

# CONCEPTS AND PRACTICES MANUAL FOR B3 INDICES

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## 1 CONCEPTS

### 1.1 OUTSTANDING SHARES - FREE FLOAT

We consider equities available for trading (free float) to be those that the company publishes on the Securities and Exchange Commission of Brazil (CVM) website and on the B3 portal, in accordance with CVM Instruction 480 of December 07, 2009, which establishes that companies submit these data on a Reference Form.

For the calculation of B3 indices with float-adjusted weighting, free float is defined as outstanding equities of the type and class appropriate for each index portfolio.

In cases of units composing an index, the theoretical amount in free float of a unit will be limited by the theoretical maximum quantity that is possible to compose considering the proportion available in free float between common and preferred shares. As for the selection of assets, between shares or units, only the most liquid asset will be included in the indexes.

### 1.2 TOTAL RETURN INDICES

A total return index is a type of equity index that measures not only the price movements of component stocks of the index over time, but also the impact that the distribution of dividends by issuers might have on the index return.

Thus:

- The types of earnings that may be reinvested into the index are:
  - Dividends;
  - Interest on capital and cash income (net of tax);
  - Subscription rights (received into the index at the cum-rights price, net of the theoretical ex-right price);
  - In-specie distributions received into the index for any type of security delivered other than shares held; and

- Subscription rights distributions received into the index for any type of security delivered other than shares held;
- Securities received as bonus issues or stock splits are received into the index.
- Stocks of the same type and class being offered for subscription at an advantageous price for investors are received into the index.
- After the close of the last trading session, cash distributions are received into the index, so their cash value is allocated to every other component stocks in proportion to their relative weight within the index.

The total value of the portfolio is then recalculated on the basis of the theoretical ex-price for the constituent distributing dividends, while the index's divisor is adjusted so there is continuity in index values.

Where corporate action taken by shareholders ultimately repeals or only partially confirms an earlier interim in-specie distribution, this adjustment will only be made on the subsequent rebalancing period of the distribution, as B3 receives notice from the issuer notifying of such shareholder corporate action.

### 1.3 CALCULATION FORMULA FOR “THEORETICAL EX-PRICE”

$$P_{ex} = \frac{P_c + (S * Z) - D - J - Rend - V_{et}}{1 + B + S}$$

Where:

$P_{ex}$  is the theoretical ex-price.

$P_c$  is the “cum-price” at the close of trading on the day prior to the ex-date.

$S$  is the subscription ratio, as a decimal number.

$Z$  is the share issue price to be subscribed, in Brazilian Reals.

$D$  is the dividend, in Brazilian Reals.

$J$  is the interest on capital, in Brazilian Reals net of tax.

$Rend$  is the cash income, in Brazilian Reals net of tax.

$V_{et}$  is the theoretical fair value per security from distributions in debt or equity securities other than the constituent stock, including shares of a kind or class other than the constituents.

$B$  is the distribution ratio in a bonus issue or stock split, as a decimal number.

## Notes

1.  $V_{et}$  is calculated taking into account the proceeds from a hypothetical sale of the security delivered in an in-specie distribution (any debt or equity security other than the constituent, including shares of a kind or class other than the constituents, and debentures, stocks of another issuer, etc.). For example, if Company A distributes at no cost for shareholders shares of Company B whose per-share market or fair value is R\$5.00, at a ratio of 1-for-2 shares held in Company A, then  $V_{et}$  shall equal R\$2.50.
2. In the case of subscriptions, the theoretical ex-price will only be determined if current shareholders are given preemptive rights for new securities, and then only if the security can be purchased at a discounted or otherwise advantageous price for the investor.

## 1.4 PENNY STOCK

A penny stock is defined as a share quoted at less than R\$1.00.

In applying an index methodology, we treat as penny stocks any constituent whose average weighted value during the preceding portfolio cycle (not including the last day of the cycle, prior to the rebalance) was lower than R\$1.00 (one Brazilian Real). If in the course of the preceding cycle, a reverse stock split has been implemented by the contributor of a constituent, the constituent's per-share value (quoted in terms of cancelled shares to surviving shares) is proportionally increased for the entire cycle now under review.

