last;

C= Accumulated change factor of the price index, calculated as follows:

$$C = \prod_{k=1}^n \left[\frac{[NI]_k}{[NI]_{(k-1)}} \right]^{(dp/dt)}$$

where:

NI_k = value of the index number of the month prior to the month of adjustment, or following the lag described in the regulation;

NI_{k-1} = value of the IPCA index number of the month prior to month “k”;

dp = number of business days between the asset’s last anniversary date and the calculation date, limited to the total number of business days of validity of the price index, where “dp” is a whole number;

dt = number of business days contained between the last and the next anniversary date of the asset, where “dt” is a whole number;

The expression with eight decimal places, without rounding off.

VNA after the first business day following the asset’s anniversary date up to the next release of the closed IPCA.

In this case, the IPCA projection published by ANBIMA’s Macroeconomic Committee is used as a correction factor for the VNA, pro-rated by the business days of the period, to eight decimal places, without rounding off.

$$VNA = VNA_{\text{da última data de aniversário do ativo}} \times \left(\frac{\text{Projeção IPCA}}{100} + 1 \right)^{\left(\frac{dp}{dt} \right)}$$

Where:

dp – number of business days between the asset’s last anniversary date and the calculation date, where “dp” is a whole number;

dt – number of business days contained between the last and the next anniversary date of the asset, where “dt” is a whole number;

The Association's Price and Indexes department is available to clarify any doubts, by calling or emailing gepri@anbima.com.br.