## 1.5 TRADABILITY RATIO

We calculate tradability ratio pursuant to the formula set forth below.

$$IN = \frac{\sum_{i=1}^P \sqrt[3]{\frac{n_a}{N} \times \left(\frac{v_a}{V}\right)^2}}{P}$$

Where:

$IN$  is the tradability ratio.

$n_a$  is the number of trades in stock “a” (by round lot) on the cash equity market.

$N$  is the overall number of trades (by round lots) on the cash equity market operated by B3.

$v_a$  is the total value traded in stocks “a” on the cash equity market (round lots).

$V$  is the overall value traded on the cash equity market operated by B3 (round lots).

$P$  is the total number of trading days within the calculation period.

### Notes

1. In calculating the tradability ratio, we will not compute private transactions in the relevant constituent.
2. The tradability ratio per constituent is calculated on a daily basis. This is then added to the daily tradability ratios calculated for the number of trading sessions previously elapsed within the portfolio cycle, with the sum being divided by the total number of trading sessions within the relevant portfolio cycle.
3. The tradability ratio information does not take into account the number of trades in any constituent as of the last two days of the previous portfolio cycle.

4. If any corporate action occurs over the course of a portfolio cycle, by virtue of which a substantial portion of a constituent's free float is pulled off the market, resulting in removal from the index, or otherwise diminishing the constituent's theoretical quantity in the index, at subsequent rebalancing dates, the trading track record for that constituent will be adjusted to account for the reduction in free float.
5. The Tradability Ratio is calculated for **(i)** equities and units; and **(ii)** real estate investment funds (FII). At this time, there is no Tradability Ratio for sponsored or unsponsored BDRs.
6. In the case of the Tradability Ratio for equities and units, trade-related data only takes into consideration cash market transactions in equities and units (round lots). In the case of the Tradability Ratio for real estate investment funds, trade-related data only takes into consideration cash market transactions in real estate investment funds (round lots).

## 2 PRACTICES

### 2.1 INDEX CALCULATIONS

On any given day, B3 calculates the indices at thirty-second intervals, capturing the latest changes in the market prices for constituent stocks based on trades (by round lots) carried out on the cash equity market.

An index would typically be calculated pursuant to the formula set forth below.

$$\acute{I}ndice_{(t)} = \frac{Valortotaldacarteira}{Redutor} = \frac{(\sum_{i=1}^n Pi_t * Qi_t)}{\alpha}$$

Where:

$\acute{I}ndice_{(t)}$  is the index value at time instant t.

n is the total number of constituent stocks in the index.

$Pi_t$  is the latest price for constituent i at time instant t.

$Q_{i_t}$  is the total number of constituent  $i$  shares (or units) at time instant  $t$ .

$\alpha$  is the divisor used to adjust the theoretical portfolio value to the index value for continuity.

## 2.2 PORTFOLIO CYCLE

The index theoretical portfolio observes a four-month portfolio cycle from January through April, May through August, and September through December. Each cycle starts on the first Monday of the first month of each cycle (or the immediately subsequent business day, if the Bovespa segment markets are closed for business on that Monday). Rebalancing takes place at the end of each portfolio cycle, observing the concepts and practices set forth herein.

It should be noted that in float-adjusted market capitalization-weighted indices, the theoretical number of equity securities in the index portfolio is calculated at the rebalancing date pursuant to the particular methodology applicable to each index, based on the free-float information each company contributing a constituent has reported effective as of the second-to-last day of the previous portfolio cycle. Typically, additions and deletions to the index over the course of each cycle occur only in the cases observed herein.

## 2.3 THEORETICAL PORTFOLIO PREVIEWS

B3 regularly releases three previews anticipating the likely index membership for the next cycle, as follows:

- As of the first business day of the month prior to the first month of the next portfolio cycle;
- As of the first trading session after the 15<sup>th</sup> of that same month; and
- Before the rebalancing, as of the last two days of closing the portfolio cycle.



In exceptional cases, B3 may release these previews on different dates or move the release dates forward.

Please note that the definition of the assets to be included/excluded and the respective theoretical amounts of the assets in the new composition will be established on the basis of calculations performed after the third portfolio preview.

## **3 SPECIAL PRACTICES**

### **3.1 Suspended trading**

In the event of a temporary halt in trading in any particular stock which is an index constituent, as a rule the stock would retain index membership, quoted at the last price traded before the suspension.

However, the constituent will be removed from the index if not cleared for trading within fifty (50) days after the trading suspension, or at such other time, at B3's discretion, as appropriate to ensure the index integrity, continuity, replicability and investability.

### **3.2 Stocks designated to be under exceptional trading status**

The index universe excludes shares designated to be under exceptional trading status, which means shares or units representing shares of issuers under in-court or out-of-court reorganization, as well as shares otherwise so designated pursuant to B3 rules.

Where a constituent starts trading under exceptional status, it will be deleted from the index at the close of trading as of the first day following such designation.

Constituent stocks that continue to trade under exceptional status or remain suspended from trading for a sustained period lose eligibility for index membership. However, eligibility may be restored after these constraints are lifted. Thereafter, in verifying qualifications for inclusion in the index, we will take into account their trading track record after the date when B3 deems the relevant constraint to have been lifted.

### 3.3 Exclusion or non-inclusion at B3's discretion

B3 may remove a constituent from the index or otherwise refuse membership to any particular candidate stock if it so deems appropriate, at its sole discretion, to ensure the index integrity, continuity, replicability and investability.

### 3.4 Constituent price upon removal from the index

The price at which a constituent is removed from the index portfolio is determined by B3, at its discretion, preferably by means of a special trading process, except that B3 may arbitrate the removal price if such were to be deemed appropriate in order to ensure the index integrity, continuity, replicability and investability.

### 3.5 Adjustments to account for corporate restructuring transactions involving constituent stocks, i.e., transformation of corporate type, share-for-share merger, merger or spin-off.

#### I. Corporate restructuring announcement/implementation.

The mere announcement that an issuer plans to implement a corporate restructuring process entails no changes to the status of the constituent in the index.

Corporate restructuring processes from which one or some new companies emerge: following the corporate restructuring process being deemed effective from a corporate law standpoint, for as long as certain required registrations and permits are still pending issuance to the companies surviving or emerging from the corporate restructuring process, such as transformation of corporate type, merger, spin-off or equivalent corporate action, the companies in the restructuring process are treated as a single entity, with the original constituent retaining index membership (designated as “under reorganization”).

#### II. Listing of stocks of issuers emerged from a corporate restructuring process.

The theoretical index portfolio of any company emerged from the corporate restructuring of a constituent's contributor are received into the index at the time of their admission for trading, provided that the stock is within the theme of the index. At such point, the relative weight of the original constituent stock is reviewed to account for the effects of the corporate restructuring process in terms of number of shares in free float.

Additionally, on a case-by-case basis, where there is no market-determined price available for the newly emerged stocks, the shares are added to the index at a theoretical price determined on the basis of the net equity effects of the corporate restructuring process.

### III. Subsequent four-monthly index rebalancing

In verifying qualifications for inclusion in an index as a standalone constituent, and determining the appropriate treatment for stocks emerged from corporate restructuring processes which cumulatively meet all of the membership eligibility requirements, the following practices will apply:

- The original constituent and the stocks of new companies emerged from the corporate restructuring process are treated as a single entity, with the collective trade-related data being taken into account for purposes of determining the Tradability Ratio;
- B3 at its discretion determines the relative weight of each of the new stocks within an index on the basis of their individual tradability ratios over the period elapsed from the date of first inclusion in the index or the level of their individual market prices;
- B3 will remove from the index any new stocks whose individual Tradability Ratio fails to qualify them for membership, based on both the relevant active-trading requirement and the individual Tradability Ratio.

**Note:** Where the implementation date of a corporate restructuring process is less than thirty (30) consecutive days away from the next rebalancing date, the price

at which the newly emerged stocks were received in the index provided one is available, whether market-determined or, otherwise, a regularly calculated theoretical price remains unchanged until the subsequent rebalancing, when the ordinary review and adjustment processes take place.

#### **IV. Adjustments related to mergers involving issuers of constituent stocks.**

##### **Merger where both mergor and mergee contribute stocks to the index,**

The index portfolio retains the mergor stocks, with the theoretical quantity of component shares being adjusted to reflect the effects of the merger.

##### **Constituent's contributor absorbs all or some of the net assets of a non-contributing company through merger**

The index portfolio retains the mergor stocks with the theoretical quantity of component shares being calculated to reflect the effects of the merger resulting from the corporate restructuring process.

##### **Merger where mergee is a constituent contributor and mergor a non-contributing company.**

Such events are considered on a case-by-case basis, and the appropriate treatment determined pursuant to the eligibility and membership requirements, having regard to applicable listing requirements established by B3, which at its discretion may either:

- Remove the mergee constituent from the index theoretical portfolio, such that its relative weight is proportionally redistributed amongst the other constituents; or
- Include the non-component mergor shares in the index, with adjustments as necessary for the theoretical quantity to reflect the applicable share exchange ratio.

## Share-for-share mergers

In any share-for-share merger involving one or more companies contributing a constituent to the index, the appropriate treatment is determined pursuant to the practices set forth herein, as applicable.

### V. Adjustments related to share exchanges

#### Share exchange where both companies contribute stocks to the index.

The theoretical quantity of each stock in the index will be adjusted, and the float-adjusted market-capitalization weighting calculated to reflect the basis on which the share exchange has been implemented.

#### Exchange of component shares for non-component shares.

Such events are considered on a case-by-case basis, and the appropriate treatment determined pursuant to the eligibility and membership requirements, having regard to applicable listing requirements established by B3, which in its discretion may:

- Remove the constituent from the index theoretical portfolio, such that its relative weight is proportionally redistributed amongst the other constituents; or
- Include the non-component shares in the index, with adjustments, as necessary for their theoretical quantity to reflect the applicable exchange ratio.

### 3.6 Adjustments related to reductions in free float

In addition to the above, in the event a substantial reduction in free float arises from other developments relative to any constituent stock, B3 will make adjustments as appropriate to ensure the index integrity, continuity, replicability and investability.

It should be noted that at subsequent rebalancing dates, the trading track record for that constituent is adjusted to account for the reduction in free float.

### **3.7 Adjustments related to initial primary-market or secondary-market equity offerings which entail a change in free float**

The theoretical quantity of component shares will be adjusted to add the new shares to the free float following the offering, at the close of the seventh trading day after new shares begin trading or otherwise the first trading day after the shares are readily available in the market if this occurs on a different date.

In cases of primary offers, it will be added to the theoretical amount in the current portfolio to reflect the event. In cases of secondary offers, if it occurs from a controller, it will be added to the theoretical quantity in the current portfolio. If the event occurs from a shareholder outside the control group, it is considered that the assets were already part of the free float, and therefore, the theoretical amount in the portfolio remains unchanged.

Note: In the event that the seventh day occurs less than 15 (fifteen) calendar days to the next rebalancing date, the value of the assets involved, provided that it is regularly calculated and available, will remain computed in the portfolio until the next rebalancing, when regular adjustment procedures will be performed.

## **4 INDICES GOVERNANCE**

The indices developed, compiled, and released by B3 (the INDICES), as comprising their name and logo, are registered trademarks of B3 or the object of trademark applications it has filed with the Brazilian National Institute of Industrial Property (INPI).

B3 creates, maintains, compiles, calculates, sponsors, and publishes the INDICES using and applying proprietary methods and criteria, which were created, developed and are used or applied using its own and considerable efforts, time and material resources. The INDICES and any rights thereto,

including intellectual property rights, are the exclusive property of B3, and may not be used in any way, shape or form, by any third party, other than under license of, or by express permission given by B3, pursuant to a properly executed instrument.

B3 has established a Work Group which is responsible for assessing the need, convenience and timing for adopting modifications and improvements in index methodologies and practices related to the indices it owns.

B3 may from time-to-time review, amend and improve the concepts and practices set forth herein, with the objective of enhancing index methodologies and ensure it operates orderly and efficient markets.

B3 will address and settle omissions herein.